2007

ENVIRONMENTAL REVIEW COMMISSION

JANUARY 17, 2007

MINUTES

For Membership List and Statutory Authority,

See ERC minutes of October 9, 2006

NCDENR
North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

February 12, 2007

The Honorable Charles A. Albertson
625 Legislative Office Building

The Honorable Daniel G. Clodfelter
408 Legislative Office Building

BY HAND DELIVERY

The Honorable Pryor Gibson
419-A Legislative Office Building

Gentlemen:

Thank you for your letter of January 31, 2007 requesting specific proposals to improve the permitting and management of solid waste landfills. The Division of Waste Management is developing specific recommendations, but has not yet completed work on those proposals.

As you may recall, the Division reported to the Environmental Review Commission in January on its survey of solid waste management practices in sixteen eastern seaboard states. Since that meeting, the Division has been evaluating standards and practices identified in the survey for possible use in North Carolina. The Division also needed to do more work to fully develop some of the ideas for improvement in landfill permitting and management previously presented to the ERC. A few issues required additional legal research.

Work on the recommendations is nearing completion and the Department should be ready to provide specific proposals for the Environmental Review Commission's consideration by February 16, 2007.

I appreciate the ERC's strong interest in the environmental and public health

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implications of landfill construction and management. I look forward to working with you on this important issue.

Sincerely,

William G. Ross, Jr.
Secretary

Cc: Senator Marc Basnight
Rep. Joe Hackney
Dexter R. Matthews, Division of Waste Management
George Givens, ERC Counsel
Dorothy M. Waugman, Commission Clerk

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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31 January 2007

The Honorable William G. Ross, Jr.
Secretary of Environment and Natural Resources
1601 Mail Service Center
Raleigh, North Carolina 27699-1601

By Hand Delivery and Electronic Mail

Dear Secretary Ross:

As you are aware, the 2006 General Assembly imposed a 12-month moratorium on the issuance of permits by your Department for new landfills in the State. The legislation that imposed this moratorium, S.L. 2006-244 directed the Environmental Review Commission (ERC), "*with the assistance of the Division of Waste Management of the Department of Environment and Natural Resources*," (emphasis added) to study issues related to solid waste and report its findings and recommendations to the 2007 Regular Session of the General Assembly.

The ERC has devoted a great deal of time and attention to the study of solid waste and, consistent with the legislative directive, has sought and received the assistance of the Division of Waste Management and the Department. This assistance has been generously provided and has been quite valuable to the ERC but is, regrettably, incomplete for the following reason. At the 17 January 2007 meeting of the ERC, we expected to hear specific legislative proposals from the Division and the Department that would address many of the outstanding concerns over landfills and other solid waste management issues that have been considered by the ERC at earlier meetings. Our expectation was that the presentation of these proposals would provide the ERC with the opportunity to evaluate them for possible inclusion in the report of the ERC to the General Assembly.

Instead, the ERC was presented with general recommendations that, although helpful, lack the detail and specificity required of legislative proposals. This was particularly frustrating because we believe that the general recommendations aim in the right direction and would, if presented as specific legislative proposals, address many of the solid waste management problems that led to the moratorium. In other words, in our opinion many, if not all, of the general recommendations, if presented as specific legislative proposals, would be adopted as recommendations by the ERC and ultimately would be enacted by the General Assembly.

Accordingly, pursuant to S.L. 2006-244, G.S. 120-19 and G.S. 120-70.44 we ask that you immediately provide the ERC with specific legislative proposals that, if enacted, would implement the general recommendations presented to the ERC by Assistant Secretary Smith on 17 January 2007.

We understand that specific legislative proposals are being withheld while the Administration determines its position on the issues involved. We welcome the Administration's interest in these issues and we understand and respect the right of the Administration to develop its own policy recommendations at its own pace. We do not wish to interfere with that process. Our request is not for policy recommendations or for the Administration's position, but rather is for specific legislative proposals that would implement each of the general recommendations that have already been presented publicly to the ERC. Our understanding is that these proposals either have already been drafted or are in the process of being drafted and could be made available to the ERC more or less immediately.

In this same vein, we note that G.S. 130A-309.06(c) directs the Department of Environment and Natural Resources to report to the ERC on or before 15 January of each year on the status of solid waste management efforts in the State. This annual report is to include, among other information, "[r]ecommendations to the Governor and the Environmental Review Commission to improve the management and recycling of solid waste in the state, including any proposed legislation to implement the recommendations." (G.S. 130A-309.06(c)(7)). The ERC has not received the report due 15 January 2007. We request that you provide this report, including proposed legislation, without further delay.

As you are aware, the 2007 Session of the General Assembly in now underway. The ERC needs to complete its work. Our legislative leadership has asked us to move swiftly on the landfill issue. We in turn have directed our staff to begin working with legislators and interested parties to develop a comprehensive solid waste management bill. We urgently need the best thinking that your Department can provide to us on this issue now, and we welcome the continued involvement of your Department as we all move forward on this issue in the coming weeks and months.

Your prompt attention to this matter will be most appreciated.

Respectfully yours,

Charles W. Albertson, Cochair

Pryor A. Gibson, Cochair

Daniel G. Clodfelter, Cochair

c: Marc Basnight, President Pro Tempore of the Senate
Joe Hackney, Speaker of the House of Representatives
Robin W. Smith, Assistant Secretary for Environment
Dexter R. Matthews, Director, Division of Waste Management
George F. Givens, Commission Counsel
Dorothy M. Waugman, Commission Clerk

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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30 January 2007

Don K. Enichen, Contracting Officer
RTI, International
3040 Cornwallis Road
P.O. Box 12194
Research Triangle Park, NC 27709-2194

By First-Class and Electronic Mail

Re: RTI Proposal No. 0280700.388 in response to the Environmental Review Commission of the North Carolina General Assembly Request for Proposal to ***"Report on Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients"***

Dear Mr. Enichen:

This will confirm our telephone conversation earlier today. I am pleased to inform you that the Environmental Review Commission has accepted the RTI, International proposal referenced above. Note that this acceptance is subject to the approval of the Legislative Services Commission.

Enclosed is a draft contract for your review. Please advise me of any changes that RTI, International believes are necessary or desirable. Note in particular the highlighted provisions of the contract.

I look forward to hearing from you shortly.

Respectfully yours,

George F. Givens
Commission Counsel

Attachment (1)

cc: Senator Charles W. Albertson
Senator Daniel G. Clodfelter
Representative Pryor A. Gibson
Jeffrey W. Hudson
Dorothy M. Waugaman

State of North Carolina

County of Wake

CONTRACT FOR A STUDY OF THE COSTS ASSOCIATED WITH PROVIDING NUTRIENT CONTROLS THAT ARE ADEQUATE TO OFFSET POINT SOURCE AND NONPOINT SOURCE DISCHARGES OF NITROGEN AND OTHER NUTRIENTS.

THIS AGREEMENT, made and entered into this the [redacted] day of February, 2007, by and between RTI International, hereinafter referred to as the "RTI", and the Environmental Review Commission, hereinafter referred to as the "ERC", with the approval of the Legislative Services Commission established pursuant to Article 7 of Chapter 120 of the General Statutes, hereinafter referred to as the "Commission.

WITNESSETH:

Whereas, S.L. 2006-215 became law on August 8, 2006.

Whereas, Section 2 of S.L. 2006-215 directs the ERC, with the assistance of the Division of Water Quality of the Department of Environment and Natural Resources, to study issues related to the nutrient offset payment program and to specifically study the costs associated with providing nutrient controls that are adequate to offset point source and nonpoint source discharges of nitrogen; whether nutrient offset payments should be authorized for additional nutrients, including phosphorus; and whether the nutrient offset program should be expanded to other areas of the State.

Whereas, Section 2 of S.L. 2006-215 directs the ERC to report its findings, together with any recommended legislation, to the 2007 General Assembly.

Whereas, the ERC issued a Request for Proposal on 15 December, 2006, seeking a consultant to:

1. Estimate the length of time that the existing North Carolina Nutrient Offset Fee Payments Program (NOFPP) will be able to continue as a

completely self-sustaining program capable of providing adequate mitigation for the additional nitrogen loading purchased at the current cost of $11 per pound of nitrogen.

2. Study the costs associated with providing nutrient controls that are adequate to offset point source and nonpoint source discharges of nitrogen in the Neuse River Basin.
3. Study how a total nutrient offset payment fee should be determined.
4. Provide information and outline options, including the advantages and disadvantages of each option, to assist the ERC in deciding whether nutrient offset payments should be authorized for additional nutrients, including phosphorus, and whether the NOFPP should be expanded to other river basins, including the Tar-Pamlico River Basin.
5. Evaluate the ability of public entities other than the Environmental Enhancement Program (EEP) and private entities to provide nutrient offsets.
6. Prepare a comprehensive review and discussion of the types of potential nutrient mitigation efforts available.

Whereas, RTI's response has been accepted by the ERC.

Whereas, the parties to this agreement desire to reduce the terms of their agreement to writing.

NOW THEREFORE, for and in consideration of the mutual promises made to each other, as hereinafter set forth, the parties do hereto mutually agree as follows:

1. Performance of Study

RTI shall perform services in a manner consistent with the degree of care and skill ordinarily exercised by members of the same profession and consistent with this agreement to accomplish the study described in the Request for Proposal, Appendix B. RTI agrees to perform the study as provided in RTI's response, Appendix C. In the event of a conflict of terms between this agreement, the Request for Proposal, and RTI's response, the provisions of the designated documents shall control in the following order: First, this agreement; second, the Request for Proposal; and third, RTI's response.

2. Contract Period and Schedule

RTI agrees that time is of the essence in the completion of this agreement and agrees that services under this agreement are to commence on the execution date of this agreement and shall terminate on May 1, 2007, or upon the filing of the final report, whichever occurs first, unless extended or terminated as provided herein.

RTI agrees to the following reporting schedule:

First Phase Report:	16 February 2007
Presentation of draft final results:	20 April 2007
Final Report:	1 May 2007

3. Contract Administrator

George F. Givens, Commission Counsel, ERC, is designated as the Contract Administrator for the ERC. The contract administrator shall be responsible for ensuring that RTI complies with the terms, conditions, and performance specifications set forth in this contract, and an evaluation of RTI's performance. The ERC has complete discretion in replacing the contract administrator with another person of its own choosing. The ERC shall notify RTI of any replacement of the contract administrator.

4. Availability of Funds

The payment of compensation specified in this agreement, its continuation, or any renewal or extension thereof, is dependent upon and subject to the allocation or appropriation of funds to the ERC for the purposes set forth in this agreement.

5. Payments

ERC shall make payments to RTI for its services as provided below:

a. An invoice for the first payment of thirty percent (30%) of the contract amount twenty-seven thousand nine hundred and forty dollars ($27,940) may be submitted by RTI upon signing of the contract. Payment shall be made within thirty (30) days of approval of the invoice by the Contract Administrator.

b. An invoice for the second payment of thirty percent (30%) of the contract amount twenty-seven thousand nine hundred and forty dollars ($27,940) may be submitted by RTI upon submittal of a progress report five weeks after the contract signing date. Payment shall be made within thirty (30) days of approval of the invoice by the Contract Administrator.

c. An invoice for the third and final payment of forty percent (40%) of the contract amount thirty-seven thousand two hundred fifty-three dollars ($37,253) may be submitted by RTI upon delivery of the final report. Payment shall be made within thirty (30) days of approval of the invoice by the Contract Administrator.

Notwithstanding any other provision of this contract, total payment under this contract, including expenses, shall not exceed ninety-three thousand one hundred and thirty-three dollars ($93,133) for services described in this agreement.

6. Additional Contract Expenses

The contract for the project is not a time and materials agreement. Any expenses of RTI in addition to those contracted for are the sole responsibility of RTI.

7. Independent Contractor

RTI shall be considered to be an independent contractor and shall be wholly responsible for the work to be performed and for the supervision of its employees. RTI shall hold and save the ERC harmless from any and all claims, demands, or causes of action that may be asserted due to the production activity of RTI under this contract. RTI represents that it has, or will secure at its own expense, all personnel required in performing the services under this agreement. These employees shall not be employees of, or have any individual contractual relationship with the ERC or the Legislative Services Commission.

8. Key Personnel

RTI shall not substitute key personnel designated in the RTI's response and assigned to the performance of this contract without prior written approval by the ERC. The individuals designated as key personnel for purposes of this contract are those specified in the RTI's response.

9. Subcontracting

Work proposed to be performed under this contract by RTI or its employees shall not be subcontracted without prior written approval of the ERC.

10. Confidentiality

RTI agrees to protect the confidentiality of any files, data, or other materials provided by the ERC and to restrict their use to the purpose of performing the contract. RTI shall comply with the provisions of Article 17 of Chapter 120 of the General Statutes of North Carolina regarding confidentiality between the RTI and members of the General Assembly. For purposes of this paragraph only, employees of RTI shall be considered "legislative employees" as defined in General Statute 120-129.

11. Care of Property

RTI agrees to be responsible for the proper custody and care of any files or other property furnished by the ERC. RTI shall take all steps necessary to safeguard any property, including data, files, reports, or other information from loss, destruction, or erasure. Any costs or replacement expenses, or damages resulting from the loss shall be borne by RTI when the loss occurred through its negligence.

12. Copyright

No deliverable items produced in whole or in part under this agreement shall be the subject of an application for copyright by or on behalf of RTI or any employee of RTI.

13. Advertising

RTI agrees not to use the existence or results of the contract, or the products produced pursuant to the contract as a part of any news release or commercial advertising without the prior written approval of the ERC.

14. Access to Persons and Records; Public Records

The State Auditor shall have access to persons and records as a result of all contracts or grants entered into by State agencies or political subdivisions in accordance with General Statute 147-64.7. RTI shall retain all records for a period of three years following completion of the contract.

To the extent that RTI acts on behalf of the ERC pursuant to this contract, RTI shall comply with and take any action necessary to facilitate compliance by the ERC with the provisions of Chapter 132 of the General Statutes.

15. Transfer or Assignment

This contract shall not be transferred or assigned to a third party.

16. Termination and Default

(a) Mutual Termination. -- Upon mutual written agreement of the ERC and RTI, the contract may be terminated at any time.

(b) ERC Termination. – The ERC has the right to terminate the contract at its discretion with 10 days written notice. In the event of termination under this subparagraph, RTI will be paid or reimbursed an amount commensurate with work completed or expenses incurred. In the event that RTI has received funds in excess of the amount commensurate with work completed or expenses incurred, RTI shall repay the excess funds to the ERC.

(c) RTI failure to perform. -- If, for any reason, RTI shall fail to fulfill in timely and proper manner the obligations under this agreement, the ERC shall thereupon have the right to terminate this contract by giving written notice to RTI and specifying the effective date thereof. In that event, all finished or unfinished deliverable items under this contract prepared by RTI shall, at the option of the ERC, become its property, and RTI shall be entitled to receive just and equitable compensation for any satisfactory work completed on these items. RTI shall not be relieved of liability to the ERC for damages sustained by the ERC by virtue of any breach of this agreement, and the ERC may withhold any payment due RTI for the purpose of setoff until a time that the exact amount of damages due the ERC from the breach can be determined. In case of default by RTI, the ERC may procure the services to which it is entitled under this contract from other sources and hold RTI responsible for any cost occasioned thereby.

(d) Liability of RTI. -- In the case of termination or default, the total liability of RTI shall not exceed the total contract amount.

(e) Acts of God, etc. -- No party to this agreement shall be deemed to be in default of any obligation hereunder if and so long as it is prevented from performing the obligation by any act of war, hostile foreign

action, nuclear explosion, riot, strikes, civil insurrection, earthquake, hurricane, tornado or other catastrophic natural event or act of God.

17. General Indemnity

RTI shall hold and save the State of North Carolina, its officers, agents, and employees harmless from liability of any kind, including liability from all claims and losses accruing to any other person, firm, or corporation furnishing or supplying work, services, materials, or supplies in connection with the performance of this contract, and from any and all claims and losses accruing to any person, firm, or corporation that may be injured or damaged by RTI in the performance of this contract and that are attributable to the negligence or intentionally tortious acts of RTI if RTI is notified in writing that the State has knowledge of a claim within 30 days after the State acquires actual knowledge of the claim. RTI represents and warrants that it shall make no claim of any kind or nature against the State's agents who are involved in the delivery or processing of RTI's goods to the State. The representation and warranty in the preceding sentence shall survive the termination or expiration of this contract.

18. Bankruptcy

Upon the filing for bankruptcy or insolvency by or against RTI, the ERC may terminate the contract, and the provisions of the paragraph entitled "Termination and Default" shall apply.

19. Compliance with Laws

RTI shall comply with all laws, ordinances, codes, rules, regulations and licensing requirements that are applicable to the conduct of its business, including those of federal, state, and local agencies having jurisdiction or authority.

20. Applicability of State Ethics Laws

RTI is subject to all applicable provisions of Chapter 138A of the General Statutes, including but not limited to the prohibition on the acceptance of specified gifts from lobbyists and lobbyist's principals, the required reporting of authorized gifts from lobbyists and lobbyist's principals, identification and reporting of names of assigned personnel, and required ethics training.

21. Equal Opportunity Statement

The nondiscrimination clause contained in Section 202 of Executive Order 11246, as amended by Executive Order 11375, relative to equal employment opportunity for all persons without regard to race, color, religion, sex, age or national origin, and the rules and regulations prescribed by the United States Secretary of Labor, are incorporated herein by reference. The program for Employment of the Handicapped (Affirmative Action) Regulations issued by the Secretary of Labor of the United States in Title 20, Part 741, Chapter VI, Subchapter "C" of the Code of Federal Regulations, pursuant to the provisions of Executive Order 11758 and Section 503 of the Federal Rehabilitation Act of 1973, are incorporated herein by reference.

22. Workers Compensation Insurance

RTI shall obtain, pay for, and keep in force, for the duration of the contract, worker's compensation insurance, as required by the laws of North Carolina, covering all employees of RTI engaged in any work pursuant to this contract performed in the State.

23. Amendment

This contract may be amended only by written agreement duly executed by the ERC and RTI and approved by the Commission.

24. Incorporations by reference

S.L. 2006-215, is attached to this contract as Appendix A and incorporated herein by reference. The Request for Proposal issued by the ERC, entitled "Report on Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients", is attached to this contract as Appendix B and incorporated herein by reference. RTI's response is attached to this contract as Appendix C and incorporated herein by reference.

25. Entire agreement

This contract, including any documents or exhibits specifically incorporated by reference, represents the entire agreement between the parties and supersedes all prior oral or written statements or agreements.

26. Notice

Any notice under this contract to the ERC shall be sufficient if mailed to the Legislative Services Office as indicated below:

George F. Givens, Commission Counsel
Environmental Review Commission
General Assembly of North Carolina
300 North Salisbury Street
545 Legislative Office Building
Raleigh, NC 27603

Any notice under this contract to RTI shall be sufficient if mailed to RTI as indicated below:

Don Enichen
Office of Research Contracts
RTI International
3040 Cornwallis Road
Research Triangle Park, NC 27709-2194

27. Governing Law

This contract is made under and shall be governed and construed in accordance with the laws of the State of North Carolina.

28. Situs

The place of this contract, its situs and forum, shall be Wake County, North Carolina, where all matters, whether sounding in contract or tort, relating to is validity, construction, interpretation, or enforcement, shall be determined.

29. Applicability of terms

All promises, requirements, terms, conditions, provisions, representations, guarantees, and warranties contained herein shall survive the contract expiration or termination date unless specifically provided otherwise herein, or unless superseded by applicable Federal or State statutes of limitations.

IN WITNESS THEREOF, the parties have executed this agreement in duplicate originals, one of which is retained by each of the parties effective this the day and year first written above.

FOR THE ENVIRONMENTAL REVIEW COMMISSION

WITNESS:

_____ BY: _____
Sen. Daniel G. Clodfelter, Cochair

WITNESS:

_____ BY: _____
Sen. Charles W. Albertson, Cochair

WITNESS:

_____ BY: _____
Rep. Pryor A. Gibson III, Cochair

FOR RTI INTERNATIONAL

WITNESS:

_____ BY: _____
Don Enichen
Office of Research Contracts
RTI International
3040 Cornwallis Road
Research Triangle Park, NC 27709-2194

APPROVED BY THE LEGISLATIVE SERVICES COMMISSION

WITNESS:

_____ BY: _____
Marc Basnight, President Pro Tempore

WITNESS:

_____ BY: _____
Joe Hackney, Speaker of the House

BOARD OF ADVISORS
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Prof. Rodney Stevenson
*University of Wisconsin Graduate School of Business**
*Affiliations listed for purposes of identification only

EXECUTIVE DIRECTOR
Peter Anderson

December 19, 2006

Mr. George Givens, Counsel
Environmental Review Commission
North Carolina Legislature
300 N. Salisbury Street - 5th Floor
Raleigh, NC 27602

Dear Mr. Givens:

Please find enclosed copies of our report for the California Integrated Waste Management Board, *Day of Reckoning: Protecting California Taxpayers from the Looming Landfill Crisis*," for the members of the Environmental Review Commission and its staff.

The report explains [1] the enormity of the risks posed by the new generation of mega-sized landfills, [2] the utter inadequacy of current financial assurance regulations to protect the state's taxpayers from a bailout in similar proportions to the Savings and Loan debacle, and [3] the steps needed to protect the taxpayers' interests.

Two further things to mention, if I may. First, we stand ready to provide detailed analysis of landfill liabilities particular to the situation in North Carolina if the Commission desires. Second, the report is rather lengthy, and so I have attached a short summary of it to this letter.

Thank you for providing us with an opportunity to speak with the Commission, and we look forward to working together to develop a strategy to protect the state's taxpayers in the days ahead if that is desired.

Very sincerely yours,

Peter Anderson

Peter Anderson, Executive Director
CENTER FOR A COMPETITIVE WASTE INDUSTRY

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THE CENTER FOR A COMPETITIVE WASTE INDUSTRY

Summary of North Carolina's Looming Landfill Liabilities

⊡ The Issue

Many legislators are evaluating what to do after the landfill moratorium ends next year based upon an inaccurate balancing of interests.

Often the question of how to evaluate the national trash companies' mega-sized landfill proposals is determined by weighing, on the one hand, some minor nuisance from trucks and odors, and host fees that some low-income communities believe will relieve their immediate fiscal needs, on the other.

However, because it can no longer be responsibly controverted that the entire basis of today's landfill designs are fatally flawed, this incorrectly represents the real trade offs to North Carolina. The following summarizes the *Day of Reckoning* report with reference to the situation in North Carolina, the citations for which may be found in the full report.

⊡ The Facts

In fact, the costs to all of the state's taxpayers to bail out failed mega-fills in the future will be incalculable and dwarf those host fees to a small number of communities.

① Landfills "will ultimately fail," says EPA.

First, although not generally understood in the general population, among those in the waste industry there is no longer any debate over the fact, that EPA itself stated several times in the runup to the its federal standards. That is the elaborate liners upon which the rules are based "will ultimately fail" in decades, while the wastes remain a threat to the environment for "thousands of years."

That is to say, those rules have not prevented pollution, but rather only postponed it, and to the worst time, when the responsible parties have left the scene, the remediation pumping and monitoring systems are no longer functional, and thousands more people have sprawled out around once remote sites to be placed at risk.

How could such a thing have happened. According to an investigation by the EPA Inspector General, the final rule was based "on a compromise...not scientific criteria" in order to keep short term costs low. However, in the not to distant future, those once hidden costs will be coming home to roost, as we have been warned by Dr. John Skinner, who is the same person who supervised writing those rules 15 years ago where he headed the solid waste office, and who has

recently written that "the responsibility of responding to long-term problems at dry-tomb landfills will fall on future generations, and the funding requirements could quite likely fall on state and local governments."

② Shift to mega-sized landfills ramps up costs of inevitable failures.

Second, in order to reduce the cost *per ton* for the liners, the industry shifted from modest sized facilities perhaps 75 feet high with less than a million tons of trash to ones several hundred feet high containing more than 100 million tons. That is the volume of more almost 200 football stadiums, and that is what is meant when you hear the term "mega-fills." This is of major import for the states for this reason.

Landfills today have become too big to fix and when they ultimately fail, such has already happened at the Rumpke landfill near Cincinnati in 1996, they can do so catastrophically in major landslides. Not only does this risk life and limb for the workers and those residing, shopping or working in the vicinity, but it also has the most profound implications for the costs of cleaning up.

Although not widely known, Superfund, whose efforts have cost about $25 million per site, almost never actually cleans up failed sites. Rather, it usually just papers over the problem with fencing, temporary covers and bottled water, leaving the problem to resurface all over again in a very few decades. They can get away with that for the short term because most of the Superfund sites are very small.

However, catastrophic site failures at megafills will be too large to paper over, and they will have to really be cleaned up. Just excavating, stabilizing and reburying wastes will cost $50 - $100 per ton, hundreds of millions – if not billions – of dollars for large sites in populated areas.

③ Most mega-landfill proposals are for sites at the worst sites most susceptible to major failures.

Third, the proposed mega-sized landfill sites are congregated on the coast for barge access, placing them at risk to major to hurricanes, which are only expected to increase in severity with global warming. Also, these sites in coastal wetlands, marshes and estuaries do not have the required separation from groundwater. This has forced the companies to propose elevating the base of these landfills on fill above grade, instead of being buried 25-50 feet into the ground as is done elsewhere in appropriate settings with at least 10 feet of separation to groundwater. That makeshift work around will tend to further increase the risks of massive site failures.

④ The states stand exposed to bear all of the clean up costs.

Finally, the original intent of EPA's landfill regulations, which are followed in North Carolina, was to provide something called financial assurance as a last line of defense to protect states from the costs of failed sites. However, the details of these rules were specifically written to

exclude any of these major costs from coverage for several reasons. For one thing, in practice only minor maintenance costs wound up in these assurances, leaving no coverage for cleaning up failed sites. For another, even that coverage only extends for 30 years after closure, while the sites remain a threat to the public for hundreds if not thousands of years. Finally, the mechanisms for providing even those hopelessly inadequate assurances includes ones, like corporate IOUs that are, themselves, worthless in the face of major failures that will dwarf their assets.

⊡ The Solution

What is involved in today's mega-fills, which will fail in the future, many of which will fail catastrophically, is risk management involving protection for North Carolina's taxpayers against unprecedented clean up costs totally hundreds of millions of dollars, if not cumulatively more.

These fatally flawed proposal should be rejected for the reasons described above. However, if they are not, the next fall back is for the state to look to the marketplace for a solution so that its taxpayers are not exposed to outsized risks. Our economy already has an institution to provide coverage against risks, including major ones such as hurricanes. That is the insurance industry, and, more recently, related off-shoots from option and hedging instruments. The advantages of using the market to manage the state's risks under government supervision so that the taxpayers do not stand exposed are four-fold:

① The insurance industry is trained at assessing risks.

② It will not provide conflicted information, as the waste industry must do in order to shift as much of the risks it creates to the public so as to protect its stockholders from future bankruptcies that would wipe out their investment.

③ It has to stand behind its assessment reflected in its premiums or it will lose money, unlike the waste industry's consultant who are paid to see no risks, and will not make good if their assurances are proved wrong.

④ Insurance will be far less costly because it manages the diversity of different risks than imposing a bonding requirement on each landfill equal to the maximum risk, when some sites create far less chances of failure than others that are poorly sited.

Today, long-term catastrophic coverage for landfill failures is not commercially available, but that is only because the probabilities of an occurrence are high, which would make the premiums expensive. The commercial insurance industry is based upon high consequence/low probability events, for which premiums are low. However, that commercial hurdle can and will be overcome if the state requires insurance as a condition of operation. Furthermore, all of the elements necessary to constitute this sort of policy already exist in the market. It only requires piecing them together in the specific fashion needed by states to protect their taxpayers from yet another Savings and Loan magnitude bailout. ⊡

MINUTES
ENVIRONMENTAL REVIEW COMMISSION
17 January 2007

The Environmental Review Commission (ERC) met on Wednesday 17 January 2007 at 9:30 a.m. in Room 544 of the Legislative Office Building. Representative Gibson presided.

The following members were present: Senators Albertson, Bingham, Dorsett, Kinnaird and Swindell; and Representatives Gibson, Harrell, Harrison, Justice, McComas and Warren. Mr. George Givens, Commission Counsel; Jeffrey Hudson, Assistant Commission Counsel; Jennifer McGinnis, Assistant Commission Counsel; Susan Iddings, Assistant Commission Counsel; Jennifer Mundt, Commission Analyst; Jessica DeCapua, Research Assistant; and Dot Waugaman, Commission Clerk, were also present.

On 3 January 2007, notice was sent to members and interested parties via e-mail and regular mail. A copy of the notice is included in the attachments to these minutes as **Exhibit A**. Copies of the agenda for the meeting and visitor registration sheets are included in the attachments as **Exhibits B** and **C**.

Representative Gibson called the meeting to order. He then asked George Givens to present his report and explain the agenda items. Mr. Givens pointed out that a packet of Read Only reports received since the last meeting of the Commission with an explanation memorandum from Ms. Jennifer Mundt was placed at their desks (see **Exhibit D**). The first group of reports consists of an Interim Report on the Costs and Benefits of Reducing Oxides of Nitrogen, Particulate Matter, and other Greenhouse Gases from Motor Vehicles dated 15 January 2007 (see **Exhibit D-1**); and the Annual Report on the Evaluation and Adjustment of the Boundaries of the Area Served by Each Metropolitan Planning Organization, dated 1 November 2006 (see **Exhibit D-2**). The second group of reports consists of those that have been submitted to the Commission since the last meeting and are distributed in connection with various items on the day's agenda. Three other reports are being held that refer to agenda items for the 23 January meeting.

Mr. Givens noted that the public-staff planning meeting for this meeting was held at 10:00 a.m. on Monday, 8 January 2007. He commented that the continuation of the study of solid waste issues would not include specific recommendations from the Department. He announced the next meeting of the Commission would be Tuesday, 23 January 2007, and that the Commission would probably have to meet once or twice after the beginning of the Session to complete its work.

Mr. Givens next commented on the proposals received in response to the two Requests for Proposals (RFPs) that the ERC had authorized him, by motions adopted by the Commission at previous meetings, to act on. With regard to the study of the merger of the organization and functions of the Ecosystem Enhancement Program and the Clean Water Management Trust Fund, which is a joint study with the Joint Legislative Transportation Oversight Committee (JLTOC), the JLTOC approved the proposal submitted by DYE Management Group, Inc. with a modified total price of $162,393 (see **Exhibit E**). Mr. Givens stated he would act on behalf of the ERC to join with JLTOC to go forward with that recommendation. Four proposals were submitted; DYE Management was not the lowest bid, but it was felt that, taking all factors into account, it was the best proposal.

With regard to the study of issues related to the nutrient offset payment program, the motion to accept the RFP carried at the December meeting. A proposal in response to the RFP was received from the Research Triangle Institute International with a total cost of $93,133 (see **Exhibit F**). Mr. Givens said, pursuant to the authorization already voted on, he would contract with them to conduct the study. The results should be available in May of this year so the General Assembly will have a chance to act prior to the September 2007 sunset.

Representative Gibson recognized Dr. David Moreau, Chair of the Environmental Management Commission, to present the quarterly report on behalf of the Commission for the period October 2006 through December 2006. Dr. Moreau focused on two matters that had been under discussion for at least

two years. The first is the mercury rule applied to coal-fired power plants. The second is the interbasin transfer (IBT) issue involving Kannapolis/Concord.

Formulation of the mercury rule was concluded in November 2006. Phase 1 will take advantage of the Clean Smokestacks Act in which mercury emissions reduction is a co-benefit of the actions in the Act to reduce nitrogen oxides and sulfur dioxides. There will be a series of reports to the Commission on progress made under the Clean Smokestacks Act. Phase 2 will begin in 2013. That phase will require control plans to be submitted to identify the technology proposed to be used and to provide for the installation and operation of technologically and economically feasible mercury controls at all coal-fired power plants at the earliest date. There are criteria for the Director to use in reviewing the control plans and to approve, disapprove, or conditionally approve them. In dealing with new sources, the rule adopted requires the installation of the best available control technology for mercury. Periodic evaluations will be made every five years with specific requirements for reporting in 2013. At that time, the Commission shall determine mercury control requirements for all units and decide if any further rule changes are needed.

The co-benefit under the Clean Smokestacks Act is estimated at about 70% reduction for the units covered by the Clean Smokestacks Act; an overall reduction of approximately 60% with most being achieved by 2010. The discussion on the mercury rules began with debate about whether or not to exceed the federal rule to reach a 90% reduction across the board. The final decision on what level of controls will be required will be made in 2013. Dr. Moreau said that achieving the federal caps in-state will push the limits of technology known today. All the estimates of emissions, performance and effects are based on secondary sources of information. The rules require the Division of Air Quality to report to EMC on all factors as additional information is gathered about emissions—what types or species of mercury, whether solid or vapor, have a profound effect on what kind of control strategies, what the projected mercury emissions will be, the state of technology, and the cost of the technology. There was a lot of debate about the use of the trading rule. The issue of using a cap-in-trade program is still in the courts. The debate about the program concerns whether the trading program would or should be used. It is seen as a safety valve in case other provisions of the rules cannot be achieved.

The other difficult issue the Commission considered was the inter-basin transfer request, reviewed in depth at the December ERC meeting. The key facts are that Kannapolis and Concord based their request for an IBT on a supply need of 53 million gallons a day, which included a 25% added factor to deal with the 80% rule. DENR requires the community to begin planning for a new source when its demand reaches 80% of supply. That value was rejected by the Commission, and the request for water from the Catawba was reduced from 26 million gallons a day to 10, which is 40% less than requested from the Catawba basin. As the recommendation was originally written, Kannapolis and Concord would have to adopt the same conservation protocol that applies to the Catawba. In discussion, the concern was extended to include the conservation protocol on the Yadkin as well.

Representative Harrell asked about the court case brought by the Attorney General of South Carolina. Dr. Moreau replied that the last he had heard is that if the EMC did not take any action on the IBT, they would not file a law suit. Mr. Givens commented that a meeting on the IBT matter had been held on December 22, convened by Representatives Gillespie and Church. At that time, a representative of the South Carolina Attorney General's office delivered a letter from the Attorney General of South Carolina to the Attorney General of North Carolina indicating that any action by the EMC to approve any kind of inter-basin transfer would result in a lawsuit by the State of South Carolina. It did not state what the grounds would be.

Representative Gibson next recognized Mr. Jim Simons, State Geologist and Director, Division of Land Resources (DLR), DENR, to discuss the annual report on the implementation of the Sedimentation Pollution Control Act of 1973 (see **Exhibit H**). The current report is similar to last year's report. The State is still experiencing a high level of development, with many of the same challenges. DENR is trying to address the challenges with new technology and better guidelines. Express permitting is available in every regional office and is very popular in the coastal areas. Mr. Simons reported that no one has taken advantage of the partial delegation allowed by new legislation last year.

Senator Bingham asked if there is a map showing locations of inspections and violations of the sedimentation legislation across the state. Mr. Simons replied that many violations occur in urban areas that do not have a local sedimentation control program and added that DLR does not have a map at present. However, when the state database is complete, DLR will be able to create such a map.

Senator Albertson asked how far inspectors have to travel to do their inspections. Mr. Simons replied that they work out of the seven regional DENR offices. Travel time can vary from minutes to 2-1/2 hours one way. Some live closer to inspection sites, and they are allowed to work from home part-time, although they are required to go to the office on certain days to handle paperwork, complaints, and public inquiries.

Mr. Givens asked if there are metrics showing what part of the state is served by local program and what is under the state-wide program. Mr. Simons yielded to Mr. Mell Nevills, Chief of the Land Quality Section, DLR, for an answer to the question. Mr. Nevills replied there is none at present, but part of the database they are developing will help them establish one and allow them to determine how many projects are handled by local programs and how many projects are handled by the state. DOT also has a number of projects under their program. They have asked the local governments to send information on sedimentation control programs to the Division, but a number do not.

Representative Gibson recognized Ms. Mary Penny Thompson, Assistant General Counsel, Office of the Secretary, DENR, to give an update on the approval of plans for land-disturbing activity along waters that have been classified as trout waters. She has been working with the Division of Land Resources on clarifying an interpretation of the Sedimentation Pollution Control Act as it relates to trout stream buffers. The Act itself protects all areas near natural water courses. The default is to contain all sediment within the first 25% of a stream buffer. For trout streams there is an additional requirement that the buffer be at least 25 feet wide.

In December, developers moved forward with a project called "Mountain Air Golf Course" that included new development along a trout stream. The project would involve piping of streams and tree cutting along the buffers. DLR worked with the developers to modify the project until they felt it met Sedimentation Pollution Control Act standards and ultimately approved the plan for development. Local citizens and environmental groups challenged the agency's decision and it went through a contested case procedure. Late in 2005, an administrative law judge interpreted the act as saying there could be no activities within the buffer that left a permanent impact. After that decision came down, the Department looked at the law and actually stopped approving trout stream buffer waivers until some clarification was made on the statute's meaning. In the 2006 session, legislation was introduced to provide further specification on how to handle trout stream buffers, but it failed to get out of committee. DENR then turned their attention back to the contested case decision which was scheduled to come before the Sedimentation Control Commission (SCC). DENR worked with the parties and with the administrative law judge to expedite the case and get it in front of the SCC in November.

In November of 2006, the SCC reversed the administrative law judge's decision and did allow development to move forward in the buffers. Their decision hinged on the definition of land disturbing activity, which had a phrase that says, "Land disturbing activity is activity that may cause or contribute to sedimentation." The SCC noted that and directed DLR to return to their previous procedure of approving plans based on that definition. They also noted that piping a stream or selectively thinning or cutting trees may not cause nor contribute to sedimentation. Therefore it will be in the staff's expertise and best professional judgment to determine what activities will cause or contribute to sedimentation. If the activities do not cause nor contribute to sedimentation, the developer would be eligible for approval for a trout buffer waiver. That decision is being reduced to writing and will be sent to the concerned parties. It might still be appealed in the courts. If the courts change that decision, the interpretation of the statute may be affected once again.

In addition to the contested case, the Department worked with parties to bring forth two declaratory rulings that touched on issues the contested case issue did not. The first involved another golf course, an existing development that involved stream restoration activity. The Department sought clarification on

whether stream restorations were permanent impacts that would cause or contribute to sedimentation. The SCC found that indeed stream restorations improved the situation rather than caused or contributed to further sedimentation; therefore, they would be eligible for trout buffer waivers. Part of the decision included guidance about avoiding and minimizing impacts. DLR is to work with developers to make those impacts as small as possible, and if over all, the project results in improvements to the environment, it will be eligible for a trout buffer waiver.

The second type of declaratory ruling looked at was the Department of Transportation's secondary road paving in the mountains. Here, when an unpaved road is paved, that activity actually reduces erosion and sedimentation from the pathway, so again, it improves the environment, reduces erosion and sedimentation, and therefore would be eligible for trout buffer waivers. Those declaratory rulings have been issued and so far there have been no appeals. The Division is now back to where they were before the contested case decision with further clarification on stream restorations and secondary road pavings. Litigation may continue when the decision is finalized and issued, which may provide some new developments as the cases move through the courts.

Senator Bingham asked if the decision meant lumber could be cut within the 25 foot buffer of a trout stream. Ms. Thompson replied that it would be eligible for review, because not all timbering would cause erosion and sedimentation. Clear cutting might not be allowed, but a plan including some timbering would be eligible for review.

Representative Gibson asked if the problem of cutting the trees was one of rising water temperatures because of increased sunlight. Ms. Thompson replied that was not an issue cited in the reversal. The SCC's rules do address temperature, but rising temperatures were not the basis of the decision. Representative Gibson then asked if the courts discussed the double jeopardy situation in which people were getting notices of violation or fines, but were not allowed to correct the violation because there was a trout stream involved. Ms. Thompson said if someone is doing something to make a stream better, they will be allowed to carry out their plan.

Representative Justice asked about what can be done to improve the stream. Ms. Thompson replied there are stream restoration activities which initially will cause impacts. With DOT, there are situations, particularly in the mountains, where the only place a road can be placed is near a stream. Sometimes the bank would be failing from other types of erosion, and rip rap can be installed to stabilize the bank. Or the roadway could be moved so there would be enough of a buffer to prevent erosion or collapse.

Representative Gibson recognized Mr. Dexter Matthews, Director, Division of Waste Management (DWM), DENR, to present a report on the solid waste management regulations of other states and on issues related to the processing of solid waste management permits by DWM (see **Exhibit I** for a copy of the PowerPoint presentation he used). He complimented staff of the Solid Waste Section for their compilation of information from other states to be used to look at areas that the Division feels need improvement.

The acronym MSWLF in the 15th PowerPoint slide stands for Municipal Solid Waste Landfills; the acronym CESQG in the 16th PowerPoint slide stands for Conditionally Exempt Small Quantity Generator waste, which under federal rules can be disposed of if you are a generator of hazardous waste and generate less than 220 pounds per month. Under the federal rules, that amount per month can be disposed of in a municipal solid waste landfill; however, North Carolina does not allow that. DWM did not find a difference in requirements for screening procedures in other states. Virginia was the only state that had some additional requirements to screen out waste. When waste comes from an area outside the state, there will need to be provisions for removing items banned in North Carolina landfills. Eleven of the sixteen states studied did have permit fees for the purpose of supporting their solid waste programs.

Representative Justice asked how expensive it is to test for leaks in lined landfills and who was responsible for paying for repairs. Mr. Matthews replied the permit applicant would pay for the test. He said he could get the information on the cost, but he did not have it on hand. Representative Justice then asked about sewer sludge not being banned from the landfill. Mr. Matthews replied that there are specific requirements on the allowance of municipal solid waste sludges in landfills. Some landfills want to receive

additional types of waste to promote degradation of the materials in the landfill and create a bioreactor type of landfill. Sludge is beneficial in landfills that are trying to promote that technology.

Senator Albertson asked how leaks are addressed when a test reveals a leak in the liner. Mr. Matthews said he was aware of only one landfill within the state that experienced a breach in the liner. In that case, the leak was on the side slope of the landfill and the liner was repaired without having to remove the waste.

Representative Harrison asked how the Division would know about breaches in the landfills if they are inspected only once a year. Mr. Matthews replied that the breaches usually occur during construction of the liner but with a 100% liner leak detection system, it will have been constructed in such a way as to insure there will be no leaks. Monitoring systems around landfills, such as groundwater monitoring and leak detection between the two liners if the landfill has a double liner, are required.

Senator Swindell commented that before the Subtitle D legislation was passed in the mid-1990's. there were over 60 landfills operating throughout North Carolina, and at one time, there were over 40 with ground water contamination. Subtitle D landfills are made like a garbage pie—with clay, with 60 mil plastic on the bottom, leachate collection systems to collect the liquids, methane gas collection system to collect the methane gas, and so forth. Landfills today are very different than they were prior to the Subtitle D legislation. Old landfills are still contaminating groundwater. Senator Swindell asked Mr. Matthews if he has any knowledge of leaks in the new landfills. Mr. Matthews replied there have been a couple of "hits" in monitoring. Most have been traced back to areas such as the leachate collection pond, and the problems have been addressed. He added that prior to the 1970s, the permitting system did not exist. Waste was put in open dumps, and those sites need to be addressed. The state then went to sanitary landfills, then in 1998 to lined landfills. So far they have been operating very well. The issue now is whether or not the state should take additional steps to use new technology to protect public health and the environment.

Representative Harrell asked if Mr. Matthews knows what the state's landfill capacity is. Mr. Matthews replied that Mr. Paul Crissman, Head, Planning and Program Management Branch, Solid Waste Section, Division of Waste Management (DWM), has been looking at that as part of the Division's annual report. He added that there are some capacity issues, but only in specific regions of the state. Some areas have plenty of landfill capacity; others do not. Mr. Crissman reported that their capacity study is not complete, but will be soon. Capacity is up slightly from previous years; however there is still need for additional capacity in the Piedmont area of the state. Representative Harrell commented that he is concerned that with the moratorium the costs of the landfill in his area would be affected. Mr. Matthews replied that the landfills halted under the moratorium basically were in site study; therefore they were not far along in the permitting process and the moratorium at this point would not be affecting the price.

In response to a comment from Representative Harrell, Mr. Givens explained the differences in radioactive and other solid waste. He said radioactive waste is different from any other type of waste because it is subject to a different regulatory scheme. High level radioactive waste is entirely the responsibility of the federal government. With regard to low level radioactive waste, Congress created a compact system which does allow for exclusion of waste from outside the compact region by compacts that have been approved by the Congress. North Carolina was at one time a part of a compact region, but is not now. If a state is not in a compact region, low level radioactive waste is subject to the same interstate commerce rules as apply to other kinds of waste. He added that some of our radioactive waste goes to a facility in Barnville, South Carolina, and other radioactive waste goes to Utah. The facility in Barnville is likely to close to radioactive waste from any state soon. For the long term, the disposal of North Carolina's low level radioactive waste is not determined. North Carolina does not have a facility to take our low level radioactive waste.

Representative Gibson recognized Ms. Robin Smith, Assistant Secretary for Environment, DENR, to speak about improving oversight of landfill construction and operation (see **Exhibit J** for a paper entitled, "Improving Oversight of Landfill Construction and Operation in North Carolina").

Currently a landfill operator is not required to provide financial assurance up front for cleanup of a potential release. The rules require only that financial assurance for some sort of remediation of a release be provided at the time the release is detected. The State needs to develop specific criteria to demonstrate financial assurance to take care of releases as well as financial ability to operate a landfill. One concept being considered would require financial assurance for certain types of actions, including remediation of a release, closure of a facility, and post-closure care. The assurance should consist of some sort of financial mechanism at the time the landfill is permitted, whether an insurance policy or a bond, to make certain that resources would be available to address any required situations.

The Department also looks at the financial qualifications of the landfill applicant as a business entity, whether it be a corporation, partnership or other type. The entity must have the financial ability to properly construct and maintain the landfill. One of the areas for improvement in the statutes or rules is to have more specific standards for financially qualifying an applicant to own and operate a landfill. The Department does not believe landfill permits should be issued to business entities that shield all of their shareholders and partners from liability in the event of a problem at the landfill.

Landfill applicants in North Carolina are not required to conduct a full environmental impact statement. Although the landfill permitting process is fairly comprehensive and looks at a great deal of information about the appropriateness of the site, design, and operating issues, it does not do everything that an environmental document would do. Large landfills should be required to complete the same kind of environmental document required routinely for other types of major projects under the state's Environmental Policy Act.

Specific standards for siting, designing and operating landfills should be investigated. One of the findings of the study reported on by Mr. Matthews is that there are some significant differences in specific design and siting criteria between North Carolina and other states. Ms. Smith commented It is worth taking a look at the differences to see if there improvement needs to be made in the siting and design of landfills. Other recommendations were addressed in the handout (see **Exhibit J**).

Senator Bingham asked what Ms. Smith envisioned in tip fees for the future. She replied that last year there was a proposal for a state tipping fee of $2.00 to fund the cleanup of the over 700 old dumps across the state that have not yet been addressed. Senator Bingham asked if there was an estimate of how much it would cost to clean up all the sites. Mr. Matthews replied that North Carolina estimates it would cost an average of $750,000 per landfill for cleanup. The $2.00 per ton tip fee across the state would bring in approximately $22 million a year. Senator Bingham asked if northeastern states have the same problem with old landfills. Ms. Smith replied she believed so.

Representative Harrison asked about the Department's reaction to using insurance as a means of financial assurance. Ms. Smith replied the Department is focused on the need for adequate financial assurance for remediation if needed, for closure, and for post-closure care. One of the ways to provide the assurance is through insurance. Representative Harrison asked if DENR is asking for a repeal of the exemption of landfills from the SEPA. Ms. Smith replied that SEPA applies only to publicly funded projects or projects on public land. She said that what is needed is the SEPA level of information for all large landfill applications, whether public or private. Representative Harrison asked if the Department is recommending increasing the buffer areas to protect streams from landfills. Ms. Smith replied the Department is looking at setting up a working group process to determine potential siting and design criteria rules or recommendations to the General Assembly for legislation. Others may be straightforward enough to be proposed as legislation, but the specifics have not yet been decided. In response to another question from Representative Harrison, Ms. Smith said that the tipping fee proposed during the 2006 session would have been used for cleaning up both hazardous waste and dump sites.

Representative Harrell asked what the market for insurance would be to demonstrate financial assurance for landfills. Ms. Smith replied that from looking at other areas of environmental regulation such as underground storage tanks, the insurance market is much more available and reasonable now than it was ten years ago.

Representative Harrison asked if legislation would be proposed for the 2007 session concerning landfills. Mr. Givens replied that the ERC was directed to study the issue during the 2006 session. The Governor's office has taken a direct interest in the matter and Mr. Givens hopes the ERC and the Governor's office will work cooperatively on developing legislation. He anticipates recommendations will be forthcoming from the Governor in a few weeks and wants the ERC to consider those recommendations before coming up with their legislative proposals. However, given the timing of the Governor's response to the study, legislation may need to be introduced as public bills, not as study commission bills.

Representative Gibson recognized Mr. Greg Peverall, Consultant, Solid Waste Management Services, who spoke on behalf of the Carolinas Chapter of the National Solid Waste Management Association (NSWMA) (see **Exhibit K** for a copy of his PowerPoint presentation). Mr. Givens commented that the environmental community and the local government associations have asked to be heard at a later date. Mr. Peverall stated that NSWMA members are private sector companies who collect solid waste materials, process recyclables, collect yard waste, and operate compost facilities. He said that each North Carolinian generates seven pounds of garbage daily. Safe disposal is an essential component to our society. Members of MSWMA include all the major solid waste management companies: Allied Waste Industries, Republic Services, Waste Management, Waste Industries, and DH Griffin, along with several smaller private companies originating and/or operating in North Carolina.

Mr. Peverall spoke about the Solid Waste Act of 1965, as amended by the Resource Conservation Act of 1976 and again in 1984. The legislation created the regulatory structure that governs solid waste management in the United States. The structure for managing solid waste is found in Subtitle D regulations. North Carolina adopted the federal laws that required that all new landfills, operating after October 1993 be built to the proven permitting design and operational standards of Subtitle D in order to protect the environment, human health, and public safety. He added that modern landfill development in North Carolina can take 2-3 years and up to $3 million at the local level, prior to submittal to the Division of Solid Waste. Mr. Peverall said the modern landfill is basically a large baggie in which solid waste is stored. The applicant has to determine where the seasonal high groundwater is on the site. The liner has to be four feet from the seasonal high groundwater. The liner system is four to six feet thick. It includes clay, leachate collection systems, and a synthetic liner as well as a lower permeability liner system on top to separate the particulate from the solid waste materials. Additional safeguards for Subtitle D landfills include closure plans, long-term monitoring plans after closure, financial instruments for closure, post-closure and potential remediation, along with operational qualifications that sites are fenced and secure, and that landfill operators are trained and certified. He showed photographs of the landfill at the Charlotte Motor Speedway, the North Wake Landfill and the Mecklenburg County Landfill showing residential development around the landfills (see **Exhibit K**).

Mr. Peverall spoke about recycling efforts of the private companies and showed photographs of facilities where recycled materials are separated by type. He commented that even with an aggressive recycling program, landfills will also be needed for the foreseeable future. Another recycling program is the use of landfill gas to provide heat and electricity. In the United States, modern landfills have never required any funding for cleanup costs associated with leaks or failures. In North Carolina, no base liner leaks have been detected from any of the 42 lined facilities permitted since 1990, excluding incidences of leaks from leachate lagoons, side slope leaks, and leaks of methane gas,. The important part of those features is that the protection mechanisms worked in those events, and they were remedied and properly reconstructed so the leaks would not recur.

In summarizing, Mr. Peverall said the industry is committed to protecting the environment and to reducing the amount of solid waste going into landfills or disposal in North Carolina. The North Carolina existing rules and laws protect the public and insure that all stakeholders are included in all phases of the landfill development process. The use of available technology and continued operational improvements has rendered landfills to be a safe and important component of any local government's infrastructure. He invited the Commission members to tour any of their landfills, operations, or materials recovery facilities so the industry could show how protective they are of the environment.

Senator Kinnaird asked if the industry would accept the recommendations put forth by the Assistant Secretary for Environment of DENR. Mr. Peverall replied they are very interested in being engaged in the dialog about the recommendations. They would support a permit fee structure to provide a way for the Division to sustain the quality of people on Division staff and to review the permit applications that will be ongoing. There is a study going on in Buncombe County exploring the benefits of bioreactors. There are great technological improvements available in the national marketplace that at the present time cannot be implemented because there is no staff to analyze them or incorporate them into operational practices. Therefore, the industry would endorse anything to strengthen the Division of Solid Waste in their permit review process and improving the technology already in use in North Carolina. They support the idea of funding for monitoring and repairing unlined landfills; however, they do not believe the solid waste industry is the best way to collect the fees. They would propose the fees be billed by the state and the benefit of all the revenue would be employed to the remediation of the sites. The industry would be against a tipping fee to raise money for remediation of leaking landfills because private enterprise works under contracts that preclude them from raising their rates to recover increased costs. Senator Kinnaird asked if the material used for the liner is made from recycled material. Mr. Peverall replied the liners are made from high quality initial product. It would not be recovered.

Senator Bingham asked if the industry had any recommendations for the ERC to help them improve or strengthen recycling. Mr. Peverall replied recycling is market driven. The industry is cautious about any stimulus outside of the international market driving the markets. Collection systems would probably be the most advantageous for the industry. They would include educating about how local communities can save money by being involved with an aggressive recycling program. He commented about a program in Craven County in 1990. Along with implementation of a new tipping fee to dispose of solid waste materials, they went with a sticker program in which citizens paid by the bag that was thrown away. Everyone had a curbside bin, so it encouraged moving the solid waste materials from the bag to the recycling bin, resulting in a reduction from 100,000 tons of solid waste garbage a year to 60,000 tons a year. It was a phenomenally successful program, but it was not without its costs, both political and otherwise.

Representative Gibson recognized Mr. David Barnes, Attorney at Law, Poyner & Spruill, LLP, to speak on behalf of the National Solid Waste Management Association, on the industry perspective. He said the NSWMA is still developing its positions, but the industry does want to be involved in formulating the policy.

The first distinction he made is between the Subtitle D landfills and the old unlined landfills. He represents the businesses that operate new modern Subtitle D landfills, and wants to be sure policies developed relate to the new landfills. The NSWMA objected and still objects to the landfill moratorium. The current regulations in place adequately protect the health and safety of North Carolinians as well as the environment. In the absence of evidence that the current process produces flawed landfills or is itself flawed, the NSWMA believes the moratorium is not justified and not necessary. The industry wants to keep up with the technology, and they have the expertise to help the State. A number of landfill projects that had been permitted under the current regulations were allowed to go forward. Many people wanted the moratorium to stop the mega landfills, but the current moratorium has an exemption that if someone has a currently permitted landfill, it can be expanded either vertically or horizontally, so that current landfills can become mega landfills.

Mr. Barnes cautioned that the moratorium operates to prohibit only landfills that will receive, in part, waste from out of state. He cited Professor Richard Whisnant who told the Commission that the importation of out of state garbage cannot be prohibited. Any attempt to stop out of state garbage is unconstitutional and should not be the basis of any landfill moratorium. The current process North Carolina has in place allows local control over landfills. The state cannot permit a landfill unless the local authorities where the landfill is to be located say it is all right. All landfills that were stopped by the moratorium had been approved by the local jurisdiction. Mr. Barnes commented that it seemed unfair that local governments and landfill companies that have spent millions of dollars and years trying to get the landfills permitted under the current process in good faith are not able to do it. He commented that changing the rules in mid-stream, when there is no evidence that the process is flawed, does not seem to be fair. For the time being and into the future, landfills will be the most cost effective way of dealing with garbage.

He went on to comment about an LLC as a business entity operating landfills. Regardless of the kind of entity, the entity still needs to provide the financial assurance required by the Environmental Protection Agency (EPA). According to EPA, an entity can use letters of credit, surety bonds, or corporate guarantees as long as the corporation is rated high enough by the rating agency. There has to be an estimate of how much it costs to close the landfill, how much it will cost to monitor the landfill, and how much any necessary remediation would cost in order to determine how much financial assurance would be required..

Mr. Barnes spoke about the concept of requiring tighter regulations in sensitive areas. He said that to the industry, every area is sensitive. If a landfill is built pursuant to the regulations with a modern liner, the industry believes it is being careful with the environment. Height requirements and setbacks are local issues and should be regulated by local zoning boards. He believes each landfill that has been proposed has had a traffic study; therefore, the industry would have no problem if that requirement is added.

The regulation of collection and disposal of municipal solid waste is a governmental function somewhat like regulation of water and sewer systems, police systems, and so forth. There is a better way to fund taking care of the old orphan dumps and landfills than imposing a garbage surtax. It is a core governmental function that should be taken care of by all, not just the specific solid waste disposal industry. The cost of remediation of old leaking landfills should be borne by everyone.

The NSWMA is against permit fees unless those fees are used to train and staff the people who are processing landfill permits. The Department has done a good job but they need more people. The only caveat the NSWMA has is that if they are going to process landfill permits, there should be a time limit so that after the designated amount of time, the applicant can get an opinion about the application from their independent engineers to determine if it meets regulations.

Senator Bingham asked how successful the tipping fees have been in Tennessee and Georgia. Mr. Barnes replied that a distinction needs to be made between a "gate fee" (what the industry calls the "tipping fee") which is how much it costs to dump trash in the landfill, as opposed to a surcharge or tax per ton. Mr. Matthews said many states had a fee at the landfill per ton as is being proposed in North Carolina. Each state may have a difference about how they collect the fees, but it is on a per ton basis based on the amount of waste that was disposed. Mr. Matthews added that he has asked the industry for language to help with their concerns about passing increased costs along to consumers.

Representative Gibson recognized Mr. Scott Mouw, Chief, Community and Business Assistance Section, Division of Pollution Prevention and Environmental Assistance, DENR, to speak about the status of recycling and recycling markets in North Carolina (see **Exhibit L** for a copy of his PowerPoint presentation, **Exhibits M** and **N** for brochures describing recycling in the state, and **Exhibit O** for an article from *The New York Times*).

Senator Kinnaird asked if recycling now costs less than it produces. Mr. Mouw replied that the operating cost to recycle is less than the operating cost to collect and dispose of garbage. The programs that run well, defined by having high participation, and citizens who are engaged and educated on recycling collect a wide range of materials and have modern collection systems. In many cases, it is more economical to recycle than to collect and dispose of garbage. In addition, there is a cost-avoidance every time a ton of garbage is recycled.

Senator Bingham asked why China is able to use recycled mixed paper. Mr. Mouw explained that China has almost no forest resources, so they have to make paper in large quantities to package products they sell in the United States from other sources of fiber. They made an industrial decision years ago that they would build their papermaking, steelmaking and plastic industries around recovered materials.

Representative Gibson recognized Mr. Steven Burke, Senior Vice President for Corporate Affairs, North Carolina Biotechnology Center, to give an interim report from the Biofuels Energy Strategic Plan Work Group on the development of the Strategic Plan (see **Exhibit P** for the Interim Status Report).

North Carolina has embarked on a strategic plan for biofuels leadership, a multi-party partnership long-term based endeavor, triggered by Senate Bill 2051 in the 2006 session of the General Assembly. Mr. Burke described three premises, one definition, the process to date, and a way of thinking to envision a shared future about liquid biofuels in the State. North Carolinians use 5 billion gallons of liquid fuel a year, and it all comes from outside the State.

- We use just 2 million gallons of bioethanol produced fuels per year. It would be good to change the balance and not be as dependent on fuel that comes from somewhere else.

- It is a matter of common sense as well as security that we in North Carolina think about ways to gain more alternative sources of biofuels. In fact, it is not only a matter of policy and strategy, it is also a provident way to draw on the State's agricultural resources, strong competencies in biotechnology and related technology, and to benefit both individual consumers as well as rural parts of the State.

- Few states in the country are as well prepared and well equipped to address a future of increased biofuels development, because in addition to our capabilities in agriculture and generated biomass, the source of new feed stocks, an international leadership in science and biotechnology to prepare for new alternatives, we have a tradition in agricultural and rural based economic development, and an extraordinary will to work together as partners to solve compelling problems for the State.

Biofuels is an umbrella term for liquid fuels developed from living sources. There is a category called bioethanol, generated from plants (primarily from corn), but which in the future will be generated from other sources such as sorghum, soy beans and wheat straw. A second kind of biofuel is called biodiesel. It comes from soy beans, but it could also come from extracted recycled restaurant oils. A third source of biofuels is animal waste, which has been barely explored.

Senate Bill 2051 was triggered by recognition among a number of state leaders that the state had no coordinated way to bring together thinking and entities around the topic of a biofuels future. The legislation called for convening parties to catalyze the partnership required to bring diverse groups together. The five convening parties are listed on page 4 of **Exhibit P**. The list of steering committee members is given on page 5 of the interim report.

The group met on a number of occasions to devise an operational plan and a vision for the future to unfold over coming years. The 131 strategies resulting from brainstorming will be shaped, coalesced and shortened to yield a cohesive set of possible outcomes for the endeavor. There are some guiding premises that the State must embody as it thinks about its biofuels leadership future (see page 2 of **Exhibit P**). The report of the project will be submitted to the ERC in early April, 2007. It will include strategic recommendations, operational and tactical matters of tax credits, new facilities, and research funding. Mr. Burke described the strategies outlined on page 7 of **Exhibit P**. He said that North Carolina can be an east coast leader in a new and unshaped industry, processing, and extracting fuels from plants grown and developed in the state. The report will include a compelling mandate to set a behavioral imperative to meet by 2015.

Representative Gibson recognized Mr. Andy Adams, Chief, On-Site Wastewater Section, Division of Environmental Health, DENR, to present the annual report on the Wastewater Discharge Elimination Program (see **Exhibit Q** for a copy of the Annual WaDE Program Report). The Section oversees the on-site wastewater septic systems in the state, and will soon begin overseeing the construction of private wells. WaDE is an acronym for Wastewater Discharge Elimination.

In the past year, surveyors took a centralized training class and became authorized, just as local health department environmental health specialists are authorized, to issue permits. Previously the program would identify problems and turn the location of the problems over to the local health department for remediation. Staffing issues at the health departments would at times not allow timely follow-up. To

improve the rate of repair of the systems, the WaDE surveyors are now classified as environmental health specialists and can not only identify the problems but also actively write permits and help find funding to repair the problem systems.

Mr. Givens reminded Commission members that there was a recommendation for additional funding to expand the WaDEprogram in 2006, but it was not part of the budget. He commented that such a recommendation could be brought forward this session should the ERC so desire.

Mr. Givens announced the next meeting of the Commission will be 23 January 2007 in Room 1228 of the Legislative Building.

The meeting adjourned at 1:15 p.m.

Representative Pryor Gibson, Co-Chair, Presiding

Senator Charlie Albertson, Co-Chair

Dot Waugaman, Commission Assistant

Senator Daniel Clodfelter, Co-Chair

LIST OF EXHIBITS

Exhibit A Notice of Meeting dated 3 January 2007

Exhibit B Agenda of Meeting

Exhibit C List of Attendees

Exhibit D Package of Reports with memorandum from Jennifer Mundt dated 17 January 2007

D-1 Interim Report entitled, "Study of Costs and Benefits of Reducing Emissions of Oxides of Nitrogen, Particulate Matter, and Greenhouse Gases form Motor Vehicles" , dated 15 January 2007, transmitted by memorandum from Keith Overcash, Division Director, Division of Air Quality, DENR, dated 12 January 2007

D-2 Annual Report on the Evaluation and Adjustment of the Boundaries of the Area Served by Each Metropolitan Planning Organization, dated 1 November 2006

Exhibit E Request for Proposals to study the merger of the Ecological Enhancement Program and the Clean Water Management Trust Fund, dateds 11 November 2006

Exhibit F Request for Proposals to report on Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point and Nonpoint Source Discharges of Nitrogen and Other Nutrients, dated 15 December 2006

Exhibit G Quarterly Report to the ERC from the Environmental Management Commission on their Activities, dated January 2007

Exhibit H Annual Sedimentation Report, transmitted by memorandum dated 5 December 2006 from William G. Ross, Jr., Secretary, DENR

Exhibit I PowerPoint Presentation on the Solid Waste Landfill Study by Dexter Matthews, Director, Division of Waste Management, DENR

Exhibit J "Improving Oversight of Landfill Construction and Operation in North Carolina, dated 17 January 2007, presented by Ms. Robin Smith, Assistant Secretary for Environment, DENR

Exhibit K PowerPoint Presentation by Mr. Gregory A. Peverall, Consultant, on Municipal Solid Waste Landfills in North Carolina

Exhibit L PowerPoint Presentation by Mr. Scott Mouw on the Status of Recycling and Recycling Markets in North Carolina

Exhibit M *Recycling Means Business! The Impact on Recycling on North Carolina's Economy*, March 2005

Exhibit N *Made in North Carolina: Recycled-Content Products Health Fuel the State's Economy,* January 2007

Exhibit O *New York Times* article, "Blazing a Paper Trail in China," 16 January 2007

Exhibit P "A Strategic Plan for North Carolina's Biofuels Industry: Interim Status Report", 15 January 2007

Exhibit Q Annual WaDE Program Report, dated November 2006

EXHIBIT A

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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3 January 2007

TO: Members of the Environmental Review Commission
Interested Parties

FROM: George F. Givens, Commission Counsel
Dot Waugaman, Commission Clerk

RE: **Notice of Commission Meeting**
Notice of Planning Meeting
Schedule of Future Meetings
Meetings of Interested Parties (605 Working Groups)
Additional Information

COMMISSION MEETING:

The Environmental Review Commission (Commission) will meet at 9:30 a.m. Wednesday 17 January 2007 in Room 544 of the Legislative Office Building in Raleigh.

At this meeting, the Commission will continue studies for which the Commission is responsible, hear reports from State agencies, discuss topics to be considered at future meetings, and attend to other matters. Listed below are potential agenda topics for this meeting and for future meetings. More specific information regarding the agenda for the 17 January meeting of the Commission will be developed at the staff planning meeting discussed below.

STUDIES

1) Issues related to solid waste management (S.L. 2006-244, Sec.4)

2) Issues related to the nutrient offset payment program with regard to the costs associated with providing nutrient controls that are adequate to offset point source and nonpoint source discharges of nitrogen; whether nutrient offset payments should be authorized for additional nutrients, including phosphorus; and whether the nutrient offset program should be expanded to other areas of the State (S.L. 2006-215, Sec. 2)

3) The merger of the organization and functions of the Ecosystem Enhancement Program and the Clean Water Management Trust Fund with the Joint Legislative Transportation Oversight Committee (S.L. 2006-248, Sec. 16)

REPORTS *(Report due dates are indicated in parentheses)*

General/Miscellaneous:

4) Annual report on the evaluation and adjustment of the boundaries of the area served by each Metropolitan Planning Organization (G.S. 136-202(d)) *(1 November)*

5) Annual report on the mercury minimization plan prepared by the Department of Environment and Natural Resources (G.S. 130A-310.57) *(1 November)*

6) Quarterly report on the activities of the Environmental Management Commission (G.S. 143B-282(b)) *(15 January)*

7) Interim Report by the Biofuels Energy Strategic Plan Work Group on the Development of the Strategic Plan (S.L. 2006-206, Sec. 3.2) *(15 January 2007)*

Air Quality:

8) Interim Report on the Costs and Benefits of Reducing Oxides of Nitrogen, Particulate Matter, and Other Greenhouse Gases from Motor Vehicles (S.L. 2006-248, Sec. 43) *(15 January 2007)*

Hazardous Waste Management:

9) Annual report on the Effectiveness of the Brownfields Property Reuse Act (G.S. 130A-310.40) *(1 October)*

10) Report on the findings and recommendations of the Governor's Hazardous Waste Task Force

Land Resources:

11) Annual report on implementation of the Sedimentation Pollution Control Act of 1973 (G.S. 113A-67) *(1 October)*

Parks and Recreation:

12) Parks and Recreation Trust Fund Annual Report, Fiscal Year 2005-2006 (G.S. 113-44.15(c)) *(1 October)*

13) Report on the Conservation Easement Program and inventory of all conservation easements held by the Department of Environmental and Natural Resources (G.S. 113A-235(c), S.L. 2004-124, Sec. 2.2) *(1 October)*

14) Report on acquisitions made with funds from the Natural Heritage Trust Fund (G.S. 113-77.9(e)) *(Semi-annually, within 30 days of revision)*

15) Annual report on the State's progress made towards Preserving One Million Acres of farmland, open space, and conservation lands (G.S. 113A-241(c), S.L. 2004-195, Sec. 2.3) *(1 October)*

16) Report on the Feasibility and Desirability of Acquiring Land and Establishing a State Park at Cabin Lake (S.L. 2006-138, Sec. 3) *(15 January 2007)*

Solid Waste Management:

17) Solid Waste Management Annual Report (G.S. 130A-309.12(c), G.S. 130A-309.06(c)(8), G.S. 130A-309.63(e), G.S. 130A-309.06(c)(10), G.S. 130A-309.85, G.S. 130A-309.06(c)(11), G.S. 130A-309.06(c)(12), 136-28.8(g), G.S. 130A-309.06(c)(13), 143-58.2(f)) *(15 January)*

18) An evaluation of the recycling industry, the markets for recycled materials, the recycling of polystyrene, and the success of State, local, and private industry efforts to enhance the markets for these materials. (G.S. 130A-309.06(c)(6)) *(15 January)*

Water Quality:

19) Annual report on the Wastewater Discharge Elimination Program (S.L. 2001-452, Sec. 2.9) *(15 October)*

20) Implementation of the Clean Water Management Trust Fund; projects and awarded grants. (G.S. 113-145.6A(a) and S.L. 2002-148, Sec. 3) *(1 December)*

21) Implementation of the Ecosystem Enhancement Program and use of the Ecosystem Enhancement Fund, including inventory of property and easements. (G.S. 143-214.13) *(1 November)*

22) Follow-up discussion of the report on the evaluation of the training and qualification requirements for approval as an animal waste management systems technical specialist (S.L. 2006-38, Sec. 2) *(15 November 2006)*

Water Quantity:

23) Annual report by the Catawba/Wateree River Basin Advisory Commission and the Yadkin/Pee Dee River Basin Advisory Commission (G.S. 77-117) *(1 October)*

PLANNING MEETING:

To facilitate development of the agendas for the 17 and 23 January meetings of the Commission, to plan for subsequent meetings of the Commission, and to receive input from interested persons regarding the work of the Commission, the Commission Counsel will hold an informal planning meeting at **10:00 a.m. on Monday 8 January 2007 in Room 605 of the Legislative Office Building**. Persons who wish to participate in the development of the agenda for meetings of the Commission, or who are interested in any matter before the Commission, are invited to attend.

SCHEDULE OF FUTURE MEETINGS:

The Environmental Review Commission is scheduled to meet at 9:30 a.m. on Tuesday 23 January 2007 in Room 1228 of the Legislative Building. It may be necessary to reschedule this meeting.

The Commission may also meet once the General Assembly is in session (G.S. 120-70.44). When the Commission meets while the General Assembly is in session, written notice will not be mailed to persons on the mailing list. Rather, notice will be given at a session of the Senate and House of Representative as provided by G.S. 143-318.12(b) and will be distributed by email. The Commission will resume a regular schedule of monthly meetings following adjournment of the 2007 Session of the General Assembly.

MEETINGS OF INTERESTED PARTIES (605 WORKING GROUPS):

The Commission Counsel will hold meetings of interested parties on specific topics as indicated below:

Underground Storage Tank Working Group
10:00 a.m. Friday 26 January 2007 – 605 Legislative Office Building

ADDITIONAL INFORMATION:

If you have questions related to the Commission, you may contact the Commission Counsel or other Commission staff at (919) 733-2578.

EXHIBIT B

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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AGENDA
9:30 a.m. Wednesday 17 January 2007
Room 544 Legislative Office Building
Raleigh, North Carolina

1. Call to order
   Representative Pryor A. Gibson, Presiding

2. Introductory remarks by Cochairs *(5 minutes)*
   Representative Pryor A. Gibson
   Senator Charles W. Albertson
   Senator Daniel G. Clodfelter

3. Report to the Commission and explanation of agenda items *(10 minutes)*
   George F. Givens, Commission Counsel

4. Quarterly reports by the Environmental Management Commission (EMC) as to its operations, activities, programs, and progress for the period of October 2006 through December 2006 (G.S. 143B-282(b)) *(30 minutes)*
   David H. Moreau, Chairman
   Environmental Management Commission

5. Discussion of issues related to erosion and sedimentation control
   Annual report on the implementation of the Sedimentation Pollution Control Act of 1973 (S.L. 20004-195, Sec. 2.1, G.S. 113A-67) (*5 minutes)*
   Jim D. Simons, State Geologist and Director
   Division of Land Resources, Department of Environment and Natural Resources (DENR)

   Update on the approval of plans for land-disturbing activity along waters that have been classified as trout waters by the EMC (G.S. 113A-57(1)) *(5 minutes)*

Mary Penny Thompson, Assistant General Counsel
Office of the Secretary, DENR

6. Continuation of the discussion of issues related to solid waste management (S.L. 2006-244, Sec.4) (*1 hour and 15 minutes*)

Improving oversight of landfill construction and operation (*15 minutes*)
Robin W. Smith, Assistant Secretary for Environment
DENR

Report on the solid waste management regulations of other states; report on issues related to the processing of solid waste management permits by the Division of Waste Management (*15 minutes*)
Dexter R. Matthews, Director
Division of Waste Management, DENR

Solid waste management industry perspectives (*25 minutes*)
Gregory A. Peverall, Consultant
Solid Waste Management Services on behalf of
Carolinas Chapter of the National Solid Waste Management Association

David M. Barnes, Attorney-at-Law
Poyner & Spruill, LLP on behalf of
National Solid Waste Management Association

Status of recycling and recycling markets in North Carolina *(20 minutes)*
Scott B. Mouw, Chief
Community and Business Assistance Section
Division of Pollution Prevention and Environmental Assistance, DENR

7. Interim Report from the Biofuels Energy Strategic Plan Work Group on the development of the Strategic Plan (S.L. 2006-206, Sec. 3.2) *(15 minutes)*
W. Steven Burke, Senior Vice President for Corporate Affairs
North Carolina Biotechnology Center

8. Annual report on the Wastewater Discharge Elimination Program (S.L. 2001-452, Sec. 2.9) (*10 minutes)*
W. Andy Adams, Chief
On-Site Wastewater Section
Division of Environmental Health, DENR

9. Report on the findings and recommendations of the Governor's Hazardous Materials Task Force *(30 minutes)*
Robin W. Smith, Assistant Secretary for Environment
DENR

10. Commission discussion and announcements

11. Adjourn

SCHEDULE OF FUTURE MEETINGS:

The Commission will meet next on Tuesday 23 January 2007 at 9:30 a.m. in Room 1228 of the Legislative Building in Raleigh.

The Commission may also meet once the General Assembly is in session (G.S. 120-70.44). When the Commission meets while the General Assembly is in session, written notice will not be mailed to persons on the mailing list. Rather, notice will be given at a session of the Senate and House of Representatives as provided by G.S. 143-318.12(b) and will be distributed by email, if possible. The Commission will resume a regular schedule of monthly meetings following adjournment of the 2007 Session of the General Assembly.

OTHER MEETINGS:

The Commission Counsel will hold meetings of interested parties on specific topics as indicated below:

Underground Storage Tank Working Group

10:00a.m. Friday 26 January 2007 – 605 Legislative Office Building

ADDITIONAL INFORMATION:

Persons having questions about the Commission meeting or other matters related to the Commission may contact Commission Counsel or other Commission staff at (919) 733-2578.

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — January 17, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Bob Sacra	NC FORESTRY
Cam Cover	BPMHL
Kathy Hurley	Progress Energy
Jim Lowry	NC Utility Contractors Assn.
Mary Dorn	VIP Program
Marion Munchhoff	Poyner & Spruill
D	KENNEDY COVINGTON
Charlie Carter	Troutman Sanders
Tommy Strong	NCPC
Patrick Buffkin	NELSON MULLINS
	UNC
Jim McLees	McLees Consulting, Inc.

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — January 17, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Sara Ward	USFWS - Raleigh Field Office
Steve Metcalf	NC Pork Council
Mia Bailey	ElectriCities of NC, Inc.
Dan Moore	MRR Southern
John Canderson	
Suzanne Klimek	NC DENR EEP
Chris Frazier	NC DENR DPPEA
Michelle Gonyo	Institute for Emerging Issues
Jaryl K. Covington	City of Greensboro
Ethan Brown	DENR - DWM
Ellen Luscher	DENR - DWM
Cathy Akroyd	DENR - DWM

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — January 17, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Chris Roof	MRR Southern
Kim Hibbard	NCLM
Anita Watkins	NCLM
Maximilien Merrill	NCDA+CS
Dewitt Hardee	"NCDA+CS"
Tom Jones	CWMTF
D.G. Martin	CWMTF
Gordon Myers	NCWRC
Amy Fullbright	H&W
Amy McConkey	S.A.
Reid Wilson	CTNC

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — January 17, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Michelle M. Brown	Joyce Engineering
Todd Roessler	Kilpatrick Stockton
Amy Pickle	Southern Env. Law Center
Gay B Wilson	Orange County
Tom Beam	NCED / NCSEA
Mike Abraczinskas	NC DAQ
Pat Dennis	Duplin Co
Francis Parker	CSE Duplin Co.
Dan Crawford	Electricities NC
Cliff Venable	Gov Office
Lisa Martin	NC Home Builders Assoc.

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — January 17, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Jack Chandler	Catawba County
FRANK WARREN	GCRG - Greene County
LISA NOLEN	GOVERNOR'S OFFICE
ELIZABETH OUTEN	Environment North Carolina
Bob Davis	Scotland County
Freddie Davis	Scotland County

EXHIBIT D

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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17 January 2007

MEMORANDUM

To: Members of the Environmental Review Commission
From: Jennifer Mundt, Commission Analyst
Re: Reports to the Commission

The following report has been submitted by the Department of Environment and Natural Resources (DENR) to the Environmental Review Commission since the last reports distribution on 13 December 2006. This report is designated as a read only and is attached to this memorandum:

1. Interim Report on the Costs and Benefits of Reducing Oxides of Nitrogen, Particulate Matter, and other Greenhouse Gases from Motor Vehicles. 15 January 2007. Authority: S.L. 2006-248, Sec. 43.

The following report has been submitted by the Department of Transportation to the Environmental Review Commission since the last reports distribution on 13 December 2006. This report is designated as a read only report and is attached to this memorandum:

1. Annual report on the Evaluation and Adjustment of the Boundaries of the Area Served by Each Metropolitan Planning Organization. 1 November 2006. Statutory Authority: G.S. 136-202(d).

The following report has been submitted by the Environmental Management Commission (EMC) to the Environmental Review Commission and will be distributed in connection with today's ***Agenda Item # 4:***

1. Quarterly report by the EMC as to its operations, activities, programs, and progress during the previous quarter. 15 January 2007. Statutory Authority: G.S. 143B-282(b).

The following report has been submitted by North Carolina's Strategic Plan for Biofuels Leadership to the Environmental Review Commission and will be distributed in connection with today's ***Agenda Item # 7:***

1. Interim Status Report on the Strategic Plan for North Carolina's Biofuels Industry. 15 January 2007. Authority: S.L. 2006-206, Sec. 3.2.

The following reports have been submitted by Department of Environment and Natural Resources (DENR) to the Environmental Review Commission and will be distributed in connection with today's Agenda Items as noted below:

1. Annual Report by DENR on the Implementation of the Sedimentation and Pollution Control Act of 1973. 1 October 2006. Statutory Authority: G.S. 113-67. ***Agenda Item # 5***

2. Annual Report on the Wastewater Discharge Elimination Program. 15 October 2006. Authority: S.L. 2001-452, Sec. 2.9 ***Agenda Item # 8***

3. Report on the Findings and Recommendations of the Governor's Hazardous Waste Task Force. ***Agenda Item # 9***

Please contact George Givens, Jeff Hudson, Jennifer McGinnis, or Jennifer Mundt at (919) 733-2578 if you have any questions or comments.

EXHIBIT D-1

NCDENR

North Carolina Department of Environment and Natural Resources
Division of Air Quality

Michael F. Easley, Governor

William G. Ross, Jr., Secretary
B. Keith Overcash, P.E., Director

January 12, 2007

MEMORANDUM

TO: Senator Dan Clodfelter, Co-Chair
Representative Pryor Gibson, Co-Chair
Senator Charlie Albertson, Co-Chair

FROM: Keith Overcash, Division Director

Re: Submittal of interim report, "Study of Costs and Benefits of Reducing Emissions of Oxides of Nitrogen, Particulate Matter, and Greenhouse Gases from Motor Vehicles"

Session Law 2006-248 Section 43 requires the Division of Air Quality to study the costs and benefits of reducing emissions of oxides of nitrogen, particulate matter, and greenhouse gases from motor vehicles. The attached interim report evaluates the desirability and air quality benefits of adopting motor vehicle emissions standards adopted in other states. If you have specific questions or comments, please contact Mike Abraczinskas at (919) 715-3743.

Attachment:
Interim Report

cc: George Givens

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North Carolina Division of Air Quality

Study of Costs and Benefits of Reducing Emissions of Oxides of Nitrogen, Particulate Matter, and Greenhouse Gases from Motor Vehicles

Interim Report to the Environmental Review Commission and the Legislative Commission on Global Climate Change

January 15, 2007

The Requirement: Excerpted from SESSION LAW 2006-248, HOUSE BILL 1723

PART XLIII. DIVISION OF AIR QUALITY STUDY OF COSTS AND BENEFITS OF REDUCING EMISSIONS OF OXIDES OF NITROGEN, PARTICULATE MATTER, AND GREENHOUSE GASES FROM MOTOR VEHICLES. (S.B, 1006 – Clodfelter)

SECTION 43. The Division of Air Quality of the Department of Environment and Natural Resources shall study the costs and benefits of reducing emissions of oxides of nitrogen, particulate matter, and greenhouse gases from motor vehicles in this State. In particular, the Division shall evaluate the desirability and air quality benefits of adopting motor vehicle emissions standards adopted in other states. The Division of Air Quality shall submit an interim report on its findings and recommendations, including any legislative proposals, no later than January 15, 2007 and shall submit a final report no later than April 1, 2007 to the Environmental Review Commission and the Legislative Commission on Global Climate Change.

Purpose

The objective of this report is to summarize the estimated emissions benefits of adopting the California Low-Emission Vehicle II (CA LEV-II) standard in North Carolina (NC). The emissions benefits analysis includes an examination of nitrogen oxides (NOx), volatile organic carbons (VOCs), fine particles (PM2.5) and carbon dioxide (CO2). Using air quality modeling sensitivities recently conducted by the North Carolina Division of Air Quality (NCDAQ), potential ozone benefits were also estimated. Additional data was collected and analyzed to better understand the costs associated with implementing a CA LEV-II program in North Carolina.

Background

The United States Environmental Protection Agency (USEPA) has adopted national motor vehicle and fuel standards which include the Tier 2 vehicle and gasoline standard (phase-in began in 2004), and the heavy-duty diesel vehicle and fuel standard (phase-in begins in 2006 with the release of the model year 2007 heavy-duty diesel vehicles and low sulfur diesel fuel).

Beyond the federal standards, North Carolina has expanded its Inspection and Maintenance (I/M) program, which covers 48 of the State's 100 counties, to ensure that vehicle emission controls are properly working.

The federal Clean Air Act (CAA) provides the framework for regulating emissions from on-road mobile sources. The CAA set the first federal vehicle emission standards. However, because California already had vehicle emission standards when this occurred, the CAA authorized California (and only California) to continue setting its own vehicle emission standards. Therefore all new vehicles sold in the United States (U.S.) are subject to emission standards set by either the federal government or the State of California. Other states have the option to adopt the California vehicle emission standards in lieu of the federal standards. This authority was granted under Section 177 of the CAA. Section 177 also guarantees the automakers that they will not have to meet more than two regulatory regimes by explicitly prohibiting any requirements that result in a "third vehicle".

Overview of Federal Tier 2 and California LEV-II Programs

Federal Tier 2 vehicle and gasoline standards and the CA LEV-II program were each effective with model year 2004 vehicles. Both regulations set emission standards for light-duty vehicles such as passenger cars, trucks, and sport utility vehicles. Both programs are phased in over several years and become progressively more stringent providing significant emission reductions from evaporative and exhaust motor vehicle activity. The auto manufacturers have flexibility in how they meet the annual fleet average emissions standards. Tier 2 and CA LEV-II programs have the following differences:

- Federal Tier 2 program requires all light-duty fleet averages to meet the NOx standard of 0.07 grams per mile phased-in between years 2004 and 2009. CA LEV-II fleet average standards are based on non-methane organic gases (NMOG), also referred to as hydrocarbons (HC) or VOCs.
- CA LEV-II program requires a portion of the light-duty fleet to be "zero-emission vehicles" (ZEVs) which originally mandated the electric ZEVs. This requirement has been changed to allow partial credit for vehicles with advanced technologies and fall in the categories of Partial ZEVs (PZEVs) or advance technology partial ZEVs (AT-PZEVs).
- The evaporative requirements of the CA LEV-II standard appear to be more stringent than the Tier 2 standard, however the Tier 2 evaporative standard provides for evaporative system durability which USEPA indicates make the Tier 2 evaporative requirements identical to that of the CA LEV-II requirements. Additionally, in February 2006, the USEPA proposed rules that codify the approach that manufacturers are already taking for 50-state evaporative systems. The proposal requires implementation of the "California equivalent" evaporative emission standards in 2009 for lighter vehicles and 2010 for the heavier vehicles.

On-Road Mobile Source Emissions – NOx and VOC

The NCDAQ conducted a technical modeling analysis study in 2006 to begin to understand the emissions benefits of adopting CA LEV-II in North Carolina. The emissions benefits analysis included a comparison of statewide on-road mobile source NOx and VOC emissions resulting from the current federal level of control (Tier 2), and from the CA LEV-II level of control. It should be noted that the emission differences were calculated in context of the entire on-road mobile source emissions inventory. This method for comparison enabled the NCDAQ to apply the knowledge gathered in emissions/air quality modeling studies to assess the air quality (ozone) benefits that might result from the CA LEV-II emissions benefits. The details of the technical modeling study including the approach, methods and data used in estimating the benefits are described in the attached Technical Support Document "*Analysis of the California Low Emission Vehicle II Standards in NC.*" Also attached is the power point presentation given by Brock M. Nicholson, P.E., Deputy Director of the NCDAQ to the Environmental Review Commission (ERC) on May 3, 2006.

As can be seen in Table 1, the statewide NOx and VOC emissions from adopting a CA LEV-II program are lower relative to the Federal Tier 2 level of control. CA LEV-II was assumed to begin in NC in the year 2010 in this analysis. Emissions were estimated for the years 2010, 2020 and 2030. As CA LEV-II vehicles make up a more significant portion of the overall vehicle fleet with time, the CA LEV-II standards show an increasing emissions benefit (i.e., on a percentage basis) over time relative to the Tier 2 level of control.

Table 1. CA LEV-II Reductions Compared to Federal Tier 2: Entire Fleet

	2010	2020	2030
NOx	0.1%	4%	10%
VOC	0.1%	3%	6%

Figure 1 below presents the North Carolina statewide on-road mobile source NOx emissions inventory with a Tier 2 control program for years 2004, 2010, 2020, and 2030 (blue line), and also with a CA LEV-II control program for years 2010, 2020, and 2030 (magenta line). Figure 2 is a similar graph for VOC emissions. (It should be noted that the NOx and VOC emission estimates with a Tier 2 control program, assume there are no CA LEV-II compliant vehicles in North Carolina already. While NCDAQ does not have any official data, informal surveys have shown there are North Carolinians already driving CA LEV-II compliant vehicles. Therefore, the emission benefits of the CA LEV-II program shown in Table 1 and Figures 1 and 2 are likely over-estimated.)

Also noteworthy, these figures illustrate the significant reductions in on-road mobile emissions, regardless of the control program, expected over time in North Carolina. These reductions will occur despite significant estimated increases in VMT (see Figure 3).

Figure 1. Estimated NOx Emissions – Federal Tier2 vs. CA LEV-II

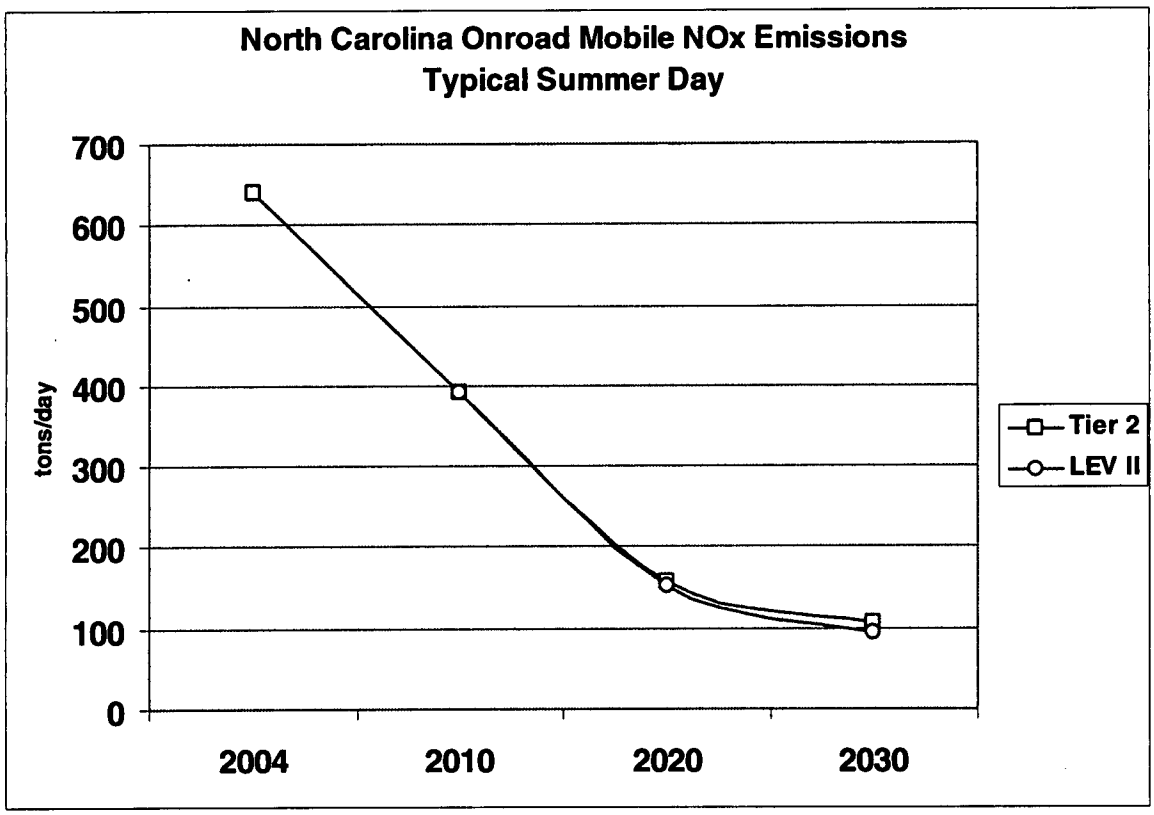


Figure 2. Estimated VOC Emissions – Federal Tier2 vs. CA LEV-II

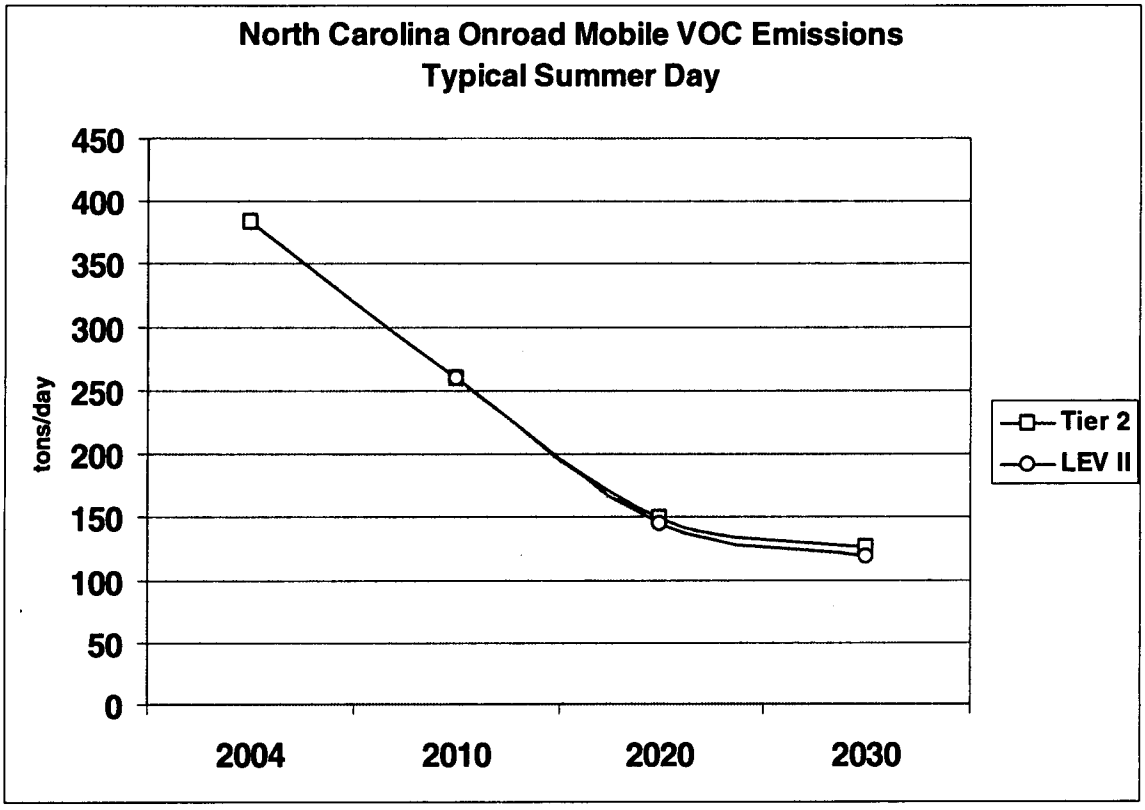
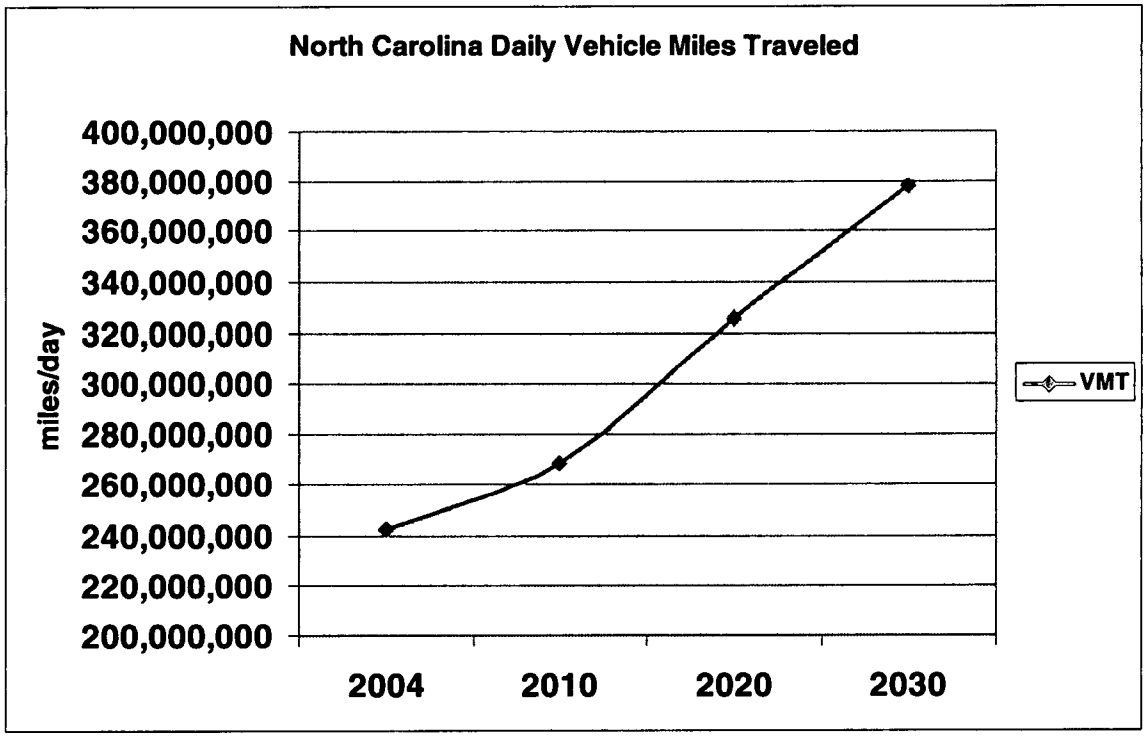


Figure 3. Estimated Vehicle Miles Traveled



Particulate Matter

Particle pollution (also known as "particulate matter") is a mixture of tiny solids and liquid droplets suspended in air. Airborne particles are the main ingredient in haze, smoke and airborne dust. Particles less than 2.5 micrometers in diameter are called "fine" particles or "PM2.5", and are of special concern because they can penetrate deeply into the lungs.

Potential particulate matter emissions impacts were not specifically evaluated in the NCDAQ modeling study for several reasons. First, based on North Carolina's 2002 PM2.5 emissions inventory, on-road mobile sources only contribute approximately 5% to the total statewide PM2.5 emissions inventory. Secondly, a study of North Carolina's vehicle registration database suggests only 0.3% of the light duty vehicles registered in NC are diesels. This is important because the PM2.5 vehicle standards are for all practical purposes only relevant to diesels, since gas vehicles easily meet the standards. Therefore the most relevant impact of adopting the CA LEV-II program might be on the sales of diesel vehicles themselves. However, major vehicle manufacturers have recently indicated their intention to develop light duty diesel vehicles that meet the CA LEV-II requirements. Overall, the impacts to particulate matter emissions would be negligible if NC adopts the CA LEV-II program.

Greenhouse Gases – Status of Pavely

The Pavley requirements of the CA LEV-II standards are designed specifically to reduce greenhouse gases (GHG) from light duty vehicles. Named after California Assembly woman Fran Pavely, it became California law in 2002, and pending a waiver from USEPA, takes effect in model year 2009. If granted the Pavely waiver from USEPA, all states that have adopted the CA LEV-II standards would automatically be subject to the Pavely component of the standard. If USEPA does not grant the waiver to California, the decision may be challenged in the Federal Court of Appeals in Washington DC.

NCDAQ is aware of several pending court cases involving the CA LEV-II standards and specifically the Pavely requirements in California, Vermont and Rhode Island. The Pavely requirements must survive the lawsuits and get the waiver from USEPA to be "available" to North Carolina. These legal issues are discussed below.

In California, auto industry filed a lawsuit under the California Environmental Quality Act (CEQA) challenging the Pavely requirements directly. The plaintiffs challenges are procedural, although should the plaintiff prevail, the rules could be nullified in California, which could undercut the rules in all other states that have adopted them. Recently, the federal district court judge threw out two of the auto industry's five claims against the Pavely regulations. No decisions have been issued on the other three claims.

In Maine, the Alliance of Automobile Manufacturers filed a lawsuit against the Maine Board of Environmental Protection asking that Maine's rules be stayed. The court rejected the claim on two grounds: First, Maine state law does not allow a court to issue a stay in a challenge to a rulemaking proceeding. Second, even if the court could issue a

stay, the plaintiff had not demonstrated that it would suffer irreparable injury, because: 1) the rules cannot be implemented until a waiver is issued by USEPA and 2) the rules do not go into effect until 2009 anyway. Later, the case was dismissed without prejudice (meaning they can file again within one year) because they filed under the wrong administrative provisions.

In Vermont, the auto industry filed a lawsuit in federal court in November 2005. Since then, the state moved the court to dismiss the case claiming the case was not ripe. On November 30, 2006 the District Court denied the state's motion to dismiss finding that the "purely legal questions raised in this lawsuit are as well determined now as later" despite the uncertainty as to whether a determination will even be necessary given the pending EPA waiver.

Finally, in Rhode Island, the Association of International Automobile Manufacturers filed suit on February 13, 2006 in federal district court asking the court for a declaratory judgment that the Rhode Island regulations violate federal law and a preliminary injunction enjoining Rhode Island from implementing or enforcing the regulation. They also claimed that because California has not obtained a waiver for Pavely, the Clean Air Act expressly prohibits the Rhode Island from adopting and enforcing the regulations. On April 6, 2006 the state filed a motion to dismiss claiming the case was not ripe for judicial review. The Court has not ruled on this motion.

Greenhouse Gases – Potential Emissions Benefits

The GHG emissions addressed by Pavely focus mostly on carbon dioxide (CO_2), but also include methane (CH_4), nitrous oxide (N_2O), and hydrofluorocarbon (HFC) 134a reductions as well. The purpose of the Pavely requirement is to "achieve the maximum feasible and cost effective reduction in GHG emissions from motor vehicles." The standard will require that tailpipe GHG emissions from new vehicles be reduced by 22 percent by the 2012 model year and 30 percent by the 2016 model year.

California and other opt-in states expect that automobile manufacturers will apply technological improvements to meet the Pavley requirements. Specific measures identified include discrete variable valve lift, dual cam phasing, turbo charging with engine downsizing, automated manual transmissions and cam-less valve actuation.

Costs of Vehicles

The initial purchase price of a new vehicle could increase if North Carolina adopts California's vehicle emissions standards. However, these advanced vehicles, especially those meeting the Pavely requirement, are likely to be more fuel efficient, producing savings to the consumer in fuel costs. The anticipated costs have been studied by several organizations including California's Air Resources Board (CARB). These cost ranges are summarized below.

The State of Oregon recently estimated that the CA LEV-II program would increase average vehicle cost $115 to $271. These estimates – based on a CARB Staff report

(http://www.arb.ca.gov/regact/zev2003/isor.pdf) - were based on the incremental costs of ZEVs, PZEVs and AT-PZEVs in 2012.

The average fleetwide incremental costs associated with the Pavley requirement over the 2009 to 2016 phase-in period, as estimated by CARB, are as high as $1,000 per vehicle as shown in Table 2 below. CARB also found this initial increase in purchase price to be more than offset by reduced operating costs. Using the average increase in vehicle prices associated with the fully phased-in regulation (2016), and an assumed fuel price of $1.74 per gallon, CARB calculated that the increased vehicle payment minus the reduction in operating cost would result in a monthly savings of about $3.50 to $7.00. At today's higher fuel prices, the monthly savings increase.

Table 2. Potential Vehicle Cost Increase due to Pavely

Tier	Year	Average cost of control	
		PC/LDT1 (Passenger cars and small trucks/SUVs)	LDT2 (Large trucks/SUVs)
Near-term	2009	$17	$36
	2010	$58	$85
	2011	$230	$176
	2012	$367	$277
Mid-term	2013	$504	$434
	2014	$609	$581
	2015	$836	$804
	2016	$1,064	$1,029

(from: http://www.arb.ca.gov/regact/grnhsgas/fsor.pdf, pg 11)

California's Pavely emissions standards are required by law to achieve maximum feasible and cost effective GHG emissions reductions without reducing vehicle weight or banning the sale of any vehicle category such as sport utility vehicles or light duty trucks. Therefore, the estimated costs represent the cost of applying additional technology to the kinds of vehicles known today to achieve emission reductions.

During California's rulemaking process, the auto industry commented that the Pavely requirement of CA LEV-II standard would not produce an overall savings to consumers. The industry's position was based on a study by Sierra Research, which concluded that the average per-vehicle cost of technology required to comply with Pavely was $3,000 per vehicle. The report also concluded the lifetime gasoline savings would average about 1,000 gallons. CARB's response to these comments was that Sierra's research rejected promising and cost-effective emerging engine technologies as elements of a GHG regulatory compliance strategy. CARB also noted the industry assumed the use of expensive aluminum body structures and assigned higher estimated costs for vehicle components than CARB thought was appropriate. (see http://www.arb.ca.gov/regact/grnhsgas/fsor.pdf, pg 168)

Conclusions

The CA LEV-II program (assuming statewide implementation in 2010) could provide NOx reductions on the order of 0.1% in 2010, 4% in 2020 and 10% in 2030 and VOC reductions of 0.1% in 2010, 3% in 2020 and 6% in 2030 as compared to the Federal Tier 2 program already in place. It should be noted that in 2030, the estimated 10% on-road mobile NOx reduction is equivalent to only 10 tons/day of NOx reduced statewide. This is because of the overall on-road mobile NOx emissions are significantly lower by that time due primarily to the Federal Tier 2 program. NCDAQ has estimated this additional level of NOx reduction, due to CA LEV-II in these future years, will not significantly impact North Carolina's ability to attain the National Ambient Air Quality Standard for 8-hr ozone. The CA LEV-II program would have an insignificant impact on particulate matter emissions from vehicles. Greenhouse gas emissions from light duty vehicles could be reduced by an estimated 22 percent by the 2012 model year and 30 percent by the 2016 model year if Pavely survives several lawsuits and if California is granted a waiver from USEPA.

Costs associated with the CA LEV-II program vary depending on how the program is structured. Increased costs from $115 to $271 per vehicle have been estimated for CA LEV-II vehicles. If Pavely becomes part of the program, cost increases could be as high as an additional $1,000 per vehicle. Additionally, NCDAQ has estimated that moderate staffing implications could result from enforcement of CA LEV-II and from the impact to tasks such as transportation conformity, SIP modeling and emission inventories.

North Carolina Division of Air Quality

Technical Support Document

Analysis of the California Low Emission Vehicle II Standards in NC

July 2006

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Appendices

Appendix A: Detailed Representation of MOBILE6.2 Emission Factor Post-Process
Appendix B: CA LEV-II Emission Factors
Appendix C: Tier 2 Emission Factors
Appendix D: North Carolina VMT

Disclaimer: The on-road mobile source input data (e.g. VMT) and emissions data presented herein *do not* represent North Carolina's official on-road mobile source data for purposes of State Implementation Plans or Transportation Conformity. On-road mobile source emissions presented herein were generated specifically to analyze the *relative differences* between the Federal Tier 2 and CA LEV-II standards.

Executive Summary

Introduction

The North Carolina Division of Air Quality (NCDAQ) conducted a technical emissions benefit analysis and air quality sensitivity study to evaluate whether reduced emissions from passenger cars and light-duty trucks by adoption of California Low Emission Vehicle II standards (CA LEV-II) would be realized as compared to the current Federal Tier 2 standards program.

The United States Environmental Protection Agency (USEPA) has adopted national motor vehicle and fuel standards which include the Tier 2 vehicle and gasoline standard (phase-in began in 2004), and the heavy-duty diesel vehicle and fuel standard (phase-in begins in 2006 with the release of the model year 2007 heavy-duty diesel vehicles and low sulfur diesel fuel). Beyond the federal standards, North Carolina has expanded its Inspection and Maintenance (I/M) program, which covers 48 of the State's 100 counties, to ensure that vehicle emission controls are properly working.

The federal Clean Air Act (CAA) provides the framework for regulating emissions from on-road mobile sources. The CAA set the first federal vehicle emission standards. However, because California already had vehicle emission standards when this occurred, the CAA authorized California (and only California) to continue setting its own vehicle emission standards. Therefore all new vehicles sold in the United States (U.S.) are subject to emission standards set by either the federal government or the State of California. Other states have the option to adopt the California standards in lieu of the federal standards. This authority was granted under Section 177 of the CAA. Section 177 also guarantees the automakers that they will not have to meet more than two regulatory regimes by explicitly prohibiting any requirements that result in a "third vehicle".

Overview of Federal Tier 2 and California LEV-II Programs

Federal Tier 2 vehicle and gasoline standards and the CA LEV-II program were each effective with model year 2004 vehicles. Both regulations set emission standards for light-duty vehicles such as passenger cars, trucks, and sport utility vehicles, which are programmed to phase in over several years and become progressively more stringent. Both programs provide significant emission reductions from evaporative and exhaust motor vehicle activity. The auto manufacturers have flexibility in how they meet the annual fleet average emissions standards. Tier 2 and CA LEV-II programs have the following differences:

Federal Tier 2 program requires all light-duty fleet averages to meet the Nitrogen Oxides (NOx) standard of 0.07 grams per mile phased-in between years 2004 and 2009. CA LEV-II fleet average standards are based on non-methane organic gases (NMOG), also referred to as hydrocarbons (HC) or volatile organic carbons (VOCs).
CA LEV-II program requires a portion of the light-duty fleet to be "zero-emission vehicles" (ZEVs) which originally mandated the electric ZEVs. This requirement has been changed to allow partial credit for vehicles with advanced technologies and fall in the categories of Partial ZEVs (PZEVs) or advance technology partial ZEVs (AT-PZEVs).

The evaporative requirements of the CA LEV-II standard appear to be lower than the Tier 2 standard, however the Tier 2 evaporative standard provides for evaporative system durability which USEPA indicates make the Tier 2 evaporative requirements identical to that of the CA LEV-II requirements.

Overview of Mobile Source Emissions

On-road mobile source emissions make up a significant portion of the total statewide NOx emissions. For 2002, this sector comprised approximately 45% of the North Carolina NOx inventory. This analysis looked at both NOx and VOCs emissions for all of North Carolina for a typical summer weekday. The impacts on future year ozone concentrations also were estimated. NOx and VOC emissions are both ozone precursor compounds however NOx controls are of particular importance for addressing higher 8 hour ozone levels in North Carolina due to the abundance of VOC from biogenic (natural) sources.

USEPA's MOBILE6.2 emission factor model was used to generate NOx and VOC emission factors for both regulatory scenarios, adoption of CA LEV-II starting in 2009 and the status quo of the federal Tier 2 program. The most current state and region specific data was applied including speeds, fuel parameters, vehicle age distribution and vehicle mix and ambient temperature. Motor vehicle activity - defined as vehicle miles traveled (VMT) - was matched with emission factors resulting in a typical summer day VOC and NOx emissions inventory. After a baseline mobile inventory was developed assuming purely a federal Tier 2 program in effect starting in 2004, future years mobile inventories for 2010, 2020, and 2030 were compared to this baseline inventory. The year 2004 was chosen because it represents the start year of the federal Tier 2 program. Then, the same future year mobile inventories were developed using CA LEV-II assumptions and compared to the existing Tier 2 results. Table ES-1 below shows the percent NOx and VOC emissions reduction expected if CA LEV-II standards were implemented in 2010.

Table ES-1. CA LEV-II Reductions Compared to Federal Tier 2: On-Road Mobile Emissions

	2010	2020	2030
NOx	0.1%	4%	10%
VOC	0.1%	3%	6%

Between 2004 and 2030 North Carolina will realize significant reductions in the on-road NOx mobile emissions on the order of 83%. This is primarily due to fleet turnover and the ongoing Federal Tier 2 program. It is noteworthy to mention that the reductions in NOx emissions are occurring even as the daily VMT (dVMT) is expected to increase by 57 %. See Figures ES-1 and ES-2 below for the inverse trend in NOx emissions for the onroad mobile sector emissions and how daily VMT is expected to grow in the future.

Figure ES-1. Estimated NOx Emissions – Federal Tier 2 vs. CA LEV-II

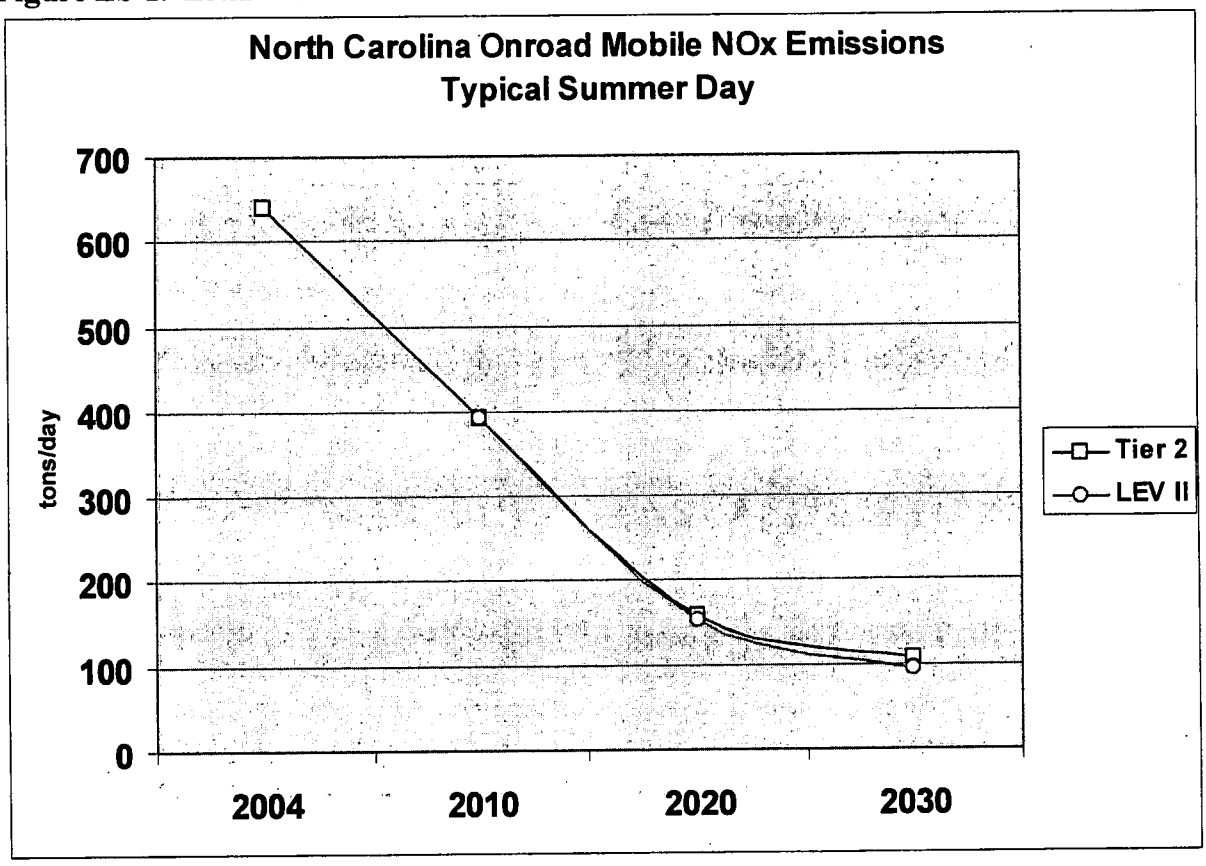
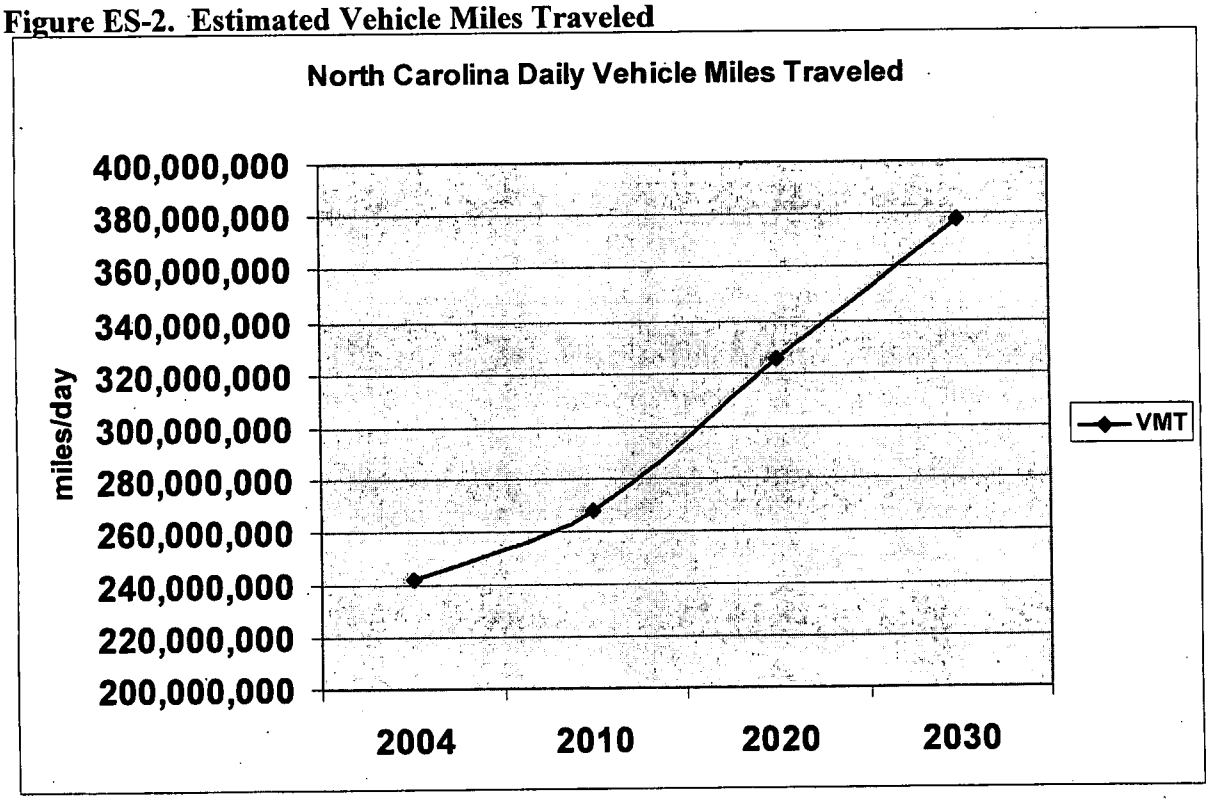


Figure ES-2. Estimated Vehicle Miles Traveled



Overview of Air Quality Impacts – Ozone Sensitivity

During the development of the 8-hour ozone State Implementation Plans (SIP) for North Carolina's nonattainment areas, the NCDAQ conducted several air quality modeling sensitivities to evaluate potential NOx control strategies to help reduce future year ozone concentrations. The emissions sensitivity used in this analysis reduced on-road mobile source NOx emissions in the Metrolina (Greater Charlotte area) 8-hour ozone nonattainment area by 10% from year 2009 emission levels. The Metrolina region was chosen because they currently show the highest ozone concentrations in North Carolina.

Results of the air quality model simulations indicated that a 10% NOx reduction in 2009 for on-road mobile source emissions was equivalent to a 10 ton/day reduction in the Metrolina region. The 10 ton/day on-road NOx reduction was then compared back to the "baseline" year 2009 emissions that included only the current federal Tier 2 level of control. Therefore these results would suggest that an additional 10% NOx reduction would basically lower the 8-hour ozone concentrations anywhere between 0.1 and 1.0 parts per billion (ppb) in year 2009.

DAQ next assessed the ozone benefits in future year 2020 with the CA LEV-II program implementation in year of 2010. The year 2020 would afford a significant fleet turnover for CA LEV-II vehicles with NOx emissions reduction on the order of 4%. A 4% NOx reduction equates to 1 ton/day in 2020 and lower 8 hour ozone levels by 0.1 ppb in the Metrolina region.

Summary of Air Quality Impacts

For the Metrolina Area...

- 2009 on-road mobile NOx ~ 100 tons/day (w/ Tier 2)
- 2020 on-road mobile NOx ~ 25 tons/day (w/Tier 2)

If a 10% NOx reduction = 10 tons/day in 2009 = 1 ppb maximum ozone benefit

Then a 4% NOx reduction = 1 ton/day in 2020 = 0.1 ppb maximum ozone benefit

DAQ concluded the 4% on-road mobile NOx reduction in year 2020 due to a CA LEV-II program would have a very limited impact on maximum 8-hour ozone.

Overview of CA LEV-II Fleet Analysis and Enforcement

Any state adopting the CA LEV-II regulation is not required to enforce measures associated with tracking vehicle sales or registration data (each auto manufacturers must comply with the fleet average NMOG emissions values). As a qualitative measure, DAQ compared several fleet demographic parameters of California versus North Carolina's fleets to estimate whether "fleet average" enforcement is critical to the program. When looking at the applicable vehicles in each state based on gross vehicle weights (GVW), North Carolina has 11% more passenger cars, 7%

fewer light-duty trucks (under 6,001 lbs.) and 6% fewer light-duty trucks (6,001-8,500 lbs.) than in California.

The second fleet demographic is vehicle age distribution expressed as a percent based on the number of vehicle within a vehicle class and model year. North Carolina has a slightly lower percentage of 1 and 2 year old passenger cars than California and equal percentages of 3-year-old passenger cars. North Carolina has a greater percentage of 4 through 12 year old passenger cars and fewer 13 to 25 year olds. Generally fleets weighted towards newer vehicles will more quickly benefit from a control program due to the acceleration toward a newer fleet.

Finally, a comparison of the fraction of VMT driven by each vehicle class in 2010 was analyzed based on USEPA guidance. California light-duty gasoline car and truck owners are projected to drive their vehicles slightly more than North Carolinians in year 2010.

Overview of Qualitative Assessment of Enforcement Options

If one generally assumes passenger vehicles are cleaner emitting vehicles than light-duty trucks, and newer vehicles generally emit less than older vehicles, then one can qualitatively assert that the light-duty gasoline vehicle fleet registered in North Carolina is cleaner than California's registered light-duty gasoline vehicle fleet. This data (i.e., especially the greater percentage of passenger cars) may be an indicator that a fleet average requirement will not be difficult to meet in North Carolina and thus a "simple certification" enforcement program might result in similar benefits, while requiring fewer state resources.

Overview of Staffing and Enforcement Resources

NCDAQ contacted several state air quality agencies including Washington State Department of Ecology, Air Quality Program to better understand staffing needs associated with implementing and enforcing a CA LEV-II program. Washington indicated both New York and Massachusetts have staffs at 2 to 3 people (not full time) on CA LEV-II tasks.

The primary point of enforcement/compliance would likely be the State's Division of Motor Vehicles (DMV) with the air quality agency staff conducting audits, monitoring program effectiveness, handling public outreach, registration, and vehicle availability issues.

Another possible resource concern considered by NCDAQ is the impact to existing tasks such as transportation conformity, SIP modeling and emission inventories. Due to more complicated mobile source emission estimation techniques involved with a CA LEV-II program, there is some concern that timelines on these core tasks could be lengthened.

Conclusions

The CA LEV-II program (assuming statewide implementation in 2010) could provide NOx reductions on the order of 0.1% in 2010, 4% in 2020 and 10% in 2030 and VOC reductions of 0.1% in 2010, 3% in 2020 and 6% in 2030 as compared to the Federal Tier 2 program already in place. It should be noted that in 2030, the estimated 10% on-road mobile NOx reduction is

equivalent to only 10 tons/day of NOx reduced statewide. This is because of the overall on-road mobile NOx emissions are significantly lower by that time. NCDAQ has estimated this level of NOx reduction in these future years will impact North Carolina's ability to attain the National Ambient Air Quality Standard for 8-hr ozone insignificantly. Additionally, moderate staffing implications could result from enforcement of CA LEV-II and from the impact to tasks such as transportation conformity, SIP modeling and emission inventories.

1. Description of Project

1.1 Purpose

The objective of this project was to estimate the emissions benefits of adopting California Low-Emission Vehicle II (CA LEV-II) standards in North Carolina (NC), as compared to the Federal Tier 2 standards already in effect. Using air quality modeling sensitivities recently conducted by the North Carolina Division of Air Quality (NCDAQ), potential ozone benefits were also estimated. Additional data was collected and analyzed to better understand the impact of implementing a fleet averaging enforcement option.

1.2 Background

On-road mobile source emissions make up a significant portion of the total statewide Nitrogen Oxides (NOx) emissions. For example, in year 2002, the NCDAQ estimated that 45% of North Carolina's NOx emissions came from on-road mobile sources. NOx and volatile organic compounds (VOC) are critical ozone precursors. Because of the generally warm and moist climate of North Carolina, vegetation abounds in many forms, and forests naturally cover much of the state. This "biogenic" sector is the most abundant source of VOCs in North Carolina and accounts for approximately 90% of the total VOCs statewide. The overwhelming abundance of biogenic VOCs makes the majority of North Carolina a NO_x limited environment for the formation of ozone. Therefore, reductions of only NOx emissions are targeted in North Carolina when aiming to reduce ozone.

Federal, State and local control programs have been implemented to help control NOx emissions from on-road mobile sources. At the state level, North Carolina has expanded its Inspection and Maintenance (I/M) program. The program now covers 48 of the State's 100 counties to ensure that vehicle emission controls are properly working.

At the federal level, the United States Environmental Protection Agency (USEPA) has adopted national motor vehicle and fuel standards. The most recent standards adopted by USEPA include the Tier 2 vehicle and gasoline standard (phase-in began in 2004)[1], and the heavy-duty diesel vehicle and fuel standard (phase-in begins in 2006 with the release of the model year 2007 heavy-duty diesel vehicles and low sulfur diesel fuel)[2].

The federal Clean Air Act (CAA) provides the framework for regulating emissions from on-road mobile sources. The CAA set the first federal vehicle emission standards. However, because California already had vehicle emission standards when this occurred, the CAA authorized California (and only California) to continue setting its own vehicle emission standards. Therefore all new vehicles sold in the United States (U.S.) are subject to emission standards set by either the federal government or the State of California. Other states have the option to adopt the California standards in lieu of the federal standards. This authority was granted under Section 177 of the CAA. Section 177 also guarantees the automakers that they will not have to meet more than two regulatory regimes by explicitly prohibiting any requirements that result in a "third vehicle".

1.3 Description of the Federal Tier 2 and California LEV-II Programs

USEPA's Tier 2 vehicle and gasoline standards, adopted in December 1999, took effect beginning with model year 2004 vehicles. Meanwhile, around the same time, the California Air Resources Board (CARB) amended their Low-Emission Vehicle (LEV) regulations to a more stringent program known as the California Low-Emission Vehicle Standard (CA LEV-II)[3]. Like Tier 2, CA LEV-II took effect beginning with model year 2004 vehicles. Both the Tier 2 and CA LEV-II regulations set emission standards for light-duty vehicles such as passenger cars, trucks, and sport utility vehicles. Both the Tier 2 and CA LEV-II standards become progressively more stringent with time and both classify vehicle types into several different groupings, setting emission standards for each grouping.

Significant emission reductions are realized from both the Tier 2 and CA LEV-II programs. The emissions are reduced through exhaust and evaporative emission standards and annual fleet average emission standards. Ultimately, auto manufacturers are given the flexibility to produce vehicles that emit both more and less than the fleet average, as long as the mathematical average is within the fleet limit.

There are several important differences between the Tier 2 and CA LEV-II programs. The federal Tier 2 program requires a total light-duty fleet NOx standard of 0.07 grams per mile, which is phased-in between years 2004 and 2009. In contrast, the CA LEV-II fleet average standards are based on non-methane organic gases (NMOG), also generally referred to as hydrocarbons (HC) or VOCs. A summary of the CA LEV-II exhaust emission standards can be found in Table 1.3-1.

Another important feature of the CA LEV-II program that differs from the Tier 2 program is the advanced technology vehicle component. This component requires a portion of the light-duty fleet to be "zero-emission vehicles" (ZEVs). Originally designed to mandate the introduction of electric ZEVs, California's ZEV requirement has been changed to allow credit for a variety of advanced automobile technologies. Partial ZEVs (PZEVs) and advance technology partial ZEVs (AT-PZEVs) meet the ZEV zero emissions evaporative standards, the individual vehicle exhaust standards, and the extended warranty and durability requirements. The ZEV component of the CA LEV-II program is discussed further in Section 2.3.3.

Finally, the evaporative requirements of the CA LEV-II standard appear to be lower than the Tier 2 standard. However, the test procedures used to determine compliance with the Tier 2 evaporative requirement has a provision requiring that evaporative system durability be demonstrated on fuels containing the maximum allowable alcohol levels, because the permeability of system components is increased with these fuels. Manufacturers are thus held to a tighter standard of durability under Tier 2, and they have indicated to USEPA that the emission control hardware required to meet the Tier 2 evaporative requirements is identical to that needed to meet the CA LEV-II requirements. NCDAQ assumed the evaporative requirements of the Tier 2 and CA LEV-II standards to be the same in this analysis.

1.4 Emission Factors

Emission factors used in this study were generated using USEPA's MOBILE6.2 model[4]. MOBILE6.2 was designed by USEPA to address a wide variety of air pollution modeling needs. The model calculates emission factors under various conditions effecting in-use emission levels (e.g., ambient temperatures, average traffic speeds) as specified by the modeler. MOBILE models have been used by USEPA to evaluate highway mobile source control strategies; by states, local and regional planning agencies to develop emission inventories and control strategies for State Implementation Plans (SIPs) under the CAA; by metropolitan planning organizations and state transportation departments for transportation planning and conformity analysis; by academic and industry investigators conducting research; and in developing environmental impact statements. Special input files and guidance were used in MOBILE6.2 to model the CA LEV-II standards. This is described in greater detail in Section 2.

Table 1.3-1 CA LEV-II Emissions Standards[3]

LEV II Exhaust Mass Emission Standards for New 2004 and Subsequent Model LEVs, ULEVs, and SULEVs in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes							
Vehicle Type	*Durability Vehicle Basis (mi)*	*Vehicle Emission Category*	*NMOG (g/mi)*	*Carbon Monoxide (g/mi)*	*Oxides of Nitrogen (g/mi)*	*Formaldehyde (mg/mi)*	*Particulates (g/mi)*
All PCs; LDTs 8500 lbs. GVW or less Vehicles in this category are tested at their loaded vehicle weight	50,000	LEV	0.075	3.4	0.05	15	n/a
		LEV, Option 1	0.075	3.4	0.07	15	n/a
		ULEV	0.040	1.7	0.05	8	n/a
	120,000	LEV	0.090	4.2	0.07	18	0.01
		LEV, Option 1	0.090	4.2	0.10	18	0.01
		ULEV	0.055	2.1	0.07	11	0.01
		SULEV	0.010	1.0	0.02	4	0.01
	150,000 (Optional)	LEV	0.090	4.2	0.07	18	0.01
		LEV, Option 1	0.090	4.2	0.10	18	0.01
		ULEV	0.055	2.1	0.07	11	0.01
		SULEV	0.010	1.0	0.02	4	0.01
MDVs 8501 - 10,000 lbs. GVW Vehicles in this category are tested at their adjusted loaded vehicle weight	120,000	LEV	0.195	6.4	0.2	32	0.12
		ULEV	0.143	6.4	0.2	16	0.06
		SULEV	0.100	3.2	0.1	8	0.06
	150,000 (Optional)	LEV	0.195	6.4	0.2	32	0.12
		ULEV	0.143	6.4	0.2	16	0.06
		SULEV	0.100	3.2	0.1	8	0.06
MDVs 10,001-14,000 lbs. GVW Vehicles in this category are tested at their adjusted loaded vehicle weight	120,000	LEV	0.230	7.3	0.4	40	0.12
		ULEV	0.167	7.3	0.4	21	0.06
		SULEV	0.117	3.7	0.2	10	0.06
	150,000 (Optional)	LEV	0.230	7.3	0.4	40	0.12
		ULEV	0.167	7.3	0.4	21	0.06
		SULEV	0.117	3.7	0.2	10	0.06

1.5 Evaluation Years

In order to evaluate the emissions benefits of adopting a CA LEV-II program over time, several years were evaluated. Baseline emissions were estimated for years 2004, 2010, 2020, and 2030 for the Tier 2 program. Emissions were estimated for years 2010, 2020, and 2030 for the CA LEV-II program. The year 2004 was picked because it represents the start year of the Tier 2 program. The year 2010 was chosen because it is assumed in this analysis to be the earliest possible start date of a CA LEV-II program in NC. The basis for determining the earliest possible start date is a requirement that manufacturers be given a two year "lead-time." This means states cannot enforce such standards until model years beginning two years after the date of adoption. "Model year" actually begins on January 2nd, of the previous calendar year. In other words, in order for a state to adopt CA LEV-II for model year 2010, the state must adopt those standards two years before January 2, 2009 (i.e., prior to January 2, 2007).

Years 2020 and 2030 were picked based on the availability of local mobile model input data, such as future projected speeds and vehicle miles traveled (VMT).

1.6 Pollutants Addressed and Spatial/Temporal Resolution

On-road mobile emissions of NOx and VOCs were estimated for the entire state of North Carolina for a typical summer weekday. The impacts on future year ozone concentrations also were estimated. This is discussed further in Section 4 and 5.

2. Approximation of CA LEV-II Standard Using MOBILE6.2

2.1 General Approach

All vehicles manufactured in the U.S. are subject to either the Federal Tier 2 or the CA LEV-II standard and as discussed earlier, states other than California have the option to adopt the CA LEV-II program in lieu of the federal standards. However, states other than California do not have the option to use the California mobile emissions model, EMFAC[5]. In order to estimate the emissions benefits of adopting CA LEV-II standards in North Carolina, the only mobile emissions modeling tool available is USEPA's MOBILE6.2. The emissions standard default for light-duty vehicles in MOBILE6.2 is the Tier 2 standard. The upcoming sections detail the approximation of the CA LEV-II program in USEPA's MOBILE6.2 model and the methodology used by NCDAQ to estimate the emissions benefits of adopting a CA LEV-II program in North Carolina.

2.2 Vehicles Subject to the CA LEV-II Standard

The CA LEV-II standard is applicable to light-duty vehicles (i.e., passenger cars), light-duty trucks up to 8,500 lbs gross vehicle weight rating (GVW), and medium-duty vehicles that are up to 14,000 lbs GVW. Because terminology about truck weight classes can be very confusing, the best way to refer to vehicle classifications is by their actual weight. In this emission analysis, NCDAQ applied CA LEV-II to only passenger cars and light-duty trucks up to 8,500 lbs GVW. The population of medium-duty trucks between 8,500 lbs and 14,000 lbs in North Carolina is very small; therefore, the impact of adopting CA LEV-II for that

vehicle class would be minimal. Light-duty vehicle classes that NCDAQ applied the CA LEV-II program, in the emissions analysis defined by USEPA, are:

LDGV - light-duty gasoline vehicles (passenger cars)
LDGT1 – trucks up to 6,000 lbs GVW + 3,750 LVW
LDGT2 – trucks up to 6,000 lbs GVW + 3,751 LVW-5,750 LVW
LDGT3 – trucks between 6,001 lbs-8,500 lbs GVW + 3,751 LVW-5,750 LVW
LDGT4 – trucks between 6,001 lbs-8,500 lbs GVW + > 5,750 LVW

where GVW = maximum fully loaded vehicle weight,
LVW = nominal empty vehicle weight + 300 lbs.

2.3 Methodology: Modeling CA LEV-II using MOBILE6.2

As stated earlier, the default emission standards in MOBILE6.2 is the Federal Tier 2 standard. In order to simulate the CA LEV-II standard, NCDAQ consulted with USEPA Region IV, the USEPA Office of Transportation, and Air Quality (OTAQ). USEPA OTAQ provided much appreciated technical support during the design phases of this project, including a revised guidance document[6] that outlines the auxiliary files necessary to approximate the CA LEV-II program in MOBILE6.2. These auxiliary files were developed by OTAQ in consultation with CARB. The additional files are:

LEVIIPH.d – phase-in percentages by exhaust certification bin, vehicle class and pollutant. NCDAQ used this file as provided by USEPA OTAQ.

LEVIIEVP.d – phase-in percentages for evaporative standards by vehicle class. NCDAQ used this file as provided by USEPA OTAQ.

LEVIIST.d – the 50,000 mile standard levels by exhaust certification bin, vehicle class and pollutant. NCDAQ used this file as provided by USEPA OTAQ.

LEVII94.d – establishes the percentage of zero emitting exhaust vehicles. NCDAQ used this file as provided by USEPA OTAQ.

In conjunction with the above auxiliary files, analysis of the CA LEV-II program in MOBILE6.2 must be performed using these four commands:

T2 EXH PHASE-IN, which provides phase-in percentages by exhaust certification bin, vehicle class, and pollutant (corresponds with the LEVIIPH.d input file).

T2 CERT, which defines the 50,000 mile standard levels by exhaust certification bin, vehicle class, and pollutant (corresponds with the LEVIIST.d input file).

T2 EVAP PHASE-IN, which provides phase-in percentages for evaporative standards by vehicle class (corresponds with the LEVIIEVP.D input file).

94+ LDG IMP, which is used only to establish the fraction of ZEVs (corresponds with the LEVII94.D).

One complicating issue associated with modeling the CA LEV-II program in MOBILE6.2 is the inability to alter the start year. Working around this model limitation requires a significant post-process of the model output to "reconstruct" composite emission factors.

Implementing the post-processing technique required NCDAQ to apply the DATABASE OUTPUT commands in MOBILE6.2. This allows the user to obtain the most disaggregated output from the model. Emission factors per emission type (e.g. running exhaust, starting exhaust and evaporative), per facility type (e.g. freeway, arterial, local, ramp, none), per model year, and per pollutant were generated. This reconstruction technique was developed and successfully tested for a "Tier 2 only" approach where the post-processed emission factor matched the composite emission factor from MOBILE6.2 descriptive output.

Generally, in order to model the impacts of implementing a CA LEV-II program in year 2010 as accurately as possible, emission factors were generated for model year vehicles prior to year 2009 with Tier 2 level of control applied (noting the Tier 2 level of control would only apply to model years 2004-2009 vehicles). Those were combined with the emission factors for model year 2010 vehicles with CA LEV-II level of control applied. This method was applied to generate a composite year 2010 emission factor for each of the light-duty vehicle classes. Please see Appendix A for a detailed representation of the emission factor reconstruction post-process methodology applied by NCDAQ.

The reconstructed composite emission factors for each of the light-duty vehicle classes were combined with the emission factors from the vehicle classes not impacted by a CA LEV-II program and the VMT fraction to get the final composite NOx and VOC emission factors for each facility or roadway scenario. This data is shown in Appendix B. Comparable sets of tables with the Tier 2 emission factors are provided in Appendix C.

NCDAQ took advantage of several opportunities to implement "efficiencies" into the complex post-processing effort. One of those was modeling the State of North Carolina in four sections: Raleigh-Durham, Charlotte-Gastonia, other areas with an I/M program, and other areas without an I/M program. This was done to simply reduce the number of model input and output files to process while still taking advantage of local data sets, such as vehicle age distributions and VMT fractions in the Raleigh-Durham and Charlotte-Gastonia areas. An additional efficiency implemented was the use of weight-average speeds to limit the facilities or road types that needed to be modeled. Rural interstates, urban interstates, and other roads were the three facilities modeled. VMT was aggregated into similar groupings. This is explained further in Section 2.3.1.6.

The MOBILE6.2 input parameters used in this study represent North Carolina's "latest planning assumptions" and are the most up-to-date data available (as of March 2006) from the North Carolina Department of Transportation (NCDOT) and the NCDAQ. This North Carolina specific data was used for the following MOBILE6.2 input parameters: speeds,

VMT fractions, Reid vapor pressure, vehicle age distribution, temperatures, inspection, and maintenance program. These input parameters and others, are discussed below.

2.3.1 MOBILE6.2 Input Parameters

2.3.1.1 Evaluation Month

MOBILE6.2 can calculate emission factors that represent a January 1st or July 1st fleet age. Emissions for this project were calculated with the July 1st setting.

2.3.1.2 Vehicle Age Distribution

The vehicle age distribution comes from annual registration data for North Carolina from the NCDOT. For this analysis the data was generated from 2004. The NCDOT provided the latest available count data based on the number of vehicle types per year from 1974 through 2004. Vehicles greater than 25 years old were combined and included as the 25th model year. NCDAQ converted the data provided by the NCDOT into the MOBILE6.2 model format using a conversion utility. The count data provided by the NCDOT was converted to fractions by dividing each count per vehicle type per year by the total number of vehicles in that classification for all years. For example, the number of 2004 light-duty vehicles was divided by the total number of light-duty vehicles for all years. Comparisons of North Carolina and California vehicle age distributions are provided in Section 5.2.

2.3.1.3 Vehicle Miles Traveled Fractions

The vehicle miles traveled fractions (i.e., VMT fraction or VMT mix) refer to the percentage of different vehicle types on each of the Federal Highway Administration road types. It is critical when estimating mobile emissions in an area, to use data that accurately reflects vehicle types traveling on each different road types. The North Carolina Highway Performance Monitoring System (HPMS) information that was used to generate the statewide VMT fractions was based on years 1999 through 2001 length based counts. This is the latest North Carolina statewide count information available. The raw count information was processed consistent with USEPA methods and guidance[7] for each year in the analysis. Comparisons of the North Carolina and California VMT fractions are provided in Section 5.3

2.3.1.4 Temperatures

For this analysis, an average July 2005 minimum and maximum temperature was calculated from data at five Automated Surface Observing System (ASOS) sites as shown in Table 2.3-1 below. The overall average minimum and maximum temperatures were used in all MOBILE6.2 input files.

Table 2.3-1 July 2005 Average Minimum and Maximum Temperatures[8]

	Average Maximum	Average Minimum
Asheville	83.2	65.5
Charlotte	89.0	70.1
Greensboro	88.2	71.5
Raleigh	92.9	71.6
Wilmington	90.1	74.5
Overall Average	**88.7**	**70.6**

2.3.1.5 Vehicle Inspection and Maintenance (I/M) Program

As discussed earlier, North Carolina has implemented a vehicle emissions inspection program, onboard diagnostics (OBDII) in 48 counties. This program covers all light-duty gasoline powered vehicles that are model year 1996 and newer. The program was phased-in to include a total of 48 counties between July 2002 and January 2006. Therefore, the years 2010, 2020, and 2030, MOBILE6.2 model runs in this analysis; incorporate all of the appropriate I/M program parameters in the 48 counties. The OBDII compliance rate used in the MOBILE6.2 input files is 95 percent. In addition to applying the appropriate I/M commands in MOBILE6.2, NCDAQ applied anti-tampering commands. This statewide program ensures that emission control equipment on any vehicle model year of 1968 and newer has not been altered.

2.3.1.6 Speed Assumptions

Emissions from motor vehicles vary with the manner in which the vehicle is operated. Vehicles traveling at 65 miles per hour (mph) emit a very different mix of pollutants than the car traveling at low speeds. Average daily annual speeds were used in this analysis for each road type. The speeds were obtained from NCDOT. The speeds for the areas other than Raleigh-Durham and Charlotte-Gastonia areas are assumed to be the Wake County off-peak speeds. This assumption is consistent with what has been recommended by NCDOT in past efforts to develop statewide mobile source emission inventories.

In the Raleigh-Durham and Charlotte-Gastonia areas, for the years 2010, 2020, and 2030 average speeds were calculated for urban and rural interstates. The speeds used in the averaging are based upon the latest available information from local travel demand models. The "other roads" speeds for the entire state represent a VMT weighted average of the non-interstate speeds from the Wake County off-peak data sets for the years 2010, 2020, and 2030. Tables 2.3-2 through 2.3-4 provide a summary of the speeds used in this analysis.

Table 2.3-2 2010 Speeds

	Rural Interstate	Urban Interstate	Other Roads
Charlotte-Gastonia	53	51	46
Raleigh-Durham	53	51	46
Other Areas	66	61	46

Table 2.3-3 2020 Speeds

	Rural Interstate	Urban Interstate	Other Roads
Charlotte-Gastonia	53	51	45
Raleigh-Durham	53	51	45
Other Areas	62	62	45

Table 2.3-4 2030 Speeds

	Rural Interstate	Urban Interstate	Other Roads
Charlotte-Gastonia	49	48	44
Raleigh-Durham	49	48	44
Other Areas	61	61	44

2.3.1.7 Reid Vapor Pressure (RVP)

Reid Vapor Pressure reflects a gasoline's volatility. Lower RVP leads to lower VOC emissions from gasoline handling and lowers vapor losses from motor vehicles. North Carolina rules require lower RVP gasoline in the most urbanized areas of the state during the summer. Therefore, an RVP of 7.8 pounds per square inch (psi) was applied in this analysis for the Raleigh-Durham and Charlotte-Gastonia areas. Due to the input file grouping explained earlier in Section 2.3, an RVP of 9.0 was applied for the "other areas."

2.3.2 Vehicle Miles Traveled

In order to calculate emissions from on-road mobile sources, emission factors were developed as discussed throughout this document. The emission factors were then multiplied by an activity level, which is average weekday vehicle miles traveled (VMT). The VMT used in this analysis was derived from the latest county-by-county HPMS data available from NCDOT. The future years were projected using a growth rate from a linear regression completed on the last 10 years of HPMS data. The same VMT was used in the generation of emissions for the Tier 2 program as the CA LEV-II program. The county specific VMT used in this analysis is provided in Appendix D for years 2010, 2020, and 2030.

2.3.3 CA LEV-II Phase-in Schedule

As mentioned earlier in Section 2.3, USEPA OTAQ provided MOBILE6.2 auxiliary files necessary to approximate the phase-in CA LEV-II program. This file represents California's

assumptions on how manufacturers would meet the fleet average standards. This is the latest available CA LEV-II phase-in schedule in MOBILE6.2 format from USEPA OTAQ.

2.3.4 Zero Emissions Vehicle (ZEV) component

The CA LEV-II standards include a zero-emission vehicle (ZEV) component. This is considered an "option" for states wishing to "opt-in" to the CA LEV-II standards. Originally designed to mandate the introduction of electric ZEVs, California's ZEV program has been changed to allow credit for a variety of advanced automobile technologies besides electric vehicles. Partial ZEVs (PZEVs) and advance technology partial ZEVs (AT-PZEVs) meet the ZEV zero emissions evaporative standards, the individual vehicle exhaust standards, and the extended warranty and durability requirements.

Generally, California's basic ZEV rule requires that a manufacturer's annual sales of light-duty vehicles must consist of a percentage of ZEVs. This requirement first applied only as a percentage of passenger cars and LDT1 trucks. This is referred to as the ZEV baseline. The ZEV baseline was applied by NCDAQ in this analysis using USEPA's latest available MOBILE6.2 ready (levii94.d) auxiliary file.

CARB recognized the ZEV requirement would be difficult to meet and established a review by a technical panel every two years. The ZEV baseline has since been expanded to include LDT2 trucks to be phased in on a later schedule. Due to the fact that ZEV technology has not developed as quickly as California had hoped, they have added flexible ways to meet the requirement. Those flexibilities are discussed elsewhere[3].

3. Results: Emissions Benefits

3.1 NOx and VOC Benefits

To begin to understand the emissions benefits of adopting CA LEV-II in North Carolina, the NCDAQ applied the approach, methods and data summarized in previous sections. The emissions benefits analysis included a comparison of statewide on-road mobile source NOx and VOC emissions resulting from the current federal level of control (Tier 2), and from the CA LEV-II level of control. It should be noted that the emission differences were calculated in context of the entire on-road mobile source emissions inventory. This method for comparison enabled the NCDAQ to apply the knowledge gathered in emissions/air quality modeling studies to assess the air quality (ozone) benefits that might result from the CA LEV-II emissions benefits. The air quality benefits analysis is presented in Section 4.

As can be seen in Table 3.1-1, the statewide NOx and VOC emissions from adopting a CA LEV-II program are lower relative to the Federal Tier 2 level of control. As discussed previously, the earliest CA LEV-II can begin is in the year 2010. Since it will take time for the CA LEV-II vehicles to become a significant portion of the overall vehicle fleet, the CA LEV-II standards show an increasing emissions benefit (i.e., on a percentage basis) over time relative to the Tier 2 level of control.

Table 3.1-1. CA LEV-II Reductions Compared to Federal Tier 2: Entire Fleet

	2010	2020	2030
NOx	0.1%	4%	10%
VOC	0.1%	3%	6%

Figure 3.1-1 below presents the North Carolina statewide on-road mobile source NOx emissions inventory with a Tier 2 control program for years 2004, 2010, 2020, and 2030 (blue line), and also with a CA LEV-II control program for years 2010, 2020, and 2030 (magenta line). Figure 3.1-2 is a similar graph for VOC emissions. (It should be noted that the NOx and VOC emission estimates with a Tier 2 control program, assume there are no CA LEV-II compliant vehicles in North Carolina already. While NCDAQ does not have any official data, informal surveys have shown there are North Carolinians already driving CA LEV-II compliant vehicles. Therefore, the emission benefits of the CA LEV-II program shown in Table 3.1.1 and Figures 3.1-1 and 3.1-2 are likely over-estimated.)

Also noteworthy, these figures illustrate the tremendous reductions in on-road mobile emissions, regardless of the control program, expected over time in North Carolina. These reductions will occur despite significant estimated increases in VMT (see Figure 3.1-3).

Figure 3.1-1. Estimated NOx Emissions – Federal Tier2 vs. CA LEV-II

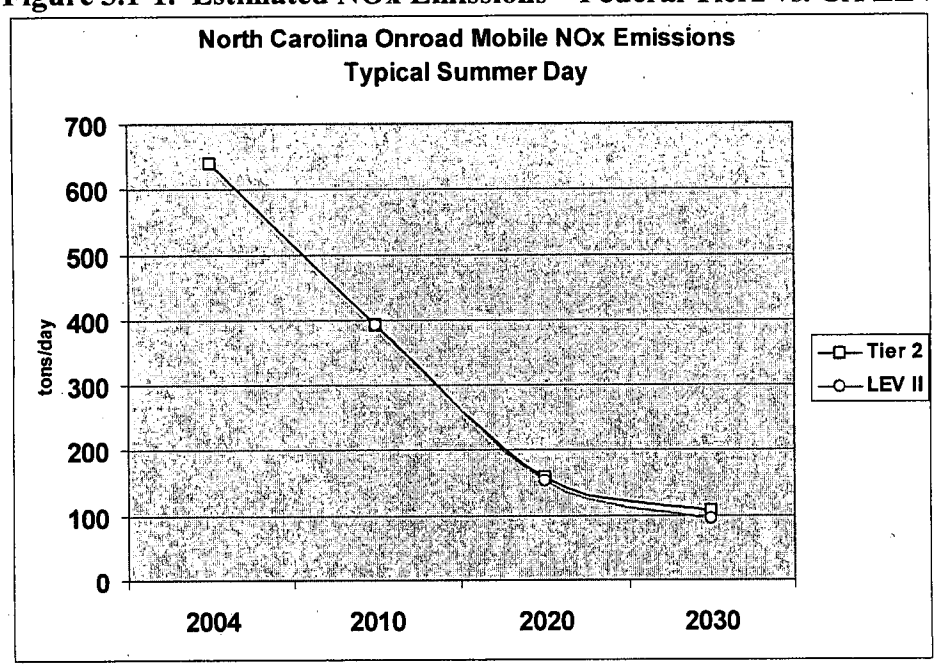


Figure 3.1-2. Estimated VOC Emissions – Federal Tier2 vs. CA LEV-II

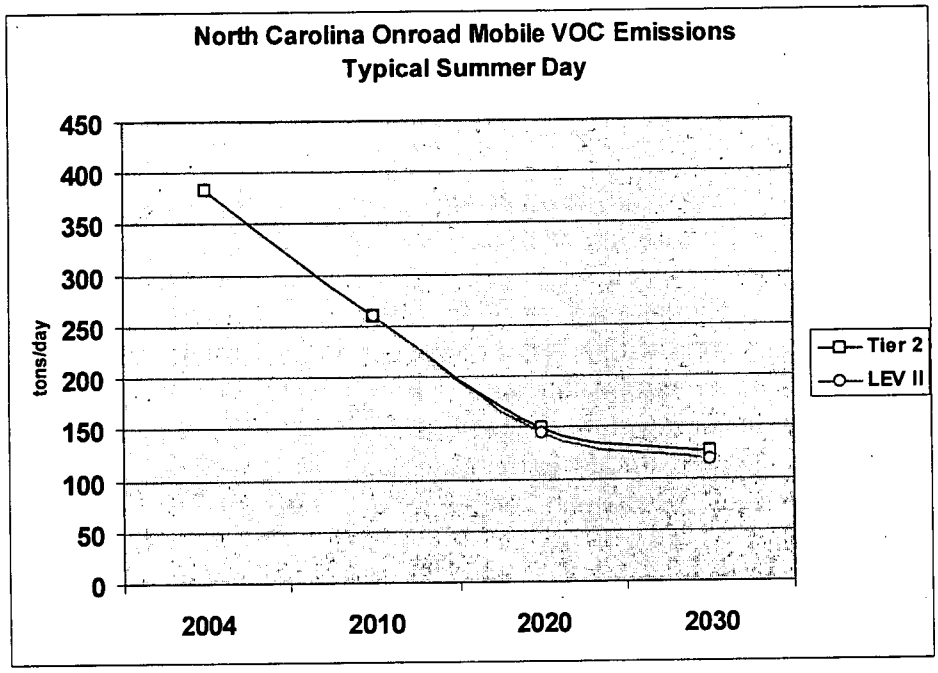
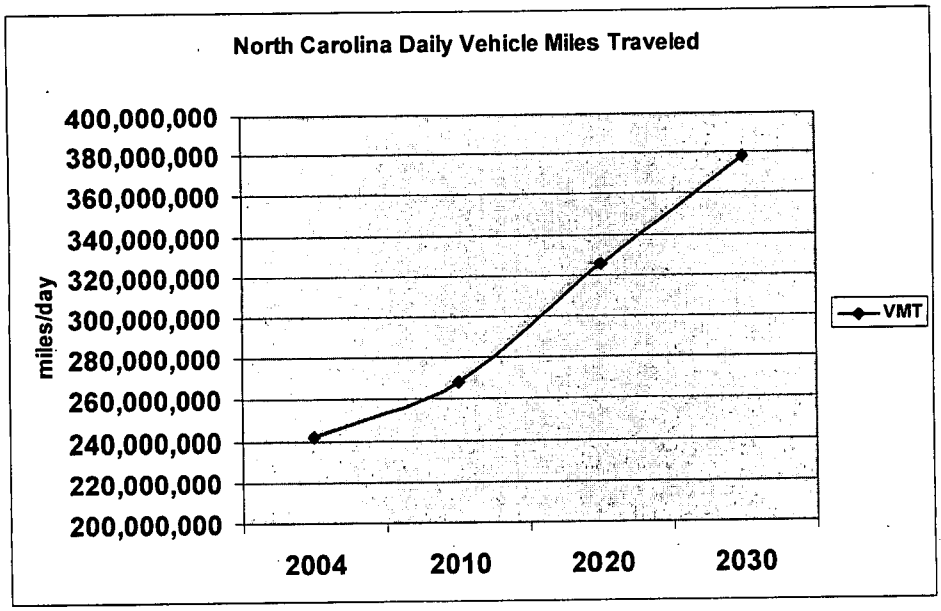


Figure 3.1-3. Estimated Vehicle Miles Traveled



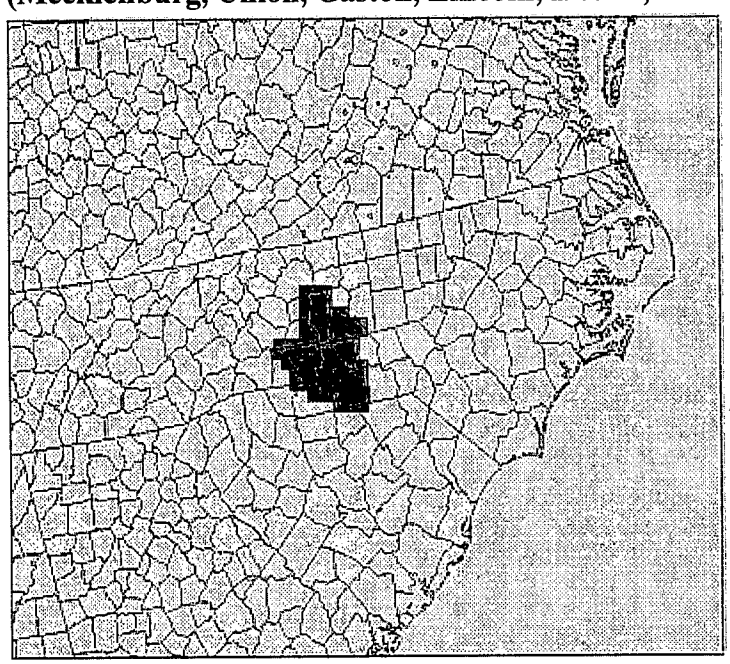
4. Results: Air Quality Impacts

4.1 Ozone Sensitivities

During the development of the 8-hour ozone SIPs for North Carolina's nonattainment areas, the NCDAQ conducted a number of modeling sensitivity tests to better understand how targeted emission reductions would impact future ozone concentrations. The modeling system used in this analysis consisted of three components: 1) the Penn State University/National Center for Atmospheric Research (PSU/NCAR) Mesoscale Model (MM5 version 3.6.1+)[9]; 2) the Sparse Matrix Operator Kernel Emissions Modeling System (SMOKE version 2.1)[10]; and, 3) the Community Multiscale Air Quality model (CMAQ version 4.4)[11,12]. Model configurations, input data, and modeling methods were consistent with those suggested by USEPA in "Guidance on the Use of Models and Other Analyses in Attainment Demonstrations for the 8-hour Ozone NAAQS" [13].

The emissions sensitivities were calculated by taking the difference between two air quality modeling simulations; one with "baseline" emissions and another with reduced emission inputs. This method is known in the modeling community as the "brute force" method[14]. Brute force sensitivity analyses have been widely used to better understand source/receptor relationships and aid in the design of control strategies for ozone[15]. The emissions sensitivity used in this analysis reduces on-road mobile source NOx emissions in the Metrolina 8-hour ozone nonattainment area, by 10% from year 2009 emission levels. The Metrolina nonattainment area was chosen because they currently have the highest ozone design values in North Carolina. The counties included in the emissions sensitivity modeling are shown in Figure 4.1-1.

Figure 4.1-1. North Carolina Counties included in the Metrolina Sensitivity (Mecklenburg, Union, Gaston, Lincoln, Iredell, Cabarrus and Rowan)



The 10% NOx reduction applied to the year 2009 on-road mobile source emissions is equivalent to a 10 ton/day reduction in this region. Again, this is a 10%, or 10 ton/day, on-road mobile source NOx reduction from the "baseline" year 2009 emissions that include the Tier 2 level of control. Air quality modeling results indicated this additional 10% NOx reduction resulted in lowering 8-hour ozone concentrations anywhere between 0.1 and 1.0 parts per billion (ppb) in year 2009. Only one of the seven modeled days resulted in changes in the maximum 8-hour ozone concentration, yielding a result as high as 1.0 ppb. This is shown in Figure 4.1-2. Only two of the seven modeled days resulted in changes as high as 0.5 ppb.

Using the CA LEV-II emission benefits analysis discussed in Section 3 above, NCDAQ assessed the 8-hour ozone benefits in year 2020, assuming a CA LEV-II program was implemented starting in year 2010. NCDAQ chose to analyze year 2020 to allow for a significant portion of the fleet to be CA LEV-II vehicles. As noted in Table 3.1-1 above, a 4% reduction of on-road mobile NOx emissions would be expected in year 2020 due to a CA LEV-II program. NCDAQ assumed the maximum ozone benefit shown in the year 2009 Metrolina sensitivity in estimating the year 2020 ozone impacts due to CA LEV-II, as shown in Table 4.1-1 below.

Table 4.1-1. Summary of Air Quality Impacts

For the Metrolina Area...

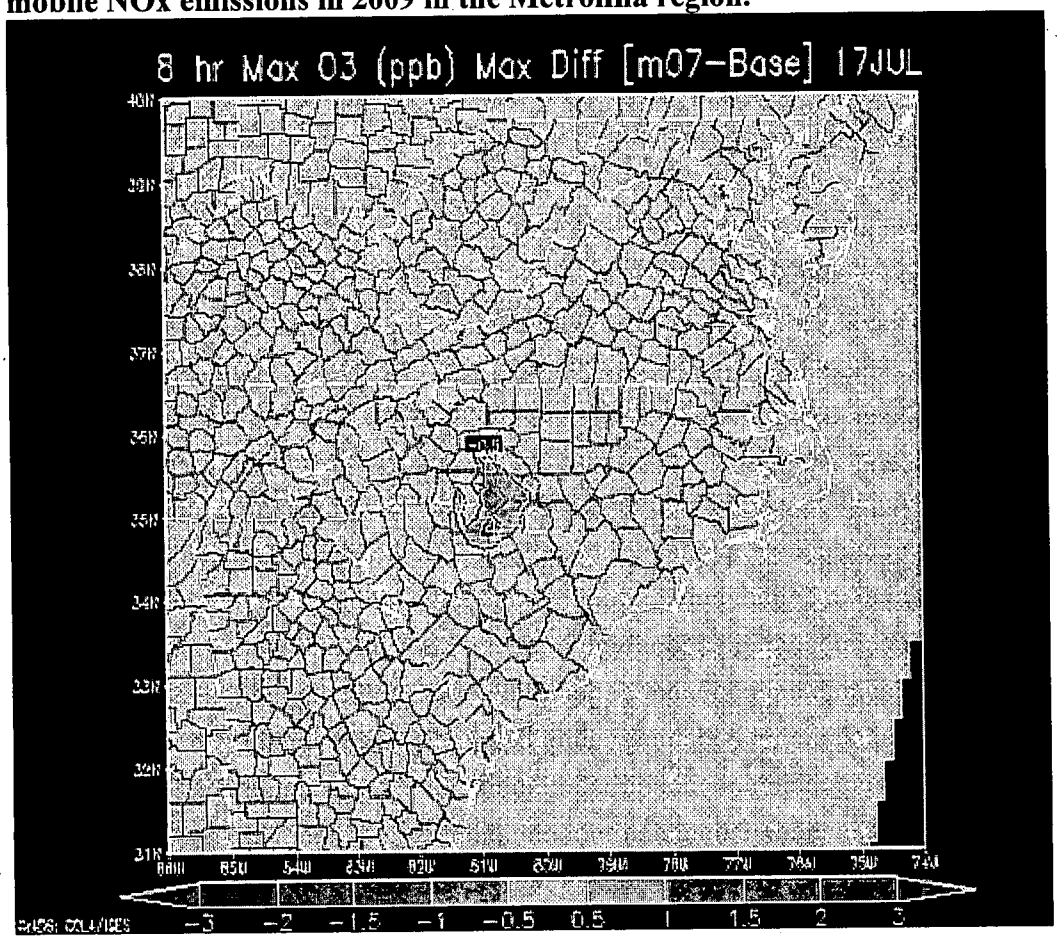
- 2009 on-road mobile NOx ~ 100 tons/day (w/ Tier 2)
- 2020 on-road mobile NOx ~ 25 tons/day (w/Tier 2)

If a 10% NOx reduction = 10 tons/day in 2009 = 1 ppb maximum ozone benefit

Then a 4% NOx reduction = 1 ton/day in 2020 = 0.1 ppb maximum ozone benefit

NCDAQ concluded the 4% on-road mobile NOx reduction in year 2020 due to a CA LEV-II program would have a very small impact on maximum 8-hour ozone concentrations (i.e., less than 0.1 ppb) in the Metrolina area. NCDAQ estimates the impact would be even less in areas where future projected ozone concentrations will be even lower.

Figure 4.1-2. Maximum 8-hour ozone reductions due to a 10% reduction of on-road mobile NOx emissions in 2009 in the Metrolina region.



5. CA LEV-II Enforcement Options – Fleet Analysis

One of the challenges put forth to NCDAQ was to assess the benefit of enforcing a fleet average requirement for the CA LEV-II control program versus simply requiring that all light-duty vehicles sold in North Carolina would have to be California certified (e.g., simple certification). A state adopting the CA LEV-II regulation is not required to undertake the additional activities associated with vehicle sales or registration enforcement.

A fleet average requirement would provide auto manufacturers the flexibility to produce vehicles that emit both more and less than the fleet average as long as their mathematical average is within the fleet average limit. This would mean state officials would work with auto manufacturers to calculate a fleet average NMOG value and check it against the applicable limits set in the rule. Details on how to offset "debits" or exceedances of the fleet average limit are discussed elsewhere[3].

While this analysis does not quantify the benefits of adopting a CA LEV-II program in North Carolina, with and without fleet averaging enforcement, several metrics were generated to

better understand North Carolina's fleet demographics and how it compares to California's fleet of light-duty vehicles. This analysis of the fleet information helped NCDAQ make some qualitative estimates on whether enforcement of a fleet average option would be needed in North Carolina.

5.1 Fleet Comparisons (NC vs. CA)

5.1.1 Fleet Composition

Figure 5.1-1 presents a simple comparison of California's fleet per vehicle type versus the North Carolina fleet composition[16,17]. The fleet was binned into the 5 MOBILE5 vehicle classification bins for simplicity. Table 5.1-1 provides the mapping from MOBILE5 vehicle bins to MOBILE6.2 and a detailed description of vehicle weights that fall into each category. Several noteworthy fleet differences are immediately shown. North Carolina has about 11% more light-duty gasoline vehicles (i.e., passenger cars) than California, 7% fewer light-duty gasoline trucks 1 (i.e., pickup trucks and SUVs under 6,001 lbs. gross vehicle weight rating), and 6% fewer light-duty gasoline trucks 2 (i.e., pickup trucks and SUVs between 6,001-8,500 lbs gross vehicle weight rating).

Figure 5.1-1. NC and CA Composition of Fleet per Vehicle Type[16,17]

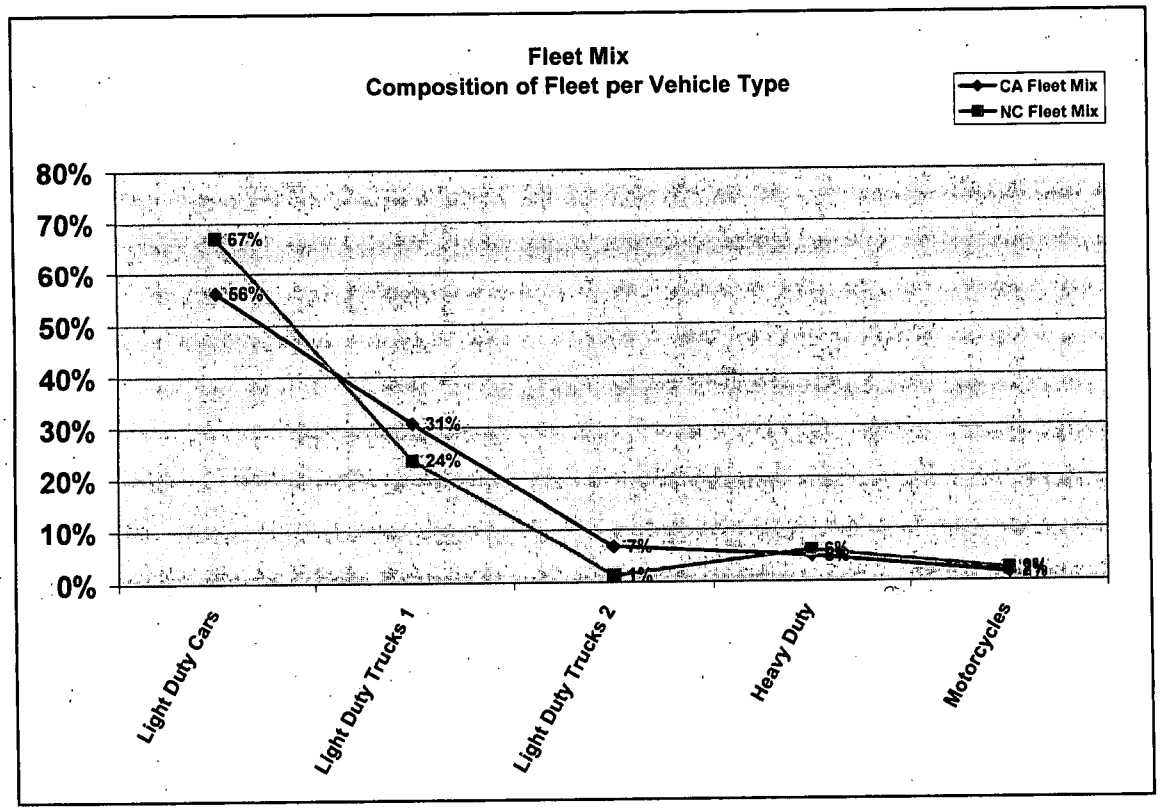


Table 5.1-1. Description of MOBILE5 and MOBILE6.2 Vehicle Classifications

MOBILE5	MOBILE6.2	Description
Light-Duty Cars	LDV	Light-Duty Vehicles (Passenger cars)
Light-Duty Trucks 1	LDT1	Light-Duty Trucks 1 (0-6,000 lbs. GVWR, 0-3750 lbs. LVW)
	LDT2	Light Duty Trucks 2 (0-6,001 lbs. GVWR, 3751-5750 lbs. LVW)
Light-Duty Trucks 2	LDT3	Light Duty Trucks 3 (6,001-8500 lbs. GVWR, 0-5750 lbs. ALVW)
	LDT4	Light Duty Trucks 4 (6,001-8500 lbs. GVWR, >5750 lbs. ALVW)
Heavy Duty Vehicles	HDV2B	Class 2b Heavy Duty Vehicles (8501-10,000 lbs. GVWR)
	HDV3	Class 3 Heavy Duty Vehicles (10,001-14,000 lbs. GVWR)
	HDV4	Class 4 Heavy Duty Vehicles (14,001-16,000 lbs. GVWR)
	HDV5	Class 5 Heavy Duty Vehicles (16,001-19,500 lbs. GVWR)
	HDV6	Class 6 Heavy Duty Vehicles (19,501-26,000 lbs. GVWR)
	HDV7	Class 7 Heavy Duty Vehicles (26,001-33,000 lbs. GVWR)
	HDV8A	Class 8a Heavy Duty Vehicles (33,001-60,000 lbs. GVWR)
	HDV8B	Class 8b Heavy Duty Vehicles (>60,000 lbs. GVWR)
	HDBS	School Buses
	HDBT	Transit and Urban Buses
Motorcycles	MC	Motorcycles (All)

5.1.2 Vehicle Age Distribution Comparison

Since light-duty gasoline vehicles (i.e., passenger cars) make up about two-thirds of North Carolina's registered fleet, NCDAQ examined the age of that vehicle class in North Carolina and California. Figure 5.1-2 shows the percent by age for passenger cars. While there is a slightly greater percentage of 1 and 2 year old passenger cars in California and equal percentages of 3 year old passenger cars, North Carolina has a greater percentage of 4 to 12 year old passenger cars and fewer 13 to 25 year olds. The yellow line on the graph represents a subset of the North Carolina statewide data for the Charlotte-Gastonia area. This subset indicates a much newer fleet of passenger vehicles in those counties. This is not unexpected however, due to Charlotte being the largest urban area in North Carolina. Generally, fleets weighted towards newer vehicles will result in quicker realization of control program benefits because of faster fleet turnover, even though the long-term benefits will be similar.

5.1.3 VMT Fraction Comparison

Finally, NCDAQ processed the California and North Carolina fleet demographic data to determine the fraction of VMT by vehicle class for the year 2010. This is often referred to as the VMT mix or VMT fraction. The methods used in determining the VMT fractions are consistent with USEPA guidance[7]. As shown in Figure 5.1-3, California light-duty gasoline car and truck owners are projected to drive their vehicles slightly more than North Carolinians in year 2010. Generally, however, there is not a great difference in the VMT fractions when using USEPA's methodology.

Figure 5.1-2. Light Duty Gasoline Vehicles, Percent by Age, NC and CA

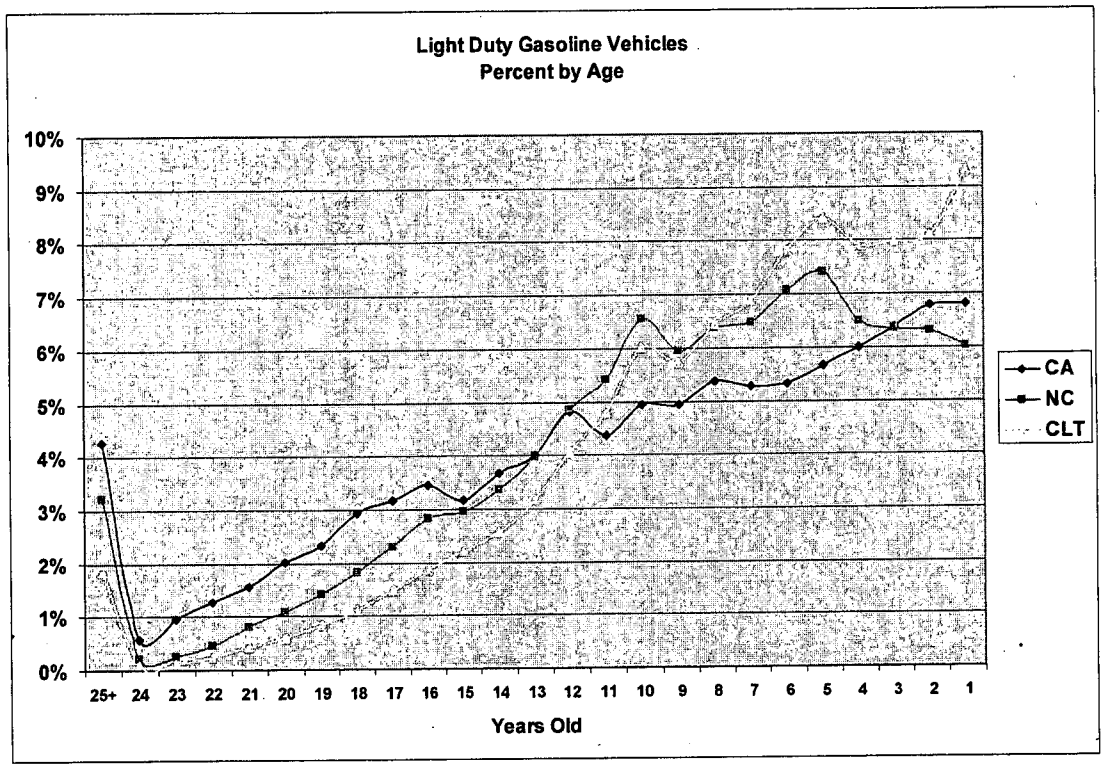
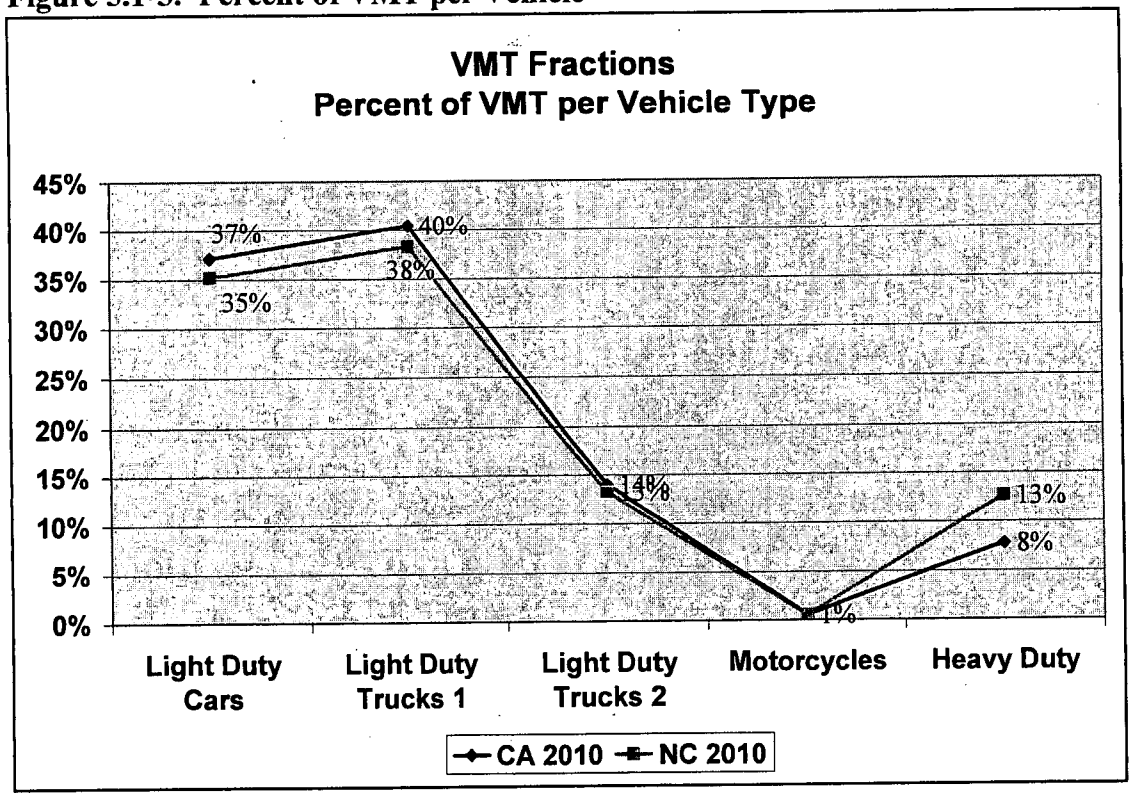


Figure 5.1-3. Percent of VMT per Vehicle



5.2 Qualitative Assessment of Enforcement Options

Based on the data summarized in Section 5.1 above, if one generally assumes passenger vehicles are cleaner emitting vehicles than light-duty trucks, and newer vehicles generally emit less than older vehicles, then one can qualitatively assert that the light-duty gasoline vehicle fleet registered in North Carolina is cleaner than California's registered light-duty gasoline vehicle fleet. This data (i.e., especially the greater percentage of passenger cars) may be an indicator that a fleet average requirement will not be difficult to meet in North Carolina and thus a "simple certification" enforcement program might result in similar benefits, while requiring fewer state resources. However, it should be noted that historical fleet demographic data would not necessarily represent future demographics, which will be impacted by short-term economic trends, long-term trends in vehicle longevity and use, and other factors such as fuel costs.

6. Staff Resource Needs

6.1 Enforcement at DMV and NCDAQ

NCDAQ collected information on state air quality agency staffing needs associated with implementing and enforcing a CA LEV-II program. Discussions with the Washington State Department of Ecology, Air Quality Program[18] revealed they had recently spoken with other states that had already adopted CA LEV-II programs to better understand staff resource needs. Washington indicated both New York and Massachusetts have staffs of two to three people (not completely full time) on CA LEV-II.

The primary point of enforcement/compliance for a CA LEV-II program would most likely be the State's Division of Motor Vehicles (DMV), while the air quality agency staff would perform audits, monitor performance of the program, handle public outreach, registration, and vehicle availability issues.

6.2 Impacts to Existing Tasks at NCDAQ

Another possible resource concern, considered by NCDAQ is the impact to existing tasks, such as transportation conformity, SIP modeling, and emission inventories. Due to the more complicated mobile source emission estimation techniques involved with a CA LEV-II program, there is some concern that timelines on these core tasks could be lengthened. This would not only impact NCDAQ, but the other groups involved in the transportation conformity process as well, such as local air quality agencies, metropolitan planning organizations, and rural planning organizations.

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16. California fleet demographics email from Jeff Long, California Air Resources Board, to Heather Hildebrandt, North Carolina Division of Air Quality, April 11, 2006.

17. North Carolina Department of Transportation.

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Appendix A: Detailed Representation of MOBILE6.2 Emission Factor Post-Process

Definitions

POL = 1 = VOC
POL = 3 = NOx

ETYPE 1 = exhaust from running
ETYPE 2 = exhaust from start operations of light duty vehicles and motorcycles
ETYPE 3 through ETYPE 8 = evaporative emissions

FTYPE 1 = freeway
FTYPE 2 = arterial
FTYPE 3 = local
FTYPE 4 = ramp
FTYPE 5 = none (emissions independent of facility type such as start emissions and most evaporative)

Rural Interstate NOx = (ETYPE 1 + FTYPE 1) + (ETYPE 2 + FTYPE 5)

Urban Interstate NOx = (ETYPE 1 + FTYPE 1) + (ETYPE 2 + FTYPE 5)

Other roads NOx = (ETYPE 1 + FTYPE 2) + (ETYPE 2 + FTYPE 5)

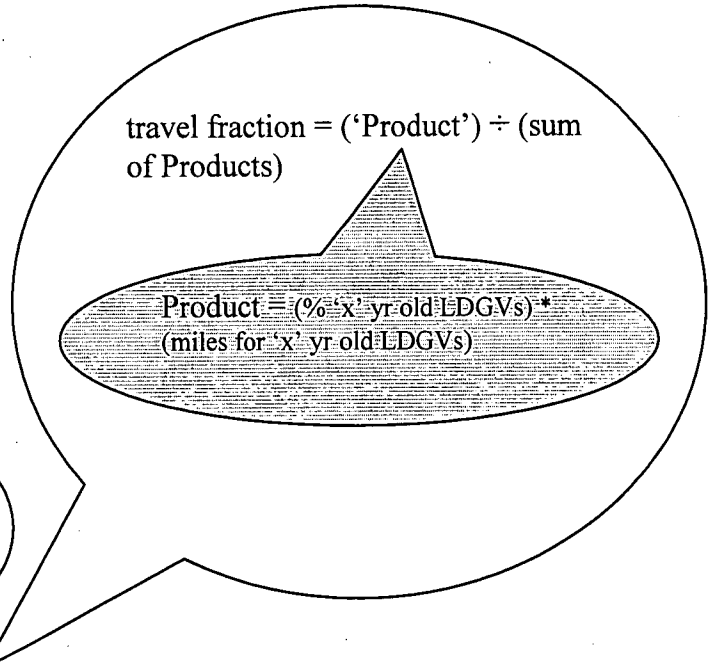
Rural Interstate VOC = (ETYPE 1 + FTYPE 1) + (ETYPE 2 + FTYPE 5) + (ETYPE 3 + FTYPE 5) + (ETYPE 4 + FTYPE 5) + (ETYPE 5 + FTYPE 5) + (ETYPE 6 + FTYPE 1) + (ETYPE 7 + FTYPE 5) + (ETYPE 8 + FTYPE 5)

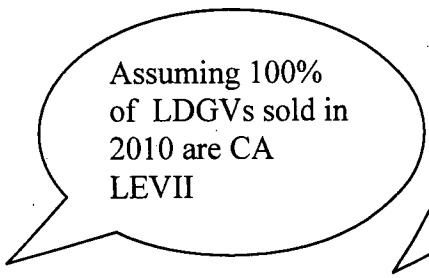
Urban Interstate VOC = (ETYPE 1 + FTYPE 1) + (ETYPE 2 + FTYPE 5) + (ETYPE 3 + FTYPE 5) + (ETYPE 4 + FTYPE 5) + (ETYPE 5 + FTYPE 5) + (ETYPE 6 + FTYPE 1) + (ETYPE 7 + FTYPE 5) + (ETYPE 8 + FTYPE 5)

Other roads VOC = (ETYPE 1 + FTYPE 2) + (ETYPE 2 + FTYPE 5) + (ETYPE 3 + FTYPE 5) + (ETYPE 4 + FTYPE 5) + (ETYPE 5 + FTYPE 5) + (ETYPE 6 + FTYPE 2) + (ETYPE 7 + FTYPE 5) + (ETYPE 8 + FTYPE 5)

2010

For a CA LEV-II program starting in 2010
For each vehicle type…and each roadway type
For each ETYPE and FTYPE
Using the database output option in M6.2…
EF=emission factor





Step 1

((CA LEV II 2010 EF for 1 yr old LDGV) * (travel fraction for 1 yr old LDGVs)+
((Tier 2 2010 EF for 2 yr old LDGV) * (travel fraction for 2 yr old LDGVs)+
((Tier 2 2010 EF for 3 yr old LDGV) * (travel fraction for 3 yr old LDGVs)+
((Tier 2 2010 EF for 4 yr old LDGV) * (travel fraction for 4 yr old LDGVs)+
((Tier 2 2010 EF for 5 yr old LDGV) * (travel fraction for 5 yr old LDGVs)+
((Tier 2 2010 EF for 6 yr old LDGV) * (travel fraction for 6 yr old LDGVs)+
((Tier 2 2010 EF for 7 yr old LDGV) * (travel fraction for 7 yr old LDGVs)+
((Tier 2 2010 EF for 8 yr old LDGV) * (travel fraction for 8 yr old LDGVs)+
((Tier 2 2010 EF for 9 yr old LDGV) * (travel fraction for 9 yr old LDGVs)+
((Tier 2 2010 EF for 10 yr old LDGV) * (travel fraction for 10 yr old LDGVs)+
((Tier 2 2010 EF for 11 yr old LDGV) * (travel fraction for 11 yr old LDGVs)+
((Tier 2 2010 EF for 12 yr old LDGV) * (travel fraction for 12 yr old LDGVs)+
((Tier 2 2010 EF for 13 yr old LDGV) * (travel fraction for 13 yr old LDGVs)+
((Tier 2 2010 EF for 14 yr old LDGV) * (travel fraction for 14 yr old LDGVs)+
((Tier 2 2010 EF for 15 yr old LDGV) * (travel fraction for 15 yr old LDGVs)+
((Tier 2 2010 EF for 16 yr old LDGV) * (travel fraction for 16 yr old LDGVs)+
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((Tier 2 2010 EF for 18 yr old LDGV) * (travel fraction for 18 yr old LDGVs)+
((Tier 2 2010 EF for 19 yr old LDGV) * (travel fraction for 19 yr old LDGVs)+
((Tier 2 2010 EF for 20 yr old LDGV) * (travel fraction for 20 yr old LDGVs)+
((Tier 2 2010 EF for 21 yr old LDGV) * (travel fraction for 21 yr old LDGVs)+
((Tier 2 2010 EF for 22 yr old LDGV) * (travel fraction for 22 yr old LDGVs)+
((Tier 2 2010 EF for 23 yr old LDGV) * (travel fraction for 23 yr old LDGVs)+
((Tier 2 2010 EF for 24 yr old LDGV) * (travel fraction for 24 yr old LDGVs)+
((Tier 2 2010 EF for 25 yr old LDGV) * (travel fraction for 25 yr old LDGVs)

= composite 2010 EF LDGV for a given pollutant, ETYPE and FTYPE

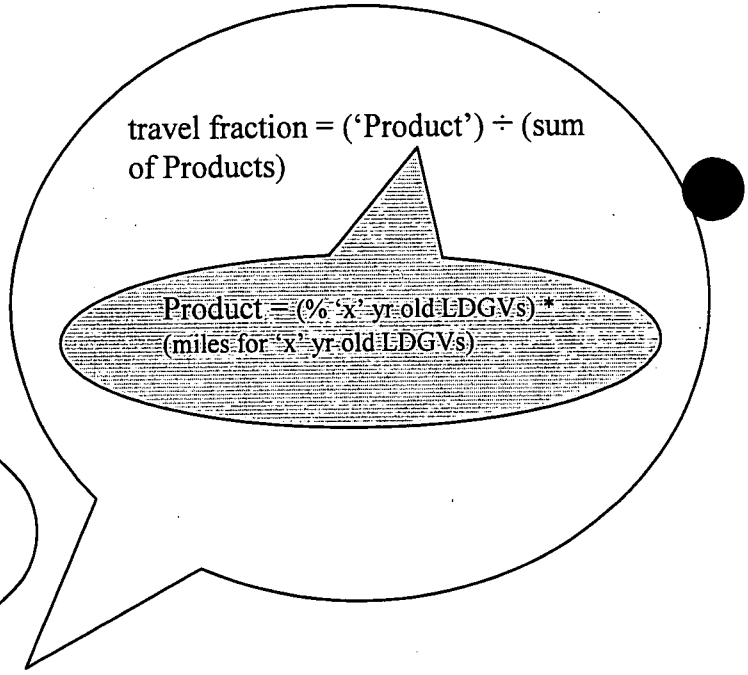
then, sum the composites for each ETYPE and FTYPE for a given pollutant

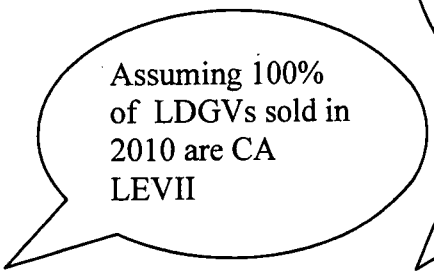
Step 2

Repeat for each roadway type and vehicle type

2020

For a CA LEV-II program starting in 2010
For each vehicle type…and each roadway type
For each ETYPE and FTYPE
Using the database output option in M6.2…
EF=emission factor





Step 1

((CA LEV II 2020 EF for 1 yr old LDGV) * (travel fraction for 1 yr old LDGVs)+
((CA LEV II 2020 EF for 2 yr old LDGV) * (travel fraction for 2 yr old LDGVs)+
((CA LEV II 2020 EF for 3 yr old LDGV) * (travel fraction for 3 yr old LDGVs)+
((CA LEV II 2020 EF for 4 yr old LDGV) * (travel fraction for 4 yr old LDGVs)+
((CA LEV II 2020 EF for 5 yr old LDGV) * (travel fraction for 5 yr old LDGVs)+
((CA LEV II 2020 EF for 6 yr old LDGV) * (travel fraction for 6 yr old LDGVs)+
((CA LEV II 2020 EF for 7 yr old LDGV) * (travel fraction for 7 yr old LDGVs)+
((CA LEV II 2020 EF for 8 yr old LDGV) * (travel fraction for 8 yr old LDGVs)+
((CA LEV II 2020 EF for 9 yr old LDGV) * (travel fraction for 9 yr old LDGVs)+
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((Tier 2 2020 EF for 11 yr old LDGV) * (travel fraction for 11 yr old LDGVs)+
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((Tier 2 2020 EF for 13 yr old LDGV) * (travel fraction for 13 yr old LDGVs)+
((Tier 2 2020 EF for 14 yr old LDGV) * (travel fraction for 14 yr old LDGVs)+
((Tier 2 2020 EF for 15 yr old LDGV) * (travel fraction for 15 yr old LDGVs)+
((Tier 2 2020 EF for 16 yr old LDGV) * (travel fraction for 16 yr old LDGVs)+
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((Tier 2 2020 EF for 23 yr old LDGV) * (travel fraction for 23 yr old LDGVs)+
((Tier 2 2020 EF for 24 yr old LDGV) * (travel fraction for 24 yr old LDGVs)+
((Tier 2 2020 EF for 25 yr old LDGV) * (travel fraction for 25 yr old LDGVs)

= composite 2020 EF LDGV for a given pollutant, ETYPE and FTYPE

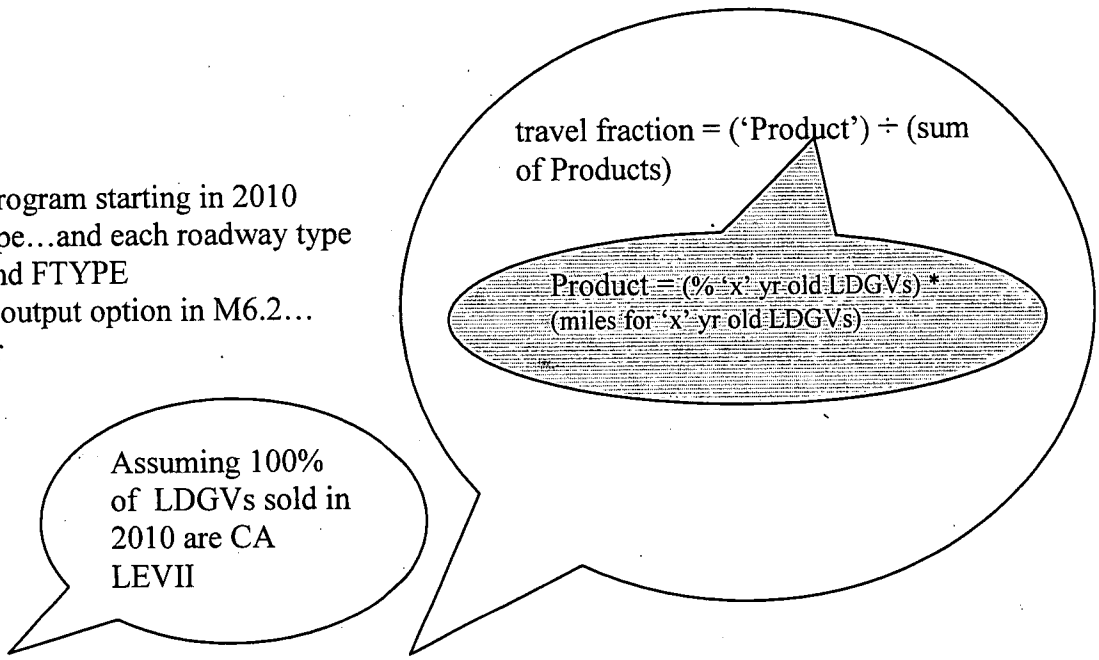
then, sum the composites for each ETYPE and FTYPE for a given pollutant

Step 2

Repeat for each roadway type and vehicle type

2030

For a CA LEV-II program starting in 2010
For each vehicle type…and each roadway type
For each ETYPE and FTYPE
Using the database output option in M6.2…
EF=emission factor



Step 1

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((CA LEV II 2030 EF for 3 yr old LDGV) * (travel fraction for 3 yr old LDGVs)+
((CA LEV II 2030 EF for 4 yr old LDGV) * (travel fraction for 4 yr old LDGVs)+
((CA LEV II 2030 EF for 5 yr old LDGV) * (travel fraction for 5 yr old LDGVs)+
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((CA LEV II 2030 EF for 7 yr old LDGV) * (travel fraction for 7 yr old LDGVs)+
((CA LEV II 2030 EF for 8 yr old LDGV) * (travel fraction for 8 yr old LDGVs)+
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((CA LEV II 2030 EF for 10 yr old LDGV) * (travel fraction for 10 yr old LDGVs)+
((CA LEV II 2030 EF for 11 yr old LDGV) * (travel fraction for 11 yr old LDGVs)+
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((Tier 2 2030 EF for 22 yr old LDGV) * (travel fraction for 22 yr old LDGVs)+
((Tier 2 2030 EF for 23 yr old LDGV) * (travel fraction for 23 yr old LDGVs)+
((Tier 2 2030 EF for 24 yr old LDGV) * (travel fraction for 24 yr old LDGVs)+
((Tier 2 2030 EF for 25 yr old LDGV) * (travel fraction for 25 yr old LDGVs)

= composite 2030 EF LDGV for a given pollutant, ETYPE and FTYPE

then, sum the composites for each ETYPE and FTYPE for a given pollutant

Step 2

Repeat for each roadway type and vehicle type

Appendix B. CA LEV-II Emission Factors

Mecklenburg and Gaston County 2010 Emission Factors

CLT10L.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.42	0.75	0.78	0.57	0.60	0.55	0.11	0.22	0.23	2.47	0.52
Composite NOx (g/mi)	0.37	0.49	0.70	0.56	0.78	1.99	0.35	0.49	5.93	1.39	1.89

CLT10L.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.43	0.75	0.78	0.57	0.61	0.55	0.11	0.22	0.23	2.47	0.56
Composite NOx (g/mi)	0.37	0.49	0.69	0.56	0.78	1.96	0.34	0.46	5.63	1.34	1.27

CLT10L.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.44	0.77	0.80	0.58	0.62	0.57	0.12	0.23	0.23	2.49	0.60
Composite NOx (g/mi)	0.36	0.48	0.68	0.55	0.76	1.88	0.30	0.42	4.41	1.25	0.79

Mecklenburg and Gaston County 2020 Emission Factors

CLT20L.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.17	0.31	0.35	0.28	0.28	0.29	0.03	0.08	0.16	2.29	0.26
Composite NOx (g/mi)	0.11	0.18	0.25	0.22	0.27	0.44	0.05	0.10	1.04	1.39	0.41

CLT20L.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.17	0.31	0.35	0.28	0.28	0.29	0.03	0.08	0.17	2.29	0.27
Composite NOx (g/mi)	0.11	0.18	0.25	0.21	0.26	0.44	0.05	0.10	0.99	1.34	0.31

CLT20L.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.04	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.18	0.31	0.35	0.28	0.29	0.30	0.03	0.09	0.17	2.31	0.29
Composite NOx (g/mi)	0.11	0.17	0.24	0.21	0.26	0.42	0.04	0.09	0.79	1.24	0.24

Mecklenburg and Gaston County 2030 Emission Factors

CLT30L.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.14	0.20	0.25	0.21	0.21	0.24	0.02	0.05	0.16	2.20	0.20
Composite NOx (g/mi)	0.08	0.12	0.16	0.15	0.17	0.19	0.02	0.04	0.51	1.29	0.23

CLT30L.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.14	0.20	0.25	0.21	0.21	0.24	0.02	0.05	0.17	2.21	0.21
Composite NOx (g/mi)	0.08	0.12	0.16	0.15	0.17	0.19	0.02	0.04	0.51	1.28	0.18

CLT30L.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.04	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.14	0.21	0.25	0.22	0.21	0.24	0.02	0.06	0.16	2.23	0.21
Composite NOx (g/mi)	0.08	0.12	0.15	0.15	0.16	0.19	0.02	0.04	0.44	1.23	0.15

Wake and Durham County 2010 Emission Factors

RDU10L.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.41	0.68	0.71	0.55	0.59	0.61	0.11	0.22	0.23	2.59	0.50
Composite NOx (g/mi)	0.37	0.46	0.65	0.59	0.83	2.21	0.35	0.51	6.30	1.40	1.98

RDU10L.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.42	0.68	0.71	0.56	0.59	0.61	0.11	0.23	0.24	2.59	0.54
Composite NOx (g/mi)	0.37	0.46	0.64	0.59	0.83	2.18	0.34	0.49	5.99	1.35	1.31

RDU10L.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.43	0.69	0.72	0.57	0.60	0.64	0.12	0.23	0.25	2.61	0.57
Composite NOx (g/mi)	0.36	0.45	0.63	0.58	0.81	2.11	0.30	0.44	5.01	1.26	0.84

Wake and Durham County 2020 Emission Factors

RDU20L.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.17	0.27	0.31	0.26	0.27	0.31	0.03	0.08	0.17	2.37	0.25
Composite NOx (g/mi)	0.11	0.16	0.23	0.21	0.26	0.49	0.05	0.09	1.15	1.40	0.43

RDU20L.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.17	0.28	0.32	0.26	0.27	0.31	0.03	0.08	0.17	2.37	0.26
Composite NOx (g/mi)	0.11	0.16	0.23	0.21	0.25	0.49	0.05	0.09	1.09	1.35	0.32

RDU20L.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.18	0.28	0.32	0.27	0.27	0.33	0.03	0.08	0.18	2.39	0.27
Composite NOx (g/mi)	0.11	0.16	0.22	0.20	0.25	0.46	0.04	0.08	0.93	1.25	0.24

Wake and Durham County 2030 Emission Factors

RDU30L.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.14	0.19	0.23	0.21	0.21	0.25	0.02	0.05	0.16	2.29	0.20
Composite NOx (g/mi)	0.08	0.11	0.15	0.15	0.17	0.20	0.02	0.04	0.52	1.31	0.22

RDU30L.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.14	0.19	0.23	0.21	0.21	0.25	0.02	0.05	0.17	2.29	0.20
Composite NOx (g/mi)	0.08	0.11	0.15	0.15	0.17	0.19	0.02	0.04	0.51	1.29	0.18

RDU30L.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.14	0.19	0.24	0.21	0.21	0.26	0.02	0.06	0.18	2.31	0.21
Composite NOx (g/mi)	0.08	0.11	0.14	0.15	0.16	0.19	0.02	0.04	0.47	1.24	0.15

Other I/M Counties* 2010 Emission Factors

RUR10L.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.65	1.08	1.12	1.10	1.14	1.05	0.16	0.35	0.25	3.57	0.80
Composite NOx (g/mi)	0.52	0.66	0.89	0.90	1.18	2.95	0.73	1.16	11.17	1.73	3.28

RUR10L.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.66	1.10	1.13	1.12	1.16	1.06	0.16	0.35	0.25	3.30	0.86
Composite NOx (g/mi)	0.52	0.65	0.88	0.89	1.17	2.88	0.62	0.99	9.67	1.62	1.99

RUR10L.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.70	1.16	1.20	1.19	1.23	1.14	0.17	0.37	0.29	2.90	0.96
Composite NOx (g/mi)	0.49	0.61	0.83	0.85	1.12	2.60	0.42	0.66	6.01	1.27	1.08

Other I/M Counties* 2020 Emission Factors

RUR20L.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.24	0.42	0.47	0.50	0.52	0.55	0.04	0.15	0.17	3.14	0.37
Composite NOx (g/mi)	0.16	0.24	0.34	0.39	0.49	0.90	0.11	0.27	2.45	1.65	0.83

RUR20L.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.24	0.42	0.47	0.50	0.52	0.55	0.04	0.15	0.17	3.14	0.39
Composite NOx (g/mi)	0.16	0.24	0.34	0.39	0.49	0.90	0.11	0.27	2.45	1.65	0.60

RUR20L.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.26	0.44	0.48	0.53	0.54	0.60	0.04	0.16	0.19	2.68	0.42
Composite NOx (g/mi)	0.15	0.23	0.32	0.37	0.47	0.80	0.07	0.17	1.45	1.25	0.36

Other I/M Counties* 2030 Emission Factors

RUR30L.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.17	0.25	0.30	0.31	0.31	0.34	0.02	0.07	0.16	2.97	0.25
Composite NOx (g/mi)	0.10	0.15	0.19	0.23	0.25	0.24	0.03	0.07	0.91	1.62	0.35

RUR30L.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.17	0.25	0.30	0.31	0.31	0.34	0.02	0.07	0.16	2.97	0.26
Composite NOx (g/mi)	0.10	0.15	0.19	0.23	0.25	0.24	0.03	0.07	0.91	1.62	0.27

RUR30L.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.19	0.27	0.32	0.33	0.33	0.38	0.02	0.07	0.18	2.58	0.28
Composite NOx (g/mi)	0.10	0.14	0.18	0.22	0.23	0.22	0.02	0.05	0.58	1.25	0.19

* "Other I/M Counties" include all counties subject to North Carolina's I/M Program except Mecklenburg, Gaston, Wake and Durham Counties.

All Non-I/M Counties* 2010 Emission Factors

RUR10NL.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.72	1.17	1.21	1.19	1.23	1.05	0.16	0.35	0.25	3.57	0.85
Composite NOx (g/mi)	0.61	0.79	1.02	1.03	1.31	2.95	0.73	1.16	11.17	1.73	3.36

RUR10NL.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.73	1.19	1.23	1.21	1.25	1.06	0.16	0.35	0.25	3.30	0.93
Composite NOx (g/mi)	0.61	0.78	1.01	1.01	1.29	2.88	0.62	0.99	9.67	1.62	2.08

RUR10NL.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.78	1.27	1.31	1.30	1.34	1.14	0.17	0.37	0.29	2.90	1.05
Composite NOx (g/mi)	0.58	0.74	0.97	0.97	1.25	2.60	0.42	0.66	6.01	1.27	1.18

All Non-I/M Counties* 2020 Emission Factors

RUR20NL.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.34	0.57	0.63	0.65	0.67	0.55	0.04	0.15	0.17	3.14	0.46
Composite NOx (g/mi)	0.29	0.46	0.55	0.58	0.69	0.90	0.11	0.27	2.45	1.65	0.95

RUR20NL.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.34	0.57	0.63	0.65	0.67	0.55	0.04	0.15	0.17	3.14	0.50
Composite NOx (g/mi)	0.29	0.46	0.55	0.58	0.69	0.90	0.11	0.27	2.45	1.65	0.75

RUR20NL.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.37	0.61	0.66	0.70	0.72	0.60	0.04	0.16	0.19	2.68	0.56
Composite NOx (g/mi)	0.28	0.43	0.52	0.56	0.67	0.80	0.07	0.17	1.45	1.25	0.52

All Non-I/M Counties* 2030 Emission Factors

RUR30NL.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.26	0.40	0.46	0.46	0.46	0.34	0.02	0.07	0.16	2.97	0.34
Composite NOx (g/mi)	0.23	0.36	0.40	0.43	0.45	0.24	0.03	0.07	0.91	1.62	0.47

RUR30NL.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.26	0.40	0.46	0.46	0.46	0.34	0.02	0.07	0.16	2.97	0.37
Composite NOx (g/mi)	0.23	0.36	0.40	0.43	0.45	0.24	0.03	0.07	0.91	1.62	0.42

RUR30NL.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.29	0.44	0.49	0.50	0.50	0.38	0.02	0.07	0.18	2.58	0.42
Composite NOx (g/mi)	0.22	0.34	0.38	0.41	0.43	0.22	0.02	0.05	0.58	1.25	0.35

"All Non-I/M Counties" include those not subject to North Carolina's I/M program.

Appendix C. Tier 2 Emission Factors

Mecklenburg and Gaston County 2010 Emission Factors

CLT10.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.42	0.75	0.78	0.57	0.60	0.55	0.11	0.22	0.23	2.47	0.52
Composite NOx (g/mi)	0.37	0.49	0.70	0.57	0.79	1.99	0.35	0.49	5.93	1.39	1.89

CLT10.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.43	0.75	0.79	0.57	0.61	0.55	0.11	0.22	0.23	2.47	0.56
Composite NOx (g/mi)	0.37	0.49	0.69	0.56	0.78	1.96	0.34	0.46	5.63	1.34	1.27

CLT10.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.44	0.77	0.80	0.58	0.62	0.57	0.12	0.23	0.23	2.49	0.60
Composite NOx (g/mi)	0.36	0.48	0.68	0.55	0.77	1.88	0.30	0.42	4.41	1.25	0.79

Mecklenburg and Gaston County 2020 Emission Factors

CLT20.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.19	0.32	0.36	0.28	0.30	0.29	0.03	0.08	0.16	2.29	0.27
Composite NOx (g/mi)	0.12	0.18	0.28	0.24	0.36	0.44	0.05	0.10	1.04	1.39	0.43

CLT20.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.19	0.32	0.36	0.28	0.30	0.29	0.03	0.08	0.17	2.29	0.28
Composite NOx (g/mi)	0.12	0.18	0.28	0.24	0.35	0.44	0.05	0.10	0.99	1.34	0.33

CLT20.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.04	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.19	0.33	0.37	0.29	0.31	0.30	0.03	0.09	0.17	2.31	0.30
Composite NOx (g/mi)	0.11	0.18	0.27	0.23	0.35	0.42	0.04	0.09	0.79	1.24	0.25

Mecklenburg and Gaston County 2030 Emission Factors

CLT30.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.16	0.23	0.27	0.22	0.23	0.24	0.02	0.05	0.16	2.20	0.22
Composite NOx (g/mi)	0.09	0.13	0.20	0.18	0.28	0.19	0.02	0.04	0.51	1.29	0.24

CLT30.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.16	0.23	0.27	0.22	0.24	0.24	0.02	0.05	0.17	2.21	0.22
Composite NOx (g/mi)	0.09	0.13	0.20	0.18	0.27	0.19	0.02	0.04	0.51	1.28	0.21

CLT30.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.04	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.16	0.23	0.27	0.22	0.24	0.24	0.02	0.06	0.16	2.23	0.23
Composite NOx (g/mi)	0.09	0.13	0.19	0.17	0.27	0.19	0.02	0.04	0.44	1.23	0.17

Wake and Durham County 2010 Emission Factors

RDU10.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.42	0.68	0.71	0.55	0.59	0.61	0.11	0.22	0.23	2.59	0.50
Composite NOx (g/mi)	0.37	0.46	0.65	0.59	0.84	2.21	0.35	0.51	6.30	1.40	1.98

RDU10.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.42	0.68	0.71	0.56	0.59	0.61	0.11	0.23	0.24	2.59	0.54
Composite NOx (g/mi)	0.37	0.46	0.65	0.59	0.83	2.18	0.34	0.49	5.99	1.35	1.31

RDU10.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.43	0.69	0.73	0.57	0.60	0.64	0.12	0.23	0.25	2.61	0.57
Composite NOx (g/mi)	0.36	0.45	0.63	0.58	0.82	2.11	0.30	0.44	5.01	1.26	0.84

Wake and Durham County 2020 Emission Factors

RDU20.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.19	0.29	0.33	0.27	0.29	0.31	0.03	0.08	0.17	2.37	0.26
Composite NOx (g/mi)	0.12	0.17	0.26	0.23	0.35	0.49	0.05	0.09	1.15	1.40	0.45

RDU20.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.19	0.29	0.33	0.27	0.29	0.31	0.03	0.08	0.17	2.37	0.27
Composite NOx (g/mi)	0.12	0.17	0.26	0.23	0.35	0.49	0.05	0.09	1.09	1.35	0.34

RDU20.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.19	0.30	0.33	0.27	0.29	0.33	0.03	0.08	0.18	2.39	0.28
Composite NOx (g/mi)	0.11	0.16	0.25	0.23	0.34	0.46	0.04	0.08	0.93	1.25	0.26

Wake and Durham County 2030 Emission Factors

RDU30.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.16	0.21	0.25	0.21	0.23	0.25	0.02	0.05	0.16	2.29	0.21
Composite NOx (g/mi)	0.09	0.12	0.19	0.18	0.28	0.20	0.02	0.04	0.52	1.31	0.24

RDU30.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.16	0.21	0.25	0.22	0.23	0.25	0.02	0.05	0.17	2.29	0.22
Composite NOx (g/mi)	0.09	0.12	0.19	0.18	0.28	0.19	0.02	0.04	0.51	1.29	0.20

RDU30.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.16	0.22	0.25	0.22	0.23	0.26	0.02	0.06	0.18	2.31	0.22
Composite NOx (g/mi)	0.09	0.12	0.18	0.17	0.27	0.19	0.02	0.04	0.47	1.24	0.18

Other I/M Counties* 2010 Emission Factors

RUR10.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.65	1.09	1.12	1.11	1.14	1.05	0.16	0.35	0.25	3.57	0.80
Composite NOx (g/mi)	0.52	0.66	0.89	0.90	1.19	2.95	0.73	1.16	11.17	1.73	3.28

RUR10.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.66	1.10	1.13	1.12	1.16	1.06	0.16	0.35	0.25	3.30	0.87
Composite NOx (g/mi)	0.52	0.65	0.88	0.89	1.17	2.88	0.62	0.99	9.67	1.62	1.99

RUR10.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.70	1.16	1.20	1.19	1.23	1.14	0.17	0.37	0.29	2.90	0.96
Composite NOx (g/mi)	0.49	0.61	0.84	0.85	1.13	2.60	0.42	0.66	6.01	1.27	1.08

Other I/M Counties* 2020 Emission Factors

RUR20.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.26	0.43	0.48	0.51	0.54	0.55	0.04	0.15	0.17	3.14	0.38
Composite NOx (g/mi)	0.16	0.25	0.37	0.41	0.59	0.90	0.11	0.27	2.45	1.65	0.85

RUR20.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.26	0.43	0.48	0.51	0.54	0.55	0.04	0.15	0.17	3.14	0.40
Composite NOx (g/mi)	0.16	0.25	0.37	0.41	0.59	0.90	0.11	0.27	2.45	1.65	0.62

RUR20.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.28	0.45	0.50	0.53	0.56	0.60	0.04	0.16	0.19	2.68	0.43
Composite NOx (g/mi)	0.15	0.23	0.35	0.39	0.56	0.80	0.07	0.17	1.45	1.25	0.38

Other I/M Counties* 2030 Emission Factors

RUR30.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.19	0.28	0.33	0.32	0.34	0.34	0.02	0.07	0.16	2.97	0.27
Composite NOx (g/mi)	0.11	0.16	0.24	0.26	0.38	0.24	0.03	0.07	0.91	1.62	0.37

RUR30.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.19	0.28	0.33	0.32	0.34	0.34	0.02	0.07	0.16	2.97	0.28
Composite NOx (g/mi)	0.11	0.16	0.24	0.26	0.38	0.24	0.03	0.07	0.91	1.62	0.30

RUR30.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.21	0.30	0.34	0.34	0.36	0.38	0.02	0.07	0.18	2.58	0.30
Composite NOx (g/mi)	0.10	0.15	0.22	0.24	0.36	0.22	0.02	0.05	0.58	1.25	0.22

"Other I/M Counties" include all counties subject to North Carolina's I/M Program except Mecklenburg, Gaston, Wake and Durham Counties.

All Non-I/M Counties* 2010 Emission Factors

RUR10N.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.72	1.17	1.21	1.19	1.24	1.05	0.16	0.35	0.25	3.57	0.85
Composite NOx (g/mi)	0.62	0.79	1.02	1.03	1.31	2.95	0.73	1.16	11.17	1.73	3.36

RUR10N.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.73	1.19	1.23	1.21	1.25	1.06	0.16	0.35	0.25	3.30	0.93
Composite NOx (g/mi)	0.61	0.78	1.01	1.02	1.30	2.88	0.62	0.99	9.67	1.62	2.08

RUR10N.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.78	1.27	1.31	1.30	1.34	1.14	0.17	0.37	0.29	2.90	1.05
Composite NOx (g/mi)	0.58	0.74	0.97	0.97	1.26	2.60	0.42	0.66	6.01	1.27	1.19

All Non-I/M Counties* 2020 Emission Factors

RUR20N.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.35	0.59	0.64	0.66	0.69	0.55	0.04	0.15	0.17	3.14	0.47
Composite NOx (g/mi)	0.29	0.46	0.58	0.61	0.79	0.90	0.11	0.27	2.45	1.65	0.97

RUR20N.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.35	0.59	0.64	0.66	0.69	0.55	0.04	0.15	0.17	3.14	0.51
Composite NOx (g/mi)	0.29	0.46	0.58	0.61	0.79	0.90	0.11	0.27	2.45	1.65	0.77

RUR20N.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.38	0.63	0.68	0.70	0.74	0.60	0.04	0.16	0.19	2.68	0.57
Composite NOx (g/mi)	0.28	0.44	0.55	0.58	0.75	0.80	0.07	0.17	1.45	1.25	0.54

All Non-I/M Counties* 2030 Emission Factors

RUR30N.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.29	0.44	0.49	0.47	0.49	0.34	0.02	0.07	0.16	2.97	0.36
Composite NOx (g/mi)	0.24	0.38	0.45	0.46	0.59	0.24	0.03	0.07	0.91	1.62	0.49

RUR30N.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.29	0.44	0.49	0.47	0.49	0.34	0.02	0.07	0.16	2.97	0.39
Composite NOx (g/mi)	0.24	0.38	0.45	0.46	0.59	0.24	0.03	0.07	0.91	1.62	0.45

RUR30N.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.32	0.47	0.52	0.51	0.53	0.38	0.02	0.07	0.18	2.58	0.44
Composite NOx (g/mi)	0.23	0.36	0.42	0.43	0.56	0.22	0.02	0.05	0.58	1.25	0.38

"All Non-I/M Counties" include those not subject to North Carolina's I/M program.

Appendix D. North Carolina Average Weekday VMT

County	2010	2020	2030
ALAMANCE	4,116,020	4,919,514	5,649,963
ALEXANDER	731,687	871,200	998,030
ALLEGHANY	270,468	287,763	303,486
ANSON	938,933	1,071,290	1,191,614
ASHE	762,184	973,969	1,166,501
AVERY	555,065	595,003	631,309
BEAUFORT	1,177,361	1,202,892	1,226,102
BERTIE	810,582	885,281	953,189
BLADEN	1,247,469	1,404,262	1,546,800
BRUNSWICK	3,687,147	4,977,851	6,151,217
BUNCOMBE	6,781,129	8,097,236	9,293,698
BURKE	2,854,160	3,283,996	3,674,757
CABARRUS	4,684,304	5,879,837	6,966,685
CALDWELL	1,964,704	2,253,360	2,515,774
CAMDEN	336,441	396,006	450,156
CARTERET	1,820,883	1,971,912	2,109,210
CASWELL	680,712	796,520	901,800
CATAWBA	5,237,733	6,466,425	7,583,418
CHATHAM	2,198,483	2,904,213	3,545,787
CHEROKEE	836,654	1,019,691	1,186,088
CHOWAN	361,279	414,436	462,761
CLAY	296,626	383,240	461,981
CLEVELAND	3,063,240	3,701,262	4,281,281
COLUMBUS	2,170,683	2,751,799	3,280,085
CRAVEN	3,519,621	4,882,283	6,121,067
CUMBERLAND	8,568,496	10,016,395	11,332,667
CURRITUCK	1,401,762	2,077,586	2,691,972
DARE	1,695,108	2,015,629	2,307,011
DAVIDSON	4,766,227	5,637,268	6,429,123
DAVIE	1,497,681	1,810,677	2,095,219
DUPLIN	2,157,963	2,628,142	3,055,577
DURHAM	7,167,554	8,692,585	10,078,976
EDGECOMBE	1,772,872	2,093,447	2,384,879
FORSYTH	9,287,388	11,054,174	12,660,343
FRANKLIN	1,551,945	1,980,211	2,369,544
GASTON	6,194,506	7,694,183	9,057,526
GATES	343,251	369,860	394,050
GRAHAM	183,026	193,074	202,208
GRANVILLE	1,943,046	2,334,181	2,689,758
GREENE	657,462	789,226	909,012
GUILFORD	12,253,484	14,143,803	15,862,274
HALIFAX	1,936,468	2,039,312	2,132,806
HARNETT	2,564,706	2,971,807	3,341,898
HAYWOOD	2,583,473	3,045,305	3,465,151
HENDERSON	2,710,042	3,362,210	3,955,089
HERTFORD	565,952	569,262	572,271

HOKE	941,277	1,217,486	1,468,584
HYDE	259,938	355,006	441,432
IREDELL	5,502,505	6,678,388	7,747,373
JACKSON	1,579,508	1,978,271	2,340,783
JOHNSTON	5,955,740	7,525,220	8,952,020
JONES	562,943	632,885	696,469
LEE	1,849,101	2,283,644	2,678,682
LENOIR	1,810,371	2,027,463	2,224,819
LINCOLN	1,815,733	2,318,476	2,775,514
MACON	1,066,127	1,328,953	1,567,886
MADISON	619,995	763,833	894,595
MARTIN	1,016,465	1,182,192	1,332,854
MCDOWELL	1,849,442	2,181,853	2,484,045
MECKLENBURG	23,233,048	30,636,749	37,367,386
MITCHELL	405,428	469,602	527,943
MONTGOMERY	1,165,572	1,406,073	1,624,710
MOORE	2,373,761	2,844,462	3,272,372
NASH	3,898,666	4,387,842	4,832,548
NEW HANOVER	3,980,143	5,044,608	6,012,303
NORTHAMPTON	984,377	1,098,087	1,201,461
ONSLOW	3,915,598	5,175,865	6,321,563
ORANGE	4,317,447	5,446,241	6,472,417
PAMLICO	373,866	419,604	461,183
PASQUOTANK	816,396	994,241	1,155,918
PENDER	1,994,704	2,456,701	2,876,698
PERQUIMANS	456,035	577,222	687,392
PERSON	900,146	1,067,428	1,219,502
PITT	3,400,317	3,983,033	4,512,775
POLK	925,202	1,156,146	1,366,095
RANDOLPH	4,313,301	5,195,767	5,998,009
RICHMOND	1,647,628	2,001,787	2,323,749
ROBESON	4,636,309	5,246,393	5,801,015
ROCKINGHAM	2,640,291	2,864,919	3,069,125
ROWAN	3,873,570	4,465,386	5,003,400
RUTHERFORD	1,810,844	2,115,733	2,392,904
SAMPSON	2,203,095	2,546,108	2,857,938
SCOTLAND	1,229,827	1,382,587	1,521,461
STANLY	1,599,536	1,862,841	2,102,210
STOKES	1,117,285	1,343,434	1,549,024
SURRY	2,675,387	2,969,519	3,236,912
SWAIN	562,881	615,707	663,731
TRANSYLVANIA	893,248	1,042,179	1,177,571
TYRRELL	189,727	250,223	305,219
UNION	3,787,618	4,643,151	5,420,908
VANCE	1,531,253	1,857,697	2,154,464
WAKE	20,085,293	25,619,517	30,650,630
WARREN	717,902	861,911	992,829
WASHINGTON	448,283	483,359	515,245
WATAUGA	1,081,388	1,160,296	1,232,030
WAYNE	3,292,285	4,024,978	4,691,063

WILKES	1,993,375	2,286,565	2,553,101
WILSON	2,707,761	3,093,448	3,444,072
YADKIN	1,518,080	1,776,643	2,011,700
YANCEY	426,871	450,324	471,646

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NCDAQ Analysis of CA LEV-II Vehicle Emissions Standards

Presented to the Environmental Review Commission

May 3, 2006

Brock M. Nicholson, P.E.
Deputy Director, NCDAQ

North Carolina Department of Environment and Natural Resources
Division of Air Quality

Outline

- Air Quality in North Carolina
- Review of Vehicle Standards
- CA LEV-II Project
- CA LEV-II vs. Federal Tier 2
  - NOx and VOC emissions benefits
  - Projected impacts on ambient air quality
- Fleet Averaging
  - Comparison of CA and NC fleets
- Resources
- Options/Next Steps

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Air Quality - Ozone

- All* areas of NC are attaining the 8-hr ozone standard except the Charlotte area
  *Triangle status pending USEPA approval
- Recall... NOx + VOC + sunlight = ozone
- NOx
  - precursor pollutant of concern in NC
  - majority of VOCs come from natural sources
- On-road mobile sources contribute significantly to the total NOx emissions in NC

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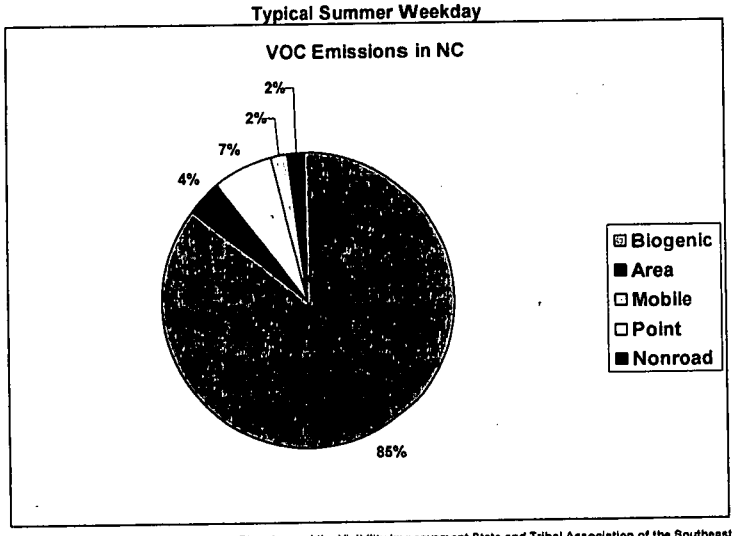
VOC emissions



Source: NCDAQ, Association of Southeastern Integrated Planning and the Visibility Improvement State and Tribal Association of the Southeast. Version BaseF4. 2009 estimates include all controls scheduled to be in place in 2009, including, but not limited to the NC Clean Smokestacks Act (point sources), Federal Tier 2 (on-road mobile sources) and the expanded NC Inspection and Maintenance Program (on-road mobile sources)

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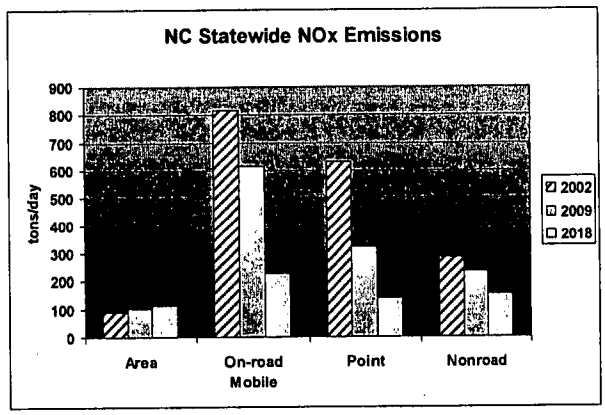
NOx emissions

Typical Summer Weekday



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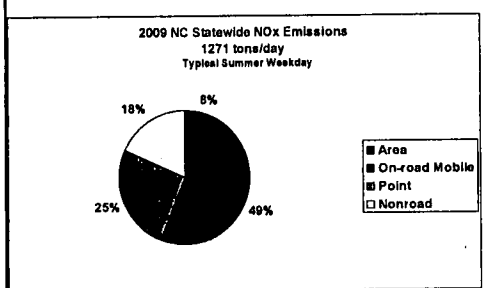
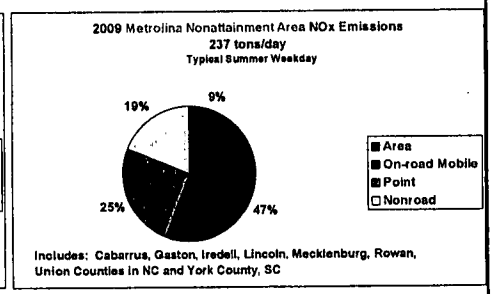
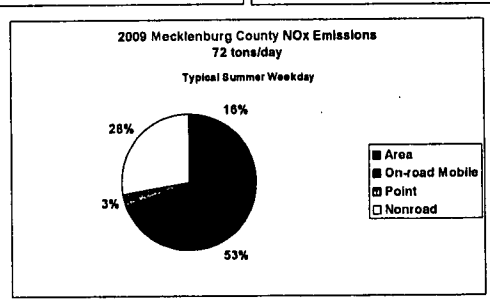




Includes: Cabarrus, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Union Counties in NC and York County, SC



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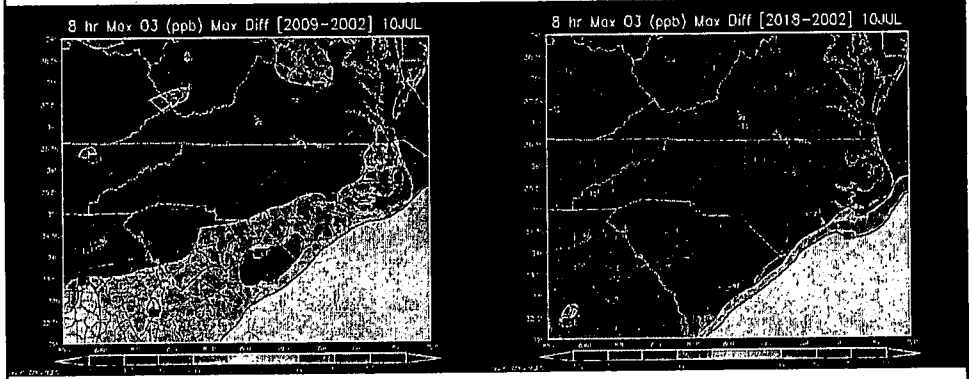
Predicted Future Air Quality

Current Federal and State Rules

Example of expected ozone reductions between 2002 and 2009

Example of expected ozone reductions between 2002 and 2018

Scales are the same on both maps.
Purple indicates 8-hour ozone reductions greater than 15 ppb.



Source: NCDAQ, Association of Southeastern Integrated Planning and the Visibility Improvement State and Tribal Association of the Southeast, Version BaseF4

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Vehicle Emissions Standards in the US

- Federal – Currently "Tier 2"
  - Adopted in 1999
  - Phased in 2004-2010
  - Fleet Average Requirement for NOx
  - Covers all States
  - Federal Clean Air Act (CAA) Section 209(a) "preempts" states from establishing separate standards
- California – Currently "CA LEV-II"
  - CAA Section 209(b) exempts California from the Sec 209(a) preemption
  - However, CA must obtain a waiver from USEPA for state standards to be effective
    - CA standards must be equal to or more stringent than the Federal standards
  - Fleet Average Requirement for VOC

Objective of this Analysis

- Estimate the NOx and VOC emissions benefits of adopting California Vehicle Emission Standards (CA LEV-II) in NC
- Apply knowledge from recent 8-hour ozone modeling studies to estimate the impacts of adopting CA LEV-II
- Compare the NC and CA vehicle fleet and age distributions to assess the need for "fleet averaging"
- Estimate State staffing resources needed if NC adopts CA LEV-II

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CA LEV-II vs. Federal Tier 2

- CA LEV-II program starts with model year 2010 vehicles
- CA LEV-II emissions estimates include:
  - Fleet averaging enforcement
  - Zero Emitting Vehicle (ZEV) component
  - Phase-in percentages by exhaust certification bin
    - Provided by USEPA in MOBILE6.2 ready format
      - Represents the California Air Resources Board (CARB) phase-in schedule
      - It represents an estimate of the mix of vehicles that manufacturers will distribute to meet the fleet average standard

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CA LEV-II vs. Federal Tier 2

Emission estimates were developed using:

- USEPA motor vehicle emissions model (MOBILE6.2)
- USEPA mobile modeling guidance
- NC specific input data including:
  - Vehicle mix, vehicle age distribution, vehicle miles traveled (VMT), speeds, Inspection/Maintenance Programs (I/M), fuels, temperatures
- Federal Tier 2 estimates for 2004, 2010, 2020 and 2030
- CA LEV-II estimates for 2010, 2020 and 2030

Methods: USEPA Technical Guidance on the Use of MOBILE 6.2 for Emission Inventory Preparation, August 2004

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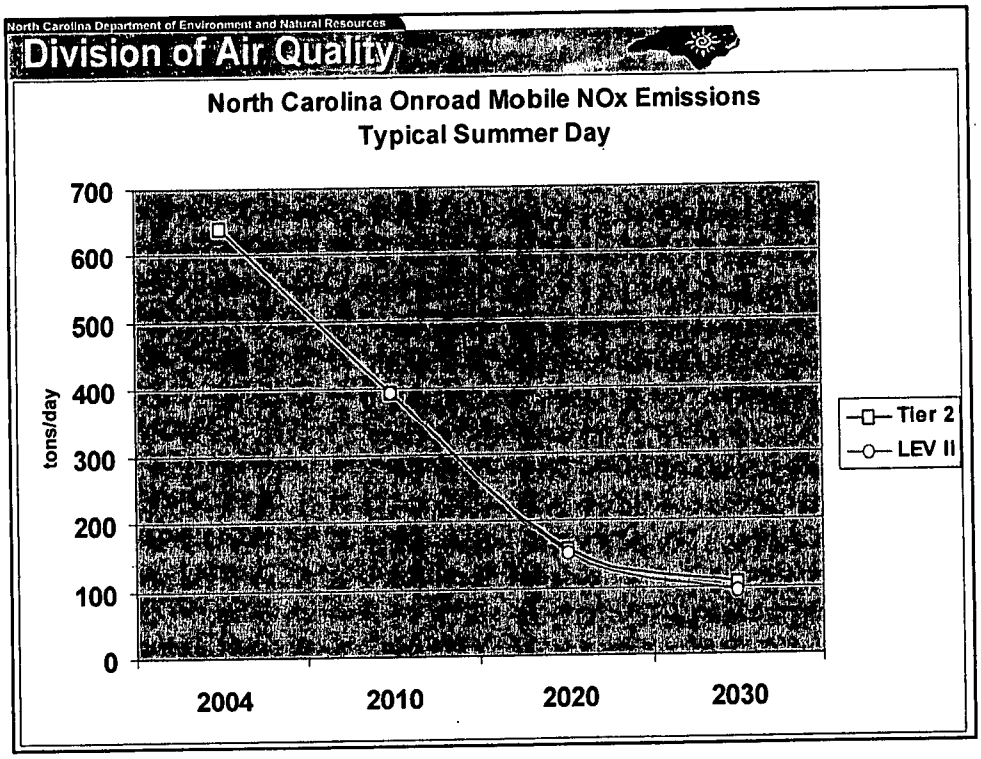

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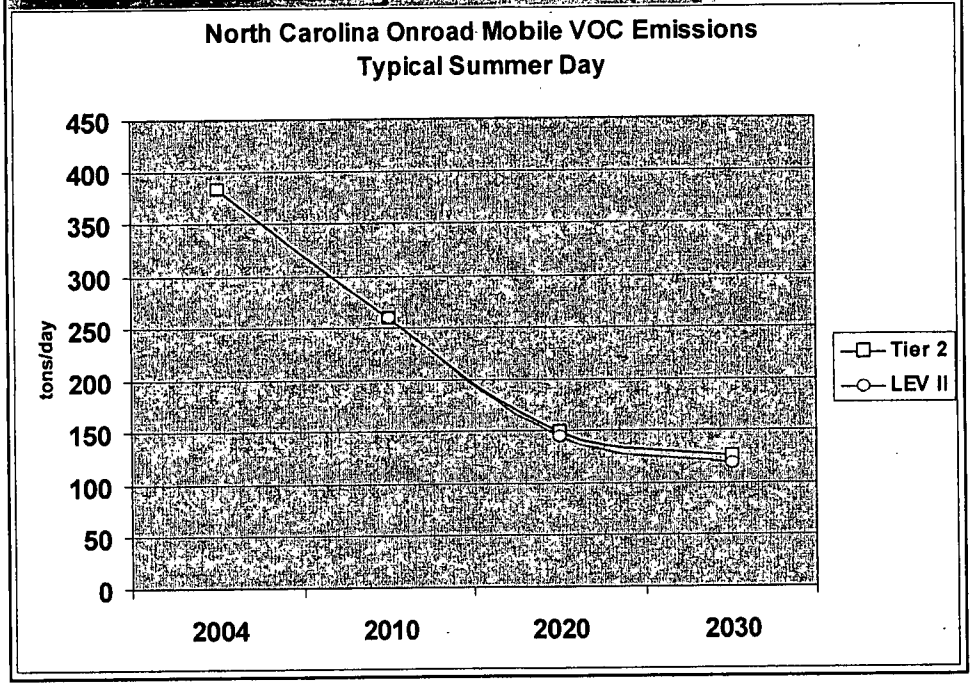

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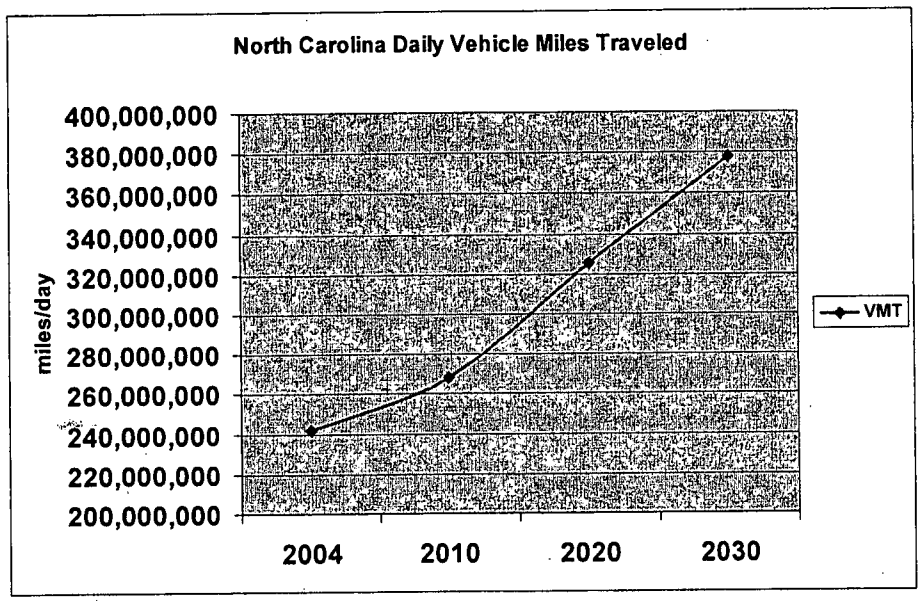

CA LEV-II vs. Federal Tier 2

Emissions Reductions Summary

- On-road mobile sources only
- CA LEV-II Program in NC starting with model year 2010

	2010	2020	2030
NOx	0.1%	4%	10%
VOC	0.1%	3%	6%

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Air Quality Modeling

- During NCDAQ's current SIP modeling...

  Air Quality modeling sensitivities were performed by NCDAQ to assess the impacts of *additional* future year NOx emissions reductions from on-road mobile sources

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Air Quality Modeling

Future year (2009) NOx emissions from on-road mobile sources were reduced by 10% in the following counties:

Mecklenburg

Union

Gaston

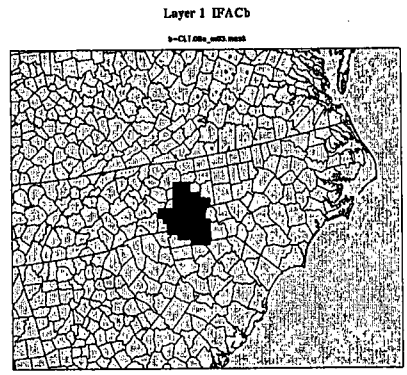
Lincoln

Iredell

Cabarrus

Rowan

The 10% NOx reduction in 2009 is equivalent to ~10 tons/day in this region



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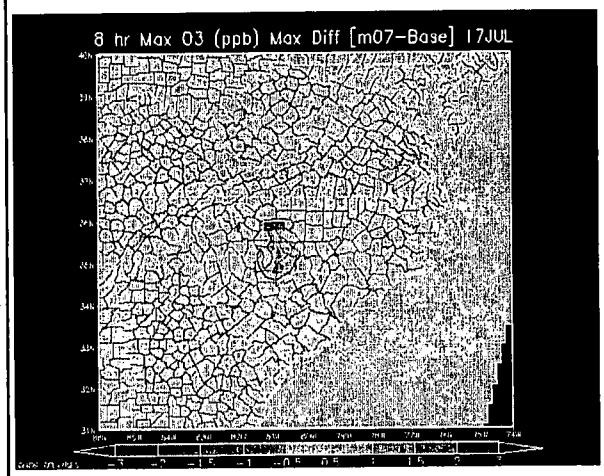
Air Quality Modeling



- 10 tons/day on-road mobile NOx reduction across the Metrolina area resulted in lowering 8-hour ozone concentrations by 0.1 to 1.0 ppb in 2009
- Only 1 of the 7 modeled days resulted in changes as high as 1.0 ppb (shown)
- Only 2 of the 7 modeled days resulted in changes as high as 0.5 ppb

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Air Quality Modeling

For the Metrolina area...

2009 on-road mobile NOx ~ 100 tons/day (w/ Tier 2)

2020 on-road mobile NOx ~ 25 tons/day (w/ Tier 2)

If...

- 10% = 10 tons/day NOx in 2009 = 1 ppb max benefit

Then..

- 4 % = 1 ton/day NOx in 2020 = 0.1 ppb max benefit

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Fleet Characteristics

- Comparison of the NC and CA vehicle fleets
  - Composition
  - Age distributions
- Assess the value of "fleet averaging" enforcement

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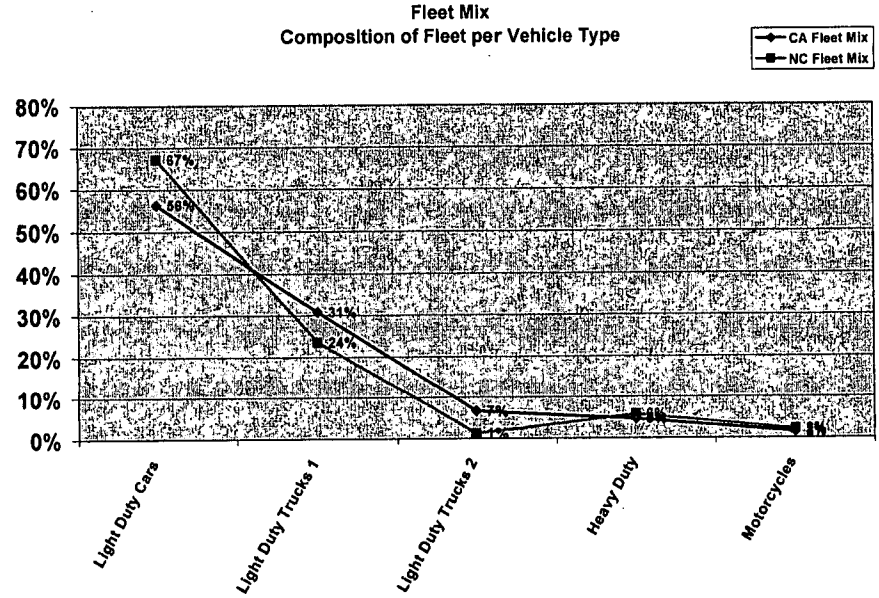
Fleet Mix
Composition of Fleet per Vehicle Type



Sources: North Carolina Department of Transportation and California Air Resources Board

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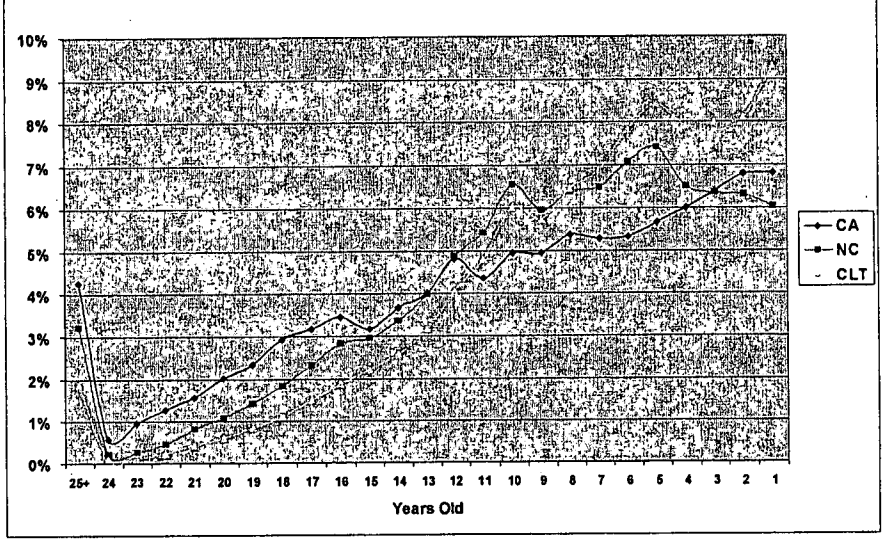
Light Duty Gasoline Vehicles
Percent by Age



Sources: North Carolina Department of Transportation and California Air Resources Board

Note: CLT includes Gaston and Mecklenburg Counties

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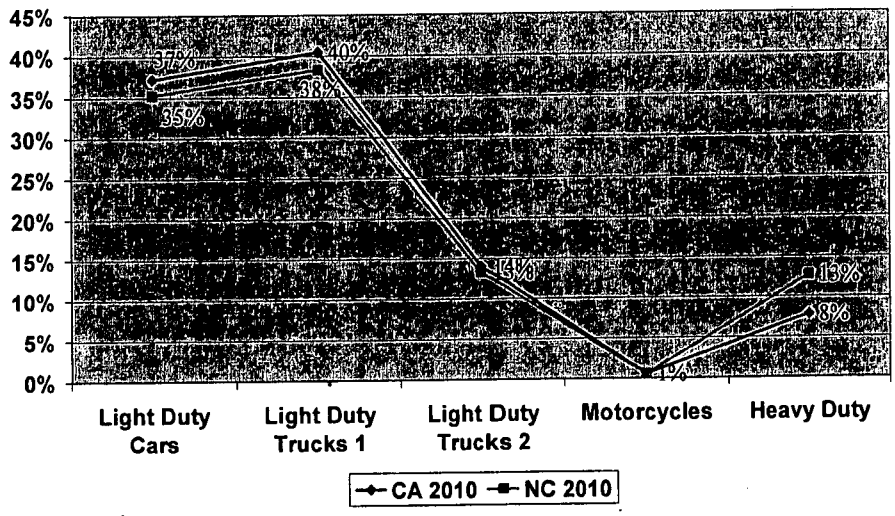
VMT Mix
Percent of VMT per Vehicle Type



Sources: North Carolina Department of Transportation and California Air Resources Board
Methods: USEPA Technical Guidance on the Use of MOBILE 6.2 for Emission Inventory Preparation, August 2004

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Staff Resources

- DAQ and DMV
  - DMV: Primary point of enforcement
  - DAQ: Audits, monitor performance of program, public outreach and troubleshoot registration issues
- Fleet average enforcement
  - *Potential* State staffing requirements with fleet average enforcement
    - Washington, 1.5 full time employees (FTEs)
    - New York, 2-3 people (not full time)
    - Massachusetts, 2-3 people (not full time)
  - Potential duties of DAQ Employees
    - Enforce compliance of fleet average requirement
    - Work with manufacturers / dealers and public on vehicle model availability issues

Source: NCDAQ, Washington State Department of Ecology-Air Quality Program

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Division of Air Quality

Staff Resource Impacts

- Existing Tasks:
  - Transportation conformity, SIP modeling and emissions inventories would require more time and resources due to more complicated mobile sources emissions estimation techniques
  - This would also impact Local Air Quality Agencies, Metropolitan Planning Organizations and Rural Planning Organizations involved in the transportation conformity process

Source: NCDAQ, Washington State Department of Ecology-Air Quality Program

North Carolina Department of Environment and Natural Resources
Division of Air Quality

Summary

- CA LEV-II benefits relative to Federal Tier II in future years:
  - NOx emissions would be reduced by 0.1%, 4% and 10% in 2010, 2020 and 2030, respectively
  - VOC emissions would be reduced by 0.1%, 3% and 6% in 2010, 2020 and 2030, respectively
  - Air Quality benefits: Less than 0.1 ppb ozone reduction in 2020

Summary - continued

- Air Quality: Ozone concentrations would change *less than* 0.1 ppb in 2020
- Vehicle fleet age: NC currently has a newer fleet of light duty vehicles (passenger cars) than California
- Vehicle population: NC has a greater number of light duty vehicles (passenger cars) and fewer light duty trucks (including SUVs) than California
- Implementation Resources: Other States suggest 1-2 employees needed for enforcement of fleet average requirements
- Implications for ongoing DAQ activities: More complicated emission estimation techniques would lengthen NCDAQ timelines for transportation conformity, SIP modeling and emission inventories

North Carolina Department of Environment and Natural Resources
Division of Air Quality

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- Nick Witcraft, NCDAQ
- Patrick Butler, NCDAQ

North Carolina Department of Environment and Natural Resources
Division of Air Quality

Questions/Comments

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EXHIBIT D-2

North Carolina General Statute 136-202
2006 Annual Report

Prepared by the NCDOT Transportation Planning Branch
November 2006

North Carolina General Statute 136-202
2006 Annual Report

North Carolina General Statute 136-202 concerning Metropolitan Planning Organizations (MPO) requires the Department of Transportation to report annually on the evaluation and adjustment of the boundaries of the areas served by each MPO in the state. The follow is a summary of MPO adjustments during the last calendar year.

Burlington-Graham MPO

The Burlington-Graham MPO includes Burlington, Graham, Elon College, Gibsonville, Mebane, Haw River, Whitsett, Green Level, Village of Alamance, and Alamance County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Michael Abuya, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Burlington-Graham MPO.

Cabarrus-Rowan MPO

The Cabarrus-Rowan MPO includes Concord, Kannapolis, China Grove, Cleveland, Granite Quarry, Harrisburg, Landis, Mount Pleasant, Rockwell, Salisbury, Spencer and Rowan and Cabarrus Counties. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Ms. Linda Dossé, P.E., Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Cabarrus-Rowan MPO.

Capital Area MPO

The Capital Area MPO consists of the all the area inside of Wake County, and parts of Franklin, Granville, Harnett, and Johnston Counties, which includes the municipalities of Angier, Apex, Bunn, Cary, Clayton, Creedmoor, Franklinton, Fuquay-Varina, Holly Springs, Knightdale, Morrisville, Raleigh, Rolesville, Wake Forest, Wendell, Youngsville, and Zebulon. In June 2005, the Capital Area MPO expanded its boundary to include the previously unrepresented areas of Granville County, Creedmoor, Franklin County, Youngsville, Bunn, Franklinton, Johnston County, Clayton, Harnett County and Angier. The current Memorandum of Understanding establishing the structure and revised membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Scott Walston, P.E., Transportation Engineering Supervisor with the Transportation Planning Branch, with any questions or comments relevant to the Capital Area MPO.

Durham-Chapel Hill-Carrboro MPO

The Durham – Chapel Hill – Carrboro Urban Area MPO consists of the Durham, Chapel Hill, Carrboro, Durham County (all), Hillsborough, Orange County (part) and Chatham County (part). This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Scott Walston, P.E., Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Durham – Chapel Hill – Carrboro MPO.

Fayetteville Area MPO

The Fayetteville Area MPO includes the City of Fayetteville, the Towns of Hope Mills and Spring Lake, Fort Bragg Military Reservation, Pope Air Force Base, the urban portion of Cumberland County, portion of Harnett County, and portions of Hoke County. While the MPO boundary and membership has remained the same over the past year, FAMPO has invited a representative from Fayetteville State University to become a member of the Technical Coordinating Committee. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Darius Sturdivant, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Fayetteville Area MPO.

French Broad River MPO

The French Broad River MPO includes the urbanized areas of Buncombe County, Haywood County, and Henderson County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Daniel Holt, P.E., Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the French Broad River MPO.

Gaston Urban Area MPO

The Gaston Urban Area MPO consists of the following member governments: Belmont, Bessemer City, Cramerton, Dallas, Gaston County, Gastonia, Lowell, McAdenville, Mount Holly, Ranlo, Spencer Mountain, and Stanley. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Ms. Shannon Ransom, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Gaston Urban Area MPO.

Goldsboro MPO

The Goldsboro Metropolitan Planning Organization includes the City of Goldsboro, Wayne County, the Village of Walnut Creek and the Seymour Johnson Air Force Base. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Ms. Earlene Thomas, P.E., Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Jacksonville Urban Area MPO.

Greater Hickory MPO

The Greater Hickory MPO includes the municipalities of Brookford, Cajah's Mountain, Catawba, Cedar Rock, Claremont, Conover, Connelly Springs, Drexel, Gamewell, Glen Alpine, Granite Falls, Hickory, Hildebran, Hudson, Lenoir, Long View, Maiden, Morganton, Newton, Rhodhiss, Rutherford College, Sawmills, Valdese and the urbanized areas of Alexander, Burke, Caldwell and Catawba Counties. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Linh Nguyen, P.E., Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Greater Hickory MPO.

Greensboro MPO

The Greensboro Urban Area MPO includes most of Guilford County, towns of Summerfield, Stokesdale, Oak Ridge, Pleasant Garden, and Sedalia, excluding the Gibsonville, Whitsett, High Point, and Jamestown areas. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Wayne Davis, Ph.D., P.E., Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Greensboro Urban Area MPO.

Greenville Urban Area MPO

The Greenville Urban Area MPO includes the City of Greenville, the Towns of Winterville and Ayden, the Village of Simpson, and surrounding areas of Pitt County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Ms. Atefe Northcutt Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Greensboro Urban Area MPO.

High Point MPO

The High Point Urban Area MPO includes High Point, Thomasville, Archdale, Jamestown, Trinity, Forsyth County and portions of Guilford, Davidson and Randolph Counties. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Andy Bailey, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the High Point Urban Area MPO.

Jacksonville Urban Area MPO

The Jacksonville Urban Area MPO includes all incorporate areas of the City of Jacksonville and portions of Onslow County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Ms. Tammye Fontenot, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Jacksonville Urban Area MPO.

Mecklenburg-Union MPO

The Mecklenburg-Union MPO consists of all of Mecklenburg County and the urbanized portions of Union County. Member jurisdictions include Charlotte, Cornelius, Davidson, Huntersville, Matthews, Mint Hill and Pineville in Mecklenburg County, and Indian Trail, Monroe, Stallings, Waxhaw, Weddington, Wesley Chapel and Wingate in Union County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Jonathan Parker, P.E., Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Mecklenburg-Union MPO.

Rocky Mount Urban Area MPO

The Rocky Mount Urban Area MPO consists of the City of Rocky Mount, Town of Nashville, part of Edgecombe County, and part of Nash County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch.

Please contact Ms. Anna Meares, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Rocky Mount Urban Area MPO.

Wilmington MPO

The Wilmington MPO consists of the City of Wilmington, the Town of Carolina Beach, the Town of Kure Beach, the Town of Wrightsville Beach, New Hanover County, the Town of Belville, the Town of Leland, the Town of Navassa, Brunswick County and Pender County. In August 2006, The Wilmington MPO expanded the MPO boundary to include the previously unrepresented area of Pender County. The current Memorandum of Understanding establishing the structure and revised membership of the MPO is on file within the Transportation Planning Branch. Please contact Mrs. Earlene Thomas, P.E., Transportation Engineer with the Transportation Planning Branch for any questions or comments relevant to the Wilmington MPO.

Winston Salem MPO

The Winston-Salem MPO includes Winston-Salem, Bermuda Run, Bethania, Clemmons, Kernersville, King, Lewisville, Rural Hall, Tobaccoville, Walkertown, and parts of Davidson, Davie and Stokes Counties. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. James Upchurch, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Winston-Salem MPO.

EXHIBIT E

NORTH CAROLINA GENERAL ASSEMBLY

Report on the study of the merger of the Ecological Enhancement Program and the Clean Water Management Trust Fund

REQUEST FOR PROPOSALS

November 21, 2006

Proposals subject to the conditions made a part hereof will be received until **5:00 p.m. EST December 22, 2006** for furnishing services described herein. Send all proposals to the following:

Lisa Hollowell
Fiscal Research Division
General Assembly of North Carolina
Room 619 Legislative Office Building
300 N. Salisbury St.
Raleigh, NC, 27603
Phone: 919-733-4910

Email: lisah@ncleg.net

Questions about the RFP should be sent by email to Ms. Hollowell.

NOTE: Indicate firm name on the front of each sealed proposal envelope or package.

Introduction

The Joint Legislative Transportation Oversight Committee (JLTOC) of the North Carolina General Assembly and the Environmental Review Commission (ERC) of the North Carolina General Assembly are seeking a consultant to study the merger of the organization and functions of the Ecological Enhancement Program (EEP) and the Clean Water Management Trust Fund (CWMTF).

Section 16 of Part XVI of Session Law 2006-248, House Bill 1723, directs the ERC and JLTOC to jointly study the merger of the organization and functions of the two programs.

> **PART XVI. MERGER OF ECOLOGICAL ENHANCEMENT PROGRAM AND THE CLEAN WATER MANAGEMENT TRUST FUND (Jenkins)**
>
> **SECTION 16.** The Environmental Review Commission and the Joint Legislative Transportation Oversight Committee shall jointly study the merger of the organization and functions of the Ecological Enhancement Program with the Clean Water Management Trust Fund. The Commission and the Committee may hire consultants to assist with the study. The final report shall be made to the 2007 General Assembly.

Ecosystem Enhancement Program

In 2003, the United States Army Corps of Engineers (USACE), North Carolina Department of Transportation (NCDOT) and North Carolina Department of Environment and Natural Resources (NCDENR) signed a memorandum of agreement (MOA) that created the Ecosystem Enhancement Program (EEP). The agreement created procedures and guidelines for providing the compensatory mitigation to offset impacts to waters and wetlands due to transportation activities and construction. The MOA provided for the incorporation of the Wetlands Restoration Program (WRP), which had been established by State law in 1996 to provide the compensatory mitigation required by the section 404 permit issued by the USACE for land development impacting wetlands, into the EEP. The MOA also provided that the WRP would be renamed as the EEP, which was confirmed by the enactment of conforming legislation in 2005.

Clean Water Management Trust Fund

The Clean Water Management Trust Fund (CWMTF) is a non-regulatory agency that administers a water quality grants program. The grant funds are awarded to local governments, State agencies, nonprofit conservation organizations, and other subdivisions of the State and may be used to acquire conservation easements or fee simple ownership of land in order to "preserve riparian buffers, wetlands, floodplains, and greenways; to restore riparian buffers, streams and wetlands; to repair failing wastewater collection and

treatment systems; to eliminate failing septic tanks and straight pipes, to prevent, reduce, collect and treat stormwater pollution and to plan water quality projects". (*Annual Report 2005, The North Carolina Clean Water Management Trust Fund*)

A brief history of the CWMFT follows:
In 1996 the General Assembly created the Clean Water Management Trust Fund with a prescribed mission to "clean up pollution in the State's surface waters and to protect and conserve those waters that are not yet polluted" (GS 113A-251). The General Assembly provided a dedicated and recurring funding source and required a Board of Trustees, Executive Director and staff. The Board of Trustees was empowered to establish a grant funding program to advance the mission. Since 1996, the CWMTF Board has approved over $595.8 million in grants for projects which have leveraged significant additional funds in private and other public funding.

During the 2005-2006 biennium the General Assembly appropriated recurring funding of $100 million for each year of the biennium for the grant program. During 2005, the CWMFT Board of Trustees approved funding for 159 projects for a total amount of $112.7 million and approved an administrative budget of $1.663 million for fiscal year 2006.

Scope of Study

I. The study will fully analyze, describe, and compare the organizational structures, missions, and budgets (both administrative and programmatic) of the EEP and the CWMTF. The comparison will identify whether there have been land purchases that may be utilized in both mitigation for North Carolina Department of Transportation projects and aid in cleaning up pollution in waters or preventing waters from becoming polluted. The consultant will analyze and may recommend whether to combine some or all of the activities of the two programs into one organization.

The Consultant shall provide the following detailed information on the EEP:

- Full description of the mitigation process including: selection of target areas, acquisition of land, crediting of land, use of the land, banking of surplus or unused credits. Describe how the EEP approach differs from the past approach when NCDOT handled mitigation within the agency. Describe the guidelines and requirements of the USACE and relate how these guidelines impact the policies established within EEP.
- Inventory the acquisitions and credits and restored or preserved lands accrued to date and describe how these acquisitions and credits have been assigned to projects and the process by which they may be reassigned or re-categorized for future projects. Include in a separate inventory the NCDOT transferred land credits and assigned projects.
- Detail the process for valuing the credits and restored acres assigned to projects in the near future and the surplus credits. Calculate the value of the credits currently in inventory with EEP. Identify options for the State

regarding the surplus land acquisitions that is not needed in the near future for mitigation purposes.

- The consultant shall identify best practices for mitigation processes and provide examples from other states.

II. The consultant will conduct a mitigation banking analysis that compares the relative effectiveness, efficiency, and total cost of the State's mitigation program to that of private mitigation banks. The consultant shall identify the State's processes and private sector processes of mitigation including Design, Bid, Build (EDP) and Full Delivery Procurement (EDP). The consultant will review current State policies with respect to the activities that private mitigation banks may undertake with respect to the services that private mitigation banks provide. The consultant will make recommendations for future mitigation banking policies as a result of the analysis.

III. The consultant will provide (1) alternative options to the merger of the programs into one entity, and (2) detail other collaborative arrangements that could exist in lieu of a complete merger and (3) identify other ways in which to provide mitigation in a more cost-effective way.

IV. The consultant will review and analyze pending and likely changes at the Federal level that may impact the State's programs.

V. The consultant will create an implementation schedule with timeline on any consultant-recommended options including projected budgets.

Qualifications

Potential vendors submitting proposals must demonstrate their knowledge of states' environmental preservation and mitigation processes, federal government environmental regulations related to highway/road building and construction, and demonstrated capability to produce clear, well-written reports by providing examples of completed projects.

Project Timeframe

The schedule is listed below:

Activity	Date
RFP Distributed	November 21, 2006
Proposals from Vendors Due	December 22, 2006
Award Contract	January 10, 2007
Sign Contract/Begin Work	January 22, 2007
Final Report	The consultant will propose a delivery date not to exceed 20 weeks.

Reports

The consultant will deliver up to four legislative presentations. The consultant will provide interim written reports and the final report will include an electronic version and 100 hardcopy reports.

Required Contents for Proposal

The response to this request for proposals shall consist of the following sections:

a) Executive Summary
   The executive summary shall consist of a brief summary of the contents of the proposal.
b) Corporate Background and Experience
   This section shall include:
   1) Background information on the organization and details of experiences with similar projects.
   2) A list of at least three references, including contacts and telephone numbers, for whom similar work has been performed.
   3) Samples of work products.
c) Financial Statement
   The vendor's most recent financial statement or similar evidence of financial stability.
d) Project Staffing and Organization
   This section shall include:
   1) Proposed staffing, deployment and organization of personnel to be assigned to this project.
   2) The vendor shall include resumes of key personnel who will actually be assigned to the project, describing experience with similar projects and the responsibilities to be assigned to each person.
   3) How the study will be planned, organized and conducted.
e) Technical Proposal
   This section shall include, in narrative, outline or graph form, the vendor's approach to accomplishing the tasks outlined in the project description section of this RFP. A description of each task and the schedule for accomplishing each shall be included.
f) Cost Proposal
   The cost proposal must contain the following information:
   1) Personnel costs (including hourly rates and total hours)
   2) Travel and subsistence expenses
   3) Office space, telephone, and other support needs, if any, anticipated from the General Assembly
   4) Subvendor costs (if any)
   5) Other costs
   6) Total cost for completing the project
   7) Rates for additional analyses requested during the project period

Proposal Submittal Process

a) Two original and 10 copies of the proposal plus electronic copy, PDF preferred.
b) Each original shall be signed and dated by an official authorized to bind the firm.

Vendor Selection Process

The selection of the vendor will be determined by a "Best Value" methodology, with key factors to be considered to include experience of the vendor and its consultants with related projects and price.

General Conditions Related to Submittal of Proposals

Right to Reject

The Joint Legislative Transportation Oversight Committee (hereinafter "Committee") reserves the unqualified right to reject any and all proposals when such rejection is deemed to be in the best interest of the State of North Carolina.

Right to Accept Part of Proposal, Negotiate Content and Cost

The Committee reserves the right to accept part of any proposal, and to divide any proposal into parts deliverable in stages over an extended time period. The Committee reserves the right to negotiate and alter the content, form, schedule, and deliverables of any proposal or portion of a proposal accepted. The Committee reserves the right to negotiate the cost of any proposal or portion of a proposal accepted.

Time for Acceptance

Each proposal shall state that it is a firm offer that may be accepted within a period of 30 days from the date of submission.

Unsolicited Proposal Changes

Any unsolicited change to a proposal that is received after the closing date of this RFP will be rejected.

Responsibility to Make Timely Submission

The vendor is responsible for assuring the timely delivery of a proposal. Late proposals will be rejected without review.

Cost for Proposal Preparation

Any costs incurred by vendors in preparing or submitting offers are the vendor's sole responsibility; the Committee will not reimburse any vendor for any costs incurred prior to award.

Elaborate Proposals

Elaborate proposals in the form of brochures or other presentations beyond that necessary to present a complete and effective proposal are not desired. Vendors are encouraged to limit proposals to approximately 10 pages or less (not including examples of work products).

Oral Explanations

The Committee shall not be bound by oral explanations or instructions given at any time during the competitive process or after award.

Confidentiality of Proposals

In submitting its proposal the vendor agrees not to discuss or otherwise reveal the contents of the proposal to any source outside of the Committee or its Legislative Services Office staff until after the award of the contract.

Form of Proposal

Proposals shall be submitted in a form that, in the opinion of the Committee, may be incorporated verbatim into a contract.

Exception to Terms

Any exception, interpretation, or suggestion for clarification by the vendor to any of the terms and conditions of this RFP must be clearly stated by the vendor.

Competitive Offer

Pursuant to the provision of G.S. 143-54, and under penalty of perjury, the signer of any proposal submitted in response to this RFP thereby certifies that this proposal has not been arrived at collusively or otherwise in violation of either Federal or North Carolina antitrust laws.

Right to Submitted Materials

All responses, inquiries, and correspondence relating to or in reference to this RFP shall become the property of the State of North Carolina when received.

Vendor's Representative

Each vendor shall submit with its proposal the name, address, telephone number, and email address of the person(s) with authority to bind the firm and answer questions or provide clarification concerning the vendor's proposal.

Proprietary Information

All vendors' information submitted in the proposal has the potential to become public information. Vendors are cautioned that any proprietary information contained in the proposal may not be protected as confidential and should not be submitted in response to this RFP.

Terms and Conditions of Resulting Contract

The following are terms and conditions that will be included in the contract for conducting the project. Other terms and conditions may be added prior to the signing of the contract.

Vendor

The contract is between the Joint Legislative Transportation Oversight Committee (subject to the approval of the Legislative Services Commission) and the selected vendor (hereinafter referred to as "Vendor").

Governing Law

This contract is made under and shall be governed and construed in accordance with the laws of the State of North Carolina.

Situs

The place of this contract, its situs and forum, shall be Raleigh, North Carolina, where all matters, whether sounding in contract or tort, relating to its validity, construction, interpretation and enforcement shall be determined.

Contract Period

The terms of the contract shall begin at its signing and shall end twelve weeks after contract signing, unless extended or terminated as provided in this document.

Termination

Upon mutual written agreement of the Committee and the Vendor, the contract may be terminated at any time. Failure to perform by the Vendor may result in termination by the Committee. In addition, the Committee has the right to terminate the contract at its discretion with 10 days written notice. In the event of termination, the Vendor will be paid an amount commensurate with work completed.

Independent Vendor

The Vendor shall be considered to be an independent vendor and as such shall be wholly responsible for the work to be performed and for the supervision of its employees. The Vendor represents that it has, or will secure at its own expense, all personnel required in performing the services under this agreement. Such employees shall not be employees of, or have any individual contractual relationship with the Committee or the Legislative Services Office.

Key Personnel

The Vendor shall not substitute key personnel assigned to the performance of this contract without prior written approval by the Committee. The individuals designated as key personnel for purposes of this contract are those specified in the Vendor's proposal.

Subcontracting

Work proposed to be performed under this contract by the Vendor or its employees shall not be subcontracted without prior written approval of the Committee.

Performance and Default

If, through any cause, the Vendor shall fail to fulfill in timely and proper manner the obligations under this agreement, the Committee shall thereupon have the right to terminate this contract by giving written notice to the Vendor and specifying the effective date thereof. In that event, all finished or unfinished deliverable items under this contract prepared by the Vendor shall, at the option

of the Committee, become its property, and the Vendor shall be entitled to receive just and equitable compensation for any satisfactory work completed on such materials. Notwithstanding, the Vendor shall not be relieved of liability to the Committee for damages sustained by the Committee by virtue of any breach of this agreement, and the Committee may withhold any payment due the Vendor for the purpose of setoff until such time as the exact amount of damages due the Committee from such breach can be determined. In case of default by the Vendor, the Committee may procure the services from other sources and hold the Vendor responsible for any excess cost occasioned thereby. Neither party shall be deemed to be in default of its obligations hereunder if and so long as it is prevented from performing such obligations by any act of war, hostile foreign action, nuclear explosion, riot, strikes, civil insurrection, earthquake, hurricane, tornado or other catastrophic natural event or act of God.

Bankruptcy

Upon the filing for bankruptcy or insolvency by or against the vendor, the Committee may terminate the contract, and the provisions of paragraph entitled "Performance and Default" shall apply.

Performance Bond

The Committee may require either a performance bond up to the full amount of the contract or another performance guarantee.

Availability of Funds

Any and all payments to the Vendor are dependent upon and subject to the availability of funds to the Committee for the purpose set forth in this agreement.

Confidentiality

The vendor agrees to protect the confidentiality of any files, data, or other materials provided by the Committee and to restrict their use to the purpose of performing the contract. The vendor shall comply with the provisions of Article 17 of Chapter 120 of the North Carolina General Statutes regarding confidentiality between the vendor and members of the General Assembly.

Care of Property

The Vendor agrees that it shall be responsible for the proper custody and care of any files or other property furnished by the Committee.

Copyright

No deliverable items produced in whole or in part under this agreement shall be the subject of an application for copyright by or on behalf of the Vendor.

Access to Persons and Records

The State Auditor shall have access to persons and records as a result of all contracts or grants entered into by State agencies or political subdivisions in

accordance with General Statute 147-64.7. The Vendor shall retain all records for a period of three years following completion of the contract.

Transfer or Assignment

The contract shall not be transferred or assigned to a third party.

Compliance with Laws

The Vendor shall comply with all laws, ordinances, codes, rules, regulations and licensing requirements that are applicable to the conduct of its business, including those of federal, state, and local agencies having jurisdiction or authority.

Equal Opportunity Statement

The nondiscrimination clause contained in Section 202 Executive Order 11246, as amended by Executive Order 11375, relative to equal employment opportunity for all persons without regard to race, color, religion, sex, age or national origin, and the rules and regulations prescribed by the Secretary of Labor, are incorporated herein. The program for Employment of the Handicapped (Affirmative Action) Regulations issued by the Secretary of Labor of the United States in Title 20, Part 741, Chapter VI, Subchapter "C" of the Code of Federal Regulations, pursuant to the provisions of Executive Order 11758 and Section 503 of the Federal Rehabilitation Act of 1973, are incorporated herein.

Insurance

The Vendor shall obtain, pay for, and keep in force, for the duration of the contract, worker's compensation insurance, as required by the laws of North Carolina, covering all of the Vendor's employees engaged in any work on the project in the State.

Additional Contract Expenses

The contract for the project is not a time and materials agreement. Any expenses of the vendor in addition to those contracted for, or above the contract amount, are the sole responsibility of the Vendor.

Advertising

Vendor agrees not to use the results or existence of the contract, or the products produced pursuant to the contract as a part of any news release or commercial advertising without the prior written approval of the Committee.

ATTACHMENT A

SESSION LAW 2006-178
House Bill 2208

AN ACT TO REPEAL THE REQUIREMENT THAT CERTAIN STATUTORY CRITERIA RELATED TO GRANTS FROM THE CLEAN WATER MANAGEMENT TRUST FUND FOR WASTEWATER AND STORMWATER COLLECTION AND TREATMENT PROJECTS HAVE PRIORITY OVER CRITERIA ESTABLISHED BY THE BOARD OF TRUSTEES OF THE CLEAN WATER MANAGEMENT TRUST FUND, TO CLARIFY THE AUTHORITY OF THE BOARD OF TRUSTEES WITH RESPECT TO MATCH REQUIREMENTS IN CONNECTION WITH GRANT AWARDS, AND TO ESTABLISH TERM LIMITS FOR THE BOARD OF TRUSTEES.

The General Assembly of North Carolina enacts:

SECTION 1. G.S. 113A-254 reads as rewritten:

"**§ 113A-254. Grant requirements.**

(a) Eligible Applicants. – Any of the following are eligible to apply for a grant from the Fund for the purpose of protecting and enhancing water quality:

(1) A State agency.
(2) A local government unit.
(3) A nonprofit corporation whose primary purpose is the conservation, preservation, and restoration of our State's environmental and natural resources.

(a1) Criteria. – The criteria developed by the Trustees under G.S. 113A-256 apply to grants made under this Article. The common criteria for water projects set in G.S. 159G-23 and the criteria set out in this section also apply to wastewater collection system projects, wastewater treatment works projects, and stormwater quality projects. ~~The common criteria set in G.S. 159G-23 have priority over the criteria set under this Article for wastewater collection system projects, wastewater treatment works projects, and stormwater quality projects.~~ An application for a wastewater collection system project or a wastewater treatment works project that serves an economically distressed local government unit has priority.

(b) Matching Requirement. – The Board of Trustees shall establish matching requirements for grants awarded under this Article. ~~The Board of Trustees may require a match of up to twenty percent (20%) of the amount of the grant awarded.~~ This requirement may be satisfied by the donation of land to a public or private nonprofit conservation organization as approved by the Board of Trustees. The Board of Trustees may also waive the requirement to match a grant pursuant to guidelines adopted by the Board of Trustees.

(c) Restriction. – No grant shall be awarded under this article to satisfy compensatory mitigation requirements under 33 USC § 1344 or G.S. 143-214.11.

(d) Wastewater Limits. – A wastewater collection system project or a wastewater treatment works project is eligible for a grant under this Article only if it is a high-unit-cost project, as defined in G.S. 159G-20. A grant made under this Article for a wastewater collection system project or a wastewater treatment works project is subject to the cost limits and recipient limits set in G.S. 159G-36 for a grant awarded from the Wastewater Reserve.

(e) Stormwater Limits. – The amount of a grant awarded under this Article for a stormwater quality project may not exceed the construction costs of the project. The total amount of grants awarded under this Article to the same recipient for stormwater quality projects for a fiscal year may not exceed the limit set in G.S. 159G-36(c)(1) for grants to the same recipient from the Wastewater Reserve.

(f) Withdrawal. – An award of a grant under this Article is withdrawn if the grant recipient fails to enter into a construction contract for the project within one year after the date of the award, unless the Trustees find that the applicant has good cause for the failure. If the Trustees find good cause for a recipient's failure, the Trustees must set a date by which the recipient must take action or forfeit the grant."

SECTION 2. G.S. 113A-255 is amended by adding a new subsection to read:

"(b2) Limitation on Length of Service. – No member of the Board of Trustees shall serve more than two consecutive four-year terms or a total of 10 years."

SECTION 3. Sections 1 and 3 of this act are effective retroactively to 1 January 2006. Section 2 of this act is effective retroactively to 1 July 2006. This act shall not apply to any person who is a member of the Board of Trustees of the Clean Water Management Trust Fund on 30 June 2006.

In the General Assembly read three times and ratified this the 17th day of July, 2006.

EXHIBIT F

NORTH CAROLINA GENERAL ASSEMBLY

Report on Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients

REQUEST FOR PROPOSAL

15 December 2006

Sealed proposals subject to the conditions made a part hereof will be received until **5:00 p.m., Friday 5 January 2007,** for furnishing services described herein. Send all proposals to the following:

George F. Givens, Commission Counsel
Environmental Review Commission
General Assembly of North Carolina
545 Legislative Office Building
300 North Salisbury Street
Raleigh, North Carolina 27603
Phone: 919-733-2578

The contact persons to whom you should direct all inquiries and questions about the request for proposal are George F. Givens and Jeffrey Hudson at the above address. E-mail: georgeg@ncleg.net and jeffreyh@ncleg.net.

NOTE: Indicate firm name, "Technical Proposal" or "Cost Proposal" on the front of each sealed proposal envelope or package, along with the date for receipt of proposals specified above.

Introduction

In accordance with Section 2 of Session Law 2006-215 and pursuant to G.S. 120-70.44(c), the North Carolina Environmental Review Commission (ERC) is seeking a consultant to:

1. Estimate the length of time that the existing North Carolina Nutrient Offset Fee Payments Program (NOFPP) will be able to continue as a completely self-sustaining program capable of providing adequate mitigation for the additional nitrogen loading purchased at the current cost of $11 per pound of nitrogen.
2. Study the costs associated with providing nutrient controls that are adequate to offset point source and nonpoint source discharges of nitrogen in the Neuse River Basin.
3. Study how a total nutrient offset payment fee should be determined.
4. Provide information and outline options, including the advantages and disadvantages of each option, to assist the ERC in deciding whether nutrient offset payments should be authorized for additional nutrients, including phosphorus, and whether the NOFPP should be expanded to other river basins, including the Tar-Pamlico River Basin.
5. Evaluate the ability of public entities other than the Environmental Enhancement Program (EEP) and private entities to provide nutrient offsets.
6. Prepare a comprehensive review and discussion of the types of potential nutrient mitigation efforts available.

Qualifications

Potential vendors submitting proposals must demonstrate:

1. Knowledge of and experience with the NOFPP.
2. An ability to estimate the length of time that the existing NOFPP will be able to continue as a completely self-sustaining program capable of providing adequate mitigation for the additional nitrogen loading purchased at the current cost of $11 per pound of nitrogen.
3. An ability to determine an accurate cost per pound factor for nitrogen, phosphorus, and other nutrients from point and nonpoint sources based on the cost of providing the appropriate mitigation that is required to offset this additional nutrient loading in accordance with Session Law 2006-215, 15A NCAC 2B .0235, and 15A NCAC 2B .0240.

4. An ability to recommend how a total nutrient offset payment fee should be determined.
5. Knowledge of and experience with nutrient issues in the river basins of North Carolina.
6. Knowledge of and experience with public entities other than the EEP and private entities that are capable of providing nutrient offsets.
7. Knowledge of and experience with the types of potential nutrient mitigation efforts available.
8. The ability to produce clear, well-written, and well-illustrated reports by providing examples of completed projects.

Work Plan

The vendor shall prepare a report that will:

1. Estimate the length of time that the existing NOFPP will be able to continue as a completely self-sustaining program capable of providing adequate mitigation for the additional nitrogen loading purchased at the current cost of $11 per pound of nitrogen as authorized in Session Law 2006-215.
2. Contain a proposed cost per pound for nitrogen point and nonpoint source loading in the Neuse River Basin for potential use in the NOFPP.
3. Make specific recommendations as to how a total nutrient offset payment fee should be determined, including any formula and the specific factors that should be incorporated into the calculation of the total nutrient offset payment fee.
4. Provide information and outline options, including the advantages and disadvantages of each option, to assist the ERC in deciding whether:
    a. Nutrient offset payments should be authorized for other nutrients, including phosphorous, and present a proposed cost per pound factor for the point and nonpoint source loading from these additional nutrients.
    b. The NOFPP should be expanded to other areas of the State, including specifically the Tar-Pamlico River Basin.
5. Evaluate the ability of public entities other than the EEP and private entities to provide nutrient offsets. This evaluation shall include a determination of whether, in comparison with the EEP, other entities are able to:
    a. Provide nutrient offsets of comparable effectiveness with respect to water quality.
    b. Deliver nutrient offsets in a comparable or shorter time period.

c. Deliver nutrient offsets at a comparable or lower cost.

6. Contain a comprehensive review and discussion of the types of potential nutrient mitigation efforts available.

The vendor shall contact and consult officials from State and local government agencies, interested stakeholders, and other individuals and organizations having knowledge and information about the NOFPP, nutrient issues in the river basins of North Carolina, and nutrient offsets generally. The vendor shall specifically evaluate the analysis of costs for nutrient offsets conducted by the Department of Environment and Natural Resources that was the basis of the Environmental Management Commission's March 2006 amendments to 15A NCAC 2B .0235 and 15A NCAC 2B .0240.

The vendor shall prepare the first phase report by 16 February 2007 and shall complete the entire report, including any revisions needed in the first phase report by 1 May 2007. The vendor shall provide the contracting officer an opportunity to review the draft first phase report one week before it is due and the final report two weeks before it is due and shall take review comments into account when preparing the first phase and final reports. The report shall be prepared in both paper and electronic formats.

In addition to a proposal based on the foregoing schedule, the vendor may propose a study based on an alternate schedule that allows additional time for completion of a thorough study. Preference will be given to proposals that envision completion of a thorough study of the following issues according to the foregoing schedule or in an alternative timeframe that will ensure that the study will be useful to the 2007 Regular Session of the General Assembly:

1. Estimate the length of time that the existing North Carolina Nutrient Offset Fee Payments Program (NOFPP) will be able to continue as a completely self-sustaining program capable of providing adequate mitigation for the additional nitrogen loading purchased at the current cost of $11 per pound of nitrogen.
2. Study the costs associated with providing nutrient controls that are adequate to offset point source and nonpoint source discharges of nitrogen in the Neuse River Basin.
3. Study how a total nutrient offset payment fee should be determined.
4. Provide information and outline options, including the advantages and disadvantages of each option, to assist the ERC in deciding whether nutrient offset payments should be authorized for additional nutrients, including

phosphorus, and whether the NOFPP should be expanded to other river basins, including the Tar-Pamlico River Basin.

Report Requirements

First Phase Report

The vendor shall prepare a first phase report that includes:

1. A detailed discussion of the methodology that will be utilized by the vendor to estimate the length of time that the existing NOFPP will be able to continue as a completely self-sustaining program capable of providing adequate mitigation for the additional nitrogen loading purchased at the current cost of $11 per pound of nitrogen as authorized in Session Law 2006-215.
2. A detailed discussion of the methodology that will be utilized by the vendor to examine the costs associated with providing nutrient controls and the methods that will be employed to determine an appropriate cost per pound factor for nitrogen loading from point and nonpoint sources.
3. A detailed discussion of the methodology that will be utilized by the vendor to determine the formulation of a fee equation and the factors included in that equation.
4. A review of the methods that will be used by the vendor to assist the ERC in determining whether to include nutrients other than nitrogen and whether to expand the NOFPP into other areas of the State.
5. A review of the methods that will be used by the vendor to evaluate the ability of public entities other than the EEP and private entities to provide nutrient offsets.
6. A review of the methods that will be used by the vendor to prepare a comprehensive review and discussion of the types of potential nutrient mitigation efforts available.
7. Any preliminary findings and recommendations that the vendor determines to be appropriate.

Final report

Self-Sustainability of the Current Nutrient Offset Fee Payments Program (NOFPP)

The report shall include an estimate of the length of time that the existing NOFPP will be able to continue as a completely self-sustaining program capable of providing adequate mitigation for the additional nitrogen loading purchased at the current cost of $11 per pound of nitrogen as authorized in Session Law 2006-215.

Examination of Costs Associated with Providing Nitrogen Controls

The report must provide a thorough examination and discussion of the current costs associated with providing nutrient controls that are adequate to offset point and nonpoint source discharges of nitrogen. This examination should include a description of the types of projects that can be implemented to achieve necessary reductions and their respective costs. Because buffer restoration is one of the cost-effective approaches to achieve nutrient reductions, an analysis of the extent of buffer restoration opportunities that may be pursued to achieve reductions should also be included.

Proposed Cost per Pound of Nitrogen

The report shall propose and justify a cost per pound for nitrogen loading from point and nonpoint sources. This cost factor must be sufficient to allow the NOFPP to continue in operation for the indefinite future as a totally self-sustaining program while successfully mitigating all nitrogen loads for which payments are made into the program.

Nutrient Offset Payments for Additional Nutrients

The report shall provide information and outline options, including the advantages and disadvantages of each option, to assist the ERC in determining whether nutrient offset payments should be authorized for other nutrient loads, including phosphorus. For any additional nutrients that the report will examine for inclusion in the NOFPP, the vendor shall provide and fully justify a proposed cost per pound factor for loading from point and nonpoint sources of these additional nutrients. These proposed cost factors must be sufficient to allow the NOFPP to continue in operation for the indefinite future as a totally self-sustaining program while successfully mitigating all additional nutrient loads for which payments are made into the program.

Calculation of Total Nutrient Offset Payment Fee

In addition to the cost per pound factors for nitrogen, phosphorus, and any other nutrients that the vendor may examine for inclusion in the NOFPP, the report shall examine and provide a recommendation for the use of a comprehensive formula and the specific factors that will be included in that formula for the calculation of the total nutrient offset payment fee for each option that will be required for nutrient loadings to meet the objectives of the NOFPP. Examples of specific factors that may be considered for inclusion in a comprehensive fee formula might include, but are not limited to:

- **Annual Adjustment Factor:** A factor that may be applied on an annual basis to automatically adjust the cost per pound nutrient factors in order to ensure that these cost factors keep pace with inflation.

- **Land Cost Factor:** A factor that may be included in the total fee equation in order to allow for the incorporation of land costs in the final fee calculation. This factor may be deemed necessary in order to establish a spatial relationship between additional nutrient loading and the mitigation needed to offset that loading.

- **Maintenance Factor:** A factor that may allow the EEP or other State agency tasked with the monitoring and maintenance of mitigation projects to recoup their costs associated with monitoring and maintenance.

- **Administrative Costs Factor:** A factor that may allow the EEP or other State agency, tasked with providing the mitigation funded by the NOFPP to recoup their administrative costs associated with the management of the program.

Regardless of the specific factors included in the calculation of the total nutrient offset payment fee, the vendor must provide the documentation necessary to demonstrate that the proposed total fee calculation method will be sufficient to allow the NOFPP to continue in operation for the indefinite future as a totally self-sustaining program while successfully mitigating all additional nutrient loads for which payments are made into the program.

Expansion to Other Geographic Areas of the State

The report shall provide information and outline options, including the advantages and disadvantages of each option, to assist the ERC in determining whether the

NOFPP should be expanded to other areas of the State beyond the Neuse River Basin. The report shall specifically address the expansion of the NOFPP to the Tar-Pamlico River Basin for nitrogen and phosphorus. The vendor shall provide information necessary for the ERC to determine whether to expand the NOFPP to other areas of the State beyond the Neuse River Basin.

Evaluation of Other Nutrient Offset Providers

The report shall evaluate the ability of public entities other than the EEP and private entities to provide nutrient offsets. This evaluation shall include a determination of whether, in comparison with the EEP, other entities are able to:

a. Provide nutrient offsets of comparable effectiveness with respect to water quality.
b. Deliver nutrient offsets in a comparable or shorter time period.
c. Deliver nutrient offsets at a comparable or lower cost.

Types of Mitigation

The report shall contain a comprehensive review and discussion of the types of nutrient mitigation that would adequately protect water quality that could be provided using the fees and cost factors recommended in the report. The report shall include:

1. Figures regarding the design, construction, and 30-year monitoring and maintenance costs of the types of nutrient mitigation.
2. Details regarding the nutrient removal rate for each type of nutrient mitigation that is discussed.
3. An analysis of the availability of the types of mitigation identified in order to ensure the long-term sustainability of the NOFPP.
4. A discussion of the adequacy and effectiveness of each type of nutrient mitigation in achieving reductions in nutrient loading and protecting water quality.

Meetings with Affected Stakeholders

Under the auspices of the Commission Counsel, the vendor will be required to periodically consult with and brief the stakeholders that are affected by, or interested in, this process in order to gather input from these affected parties. In

addition, the vendor may be required to present the First Phase Report, the Final Report, or both to the stakeholder group.

Presentations

The vendor may be required to present a final report to the ERC. The vendor may also be expected to give several presentations of the final report to various other legislative committees.

Project Timeframe

The schedule is listed below:

Activity	Date
Request for Proposals Distributed	15 December 2006
Proposals from Vendors Due	5 January 2007
Award Contract	19 January 2006
First Phase Report	16 February 2007
Final Report	1 May 2007

In addition to a proposal based on the foregoing schedule, the vendor may propose a study based on an alternate schedule that allows additional time for completion of a thorough study. Preference will be given to proposals that envision completion of a thorough study of the following issues according to the foregoing schedule or in an alternative timeframe that will ensure that the study will be useful to the 2007 Regular Session of the General Assembly:

1. Estimate the length of time that the existing North Carolina Nutrient Offset Fee Payments Program (NOFPP) will be able to continue as a completely self-sustaining program capable of providing adequate mitigation for the additional nitrogen loading purchased at the current cost of $11 per pound of nitrogen.
2. Study the costs associated with providing nutrient controls that are adequate to offset point source and nonpoint source discharges of nitrogen in the Neuse River Basin.
3. Study how a total nutrient offset payment fee should be determined.
4. Provide information and outline options, including the advantages and disadvantages of each option, to assist the ERC in deciding whether nutrient offset payments should be authorized for additional nutrients, including

phosphorus, and whether the NOFPP should be expanded to other river basins, including the Tar-Pamlico River Basin.

Required Contents for Proposal

Please limit the proposal to approximately 10 pages, excluding examples of prior work.

The response to this request for proposals shall consist of the following sections:

(a) Executive Summary – The Executive Summary shall consist of a brief summary of the contents of the proposal.

(b) Corporate Background and Experience – This section shall include:
   (1) Background information on the vendor's organization and details of vendor's experiences with similar projects.
   (2) A list of at least three references, including contact persons and telephone numbers, for whom the vendor has performed similar work.
   (3) Examples of previous work performed.

(c) Financial Statement – The vendor's most recent financial statement or similar evidence of financial stability.

(d) Project Staffing and Organization – This section shall include:
   (1) Proposed staffing, deployment, and organization of personnel to be assigned to this project.
   (2) Resumes of key personnel who will actually be assigned to the project, describing experience with similar projects and the responsibilities assigned to each person.
   (3) A description of how the study will be planned, organized, and conducted.

(e) Technical Proposal – This section shall include, in narrative, outline, or graphical form, the vendor's approach to accomplishment of the tasks outlined in the project description section of this request for proposals. This section shall include a description of each task and a schedule for completion of each task.

(f) Cost Proposal – The cost proposal must be submitted in a separate sealed package and must contain the following information:

(1) Personnel costs, including hourly rates and total hours.
(2) Travel and subsistence expenses.
(3) Fixed, overhead, support, or administrative costs, if any.
(4) Sub-vendor costs, if any.
(5) Other costs.
(6) Total cost for completion of the project.
(7) Rates for any additional analysis that may be requested during the project period.

Proposal Submittal Process

1. The vendor shall submit two original and 10 copies of both the technical proposal and cost proposal, in separate sealed packages.

2. Each original shall be signed and dated by an official authorized to bind the firm.

Vendor Selection Process

The selection of the vendor shall be determined by a "Best Value" methodology, with key factors to be considered to include experience of the vendor and its consultants with related projects and price.

General Conditions Related to Submittal of Proposals

1. Right to Reject
The ERC reserves the unqualified right to reject any and all proposals when such rejection is deemed to be in the best interest of the State of North Carolina.

2. Right to Accept Part of Proposal, Negotiate Content and Cost
The ERC reserves the right to accept part of any proposal, and to divide any proposal into parts deliverable in stages over an extended time period. The ERC reserves the right to negotiate and alter the content, form, schedule, and

deliverables of any proposal or portion of a proposal accepted. The ERC reserves the right to negotiate the cost of any proposal or portion of a proposal accepted.

3. **Time for Acceptance**
Each proposal shall state that it is a firm offer that may be accepted within a period of 30 days from the date of submission.

4. **Unsolicited Proposal Changes**
Any unsolicited change to a proposal that is received after the closing date of this request for proposal will be rejected.

5. **Responsibility to Make Timely Submission**
The vendor is responsible for assuring the timely delivery of a proposal. Late proposals will be rejected without review.

6. **Cost for Proposal Preparation**
Any costs incurred by vendors in preparing or submitting offers are the vendor's sole responsibility. The ERC will not reimburse any vendor for any costs incurred prior to award.

7. **Elaborate Proposals**
Elaborate proposals in the form of brochures or other presentations beyond that necessary to present a complete and effective proposal are not desired. Contractors are encouraged to limit proposals to approximately 10 pages or less (not including examples of work products).

We solicit your cooperation in the efforts of the State of North Carolina to promote sustainability. It is desirable that responses meet the following standards:

- Copies should be printed double sided.
- All submittals and copies should be printed on recycled paper with a minimum post-consumer content of 30% and indicate this information accordingly on the response.
- To the maximum extent practicable, all submittals and copies should minimize or eliminate use of non-recyclable or non re-usable materials.

- Submittals and copies should be submitted in a format which allows for easy removal of recyclable materials and recycling of paper materials.

8. Oral Explanations

The ERC shall not be bound by oral explanations or instructions given at any time during the competitive process or after award.

9. Confidentiality of Proposals

In submitting its proposal the vendor agrees not to discuss or otherwise reveal the contents of the proposal to any source outside of the ERC or its Legislative Services Office staff until after the award of the contract.

10. Form of Proposal

Proposals shall be submitted in a form that may be incorporated verbatim into a contract.

11. Exception to Terms

Any exception, interpretation, or suggestion for clarification by the vendor to any of the terms and conditions of this request for proposals must be clearly stated by the vendor.

12. Competitive Offer

Pursuant to the provision of G.S. 143-54, and under penalty of perjury, the signer of any proposal submitted in response to this request for proposals thereby certifies that this proposal has not been arrived at collusively or otherwise in violation of either federal or North Carolina antitrust laws.

13. Rights to Submitted Proposals

All responses, inquiries, and correspondence relating to or in reference to this RFP shall become the property of the State of North Carolina when received.

14. Vendor's Representative

Each vendor shall submit with its proposal the name, address, and telephone number of the person(s) with authority to bind the firm and answer questions or provide clarification concerning the vendor's proposal.

15. Proprietary Information

All vendors' information submitted in the proposal has the potential to become public information. Vendors are cautioned that any proprietary information contained in the proposal may not be protected as confidential and should not be submitted in response to this request for proposals.

16. Historically Underutilized Businesses

Pursuant to G.S. 143-48, the ERC invites and encourages participation in this procurement process by small contractors, minority contractors, physically handicapped contractors, and women contractors.

Terms and Conditions of Resulting Contract

The following are terms and conditions that will be included in the contract for conducting the project. Other terms and conditions may be added before the contract is signed.

1. Vendor

The contract is between the ERC, subject to the approval of the Legislative Services Commission (Commission), and the selected vendor (Vendor).

2. Contract Period

The terms of the contract shall begin at its signing and shall end on or before 1 June 2007, unless extended or terminated as provided in this document.

3. Availability of Funds

Any and all payments to the Vendor are dependent upon and subject to the availability of funds to the ERC or the Commission for the purpose set out in this agreement.

4. Additional Contract Expenses

The contract for the project is not a time and materials agreement. Any expenses of the vendor in addition to those contracted for, or above the contract amount, are the sole responsibility of the Vendor.

5. Independent Vendor

The Vendor shall be considered to be an independent vendor and as such shall be wholly responsible for the work to be performed and for the

supervision of its employees. The Vendor represents that it has, or will secure at its own expense, all personnel required in performing the services under this agreement. Such employees shall not be employees of, or have any individual contractual relationship with the ERC, the Commission, or the Legislative Services Office.

6. Applicability of State Law Ethics Provisions

Pursuant to G.S. 120C-100(6) and G.S. 138A-3(21), the Vendor is a legislative employee and is subject to the ethics requirements of Chapter 138A of the General Statutes (State Government Ethics Act) that are applicable to legislative employees. These ethics requirements include, but are not limited to, the prohibition on the acceptance of most gifts from lobbyists and lobbyists' principals and the mandatory ethics training required for all legislative employees. If the Vendor is a consulting corporation, the corporation will need to identify the individuals assigned to perform any work undertaken pursuant to any contract between the ERC and the Vendor as individual consultants so that these individuals' names can be provided to the State Ethics Commission for inclusion on the list of legislative employees subject to the lobbying laws. The Vendor shall familiarize itself with these and all other requirements of the State ethics law and shall ensure that it and its individual employees comply with these requirements.

7. Key Personnel

The Vendor shall not substitute key personnel assigned to the performance of this contract without prior written approval by the Commission. The individuals designated as key personnel for purposes of this contract are those specified in the Vendor's proposal.

8. Subcontracting

Work proposed to be performed under this contract by the Vendor or its employees shall not be subcontracted without prior written approval of the ERC.

9. Confidentiality

The Vendor agrees to protect the confidentiality of any files, data, or other materials provided by the Commission and to restrict their use to the purpose of performing the contract. The Vendor shall comply with the provisions of Article 17 of Chapter 120 of the North Carolina General Statutes regarding

confidentiality between the Vendor and members of the General Assembly. For purposes of this paragraph only, employees of the Vendor shall be considered "legislative employees" as defined in G.S. 120-129.

10. Care of Property

The Vendor agrees that it shall be responsible for the proper custody and care of any files or other property furnished by the Commission. The Vendor shall take all steps necessary to safeguard any property, including data, files, reports, or other information from loss, destruction, or erasure. Any costs or replacement expenses, or damages resulting from the loss shall be borne by the contractor when the loss occurred through its negligence.

11. Copyright

No deliverable items produced in whole or in part under this agreement shall be the subject of an application for copyright by or on behalf of the Vendor.

12. Access to Persons and Records

The State Auditor shall have access to persons and records as a result of all contracts or grants entered into by State agencies or political subdivisions in accordance with General Statute 147-64.7. The Vendor shall retain all records for a period of three years following completion of the contract. To the extent that the Vendor acts on behalf of the ERC and the Commission pursuant to the contract, the Vendor shall comply with and take any action necessary to facilitate compliance by the ERC and the Commission with the provisions of Chapter 132 of the General Statutes.

13. Transfer or Assignment

The contract shall not be transferred or assigned to a third party.

14. Termination

Upon mutual written agreement of the ERC or the Commission and the Vendor, the contract may be terminated at any time. Failure to perform by the Vendor may result in termination by the ERC or the Commission. In addition, the ERC or the Commission has the right to unilaterally terminate the contract at its discretion with 10 days written notice. In the event of termination, either by mutual consent or by unilateral action of the ERC or the Commission, the Vendor will be paid an amount commensurate with

work completed and the Vendor shall deliver all work completed prior to the date of termination.

15. Performance and Default

If, through any cause, the Vendor shall fail to fulfill in timely and proper manner the obligations under this agreement, the ERC or the Commission shall thereupon have the right to terminate this contract by giving written notice to the Vendor and specifying the effective date thereof. In that event, all finished or unfinished deliverable items under this contract prepared by the Vendor shall, at the option of the ERC or the Commission, become its property, and the Vendor shall be entitled to receive just and equitable compensation for any satisfactory work completed on such materials. Notwithstanding, the Vendor shall not be relieved of liability to the ERC or the Commission for damages sustained by the ERC or the Commission by virtue of any breach of this agreement, and the ERC or the Commission may withhold any payment due the Vendor for the purpose of setoff until such time as the exact amount of damages due the ERC or the Commission from such breach can be determined. In case of default by the Vendor, the ERC or the Commission may procure the services from other sources and hold the Vendor responsible for any excess cost occasioned thereby. Neither party shall be deemed to be in default of its obligations hereunder if and so long as it is prevented from performing such obligations by any act of war, hostile foreign action, nuclear explosion, riot, strikes, civil insurrection, earthquake, hurricane, tornado, or other catastrophic natural event or act of God.

16. General Indemnity

The Contractor shall hold and save the State of North Carolina, its officers, agents, and employees harmless from liability of any kind, including all claims and losses, with the exception of consequential damages, accruing or resulting to any other person, firm, or corporation furnishing or supplying work, services, materials, or supplies in connection with the performance of this contract, and from any and all claims and losses accruing or resulting to any person, firm, or corporation that may be injured or damaged by the contractor in the performance of this contract and that are attributable to the negligence or intentionally tortious acts of the Contractor provided that the contractor is notified in writing within 30 days that the State has knowledge of such claims. The Contractor represents and warrants that it shall make no claim of any kind or nature against the State's agents who are involved in the delivery or processing of the Contractor's goods to the State. The

representation and warranty in the preceding sentence shall survive the termination or expiration of this contract.

17. Compliance with Laws

The Vendor shall comply with all laws, ordinances, codes, rules, regulations, other provisions of law, and licensing requirements that are applicable to the conduct of its business, including those of all federal, state, and local agencies that have jurisdiction or authority.

18. Equal Opportunity Statement

The nondiscrimination clause contained in Section 202 Executive Order 11246, as amended by Executive Order 11375, relative to equal employment opportunity for all persons without regard to race, color, religion, sex, age or national origin, and the rules and regulations prescribed by the Secretary of Labor, are incorporated herein. The program for Employment of the Handicapped (Affirmative Action) Regulations issued by the Secretary of Labor of the United States in Title 20, Part 741, Chapter VI, Subchapter "C" of the Code of Federal Regulations, pursuant to the provisions of Executive Order 11758 and Section 503 of the Federal Rehabilitation Act of 1973, are incorporated herein.

19. Insurance

The Vendor shall obtain, pay for, and keep in force, for the duration of the contract, worker's compensation insurance, as required by the laws of North Carolina, covering all of the Vendor's employees engaged in any work on the project in the State.

20. Bankruptcy

Upon the filing for bankruptcy or insolvency by or against the vendor, the ERC or the Commission may terminate the contract, and the provisions of paragraph entitled "Performance and Default" shall apply.

21. Performance Bond

The ERC or the Commission may require either a performance bond up to the full amount of the contract or another performance guarantee.

22. Advertising

Vendor agrees not to use the results or existence of the contract, or the products produced pursuant to the contract as a part of any news release or commercial advertising without the prior written approval of the ERC or the Commission.

23. Governing Law

This contract is made under and shall be governed and construed in accordance with the laws of the State of North Carolina.

24. Situs

The place of this contract, its situs and forum, shall be Raleigh, North Carolina, where all matters, whether sounding in contract or tort, relating to its validity, construction, interpretation, and enforcement shall be determined.

25. Schedule of Payments

The Legislative Services Office shall pay the Vendor according to the following schedule:

(a) Fifteen percent (15%) of the total cost for completion of the project within fifteen (15) days after the Vendor delivers the First Phase Report.

(b) Seventy percent (70%) of the total cost for completion of the project within fifteen (15) days after the Vendor delivers the Final Report.

(c) Fifteen percent (15%) of the total cost for completion of the project within fifteen (15) days of the end of the contract period.

The ERC shall request the Legislative Services Office to make payments to the Vendor as provided in this paragraph upon determination by the ERC that the Vendor has satisfactorily completed all work required to be completed under the foregoing schedule.

EXHIBIT G

QUARTERLY REPORT

TO THE

ENVIRONMENTAL REVIEW COMMISSION

ON

ENVIRONMENTAL MANAGEMENT COMMISSION ACTIVITIES

January 2007

YEAR 2006-2007 SECOND QUARTER REPORT TO ERC IN ACCORDANCE WITH § 143B-282(b)

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III. SUMMARIES OF ENVIRONMENTAL MANAGEMENT COMMISSION (EMC) ACTIONS

I. SESSION LAW 2005-190 REPORTING REQUIREMENTS

Based upon Section 2. (b) of Session Law 2005-190, the Environmental Management Commission continues to assess and identify nutrient control strategies and criteria necessary to prevent excess nutrient loading in each drinking water supply reservoir. In compliance with the goals of the Section, the Division of Water Quality received US EPA approval of a plan of action evaluating the current surface water quality standards to determine if adequate nutrient criteria controls are in place to prevent nutrient impairments in North Carolina lakes. Approval to continue with development of additional or revised lake nutrient criteria was granted by the US EPA on June 27, 2006.

Monitoring is continuing as scheduled in Falls Lake and the Falls Lake watershed and has been extended to September 2007. This extension will cover another growing season to accommodate the collection of adequate chlorophyll *a* data

Modeling tasks associated with this project have also progressed. Work has begun on three of the models to be developed of Falls Lake and the reservoir watershed. As of September 1, 2006, DWQ has a fully executed contract with NC State University to perform hydrodynamic and water quality modeling of Falls Lake. DWQ staff have begun to process data and information for another model, the watershed loading model.

Although Session Law 2006-259 technically corrected the target date for the EMC to develop a nutrient management strategy for the Falls Lake Reservoir from July 1, 2008 to July 1, 2009, the target date for the EMC to adopt the rules to implement the nutrient management strategy by the same date (July 1, 2009) does not allow rulemaking and rule adoption in accordance with the Administrative Procedures Act, General Statutes 150B. The inaccurate date will not interfere with the EMC's goal, however, to be technically correct, the Session Law should be corrected.

The ninth Falls Lake Reservoir Technical Advisory meeting was held on November 1, 2006 at the TJCOG offices. A review of monitoring data collected in 2005 was presented to concerned stakeholders by Peter Caldwell of the Modeling and TMDL Unit, as well as summaries of the current status of the watershed loading model (presented by Narayan Rajbhandari of the Modeling and TMDL Unit), and the lake hydrodynamic model and lake water quality model (presented by Jing Lin of the Marine Earth and Atmospheric Science Department at N.C. State University).

The next scheduled Falls Reservoir Technical Advisory meeting is scheduled for May 15, 2007, 9:30 am at the North Durham Reclamation Facility.

II. STANDING COMMITTEE MEETINGS

i. WATER ALLOCATION COMMITTEE
The Water Allocation Committee did not meet during this quarter.

ii. WATER QUALITY COMMITTEE
The Water Quality Committee conducted business in November 2006.

iii. GROUNDWATER COMMITTEE
The Groundwater Committee conducted business in November 2006.

iv. AIR QUALITY COMMITTEE
The Air Quality Committee conducted business in November 2006.

v. STEERING COMMITTEE
The Steering Committee did not meet during this quarter.

vi. NPDES COMMITTEE
The NPDES Committee did not meet during this quarter.

III. SUMMARIES OF ENVIRONMENTAL MANAGEMENT COMMISSION (EMC) ACTIONS

Agenda Item: Hearing Officers' Report on Clean Air Mercury Rules.

Explanation: On May 25 and June 1 and 8, 2006, Dr. David Moreau, Dr. Frank Shaw, and Stephen Smith held public hearings on proposed clean air mercury rules (CAMR).
On May 29, 2005, the EPA promulgated the emission guidelines to limit the emission of mercury from coal fired electrical generation units. The State plan is due November 17, 2006. The EPA will implement its rules in states that do not require affected sources to reduce emissions of mercury necessary to meet the mercury cap in its rules.

These rules apply to (1) any stationary coal-fired boiler or stationary combustion turbine fired with coal-derived fuel serving a generator with nameplate capacity of more than 25 MWe producing electricity for sale and (2) any coal-fired cogeneration unit serving at any time a generator with nameplate capacity of more than 25 MWe and supplying in any calendar year more than one-third of the unit's potential electric output capacity or 219,000 MWh, whichever is greater.

North Carolina received an allocation of 1.113 tons or 35,616 ounces for 2010-2017 and 0.447 tons or 14,304 ounces for 2018 and each year thereafter. These allocations are distributed among the affected sources.
The proposed rules incorporate by reference the EPA guideline rules on definitions, requirements for designated representative and alternate designated representative, permitting requirements, trading and banking provisions, and monitoring and reporting requirements.

Rule 15A NCAC 02D .2511, Mercury Emission limits, requires more stringent new source mercury emission limits than the EPA rules. It also requires reductions in mercury emissions for Duke Energy's and Progress Energy's existing coal-fired boilers.
More than 3000 comments were received. Many commenters supported the proposed rule. Most commenters wanted more reductions than expected under the EPA CAMR guidelines, and they wanted those reductions to occur sooner than required by the proposed rules. Several commenters discussed the health effects of mercury. Some discussed the cost of controlling mercury. EPA recommended several wording changes, which have been made.

The allocations given to the affected sources have been reduced by the new source growth set aside, which is five percent for each year from 2010 to 2017 and three percent for each year from 2018 and each year thereafter. The new source growth set aside has been placed in the new source growth rule.

A copy of the hearing record has been sent to you.

Recommendation: The Hearing Officers recommends that the Commission adopt the proposed rules as presented in Chapter II of the hearing record.

EMC Action: The EMC adopted the proposed rules.

Agenda Item: Hearing Officer's Report on Amendments to Various Air Quality Rules

Explanation: On July 12, 2006, Mr. John Gessaman held a public hearing on the adoption of rule on sales and service of I/M analyzers and amendments to new source performance standard, maximum achievable control technology, recordkeeping and reporting, gasoline bulk terminal, gasoline truck tank, and permitting rules.

The new source performance standards (15A NCAC 2D .0524) and maximum achievable control technology (15A NCAC 2Q .1111) rules are proposed to be amended to delegate the implementation and enforcement of the NSPS and MACT requirements for drycleaners to the Division of Waste Management.

The gasoline truck tank and vapor collection rule (15A NCAC 2D .0932) is proposed to be amended to make clarifications, corrections and updates. The definitions of "bulk gasoline plant" and " bulk gasoline terminal" are corrected. The pressure standard has been updated to the current Department of Transportation standard. The requirements for gasoline truck tanks and for vapor control systems have been more clearly delineated.
The general recordkeeping and reporting requirement rule (15A NCAC 2D .0605) is proposed to be amended to prohibit falsifying information and knowingly submitting falsified information.

The gasoline bulk terminal rule (15A NCAC 2D .0927) is proposed to be amended to add details on leak inspection and recordkeeping and requirements for repairing leaks.
A new rule (15A NCAC 2D .1006) is proposed on the sales and service of analyzers used to test automobile emissions under the inspection/ maintenance (I/M) program. This rule requires vendors to sell or lease only equipment that meet the requirements for on-board diagnostic testing equipment and has the software necessary to record and transmit data required by the Divisions of Motor Vehicles and Air Quality. The rule also requires vendors to make repairs to the hardware and software in a timely manner.

The rule that identifies permits requiring public participation (15A NCAC 2Q .0306) is proposed to be amended. The amendment requires permits with conditions that exempt a source from the 20-percent opacity standard to be noticed for public comment with an opportunity for public hearing. Also, permits using alternative monitoring procedures or methodologies than those specified in the monitoring rules would be noticed for public comment with an opportunity for public hearing.

The Title V permitting definition rule (15A NCAC 2Q .0503) is proposed to be amended to revise the definition of "insignificant activities because of category." Currently the definition does not limit the size of heating unit used for human comfort that is considered insignificant. The amendment considers only those less than ten million Btu as insignificant.

The Title V permit content rule (15A NCAC 2Q .0508) is proposed to be amended to change the requirement to report excess emissions that last less than four hours from two business days to quarterly. (Excess emissions lasting for more than four hours are covered under another rule and are required to be reported by the next business day.)

The Title V administrative permit amendment rule (15A NCAC 2Q .0514) is proposed to be amended to clarify that it is not to be used for the state-enforceable only part of a Title V permit. Administrative amendments to the state-enforceable only part of a Title V permit are to be made using the non-Title V administrative amendment permitting procedures.

One person commented on these rules; this person commented on three rules. The commenter requested clarification of the analyzer inspection criterion in 15A NCAC 2D .1006; clarification has been made that the criterion applies on an analyzer basis. The commenter suggested adding levels and methods for leak determination in 15A NCAC 2D .0927; leak levels and references to rules containing test methods have been added.

The commenter noted that all deviations be reported in 15A NCAC 2Q .0508; the rule as proposed does require all deviations to be reported. Finally, the commenter stated that records need to be maintained for all permit deviations lasting less than four hours in 15A NCAC 2Q .0508; the rule has been revised to re-instate this requirement.

Recommendation: The Hearing Officers recommends that the Commission adopt the proposed rules as presented in Chapter II of the hearing record.

EMC Action: The EMC adopted the proposed amendments and new rules.

Agenda Item: Request for Approval of the Proposed Reclassification of Select Tributaries to the North Shore of Fontana Lake (Swain County, Little Tennessee River Basin) to Class Outstanding Resource Waters (ORW)

Explanation: Session Law 2005-97 (House Bill 1189) states that "The Environmental Management Commission shall initiate a rule-making proceeding...to adopt rules to reclassify the entire watersheds of all creeks that drain to the north shore of Fontana Lake between Eagle and Forney Creeks, including Eagle and Forney Creeks, as outstanding resource waters..." Water quality studies conducted in August 2005 show that the waters proposed to be reclassified meet Class ORW criteria.

Acid-producing rock in the proposed ORW area could be a threat to water quality if waters in the area receive drainage from excavation of this rock. In addition, according to Great Smoky Mountains National Park (GSMNP) staff, there are plans for development in the proposed ORW area that solely consist of potential federal road construction and associated visitor amenities along the north shore of Fontana Lake. In light of these potential threats to the waters' quality and resource values, extra protections are proposed for the subject waters. These extra protections consist of control and treatment of stormwater generated for and by any new development equal to or greater than 5,000 square feet, and addressing runoff from excavation of acid-producing rock.

If reclassified, the standard ORW management strategies, along with the proposed extra protections (for control and treatment of stormwater as well as for addressing runoff from excavation of acid-producing rock), would affect new development projects, new and expansions of NPDES permitted facilities, new USTs, and new DOT projects. Please note that the ORW standard management strategies do not allow new or expanded wastewater discharges, which are not planned for the subject waters, and N.C. Department of Transportation (DOT) regulations for many types of road and bridge activities in ORW watersheds require use of Best Management Practices (BMPs) associated with sediment and erosion control. In addition, available information regarding a potential federal road and associated visitor amenities is very conceptual in nature, and several alternatives for this development are being investigated; therefore, it is difficult to estimate how this new development would be impacted by the proposed reclassification. However, the regulations associated with the proposed reclassification will NOT stop development.

In November 2005, the Water Quality Committee and the Commission approved the request to proceed with rule-making for the proposed reclassification. A public hearing was held in June 2006 in Bryson City, NC. 12 people spoke in favor of the proposed reclassification whereas five people voiced sentiments against the proposed reclassification. During the comment period, 62 letters were received in favor of the proposed reclassification; two of the 62 letters in support of the reclassification were templates that 61 people used to submit letters. Nine letters and a map were also submitted against the proposed reclassification during the comment period; one of the nine letters against the reclassification was also a template that 18 people used to submit letters.

The comments against the proposed reclassification cited several reasons opposing the proposal, which the Hearing Officers subsequently thoroughly considered. The Hearing Officers' Report of Proceedings sent to the EMC includes further details.

Recommendation: The Hearing Officers recommend that the proposed reclassification be approved by the Commission. If reclassified as proposed, the effective date is estimated to be November 1, 2006.

EMC Action: The EMC adopted the proposed reclassifications.

Agenda Item: Request to Proceed to Public Hearing with the Proposed Reclassification of Deep Creek in Person and Durham Counties (Neuse River Basin) to Class Outstanding Resource Waters (ORW)

Explanation: From a review of available data for Deep Creek, which currently carries the Water Supply-III (WS-III) Nutrient Sensitive Waters (NSW) designation, DWQ staff determined that these waters: (a) are a fish community site serving as a regional reference site because of the high quality instream and riparian habitat characteristics, (b) support a very diverse fish community, (c) include a portion of the North Carolina Natural Heritage Program's Flat River Aquatic Habitat, a state-significant site that is home to rare and endangered mussels, and (d) have excellent water quality, as confirmed by the most current (2005) good benthic and excellent fish community ratings. DWQ staff determined the ORW classification to be suitable for recognizing existing uses. This rule change would provide supplementary protection for the resources and quality of the subject waters.

If reclassified, regulations that affect several activities and operations, including development, NCDOT projects, and wastewater discharges, would apply. In the area to be reclassified, there is no known proposed development that would be impacted by the proposal, and no known plans for new or expanded discharges. NCDOT staff have determined that there is at least one planned DOT project in the subject area that would require additional stormwater control devices in order to meet the proposed reclassification's requirements.

The Water Quality Committee approved this request to proceed to rulemaking at their September 2006 meeting. The proposed effective date for this reclassification is September 1, 2007.

Recommendation: The Director and staff recommend that the Environmental Management Commission grant staff permission to proceed to public hearing with the proposed reclassification.

EMC Action: The EMC approved sending the proposed reclassifications to public hearing.

Agenda Item: Request to Proceed to Public Hearing with the Proposed Reclassifications of Unique Wetlands (UWL)

Explanation: On September 13, 2006 the Water Quality Committee approved the Division of Water Quality's recommendation to add the Unique Wetland classification to 33 wetland sites identified by DWQ staff. The 33 proposed UWL sites meet UWL criteria that were developed by a technical advisory committee made up of individuals representing DWQ, NHP, USFWS, other state and federal agencies, private consultants, and academia. The criteria have been used to evaluate an initial set of UWLs on lands owned by willing partners: the Nature Conservancy, the North Carolina Division of Parks and Recreation, and the Department of Defense. The wetlands managed by these agencies are located throughout North Carolina – Mountains, Sandhill, and Coastal Plain. UWLs provide habitat for state or federally listed species. Only public need projects would be permitted in Unique Wetlands and the mitigation required for impacts to such wetlands must constitute the mitigation defined at 15A NCAC 2H .0506 (h) (10).

Recommendation: The WQC and Division staff request permission from the EMC to proceed to public hearing with UWL reclassifications.

EMC Action: The EMC approved sending the proposed reclassifications to public hearing.

Agenda Item: Hearing Officers' Recommendations for the Adoption of 15A NCAC 2H .1020, the Universal Stormwater Management Program Rule

Explanation: Due to the substantial changes recommended by the Hearing Officers to the proposed Universal Stormwater Management Program Rule in the original Report of Proceedings it was necessary, under the provisions of the NC Administrative Procedures Act (APA), to re-notice the proposed, revised rule for additional public comment. Accordingly, the Environmental Management Commission (EMC) re-published the proposed Universal Stormwater Management Program (USMP) Rule to accept comments for an additional 60 days. This re-publication was required as a result of those substantial changes made to the text of the original proposed rule, which was published in the March 15, 2006, edition of the *North Carolina Register*. The substantial change made to the original text is the addition of the impervious surface limitations contained in Paragraphs (d) and (e) of the revised USMP Rule text. The revised rule was re-noticed in the *North Carolina Register* on Sept 1, 2006 for additional public comment until October 31, 2006. The Addendum to the original Report of Proceedings contains all the comments received during this additional public comment period. This Addendum also contains the Hearing Officers Recommendation regarding any further changes to the proposed rule as a result of these comments.

All of the comments and the Hearing Officers' responses to these comments are contained in the Addendum to the Report of Proceedings. The proposed revised rule is also included in this Addendum.

Recommendation: That the Environmental Management Commission adopt 15A NCAC 2H .1020 as recommended by the Hearing Officers in the Addendum to the Report of Proceedings.

EMC Action: The EMC adopted the Universal Stormwater Management Program rules. The rules will allow local governments to accept responsibility for implementing stormwater measures and consolidate up to twelve existing EMC stormwater programs.

Agenda Item: Approval of Water Quality Committee Recommendation Regarding a Site-Specific Variance for the Expansion of the Community Pier of the Windchase Subdivision

Explanation: In accordance with the provisions of 15A NCAC 2B .0226, the EMC will be requested to consider and approve a recommendation from the Water Quality Committee (WQC) regarding the granting of a site-specific variance from the Outstanding Resource Waters (ORW) Standards contained in 15A NCAC 2B .0225(e)(8) for an expansion of the community pier of the Windchase Subdivision in Wilmington, NC.

The activity for which this variance is sought is to add an additional 4 slips to the existing community pier of the Windchase Subdivision. This pier currently contains 14 slips. This variance will allow the expansion of the community pier to a total of 18 slips. As a condition of this variance, the Covenants, Conditions, and Restrictions of the Windchase Subdivision will be modified so that no additional piers or docks, beyond the 4 slips requested in this variance, will be authorized for any existing or future lots in this Subdivision. Furthermore, this variance will require the use of stormwater controls for any proposed development on 4 lots within the Subdivision that are currently undeveloped.

Recommendation: That the EMC consider and approve the WQC's recommendation in this matter.

EMC Action: The EMC approved the site-specific variance.

Agenda Item: Annual Progress Reports on the Tar-Pamlico and Neuse Agriculture Rules

Explanation: The Basin Oversight Committees (BOCs) for these two basins are required to report to the Commission each October on annual progress in implementation of the Neuse and Tar-Pamlico Agriculture Rules (15A NCAC 2B .0238 and .0256 respectively). For crop year 2005, the BOCs received and approved annual reports from 17 and 14 Local Advisory Committees (LACs) in the Neuse and Tar-Pamlico Basins respectively. The two basins report cumulative nitrogen loss reductions from baseline through 2005 above the required 30%. Reductions were accomplished through BMP installation, fertilizer application reduction, crop shifts, and cropland reduction. Separate report documents are provided for each basin from the respective BOCs.

In the Tar-Pamlico Basin, to date the EMC has granted full approval to thirteen local strategies and conditional approval to one. The BOC requests the EMC grant full approval to the last remaining conditional strategy.

Recommendation: That the EMC approve the BOC recommendation on the remaining Tar-Pamlico LAC strategy. Otherwise, no action is required on either report.

EMC Action: The EMC approved the BOC recommendations.

Agenda Item: Request to Proceed to Notice of Text and Hearing on the Ecosystem Enhancement Program Rule Revisions to 15A NCAC 2R .0101, .0201, .0203, .0401 and .0402

Explanation: Through the implementation of wetland and stream restoration projects throughout the state, the NC Ecosystem Enhancement Program has identified the need to adjust the schedule of fees in 15A NCAC .0402 that are applied in the administration of the in-lieu fee program. In addition to the fee revisions, language in the rules will be modified to address the Ecosystem Enhancement Program instead of its predecessor the Wetlands Restoration Program.

Recommendation: Today, the staff is seeking the approval from the Environmental Management Commission to publish the proposed rule text through a Notice of Text and Hearing. Information regarding the details of the proposed fee revisions were mailed to the EMC members for their consideration prior to the meeting today. At their meeting in September of 2006, the Water Quality Committee gave approval to presenting this request to the EMC.

EMC Action: The EMC approved sending the proposed rule revisions to public hearing.

Agenda Item: Request for Approval of Notice of Text and Hearing for Proposed Rules Establishing Secondary Containment Standards for all New and Replacement Underground Storage Tank Systems

Explanation: This is to request the EMC's approval of the Notice of Text and Hearing for proposed rules establishing secondary containment standards for all new and replacement underground storage tank (UST) systems. The proposed rules amend Subchapter 2N of the North Carolina Administrative Code and require that as of August 1, 2007, all new or replacement UST systems must be provided with secondary containment. Secondary containment means that all components of a UST system will have double-walled construction or will be contained within a liquid-tight containment sump. In addition, the double-walled portions of the UST system and the containment sumps will be monitored continuously for leaks. Attachment A portrays a single-walled UST system that meets the current minimum construction standards. Attachment B shows a double-walled UST system that meets the minimum proposed standards for secondary containment. Attachment C provides a summary of the rules and Attachment D contains the full text of the rules.

Purpose of Rulemaking and Rulemaking Authority
Source of release studies sponsored by EPA in 2003 and 2004 indicated that many upgraded UST systems are still leaking. (Upgraded UST systems are those that meet the requirements of the federal upgrade deadline including corrosion protection spill prevention and overfill control.) Further, these studies showed that about 60% of the releases from upgraded UST systems were from piping, dispensers, piping connections, pumps and other ancillary devices. Twelve percent of the releases were believed to come from the tank. Fuel delivery problems accounted for about 19 percent of the releases and the rest were from other sources such as drive-aways. In North Carolina, releases reported from upgraded systems average about 120 per year. Cleanup of these releases is very costly to the tank owners/operators, the state and the public. On average each release costs about $125,000 to cleanup even with the UST risk-based rules. Due to the difficulty of the state trust fund to meet the demands for reimbursement for cleanups, the state can only spend what it receives in revenue. Therefore, it can only direct cleanup at emergency sites and the highest risk sites (about 339 sites) at this time. The directed sites represent only 4% of the 9,000 total active release sites (sites that have not been closed and that require additional assessment/cleanup work).

In response to these data, changes were made in the state statute and the federal law requiring more stringent release prevention measures and prompting this rulemaking request. First, the General Assembly in 2003 (NC Session Law 2003-352) added Section (13) to G.S. 143-215.94T which states that the Environmental Management Commission (EMC) shall adopt standards and requirements for secondary containment for non-tank components of petroleum underground storage tank systems including dispensers. G.S. 143-215.94T is the statute that grants general rulemaking authority to the EMC for the design, construction, installation and monitoring of UST systems and the authority for the Subchapter 2N rules.

Second, the Federal Energy Policy Act of 2005 (enacted August 8, 2005) amends Subtitle I of the Solid Waste Disposal Act (42 USC 6991). It requires that a state receiving LUST Trust Funds must implement one of two additional measures to protect ground water: (1) secondary

containment for new or replacement UST systems installed within 1000 feet of a community water system or any existing potable drinking water well or (2) manufacturer and installer financial responsibility to cover costs of corrective action related to releases caused by improper manufacture or installation. The state must implement one of these provisions by February 7, 2007 in addition to other provisions in the Act or risk losing the federal monies that it receives for the UST program. North Carolina is a state that receives LUST Trust Funds – nearly $2M per year, which pays for 30% of program's salary and fringe (28 FTE) for oversight of the cleanup of releases from regulated tanks. The LUST Trust Funds also pay for alternate water for those with contaminated drinking water where there is no responsible party, the responsible party is recalcitrant or the responsible party is financially unable to pay the costs. In addition, it pays for contractors to perform actual cleanup work on orphan sites.

Please note that North Carolina already has some existing secondary containment rules in place for UST systems installed within 500 feet of drinking water supplies and certain surface water such as Outstanding Resource Water, High Quality water etc. These have been in place since 1991.

Given the existing rules and the new state and federal mandates, DENR has decided that the simplest, most practical, protective, and, in the long run, cost effective approach is to draft rules that provide for secondary containment for new and replacement UST systems at all locations. The rules that are before you will satisfy both the state and federal mandates. They will dramatically reduce the number of releases to the environment and the magnitude of any release that do reach the environment, and will substantially increase protection of the health and welfare of North Carolina's citizens.

Rule Development

The rules were developed as follows. Staff reviewed rules, regulations and guidance of other states such as Florida, New Hampshire, Maine and California that have had secondary containment requirements in place for a long period of time. In addition, staff reviewed rules, regulations and guidance for other states that have secondary containment requirements for UST systems installed near drinking water supplies similar to North Carolina. We reviewed industry standards and codes of practice developed by nationally recognized associations and independent testing groups, organizations such as Petroleum Equipment Institute and American Petroleum Institute. We also looked at UST equipment manufacturers' specifications and recommendations.

In May of 2005, we issued an informal draft of proposed secondary containment rules for review and comment. Reviewers included industry organizations such NC PMA, NC petroleum council, environmental groups such as Clean Water of NC, NC PIRG (Public Interest Research Group), equipment installers and manufacturers both local and national, State Fire Marshal, the PE Board, and representatives from EPA Headquarters, Region 4. The draft was generally well received and many useful comments were submitted and incorporated into this version as appropriate. These rules are based on all of these resources.

The rules are constructed such that all of the information needed to construct, install, monitor and maintain new and replacement systems after August 1, 2007 are contained in new rule 2N .0900. The other amendments are changes to existing rules to ensure that all future secondary

containment upgrades already required by the rules for single-walled UST systems near water supply wells and certain surface waters, will conform to the new standards.

Cost and Impact to Regulated Community
The cost difference between installing a single-walled UST system meeting the current minimum construction standards and installing a double-walled UST system meeting the secondary containment standards is about $10,000. However, nearly all tank owners already routinely install double-walled piping and under dispenser containment and most medium and large sized companies already routinely install double-walled tanks. Therefore the actual impact to the mid- and large size tank owners will be relatively small. However, there are still some small tank owners that continue to install single-walled tanks. For them, the cost to install a new tank will increase by $2,000 to $4,000 per tank. New periodic testing requirements for interstitial sensor operability and sump containment integrity along with overfill control maintenance checks will cost all tank owners about $750 per site per year.

Recommendation: Today, the staff is requesting the Environmental Management Commission's approval of the Notice of Text and Hearing for proposed rules establishing secondary containment standards for all new and replacement Underground Storage Tank (UST) systems.

EMC Action: The EMC approved sending the proposed rule to public hearing.

Agenda Item: Request for Adoption of Rule 15A NCAC 2T .0915, Local Program Approval of Programs for Permitting of Reclaimed Water Distribution

Explanation: In May 2006 the Environmental Management Commission (EMC) adopted 15A NCAC Subchapter 02T and repealed Section 15A NCAC 02H .0200 and Rules 15A NCAC 02H .0122 and .0123. At that time, the hearing officer's recommended, and the Commission approved, that no action be taken on Rule 15A NCAC 02T .0915 until statutory authority was established for the rule. With the ratification of Session Law 2006-250 (House Bill 1413) the Commission now has authority to adopt this rule.

The statutory change consisted of modifying G.S. 143-215.1(f) (Local Permit Programs for Sewer Extension) to include delegation of reclaimed water utilization systems to local governments. The proposed rule is similar to Rule 2T .0306 (Local Programs for Sewer Systems) adopted by the Commission in May, 2006 as part of the overall adoption of Subchapter 2T.

Recommendation: That the Commission adopt Rule 15A NCAC 02T .0915. If approved, the rule would proceed to the Rules Review Commission.

EMC Action: The EMC adopted the rule.

EXHIBIT H

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

December 5, 2006

MEMORANDUM

To: The Honorable Pryor Gibson, Co-Chair, Environmental Review Commission
The Honorable Daniel Clodfelter, Co-Chair, Environmental Review Commission
The Honorable Charles Albertson, Co-Chair, Environmental Review Commission

From: William G. Ross, Jr.

Subject: Annual Sedimentation Report

G.S. 1 13A-67 of the Sedimentation Pollution Control Act of 1973 requires the Department of Environment and Natural Resources to report annually to the Environmental Review Commission on the implementation of the Act. Attached is this year's report. If you have any questions, please contact Mell Nevils in the Division of Land Resources, 733-4574.

Cc. Ms. Elizabeth Self
Ms. Robin Smith

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Phone: 919-733-4984 \ FAX: 919-715-3060 \ Internet: www.enr.state.nc.us/ENR/

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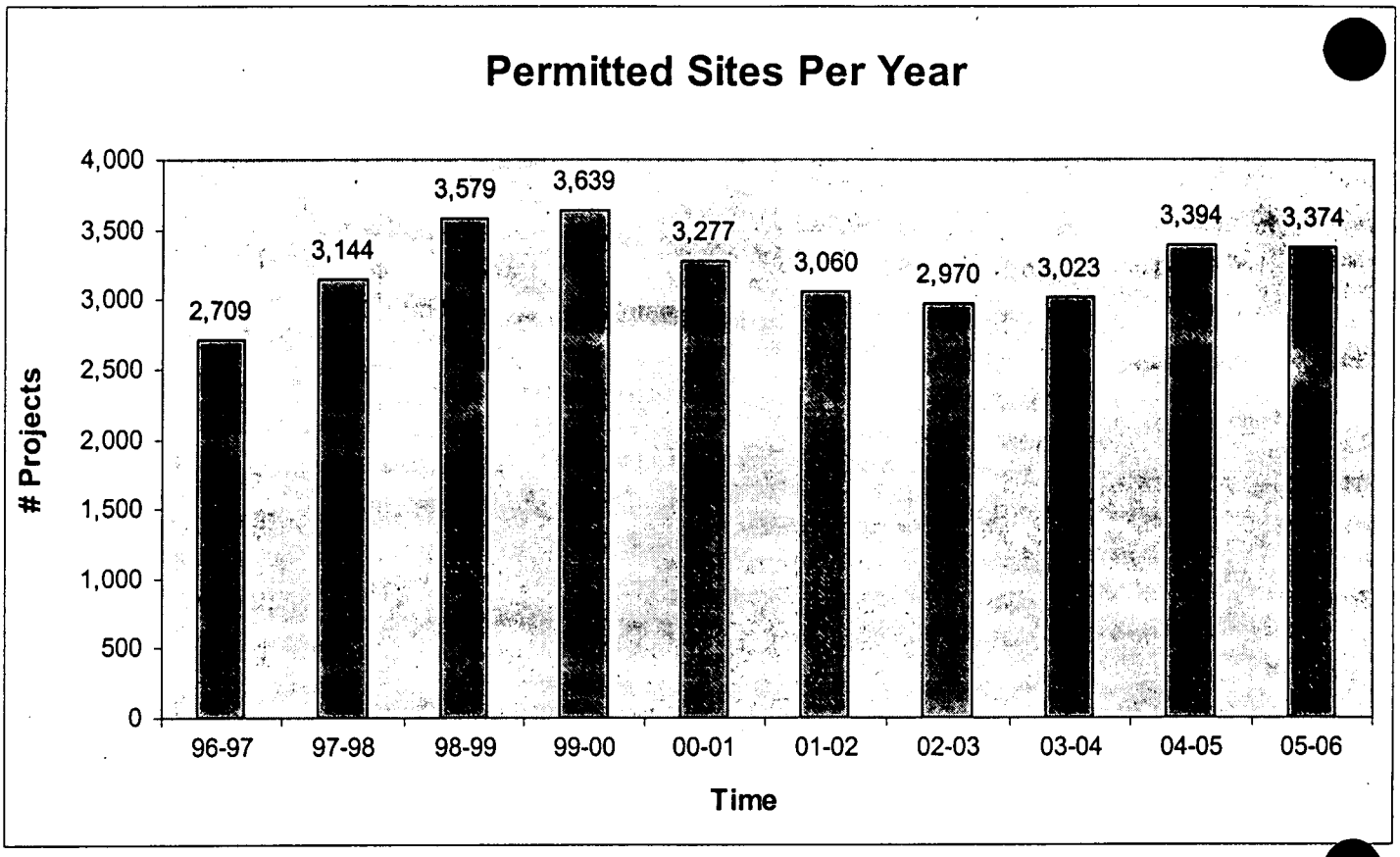
Report to the Environmental Review Commission On the Implementation of the Sedimentation Pollution Control Act By the Department of Environment and Natural Resources Division of Land Resources, Land Quality Section

§ 113A-67. Annual report. The Department shall report to the Environmental Review Commission on the implementation of this Article on or before 1 October of each year. The Department shall include in the report an analysis of how the implementation of the Sedimentation Pollution Control Act of 1973 is affecting activities that contribute to the sedimentation of streams, rivers, lakes, and other waters of the State. The report shall also include a review of the effectiveness of local erosion and sedimentation control programs.

The following information is submitted to fulfill this reporting requirement.

Background

Sedimentation is the number one pollutant in the State of North Carolina and in the United States. More stream miles are impaired by sediment than any other pollutant. When the Sedimentation Pollution Control Act became law in 1973, the words of the Preamble proved prophetic. *"The sedimentation of streams, lakes and other waters of this State constitute a major pollution problem. Sedimentation occurs from the erosion or depositing of soil and other materials into the waters, principally from construction sites and road maintenance. The continued development of this State will result in an intensification of pollution through sedimentation unless timely and appropriate action is taken. Control of erosion and sedimentation is deemed vital to the public interest and necessary to the public health and welfare, and expenditures of funds for erosion and sedimentation control programs shall be deemed for a public purpose".* The development of the State has indeed intensified, along with increased land-disturbance and stream sedimentation. The area of land-disturbance covered by approved erosion and sedimentation control plans reached a new record last year at 40,110 acres. This does not cover areas administered by local governments or land disturbances conducted by the Department of Transportation. The actual total number of disturbed sites at any one time under the exclusive jurisdiction of the State Sedimentation Control Program changes daily. As of September 30, 2006, there were 9140 active projects.


Permitted Sites Per Year
Projects
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
2,709
3,144
3,579
3,639
3,277
3,060
2,970
3,023
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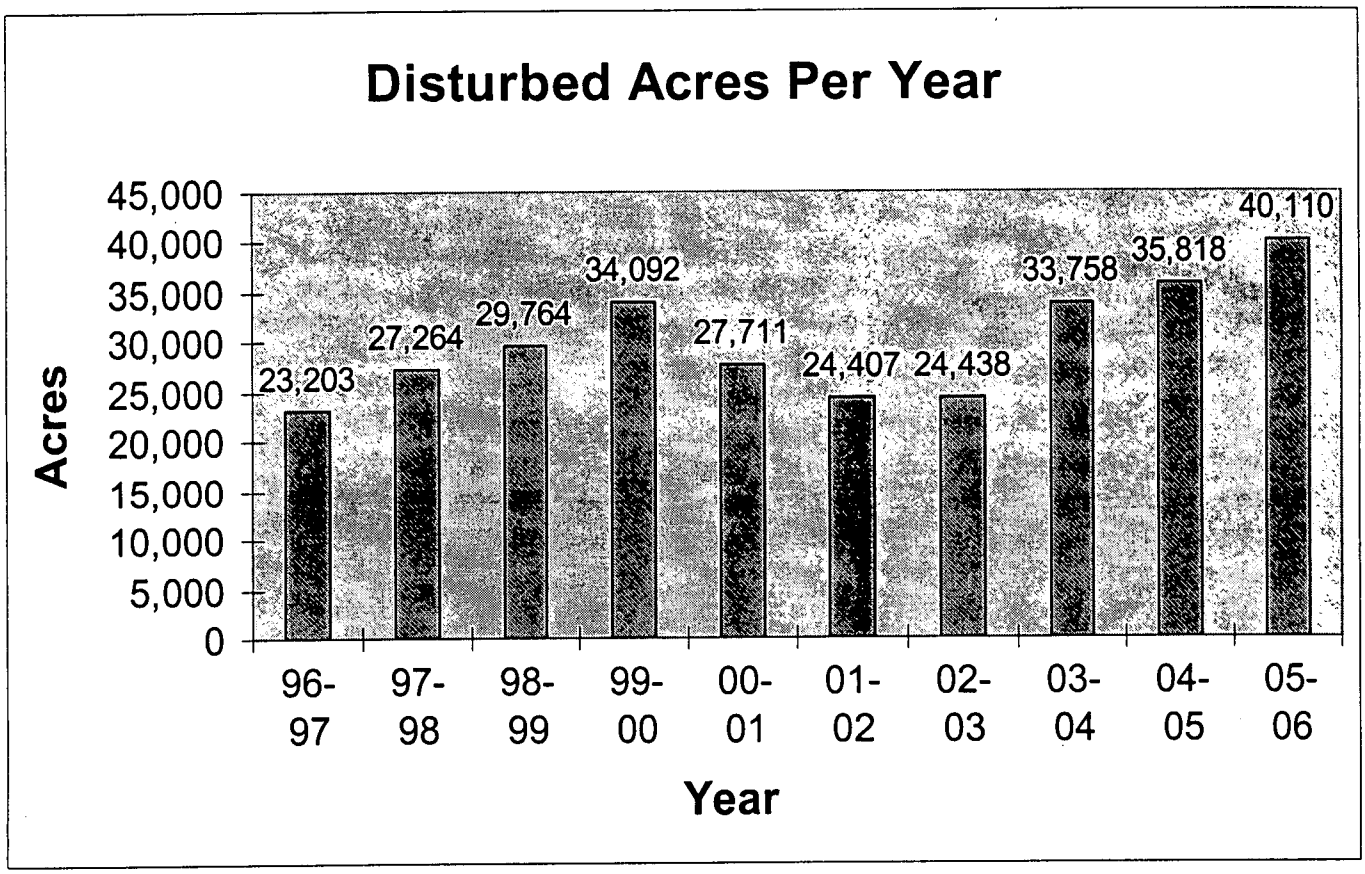
Time



Implementation

The Division of Land Resources, Land Quality Section, administers the SPCA within the Department of Environment and Natural Resources. The Sedimentation Control Commission has also delegated administration of the SPCA to 45 county or municipal governments. These local program delegations do not include land-disturbing activities conducted by local, State or United States government or persons with the power of eminent domain (e.g. public utilities), which remain under jurisdiction of the Land Quality Section.

The Land Quality Section has 54 full time equivalent positions (FTE) to handle the administration, plan review, inspection and enforcement of the sedimentation program. In addition, there are 4.5 FTE positions funded through the Express Review program. Most of the personnel are located in the Department's seven regional offices, where they conduct inspections and review erosion and sedimentation control plans.

Regional activities for the 2005-2006 Fiscal Year include:

4870 erosion and sedimentation control plan reviews;
16,516 sedimentation site inspections;
731 notices of violation;
77 enforcement case referrals.

The Land Quality Section Program collaborates closely with the Division of Water Quality's Stormwater Management Program in permitting, inspection and enforcement activities. The Land Quality Section issues the required stormwater permits for construction activities in conjunction with the erosion and sedimentation control plan approval, and performs the compliance inspections for these sites. Any enforcement actions involving stormwater management violations are carefully coordinated between the Land Quality Section and the Division of Water Quality to avoid overlap and to ensure the most effective enforcement.

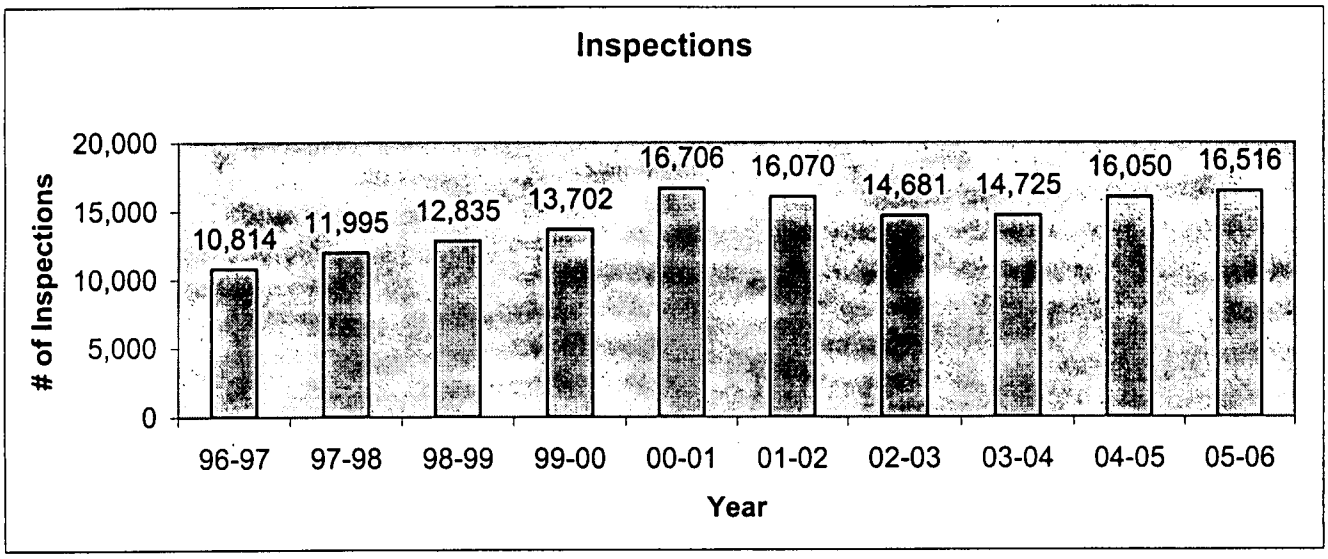
Plan Approval

The SPCA requires a review of the required erosion and sedimentation control plan within 30 days of first submittal or 15 days of resubmittal. Over 90% of the plans are reviewed with 25 days of first submittal and 10 days of resubmittal. However, an Express Permitting program for erosion and sedimentation control plans provides for plan review within three days for an additional fee and is now available at all regional offices. During the 2005-2006 Fiscal Year, 482 Express Permit reviews were performed, of which 164 were done by the Wilmington Regional Office.

Inspection

Land disturbing activities need to be frequently inspected because of the dynamic change that can occur on a construction site. Not only can new areas be affected, but existing erosion and sedimentation control measures can fail from lack of maintenance or be accidentally destroyed by construction equipment. The failure of existing measures can release previously trapped sediment into waterways.

The Land Quality Section is responsible for inspecting approximately 9100 constructions projects in North Carolina. Current staff conducted 16,500 inspections per year in spite of having a vacancy rate of 15-20% for the inspector positions for the year. This results in an average interval of 6.6 months between inspections. If all positions were filled the interval between inspections would be approximately 4.5 months. This long interval results in extended periods of time before violations are discovered result in sediment loss into streams, wetlands and on to adjacent property. Implementation of the SPCA and the State's Erosion and Sedimentation Program to require and maintain compliance is widely impacted by the infrequency of inspections.



Enforcement

Compliance or non-compliance with the SPCA is documented with Sedimentation Inspection Reports. Most violations are addressed by only sending an inspection report to the responsible party. Of the 16,516 inspections conducted during the 2005-2006 Fiscal Year, 731 resulted in Notices of Violations. Approximately ten percent of the Notices of Violation led to additional enforcement action. Enforcement summary statistics are compiled for each calendar year. In 2005, 54 civil penalties were assessed, including 17 for projects started without approved erosion and sedimentation control plans.

Local Programs

Well administered, local government sedimentation programs offer the advantages of inspecting sites more often than the state program, being more geographically accessible to their constituents, and incorporating plan reviews with planning, zoning and building approvals. Currently, 45 local governments have a delegated erosion and sedimentation control program. These include 25 municipal, 18 county and two joint city/county programs.

The Sedimentation Control Commission encourages local governments to administer a delegated erosion and sedimentation control program by providing a model ordinance, cost share funding for start-up and technical assistance. Once a program is delegated to a local government, the Land Quality Section provides periodic oversight to ensure that the local programs are meeting the standards for the state program. State personnel informally assist and advise the local staff on problematic sites. A review of each program is scheduled at least every two years. Land Quality and the Attorney General's Office review the city or county ordinance to ensure that it is as stringent as State law and rules. The Land Quality Regional Engineer and Sediment Specialist and/or their assistants meet with the local program staff during the review. A detailed report is provided back to the local government, noting strengths, deficiencies and corrective actions. A summary report is presented to the Sedimentation Control Commission at its quarterly meetings. The Commission then takes action to continue the

delegation, place the program on probation, or give 30 days' notice that the Commission will assume administration and enforcement of the program.

A new local program was delegated this past year to the Town of Lake Lure and the Town of Wake Forest. Nineteen local program reviews were conducted during the 2005-2006 fiscal year. Three programs were not functioning. Two of them asked the Commission to resume administration of the SPCA in their jurisdiction, and the Commission voted to rescind the other program. Small local governments, including rural counties, have difficulty hiring and maintaining trained personnel. Several local governments are currently working with Land Quality toward requesting the delegation of a program from the Commission.

Current Initiatives

Erosion and Sediment Control Planning and Design Manual

The *Erosion and Sediment Control Planning and Design Manual* revisions were released in June 2006. The manual is published as a loose-leaf book to facilitate insertion of revisions. Revision packets were printed and distributed at no charge to government agencies and design professionals. Standards and specifications for erosion and sedimentation control measures were updated to reflect current technology and provide consistency with adjacent states.

Database Management

Records of erosion and sedimentation control plan reviews and inspections are kept in diverse separate databases in each regional office, complicating statewide data gathering. Land Quality and Information Technology Services are working together to develop an online data management and word processing system that will be used by all offices. Plan reviews, fee receipts, inspections, complaints, notices of violation, local program activity, and NC DOT inspections will be tracked in a single database. The data entry and storage applications have been developed. Report and document generation capabilities have not been completed.

Sedimentation Program Employee Handbook

An electronic employee handbook to update and standardize operating procedures in the sediment program has been completed. The handbook is an electronic document on compact disc with embedded forms, documents and PowerPoint presentations. Standard operating procedures, policies, form letters, memorandum of agreement, memos from DENR and other agencies, and training aids have all been compiled into a single searchable document.

Statutory Amendments

Technical corrections to the appointment of members of the Sedimentation Control Commission were made in Session Law 2006-79. Session Law 2006-250 and Session Law 2006-255 amended the Sedimentation Pollution Control Act. Session Law 2006-250 added a provision to require self-inspection after completion of each phase of a project. The authority of the Commission to exercise

concurrent jurisdiction on local program sites was clarified. A local program delegation limited to site inspections was authorized. Session Law 2006-255 added a fifth mandatory standard to the SPCA requiring that the approved plan must be followed. The broader language of the mandatory standard augments an existing rule that erosion and sedimentation control measures must be installed and maintained according to the approved plan.

Education

Education efforts focused on the publication of *Design Manual* revisions. Four workshops were held for design professionals, along with the annual workshop for local programs. Language in the 2005-2007 budget prohibited training for grading contractors, or research on improving erosion and sedimentation control technology. Resumption of funding for contractor training remains one of the greatest needs of the program. The Clear Water Contractor program had been well received by both the environmental and development communities. Another vital need to the continued improvement of the program is research into improving and developing erosion and sedimentation control measures, practices and BMP's.

Regulatory Issues

Trout Stream Buffer Zone

G.S. 113A-57(1) requires a buffer zone along a lake or natural watercourse of sufficient width to confine visible siltation within the twenty-five percent (25%) of the buffer zone nearest the land-disturbing activity. Waters that have been classified as trout waters by the Environmental Management Commission shall have an undisturbed buffer zone 25 feet wide or of sufficient width to confine visible siltation within the twenty-five percent (25%) of the buffer zone nearest the land-disturbing activity, whichever is greater. Provided, however, that the Sedimentation Control Commission may approve plans which include land-disturbing activity along trout waters when the duration of said disturbance would be temporary and the extent of said disturbance would be minimal.

In a third party appeal of the issuance of such a variance, an administrative law judge granted a summary judgment in January 2006 that essentially ruled that the terms "temporary and minimal" applied to impacts during and after the construction phase whether or not those impacts may cause or contribute to sedimentation. This interpretation would mean that the effect of almost any land disturbing activity resulting in a permanent change in natural cover or topography would not be "temporary and minimal," and hence, no variance could be allowed. Consequently, the Division ceased to issue variances from land disturbing activity that created permanent changes in cover or topography within trout stream buffer areas, pending legal resolution.

Legislative efforts during the 2006 session to better define the terms "temporary and minimal" disturbance within trout stream buffers were unsuccessful. The Sedimentation Control Commission made a final agency decision during their November 16, 2006 meeting overruling the administrative law judge's January 2006 ruling. Pending further legal review of the contested case, the Sedimentation Control Commission directed the Division to return to the Division's earlier practices in applying the "temporary and minimal" variance standard to impacts that may cause or contribute to sedimentation in the review of request for variances for land disturbing activities within trout buffers. In addition, the

Sedimentation Control Commission declared that a project could meet the "temporary and minimal" variance standard when a project redisturbs an area so that the project ultimately reduces sedimentation and the impacts in the trout buffer are first avoided, then minimized, then restored to native vegetation characteristic of an undisturbed buffer as soon as practical after the completion of construction.

CONCLUSIONS

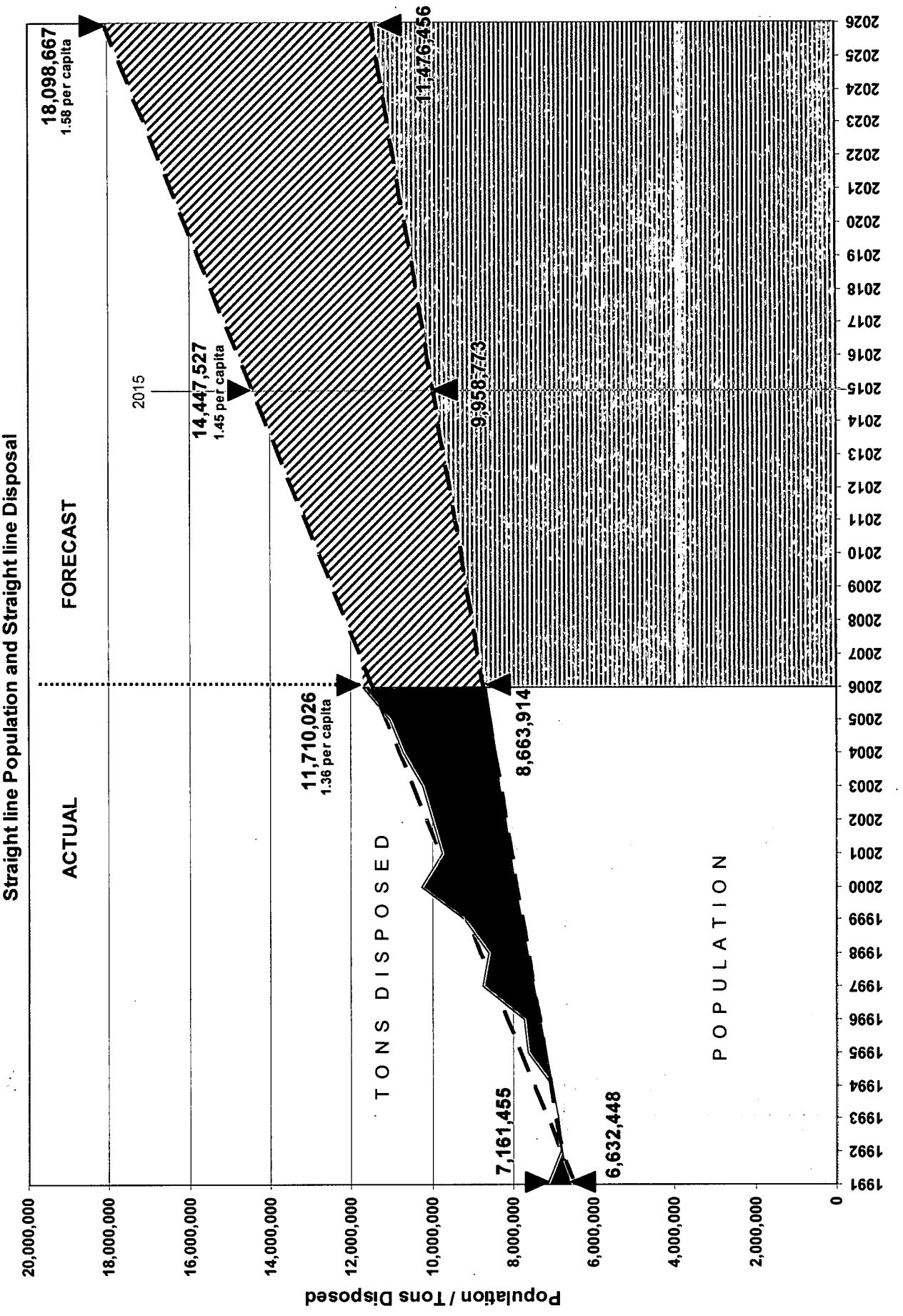
Land disturbance in North Carolina reached another record last year, at over 40,000 acres. New Express Review positions were added, funded by the additional fee charged for the expedited review. No additional inspectors were added to monitor compliance. The average interval between site inspections continues to increase. Delegated local erosion and sedimentation control programs were added in two small municipalities, but three delegations ended. Local governments with limited budgets are not going to fill the compliance-monitoring void that exists. Appropriations and/or additional user fees to fund additional field inspectors are badly needed.

EXHIBIT I

Solid Waste Landfill Study

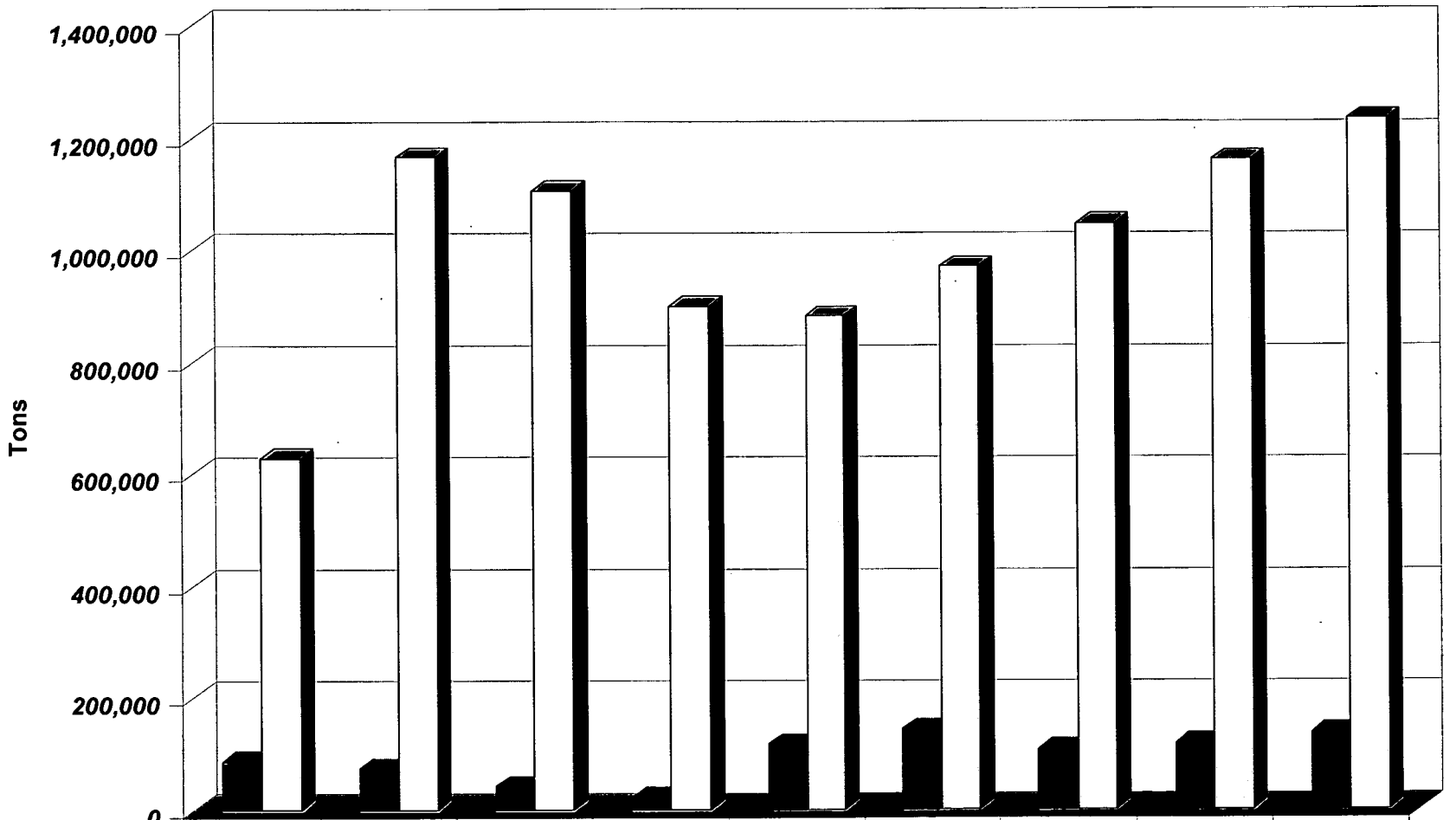
North Carolina Solid Waste Disposal 20-Year Forecast

Straight line Population and Straight line Disposal



Solid Waste Landfill Study

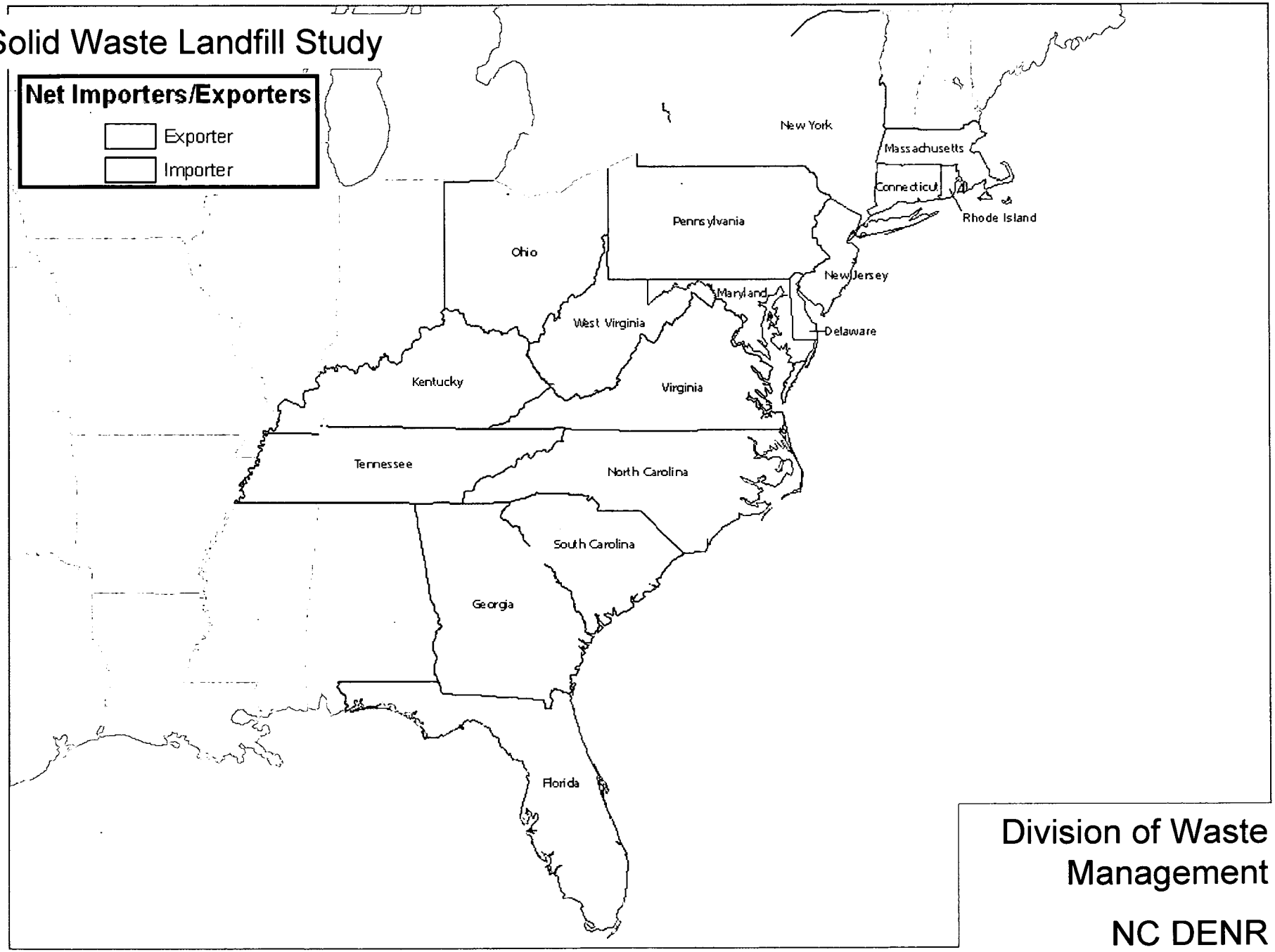
Actual Imports / Exports



	FY 1997-1998	FY 1998-1999	FY1999-2000	FY 2000-2001	FY 2001-2002	FY 2002-2003	FY 2003-2004	FY 2004-2005	FY 2005-2006
■ Imports	87,393	74,185	41,840	21,614	117,981	144,116	108,803	119,202	137,307
□ Exports	629,415	1,166,875	1,106,897	900,743	882,247	971,286	1,048,111	1,161,926	1,234,307

Fiscal Year

Solid Waste Landfill Study

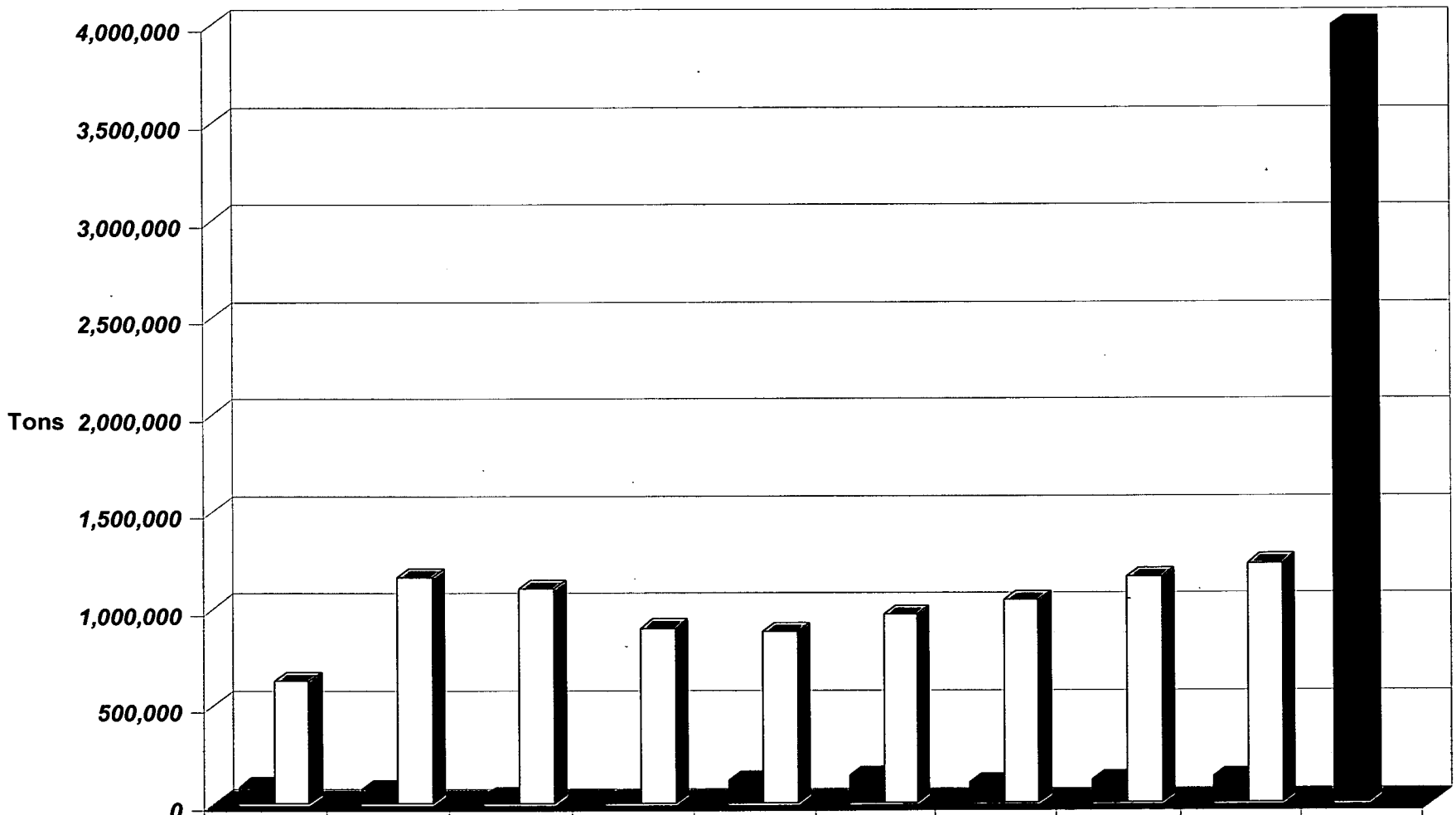


Division of Waste Management

NC DENR

Solid Waste Landfill Study

Forecast Imports / Exports



	FY 1997-1998	FY 1998-1999	FY1999-2000	FY 2000-2001	FY 2001-2002	FY 2002-2003	FY 2003-2004	FY 2004-2005	FY 2005-2006	Proposed
■ Imports	87,393	74,185	41,840	21,614	117,981	144,116	108,803	119,202	137,307	4,000,000
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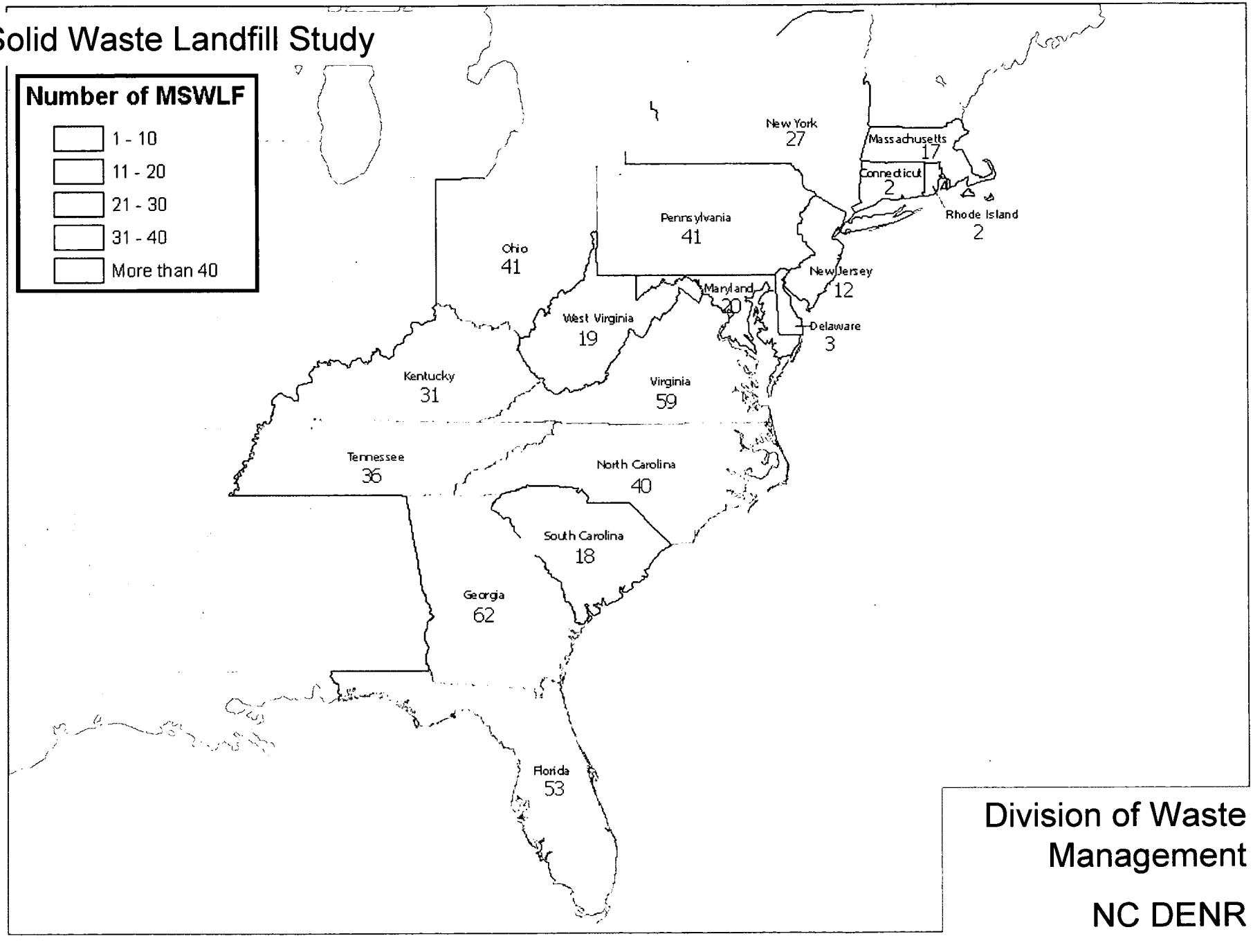
Fiscal Year

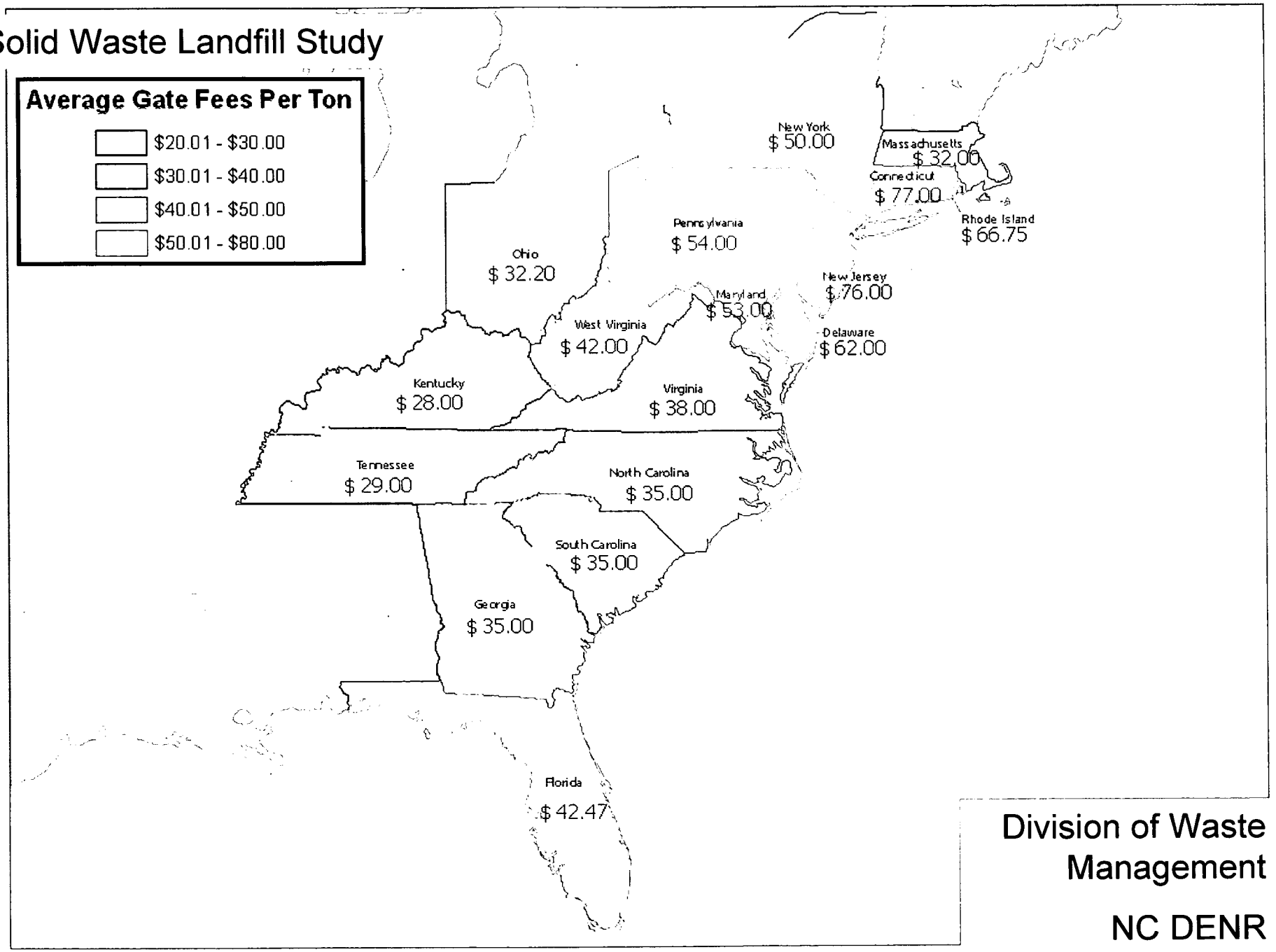
Solid Waste Landfill Study



Division of Waste Management

NC DENR

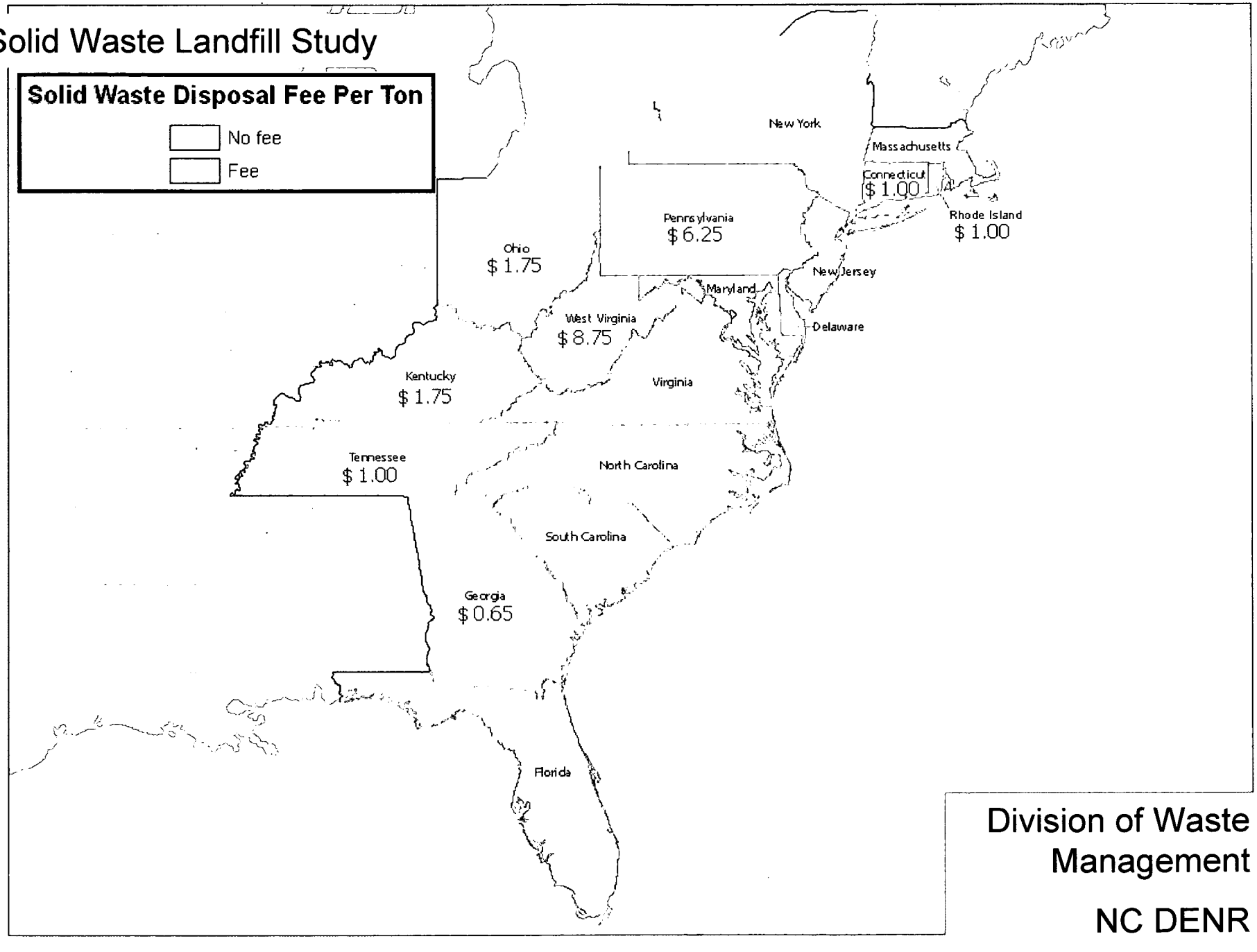
Solid Waste Landfill Study



Division of Waste Management

NC DENR

Solid Waste Landfill Study

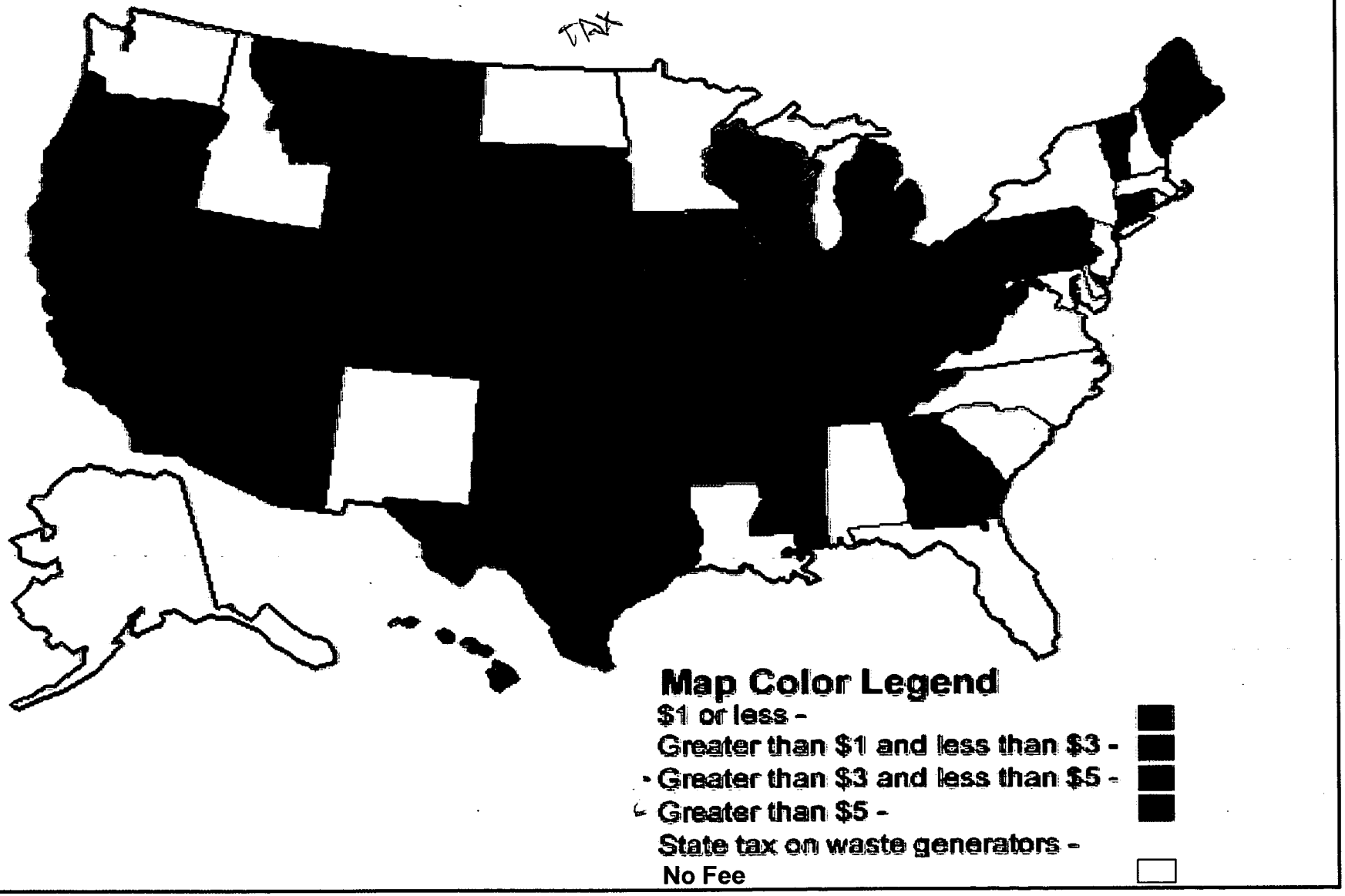


Division of Waste Management

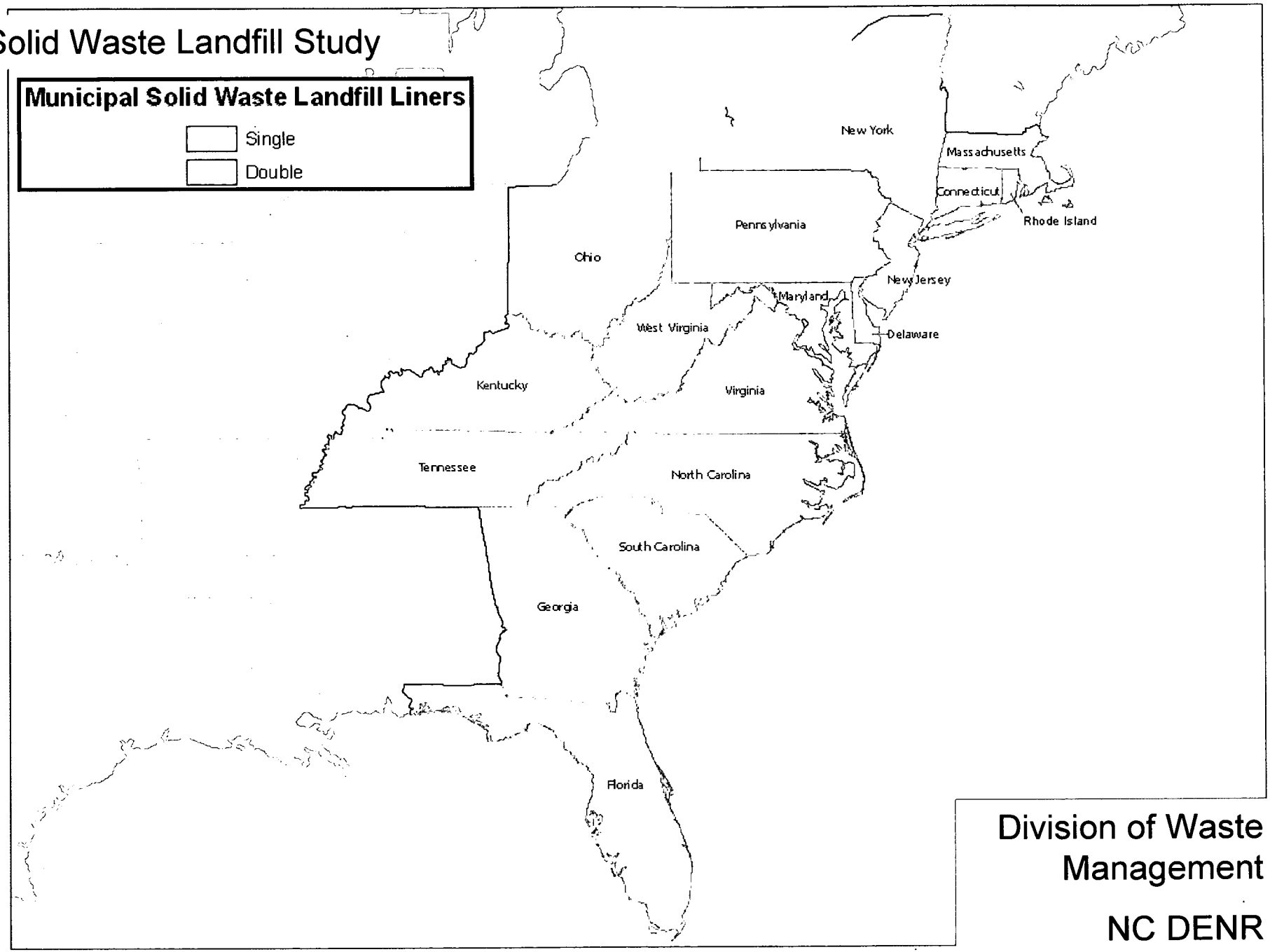
NC DENR

Solid Waste Landfill Study

States with Solid Waste Disposal Fee



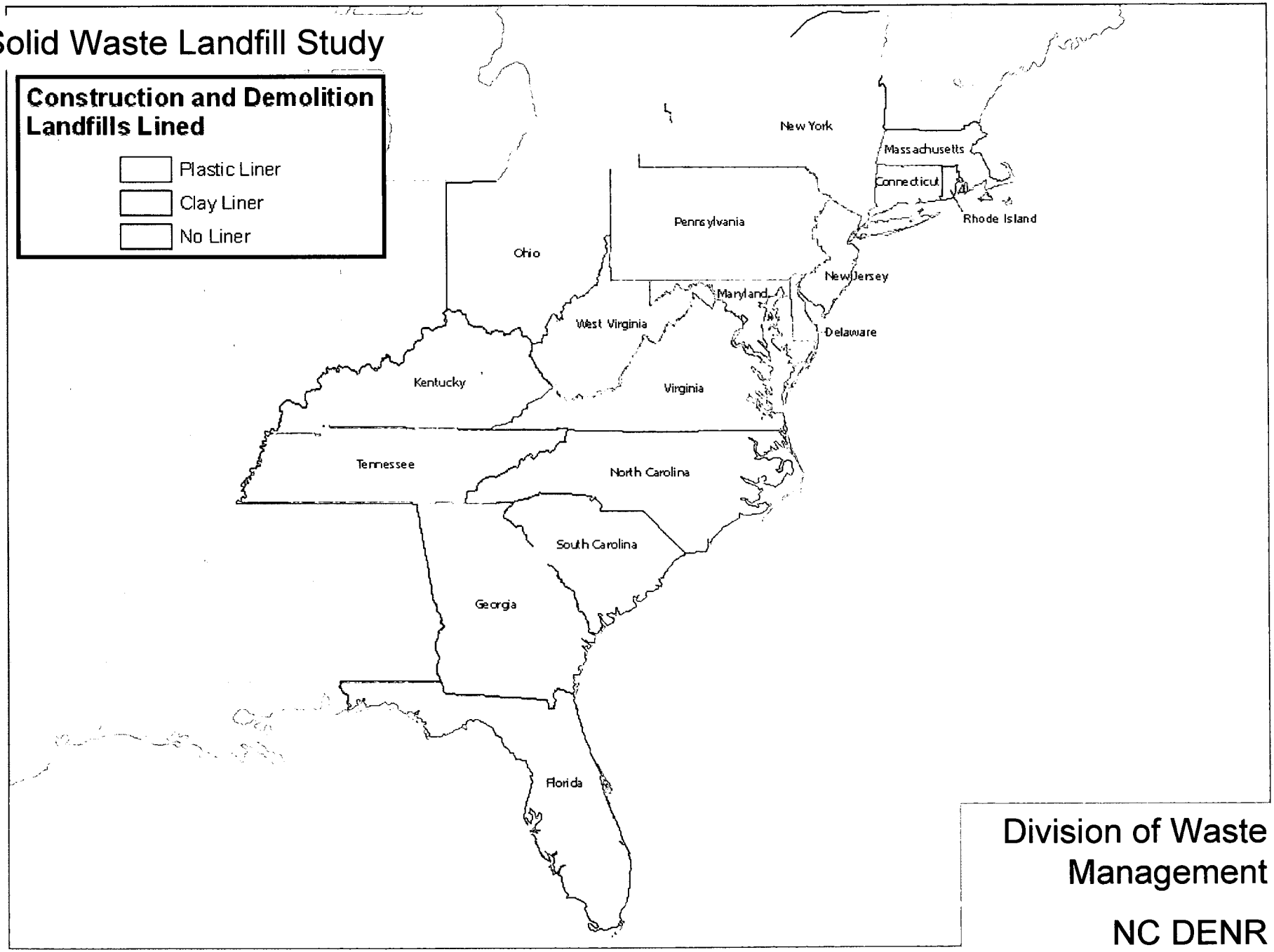
Solid Waste Landfill Study



Division of Waste Management

NC DENR

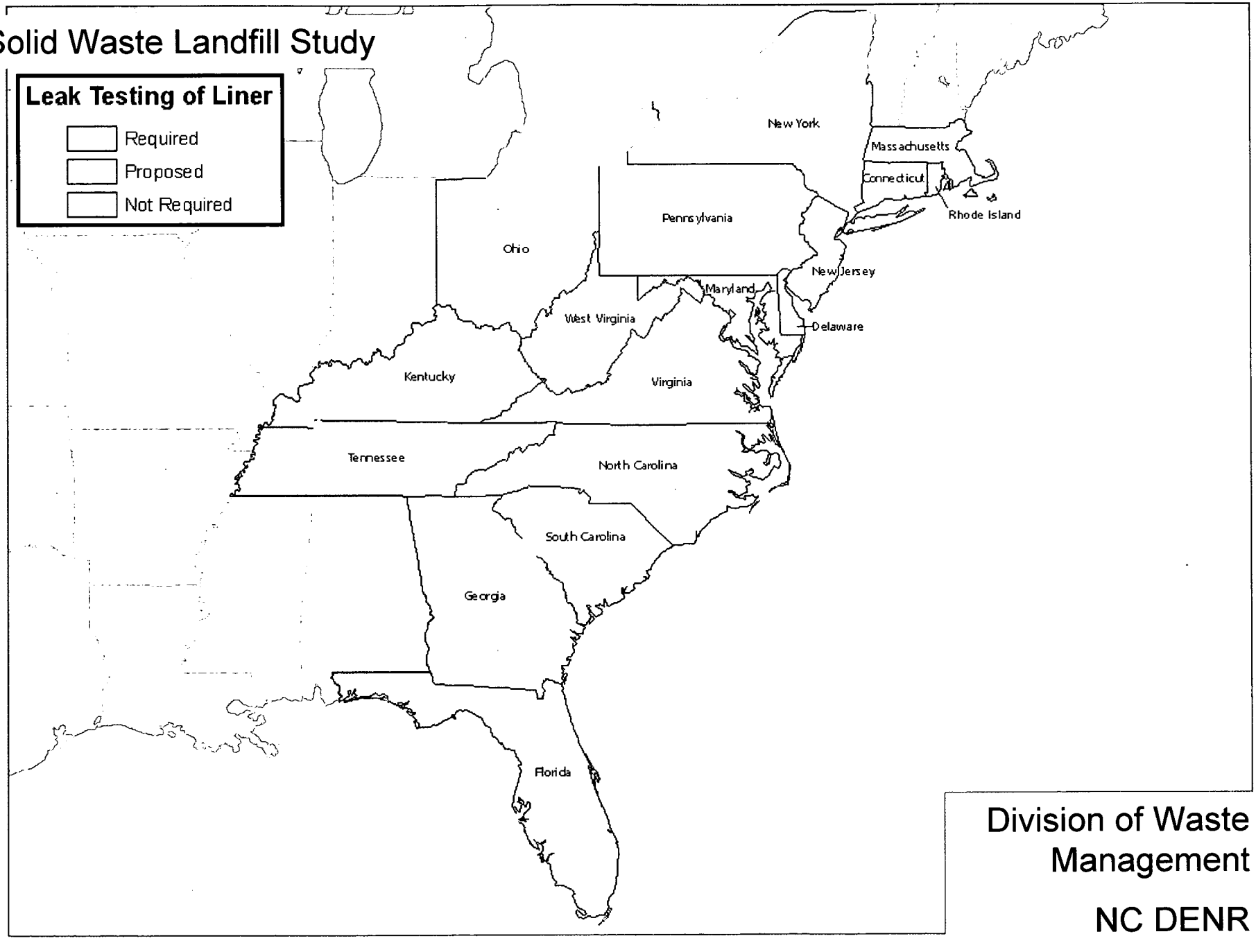
Solid Waste Landfill Study



Division of Waste Management

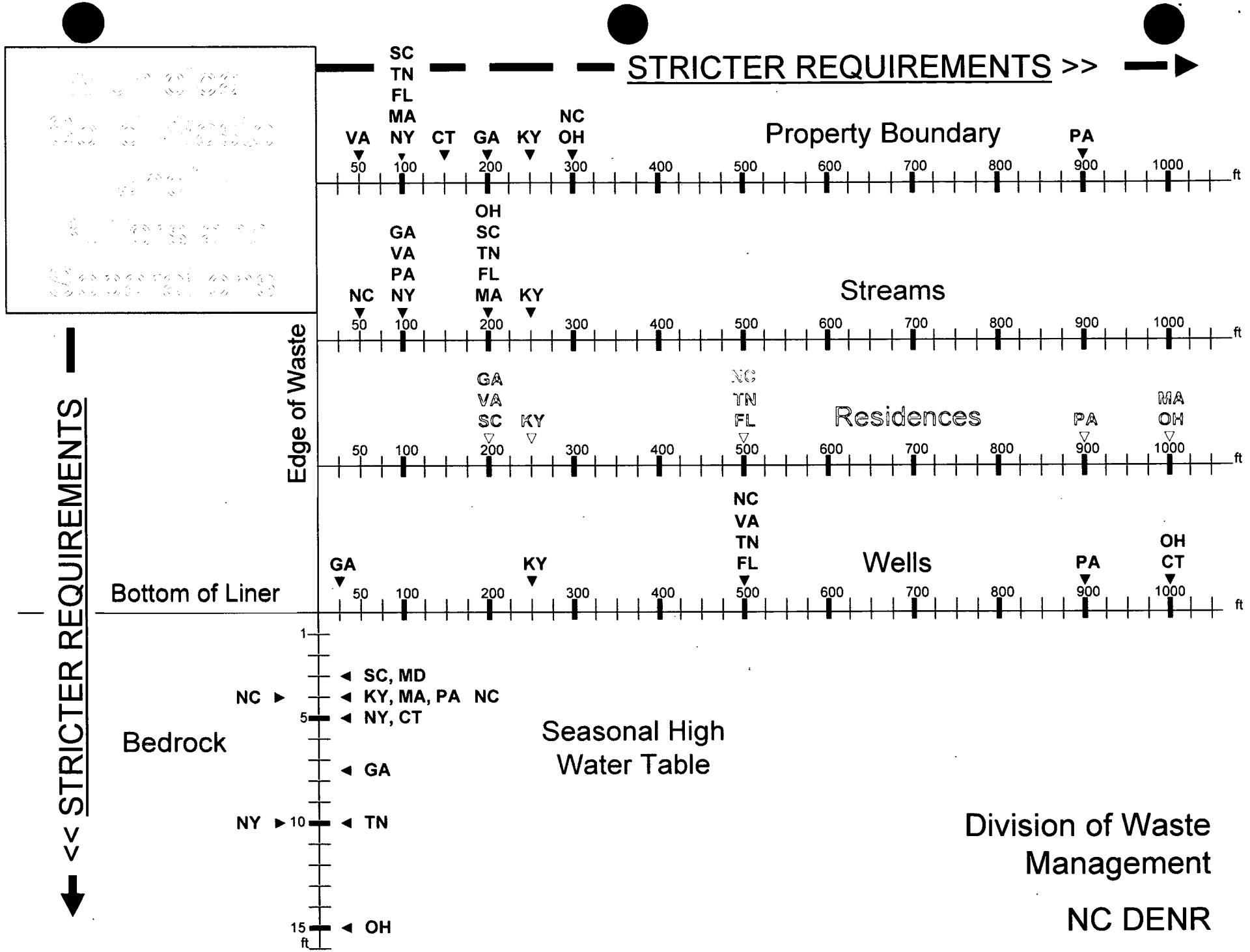
NC DENR

Solid Waste Landfill Study

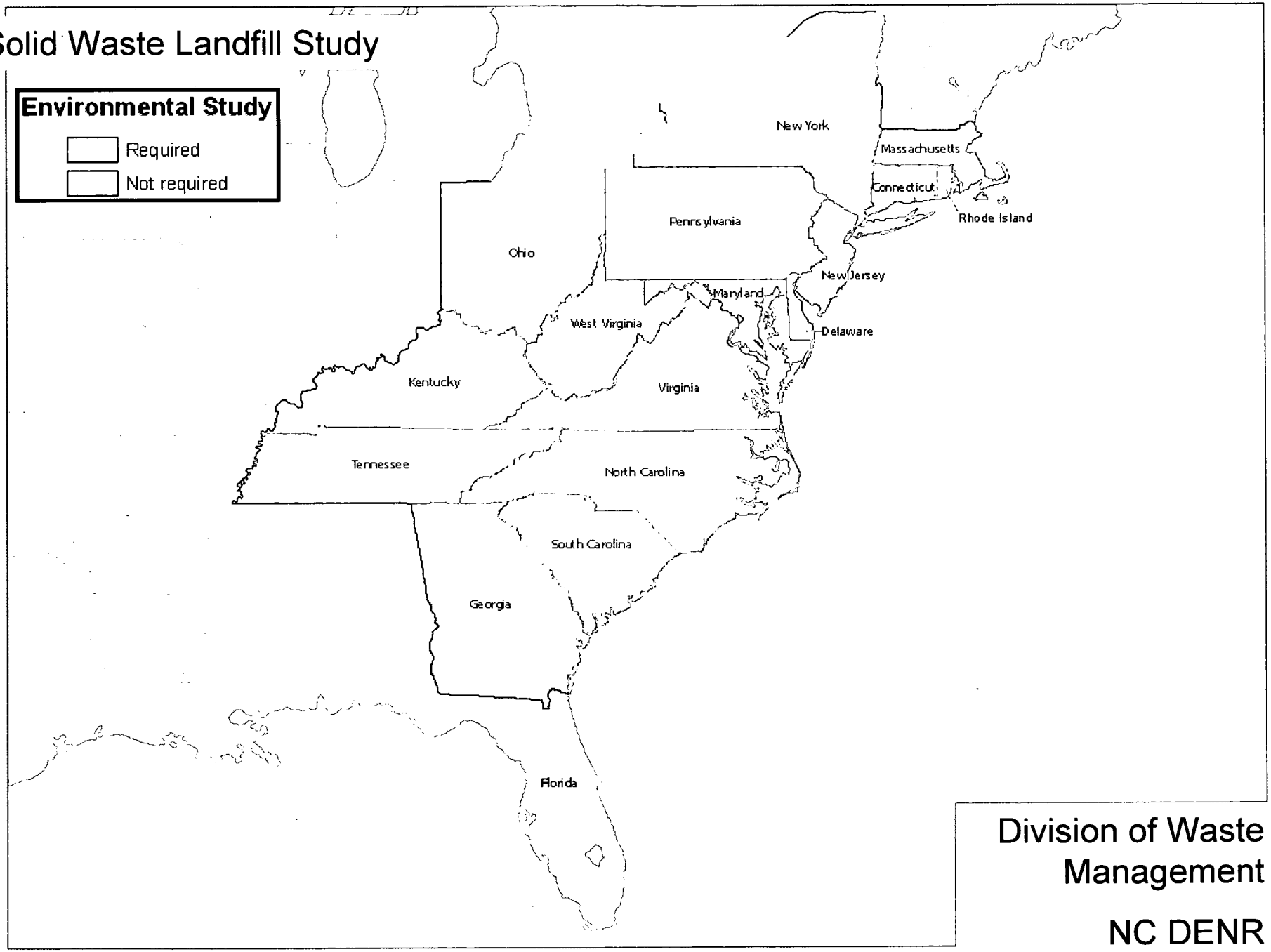


Division of Waste Management

NC DENR


STRICTER REQUIREMENTS >>
<< STRICTER REQUIREMENTS
Edge of Waste
Bottom of Liner
Property Boundary
SC TN FL MA NY
VA
CT
GA
KY
NC OH
PA
50 100 200 300 400 500 600 700 800 900 1000 ft
Streams
NC
GA VA PA NY
OH SC TN FL MA
KY
Residences
GA VA SC
KY
NC TN FL
PA
MA OH
Wells
GA
KY
NC VA TN FL
PA
OH CT
Bedrock
1
5
10
15 ft
NC ► ◄ SC, MD
◄ KY, MA, PA NC
◄ NY, CT
◄ GA
NY ► ◄ TN
◄ OH
Seasonal High Water Table
Division of Waste Management
NC DENR

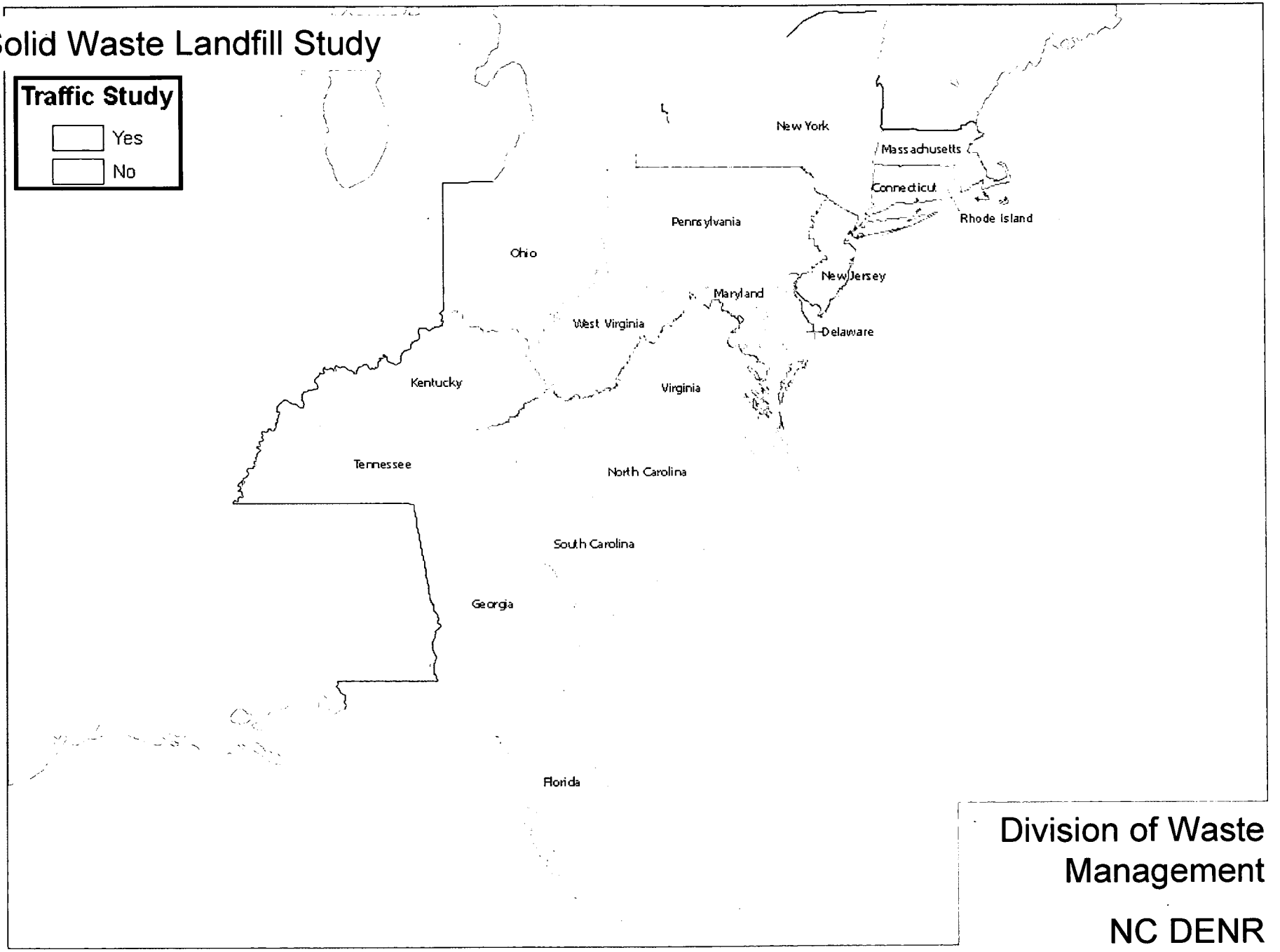
Solid Waste Landfill Study



Division of Waste Management

NC DENR

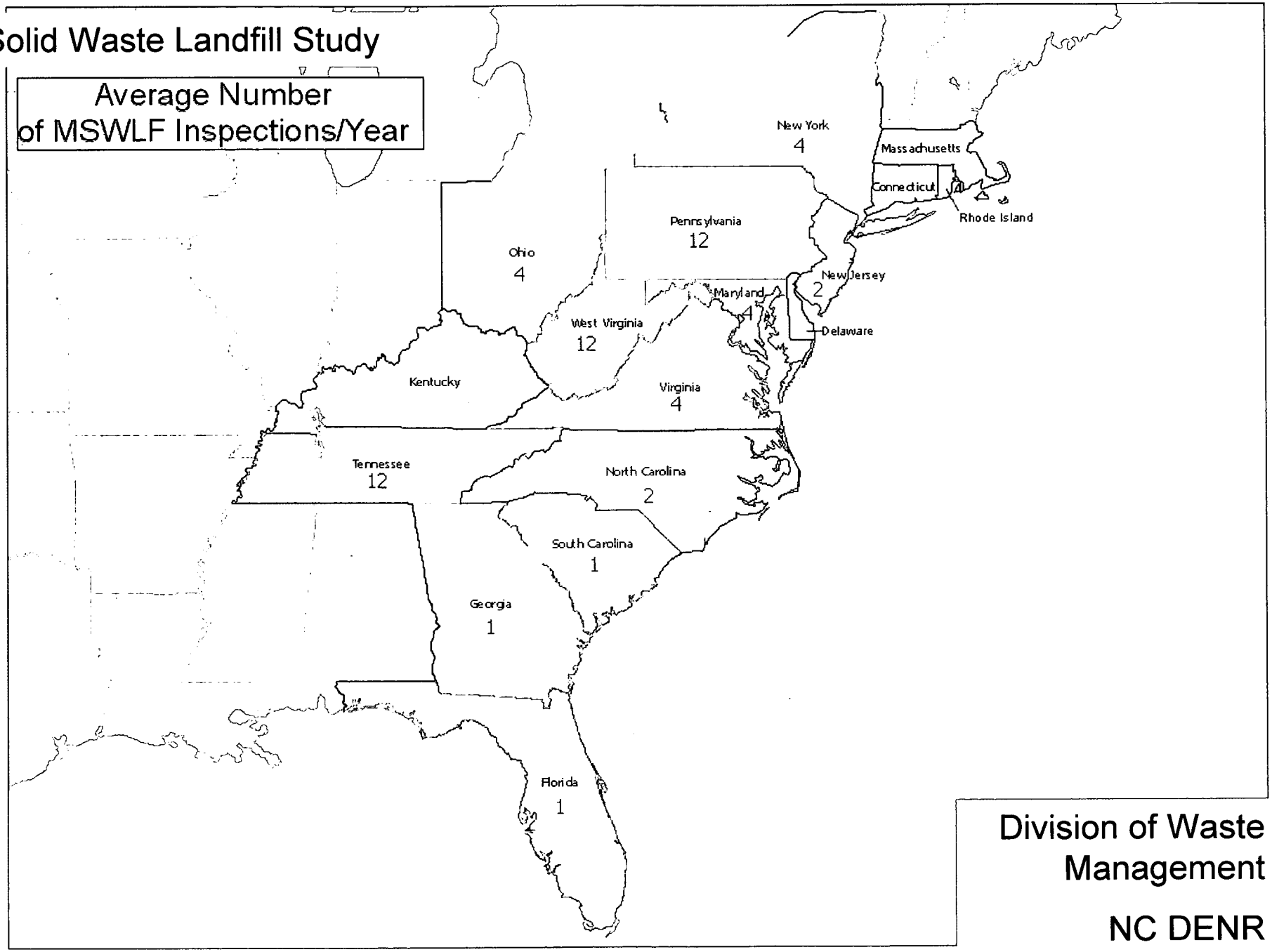
Solid Waste Landfill Study



Division of Waste Management

NC DENR

Solid Waste Landfill Study



Division of Waste Management

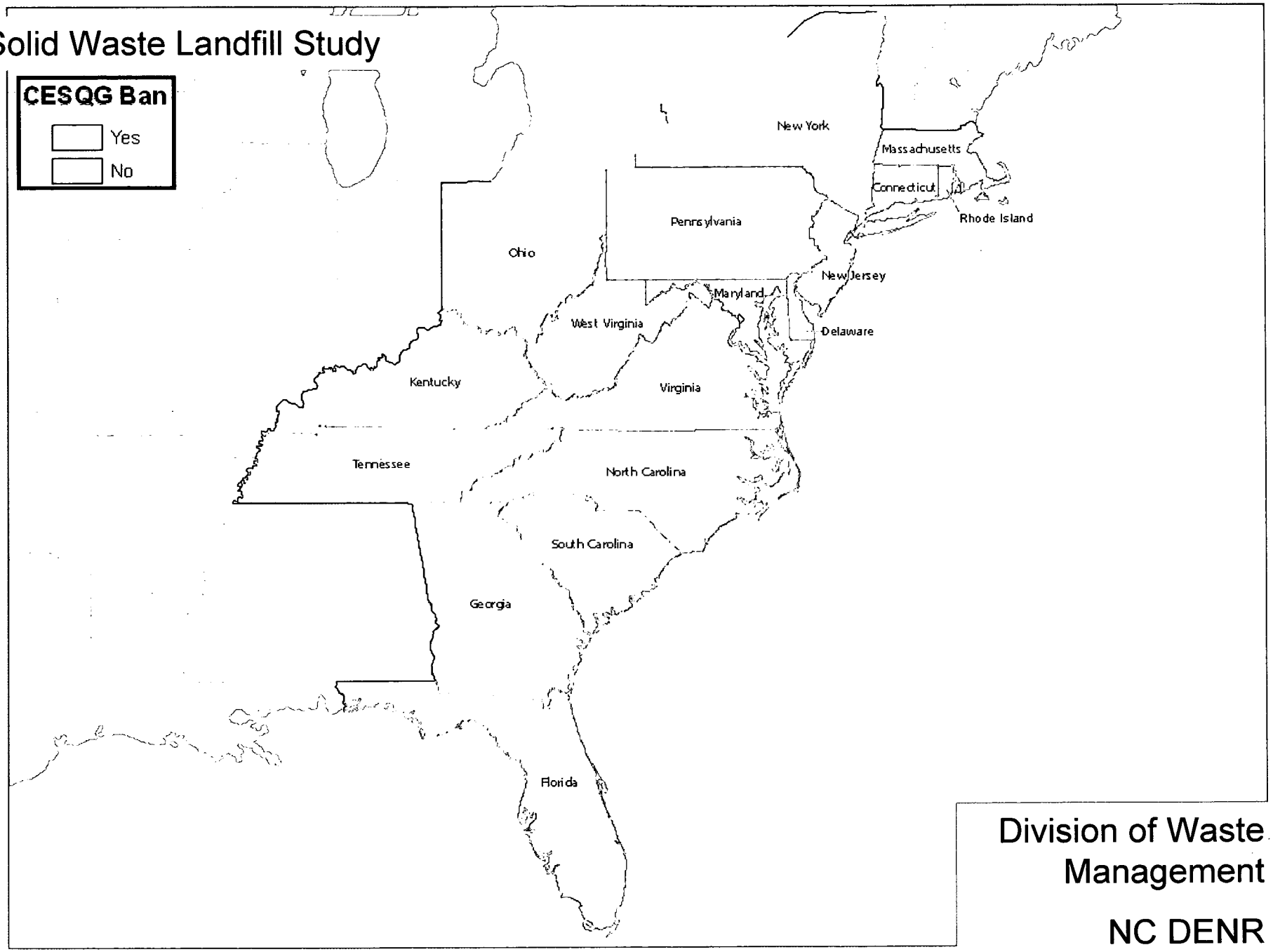
NC DENR

Solid Waste Landfill Study

State	Aluminum Cans	Anti-freeze	CESQG	LCID	Lead Acid Batteries	Oyster Shells	Pesticide Containers	Rigid Plastic Containers*	Sewage Sludge	Tires	Untreated Regulated Medical Waste	Used Oil*	White Goods	Wood Pallets*	Yard Trash
NC	X	X	X		X	X		X		X	X	X	X	X	X
CT			X								X				
DE													X		X
FL					X					X			X		X
GA										X					X
KY			X							X					
MD			X						X	X	X		X		
NJ			X												
NY					X										
OH			X							X			X		X
PA			X							X					X
RI	X		X	X	X			X		X	X		X	X	X
SC			X	X											
TN		X			X					X		X			
VA										X					
WV			X				X		X	X	X				

* Bans take effect 2009 in NC.

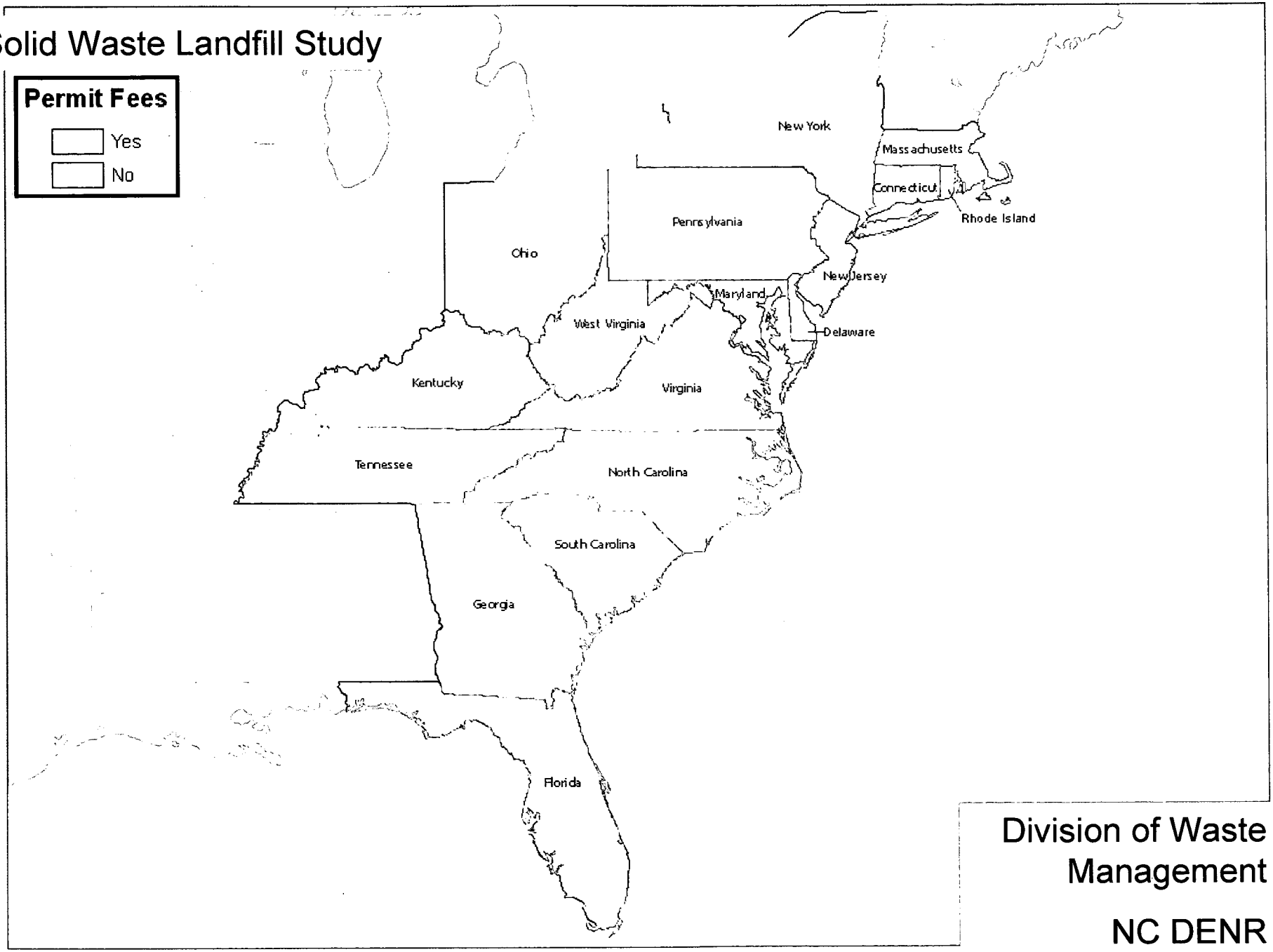
Solid Waste Landfill Study



Division of Waste Management

NC DENR

Solid Waste Landfill Study



Division of Waste Management

NC DENR

EXHIBIT J

IMPROVING OVERSIGHT OF LANDFILL CONSTRUCTION AND OPERATION IN NORTH CAROLINA

Based on a survey of sixteen eastern states and on the Division of Waste Management's experience regulating North Carolina landfills, DENR has identified a need for improvement in the following areas to better protect public health and the environment:

Adequate Financial Resources for Landfill Operation and Closure

The State must require that business entities applying for landfill permits demonstrate sufficient financial resources and accountability to responsibly construct, operate and maintain a landfill. Given the significant cost of cleanup if contamination is released from a landfill, the State must also ensure that all landfill operators have financial mechanisms in place to provide resources for remediation before a release of contamination actually occurs.

- Permits for landfills should be conditioned upon demonstration of full and sustainable financial assurance, accessible by the Department, for the costs of assessment and cleanup of a release, prior to its occurrence.
- Landfill permits should not be issued to business entities that shield all shareholders and partners from liability for improper operation and closure of the landfill.
- Specific criteria should be adopted to demonstrate that an applicant for a permit for a landfill has the financial ability to carry out the activities authorized by the issuance of a landfill permit.
- Notice should be required of any changes in ownership or corporate structure of an entity holding a permit for a landfill. Authorization should be given to DENR to require new financial qualification and environmental compliance reviews based on those changes and to modify or revoke the permit based on the outcome of the reviews.

Protection of Communities and Environmentally Sensitive Areas

Existing statutes do not require a comprehensive study to evaluate the potential effects of a landfill on nearby communities and on environmentally sensitive areas. The State must require that applications to construct large landfills be given the same level of environmental review as that given to projects requiring an Environmental Impact Statement under the North Carolina Environmental Policy Act.

- An environmental document that meets the minimum requirements for an environmental document under the N.C. Environmental Policy Act (SEPA), including a traffic study, should be required for every large landfill that has the

potential for regional or statewide impacts -- whether the landfill is constructed by a public or private entity.

- Requirements for siting, design, and operation of landfills should be revised to reflect advances in technology and lessons learned by the state regulatory program; reduce potential impacts to more environmentally sensitive areas of the state; anticipate projected increases in waste disposal as a result of population growth; and to ensure that North Carolina citizens benefit from a level of protection of public health and the environment in the operation of its landfills equivalent to that afforded to citizens of other states.

State Franchise Review for Large Landfills

A state franchise must be required for landfills that have extended service areas to insure that both regional and statewide impacts are considered in approval of the franchise.

- A local government's authority to issue a landfill franchise should be limited to franchising the capacity required to meet waste disposal needs within the county where the landfill is to be located. Landfill permits proposed for service areas extending beyond the county in which the landfill will be located should be considered by the State with input from local governments within the proposed service area. State franchise decisions should consider factors such as the need for additional waste disposal capacity; consistency with North Carolina's solid waste management plan; the applicant's ability to ensure compliance with state law affecting solid waste disposal (including bans on disposal of certain types of waste in landfills); and the impact of landfill operation on resources of regional and statewide significance.

Improved Oversight of Landfill Operations

Given the increasing number and complexity of landfill permit applications, the State needs additional resources for permit review and for oversight of landfill operations. The State must also ensure that applicants for landfill permits have a good environmental compliance history.

- A permit and annual operating fee should be imposed on solid waste management facilities to strengthen the regulatory program in the Division of Waste Management.
- In making a permit decision, the compliance history review should extend to every party that would be considered an owner or operator of the landfill under state law. DENR should also be authorized to deny the permit application based on the applicant's total environmental compliance history, including environmental violations not directly related to landfill operation.

Cleanup of Soil and Groundwater Contamination

Past solid waste management practices can present a risk to public health and the environment. The State must provide a source of funding for cleanup of soil and groundwater contamination associated with the hundreds of old unlined landfills across the State. The State must also identify resources to cleanup other sites contaminated by hazardous substances.

- A statewide surcharge for each ton of waste disposed should be placed at landfills to support activities necessary to manage the environmental and public health impacts of solid waste disposal, including cleanup of old landfill sites where there is contamination and cleanup of sites contaminated by hazardous substances where there is no financially viable responsible party.

Municipal Solid Waste Landfills in North Carolina

Greg Peverall
Solid Waste Management Services
336-723-3551
2515 Greenbrier Road
Winston-Salem, NC 27104

Landfills in North Carolina

- Industry committed to reducing solid waste through various initiatives, including recycling
- Landfill locations decided at the local level
- Process involves public input and control
- Modern lined Subtitle D landfills are safe

Current Process

- Modern landfills located in open and public manner
- Local authorities control location and size of new landfills
- Opportunities for public comment and input

Federal Regulations

Federal law created regulatory structure that governs solid waste management in the United States.

Congress clear state and local governments, not the federal government, had final control over solid waste management.

Federal Regulations

- Federal laws required the US EPA to create regulatory structure for managing solid waste: Subtitle D regulations.
- North Carolina enacted a solid waste management program pursuant to the federal law.

Local Government Permitting

- Subtitle D landfill permitting begins at the local level many years before permit applications are submitted to the NC DENR.
- Cities and counties have authority to approve or deny the construction and operation of the Subtitle D landfill.

Local Government Permitting

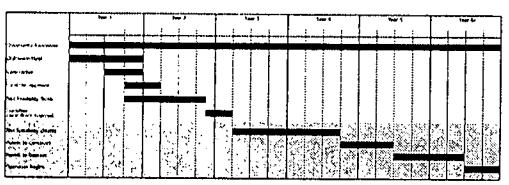
Local approval and permitting includes the following steps:

1. Franchise Ordinance
2. Franchise (Preliminary) Agreement and site identification
3. Zoning and Land-Use Approval
4. Local Government Approval and Final Franchise

Local Government Permitting

- Local permitting process includes at least 7 to 10 public meetings/hearings along with additional public education sessions
- Local permitting costs to private industry can range from $1 million to $3 million
- Many landfill projects do not get past this process (i.e., Franklin, Halifax, Forsyth, Guilford, Duplin, Green, Chatham, Union, Surry and Burke)

Municipal Solid Waste Landfill
Development Timeline Scenario



Local Government Permitting

- Franchise Statute Amendments enacted in 2006 Session to add flexibility and clarity to the franchise process
- Amendments provided that franchise awarded only after public notice of the location of the landfill

Permit application to NC DENR

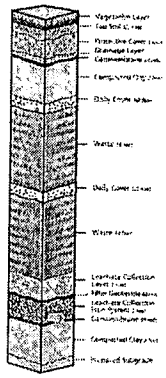
- After local government approval, Site Feasibility Study and Permit Application submitted to Division of Solid Waste
- Permit review involves exhaustive evaluation by state and federal agencies, including Water Quality, Fish and Wildlife, Corps of Engineers, Dept. of Interior

Landfill Design

Environmental safeguards in Subtitle D regulations provide:

- Location restrictions
- Protective liner systems
- Liquid collection systems, surface water management and groundwater monitoring
- Advance technology to manage methane
- Final caps

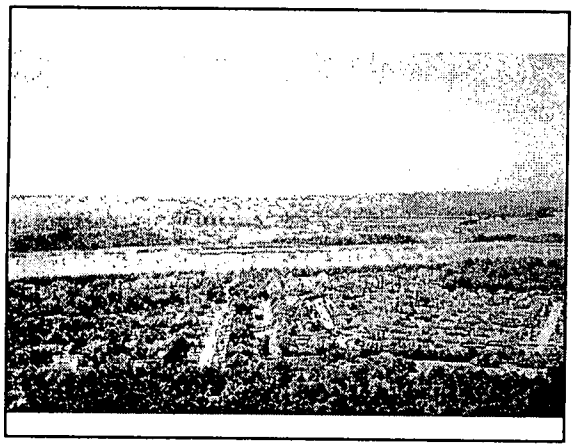
Typical Modern Landfill
Cross Section

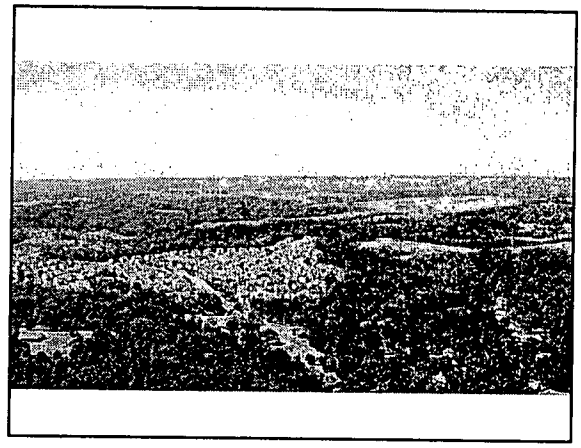


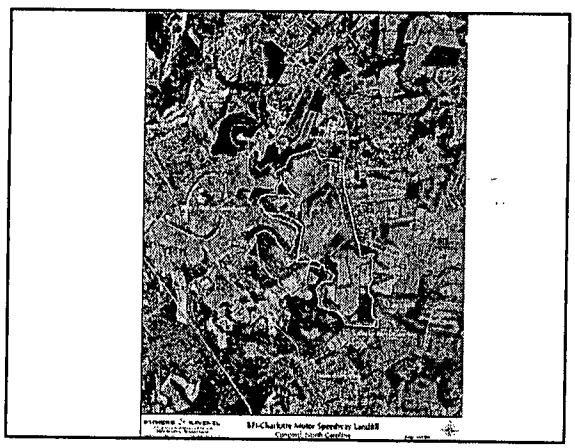
Landfill Design

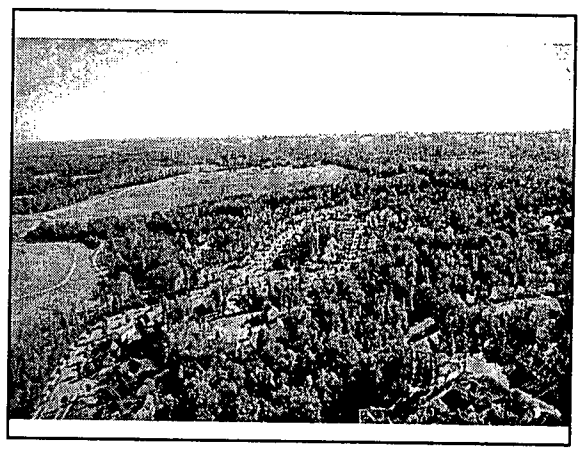
Additional environmental safeguards include:

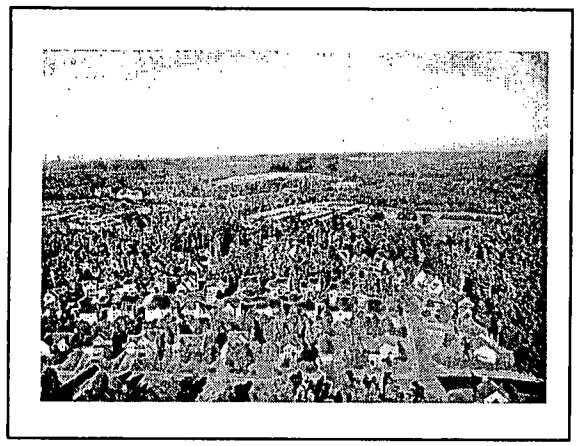
- Long-term monitoring after closure
- Financial Assurance
- Operational qualifications/restrictions

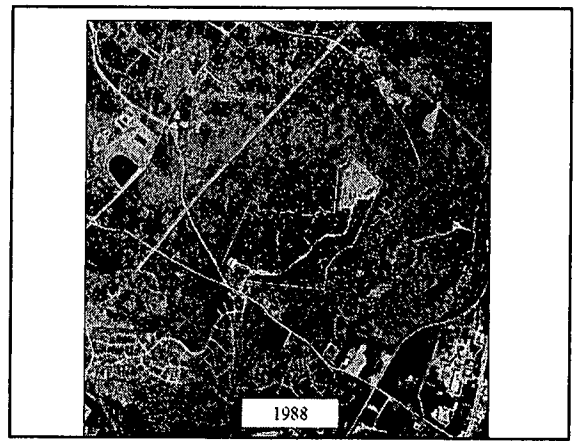








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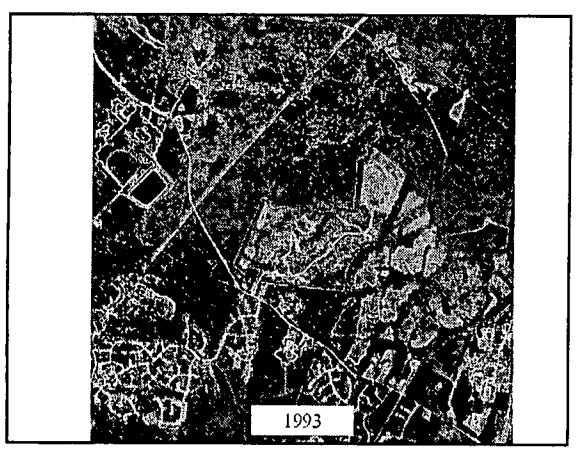
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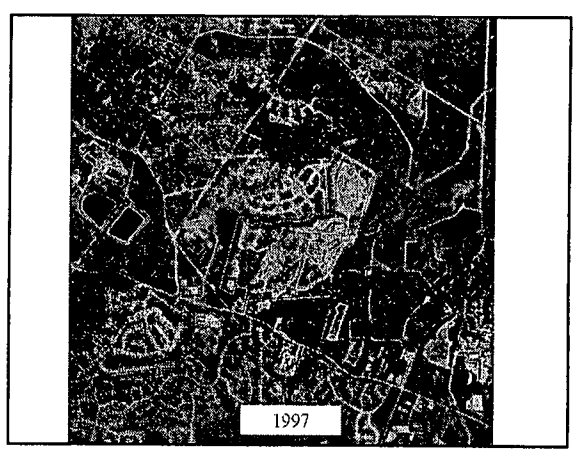
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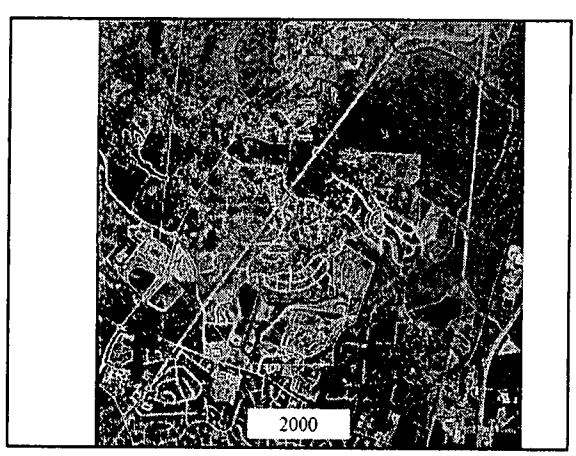
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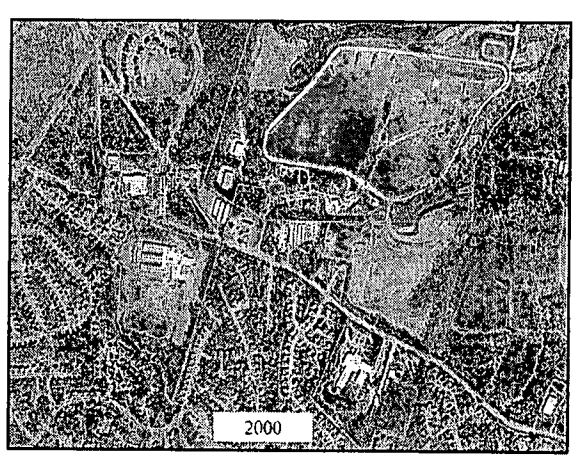
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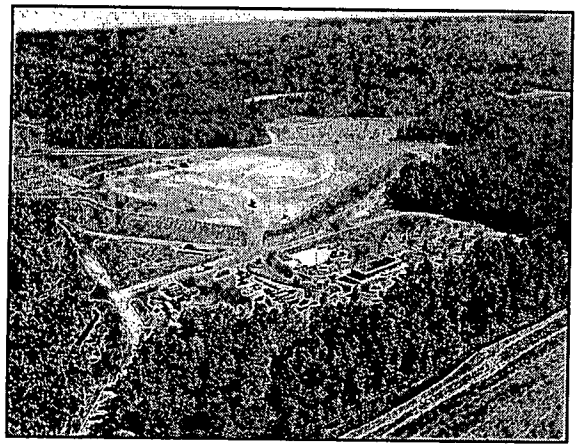
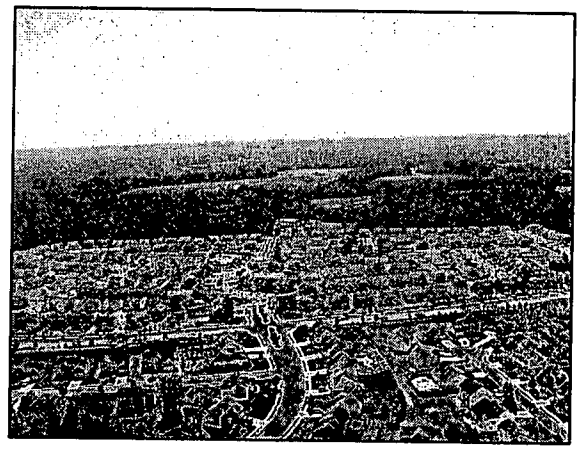
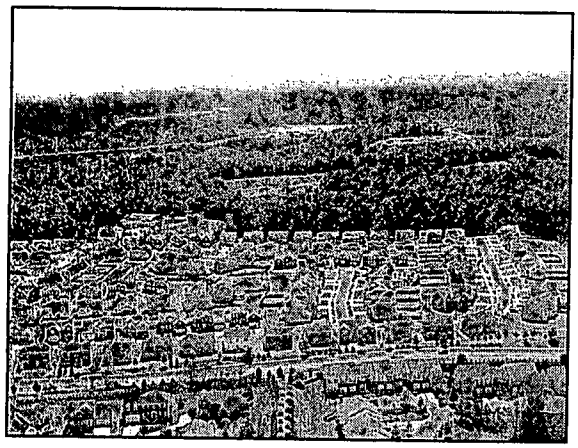
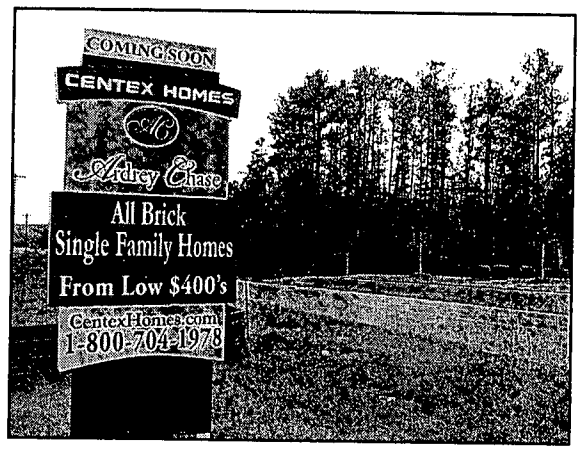








Private Solid Waste Industry in NC

- Annual pay roll over $152,000,000
  Over 3,400 jobs
- Capital In vestment of over $600,000,000
- Annual ho st fees over $6,700,000
- Prope rty tax paid in exce ss of $4,000,000

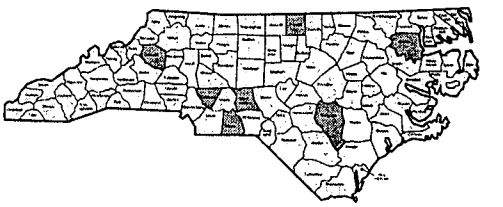
MSW Landfills in North Carolina

- The pri vate solid waste industry operates 7 of the 40 modern lined landfills located in North Carolina
- Bertie
- Samps on
- Pers on
- Anson
- Montgom ery
- Caba rrus
- Cald well

Privately operated Subtitle D landfills

- Private facilities in NC serve principally NC customers
- Represents 40% of the garbage managed by NC

North Carolina Privately Operated
Municipal Solid Waste Landfill



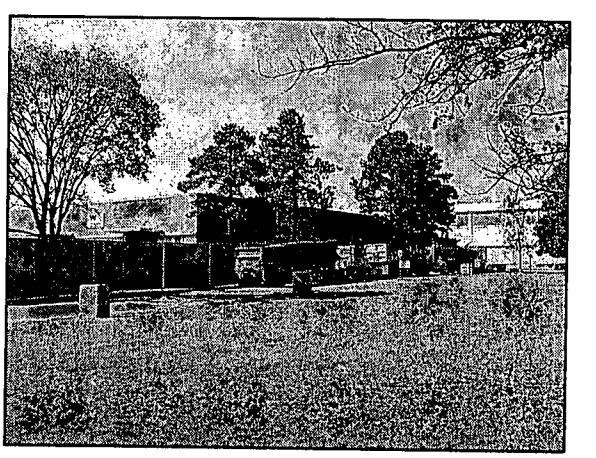
Private Regional
Municipal Solid Waste Landfill

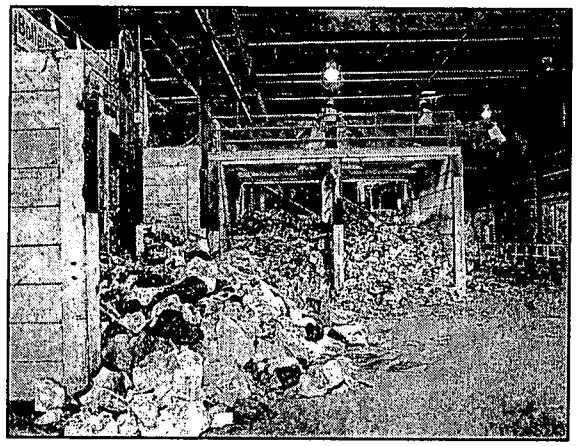
North Carolina Proposed Landfill

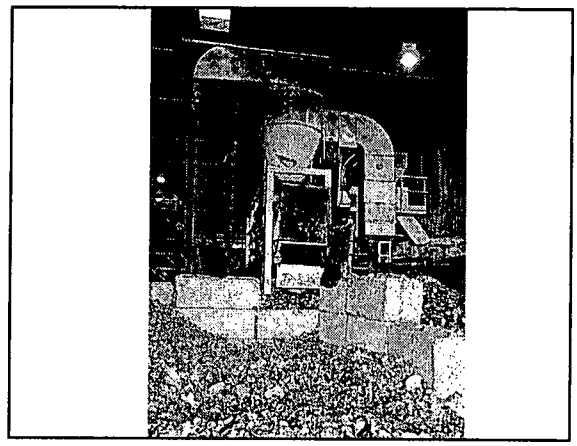
- Municipal Solid Waste
- Construction & Demolition
- Industrial Landfill

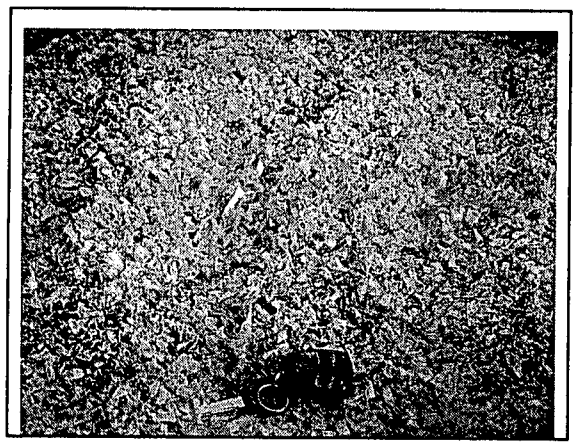
Recycling

- Members of the Solid Waste Industry are some of the largest recyclers
- Major private recycling facilities in NC, including, Raleigh, Conover, Winston-Salem, New Bern, Troy
- Examples, Raleigh MRF 5,200 tons/month
  Uwharrie MRF 1,000 tons/month









Industry commitment

- Industry committed to providing integrated services to assist in the reduction of the waste stream
- No matter how much recycling and source reduction, there will still be a need for Subtitle D landfills for the foreseeable future

Landfill Gas Program

- Twelve North Carolina landfills operate landfill gas (LFG) recovery projects
- The majority of these projects use LFG for heating and steam
- In four cases, the gas is used to generate electricity with a total of 12MW (power needs for @ 9,000 homes).

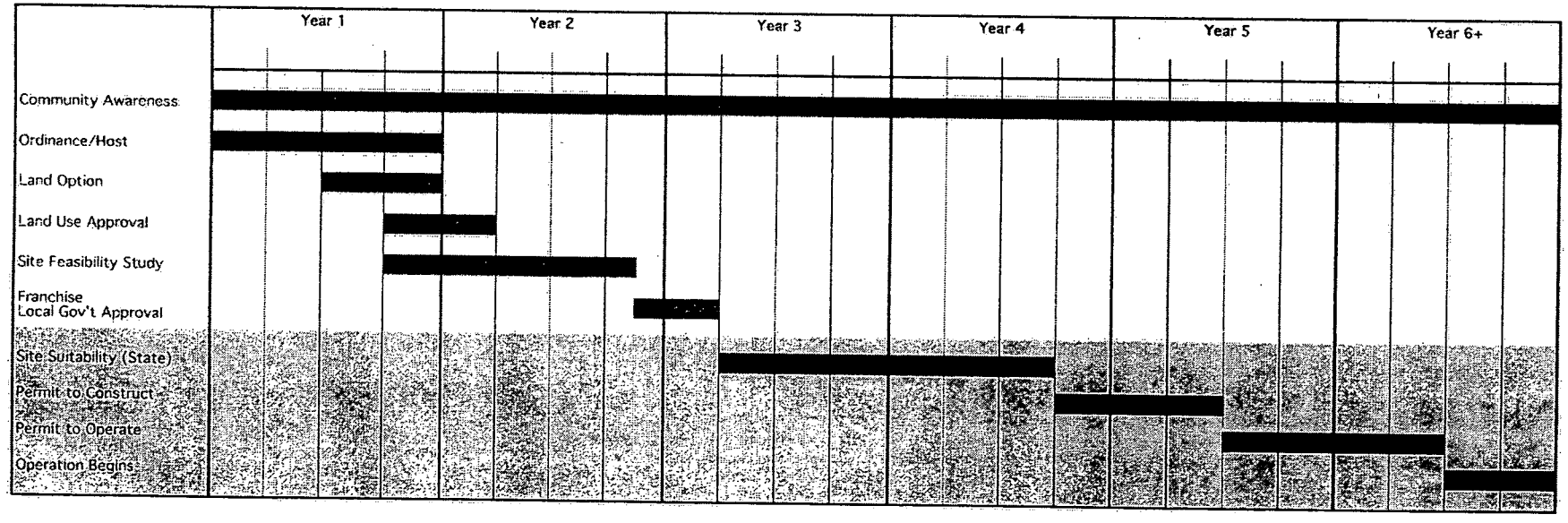
Landfill Safety

- The new modern Subtitle D Landfill is safe
- In the US, no modern Subtitle D landfill has been required to fund any clean-up costs associated with leaks or failures
- In NC, no base liner leaks have been detected from any of the 42 lined facilities permitted since 1990

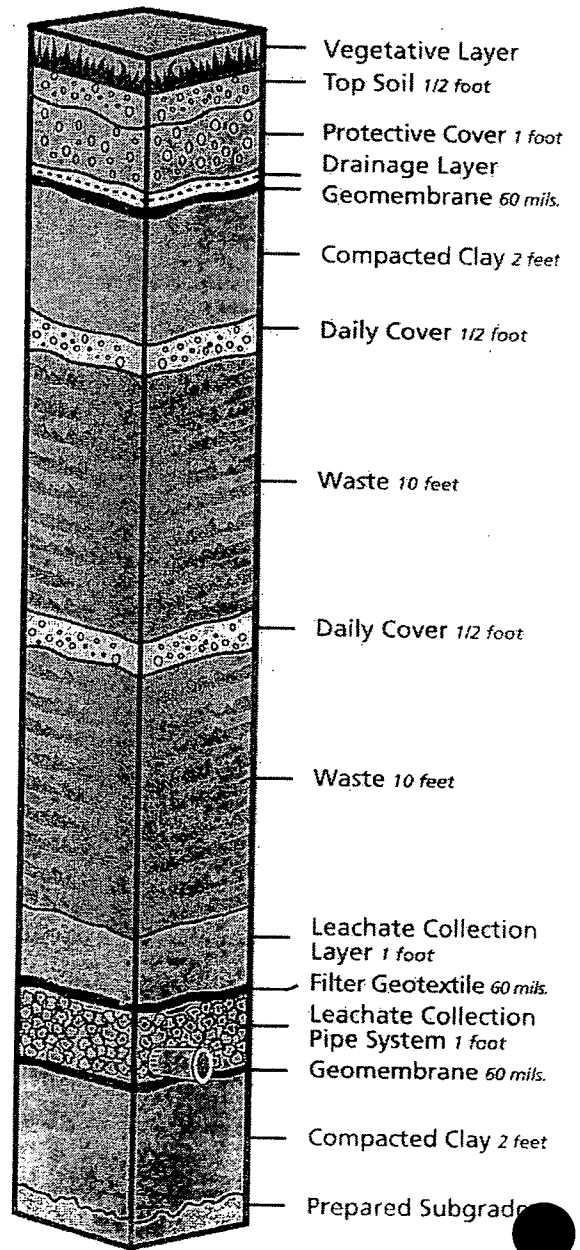
Summary

- Industry is committed to reducing the amount of solid waste going into landfills
- The public controls the current process for locating landfills
- Modern lined landfills are safe

Municipal Solid Waste Landfill Development Timeline Scenario



Typical Modern Landfill Cross Section

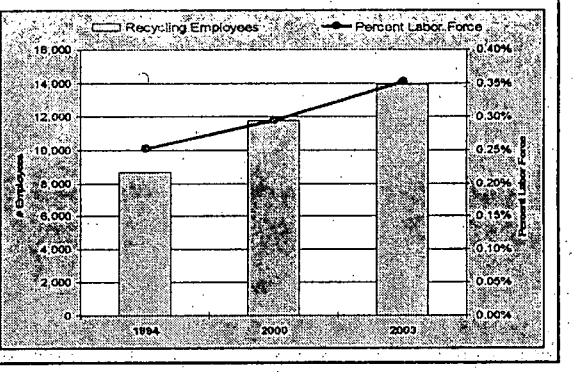


Status of Recycling and Recycling Markets in North Carolina

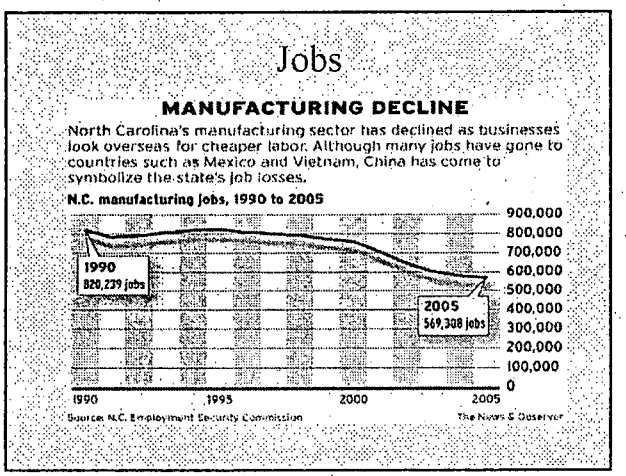
Environmental Review Commission

1/17/2007

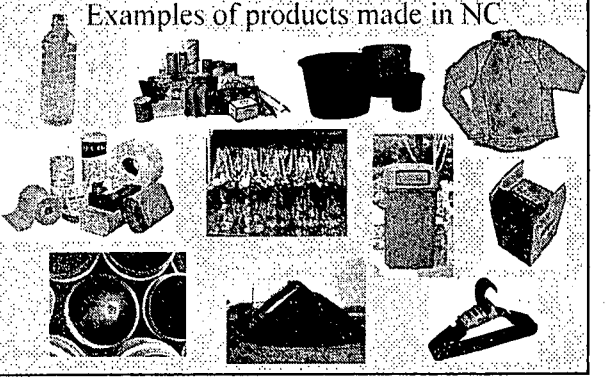
Growth in Recycling Jobs in NC



Jobs



Recycling Essential to NC Manufacturers – Examples of products made in NC



Problem for Economic Growth: Global Warming

- Nicholas Stern, former World Bank chief economist and currently head economist with the British Treasury:

Unabated climate change will cost as much as 20 percent of the global GDP and could lead to an economic upheaval on the scale of the 1930s Depression.

Recycling Markets

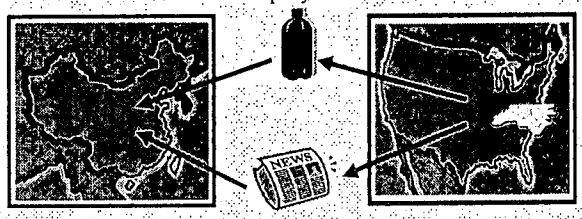
- Demand for recyclable materials is steadily rising.
- Manufacturers relying increasingly on recycled commodities, in the U.S. and around the world.
- The number of recycling companies in North Carolina is growing and able to handle more material.
- Rapid growth in some market areas – e.g., electronics, plastics.
- Slower growth in other areas: e.g., construction waste.

Role of Waste/Recycling in Global Warming

- Landfills account for 37% of human-generated methane emissions - methane 21% more effective at trapping heat than carbon dioxide.
- Recycling reduces greenhouse gases through landfill diversion, and through energy and resource conservation.
- Local government recycling efforts in NC reduce the equivalent greenhouse gas emissions of over 400,000 cars/year.
- Increasing local recycling tonnage by 25% would remove the equivalent of another 100,000 cars

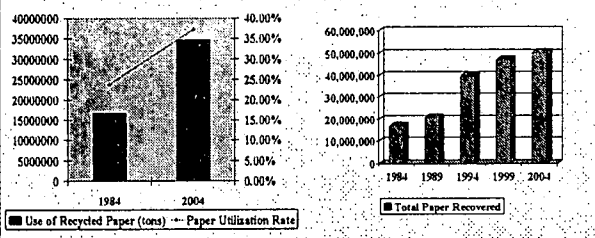
China Consuming More Recyclables

- 37% of recycle PET bottles going to China
- 400 million lbs. per year



- Over 40% of China's imported recovered paper comes from the U.S.
- $100 million in paper exported to China from U.S. ***per month***
- China building 16 million tons of recycled paper capacity by 2010

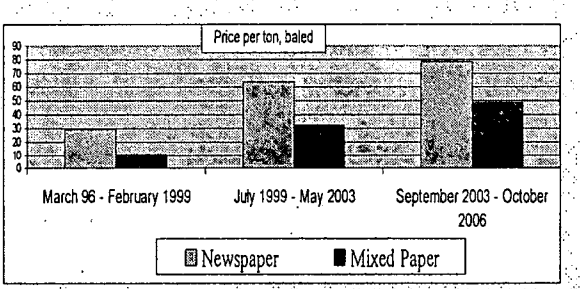
The Remarkable Story of Paper



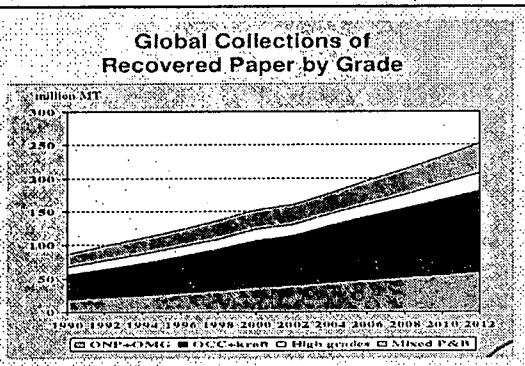
- 78 percent of U.S. paper mills rely on some amount of recycled fiber

Recycling Market Prices since March 1996

Prices per ton received by major processors in NC from mills



Global Collections of Recovered Paper by Grade



Global consumption of recycled paper expected to rise steadily – increase of 25% in next 6 years.

Data courtesy of Moore & Associates

Every year, North Carolina landfills over *1.26 million tons* of recyclable paper

Estimates of disposed tonnage:

Newspaper	123,000
Cardboard	300,000
Magazines	65,000
Office Paper	248,000
Mixed Paper	460,000
Telephone books	18,000
Milk Cartons	16,000
Books	31,000

- Approximate market value of disposed paper: ***$50,000,000/year***

Aluminum

- Aluminum industry has heavy presence in southeast – Novelis, Wise, Alcoa.
- Industry **needs** 20% more material, or 150,000 tons of additional cans - over 6 times what we dispose in NC.
- Market value of what we dispose in NC:

$20 million/year

Electronics

- One of fast growing part of the solid waste stream – approximately 77,000 tons generated per year.
- Some counties running very good electronics collection program – increasing public interest in recycling options.
- Overall, collection programs growing slowly - limited by funding.
- Dell/Goodwill collection program helpful but limited to computers and to western part of state.
- State funding source would accelerate collection dramatically and feed expanding markets.

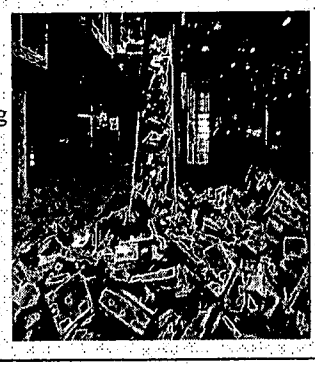
Plastics

- North Carolina home to largest mixed bottle recycling plant in U.S.
- North Carolina hosts the second largest HDPE recycler in the U.S.
- Many other recyclers of post-consumer and post-industrial plastics in North Carolina.
- Plastics recycling involves skilled labor and sophisticated technology, like optical sorting.
- We still throw away 80% of our plastic bottles in North Carolina – market value approx:

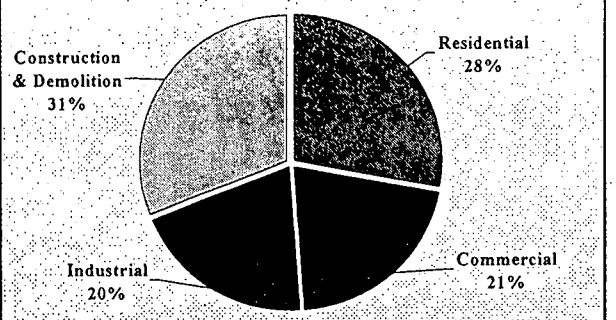
$23 million/year.

Electronics

- Markets for electronics are excellent.
- Over 30 companies in North Carolina collecting and/or processing electronics.
- Investments include new $4 million shredder at GEEP in RTP.
- Recyclers need more material

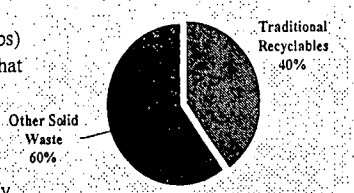


Sources of Waste in NC

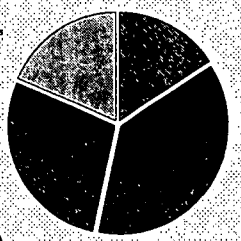


Household Generation

- Estimated tons of solid waste generated per household: .94 (1,880 lbs)
- % of household waste that are recyclables: 40%
- Recyclable lbs. per household: 745
- Average program is only collecting 226 lbs per household served



North Carolina Waste Diversion Potential



Disposables
Diapers, fines and misc. organics, treated lumber, etc.

Traditional recyclables
Paper, bottles & Cans, etc.

Materials with some diversion potential
Furniture, Some C&D, some industrial waste, etc.

High Potential Materials
Wood waste, Food waste, electronics, some C&D, film plastics, etc.

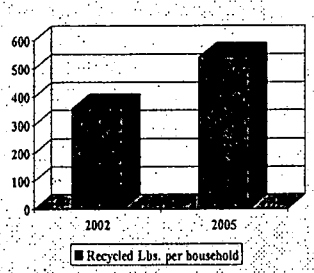
With the right programs, incentives, and funding in place, over half of North Carolina's waste stream is divertable from disposal.

Local Government Recycling Efforts

- City and county programs performing steadily, but most could be improved.
- Improvements needed include:
  - increasing participation
  - collecting a wider range of materials
  - modernizing collection systems
- Local programs need motivation/incentives to improve.

Municipal Success Story: Brevard

- Suspended program in 2003; reinstated in 2004
- 2005 recycling rate of 540 lbs/household – 50% greater than in 2002.
- **$22 per-ton cheaper to recycle than to collect and dispose of solid waste.**

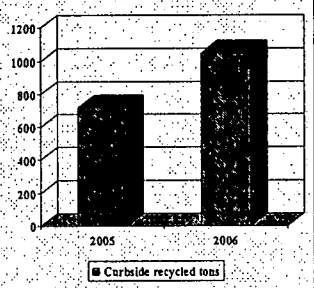


Recycling success in rural NC

- Study completed for Perquimans, Chowan, and Gates (PCG) counties showed ***recycling saves the counties a net $79 per ton.***
- 10 of top 15 recycling counties in NC are rural – Dare, Macon, Swain, Alleghany, Watauga, Craven, McDowell, Iredell, Transylvania, Stokes.
- Access to markets for rural counties has improved.

Success Story: Kernersville

- Program changes in 2005:
  - Added materials
  - Began commingling, using carts
  - Conducted broad public education campaign
- Household recycling tons **increased 45% from 2005 to 2006**



Options for Increasing Recycling in North Carolina

- Enforce the current and pending material disposal bans.
- Enact additional bans if enforcement is improved.
- Increase funding for recycling grants and public education.
- Set and enforce performance standards for local recycling programs.

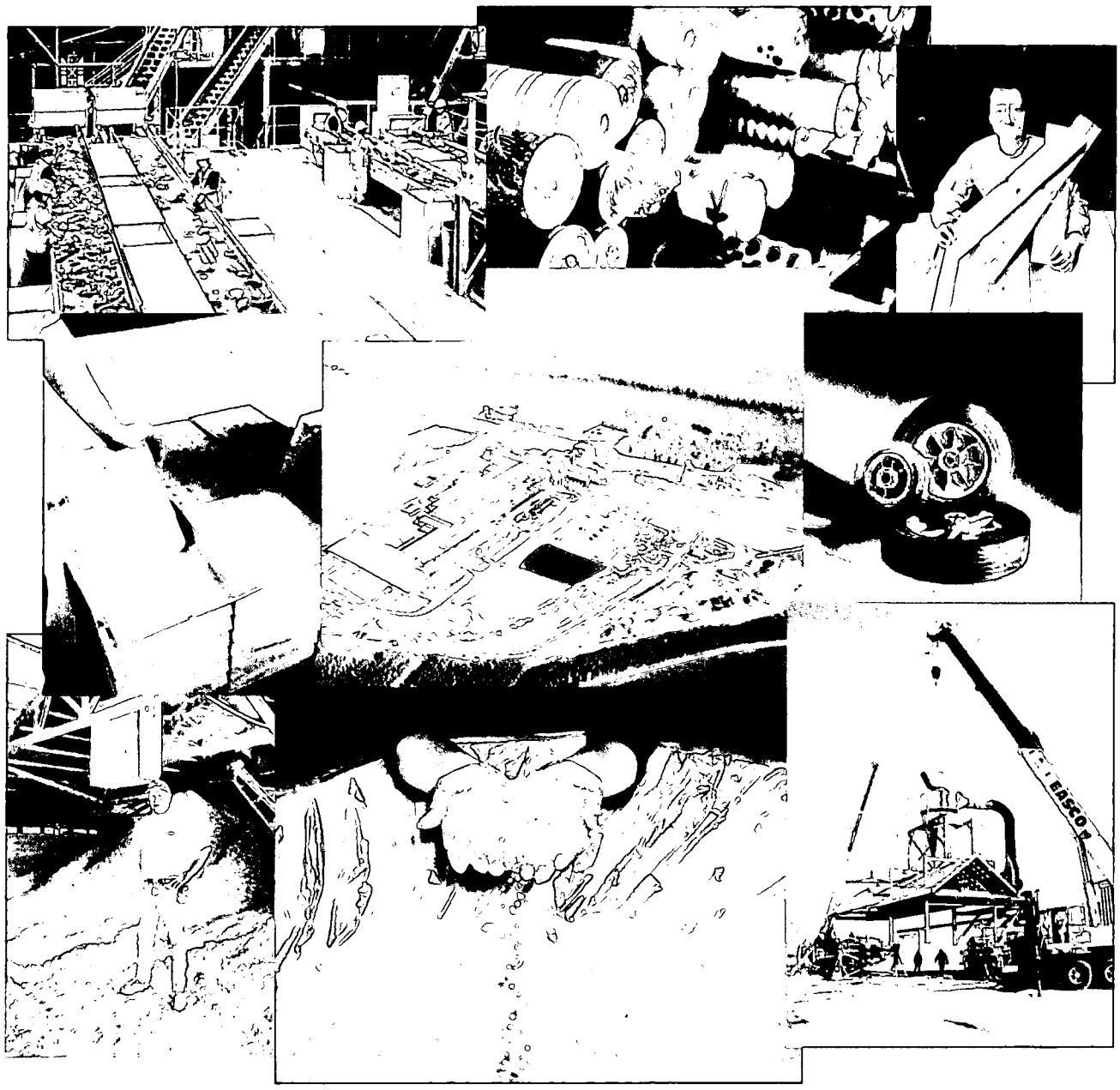
Options for Increasing Recycling in North Carolina

- Require and/or provide incentives to private haulers to offer recycling services to customers.
- Provide strategically targeted tax credits to increase the diversion of large waste streams, such as food and wood wastes.
- Enact an advanced recycling fee on electronics and establish a comprehensive statewide recovery system.
- Increase the commitment of citizens, governments, businesses, institutions, builders, and industry to recycling.

EXHIBIT M

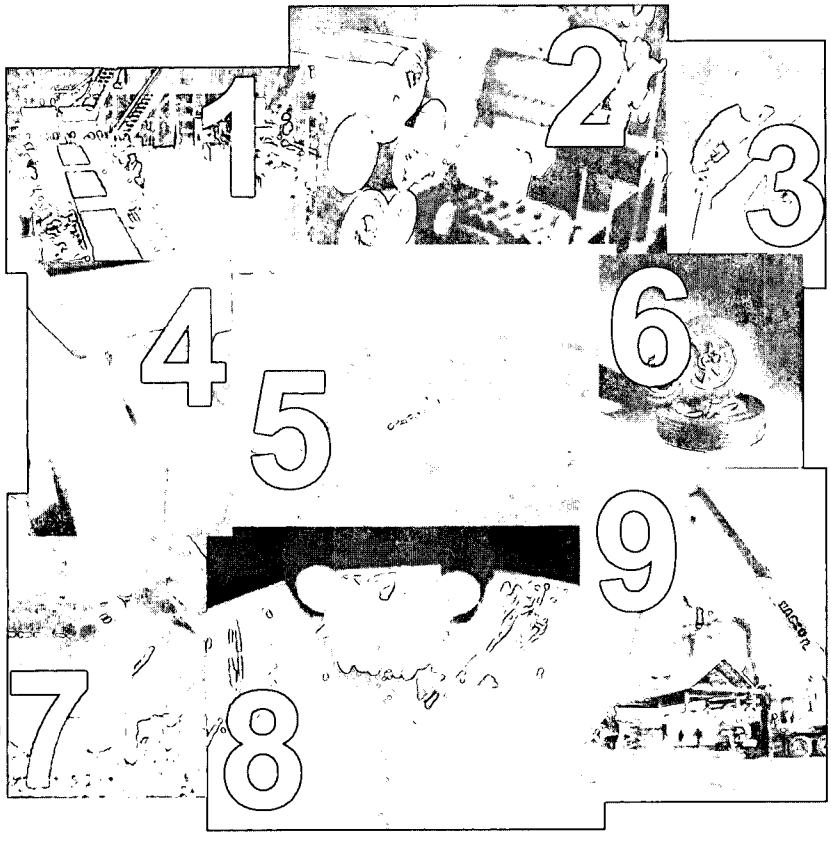
Recycling Means Business!

The Impact of Recycling on North Carolina's Economy



N.C. Department of Environment and Natural Resources
March 2005

Recycling Means Business!



From the cover:

1 - Recycle America Alliance (p. 46)
2 - Habitat ReUse Center (p. 32)
3 - Oaks Unlimited (p. 41)
(photo courtesy of *The Mountainer*, Waynesville)
4 - Elizabeth City Glass Inc. (p. 25)
5 - Nucor Corporation (p. 40)
6 - Roll-Tech LLC (p. 47)
7 - Union Gypsum (p. 53)
8 - Envision Plastics (p. 26)
9 - Scotland Neck Heart Pine Inc.(p. 48)

Recycling Means Business! is published by the N.C. Recycling Business Assistance Center, a program of the Division of Pollution Prevention and Environmental Assistance of the N.C. Department of Environment and Natural Resources.

Michael F. Easley, Governor, North Carolina
William G. Ross Jr., Secretary, Department of Environment and Natural Resources

Division of Pollution Prevention and Environmental Assistance
For more information call (919) 715-6500 or (800) 763-0136, or write to DPPEA, 1639 Mail Service Center, Raleigh, NC 27699-1639.

NCDENR

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DPPEA-FY-04-14. 1,200 copies of this public document were printed on recycled paper at a cost of $4,200.00, or $3.50 per copy.

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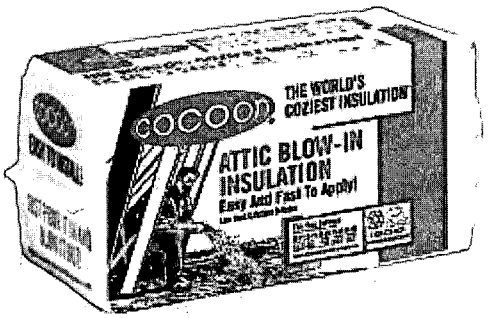
Recycling Means Business!

Introduction



The insulation in your attic. A glass pickle jar in your cupboard. The pots your flowers came in. The cardboard box in your storage closet. The detergent bottle in your laundry room. The 1,000-piece puzzle you never completed. The red-dyed mulch you put under your trees. The soft drink bottle in your fridge. The litter in your kitty's box. Just about any piece of metal you touch. The newspaper you read this morning. The carpet under your feet. The tissue in the bathroom. The cereal boxes in the pantry. The wheels that roll your garbage cart. The composted topsoil in your garden.

What do all these things have in common? The journey of these products to your home started in your community's recycling program and North Carolina businesses helped make it happen. An amazing array of companies across the state help turn discarded materials into everyday things, all the while creating jobs for our citizens and investment in our economy. In fact, North Carolina's "recycling economy" is one of the fastest growing job engines in the state. The recycling economy in North Carolina is dynamic and a picture of diversity. It includes:

- Fortune 500 firms operating major manufacturing facilities in rural counties.
- A computer recycler bringing life and jobs back to an old textile mill.
- A plastics recycler using sophisticated, patented technologies to sort processed materials.
- A fast-growing compost company providing beneficial soil amendments to farmers in eastern North Carolina.
- A woman-owned collector and processor of commercial recyclables serving Triangle businesses.
- A small, family-owned paper processing business recently passed down to the second generation.
- A manufacturer of fine wood flooring who has integrated recycled materials into a new product line.

How can we help our fellow North Carolinians whose livelihood depends on recycling? The first answer is easy – recycle! These companies need material, and it does them no good if it's in a trash can or Dumpster. Empty bottles and cans, old computers, wooden pallets and discarded office memos buried

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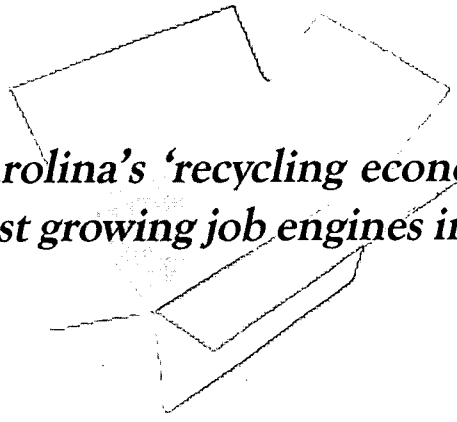
30 feet in a landfill rob our recycling employers of valuable feedstock. Every household, business, industry and government agency in North Carolina can help these companies grow and hire more people by making a commitment to recycle as much material as possible.

North Carolina can also help create and maintain a business climate that supports the success of recycling companies. Local communities and the state can help with policies, programs and incentives that drive materials out of the waste stream and into the hands of recyclers. Some recyclers struggle to compete against relatively low tipping fees to get materials. Access to capital can be improved. Maintaining a strong network of technical, economic development and business planning assistance can give companies a strong foundation for expansion and improvement. A need exists to raise public awareness of the recycling economy. Waste generators, decision-makers and the public should know about the economic development and waste diversion opportunities that recycling companies offer. Ultimately, what many recyclers need most is more supply, and it will take a concerted and broad-based effort to keep materials flowing their way.



"North Carolina's 'recycling economy' is one of the fastest growing job engines in the state."

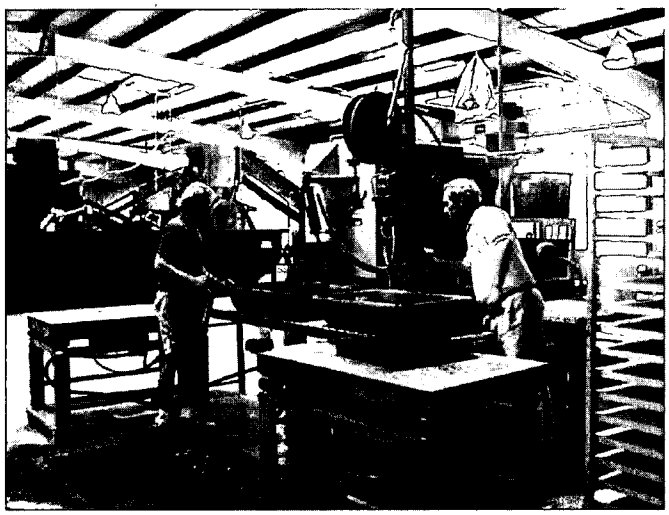
This document provides a snapshot of the many faces of North Carolina's recycling industry. The 42 companies featured here are just a few of the literally hundreds of recycling firms in the state. They demonstrate the idea that protecting the environment and creating jobs can be accomplished together. What's good for the planet can also be good for the economy, and North Carolina's recycling companies are poised to make North Carolina a national leader in making it happen.

Recycling Means Business!

Recycling's Job Impact

The N.C. Division of Pollution Prevention and Environmental Assistance recently conducted a survey to track recycling's impact on jobs and the North Carolina economy. This survey follows up on a similar effort conducted in 1994 and documents the growth of the recycling industry over the past decade. (A copy of the full study can be found at: http://www.p2pays.org/ref/34/33911.pdf.) Some of the findings include:

- Recycling employs approximately 14,000 people across the state.
- In 1994, recycling employed 8,700 people, rising 60 percent in 10 years to reach its current level.
- Recycling jobs as a percentage of the state's total employment has increased 40 percent in 10 years, from 0.25 percent of the total labor force in 1994 to 0.35 percent in 2004.
- Fifty-four percent of the businesses surveyed forecast creating more recycling-related positions in the next two years.
- Recycling employs more people than the bio-tech and agricultural livestock industries in North Carolina.
- The number of companies listed in the state's recycling markets directory has increased from 306 in 1994 to 532 in 2004, a 74 percent increase.
- Recycling companies in North Carolina range from Fortune 500 manufacturers to single proprietary, family-owned businesses, handling hundreds of different types of materials and products. Some of these companies now occupy old textile factories and other industrial plants abandoned by some of the state's more traditional industries.



Elizabeth City Glass employees transform glass bottles into patio pavers and other valuable products.

Recycling Means Business!

Recycling Means Business!

Jackson Paper employee monitors master controls in its recycled paper-making operation.

The recycling industry can be expected to continue its growth in North Carolina, with expansion of existing firms, the advent of new companies and a rising level of employment in this sector. The chief obstacle to growth is access to materials that are currently being thrown away and sent to landfills. Some of the ways that North Carolina can foster the development of its recycling companies include:

- Enhancing the performance of local government recycling programs.
- Increasing the commitment of businesses, industries and the public to recycling.
- Addressing the relatively cheap cost and ease of disposal as a disincentive to recycling.
- Considering local or statewide disposal bans on materials that are needed by the state's recyclers.
- Providing funding to recycling collection efforts through mechanisms such as advanced recycling fees.

Every North Carolinian - at home, work or play - can participate in growing jobs through recycling. Recyclers are in towns and cities all around the state, they're hungry for more material, and if they get it, they can hire more people and increase their investment in our communities.

Recycling employs more than 14,000 North Carolinians and recycling jobs have increased about 60 percent in the last ten years.

Recovering the "Waste Stream"

North Carolina's waste disposal has been on an upward climb. Landfills serving the state received 6.8 million tons in 1991; by 2004 that number was 10.6 million tons, a rise of 56 percent. Some of this upsurge has been fueled by population growth, but the waste stream has also grown on a per capita basis, from 1.01 tons per capita in 1991 to 1.27 tons in 2004.

In using the term "waste stream," however, it is easy to forget that the vast majority of what is disposed is highly usable material. An office memo, a plastic bottle, a cardboard box, a wooden pallet, leftover food, a computer - these are all commodities desired by the growing North Carolina recycling industry and feedstock to supply the rising demand for secondary resources. These resources only become "waste" when we make the mistake of putting them in a garbage can or Dumpster.

"... when materials switch from waste to recycling, businesses grow, money is invested in communities and people find jobs."

What, then, are the major recoverable materials in the disposal stream? Below is a sampling of "wastes" that North Carolina recyclers can easily turn into commodities:

Paper: Newspaper, office paper, cardboard, magazines, chipboard - these are all paper "grades" in growing demand by foreign and domestic paper mills (including five mills here in N.C.). The estimated 1.8 million tons of paper discarded in North Carolina represent tremendous business opportunities for collectors, processors and end users of this material.

Aluminum Cans: Arguably one of the most valuable of all recyclables, and subject to a statewide disposal ban, as much as 25,000 tons of aluminum are still thrown away in North Carolina each year. Market value of the discarded material is approximately $25 million.

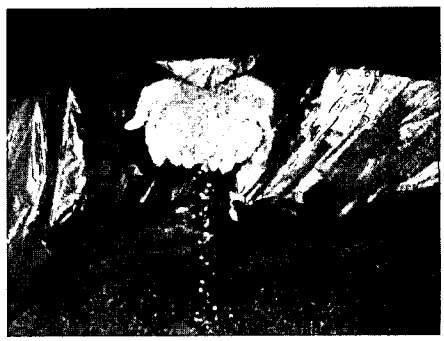
Wallboard: Gypsum discarded from building sites across the state has useful agricultural properties, and can be used as feedstock for compost and animal

Recycling Means Business!

bedding. Three hundred thousand tons of this material await diversion into value-added products in North Carolina.

Food Waste: Almost a million tons of food enters North Carolina landfills annually, but food rescue agencies and composters are starting to make a dent in this disposal. Some of the state's high-profile grocery chains and the North Carolina Farmers Market are among the early leaders in diverting food wastes, working with commercial composters in the Triangle region.

Plastic bottles: Few states are better poised to divert plastic bottles to beneficial use than North Carolina, with a number of nationally prominent processors and end users located in our state. The expanding appetite for recyclable resins by domestic and export markets makes it possible to divert all of the 87,000 tons of plastic bottles discarded in North Carolina each year.



At Envison Plastics, flakes are pelletized according to clients' specifications - like Downy® Blue or Gain® Green.

Wood and Pallets: Arguably the "lowest hanging fruit" of the disposed stream, waste wood and pallets are experiencing a steady, large-scale growth in demand from a wide range of businesses. Pallet repair companies, wood fuel users, composters and wood flooring manufacturers could divert more than 500,000 tons of this material annually.

Electronics: The rapidly expanding use of computers, televisions, cell phones and other gadgets will present a waste diversion challenge to North Carolina. Fortunately, the state already has electronics collection and processing companies ready to handle all the material they can get their hands on, including the 50,000 tons annually generated in North Carolina.

Glass: The use of recycled glass, or cullet, to make new bottles and jars saves glass manufacturers a large amount of energy and improves their profitability. Recovering more glass can help the plants in North Carolina stay competitive, and can feed other smaller businesses making value-added products from cullet.

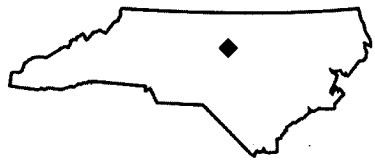
Recycling Means Business!

The waste stream is a potentially rich source of materials that can be put back to work for the North Carolina economy. The bottom line is that when materials switch from waste to recycling, businesses grow, money is invested in communities and people find jobs.

Recycling Means Business!

The Impact of Recycling on North Carolina's Economy

RECYCLING COMPANY PROFILES



Brooks Contractors

Brooks' unique truck design has helped it expand its food collection services.

Judy and Dean Brooks own and operate one of North Carolina's largest state-permitted composting facilities. In 1992, Chatham County's Brooks Contractors began accepting organics on its 30-acre facility to process into a valuable compost product. Brooks started out with only two employees, a couple of customers and a few hundred tons of organics to process. Today, Brooks has a substantial customer base, more than 55,000 tons to process each year, a fleet of trucks, 12 full-time and a few part-time employees.

In the late 1990s, Brooks began offering collection of food waste to grocery stores, restaurants, microbreweries and cafeterias in Orange County. Food collection expanded quickly from 700 tons the first year to more than 24,000 tons from Orange, Wake, Durham and surrounding counties. Brooks has made major contributions to the food collection and composting industry. The company designed a collection truck that provides several functions not found on a typical waste hauling truck. The truck weighs the container before and after dumping its contents into the truck. The truck is also equipped with a high-pressure water system that allows operators to clean out and sanitize each collection container after dumping. This valuable and unique feature has been critical to making the food collection service a success by nearly eliminating odor and fly complaints.

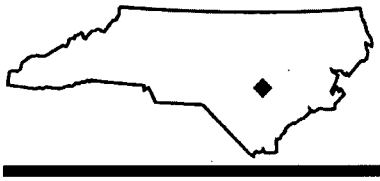
"Brooks has a substantial customer base, more than 55,000 tons to process each year, a fleet of trucks, 12 full-time and a few part-time employees."

In addition to its original compost, Brooks has expanded its product line to include more than eight different products, including topsoils, flower bed mix and other compost blends to meet varied landscaping and agricultural needs.

For more information about Brooks Contractors, contact Judy Brooks at (919) 837-5914, e-mail: brooksco@centernet.net.

Brooks Contractors
Goldston
Chatham County

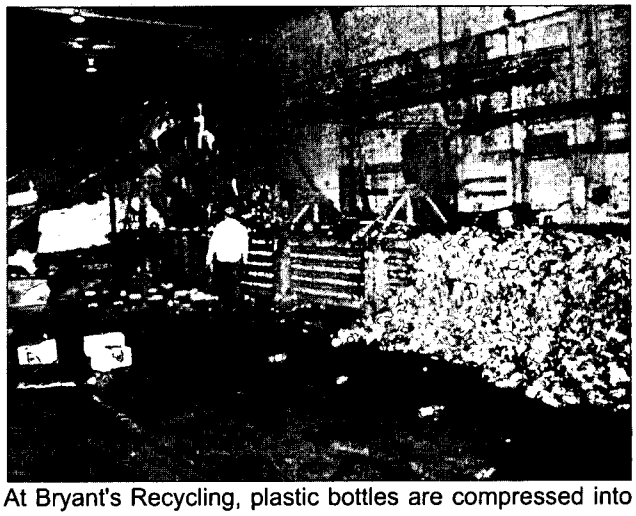
Recycling Means Business!



Bryant's Recycling Inc.

Bryant's Recycling Inc.
Clinton
Sampson County

Bryant's Recycling Inc. is a family-run recycling operation that has been collecting and processing fiber and containers for recycling since 1997. Bryant's Recycling is owned by Fulton Bryant, who along with his sons Daniel and Byron, is focused on the continued growth of the company.



At Bryant's Recycling, plastic bottles are compressed into bales and shipped to market.

Recyclable material is collected from various municipal and industrial customers in the Sandhills region. In addition to on-site collection services and materials processing, Bryant's provides 53-foot trailers for storage and collection.

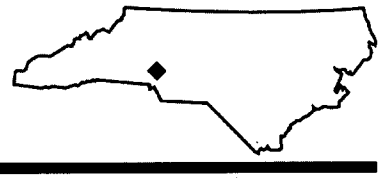
Bryant's Recycling provides collection and processing of cardboard, mixed paper, office paper, newspaper, plastic containers, aluminum and metal cans, and other industrial fiber products such as fiber cores. The company also has the ability to handle other types of material such as plastic film and window glass, as well as provide in-house document destruction.

Bryant's Recycling processes about 8,500 tons per year of material, and employs 17 people at its Clinton facility. With its location in Sampson County, Bryant's Recycling has the ability to provide recycling services and processing in the historically underserved southeast region of North Carolina.

Bryant wants to provide a local market for surrounding county governments and municipalities, which could be a great resource to these communities. Bryant's Recycling is also looking at Raleigh and Fayetteville area commercial customers as targets for growth.

For more information about Bryant's Recycling Inc., contact Daniel Bryant at (919) 590-2200, e-mail: abryantd@earthlink.net.

Recycling Means Business!

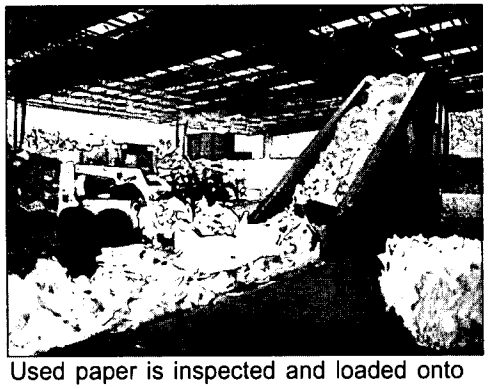


Caraustar

Beginning in 1938 as Carolina Paper Board Corp. with its first plant in Charlotte, Caraustar has become one of the nation's leaders in recycled content packaging. Caraustar ranks number one in recycled paperboard production in the United States, is the second largest producer of tubes, cores and composite containers and in the top 10 of folding carton production. Caraustar has grown over the past 65+ years to become a billion dollar company with 108 facilities worldwide employing more than 5,700 people.

"Caraustar ranks number one in recycled paperboard production in the U.S."

Caraustar operates both a fiber recovery facility and a paperboard mill in Charlotte. Located in close proximity, these two operations employ 125 people. The recovery facility has a throughput of 55,000 tons of fiber per year. Ninety percent of the fiber consumed by the mill is supplied by the nearby recovery facility. Fiber grades include mixed paper, double lined kraft, corrugated cardboard and newspaper. The remaining 10 percent of consumed fiber is returns (boxboard cuttings) from paperboard customers.



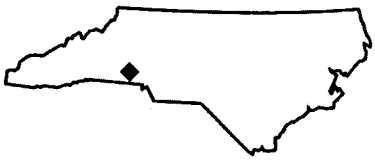
Used paper is inspected and loaded onto a conveyor to be baled and shipped to a paperboard mill.

The paperboard mill produces 52,000 to 55,000 tons of 100 percent recycled rigid boxboard and chipboard annually. In addition to the recovery and mill operations, Caraustar has converting, paper tube, container and box plants located across North Carolina.

For more information about Caraustar, contact Jason Garrison at (704) 376-7474 or Jason.garrison@caraustar.com. You can also visit its Web site at: http://www.caraustar.com.

Caraustar
Charlotte
Mecklenburg County

Recycling Means Business!



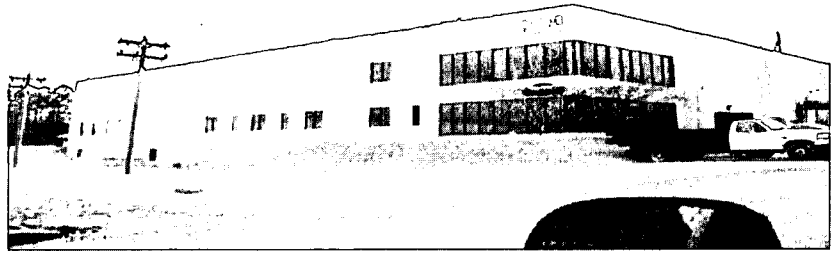
Carolina Materials LLC

Carolina Materials LLC
Belmont
Gaston County

Carolina Materials LLC, formerly known as Texas Encore Materials, relocated from Romulus, Mich., to Belmont in spring 2004. For more than 11 years, Carolina Materials researched and developed a process incorporating recycled tire pieces into new manufactured products. The N.C. facility manufactures extruded sheets made from recycled rubber and plastic resins. The finished sheets are used in automotive, industrial and consumer applications. In the automotive sector, the extruded sheets are used to make a reversible luggage liner in the Ford®Taurus™.

Carolina Materials currently employs 20 people and has used more than 40,000 pounds of recycled tire crumb in its initial start-up year. The company recently purchased two additional sheet extruders, which will increase production four-fold. Carolina Materials expects to employ a total of 100 workers with an average salary of $16 per hour within the next three years. "[The company's] announcement to locate in Gaston County not only provides the state with high quality jobs but demonstrates yet again that job creation and environmental protection can go hand in hand," said Gov. Mike Easley.

> ***"[The company's] announcement to locate in Gaston County not only provides the state with high quality jobs but demonstrates yet again that job creation and environmental protection can go hand in hand."***
> - *Gov. Mike Easley*

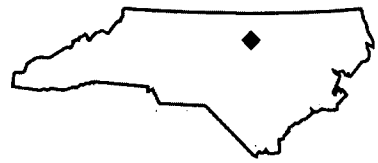


Carolina Materials transforms recycled tire pieces into products like reversible luggage liners.

For more information about Carolina Materials, contact Dr. Philip Friedman at (704) 825-1033, or visit the company's Web site at: http://www.carolinamaterials.net.

Recycling Means Business!

Clean Green Inc.



High-tech machinery purifies used antifreeze at Clean Green.

Clean Green Inc. is a unique and growing recycling business that processes between 5,000 and 7,000 gallons of antifreeze per week at its plant in eastern Durham. The used antifreeze is purified by a patented filtration system designed by the company's owner, Tim Wilkinson. A longtime Durham car repair shop owner and auto mechanics teacher, Wilkinson saw a need to improve the handling of the hazardous fluid and, in the true entrepreneurial spirit, learned the chemistry involved to create the process necessary to purify antifreeze.

Incorporated in 1997, Clean Green now employs 10 people. It operates five trucks for collecting waste and delivering recycled antifreeze. Subject to the same standards as the virgin product, the recycled antifreeze is available in all major colors and formulations. The company collects used antifreeze from many sources, including the automotive industry, municipalities, N.C. landfills and collection centers and other industries. However, a majority of the used antifreeze is collected from the companies purchasing the reprocessed product. This offers companies a closed-loop system of recycling for their antifreeze needs. Customers save dramatically by purchasing Clean Green's recycled antifreeze, which sells for less than half the price of virgin antifreeze.

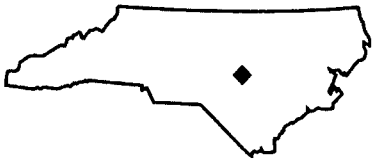
Wilkinson has watched the company grow approximately 20 percent each year and is expanding operations to include recycling of used oil filters. Clean Green is now reprocessing more than 300 barrels (45-50 tons) each month of used oil filters. These filters are 100 percent recyclable and contain valuable steel and waste oil used for fuel.

Owner Tim Wilkinson and son, Andrew.

For more information on Clean Green Inc., contact Tim Wilkinson at (919) 596-3500, or cleangreen@verizon.net.

Clean Green Inc.
Durham
Durham County

Recycling Means Business!



Cohen and Green Salvage Company Inc.

Cohen and Green Salvage Co. Inc.
Fayetteville
Cumberland County

Recycling Means Business!

Fayetteville is home to Cohen and Green Salvage Company Inc., a metals handler and processor. Established in 1946, this privately-owned company serves the eastern and central part of North Carolina as a market for ferrous and non-ferrous metals. Cohen and Green handles practically every type of metal commodity from aluminum to zinc, including automobiles, electronic/computer equipment, appliances, gold, silver and more. Cohen and Green processes, separates, grades and markets these commodities, utilizing 30 full-time workers.

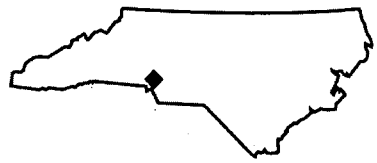
North Carolinians throw away more than $20 million in aluminum cans each year.

The company's president, Michael Green, says that although the metals recycling industry is currently very stable, challenges to the business include transportation costs and complying with an ever-growing list of regulations. "Cohen and Green Salvage and the metals recycling industry as a whole are working to recycle as much metal as possible while complying with environmental regulations," said Green.

Making products from recycled aluminum instead of virgin materials results in a 90 percent energy savings.

For more information about Cohen and Green Salvage Company, call Michael Green at (910) 483-1371, or e-mail: Mgreen6592@aol.com

CompuTel IG LLC



Computer monitors are transported to a staging area and then dismantled for recycling.

CompuTel IG LLC is a family-owned Charlotte-based recycling business started in 1995 by John Rhinehardt. The company collects, processes and markets materials in the emerging area of computer and electronics recycling. CompuTel prides itself on being one of only a handful of electronic recyclers that will accept a complete range of consumer electronics from a wide variety of sources. Those sources range from large generators such as state and local government agencies, international power companies and utilities, school districts and a national asset management company, to local residents who routinely drop-off material at CompuTel's Charlotte location.

In 2003, CompuTel recovered more than 600 tons of electronic equipment that would otherwise have required disposal. Thanks to the purchase of a 24-foot box-body truck, CompuTel anticipates increasing its recovery efforts to more than 750 tons of electronic scrap per year. The purchase of that vehicle was partially financed through grant funding from the N.C. Department of Environment and Natural Resources.

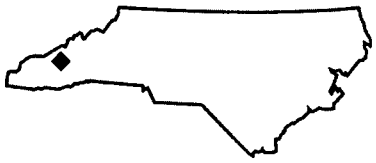
"In 2003, CompuTel recovered more than 600 tons of electronic equipment that would otherwise have required disposal."

John and his son Brett are optimistic about the company's future and project continued growth, based in part on being named as available vendors in the North Carolina Electronic Recycling Services State Term Contract. CompuTel currently employs seven people and, should its growth trend continue, may add three to five jobs over the next year.

For more information about CompuTel, contact Brett Rhinehardt at (704) 376-1116, e-mail: Brett@Computelig.com.

CompuTel IG LLC
Charlotte
Mecklenburg County

Recycling Means Business!



Curbside Management Inc.

Curbside Management Inc.
Asheville
Buncombe County

Recycling Means Business!

Curbside Management Inc. is a collector-processor of residential and commercial recyclables located in Asheville. A majority of material recovered by Curbside is collected through residential collection programs set up with many of the region's municipalities. Owner David Johnson has combined business savvy with ingenuity to stay competitive against the large waste haulers that compete for municipal contracts in the region.

Curbside recently expanded operations to include a semi-automated material recovery facility. When this facility opened in August 2003, it was able to handle the material collected by Curbside as well as provide an outlet for other recyclers to deliver material for processing. Curbside is currently processing about 6,000 tons per year of recyclable materials that include cardboard, newspaper, office paper, mixed paper, glass and plastic bottles, and metal cans. The collection and processing operations employ 38.

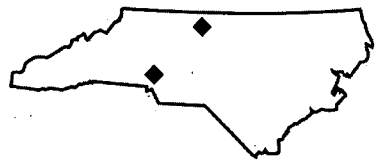
Last week North Carolina trashed enough newspapers to fill nearly three football fields three feet deep.

In addition to providing important processing capacity for this region of the state, the MRF has also allowed Curbside to expand its collection services. Curbside moved forward with plans to expand its commercial recycling operations as well as offer mixed paper recycling to the municipalities it serves. With equipment partially financed through grant funding from the N.C. Department of Environment and Natural Resources, it began rolling out expanded recycling collection services for commercial customers in the city of Asheville.

Curbside's Owner David Johnson.

For more information about Curbside Management Inc. contact David Johnson at (828) 252-2532, e-mail: djohnson@curbie.com. You can also visit the company's Web site at: http://www.curbie.com.

Custom Polymers Inc.



Custom Polymers Inc., a North Carolina-based company with production facilities in Charlotte and Houston, Texas, and sales offices in Durham, Chicago, Ill., and Toronto, Canada, has been in the plastics recycling business since 1996. Partners John Calhoun and Phil Howerton have built a multifaceted business that employs 15 people at its North Carolina locations and handles a vast array of recycled resins, including both commodity and engineering grade materials.

Custom Polymers' sales consist of 80 percent post-industrial materials and 20 percent post-consumer. It sells approximately nine million pounds of plastics per month in the form of scrap, regrind and pellets. The company specializes in the regrinding and reprocessing of industrial plastics, but has recently begun to expand its business by focusing on post-consumer bottles. As part of that growth, a new partnership was formed recently to acquire 50 percent of Blue Ridge Plastics in Eden. Custom Polymer's plant is a washing and grinding facility that processes approximately 1.6 million pounds of post-consumer bottle material per month into clean flake. The company is also very active on the international scene, with two sister companies located in Toluca, Mexico.

> **"Custom Polymer processes approximately 1.6 million pounds of post-consumer plastic bottles each month."**

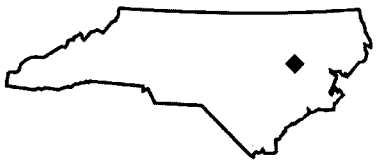
The United States plastics industry includes 2015 companies with more than 35,000 employees.

For more information about Custom Polymers, contact John Calhoun at (704) 332-6070 or john@custompolymers.com. You can also learn more about the company at its Web site: http://www.custompolymers.com.

Custom Polymers Inc.
Charlotte
Mecklenburg County

Custom Polymers Inc.
(Blue Ridge Plastics)
Eden
Rockingham County

Recycling Means Business!



Eastern Carolina Vocational Center Inc.

Eastern Carolina Vocational Center Inc.
Greenville
Pitt County

Recycling Means Business!

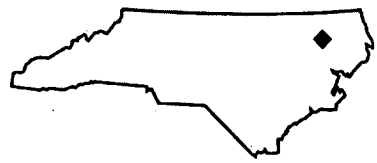
Eastern Carolina Vocational Center Inc. has operated a recycling business in Greenville for more than 25 years as a way to provide jobs for people with disabilities. In 1995, ECVC built a recyclables-processing center otherwise known as a materials recovery facility. ECVC employs 80 people in its recycling operation. Residential and commercial recyclables generated in Pitt and nearby counties are sorted at the MRF and prepared for market. Materials handled include plastic bottles, newsprint, glass containers, steel cans, aluminum cans, cardboard, office paper and mixed paper including paperboard boxes, magazines and phone books. With the exception of glass, all materials are baled and sold in the domestic and foreign markets. ECVC processes 30,200 tons of recyclables each year.

ECVC employees sort incoming recyclables.

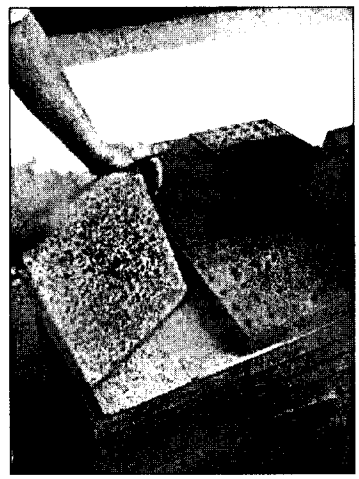
ECVC provides much-needed recycling processing infrastructure to eastern North Carolina. In 2002, ECVC received an award from the National Recycling Coalition for "Outstanding Environmental and Community Leadership." With the help of a N.C. Department of Environment and Natural Resources' grant in 2004, ECVC will be installing equipment to enable processing of cleaner, higher-value recyclables. Revenue generated from the savings will be used to increase the recovery of mixed paper from the region.

For more information about ECVC, contact Doug Bonds at (800) 758-4188, or e-mail dbonds@ecvcinc.com. You can also visit the company's Web site at: http://www.ecvcinc.com.

Elizabeth City Glass Inc.

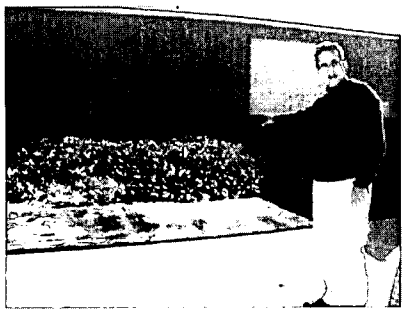


Located in Pasquotank Industrial Park on the north side of Elizabeth City, Elizabeth City Glass Inc. is both a processor and end user of construction glass, Pyrex, ceramics and mixed post-consumer container glass.



ECG's dimpled patio pavers are made from more than 80 percent recycled glass.

After spending three years in the research and development phase, ECG began operation on Jan. 1, 2004, as a full-scale, operational pilot project. The brand-new facility includes a 16,000 square foot building with most operations under roof. Truck scales and an industrial-sized hopper provide the tools for handling feedstock coming into the facility. Material is offloaded directly into the hopper where the materials are transported to the processing equipment inside the facility. Inside the facility, the glass material is crushed, screened and washed. The finished material is used to produce a product line of utilitarian and decorative precast concrete products with 82 percent recycled glass content. Products at the facility include crosswalk tactile warning blocks for the physically challenged (American with Disabilities Act compliant), parking lot wheel stops and patio pavers.



Owner Shawn Lemmond shows the facility's incoming glass feedstock storage area.

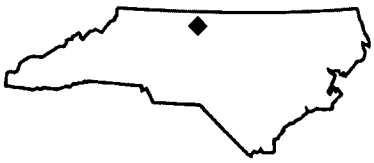
At current production levels, ECG employs four people and is recovering 384 tons per year of glass waste. ECG expects to grow as sales increase in 2005. With few outlets for recovered mixed glass in the northeastern part of the state as well as southeastern Virginia, ECG is providing a much-needed market for this material.

ECG was a recipient of a 2004 N.C. Department of Environment and Natural Resources' grant. As traditional markets for glass container recycling continue to decrease, ECG's research and development may open up other avenues for using glass waste in other types of precast concrete products.

For more information about ECG, contact Shawn Lemmond at (252) 333-1002 or e-mail at ECGCompany@aol.com. You can also visit its Web site at: http://www.glass-recycling.com.

Elizabeth City Glass Inc.
Elizabeth City
Pasquotank County

Recycling Means Business!



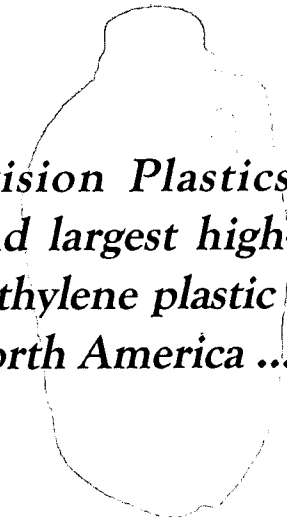
Envision Plastics

Envision Plastics
Reidsville
Rockingham County

Envision Plastics is the second largest high-density polyethylene plastic recycler in North America with plants in Reidsville and Chino, Calif. Envision employs 60 people and processes about four million pounds per month of post-consumer plastics at its North Carolina facility.

At Envison Plastics, flakes are pelletized according to clients' specifications - like Downy® Blue or Gain® Green.

Like other plastics processors, Envision receives baled plastics that are ground into flakes and are then washed and dried. Next, Envision uses state-of-the-art technology that color sorts the flakes into distinct colors specific to clients' specifications such as "Downy® Blue" or "Tide® Red." The flakes are then pelletized and sold to blowmolding companies throughout the United States, including several in North Carolina that manufacture new colored bottles. Although other recyclers hand-sort the plastic flake, Envision is the only company employing an automated color-sort technology.



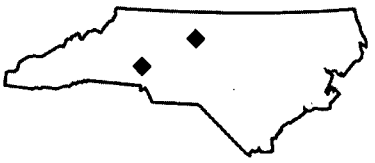
"Envision Plastics is the second largest high-density polyethylene plastic recycler in North America ..."

Envision customers can save money by reducing the amount of colorants they need to add in their manufacturing process. They are also able to use the copolymer HDPE resin found in detergent bottles, as opposed to the homopolymer found in unpigmented milk jugs, to make new detergent bottles. The copolymer resin has demonstrated better environmental stress crack resistance when customers perform "drop tests" on their finished product.

Recycling Means Business!

For more information about Envision Plastics, contact Todd Payne at (336) 342-4749 or e-mail todd@envisonplastics.com.

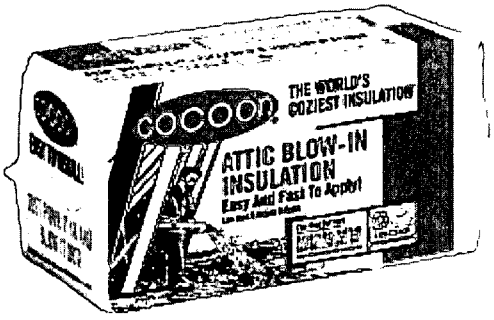
FCR and U.S. GreenFiber



FCR, a subsidiary of Casella Waste Systems, operates recovery facilities and reprocessors in the Southeastern and Midwestern United States. Headquartered in Charlotte, FCR operates recycling facilities there and in Greensboro. Both cities work with FCR as its processing partner for its local recycling programs. The company sorts, processes and markets commingled materials under long-term contracts with municipalities and other authorities.

Together the FCR facilities in North Carolina employ 63 full-time and 12 temporary workers, and process around 97,000 tons of recyclables each year. In addition, FCR's Charlotte facility hosts an education center designed to educate school groups and the public about how FCR's recycling process helps the environment.

Casella Waste Systems is also fifty percent owner of U.S. GreenFiber LLC. Established in 2000, GreenFiber is a producer of Cocoon®, a cellulose insulation with national manufacturing and distribution capability. With an 85 percent recycled content, Cocoon® insulation is used in attics and exterior walls to provide thermal comfort, added fire safety and noise reduction.



U.S. GreenFiber makes Cocoon insulation out of old newspapers.

Old newspapers collected in Charlotte enter FCR's material recovery facility, where they are separated from other recyclables and converted into packaged cellulose insulation at the GreenFiber plant operating within the FCR building. The integrated operation optimizes efficiency by eliminating transportation for the product feedstock. This insulation plant is one of 10 in the country and serves as a model of vertical integration for recyclers and other manufacturers. The 30 employees of Charlotte's GreenFiber manufacturing plant process more than 27,000 tons of newsprint and other papers into the cellulose insulation each year.

For more information about FCR, contact Bill Leonidas at (704) 379-0625, billleonidas@casella.com , or visit its Web site at http://www.casella.com/locations/fcr.

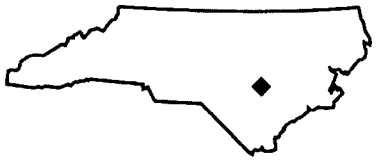
For more information about U.S. GreenFiber, contact John Harkavy at (704) 379-0654, john.harkavy@us-gf.com, or visit its Web site at http://www.greenstone.com.

FCR
Charlotte
Mecklenburg County

FCR
Greensboro
Guilford County

U.S. GreenFiber
Charlotte
Mecklenburg County

Recycling Means Business!



Filter Specialty

Filter Specialty
Autryville
Sampson County

Charles Jackson established Filter Specialty in Autryville in 1997 to recycle oil filters from automotive, marine and industrial sources. Oil filters have scrap value as metal, and also contain residual oil that can end up leaking and causing contamination problems. Although oil is officially banned from disposal in North Carolina landfills, a large amount is still disposed with oil filters.

Owner Charles Jackson unloads drums of used oil filters for reprocessing at the Autryville facility.

Filter Specialty has grown because of its strong service record and its proven ability to process and market the filters. Its customers include utility companies, school bus garages, government agencies, car dealerships, repair shops and many others. It also provides processing services to other filter collection companies in North Carolina.

North Carolina's more than six million registered motor vehicles generate more than 12 million used oil filters per year.

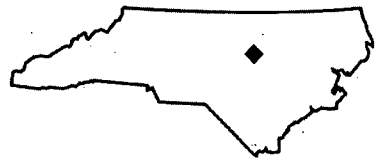
The company handles around 720 tons of filters per year, which it crushes with a machine that extracts residual oils and then creates dense metal briquettes. The metal is sent to steel mills and foundries. The 40,000 to 60,000 gallons of oil recovered annually from the filters and the company's oil recycling service is sent to refiners that manufacture boiler fuel.

All of Filter Specialty's processing is done indoors with the proper permitting and environmental controls. Charles Jackson employs two others in the company, and is in a strong position to grow his business. With the ability to market all the filters and oil it collects, Filter Specialty just needs more supply and more customers.

For more information, contact Filter Specialty at (910) 567-5474 or filterspecialty@intrstar.net. You can also visit the company's Web site at: http://www.filter-specialty.com.

Recycling Means Business!

Food Bank of Central & Eastern N.C.



Food Bank of Central & Eastern N.C.
Raleigh
Wake County

The Food Bank of Central & Eastern North Carolina was founded as the state's first food bank in 1980 as the Community Food Bank. Since then, the Food Bank has expanded services in an attempt to keep pace with a growing demand for emergency food, distributing more than 100 million pounds of food in the process. In 1984, the Food Bank gained affiliation with America's Second Harvest.

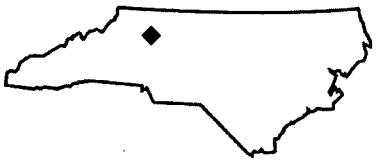
The Food Bank has outgrown its warehouse space three times since partnering with Second Harvest. With a primary facility in Raleigh, the Food Bank also has branch warehouses in Durham, Greenville, Southern Pines and Wilmington. In 1985, the organization distributed nearly 1 million pounds of food to a network of nearly 100 agencies. In 1996, distribution rose to 6.5 million pounds of food to a family of 480 private, emergency feeding programs and sister food banks (one million pounds of which was disaster relief in the wake of Hurricane Fran). Hurricane Floyd devastated eastern North Carolina in 1999, and with it came the Food Bank's largest distribution ever.

Nutritious, non-perishable foodstuffs that would have been sent to a landfill are given a second life through the Food Bank.

The Food Bank distributed 18.8 million pounds of food in fiscal year 1999-2000. Last fiscal year, the Food Bank distributed 26.4 million pounds of food, a 71 percent increase from just five years ago. Today, the Food Bank provides in excess of two million pounds of food every month to 865 nonprofit, community-based, emergency feeding programs (soup kitchens, food pantries, homeless shelters, group homes, day care and after-school centers, and elderly nutrition programs), serving more than 375,000 individuals at risk of hunger in 34 central and eastern North Carolina counties. In spring 2003 the Food Bank received a grant from the N.C. Department of Environment and Natural Resources to help purchase additional sorting equipment and a stacker that made it possible to double its egg distribution capabilities.

For more information about the Food Bank and its programs, please contact Peter Werbicki, acting executive director, at (919) 875-0707, or visit the Web site: http://www.foodbankcenc.org.

Recycling Means Business!



Foothills Sanitation & Recycling

Foothills Sanitation & Recycling
Wilkesboro
Wilkes County

Recycling Means Business!

For the past 15 years, Jeff and Janet Miller have provided excellence in recycling service to the area in and around Wilkes County through their company, Foothills Sanitation & Recycling. The company that began as J&J Recycling has continued to grow over the years despite a near-devastating fire, and the many ups and downs associated with end-market pricing. For the past few years, Foothills Sanitation and Recycling has been in a planning and construction phase for a new sorting facility. The small-scale recovery facility takes in all types of recyclables, sorts the material and markets it to end users and recycling manufacturers. The company currently employs 26, but plans to add another 10 employees once the sorting facility is fully operational. Positive results from the new facility are already evident. Paper recycling production has increased from 12,100 tons to almost 17,000 tons annually with future increases anticipated.

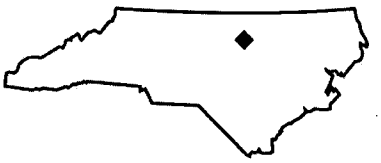
Horizontal balers, like Foothill Sanitation's, are an integral part of many material recovery facilities across the country.

"Paper recycling processing has increased from 12,100 tons to almost 17,000 tons annually with future increases anticipated".

Now that its new sorting facility is online, the company is experiencing a steady increase of tonnage and is looking forward to expanding the list of materials that it handles. Along with an increase of intake of non-ferrous metals, the company is also looking toward the possibility of expansion into the arena of electronics recycling. According to Jeff Miller, the biggest hurdle the company faces is educating the general public about the importance of recycling and how to recycle the right materials.

For more information about Foothills Sanitation & Recycling contact Jeff or Janet Miller at (336) 667-4432, or visit the Web site at: http://www.foothillssanitation.com.

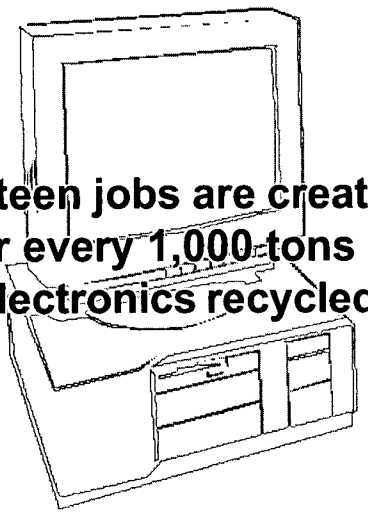
GEEP/ARC



GEEP/ARC
Durham
Durham County

Global Electric Electronic Processing Inc. and Asset Recovery Corporation are two e-waste recyclers located in the same Durham facility. These separate companies work in partnership to provide comprehensive electronics recycling and remarketing services to clients nationwide. Some of their larger clients include: Nortel Networks, Unisys Corporation, Silicon Graphics, ADC Telecommunications and Honeywell International.

GEEP/ARC also have the ability to handle material from community collection events. The companies can provide municipalities and local governments e-waste collection services including event management, transportation and processing.



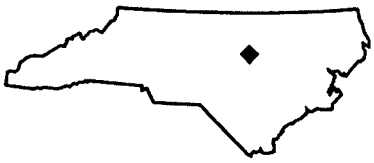
Fifteen jobs are created for every 1,000 tons of electronics recycled.

GEEP/ARC is a vertically-integrated processor of computer and electronic scrap. GEEP de-manufactures the material by carefully dismantling the equipment for reuse and salvage. In addition to standard de-manufacturing capabilities, GEEP's parent company, Cable Recycling Inc., is a final destination for sorted electronic components that can provide shredding, grinding and final sale of commodity-based material streams. This includes the assaying and separation required to extract copper, gold, silver and other metals from cables, circuit boards and metal-containing electronic components. The resulting commodity streams are then sold back into the marketplace.

At the Durham facility, GEEP/ARC employs 25 and recycles about 10,000 tons of electronics per year. This includes material sold at auction, repaired and resold through wholesale markets and Internet sales, and material that is de-manufactured.

For more information about GEEP/ARC, contact Tom Fellows at (919) 544-1443, or e-mail tomfellows@geepinc.com. You can also visit their Web sites at: http://www.cablerecyclinginc.com and http://www.assetrecoverycorp.com.

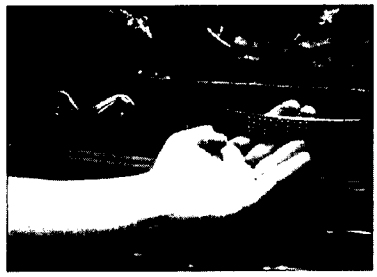
Recycling Means Business!



Habitat ReUse Center

Habitat ReUse Center
Raleigh
Wake County

If you want a bargain on building supplies in Raleigh, visit the Habitat ReUse Center on Alwin Court - just off of Hodges Street. The ReUse Center accepts donations of used or surplus building materials and furniture - everything from windows and doors to lumber, fixtures and cabinets - and sells them to the public at discounted prices to raise funds for Habitat's homebuilding activities.



Customers can find a wide variety of materials at the ReUse Center, including hardware and building supplies.

Habitat for Humanity of Wake County was one of the first in the state to start an affiliate ReUse store. After outgrowing an initial facility, it moved to a bigger warehouse in 2000. Now, with business booming and more materials available than ever before, the ReUse Center may soon expand again.

The Habitat facility diverts materials from disposal by receiving tax-deductible donations from builders, manufacturers, businesses with surplus inventory, retailers, universities and individuals. The center has also reinvigorated its deconstruction program, sending crews to homes slated for demolition to salvage doors, windows, flooring, cabinets and other reusable items.

The ReUse Center has become a popular spot for homeowners to find inexpensive, high-quality building supplies. In the past year alone, sales have grown from $576,292 to $777,855. The "profit" generated helped finance the building of five homes in 2004 by Habitat for Humanity of Wake County.

The Wake ReUse Center is arguably the "flagship" of a growing number of such facilities around North Carolina in Winston-Salem, High Point, Pittsboro, Boone, Burlington, Sanford, Wilmington and Charlotte. Together, these centers are capturing value from the waste stream, putting perfectly good materials and products back to work and raising money for the building mission of Habitat for Humanity.

For more information about the Wake Habitat ReUse Center, call (919) 833-6768, or visit http://www.habitatwake.org/ReuseCenterpage.

Recycling Means Business!

Hartsell Scrap Metal

Hartsell Scrap Metal has operated under the ownership of John Hartsell since 2001. Formerly known as "Hollifield Brothers Used Auto Parts and Scrap Metal," the original company opened its doors in the early 1990s, serving the western North Carolina area. Based in Spruce Pine, the company handles used auto scrap, aluminum and steel cans, copper, white goods, steel industrial machinery and other ferrous and non-ferrous scrap.

In addition to Hartsell, the company employs three people full-time and one part-time. Although recent fuel cost increases have had a negative impact on profits, the overall stability of the metals markets has helped to compensate to make Hartsell Scrap Metals very stable.

The national recycling rate for steel is 64 percent. Making new products from recycled steel vs. virgin materials results in 60 percent energy savings.

Hartsell is looking toward the possible expansion into the electronics scrap market in the future and is considering the purchase of a shredder in order to add additional on-site processing capability.

For more information on Hartsell Scrap Metal, call John Hartsell at (828) 765-5265.

Hartsell Scrap Metal
Spruce Pine
Mitchell County

Recycling Means Business!

Jackson Paper

Jackson Paper
Sylva
Jackson County

Recycling Means Business!

Jackson Paper is a major independent producer of 100 percent recycled content paper. The company recently developed an engineered recycled paper product designed as alternative poultry bedding. Located in the heart of the mountain town of Sylva, the recycled paper mill employs 132 workers that produce about 300 tons of paper per day from used corrugated cardboard containers. Through its use of more than 96,000 tons of cardboard each year, Jackson Paper serves as a major market for cardboard recycling centers in North Carolina and surrounding states.

Jackson Paper employee monitors master controls in its recycled paper-making operation.

Built in 1928, the facility is a main fixture on Sylva's Main Street. Current owner Timothy Campbell acquired the mill in 1995. Under Campbell's management, Jackson Paper has not only steadily increased production and profit, but has also proven itself as an environmental leader. To minimize waste and maximize product output, the mill utilizes a unique process that binds two trim rolls from the main paper machine into one larger roll of product. In addition, Jackson Paper is one of only a handful of mills in the United States with a closed-loop water system and treatment plant, allowing zero discharge of waste into the nearby stream or municipal sewer. Further reducing N.C.'s waste stream, Jackson Paper also purchases more than 60,000 tons per year of sawdust from area sawmills and furniture makers for steam combustion to produce the energy needed to operate the mill.

Jackson Paper produces almost 300 tons of paper per day from used corrugated coardboard containers.

With its diversified products, experienced management and environmental stewardship, Jackson Paper has a clear and important role to play in North Carolina's economy.

For more information, contact Don Arrington, at (828) 586-5534, e-mail: donarrington@jacksonpaper-nc.com, or visit the company's Web site at: http://www.jacksonpaper-nc.com.

K&K Recycling

K&K Recycling is a family-owned paper processing company in Wilson. The company was started by Kenneth Radford in 1990. When Radford passed away in 2004, his sons Kenneth and Kelly decided to keep the family business going.

K&K focuses on corrugated cardboard, paper tubes and high grade (office) paper, but can handle newsprint, magazines, residential mixed paper and other types of fiber. It receives materials through private haulers and collection contracts with business and industrial customers. K&K also receives some material from local government recycling programs and is interested in getting more. In addition, it processes film plastics (stretch-wrap) generated by local industries.

Almost 80 percent of United States papermills rely on recycled feedstock. In fact, it comprises 37 percent of their supply.

The heart of K&K is its large Mosely baler, which produces bales up to 1,350 pounds for shipment to paper mills. Most of its paper is shipped to manufacturers of corrugated cardboard and other types of paper, but K&K also exports some of its materials through some of its existing paper mill contracts.

K&K processes about 16,000 tons per year, but has the capacity to double that amount. Its markets are strong and it is looking for more customers and additional material. The company currently employs six people and is planning improvements to its facility, including new scales and possibly a commingled processing line.

For more information about K&K, call (252) 237-3010 or e-mail: kkrecycling@earthlink.net.

K&K Recycling
Wilson
Wilson County

Recycling Means Business!

Kamlar Corporation

Kamlar Corporation
Rocky Mount
Nash County

Since 1966, Rocky Mount's Kamlar Corporation has been producing high-quality mulch products using recycled wood waste. Kamlar uses wooden pallet and crate waste generated in eastern North Carolina as the main feedstock for the production of a variety of mulch products sold commercially throughout the East Coast, Midwest and Canada. Approximately 12,000 tons of wood waste is recycled each year into value-added landscaping products rather than being buried in a landfill. Kamlar employs 35-40 people during peak season and 22 people in the off-season.

Owner Roger Seale in front of discarded pallets that will be ground into mulch.

Kamlar's mulch-making process involves grinding the large wooden pallets and crates into small pieces using a tub grinder. A magnetic separator removes all the nails and metal pieces to ensure a safe product. The small pieces of wood waste are sent through a mechanical screening system for size uniformity and consistency. A variety of the product line is colored red, black or brown using environmentally-friendly, non-toxic dyes. Kamlar's product line includes colorized mulch, shredded mulch, cypress mulch, pine bark and professional products such as nursery mix, soil conditioner and federally-certified playground mulch. Kamlar's products can be found in big box stores such as Home Depot® and Lowes® and other small to medium-sized garden stores.

Kamlar is a strong, growing North Carolina company. With the help of a N.C. Department of Environment and Natural Resources' grant in 2004, Kamlar purchased equipment that will enable it to double the amount of material it is currently producing.

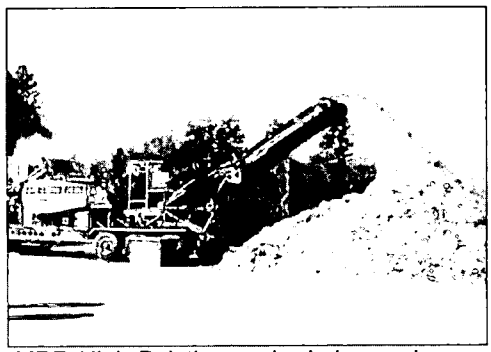
For more information about Kamlar, contact Roger Seale at (252) 443-2576, e-mail Kamlar@earthlink.net. You can also visit the company's Web site at: http://www.kamlar.com/index.htm.

Recycling Means Business!

MRR Southern

With increasing generation of construction and demolition debris in North Carolina, one local company - MRR Southern - has positioned itself to capture the value of important recyclables from this portion of the state's waste stream. Partners Norbert Hector, Juan Carroll, D.H. Griffin Sr. and David Griffin Jr. pooled their vast experience in construction, wrecking and demolition to form a new recycling company. MRR Southern opened its first large-scale mixed construction and demolition debris processing facility in south Raleigh in 2000. In 2004, the company opened a second facility in High Point.

MRR Southern Raleigh employees hand-sort construction and demolition debris.



MRR High Point's wood grinder produces fuel for industrial boilers.

Both recycling facilities are multi-million dollar investments in areas targeted for economic development and job creation. The Raleigh facility employs 18 people, while the newer and growing High Point facility employs 15. Materials are recovered from mixed construction and demolition debris using both manual and mechanical separation. Clean wood debris, concrete, brick, cardboard, drywall and soils/fines are separated and sold for a variety of end uses including compost, boiler fuel, road base, poultry bedding, recycled metal, paper and alternative daily landfill cover.

The Raleigh facility processes 85,000 tons of mixed construction and demolition debris per year and recovers about 50 percent of incoming materials. The High Point facility processes almost 74,500 tons per year.

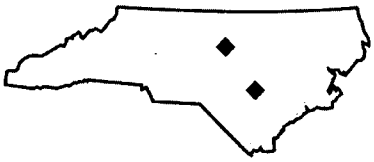
For more information about MRR Southern, contact Chris Roof at (919) 835-3655, e-mail ctroof@dhgc.com.

Editorial Note: Sale of both facilities is pending to WCA Waste Corp. in March 2005. At the time of the announced sale, WCA Waste Corp. indicated it planned to establish a collections company that will operate in conjunction with the material recovery facilities.

MRR Southern
Raleigh
Wake County

Material Reclamation Recovery Southern
High Point
Guilford County

Recycling Means Business!



McGill-Leprechaun Environmental

McGill-Leprechaun Environmental
Delway
Sampson County

McGill-Leprechaun Environmental
Merry Oaks
Chatham County

Recycling Means Business!

Under the leadership of M. Noel Lyons, McGill-Leprechaun operates two compost manufacturing plants in North Carolina and is one of the largest solid waste composting companies on the East Coast. The company was started in 1991 near Harrells to help manage the growing amount of animal waste generated by the poultry industry. Now, its facilities in Chatham and Sampson Counties process more than 200,000 tons of compost per year. Feedstocks come from a large variety of generators, including industrial plants, municipalities and agricultural operations. The materials handled by McGill include industrial residuals, municipal biosolids, water treatment plant residuals, sheetrock, clean construction wood waste, commercial wood waste (pallets, shipping crates, etc.), food processing waste, grease trap waste, agricultural residuals, animal waste and source-separated organic solid waste (shredded paper, food scraps, waxed cardboard, etc.).

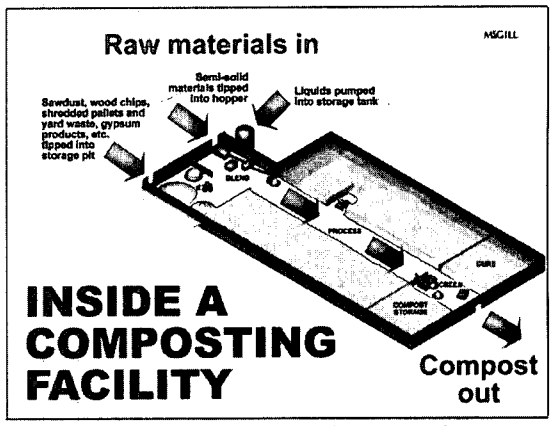
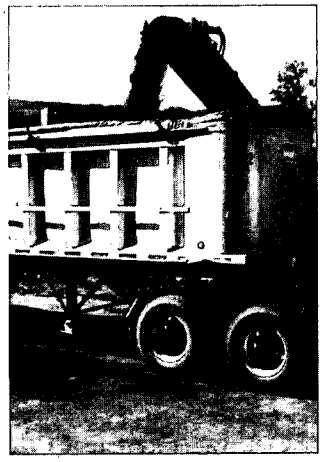


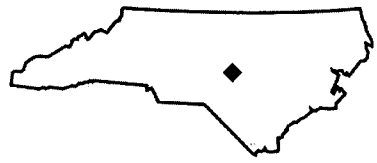
Diagram of McGill's composting operation.


Finished compost is loaded into truck for bulk sale delivery.

With more than 50 employees and $7 million in annual revenue, McGill-Leprechaun is poised to expand its operations to other parts of the state. It found large-scale markets for its finished compost, which is sold in bulk by the cubic yard to retail and wholesale customers throughout the Carolinas. McGill's products have been used effectively to eliminate the use of methyl bromide, an ozone-depleting chemical, in produce and crop production. The company's rapid growth and innovative technology earned McGill-Leprechaun the honor of runner-up for North Carolina Small Business of the Year in 2004.

For more information, contact Lynn Lucas at McGill (910) 532-2539, e-mail: llucas@mcgillcompost.com, or visit the company's Web site at http://www.mcgill-leprechaun.com.

Noble Oil Services Inc.



Noble Oil Services Inc. maintains an oil recovery and processing facility in Sanford. The company collects used oil and antifreeze from about 9,300 customers in North Carolina, South Carolina and Virginia. In 1997, Noble Oil recovered approximately six million gallons of used oil. Through the innovation of the president and CEO, James Noble, it now collects about 25 million gallons of used oil per year and produces various formulations of fuel oil that is sold to companies to supplement their energy needs. This product is used mostly in asphalt plants, paper mills and other industrial facilities. Noble Oil is currently working on the production of a premium fuel blend that can be used in more commercial applications. The company employs about 100 people and serves more than 60,000 collection locations each year.

Noble Oil also accepts used oil filters that are drained and crushed and usually yield about nine gallons of oil per 55-gallon drum of used filters. The collected filters are then transported by the truckload from Noble Oil to a facility that processes the oil filters, re-claims any additional oil and uses the resulting scrap metal to make manhole covers.

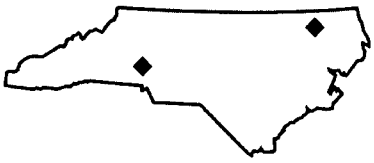
Just two gallons of used oil can generate enough electricity to run the average household for almost 24 hours.

Noble Oil is now expanding its services by offering an additional product – ASTM-certified recycled antifreeze. Nobel Oil is promoting product stewardship by collecting used antifreeze for free with the purchase of its recycled antifreeze.

For more information about Noble Oil Services Inc., contact Jim Noble at (919) 774-8180 or jnoble@nobleoil.com, or visit its Web site at: http://www.nobleoil.com.

Noble Oil Services Inc.
Sanford
Lee County

Recycling Means Business!



Nucor Corporation

Nucor Corporation
Charlotte
Mecklenburg County

Nucor Corporation
Cofield
Hertford County

Nucor Corporation is a crown jewel in North Carolina's recycling economy. Nucor is headquartered in Charlotte, and has one of its newest mills in Hertford County, where it produces steel plates for the manufacturing of ships, barges, rail cars and other industrial products.

Aerial view of Nucor's Hertford County recycled steel manufacturing plant.

Nucor is both the largest steelmaker in the United States and the largest recycler in the nation, consuming more than 14 million tons of scrap each year to make everything from steel joists, steel deck, bars, beams, girders and fasteners. Nucor is renowned for its lean corporate structure and for its profitability. The company continues to grow – its $780 million net consolidated earnings for the first nine months of 2004 set a corporate record. The company averages more than $6.2 billion in sales annually.

Almost 69 million tons of steel scrap was recycled in the United States in 2003.
- Steel Recycling Institute

The company employs 9,900 people, including approximately 390 at its Hertford County mill. Most of its production is done at "minimills" using electric arc furnaces designed specifically to consume scrap. It is dependent on the recovery of steel to feed plants in 14 states.

To learn more about Nucor, call Steve Rowlan at (704) 367-8685, or visit its Web site at http://www.nucor.com.

Recycling Means Business!

Oaks Unlimited

Oaks Unlimited has more than 40 years' experience producing high quality hardwood lumber for both domestic and overseas markets. In 2004, Oaks Unlimited president, Joe Pryor, expanded operations to produce a hardwood flooring product made from recycled pallet deck boards.

Dismantled pallets are planed into deck boards.

Located in Waynesville, Oaks Unlimited has worked closely with Waste Reduction Partners in Asheville to develop the flooring production process. Additional equipment purchases and a required building expansion were partially financed through grant funding from the N.C. Department of Environment and Natural Resources.

The "start-up" component of this new venture for Oaks Unlimited has been successful. From June to December 2004, Oaks Unlimited created one full-time position, and requires three additional part-time employees to meet the initial production schedule. As it ramps up to meet demand, production could be doubled using existing equipment and adding more employees.

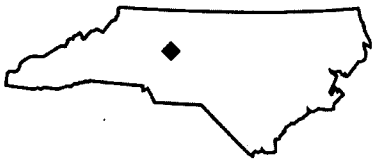
Owner Joe Pryor displays the recycled pallet boards to be used for the hardwood flooring finished product.
(Photo courtesy of *The Mountainer.*)

Oaks Unlimited has used its experience in the production, marketing and distribution of high-quality lumber to create a business that is designed to fill a niche in the hardwood flooring market. The final product is a three-eights inches thick, solid hardwood flooring that is pre-finished and ready for installation. The rustic flooring is marketed as a "green" product, and more than 250 tons of pallet deck boards are recycled annually in its production. This translates into 120,000 square feet per year of flooring. Increases in waste diversion rates are directly proportional to expanding market demand.

For more information about Oaks Unlimited, contact Joe Pryor at (828) 926-1621, e-mail: jpryor@oaksunlimited.com.

Oaks Unlimited
Waynesville
Haywood County

Recycling Means Business!



Pallet Resource of N.C. Inc.

Pallet Resource of N.C. Inc.
Lexington
Davidson County

Davidson County's PRNC facility.

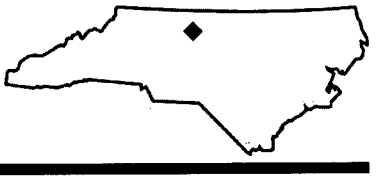
Nestled on a 22-acre site in the northern Davidson County countryside near Lexington, Pallet Resource of N.C. Inc. takes pride in being a full-service provider of environmentally-responsible products for any wooden material-handling need. PRNC currently employs 110 people - 35 of whom are directly associated with recycling - and recovers more than one million pallets per year, or 20,000 tons that would otherwise have required disposal. The company incorporates the environmental philosophy of "Reuse, Repair, Recycle and Renew" into all aspects of its operation.

Since 1985, under the leadership of Neal Grimes, PRNC services the needs of industry throughout central and western North Carolina with newly manufactured pallets, used pallets and reconditioned pallets, in addition to providing a pallet disposal and removal service. To PRNC, however, "disposal" means grinding pallets into a variety of useable wood fiber products. PRNC's two grinders, with the assistance of large magnets that remove nails and other metal fragments, produce uniformly sized, clean wood fiber that is transformed into products ranging from Designer Wood, the company's recycled wood fiber mulch, to Kid Cushion, a loose-fill organic playground surface.

For more information about PRNC, contact Neal Grimes at (336) 731-8338, e-mail: nealgrimes@prnc.com.

Recycling Means Business!

The recycled pallet industry in North Carolina employs more than 3,300 people and produces 36.5 million pallets annually.
-N.C. State University Pallet Recycling Study, May 2004.



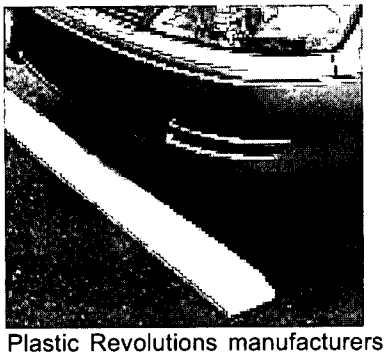
Plastics Revolutions

Reidsville is home to several plastics recycling companies, making the town the virtual "Plastics Recycling Capital of North Carolina." John Hagan is proud to be owner and president of Plastics Revolutions, one of the recycling companies operating successfully there. The company is a processor of post-industrial and post-consumer plastic scrap.

A Plastics Revolutions employee readies the finished product for shipping.

Plastics Revolutions employs 22 people, operates 24 hours a day and processes 2.5 million pounds of plastics each month. The company recycles a variety of discard plastic materials including bottles, pallets, bins, films, floor sweep regrind, pellets, parts, spurs and runners.

Plastics are processed into small flakes. The flakes are sent through a washing process that removes labels, glue, non-compatible plastics, dirt and metal. Cleaned flakes are dried and packaged for sale to manufacturers of plastic products, such as drainage pipe, nursery containers and plastic sheeting.



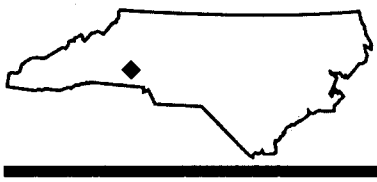
Plastic Revolutions manufacturers "Safety Stops" from recycled plastic resins.

Plastics Revolutions also manufactures "Safety Stops," a replacement for concrete parking stops. Safety Stops are made of recycled plastic and can be recycled at the end of their lifespan. Safety Stops are also cost-effective as their lightweight construction cuts shipping costs and single-person installation reduces labor expenses.

Contact John Hagan at (336) 349-2800 for further information about Plastics Revolutions. Also visit the Plastics Revolutions Web site at: http://www.plasticrevolutions.com.

Plastics Revolutions
Reidsville
Rockingham County

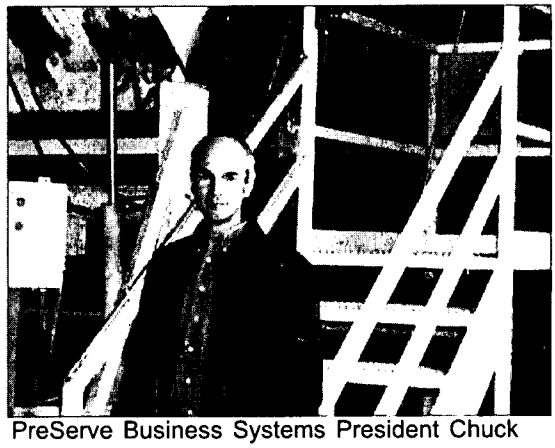
Recycling Means Business!



PreServe Business Systems

PreServe Business Systems
Gastonia
Gaston County

PreServe Business Systems diverts an assortment of plastic wastes from landfills by collecting them from a number of North Carolina businesses. It processes the collected materials and markets them to plastic molders and extruders for remanufacturing in North Carolina, the eastern half of the United States and internationally. PreServe's president, Chuck Cooper, has 14 years' experience managing waste plastics in all the commodity grades and most engineered resins. He has established two successful plastic waste processing operations with state-licensed sheltered workshop partners that provide vocational training and jobs to individuals with disabilities and other special needs.



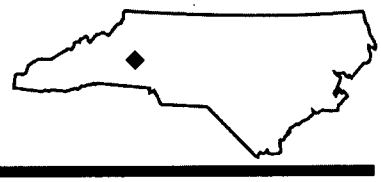
PreServe Business Systems President Chuck Cooper.

Recently, PreServe completed a major equipment upgrade at its Gaston Skills Inc. operation, partially financed through grant funding from the N.C. Department of Environment and Natural Resources. The upgrade will enable the Gastonia facility to process oversized parts such as plastic barrels, pallets and purges from a wide variety of North Carolina businesses such as the Dart Container Corporation plant in Randleman. "PreServe takes both our HIPS and PET scrap purgings and regrind," said Stephen P. Ridgill, plant manager, Dart Container Corporation of N.C. "I look forward to many years of continuing our strong business relationship with the company."

PreServe's Gastonia facility is in its second year of operation and employs between five to 10 Gaston Skills clients, depending on the operations' processing needs. The operation will process approximately 800 tons of plastic scrap this year collected from regional businesses in a wide variety of industries including telecommunications, automotive parts, wire and cable, textiles and furniture.

For more information about PreServe, contact Chuck Cooper at (919) 732-9253, e-mail: preserve@sprynet.com.

Recycling Means Business!

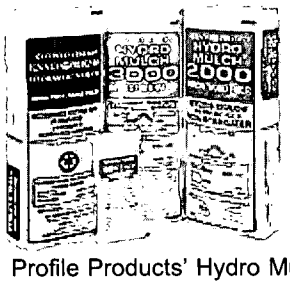


Profile Products

Profile Products
Conover
Catawba County

Profile Products is a name that has become synonymous with soil amendments and erosion control. This company's Conwed Fibers brand was a pioneer in the mulch industry in 1965 as it introduced its line of wood-based hydraulic mulches manufactured at its facility in Conover.

The Conover facility opened its doors in the mid-1960s under the name Conwed Fibers and was purchased in 2001 by Profile Products of Buffalo Grove, Ill. In addition to hydraulic mulches, Profile Products manufactures a number of other mulch and erosion control products such as Flexterra® Flexible Growth Medium™, Seed Aide® Mulching Granules, Futerra® Erosion Control Blanket and more. Currently, the company is testing new products for future expansion of its product line.



Profile Products' Hydro Mulch line is used for a variety of turf applications, promotes faster germination and minimizes sediment and water runoff.

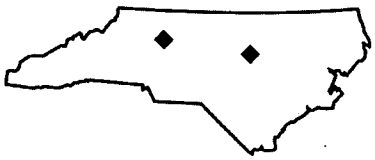
According to Profile's operations manager, Tim Andrews, the company uses about 70,000 tons of waste wood from local industries every year to manufacture hydraulic mulch, and as much as 10,000 tons of discarded paper at its Conover facility. All this is material that would have ended up in landfills, were it not for Profile Products.

Andrews notes that higher transportation costs due to fuel price increases are the "fly in the ointment" in Profile's optimistic business outlook. However, he is quick to point out that the company is thriving and anticipating opportunities for growth in the near future.

The company provides 80 jobs for workers in Catawba County, an area that has been hit particularly hard by furniture plant closings in recent years.

Those interested in finding out more about Profile Products should call Tim Andrews at (828) 327-4165, extension 822, or e-mail tandrews@profileproducts.com. You may logon to http://www.profileproducts.com to visit the Profile Products Web site.

Recycling Means Business!



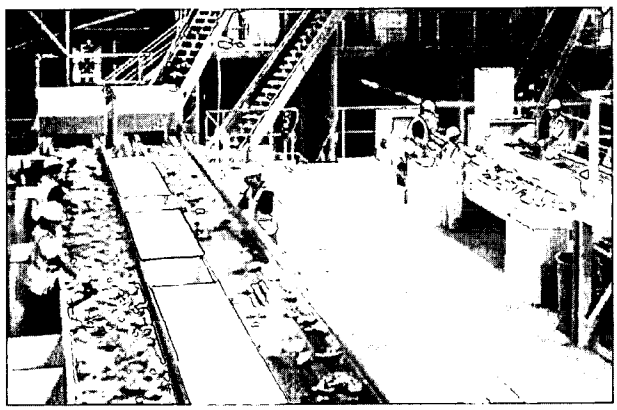
Recycle America Alliance

Recycle America Alliance
Raleigh
Wake County

Recycle America Alliance
Winston-Salem
Forsyth County

If you toss your aluminum can into a recycling bin, it may end up at a Recycle America Alliance plant. As the name suggests, the company operates a large network of recycling facilities across the United States. With facilities in Raleigh and Winston-Salem, Recycle America Alliance currently runs more than 80 recycling plants and provides marketing services for more than 140 locations in the United States and Canada.

Recycle America Alliance was formed as a subsidiary of Waste Management Inc. in January 2003. By combining assets and operations with other key domestic recycling processors and end users, Alliance carries a great deal of marketing clout.



Raleigh RAA employees perform a final manual sort after plastic bottles exit the company's highly automated resin sensors.

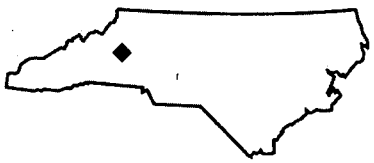
Recycle America Alliance uses single-stream processing technology to automate the separation of virtually all types of recyclable materials. State-of-the-art optical-sorting technologies are used in the Raleigh facility to quickly and affordably process commingled materials. Co-located in Raleigh is a facility that separates different colored glass. Likewise, the Raleigh operation employs advanced plastics-processing technologies that enable the company to accept separated or mixed plastics. The unique ability to offer this "no-sort" recycling option allows communities and business to recycle mixed plastic bottles more cost-effectively.

The Raleigh facility employs 145 workers and processes more than 160,000 tons of commingled recyclables each year. While less automated, the Winston-Salem facility has 20 employees that process approximately 36,000 tons of recyclables each year.

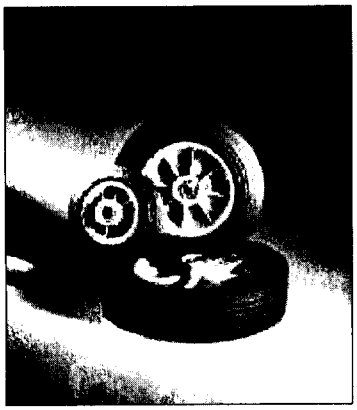
For more information about the Raleigh RAA location, contact Kerry Martin at (919) 829-1311 or kfmartin@recycleamerica.com. For more information about the Winston-Salem RAA location, contact Terry Feeney at (336) 631-9439 or tfeeney@wm.com. You can also visit the company's Web site at http://www.recycleamericaalliance.com.

Recycling Means Business!

Roll-Tech LLC



Roll-Tech LLC is a unique recycling company in Hickory that manufactures solid rubber tires and wheels using recycled crumb rubber from scrap automobile and truck tires. The company began as a division of Roll-Gom and later, Guitel, a French manufacturer of wheels and casters with solid rubber tires.



Hickory's Roll-Tech Inc. transforms scrap tires collected from across N.C. into rubber wheels and casters.

Roll-Tech was established in 1995 as the result of collaboration between state agencies such as the Recycling Business Assistance Center and the N.C. Department of Commerce, along with the city of Hickory and other local and regional agencies.

The company employs 23 people and manufactures a variety of rubber wheels and casters for uses such as safety wheels for garbage containers, central locked casters for larger garbage containers, wheels for high-pressure cleaners and handling equipment and other heavy-duty applications. Using recovered crumb rubber, the company produces an innovative solid cushion tire that is resilient, highly impact resistant and puncture proof.

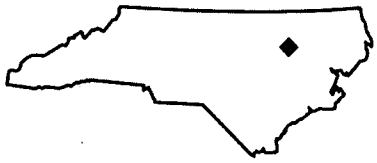
According to owner Patrice Bertrand, Roll-Tech has processed the equivalent of more than 20,250 tons of scrap tires since beginning operations in 1995.

For more information about the company, contact Patrice Bertrand at (828) 431-4515 or rolltech@rolltech.net. Visit the Roll-Tech LLC Web site at: http://www.rolltech.net.

Roll-Tech Inc.
Hickory
Catawba County

According to the N.C. Division of Waste Management, 9.6 million tires were managed by counties in 2003.

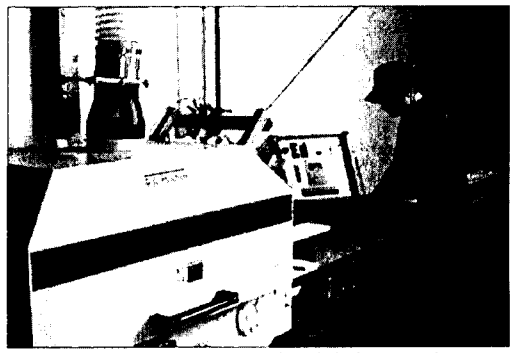
Recycling Means Business!



Scotland Neck Heart Pine Inc.

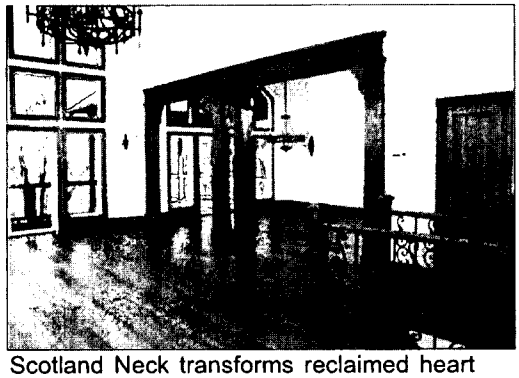
Scotland Neck Heart Pine Inc.
Tarboro
Edgecombe County

From a young age, Hodge Kitchin loved working with his hands, especially woodworking. The heartwood of the Southern Yellow Longleaf Pine that Kitchin observed through various woodworking projects captured his fascination and interest. Interest grew to a personal passion and in 2003, Hodge, along with other craftsmen, formed Scotland Neck Heart Pine Inc.



A specialty saw helps refurbish heart pine lumber collected from antique structures across North Carolina slated for demolition.

Located in Halifax County, Scotland Neck Heart Pine Inc. provides floorings, stair parts, moldings, doors, mantels and custom architectural millwork from reclaimed antique and old growth heart pine. These strong, long and straight timbers yielded excellent decay-resistant beams, which had been used as framing and decking for our young nation's factories and warehouses. In fact, these massive beams were used almost exclusively until the once-abundant supply was nearly exhausted near the end of the 1900s. Its reclaimed antique heart pine is recycled from these large old structures generally built prior to 1900. Scotland Neck also provides deconstruction and demolition of properties which allows them access and control of the old timbers to maintain quality handling.



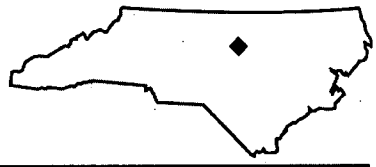
Scotland Neck transforms reclaimed heart pine into custom architectural products.

In the spring of 2004, the N.C. Department of Environment and Natural Resources awarded Scotland Neck a grant to purchase a specialty saw to be used to increase production of its reclaimed lumber. In 2004, Scotland Neck Heart Pine estimates that it has diverted 500 tons or nearly 220,000 cubic yards of waste from entering landfills.

For more information about Scotland Neck Heart Pine, contact Walton Burgyn, vice president, at (800) 826-8117, or visit the company's Web site: http://www.snheartpine.com.

Recycling Means Business!

Shimar Recycling Inc.



Since August 1997, Shimar Recycling Inc. has provided recycling services for offices and other commercial businesses in the Raleigh-Durham area. Meredith Marley, owner of Shimar Recycling, has worked to build the company into a small-business success.

Paper for processing is unloaded from the collection truck into gaylord boxes.

When the Durham-based collector-processor started up, it operated with two employees from the small corner of a parking lot leased from a paper stock dealer. With the help of a Small Business Association loan through Self-Help Credit Union, Shimar purchased a 22,500 square foot building in 2001. The new facility provides much more than shelter from the elements - it fulfills the long-held dream of expansion. Since purchasing the building, Shimar has more than tripled its capacity. Now it can look to expand collections, increase processing and make its overall operations more efficient.

Shimar's collection truck is used to serve businesses all over the Triangle.

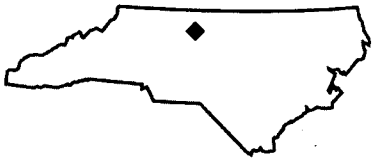
Shimar now employs seven people and has recently purchased larger capacity baling equipment, partially financed through grant funding from the N.C. Department of Environment and Natural Resources, making full use of its new facility. The company currently collects and processes 75 tons of fiber plus 20 tons of glass and plastic bottles, and metal cans per month.

Shimar's mission is to provide a professional and affordable recycling collection service for businesses and institutions in the Triangle, with an emphasis on customer satisfaction. To do so, the company will act as its clients' recycling coordinator to help them optimize their recycling systems and maximize the potential benefits of Shimar's services including cost savings and conservation of natural resources.

For more information about Shimar Recycling Inc. contact Meredith Marley at (919) 680-6262 or meredith@shimar.com. You can also visit the company's Web site at: http://www.shimar.com.

Shimar Recycling Inc.
Durham
Durham County

Recycling Means Business!



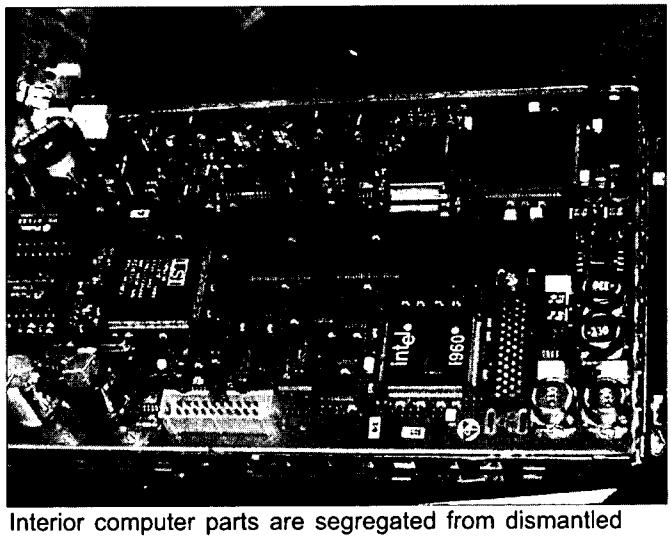
Synergy Recycling LLC

Synergy Recycling LLC
Mayodan
Rockingham County

Synergy Recycling LLC began operations in July 2000 in response to the growing need for proper disposal of electronic products and other materials. Joe Clayton manages operations and applies his experience in all phases of recyclable material processing to the company's continued growth.

Synergy Recycling is based in Mayodan, yet it handles customer needs throughout the eastern United States. Synergy Recycling specializes in providing single-source service in removal of excess and obsolete equipment including mainframe computers, PCs and work stations, monitors, keyboards, printers, circuit boards, telephone equipment, switches, circuit breakers, voltage regulators and other electrical equipment, connectors, cables and wiring.

In 2004, to increase diversion and to provide needed service in the business community, Synergy Recycling purchased a 26-foot box truck with a lift gate to assist with smaller scale "milk-run" type collections. This equipment was partially financed through grant funding from the N.C. Department of Environment and Natural Resources. Synergy Recycling currently employs six people, and handles a wide variety of material from commercial and municipal customers. It collects and processes more than 1,000 tons per year of electronics and other equipment – mostly through asset recovery contracts.



Interior computer parts are segregated from dismantled computers and recycled for high-value heavy metals.

For more information about Synergy Recycling, contact Joe Clayton at (336) 548-7014 or jclayton@synergyrecycling.com. You can also visit the company's Web site at: http://www.synergyrecycling.com.

Recycling Means Business!

TODCO

In 1992, Davidson County established a policy discouraging the disposal of wood at its landfill. With a heavy furniture manufacturing base, the county saw the policy as a way to prolong the life of its landfill. But where was the wood to go? In stepped TODCO.

Owner Todd Warfford set up a wood-waste grinding yard less than a mile from the disposal facility's scale house. TODCO began receiving wood and yard waste materials to be ground into mulch and boiler fuel.

Owner Todd Warfford has operated TODCO since 1992.

Twelve years later, TODCO is processing 16,000 tons of material annually, with capacity to expand to around 20,000 tons. Its chief customers are manufacturers - furniture and other wood-based industries in the Davidson County area. A hauling company Warfford started alongside his wood grinding business brings in some of TODCO's material. TODCO also receives yard waste from municipalities, helping them comply with the state disposal ban on that material.

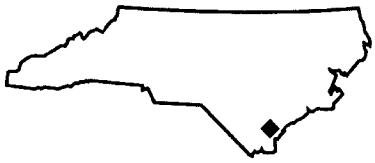
TODCO's products are mostly boiler fuel, which it sends to large industrial energy users, and different kinds of mulch, including some colorized products. It also supplies bulking agent to a local biosolids composting facility. TODCO is also expanding into the production of bark mulch and nursery mix.

The company employs nine people. Two of its biggest challenges are the costs for generators to bring heavy wood waste material over long distances to TODCO's facility and competition against cheap disposal options. But it continues to grow the mulch side of the business and to diversify its products, which will make it a strong, viable recycler for many years to come.

To learn more about TODCO, call Todd Warfford at (336) 248-2001.

TODCO
Lexington
Davidson County

Recycling Means Business!



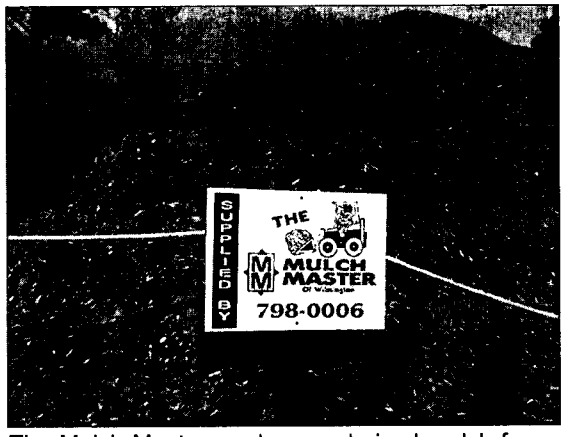
Total Maintenance

Total Maintenance
Wilmington
New Hanover County

In 2001, Joe Van Eron decided to do something about the large amount of wood being collected and sent to landfills as a result of his Wilmington-based construction site clean-up business, Total Maintenance. His first step was to purchase a tub grinder to market mulch and boiler fuel products. The purchase of that equipment was partially financed through grant funding from the N.C. Department of Environment and Natural Resources.

Owner Joe VanEron with the tubgrinder that chips wood debris into mulch and boiler fuel products.

Later, Van Eron purchased a colorizing machine that produces red, brown and black mulch. This led to the establishment of his second company, The Mulch Master of Wilmington. Currently, 15 employees work at Total Maintenance and The Mulch Master collecting, sorting, grinding and colorizing the recovered wood waste. During the first year of operation, approximately 2,250 tons of material was recovered. Today, that amount has increased to 5,000 tons and Van Eron anticipates continued growth in the future. In fact, Van Eron expects to begin recycling approximately 40 tons per week of gypsum drywall in the near future.

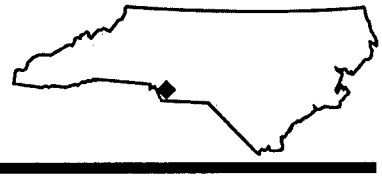


The Mulch Master produces colorized mulch from wood debris.

Recycling Means Business!

For more information about Total Maintenance and The Mulch Master of Wilmington, contact Joe Van Eron at (910) 395-2944, e-mail: JVAN10957@aol.com.

Union Gypsum



When Steve Davis began his Union Gypsum recycling business near Marshville in 1999, he sold ground gypsum in bulk at a discount to local farmers for use as a soil amendment. His product replaced the virgin agricultural gypsum farmers had been purchasing at a premium price. Today, he produces a high value-added product in 40-pound bags called "Funky Chicken." The new product is a magical mixture of poultry litter, recycled gypsum drywall and wood ash that is blended and dried prior to going through a long curing process. Davis also supplies ground recycled gypsum drywall to two large poultry producers as bedding for their poultry houses. The patented gypsum and poultry litter product, which is gathered from the poultry houses at the end of the season, is sold to area farmers for use as a nutrient-rich soil amendment completing the cycle.

Owner Steve Davis stands on a pile of ground recycled drywall.

Union Gypsum's premium organic compost, Funky Chicken, is sold in 40-pound bags.

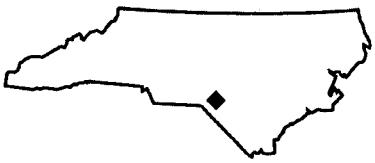
Union Gypsum's major source of recycled gypsum drywall feedstock is independent clean-up companies that remove gypsum drywall from new construction sites. Davis is in the process of cultivating a relationship with a potentially large source of gypsum drywall – the North Carolina manufactured housing industry. Currently, six people work at Union Gypsum, where they contribute to the recycling of about 5,000 tons a year of gypsum drywall and 50,000 tons a year of poultry litter.

For more information about Union Gypsum, contact Steve Davis at (704) 624-2077.

Approximately 350,000 tons of drywall waste is generated in North Carolina annually.

Union Gypsum
Marshville
Union County

Recycling Means Business!



Wagram Paper Stock

Wagram Paper Stock
Wagram
Scotland County

Established in 1979, Wagram Paper Stock is an independent collector and processor of recyclables located in Wagram, just north of Laurinburg. Located in a rural area of the state, Wagram Paper Stock's market focus is on the collection and baling of corrugated containers and other fiber material from various industrial and commercial customers in the region. It is a contract supplier of recovered fiber to Sonoco Products, an international paper and packaging company headquartered in nearby Hartsville, S.C.

President Tommie Currie has expanded the range of material the company collects from fiber grades only to aluminum and plastic containers recovered through curbside collection from local municipalities. This area of growth will provide Wagram Paper Stock the ability to support rural communities in the region that may lack the volume or have the infrastructure required to get their recyclables to an end market. Wagram Paper Stock has the ability to provide a consolidation point to assist small rural communities in this region with their recycling programs.

160 paper mills in the United States, including many located in the Southeast, exclusively use recovered fiber.

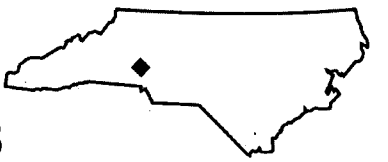
Material recovery facilities like Wagram Paper Stock can provide residential and commercial collection programs with an advantage in getting their material to market. Municipalities, as well as private haulers, can usually gain collection efficiencies and increase diversion in the regions where access to such facilities is available. The continued development of the infrastructure for primary processing represented by forward-thinking companies like Wagram Paper Stock can greatly improve the economic effect of recycling in the state.

Wagram Paper Stock is locally owned and operated, employs 17 people and collects 14,400 tons per year of recyclable materials.

For more information about Wagram Paperstock, contact Tommie Currie at (910) 369-2211.

Recycling Means Business!

Wallace Farms Soil Products

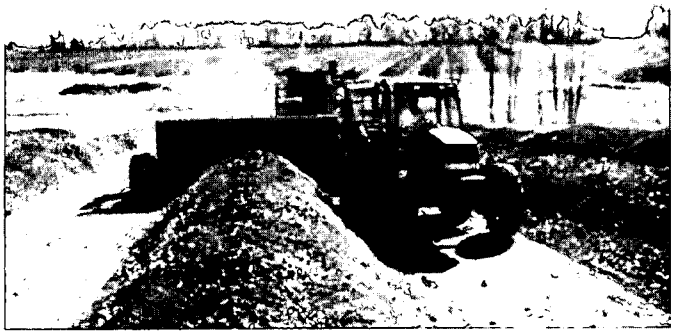


Huntersville's Wallace Farms Soil Products began operation in the early 1940s as one of the largest dairy farms in North Carolina. In 1990, the family-owned and operated business decided to diversify by leasing out its dairy facilities, and creating a soil processing and composting operation.

Wallace Farms has been making high-quality compost since 1990.

Because of increasing environmental concerns and regulations governing animal waste, the Wallace family set out to develop an environmentally friendly method of managing the dairy manure. Aerobic composting proved to be the logical solution, originating one of the few "real" composted cow manures available today. Wallace Farm Soil Products has since developed a high-quality line of soil and compost products, including blended topsoil, composted cow manure, compost-plus, potting soil and play sand.

With 22 employees, Wallace Farm Soil Products receives approximately 60,000 tons of organic waste a year and is one of the largest compost and packaging facilities in the state. The farm reaches out to other farms and industries to divert organic waste materials such as animal manures, food waste, wood waste and yard waste from landfills.

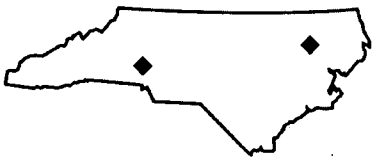


At Wallace Farms, rows of organic debris are turned by a windrow turner to produce high-quality compost.

For more information, contact Eric Wallace at (704) 875-2975, or visit the company's Web site at http://www.wallacefarmproducts.com.

Wallace Farms Soil Products
Huntersville
Mecklenburg County

Recycling Means Business!



Weyerhaeuser Company

Weyerhaeuser Company
Plymouth
Washington County

Weyerhaeuser Company
Charlotte
Mecklenburg County

Weyerhaeuser Company is an international forest products company with annual sales of $19.9 billion. Weyerhaeuser was founded in 1900 and currently employs about 55,000 people in 18 countries. Its diverse business includes nearly every aspect of the forest products industry, from growing and harvesting trees to producing pulp, paper, packaging and building products.

Weyerhaeuser

Here in North Carolina, Weyerhaeuser has established a range of facilities that includes nearly all aspects of its forest product operations. These facilities include pulp and paper mills in Plymouth and New Bern, lumber mills and managed forests in various parts of the state, and box plants and a fiber recovery and recycling facility in Charlotte.

"The Plymouth mill employs just under 2,000 people, and in addition to making the 100 percent recycled content linerboard, also produces 1,300 tons per day of fine printing and writing papers."

The Charlotte recovery facility employs 16 people and processes 84,000 tons per year of mostly fiber material. It also brokers an additional 18,000 tons of baled material that does not need processing. A majority of the cardboard that passes through this facility ends up as feedstock for the Plymouth containerboard plant.

The Plymouth facility uses 100 percent recycled fiber from old corrugated containers to produce 930 tons per day of linerboard (the outside portion of corrugated containers). The Plymouth mill employs just under 2,000 people, and in addition to making the 100 percent recycled content linerboard, also produces 1,300 tons per day of fine printing and writing papers.

For more information about Weyerhaeuser, contact Ginny Santorine at (804) 739-6736, e-mail: ginny.santorine@weyerhaeuser.com. You can also visit the company's Web site at: http://www.weyerhaeuser.com.

Recycling Means Business!

N.C. Recycling Business Assistance Providers

A number of organizations provide a wide variety of technical and business development assistance to North Carolina-based recycling businesses. Some provide assistance specifically to members of the recycling industry, while others provide general business development assistance to a wider range of clients. These organizations include:

Recycling-Specific Service Providers

N.C. Recycling Business Assistance Center

The N.C. Recycling Business Assistance Center is a partnership of the North Carolina Department of Environment and Natural Resources' Division of Pollution Prevention and Environmental Assistance and the North Carolina Department of Commerce. Its mission is to promote environmentally sound economic development through the reuse and remanufacture of recyclable materials. To achieve this objective, RBAC:

NORTH CAROLINA RECYCLING BUSINESS ASSISTANCE CENTER

- Provides technical assistance to recycling businesses with sourcing, processing and remanufacturing secondary materials and marketing their end products.
- Provides business development assistance by identifying funding sources, participates in the N.C. Recycling Business Loan Fund and funding demonstration projects.
- Develops policies that address the barriers to collecting, processing, remanufacturing and reusing secondary materials.
- Promotes to potential customers the need to purchase products with recycled content.
- Promotes the need to develop, transfer and apply technologies that will increase the use of recycled materials.
- Promotes partnerships among government and industry to stimulate and facilitate the recovery and reuse of secondary materials.
- Fosters the development of a supply infrastructure that is capable of providing industry with clean, readily usable and available raw materials.
- Promotes waste prevention and reuse within both the public and private sectors to reduce business costs and the consumption of virgin materials.

For more information about RBAC, contact Matt Ewadinger, RBAC manager, at (919) 715-6504, or matt.ewadinger@ncmail.net, or visit the RBAC Web site at http://www.p2pays.org/rbac.

Recycling Means Business!

Recycling Means Business!

Self-Help Credit Union

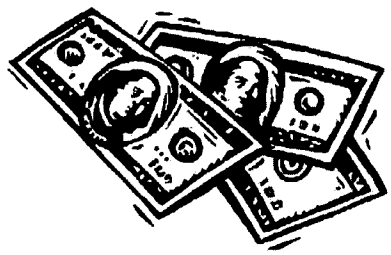
SELF HELP
CREATING OWNERSHIP AND ECONOMIC OPPORTUNITY

Self-Help, North Carolina's community development banking group, administers the N.C. Recycling Business Loan Fund. The loan fund nurtures fledgling businesses until they become bankable and graduate to full-service private sector financing.

Why is there a dedicated Recycling Business Loan Fund? Banks are sometime reluctant to fund start-ups or companies in untested sectors. While venture capital is designed to take on higher levels of risk, those firms often want only very large deals and those with some form of management participation. The Recycling Business Loan Fund is designed to fill the gap between bank loans and venture capital.

What types of loans are available? The loans are structured as market-rate debt, and can be used for working capital, inventory, equipment and real estate purchases. Initial interest-only periods may be available, where appropriate. The staff at Self-Help is well skilled at tapping existing Small Business Administration funding pools and guarantee programs to help with the approval of riskier loans. Self-Help often uses SBA 504 and 7(A) guarantees in its underwriting.

Self-Help has had significant experience lending to the recycling business community. In the past 12 years, Self-Help has lent more than $3 million to 20 recycling companies in North Carolina, including loans to companies that provide a wide variety of recycling services. Those services range from collection and processing to end-use products of diverse materials such as paper, scrap metal, construction and demolition debris, plastics and wood. Loan deals have ranged from $10,000 to more than $1 million (with an average loan size of $75,000) and have leveraged an additional $2 million.



For more information about the Recycling Business Loan Fund, contact Fred Broadwell, environmental finance coordinator at (919) 956-4490, or fred@self-help.org, or visit the Self-Help Web site at http://www.self-help.org.

Carolina Recycling Association

The Carolina Recycling Association is one of the largest state-based recycling associations in the United States, serving North and South Carolina since 1989. CRA represents more than 400 members (individuals, small businesses, multinational corporations, state government agencies and local governments) who are committed to reducing waste, promoting recycling and buying recycled.

Its mission is to conserve resources by advancing waste reduction and recycling throughout the Carolinas. CRA seeks to accomplish this mission in three ways:

- Networking: create ample opportunities for members to make valuable contacts with colleagues at events and through membership resources.
- Educating: sponsor workshops, training courses and tours, host the largest regional recycling conference in the country and produce informative publications.
- Advocating: support legislation that positively affects solid waste policies and advances states' waste reduction and recycling.

CRA is governed by a 13-member board of directors and has a staff of one part-time and two full-time employees. For more information about CRA contact Kerry Krumsiek, executive director, at (919) 545-9050, or kerryk@cra-recycle.org, or visit the CRA Web site at http://www.cra-recycle.org.

N.C. Department of Transportation's Recycled Products and Solid Waste Utilization Task Force

The N.C. Department of Transportation established the Recycled Products and Solid Waste Utilization Task Force in September 1992 to encourage the development of the state's recycling industry by promoting the successful development of markets for recycled goods. The mission of the task force is to provide leadership and expertise in the selection and recommended use of recycled materials to reduce waste and preserve natural resources. This mission is accomplished through research, demonstration projects, bid procedures and specifications that encourage contractors to develop and utilize recycled products.

Recycling Means Business!

Since its inception, the task force has been instrumental in including a wide variety of recycled materials in DOT projects. Those materials include scrap tires, fly ash, processed silica, plastics, land clearing and demolition debris, yard waste, poultry litter, municipal sludges, recycled glass, shingles, aluminum, recycled concrete and recycled asphalt.

For more information about the task force, contact DOT's Division of Highways at (919) 250-4128, or visit the Web site at http://www.doh.dot.state.nc.us/sitemap.html and click on "Recycling Information."

General Business Assistance Providers

N.C. Department of Commerce

The Department of Commerce, the state's leading agency for economic, community and workforce development, has been a cooperative partner since the inception of RBAC. A RBAC staff person has worked with the DOC office as a RBAC/DOC liaison since 1995.

The mission of the Department of Commerce is to improve the economic well-being and quality of life for all North Carolinians. The department's strategic plan focuses on three goals to further this mission:

- Keeping North Carolina competitive for high-value, technologically competitive industries and companies by actively recruiting and encouraging their expansion in the state.
- Increasing economic opportunities for North Carolina in a global economy by ensuring that North Carolina is recognized throughout the world as a highly attractive location for growing businesses, for the high quality of its products and for its appeal as a location for tourism, film and sports development.
- Improving economic opportunities for all North Carolinians through programs targeted to people and places not currently enjoying economic prosperity.

For more information about DOC and DOC/RBAC connection contact Matt Ewadinger at (919) 715-6504, or matt.ewadinger@ncmail.net. Visit the DOC Web site at http://www.commerce.state.nc.us.

Recycling Means Business!

N.C. Small Business & Technology Development Center

The Small Business & Technology Development Center's mission is to support the growth and development of North Carolina's economy by encouraging entrepreneurship, assisting in the creation and expansion of small businesses and facilitating technology development and transfer for small businesses. As part of the RBAC/SBTDC partnership, SBTDC offers scholarships to North Carolina-based recycling companies for two of its highly acclaimed small business training programs. Scholarships for SBTDC's "NxLeveL Entrepreneurial Training Program" and "SymmeTree Change Management Course" are held at various statewide locations throughout the year. Contact Dan Blankenship at (919) 715-7272 or (800) 258-0862, or dblankenship@sbtdc.org for more information. Visit SBTDC's Web site at http://www.sbtdc.org.

N.C. Department of Environment and Natural Resources' Customer Service Center

The Customer Service Center for the Department of Environment and Natural Resources is a single source of information for all of the Department's programs. Through its "1-STOP" permit assistance program, the CSC helps customers determine what environmental permits they need for a particular project as well as permit decision timelines. The CSC's "Small Business Ombudsman/Assistance Program" helps small businesses understand and comply with environmental requirements and resolve environmental problems. The 10-person staff is headquartered in Raleigh with express permitting and 1-STOP permit offices in Mooresville, Washington and Wilmington. For more information about CSC contact Edythe McKinney, director/small business ombudsman at (877) 623-6748, or edythe.mckinney@ncmail.net, or visit the CSC Web site at http://www.envhelp.org.

Waste Reduction Partners

Waste Reduction Partners, a team of highly-experienced volunteer engineers, architects and scientists, provides western N.C. businesses and industries with no-cost waste and energy reduction assessments and technical assistance. The WRP's mission is to work for a sustainable

Recycling Means Business!

economy, healthy environment, and a better quality of life by helping businesses, industries, institutions and government entities in the western part of the state reduce waste and utilize natural resources efficiently.

As part of its recycling business development efforts, WRP is leading a public/private partnership to demonstrate and commercialize a process to make wood flooring from waste pallets. The project goal is to produce 50,000 square feet of high-quality flooring in the first two years. In North Carolina more than 300,000 tons of pallet waste are sent to landfills annually.

WRP is administered by the Land-of-Sky Regional Council and works in special partnership with the North Carolina Division of Pollution Prevention and Environmental Assistance. Other partners include the Regional Water Authority of Asheville, Buncombe and Henderson, the Environmental Protection Agency and the USDA's Rural Utility Services. For more information about WRP, contact Terry Albrecht, program director, at (828) 251-6622, or wrp@landofsky.org, or visit the WRP Web site at http://www.landofsky.org/wrp.

SJF Ventures

SJF Ventures

SJF Ventures is a venture capital fund that finances and assists expansion stage companies in the clean technologies, business services and consumer products sectors. These companies achieve rapid growth and a competitive advantage through proprietary business models, quality management, high-performing entry-level workforces and environmental efficiencies. SJF Ventures provides equity financing from $500,000 to $5 million, solo or in syndicates, to companies with annual sales of $500,000 to $20 million. SJF Advisory Services, an allied nonprofit organization, provides entrepreneurial, workforce and sustainability assistance services to SJF prospect and portfolio companies.

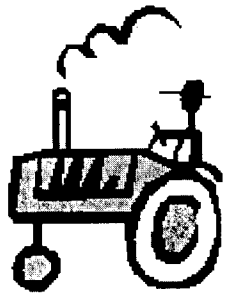
For more information about SJF Ventures, contact Rick Larson, managing director, at (919) 530-1177, or rlarson@sjfund.com, or visit the SJF Ventures Web site at http://www.sjfund.com.

Recycling Means Business!

N.C. Agricultural Finance Authority

The N.C. Agricultural Finance Authority provides financing to farmers and agribusinesses engaged in the processing and manufacturing of agricultural products, and agribusinesses that provide value-added processing or support

for other facets of agriculture such as composting and manure management. For more information about the N.C. Agricultural Finance Authority, contact Dr. Frank Bordeaux at (919) 790-3949, or frank.bordeaux@ncmail.net, or visit the National Council of State Agricultural Finance Programs Web site at http://www.stateagfinance.com/northcarolina.html.



N.C. Rural Economic Development Center and its Institute for Rural Entrepreneurship

The mission of the North Carolina Rural Economic Development Center is to develop, promote and implement sound economic strategies to improve the quality of life for rural North Carolinians. The center serves the state's 85 rural counties, with a special focus on individuals with low-to-moderate incomes and communities with limited resources. Created in 1987, the Rural Center operates a multi-faceted program that includes conducting research into rural issues; advocating for policy and program innovations; and building the productive capacity of rural leaders, entrepreneurs and community organizations. The Rural Center is a private, nonprofit organization, funded by both public and private sources and led by a 50-member board of directors.

The Institute for Rural Entrepreneurship was established in October 2003 to stimulate and support the development of micro, small and medium-size enterprises in North Carolina's 85 rural counties. The institute is housed within the Rural Center and draws from a range of resources to serve the needs of rural entrepreneurs, community and economic leaders, and state policy makers. The goals of the Institute for Rural Entrepreneurship have been developed by the Rural Center in collaboration with state business leaders and public officials. They are to:

- Support self-employment as an important source of jobs and income in rural North Carolina.
- Support development of entrepreneurial companies - new and existing - that can grow and generate jobs and wealth in rural communities.
- Support rural communities as they celebrate and build support systems for entrepreneurship.
- Support overall improvement in the health and vitality of the small business community in rural areas.

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Recycling Means Business!

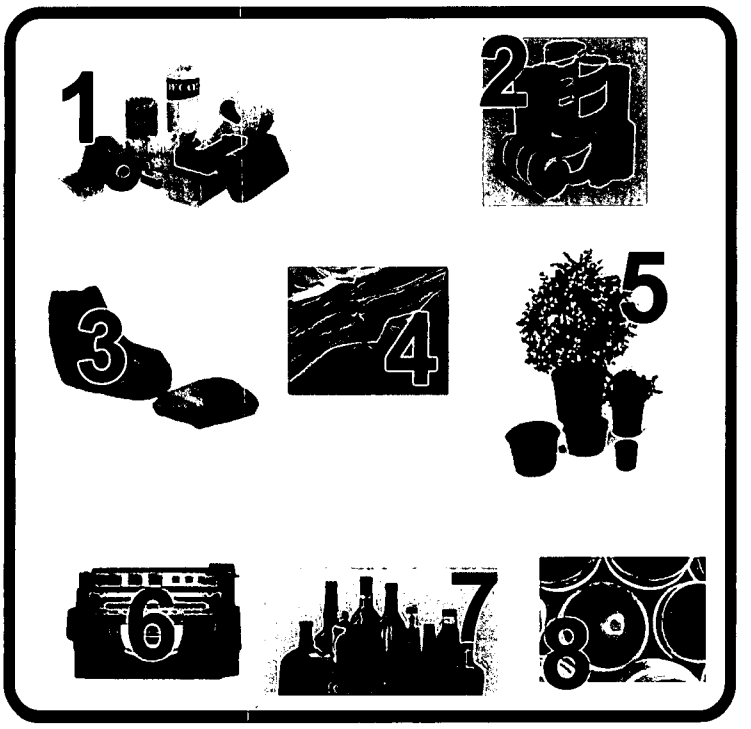
EXHIBIT N

Made in North Carolina

Recycled-Content Products Help Fuel the State's Economy

N.C. Department of Environment and Natural Resources
January 2007

Made in North Carolina



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8 - Crumpler Plastic Pipe Inc. (p. 13)

Made in North Carolina is published by the N.C. Recycling Business Assistance Center, a program of the Division of Pollution Prevention and Environmental Assistance of the N.C. Department of Environment and Natural Resources.

Michael F. Easley, Governor, North Carolina
William G. Ross Jr., Secretary, Department of Environment and Natural Resources

Division of Pollution Prevention and Environmental Assistance
For more information call (919) 715-6500 or (800) 763-0136, or write to DPPEA, 1639 Mail Service Center, Raleigh, NC 27699-1639.

NCDENR

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N.C. Recycling Business Assistance Center

The N.C. Recycling Business Assistance Center is a partnership between the N.C. Department of Environment and Natural Resources' Division of Pollution Prevention and Environmental Assistance and the N.C. Department of Commerce. Its mission is to support and grow the state's recycling industry through technical assistance and partnerships. To achieve this objective, RBAC:

- Works one-on-one with recycling companies to assess needs and provide both direct and indirect assistance through partnering agencies.
- Provides business development assistance by identifying potential funding sources, participates in the N.C. Recycling Business Loan Fund and the funding of demonstration projects.
- Promotes partnerships among government and industry to stimulate and facilitate the recovery and reuse of secondary materials.
- Fosters the development of a supply infrastructure that is capable of providing industry with clean, readily usable and available raw materials.

For more information, contact Matt Ewadinger, RBAC manager, at (704) 264-2980, or matt.ewadinger@ncmail.net, or visit the Web site at www.p2pays.org/rbac.

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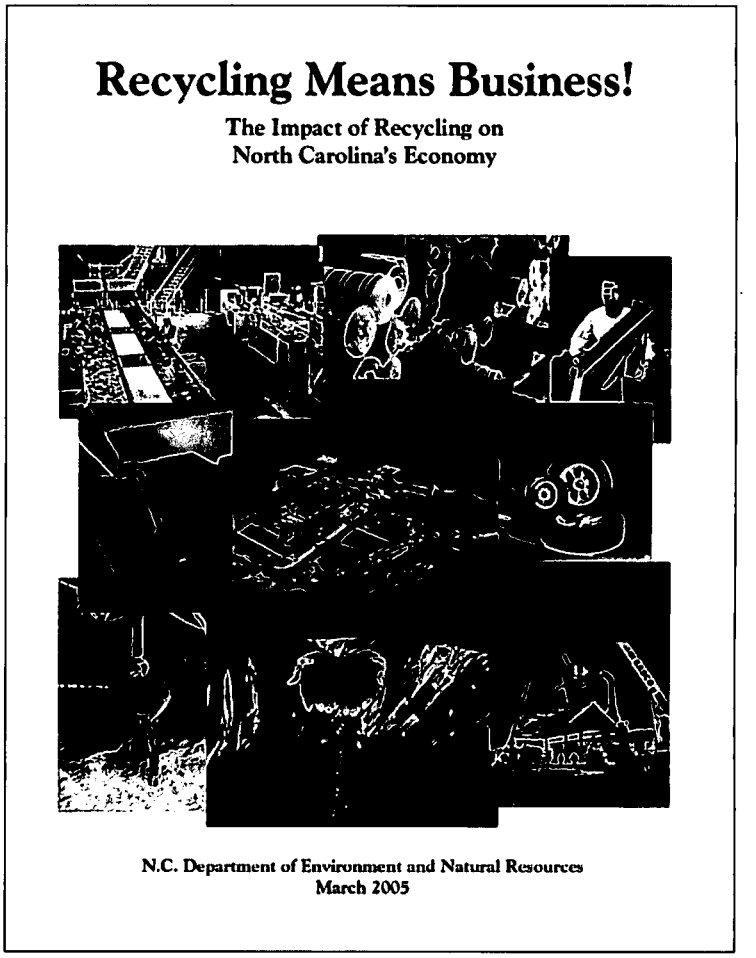
Foreword

In 2004, the N.C. Division of Pollution Prevention and Environmental Assistance produced a document entitled *Recycling Means Business! The Impact of Recycling on North Carolina's Economy* (shown here), highlighting more than 40 North Carolina businesses that process recycled materials, from sorting to manufacturing new products. These companies range in size from Nucor, a large steel manufacturer with more than 11,500 employees, to Elizabeth City Glass, a glass processor and manufacturer currently employing four people. A number of manufacturers process recyclables from start to finish. Others buy materials such as plastic from other businesses that perform one or more of a variety of industrial activities including: sorting, shredding, chipping, cleaning and pelletizing the materials.



One thing that these and the other recycling businesses listed in the state's recycling markets directory (http://www.p2pays.org/DMRM/start.aspx) have in common is their important contributions to North Carolina's economy. While other manufacturing sector jobs have declined over the past decade, recycling jobs in the state have increased 60 percent from 8,700 in 1994 to 14,000 in 2004. In addition, a number of these companies now occupy old textile factories and other industrial plants abandoned by some of the state's more traditional industries.

While *Recycling Means Business!* showcased a cross-section of recycling operations, *Made in North Carolina: Recycled-Content Products Help Fuel the State's Economy*, highlights a number of companies that are manufacturing recycled-content products. Some of those products, like paper and metal, have been made with recycled-content materials for decades, while others, like nursery containers and blow-molded plastic bottles, are only recently being made with recycled-content materials. Regardless of how long these companies have been using recycled materials, manufacturers will increasingly rely on recycled feedstock to produce a wide variety of products.

Introduction

Manufacturing – the process of making value-added products – has long been one of the pillars of North Carolina's economy. But recently that pillar has seemed to crumble in the face of global competition. As documented by the N.C. Employment Security Commission and Raleigh's *The News & Observer*, manufacturing jobs in the state have declined from 820,000 in 1990 to 569,000 in 2005.* This rapid decline is unsettling and it begs the question: how can manufacturing be kept alive in North Carolina?

"Our state's recycled product companies are doing their part to retain manufacturing jobs in North Carolina and the United States."

One of the answers comes from a surprising source: recycling. Long understood as a way to "keep stuff out of the landfill," recycling is first and foremost a process that captures discarded commodities for use in manufacturing. Manufacturing relies on access to materials and any company making any kind of product needs to bring in reliable and appropriate feedstocks for processing. Increasingly, manufacturers around the world are relying on recovered commodities as a supply source, and that's true here in North Carolina as well.

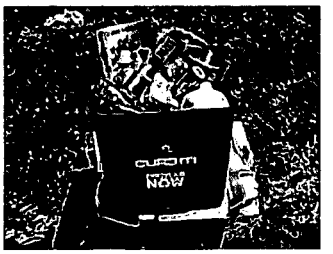
The companies profiled in this document are actively ensuring that manufacturing stays a part of North Carolina's economic future. They make a range of products from traditional everyday paper, plastic bottles and flowerpots, to relatively new items such as trash cans and polyester yarn. You probably use one of these products every week if not every day, unaware it was made from the materials placed in the curbside or office recycling bin. The items these manufacturers are producing have great utility, are high quality and can even be things of beauty, like flooring made from recovered heart pine boards.

Our state's recycled product companies are doing their part to retain manufacturing jobs in North Carolina and the United States. They are operating profitable businesses giving people the products they want. They are in step with a global trend to use "secondary" or recovered materials that meet or exceed quality and specification standards. In short, recycled products manufacturing is a success story in North Carolina and one that can help rebuild that central pillar of our economy.

How can we increase that success? The simple answer is: recycle. Households, businesses, churches, construction companies, nonprofit agencies, schools, institutions, industries and individuals across North Carolina can help make both recycling and manufacturing succeed by recognizing that some things are not trash, but the building blocks for a thriving economy. Why would you throw all that away?

*"China aims to innovate, compete for tech jobs," *The News & Observer*, Sept. 18, 2006.

What Is Buying Recycled And Why Does It Matter?

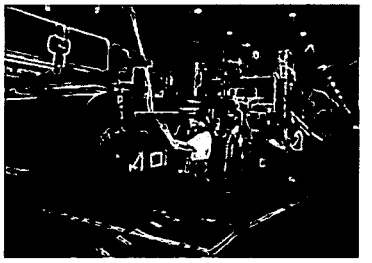


You know the three Rs – reduce, reuse, recycle. You're familiar with the "chasing arrows" image that tells you if something is recyclable or made of recycled materials. But, can you list the process those arrows represent? The truth is, placing materials in the recycling bin rather than throwing them in the trash is only the first step.

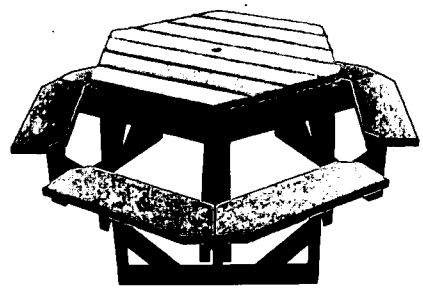
As you can see from the recycling bin in the photo above, curbside recycling programs can be extensive, accepting Nos. 1 and 2 plastic bottles and jars, glass containers, magazines and catalogs, newspapers, cardboard, spiral paper cans, steel cans, telephone books, aluminum cans, junk mail, mixed paper and gift wrap.

Materials collected for recycling are sorted (as workers are doing in the photo on the right), cleaned, processed and sold to companies to use in manufacturing new products. Remanufacture is the second action in the recycling loop, as shown at a mill in the photo below. Not only does the simple act of recycling save space in landfills but it also creates much-needed feedstock for the manufacturing sector.

To complete the "loop" the final step requires consumers to purchase and use recycled content products, such as the ones shown above left. By purchasing recycled products, you are helping to create long-term stable markets for recyclable material collected. The more a recycled-content product is purchased, the more competition improves, the more resources we save and the less waste and pollution we produce. If that doesn't sound convincing, then remember, it is also creates jobs!



Buying Recycled Products



Recycled-content products have a lesser or reduced effect on human health and the environment when compared with competing products that serve the same purpose. They often have the added benefit of being more durable, such as a picnic table made from plastic lumber. It is low maintenance, will last much longer than a wooden table and it's made from recycled materials!

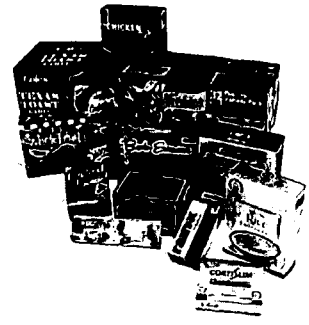
Purchasing recycled products is like casting a vote. Requesting more recycled-content products in the marketplace shows manufacturers that consumers care about the way products are made. Many people become good environmental stewards through recycling efforts and have joined the campaign by participating at home and at work. But to complete the full circle, you should begin purchasing products that are made of the materials we recycle.

What to look for

When shopping at your local grocery, hardware and multipurpose stores, look for the recycling symbol(s).

Arrows superimposed on a dark background indicate that the product is made with recycled material.

Arrows superimposed on a white or light background indicate the product can be recycled after it's used.

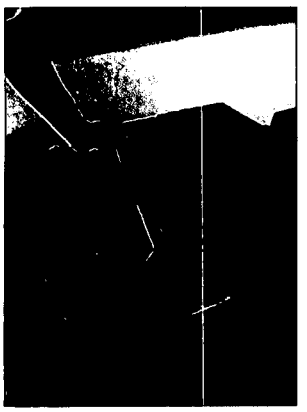


But don't just rely on symbols. Read product labels like you would food nutrition labels. The use of the recycling logo is not regulated by law. If the label says only "recycle" or "recyclable," it may contain no recycled content. To ensure you are buying a product made from recycled materials check the label for words that indicate the product is made from recycled materials. Make sure you're getting exactly what you're looking for in your purchases.

Recycled Product Examples

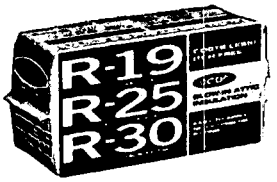
The following is a list of EPA's Comprehensive Procurement Guidelines product categories, along with some examples (http://www.epa.gov/cpg/).

- *Construction Products*: building insulation, carpet and carpet cushion, cement, concrete, paint, floor tiles, pavers (shown at top of p. 5), roofing materials, shower and restroom dividers/partitions



- *Landscaping Products*: compost, garden and soaker hoses, plastic lumber landscaping timbers and posts
- *Non-paper Office Products*: binders, clipboards, folders, clip portfolios, furniture, recycling containers and waste receptacles, plastic desktop accessories, plastic envelopes, plastic trash bags and toner cartridges
- *Paper and Paper Products*: commercial/industrial sanitary tissue products, miscellaneous papers, newsprint, paperboard and packaging products, printing and writing papers
- *Park and Recreation Products*: park benches and picnic tables, plastic fencing, playground equipment, playground surfaces and running tracks
- *Transportation Products*: parking stops (shown at right), traffic barricades and traffic cones
- *Vehicular Products*: engine coolants, rebuilt vehicular parts, re-refined lubricating oils and retread tires
- *Miscellaneous Products*: awards, plaques, bike racks, industrial drums, mats, pallets and signage

For some purchases, consumers are making a conscious decision to buy the more environmentally-friendly product. Many times we're not even aware that what we're buying has recycled content.

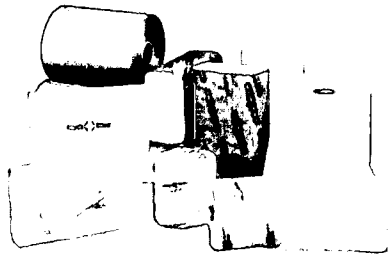


For example, steel is not only one of the most highly-utilized material in manufacturing, it is also the most recycled commodity. Three-quarters of all steel recycled in America is actually made back into a new product—anything from a can to a car. Insulation manufacturers also commonly use recycled materials in their product. Fiber glass insulation, traditionally made with sand, is increasingly made with recycled glass, and cellulose insulation is made from a variety of recycled paper categories including newsprint, food boxes and phone books.

These unconscious purchases, many highlighted in the following pages, include both plastic and glass bottles, cereal boxes, pipes, flower pots, coat hangers, furniture and upholstery.

Where to Buy Green Products?

You can find recycled-content products at stores across the country for office supplies, building materials and yard supplies. Some examples include plastic lumber at home improvement

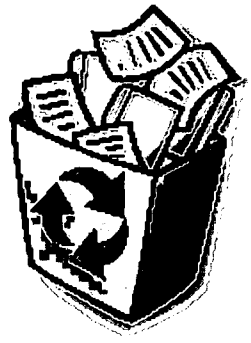


stores and a wide variety of paper packaging that contain healthcare, food and household products. Everything you ever wanted to know about recycled-content products and other environmentally preferable products can be found on the N.C. Division of Pollution Prevention and Environmental Assistance's EPP Web site at http://www.p2pays.org/epp/.

If you have trouble finding recycled-content products or other environmentally-friendly products, consider filling out a comment card and dropping it into the customer comment boxes where you shop. Local stores want to carry products their customers are looking for - perhaps they are not aware that these products are available or that it could help their environmental image. Businesses need to know what is important to their customers, so help keep them informed.

Create an Incentive

Whether you work in a government office or in the private sector, it's a good idea to create a policy with your purchasing initiatives. Work with upper management and procurement professionals to gain buy-in and create the policy document. Because everyone is involved in purchasing decisions, educate the entire staff on the new purchasing procedures. Contractors need to be made aware of the policy so they, too, can try to purchase more sustainable products and conduct their service in the most sustainable way.



The federal government, as well as many states (including North Carolina), have instituted "buy recycled" or "green purchasing" programs. These programs establish a secure commitment to buying products made with recycled products. Consumers benefit from these programs because the purchasing power of the government drives change in the marketplace and creates competition that eventually drives down cost. This opens the door for industries to begin using more recyclables to manufacture products.

Box stores are developing sustainability policies that include various efforts, from carrying more environmentally-friendly products and making more sustainable products to developing product stewardship programs. Policies are being developed to encourage suppliers to improve everything from packaging materials to manufacturing more recycled content products.

Reduce, reuse, recycle and be a conscious consumer! Visit http://www.p2pays.org/epp for more information.

Energy Savings And Recycling: Making The Connection

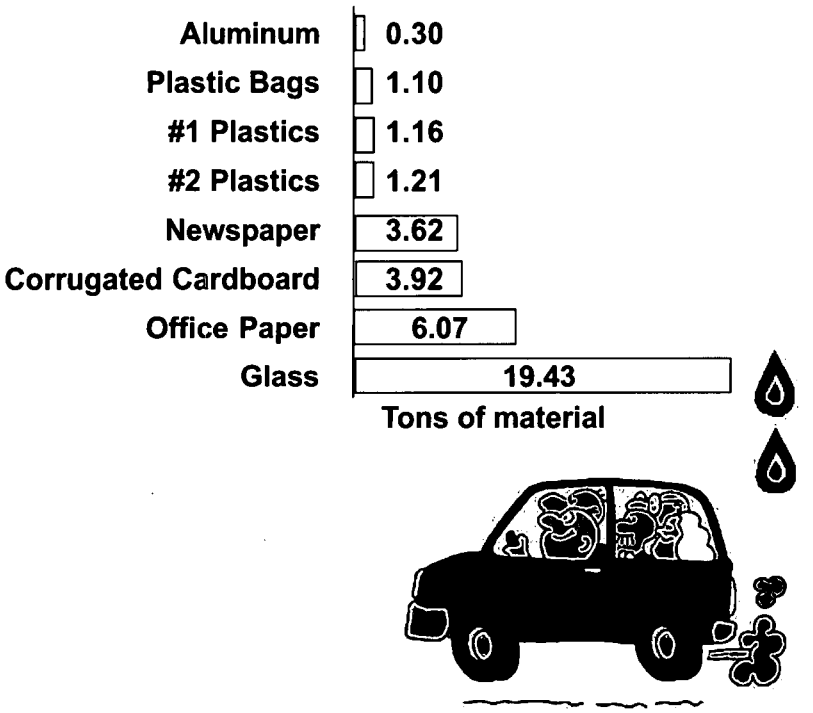
As energy costs continue to rise, it's a good time to revisit the energy savings associated with recycling. Products that enter the waste stream have impacts on energy use at each stage of their life cycle. These stages include: the acquisition of raw materials, the manufacture of raw materials into products, product use by consumers and product disposal.

"A 4.4 percent increase in recycling rates would have the same effect as removing 27 million passenger cars from the roadway each year."

Recycling saves energy. Manufacturing goods from recycled materials typically requires less energy than producing goods from virgin materials. When a product is made with recycled materials, less energy is needed to extract, transport and process raw materials and to manufacture the product. When energy demand decreases, fewer fossil fuels are burned and less carbon dioxide is emitted into the atmosphere.

Energy savings are determined by comparing the difference between manufacturing a product using virgin inputs and manufacturing a product using recycled inputs. For example, recycling aluminum cans results in significant energy savings per ton. These savings reflect the nature of aluminum production; manufacturing aluminum from virgin inputs is energy intensive whereas relatively little energy is required to manufacture cans from recycled aluminum.

Tons required of each material to equal the energy savings of taking one car off the road per year



If the United States recycling rate were to increase from the current 30.6 percent recovery scenario to 35 percent by 2008, energy savings would increase to an estimated 1,720 Trillion Btu – an amount equivalent to the consumption of 13.7 billion gallons of gasoline. A 4.4 percent increase in recycling rates would have the same effect as removing 27 million passenger cars from the roadway each year.*

*"Waste Management and Energy Savings: Benefits by the Numbers," Anne Choate, Luaren Pederson and Jeremy Scharfenberg, ICF Consulting and Henry Ferland, U.S. EPA; Sept. 4, 2005.

Other Benefits To Manufacturers Using Recycled Feedstock

Recycled-content products are manufactured to meet the same specifications as virgin products. Manufacturers realize the same benefits using recycled materials as consumers do when purchasing recycled-content products. They help their communities conserve energy and landfill space, create markets for recyclables the community generates, create jobs and build the economy.

North Carolina offers a few incentives to companies in the recycling industry. Businesses can apply for a tax exemption on equipment and facilities used exclusively for recycling and resource recovery. The N.C. Division of Waste Management manages the Tax Certification Program. North Carolina also offers grants to businesses involved in recycling from collection of materials to processing and manufacturing products, as well as grants to communities to help develop and expand local recycling initiatives. See the RBAC Web site for additional information: http://www.p2pays.org/rbac/financing.html.

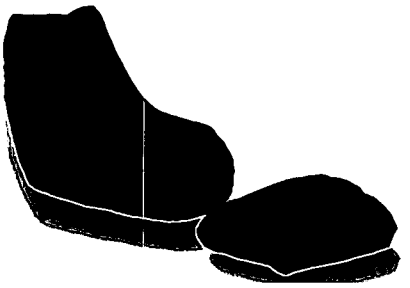
Made in North Carolina

Recycled-Content Products Help Fuel the State's Economy

COMPANY PROFILES

Artist Colony

Lexington



FAST FACTS

Material Recycled
Polyethylene, polyurethane, polystyrene and polypropylene

Tons Recycled Per Year
234

Employees 39

Established 1978

Company Contact

Chad Sink
(336) 243-2541, ext. 225
www.artistcolonyltd.com

Products Made
Beanbag chairs

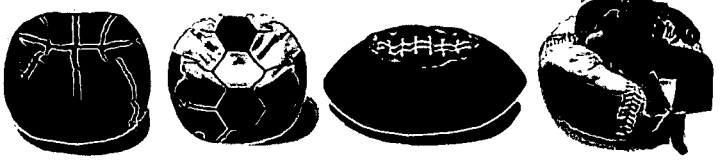
Process Description
Post-industrial scrap plastics are brought in by truckload and ground into a flake material. Plastic flake is filled into sewn beanbags and bags are sealed.

Product Facts
Artist Colony's soft goods are created using recovered foam products and plastic beads. Post-industrial scrap plastic foam materials are processed into chips that become the filler in beanbag chairs. Artist Colony's beanbag chairs come in a variety of shapes and colors.

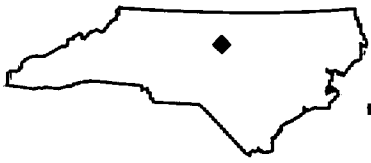
Where to Buy
Beanbag chairs are sold at department stores, retail furniture stores, catalog retail and e-marketed under the Artist Colony brand.

Other Information
Artist Colony, which has been selling beanbag chairs to furniture outlets since 1980, has found that using recycled feedstocks gives it a financial advantage in the marketplace.

sport balls

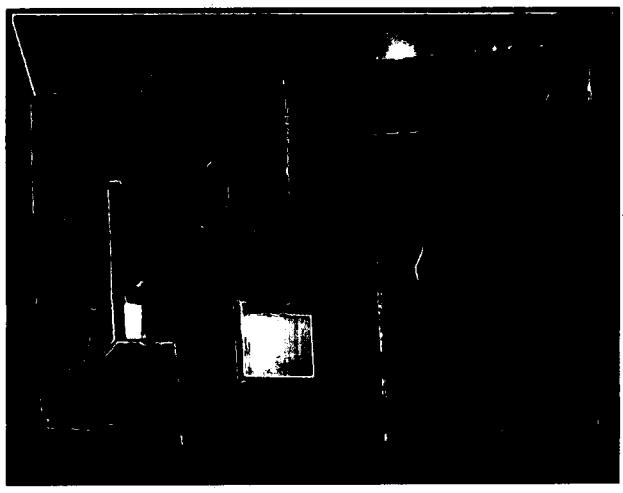


basketball soccer football baseball



Barnstar Vintage

Saxapahaw



FAST FACTS

Material Recycled
Salvaged building materials

Employees 2

Established 2004

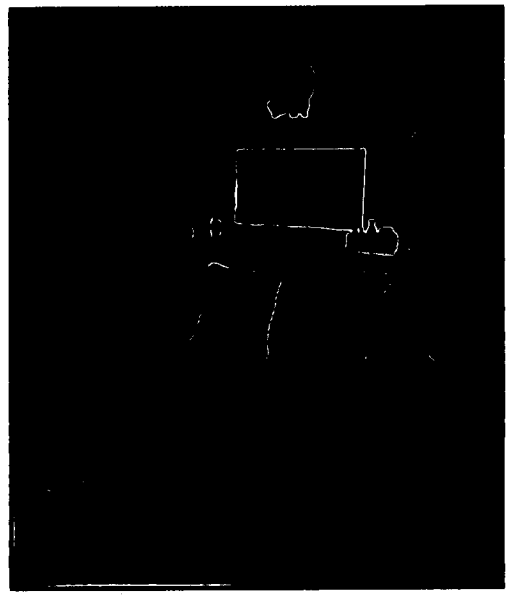
Company Contact

Tom and Heather LaGarde
(336) 376-5694
tomlagarde@bellsouth.net
www.barnstarvintage.com

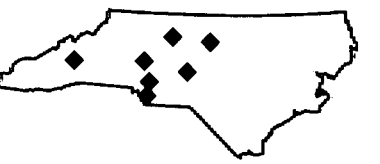
Products Made
Custom-made frames, mirrors and indoor and outdoor furniture

Process Description
Frames and mirrors are made with vintage wood and antique tin ceiling tiles. Custom indoor and outdoor furniture is made using barnwood, architecturals, beams, porch posts and other vintage wood.

Where to Buy
Sells products on its Web site (www.barnstarvintage.com), on www.Etsy.com and at local craft fairs.



Caraustar Industries Inc.



Charlotte - 3 facilities

FAST FACTS

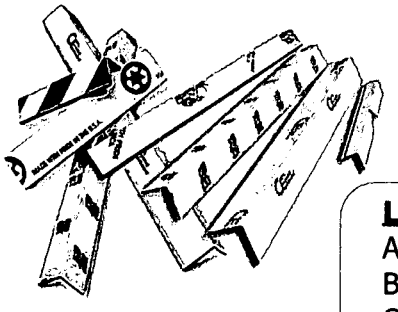
Material Recycled
Books (softcover), old corrugated cardboard, folding cartons, fiber drums, magazines, newspaper, card stock, greenbar, kraft, office mix, residential mix, white office, paper tubes and paperboard

Tons Recycled Per Year
55,000

Employees 500

Established 1938

Company Contact
Jason Garrison
(704) 376-7474
jason.garrison@caraustar.com
www.caraustar.com



Products Made
Paperboard and paperboard products

Process Description
At Caraustar's fiber recovery facility and paperboard mill in Charlotte, materials collected are processed into 100 percent recycled paperboard, which is sent to various Caraustar converting locations including the nine North Carolina facilities listed in the chart below.

Product Facts
Markets include pharmaceutical and healthcare, candy and confectionery, specialty dry foods, frozen foods, sporting goods, pet foods, household goods and hardware.

Other Information
Caraustar has more than 4,500 employees at its 85+ manufacturing facilities worldwide. The company produces more than one million tons of recycled paperboard annually, the largest market share in North America.

Locations	Products
Asheville	tubes and cores
Burlington	rigid set-up boxes and vinyl lids
Charlotte	specialty converted die cut paperboard products
Pineville (2)	folding cartons; prepress and packaging services
Kernersville (2)	adhesives; tubes and cores
Mooresville	specialty converted die cut paperboard products
Randleman	folding cartons

Cascades Tissue Group

Rockingham

Products Made
Bathroom tissue, paper towels, paper hand towels, facial tissue and paper napkins

Process Description
From feedstock to final product, it all happens at this facility. Sorted office paper is sent through a de-inking process to make de-inked pulp. This pulp is used to make paper. The finished paper is converted into many different tissue products that are packaged and distributed around the country.

Product Facts
All products produced by Cascades Tissue Group contain 100 percent recycled content. The company is a major supplier of private-label products for major chains and drugstores. Also, its brands for the commercial and industrial markets can be found in North Carolina. These innovative lines are offered under various brand names such as "New Horizon," "North River," "Decor" and "Perkins."

Where to Buy
N.C. sales representative:
Bill Murphey
Phone: (540) 353-5956
E-mail: bill_murphey@cascades.com

Or go to http://www.ctgebiz.cascades.com and click on "English" at the top to find a sales representative in your area.

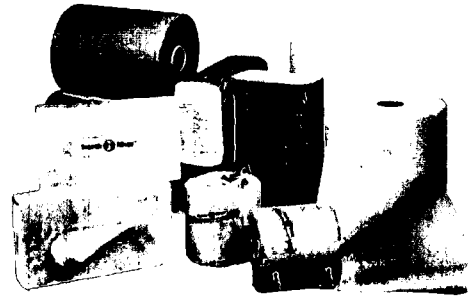
FAST FACTS

Material Recycled
Sorted office paper

Tons Recycled Per Year
70,000

Employees 150

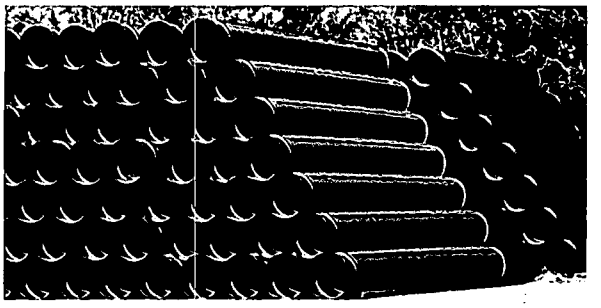
Established 1983

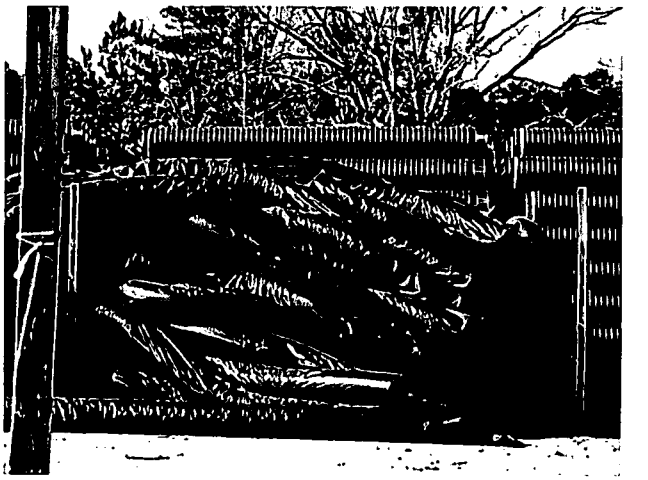


Company Contact
Mike Kitner
(910) 895-4033
mike_kitner@cascades.com
www.cascades.com

Crumpler Plastic Pipe Inc.

Roseboro





Company Contact
Houston Crumpler
(800) 334-5071
(910) 525-4046
www.cpp-pipe.com

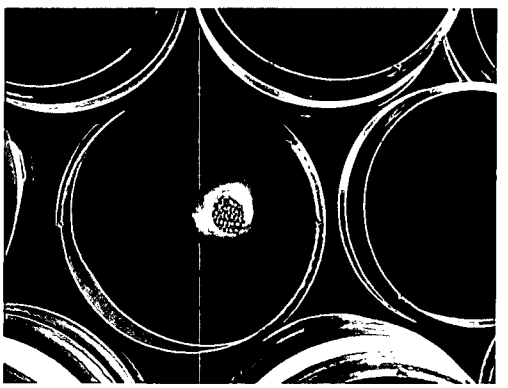
FAST FACTS

Material Recycled
High density polyethylene plastic

Tons Recycled Per Year
6,000 - 10,000

Employees 75

Established 1975



Products Made
3"-48" HDPE corrugated plastic pipes

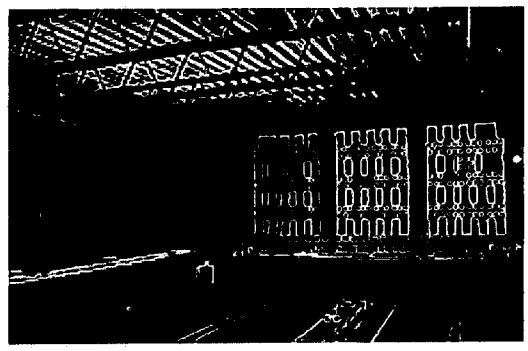
Product Facts
Pipes can be made with up to 100 percent recycled HDPE content. Product applications include: road culverts, parking lot detention-retention drains, landfill drains, industrial wastewater systems, golf course landscape drains, sewer composting and septic sewers.

Where to Buy
CPP direct sells to departments of transportation, building contractors, wholesalers, independent building supply companies and hardware stores east of the Mississippi, from New Jersey to Florida.

Other Information
The company operates the largest corrugated plastic pipe manufacturing plant under one roof on the eastern seaboard.

Cunningham Brick Company Inc.

Lexington



Products Made
Building brick and brick nuggets

Process Description
Material is blended with clay and shaped into bricks. Bricks are fired in a kiln. Whole bricks are sold directly to consumers, contractors and building supply vendors. Off-spec and broken pieces of brick are converted to brick nuggets and bagged for sale to consumers and the commercial landscaping market.

Product Facts
Cunningham Bricks come in a variety of sizes, including modular, engineer, queen, closure, utility and norman sizes. They are also available in a number of colors and specialized shapes.

Where to Buy
Bricks can be purchased directly from the manufacturer. Brick landscaping nuggets may be purchased from approved landscaping vendors. Brick products are distributed to 37 states and Canada. Cunningham Brick Company Inc. also sells through "big-box" home improvement stores. Bricks are sold under the Cunningham brand name.

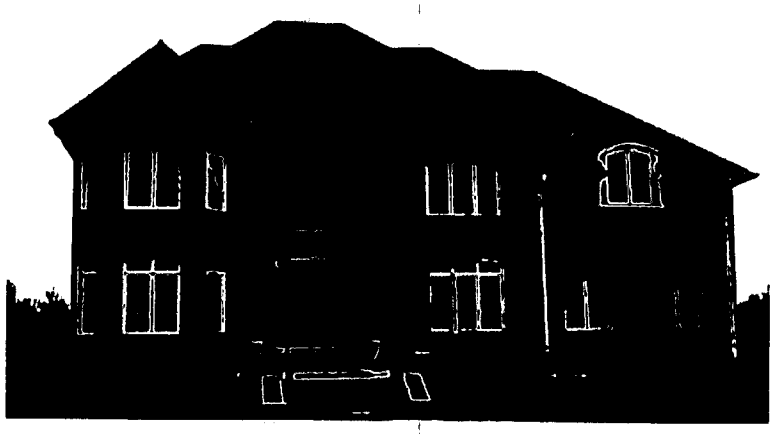
FAST FACTS

Material Recycled
Petroleum contaminated soils, manganese powder, textile biosolids and ceramic waste

Tons Recycled Per Year
35,000

Employees 130

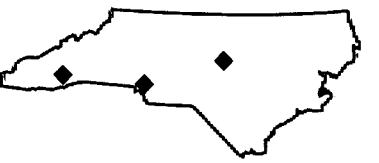
Established 1909



Company Contact

Richard Cunningham
(800) 672-6181
feedback@cunninghambrick.com
www.cunninghambrick.com

DuraLine Imaging Inc.



Flat Rock

Company Contact

Sabrina Farmer
(800) 982-3872
service@duralineimaging.com
www.duralineimaging.com

FAST FACTS

Material Recycled
Ink jet cartridges, toner cartridges, printer ribbons, plastic casings and gears from damaged cartridges

Tons Recycled Per Year
60

Employees 35

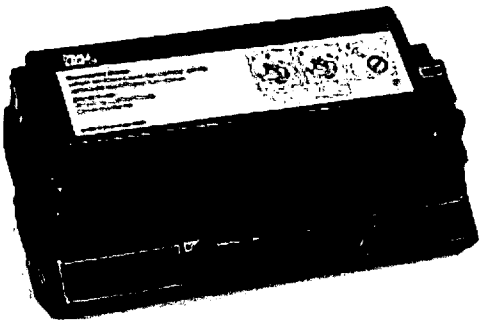
Established 1970

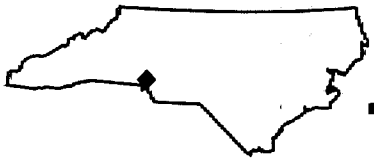
Products Made
Remanufactured ink jet cartridges, toner cartridges and printer ribbons

Process Description
Used cartridges are shipped in from drop locations and rebuilt and/or refilled.

Where to Buy
DuraLine Imaging sells direct to businesses and industries and also by government contract. DuraLine Imaging products may be purchased by calling (800) 982-3872.

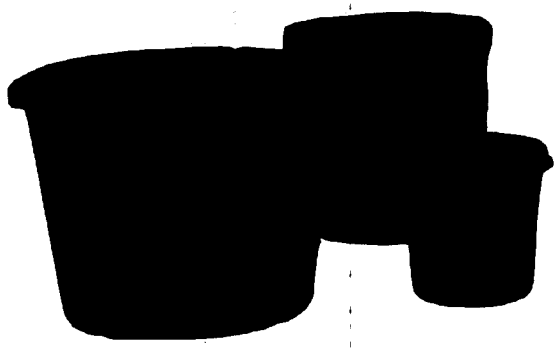
Other Information
With more than 3,900 clients served in 2005, DuraLine Imaging is the Carolina's leading printer cartridge remanufacturing firm. At present, more than 50 percent of North Carolina's top 100 employers purchase replacement printer cartridges or other imaging products from DuraLine Imaging. DuraLine also has operations in Cary and Charlotte.





Engineered Recycling Company

Charlotte



FAST FACTS

Material Recycled
High density polyethylene plastic (natural and colored)

Tons Recycled Per Year
10,000

Employees 24

Established 2003

Company Contact

Peter Suttoni
(704) 358-6700
psuttoni@erecycling-usa.com
www.erecycling-usa.com

Products Made
Nursery containers ranging in size from 1 to 25 gallons

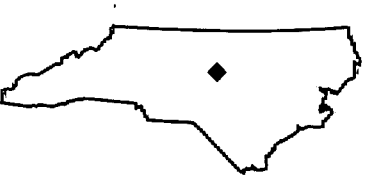
Process Description
Engineered Recycling shreds, grinds, washes, dries and pelletizes post-consumer and post-industrial HDPE. ERC then manufactures colored nursery containers from the pellets it produces.

Product Facts
Product is sold exclusively to the wholesale nursery industry. Distributors are used regionally, but ERC also sells direct to growers in some areas.

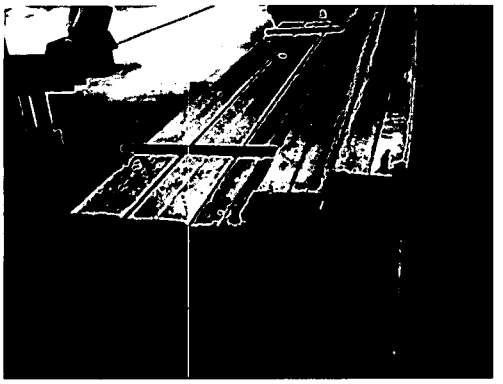
Where to Buy
MacKenzie Nursery Supply in Lenoir and Coors Farm Supply in Smithfield.

Other Information
Thanks in part to a N.C. DPPEA Recycling Business Development Grant, Engineered Recycling established a second processing line enabling the company to double its capacity.

Heartwood Pine Floors Inc.



Pittsboro



FAST FACTS

Material Recycled
Salvaged and reclaimed wood beams, decking and timber

Tons Recycled Per Year
1,800

Employees 9

Established 1983

Company Contact
Ann Van Orden
(800) 524-7463
(919) 542-4394
email@heartwoodpine.com
www.heartwoodpine.com

Products Made
Precision-milled tongue and groove flooring

Process Description
Heartwood Pine purchases the salvaged wood beams and decking from demolition companies, sorts by quality, de-nails (removes any metal contamination) and processes the wood into top-quality flooring. The flooring is marketed and sold to builders and homeowners for both new construction and remodeling projects.

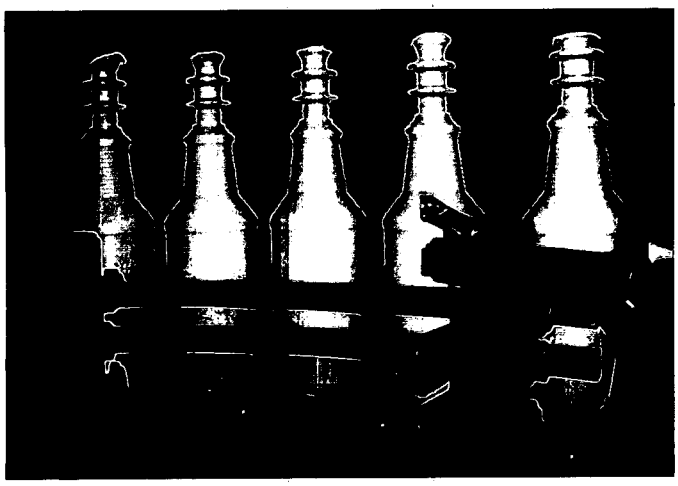
Product Facts
Wood beams, decking and timber are salvaged from textile mills being dismantled or demolished. The company specializes in 100-plus-year-old heartwood pine and produces 100 percent-recycled content tongue and groove flooring.

Where to Buy
Heartwood Pine's flooring can be purchased directly at the showroom in Pittsboro, or through the company's Web page (www.heartwoodpine.com). The company also advertises in *Fine Home Building* magazine.

Other Information
Heartwood Pine received a grant from N.C. DPPEA in 2005 to purchase and install a band saw giving it the capability to increase the amount of material reclaimed and reduce waste.

Intertech Corporation

Greensboro



Products Made
Blow-molded plastic bottles, sizes 1.5 ounces to 160 ounces. Bottles from 16 ounces to 64 ounces may contain post-consumer resin.

Process Description
Intertech purchases post-consumer resin recycled from milk and water bottles. The PCR is blended with virgin resin and then blow-molded into a variety of high quality plastic containers.

Product Facts
Additional products/services include container decoration by screen printing, labeling and sleeving, and container and mold design/construction.

Where to Buy
Products can be purchased through the company's Web page (www.intertechcorp.com).

Other Information
Intertech also manufactures Funballs, HyGenie ball washing systems and GigglePlay Gazebos (ball pools) for children's play.

FAST FACTS

Material Recycled
High density polyethylene plastic

Tons Recycled Per Year
88

Employees 65

Established 1974

Company Contact

Len Worsham
(800) 364-2255
(336) 621-1891
len@intertechcorp.com
www.intertechcorp.com

Laurel Hill Paper Company

Cordova

FAST FACTS

Material Recycled
Sorted office paper, mixed paper (wastepaper)

Tons Recycled Per Year
25,000

Employees 175

Established 1983

Company Contact

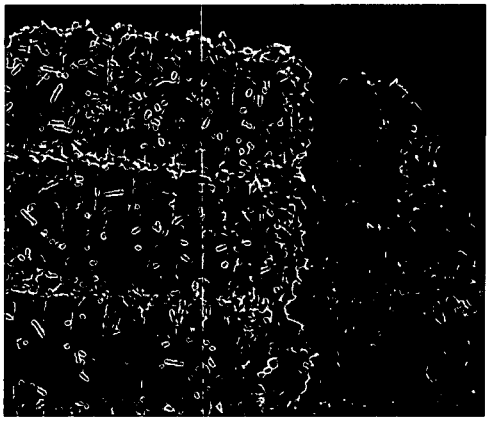
Glen Duncan
(910) 997-4526
gduncan@carolina.rr.com

Products Made
Bath tissue and towels

Process Description
Sorted office paper is sent through a de-inking process to make de-inked pulp. This pulp is used to make paper. The finished paper is converted into many different tissue products.

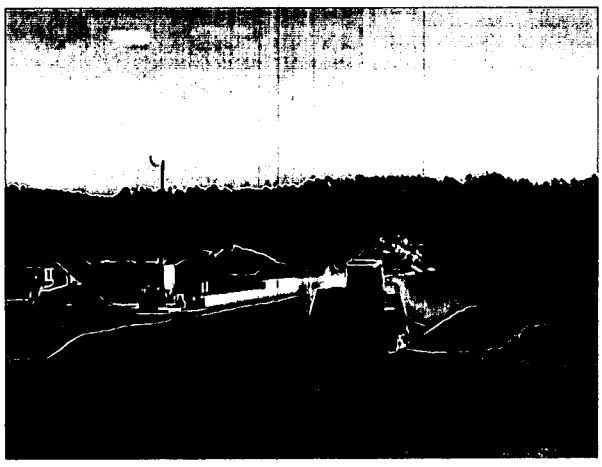
Product Facts
All products produced by Laurel Hill Paper Company are 100 percent recycled content. Sales are about $1.5 million per month. Products include bath tissue, center pull towels and jumbo roll tissue.

Where to Buy
Institutional sales only; products can be found in interstate rest areas and prisons. Call Glen Duncan, marketing manager, (910) 997-4526 for purchasing information.



Novozymes North America Inc.

Franklinton



Products Made
Nature's GREEN-RELEAF compost, colored designer mulch and specialty compost blends

Process Description
Recycled feedstocks are dropped off for a fee. Nitrogen rich enzyme residuals are a byproduct from the production of Novozymes' food grade enzymes. Pallets are ground, colored and marketed as designer mulch. Other manufactured wood byproducts are ground to size for compost production. Wood waste, sawdust and ground yard trimmings are mixed with food waste and deactivated enzyme residuals. The mix is processed into high-quality compost by using the turned windrow method of composting. The process takes a minimum of 90 days from start to a cured finished compost product.

Product Facts
The compost is tested by U.S. Compost Council Seal of Testing Assurance Program.

Where to Buy
All of Nature's GREEN-RELEAF products can be purchased in bulk at the facility or through distributors listed at www.naturesgreenreleaf.com/Distributors.htm.

Company Contact

Frank Franciosi
(919) 494-1246
frfr@novozymes.com
www.naturesgreenreleaf.com

FAST FACTS

Material Recycled
Yard trimmings, wooden pallets, sawdust, particle-board, medium density fiberboard, residuals from enzyme production and food waste

Tons Recycled Per Year
20,000

Employees 6

Established 2005

Owens-Illinois Inc.

Lexington

FAST FACTS

Material Recycled
Brown and clear glass containers

Tons Recycled Per Year
85,000

Employees 200

Established 1973

Company Contact
Barry Matthews
(336) 764-7242
barry.matthews@us.o-i.com
www.o-i.com

Products Made
Glass bottles and containers

Process Description
Used glass arrives by both truck and rail. After being remelted, recycled glass bottles are trucked to various customers. Bottlers add product, label and market to the consumer.

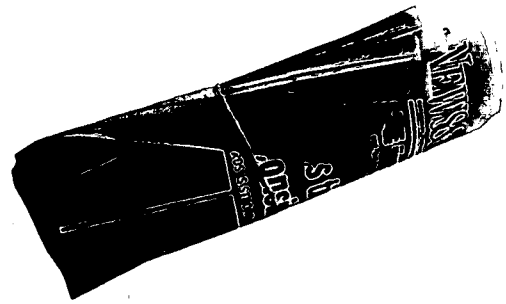
Product Facts
The Lexington plant produces only beverage containers. The 2.5-3.0 million containers made per day in the plant contain 40 to 50 percent recycled glass and are commonly used for juices, sodas, teas, beer, wine and spirits. Approximately 50 percent of the glass containers made worldwide are manufactured by O-I or its licensees.

Where to Buy
The company's clients range from global multinationals to smaller, regional partners. Common retail items found in grocery and convenience stores are bottled with O-I glass containers.

Other Information
A Fortune 500 company, O-I is one of the world's leading manufacturers of glass packaging products with operations in North America, South America, Europe, Australia and Asia. With more than 30,000 employees worldwide, the company contributes more than $1 billion annually to national, state and local economies through its purchase of goods and services from U.S. businesses. O-I is an active supporter of the Keep America Beautiful Foundation and the National Recycling Coalition.

Precision Fibers

Ronda



FAST FACTS

Material Recycled
Newspaper

Tons Recycled Per Year
5,000

Employees 27

Established 1994

Products Made
Hydro-seeding mulch, additive for asphalt

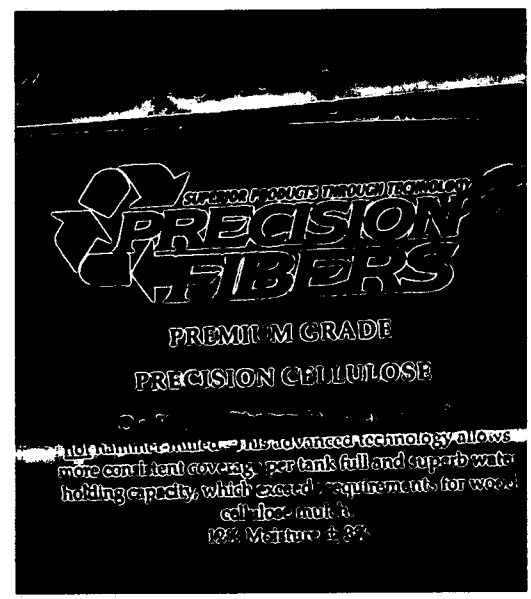
Process Description
Loose newspaper is fed onto a conveyor and into a hammermill. The paper is milled into a loose fiber. The loose fiber material is then sent through a cuber. This is the process that forms the fiber into the cube shape that gets packaged. The final product is then packaged and stacked onto pallets. The hydro-mulch product is trucked directly to hydroseeders and paving locations for application purposes.

Product Facts
All products produced by Precision Fibers are 100 percent recycled content.

Where to Buy
Products can be purchased factory direct or through distributors. Call the company for details. Precision Fibers does not compete with its distributors, so if the project is in an area that a distributor services, the customer will be directed to that distributor.

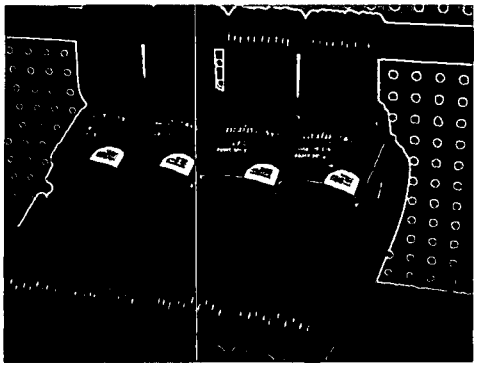
Company Contact

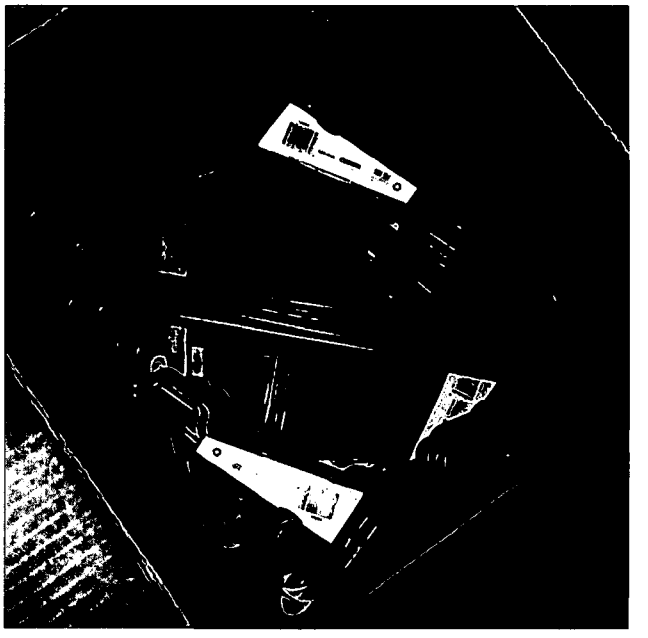
Amber Spicer
(336) 527-4140
aspicer@charterinternet.com
www.precisionfibers.com



Technimark Inc.

Asheboro





Company Contact
Brad Wellington
(336) 498-4171
bwellington@technimark.com
www.technimark.com

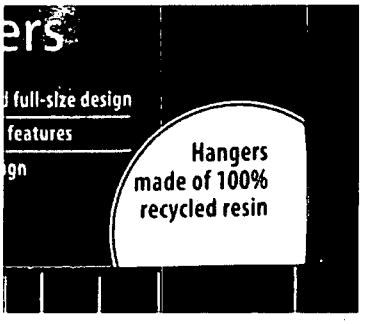
FAST FACTS

Material Recycled
Polypropylene, high density polyethylene

Tons Recycled Per Year
7,000

Employees 500

Established 1983



Products Made
Hangers, plastic feet and legs for furniture

Process Description
Repelletized plastic resin is mixed with virgin resin and melted. The melted material is then injected into a mold to make various plastic products.

Product Facts
Fifty to 100 percent recycled plastic is used for products that are black in color. Products that are any other color use 25 to 50 percent recycled plastic.

Where to Buy
Coat hangers sold at Wal-Mart under the Wal-Mart brand name—Mainstays. Technimark produces plastic feet and legs for furniture that is sold as one of the Klaussner Furniture brand names.

Other Information
Technimark Inc. is a subsidiary of Klaussner Furniture.

Toter Inc.

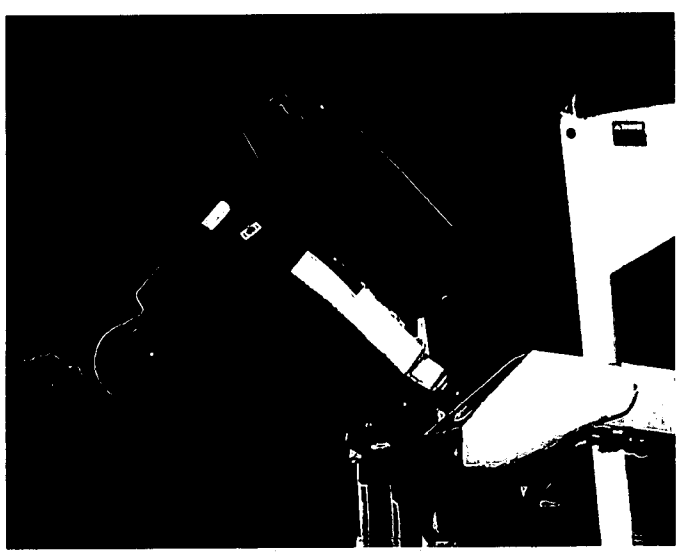
Statesville

Products Made
Waste collection and material handling carts and containers

Process Description
Toter Inc. purchases virgin and post-consumer resin material that is extruded to produce rotationally molded waste collection and material handling carts and containers. Toter also reprocesses all scrap material that is generated from the production process.

Product Facts
Toter Inc. is the leading manufacturer of waste collection carts in the United States. Made of 25–75 percent recycled content, Toter carts have been used at municipalities throughout the country, including Charlotte and Winston-Salem. Toter products can also be found at stadiums, arenas and convention centers such as Raleigh's RBC Center.

Where to Buy
Toter carts are sold direct to the consumer at Lowe's Home Improvement stores. Contact the company for information about government, institutional or business orders.



Company Contact
Jeff Gilliam
(800) 772-0071
jgilliam@toter.com
www.toter.com

FAST FACTS

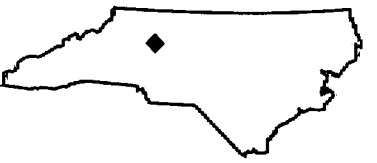
Material Recycled
Linear low density polyethylene plastic bag and plastic wrap

Tons Recycled Per Year
10,000

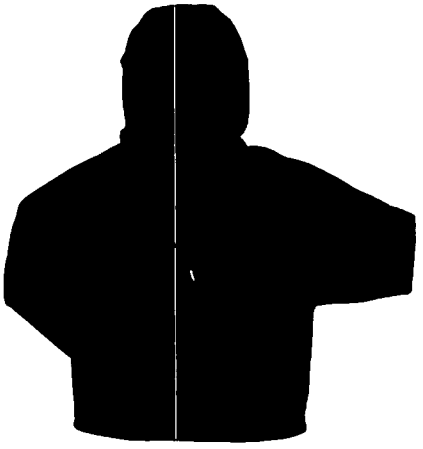
Employees 150

Established 1983

Unifi Inc.



Yadkinville



Company Contact
Bett Anderson
(336) 294-4410
Marketing@unifi.com
www.unifi.com

FAST FACTS

Material Recycled
Post-industrial fiber waste and post-consumer plastic soda bottles

Employees 1,065

Established 1971

Products Made
100 percent recycled polyester yarn

Process Description
Waste generated in the polyester-manufacturing process is combined with plastics such as recycled two-liter soda and water bottles. Unifi's Yadkinville facility grinds it into a chip, extrudes, texturizes and forms it into yarn.

Product Facts
The end product, Repreve®, is then used in fabrics suitable for a number of end uses, including contract and home upholstery, and automotive and apparel fabrics. Malden Mills' new line of eco-friendly performance Polartec® fabrics is designed using Unifi's Repreve® yarn.

Where to Buy
Many new styles of Polartec® fabrics are now available using recycled content, including Polartec® Power Dry®, Polartec® Thermal Pro® and Polartec® Wind Pro®. Check your local and online sports stores for brands made with these fabrics.

Other Information
Unifi is headquartered in Greensboro and has additional manufacturing facilities in Yadkinville, Madison, Reidsville and Stoneville. International manufacturing facilities are located in Latin America, Brazil and China. Unifi employs approximately 1,065 in Yadkinville, 2,500 in North Carolina and 3,500 worldwide.

N.C. Recycling Business Assistance Providers

Recycling-Specific Service Providers

A number of organizations provide a wide variety of technical and business development assistance to North Carolina-based recycling businesses.

Self-Help Credit Union

Self-Help, North Carolina's community development banking group, administers the N.C. Recycling Business Loan Fund. The loan fund nurtures fledgling businesses until they become bankable and graduate to full-service private sector financing. The loans are structured as market-rate debt, and can be used for working capital, inventory, equipment and real estate purchases.

SELF HELP
CREATING OWNERSHIP AND ECONOMIC OPPORTUNITY

Contact: Brian Schneiderman, special projects officer
(919) 956-4420
brian.schneiderman@self-help.org
www.self-help.org

Carolina Recycling Association

The Carolina Recycling Association is one of the largest state-based recycling associations in the United States, serving North and South Carolina since 1989. CRA represents more than 400 members (individuals, small businesses, multinational corporations, state government agencies and local governments) who are committed to reducing waste, promoting recycling and buying recycled.

Contact: Kerry Krumsiek, executive director
(919) 545-9050
kerryk@cra-recycle.org
www.cra-recycle.org

N.C. Department of Transportation's Recycled Products and Solid Waste Utilization Task Force

The N.C. DOT's Recycled Products and Solid Waste Utilization Task Force provides leadership and expertise in the selection and recommended use of recycled materials. It conducts research, performs demonstration projects and develops bid procedures and specifications that encourage contractors to develop and utilize recycled products.

Contact: Frankie Draper, special services squad leader
(919) 250-4128
fdraper@dot.state.nc.us
www.ncdot.org/doh/preconstruct/altern/

General Business Assistance Providers

N.C. Department of Commerce

The Department of Commerce, the state's leading agency for economic, community and workforce development, has been a cooperative partner since RBAC's inception. A RBAC staff person has worked with the DOC office as a RBAC/DOC liaison since 1995.

Contact: Ben Rogers
(919) 715-6539
ben.rogers@ncmail.net
www.commerce.state.nc.us

N.C. Small Business & Technology Development Center

SBTDC's mission is to support the growth and development of North Carolina's economy by encouraging entrepreneurship, assisting in the creation and expansion of small businesses and facilitating technology development and transfer for small businesses.

Contact: Dan Blankenship
(919) 715-7272, or (800) 258-0862
dblankenship@sbtdc.org
www.sbtdc.org

N.C. Department of Environment and Natural Resources' Customer Service Center

The Customer Service Center for the Department of Environment and Natural Resources is a single source of information for all of the department's programs. Through its "1-STOP" permit assistance program, the CSC helps customers determine what environmental permits are needed for a particular project as well as permit decision timelines.

Contact: Edythe McKinney, director/
small business ombudsman
(919) 733-0823
edythe.mckinney@ncmail.net
www.envhelp.org

Waste Reduction Partners

Waste Reduction Partners, a team of highly-experienced volunteer engineers, architects and scientists, provides western N.C. businesses and industries with no-cost waste and energy reduction assessments and technical assistance.

Contact: Terry Albrecht, program director
(828) 251-6622
wrp@landofsky.org
www.landofsky.org/wrp

SJF Ventures

SJF Ventures is a venture capital fund that finances and assists expansion stage companies in the clean technologies, business services and consumer products sectors. SJF Advisory Services, an allied nonprofit organization, provides entrepreneurial, workforce and sustainability assistance services to SJF prospect and portfolio companies.

Contact: Rick Larson, managing director
(919) 530-1177
rickl@sjfund.com
www.sjfund.com

N.C. Agricultural Finance Authority

The N.C. Agricultural Finance Authority provides financing to farmers and agribusinesses engaged in the processing and manufacturing of agricultural products, and agribusinesses that support other facets of agriculture such as composting and manure management.

Contact: Dr. Frank Bordeaux, executive director
(919) 790-3949
frank.bordeaux@ncmail.net
www.stateagfinance.com/northcarolina.html

N.C. Rural Economic Development Center and its Institute for Rural Entrepreneurship

The N.C. Rural Economic Development Center seeks to develop, promote and implement economic strategies to improve the quality of life for rural North Carolinians. Housed within the Rural Center, the Institute for Rural Entrepreneurship supports the development of entrepreneurial companies – new and existing – that can grow and generate jobs and wealth in rural communities.

Contact: Leslie Scott, director
(919) 250-4314
lscott@ncruralcenter.org
www.ncruralcenter.org/entrepreneurship

North Carolina State Energy Office

The State Energy Office coordinates programs to help ensure that North Carolina businesses and industries are productive, energy efficient, technologically savvy and competitive.

Contact: Larry Shirley, division director
(919) 733-2230 or (800) 662-7131
energyinfo@ncmail.net
www.energync.net

Acronyms/Definitions

Acronyms

CPO	◆	Computer Printout
EPPs	◆	Environmentally Preferable Products
HDPE	◆	High Density Polyethylene
LDPE	◆	Low Density Polyethylene
LLDPE	◆	Linear Low Density Polyethylene
OCC	◆	Old Corrugated Cardboard
MDF	◆	Medium Density Fiberboard
ONP	◆	Old Newspaper
PE	◆	Polyethylene
PCR	◆	Post Consumer Resin
PETE	◆	Polyethylene Terephthalate
PP	◆	Polypropylene
PS	◆	Polystyrene
PU	◆	Polyurethane
SOP	◆	Sorted Office Paper

Definitions

Biosolids – nutrient-rich organic materials resulting from the treatment of domestic sewage in a treatment facility. When treated and processed, these residuals can be recycled and applied as fertilizer to improve and maintain productive soils and stimulate plant growth.

Blow-Molded – a manufacturing process by which hollow plastic parts are formed. This method is used to make items such as commercial drums and bottles.

Card Stock – a rigid paper used for postcards, manual covers or table tents. Also known as cover paper.

Computer Printout or Greenbar – a high-grade paper almost entirely made of uncoated chemical pulp, although some ground wood is used.

Environmentally Preferable Products – products that have a lesser or reduced effect on human health and the environment when compared with competing products that serve the same purpose. The product or service comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance or disposal.

Fiber Drum – cylindrical shipping containers made of heavy paper or fiberboard.

Folding Carton – paper product storage and shipping packages of various designs that are delivered ready-to-use in flat form and are first squared up or erected by the user.

Hammermill – a machine with a high-speed rotor equipped with large hammers for pulverizing material into smaller sizes.

High Density Polyethylene – a plastic used to make bottles for milk, juice, water and laundry products.

Kraft Paper – strong paper used for wrapping and to make grocery bags and large envelopes.

Linear Low Density Polyethylene – higher tensile strength and higher impact and puncture resistance than low density polyethylene. It is used for plastic bags and sheets (where it allows using lower thickness than comparable LDPE), plastic wrap, pouches, toys, lids, pipes, buckets and containers, covering of cables, geomembranes and flexible tubing.

Mixed Paper – the term "mixed paper" is used as an inclusive, "catch all" or "what's left over" category for a wide variety of recovered paper blends including slick advertising inserts, envelopes and other things with gummy surfaces.

Medium Density Fiberboard – a composite wood product similar to particleboard. It's made out of wood waste fibers glued together with resin, heat and pressure. MDF is appropriate for many applications, from cabinetry to molding, because it is smooth, uniform and will not warp.

Newspaper or Newsprint – a lightweight paper, made mainly from mechanical wood pulp, engineered to be bright and opaque for the good print contrast needed by newspapers.

Old Corrugated Cardboard – a box, in its most common form, is manufactured from containerboard, layers of linerboard and one layer of medium. The layers are combined on a corrugator, a machine that presses corrugations into the medium and laminates a layer of linerboard to each side. The sheets are folded, printed and glued or stapled to make a finished box.

Old Magazines – consists of coated magazines, catalogs and similar printed materials.

Paperboard – one of the two subdivisions of paper. The distinction is not great, but paperboard is heavier in basis weight, thicker and more rigid than paper. All sheets 12 points (0.012 inch) or more in thickness are classified as paperboard.

Paper Tubes – consists of paper cores made from either chipboard and/or linerboard, single or multiple plies.

Particle Board – an engineered wood product manufactured from wood particles, such as wood

chips, sawmill shavings or even sawdust, and a synthetic resin or other suitable binder, which is pressed and extruded.

Polyethylene – largest volume plastic manufactured. It is used for packaging films; trash, garment, grocery and shopping bags; molded housewares; toys; containers; pipe; drums; gasoline tanks; coatings and many other products.

Polypropylene –a plastic that has an excellent chemical resistance, is strong and has the lowest density of the plastics used in packaging. It has a high melting point, making it ideal for hot-fill liquids. In film form it may or may not be oriented (stretched). Polypropylene is found in everything from flexible and rigid packaging to fibers and large molded parts for automotive and consumer products.

Polystyrene – is a very versatile plastic that can be rigid or foamed. General purpose polystyrene is clear, hard and brittle. It has a relatively low melting point. Typical applications include protective packaging, containers, lids, cups, bottles, trays and tumblers.

Polyurethane – an extremely versatile plastic in terms of the forms in which it is available: flexible or rigid foams, rubbers, coatings, adhesives and sealants. Polyurethane's major and best known form, however, is a foamed or "cellular" material. Flexible foams are used in furniture, cushioning, carpet underlay, bedding, packaging, textiles and automotive seating and safety padding. Rigid foams are used in building insulation and are found in refrigerators, trucks, boats (for flotation) and in the construction of furniture components.

Post-consumer Material – refers to a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item.

Post-industrial Material – recovered industrial and manufacturing materials that are diverted from municipal solid waste for the purpose of collection, recycling and disposition.

Recycled Content – materials that have been recovered from the solid waste stream, either during the manufacturing process (post-industrial) or after consumer use (post-consumer).

Rotational Molding – consists of a mold mounted on a machine capable of rotating on two axes simultaneously. Solid or liquid resin is placed within the mold and heat is applied. Rotation distributes the plastic into a uniform coating on the inside of the mold until the plastic part cools and sets. This process is used to make hollow configurations and is a relatively simple concept since heat is used to melt and fuse a plastic resin inside a closed mold without using pressure. Common rotationally molded products include shipping drums, storage tanks and some consumer furniture and toys.

Sorted Office Paper – consists of paper, as typically generated by offices, containing primarily white and colored groundwood-free paper, free of unbleached fiber.

Virgin Material – a material that has not been processed or used before.

White Office – consists of paper, as typically generated by offices, containing primarily white groundwood-free paper, free of unbleached fiber.

Yard Trimmings – grass clippings, shrub prunings, leaves, tree branches and other discarded material from yards and gardens.

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EXHIBIT O
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The New York Times
nytimes.com

January 16, 2007

Blazing a Paper Trail in China

By DAVID BARBOZA

HONG KONG — Just five years ago, Zhang Yin and her husband were driving around the United States in a used Dodge minivan begging garbage dumps to give them their scrap paper.

She and her husband, who was trained as a dentist, had formed a company in the 1990s to collect paper for recycling and ship it to China. It was a step up from life back in Hong Kong, where she had opened a paper trading company with $3,800 to cash in on China's chronic paper shortages.

"I remember what a man in the business told me back then," Ms. Zhang said. "He said, 'Wastepaper is like a forest. Paper recycles itself, generation after generation.' "

Ms. Zhang took that memory all the way to the bank. As a result of her entrepreneurship, Zhang Yin (pronounced Jang Yeen) is now among the richest women anywhere in the world, including Oprah Winfrey, Martha Stewart and eBay's chief executive, Meg Whitman. Her personal wealth is estimated at $1.5 billion or more, with members of her family worth billions more.

Her companies take heaps of waste paper from the United States and Europe, ship it to China and recycle it into corrugated cardboard, which is then used for boxes that are packed with toys, electronics and furniture that is stamped "Made in China" and often shipped right back across the ocean to American consumers.

After the boxes are thrown away, the cycle starts all over again.

Late last year, Forbes magazine named Ms. Zhang the wealthiest woman in China. She may even be the richest self-made woman in the world, challenging a handful of others, like Giuliana Benetton, who started the clothing company with her brothers, and Rosalia Mera, who co-founded Zara, the Spanish clothing retailer, with her former husband.

Most of the world's richest women inherited their wealth: from the Walton women of Wal-Mart fame to the daughters of the men who created Mars candy bars, L'Oréal cosmetics and BMW.

But not Ms. Zhang. A petite 49-year-old woman with a cherubic smile and a fancy for diamonds, she started out from a modest background, the daughter of a military officer. Now she dominates the world's paper trade through her giant companies, one centered in Dongguan just outside Hong Kong and the other based in Los Angeles.

"She's a visionary," says Herman Woo, an analyst at BNP Paribas, which helped her paper company list shares in Hong Kong. "She doesn't mind putting a lot of money in at the beginning, to build the company."

That company, Nine Dragons Paper, is now China's biggest papermaker. The company raised nearly $50 million when it went public here last March with the help of Merrill Lynch.

Since then, shares of Nine Dragons have quadrupled, giving the company a market value of over $5 billion. (The Zhang family controls 72 percent of the company, which makes it one of the richest families in China.)

Ms. Zhang's smaller, Los Angeles-based venture, America Chung Nam, is also one of the world's biggest paper trading companies, with ties to recycling yards in New York, Chicago and California.

No other American company sends so much material to China, in as many containers, as America Chung Nam, which was named the top American exporter to China by volume for the fifth consecutive year in 2005, the most recent ranking, according to Piers Global Intelligence, which tracks import and export data.

Now, with the paper industry shifting to China, where labor and land are cheaper, Ms. Zhang and Nine Dragons are vowing to take on the world's global paper giants, like International Paper, Weyerhaeuser and Smurfit Stone.

"My goal is to make Nine Dragons, in three to five years, the leader in containerboards," Ms. Zhang says emphatically in a short interview in her glistening Hong Kong office. "My desire has always been to be the leader in an industry."

In person, Ms. Zhang is filled with nervous energy and hearty laughs. But she rarely grants interviews, and when she does, they are brief and controlled by an army of handlers.

Ms. Zhang is cagey about how she made her fortune. In a society known for close ties and hidden deals between government officials and business leaders, she says simply, "I'm an honest businesswoman."

Ms. Zhang was the oldest of eight children born into a military family from northern Heilongjiang Province, near the Russian border. During the brutal Cultural Revolution, which began in 1966, her father was sent to prison, like millions of others who were branded "counterrevolutionaries" or "capitalist roaders."

When the Cultural Revolution came to a close in 1976, her father was released from prison and "rehabilitated." She went to work as an accountant.

After China's economic reforms got under way in the early 1980s, she moved to the southern coastal city of Shenzhen, one of the first areas in China allowed to experiment with capitalism. There she started working for a foreign-Chinese joint venture paper trading company.

In 1985, she ventured to Hong Kong, which was then still a British colony.

Ng Weiting, who was her partner in Hong Kong in the 1980s, says Ms. Zhang was driven and tough and had figured out how to get the best performance out of her workers.

"When her employees asked for a pay raise, she would grant it if it was reasonable," he recalled. "But when her employees made mistakes, she would criticize them severely. She made it clear when to reward and when to punish."

Analysts say Ms. Zhang's ebullient personality made her a great saleswoman and a sharp deal maker.

There were occasional threats from competitors, yet being a woman was not a problem, she says. "Actually, I didn't find it difficult," she says. "I found men respected me."

After Hong Kong's paper market proved too small for her ambitions, she moved to Los Angeles in 1990 and married for the second time, to Liu Ming Chung, who was born in Taiwan, grew up in Brazil and is fluent in English.

Together, they formed America Chung Nam. At the time, China's fast-growing economy faced shortages of raw materials, and the country began looking overseas for scrap metal and used paper. Zhang Yin was an early mover, one of the first to sell scrap paper to China.

China's own paper products are poor quality, often made from grass, bamboo or rice stalks, leaving it at a disadvantage against waste paper derived from wood pulp, the source of most paper made in the United States and Europe.

America Chung Nam quickly made deals with American scrap yards and began shipping huge containers of paper back to China. The demand grew so fast that in 1995, Ms. Zhang (who also goes by her Hong Kong name, Cheung Yan) returned to China to found Nine Dragons, opening her first papermaking facility in Dongguan. Mr. Liu now serves at chief executive; Ms. Zhang is chairwoman.

A decade later, the company has 11 giant papermaking machines, 5,300 employees, $1 billion in annual revenue and a huge facility under construction in the country's other booming export hub, the Yangtze River Delta area near Shanghai. Reported profits last year rose a whopping 349 percent to $175 million.

Nine Dragons is now one of the world's fastest growing paper companies, and yet the company says it cannot keep up with demand for containerboard, the material used to make boxes, because of the booming growth in China's economy and exports.

Foreign paper companies have been slow to build a sizable manufacturing base in China. Analysts doubt they will catch up any time soon. And Chinese manufacturers have advantages. They burn cheap coal rather than clean but expensive natural gas. And they are capitalizing on less expensive labor and the newest machinery, while papermakers in the United States and Europe are often using less efficient machines from the 1970s and 1980s.

"It's very difficult for U.S. companies to get into this business now," says Mr. Woo at BNP Paribas. "I heard five or six years ago they looked at opportunities but they didn't do anything."

"Right now," Mr. Woo adds, "the largest globally is Smurfit Stone. Weyerhaeuser is No. 2. By 2008, Nine Dragons could be No. 1."

Analysts have been nearly unanimous in their praise of Ms. Zhang, though she came under some criticism for appointing her 25-year-old son as a nonexecutive member of the Nine Dragons board of directors.

But Ms. Zhang vigorously defends the appointment, saying her son is qualified and Nine Dragons is, after all, a family company. She has a second son in high school. And her younger brother, Zhang Chang Fei, is the company's deputy chief executive, worth an estimated $900 million, according to Forbes.

Ms. Zhang jumped to No. 5 this year in the Forbes ranking of the wealthiest people in China, from No. 107 last year, largely because of the huge public stock listing.

She hasn't lost her ambition, though. Sometimes called the queen of trash, she doesn't disown the title. But, she said, "Some day, I'd like to be known as the queen of containerboards."

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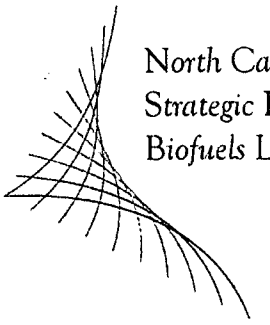
EXHIBIT P



North Carolina's Strategic Plan for Biofuels Leadership

A STRATEGIC PLAN FOR NORTH CAROLINA'S BIOFUELS INDUSTRY

INTERIM STATUS REPORT

GUIDING PREMISES

Strategies and thinking about North Carolina's biofuels endeavor must be shaped over coming years by seven key premises:

1) Strong and sustained state policy is required to shape outcomes and leadership.
2) The endeavor requires long-term commitment by varied parties – institutional and government, public and private, state and federal.
3) Advanced science and technology, and in particular biotechnology, will be key to success, outcomes, and leadership.
4) All involved parties and steps in the movement from science and research to production, distribution, and use must be addressed comprehensively.
5) Particular local and regional capabilities must be identified and addressed.
6) Responsibility for coordination, assistance, and policy implementation over time must be positioned in a single entity.
7) Activities and outcomes must work for agricultural and rural benefit(s).

NORTH CAROLINA'S STRATEGIC PLAN FOR BIOFUELS LEADERSHIP

THE BIOFUELS IMPERATIVE

Development and application of biofuels from varied sources will be increasingly significant to North Carolina's economy, consumers, and agriculture. As a result, state leaders and organizations share the recognition that attention to biofuels must be a matter of state policy, addressed cooperatively and comprehensively by varied parties statewide. Coming years will impel new sources of fuels, and North Carolina is remarkably well positioned to shape science, biotechnology, agricultural resources, and policies into a position of national biofuels leadership.

The recognition triggered a June 2006 Biofuels Summit at the North Carolina Biotechnology Center. Catalyzed by Senator Charlie Albertson and Representative Dewey Hill, the event brought together fourteen institutional leaders for a first ever targeted discussion of the imperative for informed, future-directed state planning and policy.

Reflecting this imperative, the General Assembly in its 2006 session passed Senate Bill 2051: State Energy Use/Energy Assistance, which in Part III calls for development of a Biofuels Industry Strategic Plan.

Four parties are designated in the legislation as the co-convening Work Group for this Plan: the College of Agriculture and Life Sciences at North Carolina State University, the School of Agriculture and Environmental Sciences at North Carolina Agricultural and Technical State University, the North Carolina Biotechnology Center, and the North Carolina Rural Economic Development Center.

In addition, the legislation calls for involvement of twelve other institutions and organizations as well as other appropriate entities. These parties were constituted in September 2006 as the Project Steering Committee.

The Steering Committee serves actively as focal point for gathering information and testimony, as a functional working group in its key meetings, as strategic respondent, and as partner to the Project Co-conveners in shaping the final report, *North Carolina's Strategic Plan for Biofuels Leadership*. This initial report is being submitted to the Environmental Review Commission by January 15, 2007, with a final report to be submitted by April 1, 2007.

PROJECT GOAL

The *Strategic Plan* synthesizes and conveys the best thinking of individuals and institutions statewide around a central question: *What policies, resources, and partnerships are required for North Carolina's long-term leadership in, and gain from, the emerging biofuels sector?*

Ideas, experience, and recommendations are sought from diverse parties, to shape thinking for both the initial framework and final *Strategic Plan.*

PROJECT CO-CONVENERS

Steven Burke	North Carolina Biotechnology Center
Billy Ray Hall	North Carolina Rural Economic Development Center
Ghasem Shahbazi, PhD	North Carolina A&T State University
Secretary E. Norris Tolson	North Carolina Department of Revenue
Johnny C. Wynne, PhD	North Carolina State University

PROJECT STEERING COMMITTEE

Senior designated representatives from more than 30 key vantage points are actively engaged with the Committee:

- Appalachian State University
- Department of Administration
- Department of Agriculture and Consumer Services
- Department of Commerce
- Department of Environment and Natural Resources
- Department of Revenue
- Department of Transportation
- Farm Bureau Federation
- Golden LEAF Foundation
- Lotus Engineering
- North Carolina Advanced Vehicle Research Center
- North Carolina Forestry Association
- North Carolina Agribusiness Council
- North Carolina Agricultural and Technical State University
- North Carolina Biomass Council
- North Carolina Biosciences Organization
- North Carolina Biotechnology Center
- North Carolina Community College System
- North Carolina Rural Economic Development Center
- North Carolina Solar Center
- North Carolina Soybean Producers Association
- North Carolina State Grange
- North Carolina State University
- North Carolina Sustainable Energy Association
- Novozymes, Inc.
- Office of the Lieutenant Governor
- Office of Science and Technology, Department of Commerce
- Piedmont Biofuels
- State Energy Office, Department of Administration
- United States Army, Fort Bragg
- University of North Carolina

PROJECT TIME LINE

2006	
June	**Biofuels Summit** - Catalyzed by Senator Charlie Albertson and Representative Dewey Hill, the event brought together fourteen institutional leaders for a first- ever targeted discussion of the imperative for informed, future-directed state planning and policy.
August	**Senate Bill 2051** – The General Assembly in its 2006 session passed *Senate Bill 2051: State Energy Use/Energy Assistance*; Part III of the bill calls for development of a Biofuels Industry Strategic Plan
October 17	**First Steering Committee Meeting** - Steering Committee members and varied statewide parties met. Presentations and discussion revealed a range of ideas, imperatives, and activities on which to build.
October – December	**Submitted Recommendations** – Steering Committee members and engaged parties submitted more than 130 ideas, clear needs, competitive long-term thinking, and realistic strategies required for North Carolina's economic and societal gain from biofuels in the coming years. Submitted content yielded an initial draft document.
December 14	**Second Steering Committee Meeting** – The Steering Committee met to shape an initial framework for the *Strategic Plan*. Smaller work groups were established to focus on content areas deemed essential for an effective strategic plan.
December 15 – January 15, 2007	**Interim Report** – The Co-Conveners prepared an interim report on the development and status of the strategic plan, including preliminary findings, recommendations, and legislative proposals to the Environmental Review Commission for evaluation beginning January 15, 2007.
2007	
January – February	**Work Groups** – Work groups will meet to finalize recommendations, findings, and legislative proposals organized around seven guiding premises and five broad strategic categories
February	**Third Steering Committee Meeting** – Date to be determined. Committee members and engaged parties will review recommendations, findings, and proposals submitted by the work groups.
February – March	**Final Synthesis** – Steering committee members and engaged parties—under the leadership of the five co-conveners—will synthesize submitted content into the final strategic plan for presentation to the Environmental Review Commission.
April 1	**Final Report** - The Biofuels Industry Strategic Plan Work Group will submit a final report on the development of the strategic plan to the Environmental Review Commission no later than 1 April 2007.

STRATEGIES: ORGANIZATIONAL LEADERSHIP

Strategies in organizational leadership will focus on a central coordinating entity, institution, or agency as required to chart the next years of biofuels development and strategy. Proposals and recommendations will explore a designated authority within the state that has the budget and political endorsement needed to implement a bold, imaginative, and comprehensive alternative fuel industry plan.

STRATEGIES: MARKET TRANSFORMATION

Market Transformation strategies will identify and promote policies that will eliminate market barriers and increase opportunities for expanding a biofuels market and industry in North Carolina. Market transformation proposals will identify ways in which North Carolina can move toward fuel and energy independence while maintaining the highest levels of environmental stewardship.

STRATEGIES: SCIENCE, RESEARCH, DEVELOPMENT, FEEDSTOCKS, AND BIOMASS

Well thought-out strategies are needed for the scientific research and development of feedstocks and biomass. An economic analysis is needed to identify the best potential feedstocks that could be utilized for biofuels production in North Carolina. The costs and timetables for completion and implementation—with due attention to biotechnology—are critical elements in fostering a biofuels industry in North Carolina. Strategies will focus on an advanced and chronological look at how to grow and use crops:

- *Short-Term – Use existing feedstocks and biomass;*
- *Mid-Term – Modify and improve existing feedstocks and biomass; and*
- *Long-Term – Develop new feedstocks and biomass.*

STRATEGIES: PRODUCTION AND DISTRIBUTION

Production and distribution recommendations will focus on strategies to ensure biofuels in North Carolina are produced and supplied safely and reliably. Proposals will address full-scale distribution infrastructure, retail availability, upgrade and strengthening of production and supply systems, and work force training needs.

STRATEGIES: CULTURE AND EDUCATION

Strategies and proposals will focus on comprehensive public relations and education initiatives that will create public awareness and understanding of the benefits of a biofuels industry and alternative energy use in North Carolina. Biofuels public education is needed to induce lasting changes in consumer behavior and in the marketplace. Moreover, due attention must be paid to cultural imperatives to adopt needed changes in behaviors (i.e. growers, distributors, existing users of crops, consumers).

SL2006-206

GENERAL ASSEMBLY OF NORTH CAROLINA

SESSION 2005

SESSION LAW 2006-206
SENATE BILL 2051

AN ACT TO REDUCE ENERGY, FUEL, AND WATER CONSUMPTION IN THE STATE THROUGH: (1) DEVELOPMENT OF A PLAN TO INCREASE THE AVAILABILITY AND USE OF ALTERNATIVE FUELS IN STATE-OWNED VEHICLE FLEETS; (2) PROVISION OF ENERGY ASSISTANCE TO LOW-INCOME PERSONS; (3) DEVELOPMENT OF A STRATEGIC PLAN TO EXPAND THE BIOFUELS INDUSTRY IN NORTH CAROLINA; AND (4) STUDY MECHANISMS TO IMPROVE ENERGY AND WATER CONSERVATION IN STATE-OWNED FACILITIES.

The General Assembly of North Carolina enacts:

... PART III. DEVELOP BIOFUELS INDUSTRY STRATEGIC PLAN

SECTION 3.1. There is established the Biofuels Industry Strategic Plan Work Group. The purpose of the Work Group is to develop a strategic plan for expansion of biofuels as an industry in North Carolina. The Work Group shall include representatives of the College of Agriculture and Life Sciences at North Carolina State University, the School of Agriculture and Environmental Sciences at North Carolina Agricultural and Technical State University, the North Carolina Biotechnology Center, and the Rural Economic Development Center, Inc. In developing this strategic plan, the Work Group shall delineate the increasing role of biotechnology in the development of biofuels and may consult with all of the following:

(1) The Department of Administration.
(2) The Department of Agriculture and Consumer Services.
(3) The Department of Commerce.
(4) The Department of Environment and Natural Resources.
(5) The Department of Transportation.
(6) The University of North Carolina System.
(7) The Community College System.
(8) The North Carolina Solar Center at North Carolina State University.
(9) The North Carolina Farm Bureau Federation.
(10) The North Carolina State Grange.
(11) The North Carolina Agribusiness Council.
(12) The North Carolina Forestry Association.
(13) Representatives of private industry that are engaged in biotechnology and the biofuels industry.
(14) Any other entity that the Biofuels Industry Strategic Plan Work Group deems appropriate, particularly entities that are engaged in biotechnology and the biofuels industry.

SECTION 3.2. The Biofuels Industry Strategic Plan Work Group shall submit an interim report on the development of the strategic plan, including any preliminary findings, recommendations, and legislative proposals, to the Environmental Review Commission no later than 15 January 2007. The Biofuels Industry Strategic Plan Work Group shall submit a final report on the development of the strategic plan, including any findings, recommendations, and legislative proposals, to the Environmental Review Commission no later than 1 April 2007.

EXHIBIT Q

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

TO: Sen. Dan Clodfelter
Sen. Charlie Albertson
Rep. Pryor Gibson

FROM: William G. Ross, Secretary

RE: Annual WaDE Program Report

Session Law 2001-452 requires that the Department of Environment and Natural Resources report to the Environmental Review Commission on implementation of the Wastewater Discharge Elimination Program. Enclosed is this year's report. If you have any questions, please contact Andy Adams at (919) 715-3274.

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N.C. Wastewater Discharge Elimination Program

2006 Annual Report to the North Carolina General Assembly

November 2006

North Carolina Department of Environment and Natural Resources
Division of Environmental Health
On-site Water Protection Section

Program Description

The North Carolina Wastewater Discharge Elimination (WaDE) Program operates under the On-site Water Protection Section of DENR's Division of Environmental Health. The WaDE Program was established pursuant to S.L. 1996-18es2, Section 27.26, to identify and eliminate discharges from straight pipes and failing septic systems to land surfaces and streams. Funds currently appropriated by the N.C. General Assembly support two staff to address the straight pipe and failing septic system issues in North Carolina. Additional financial support has been secured through grants from the N.C. Clean Water Management Trust Fund (CWMTF) and the U.S. Environmental Protection Agency (EPA) 319 Non-point Source Program. Strong collaboration with local and regional agencies as well as the public, the media and environmental groups is the hallmark of the WaDE program and the key to its successes thus far.

Program Goals

Based in Asheville, the program serves 26 western North Carolina counties. The primary goals of the WaDE Program are to survey watersheds, identify straight pipes and failing septic systems in these watersheds and act as a conduit for limited financial assistance to aid property owners in correcting their wastewater violations.

Collaborative efforts with the Division of Water Quality and the Public Water Supply Section of the Division of Environmental Health aid in prioritizing survey work in watersheds with impaired water quality. WaDE's surveyors work along streams used as public water supplies and for recreational purposes, which are important to the economic vitality of the region, and survey along EPA-identified or potential environmentally-impaired streams.

Information about failing systems identified by WaDE in its survey work is forwarded to the local health department in the county where the survey is occurring. These local health departments take this information and use it to issue permits to the property owners to eliminate straight pipes or repair their failing septic systems. The program also identifies, and at times channels, sources of financial assistance for low-income homeowners in need of septic system repairs. This financial assistance is in the form of grants and deferred loans, provided by CWMTF, which are distributed by WaDE through regional councils of government or local non-profit community action agencies. The WaDE Program also provides public health and environmental education to homeowners and other stakeholders at the household, community, county, regional, state and federal levels related to on-site wastewater issues.

Program Accomplishments (1997-2006)

During the first four years of the WaDE Program the WaDE staff assisted four independent county surveys in Watauga/Alleghany/Ashe Health District, Jackson County, Madison County and Avery/Mitchell/Yancey Health District. The independent county projects were funded by the CWMTF, N.C. Department of Commerce's Division of Community Assistance (DCA), Appalachian Regional Commission and N.C. Rural Communities Assistance Project (RCAP).

In 1998 the WaDE team also directed their own survey project in Buncombe County on the Ivy Watershed in collaboration with the Buncombe County Health Center, the Town of Weaverville and Land of Sky Council of Government. With participating agency input from the first four years and the experience gained from the Ivy Watershed Project, the WaDE team proposed an improved model for achieving the goals of the program. This model was approved and funded in 2002 for three years by the CWMTF ($1.2 million over three years) and the EPA 319 Non-point Source Program ($500,000 over three years). This new funding enabled the WaDE Program to add seven full-time and two temporary surveyors to the original two-person staff. WaDE surveyors assisted homeowners who self-report

problems with their on-site wastewater systems, giving homeowners substantial time to resolve the problem.

Since January 2002, using CWMTF and EPA grant funds, survey projects have been conducted in approximately 17 areas across western North Carolina. During this time, approximately 11,336 homes have been visited as a result of WaDE Program efforts, identifying about 1,335 violations in these survey areas. The rates of identifying failing septic systems and repairing these failing systems have increased. Currently, nearly 40 percent of all violations identified since 2002 have been corrected with many repair permits having been issued and awaiting system installation. Table 1 contains the WaDE Program statistics for January 2002 through September 2006.

Table 1. January 2002 – September 2006

Results	
Total Homes Visited	11,336
Completed Surveys	6,945
Violations	1,335*
Violations Corrected	
Repairs Completed	526*

*These totals include data from the referral program.

Of the 526 repairs completed, 171 of them received financial assistance via the WaDE Program. To date, WaDE and CWMTF grants provided financial assistance to 79 of these households totaling $193,027 and averaging a cost of $2,443 per repair. The remaining 92 of the 171 households received financial assistance through three separate projects funded by CWMTF and the Division of Community Assistance - Community Development Block Grant, totaling $245,240 and averaging a cost of $2,665 per repair. These repairs are environmentally significant.

The WaDE Program continues to provide financial assistance for septic system repairs in participating survey areas throughout western North Carolina. Financial assistance is being provided through collaboration with CWMTF, U.S. Department of Agriculture's Rural Development Program and regional councils of government. In addition to direct assistance in survey areas, the WaDE Program works to annually identify and update other possible sources of financial assistance for septic system upgrades or repairs in all North Carolina counties.

The WaDE Program also provides public education on related public health concerns and environmental issues. This information has been offered to the public through public service announcements, public community meetings in survey areas, door-to-door visits by trained WaDE surveyors, local news paper articles, teachers' guides and videos for school children, outreach to the N.C. Real Estate Commission on property disclosure requirements, and slide show presentations geared toward local, state and national audiences.

2005-2006 Program Highlights

Survey Work

For the reporting period October 2005 through September 2006, the WaDE Program actively surveyed in three western North Carolina counties. Survey and referral program efforts are shown in Tables 2 and 3.

Surveys conducted by the WaDE Program were reduced this year for two primary reasons. First, the Program's new three-year grant was awarded in 2006, so surveys halted while counties were establishing new contracts with the Program. The surveying that did take place within the last year was funded by the original Clean Water Management Trust Fund grant to the program, and it expired in May of 2006. Follow-up surveying from previous survey projects continued throughout the year while the new contracts were being developed. The new three-year grant began in May 2006, and new surveying is anticipated to resume in January of 2007. Secondly, WaDE surveyors attended Centralized Intern Training to become environmental health specialists, which took them out of the field for several months this summer and resulted in fewer surveys completed. As environmental health specialists, surveyors can issue septic repair permits as they survey, thereby reducing delays in getting violations corrected and repair permits issued by the health department.

Survey projects resulted in almost 1,200 homes visited. Homeowner surveys were completed on 538 of these homes, revealing approximately 120 violations (22 percent violation rate) for failing systems or straight pipes. Repairs have been successfully completed on an additional 58 failing systems and straight-pipes during the past year. The addition of a contract part-time environmental health specialist who issues septic system repair permits positively affected the pace of repairs during the last half of the reporting period.

Table 2. Twelve-Month WaDE Survey Statistics

Results	
Total Homes Visited by WaDE	1,148
Homeowner Surveys Completed	538
Violations Identified	119
Violations Corrected	
Repairs Completed	58

The WaDE Program works to distribute CWMTF money through a referral program in which residents are either referred to the health department or self-report problematic systems. After 75 percent of the identified violations in any WaDE-surveyed watershed are repaired, the Program uses CWMTF funding to assist property owners in other parts of the county with financing septic system repairs. The referral program also provides financial initiatives to local health departments to issue repair permits. Participation in this program over the past year is shown in Table 3.

Table 3. Twelve-Month WaDE Referral Program Statistics

Homeowners Participating in WaDE Referral Program	8
Repairs Completed	4

The number of referrals was dramatically reduced this year as a result of local health department staff turnover in Buncombe County – a county that typically issues numerous referrals to the WaDE Program. The WaDE staff became environmental health specialists this year, so now the staff can issue septic repair permits as they survey, thereby reducing delays in getting violations corrected and repair permits issued by the health department.

A New Grant

In 2005 the WaDE Program applied for a second CWMTF grant totaling $1.5 million for continued surveys and financial assistance in western North Carolina. The CWMTF staff was able to find additional funding for the WaDE Program as a statewide project through May 2009. However, the CWMTF has expressed a reluctance to continue to fund the existing survey staff positions beyond the time of this current contract. Therefore, the division will begin to look at alternate sources of funding for these positions.

Database Improvements

The WaDE program uses a centralized database to collect and record data, track progress of violation corrections and provide information for reporting of survey progress. The WaDE Program evaluated the options for providing the best possible service associated with database management and decided to move the database to the Asheville Regional Office. This transition greatly enhances the capabilities, security and reliability of the WaDE database.

The GIS component houses geographic data such as watershed and road information that is gathered at the beginning of a survey project. It is then used to identify roads serving populated areas of watersheds to be surveyed. This information is mapped and given to local health departments and other DENR agencies like the Division of Water Quality and DEH Public Water Supply Section to help select appropriate areas for septic system survey projects. When problematic or failing septic systems are identified during surveys, the information is GIS-mapped and given to the local health departments. Visually displaying the locations of homes with failing septic systems and straight-pipes allows for repair options to be better analyzed and the most cost-effective approach to be determined.

Future Goals and Needs

Based on the 1990 and 2000 U.S. Census data, approximately one half of the state's wastewater infrastructure is reliant on on-site wastewater disposal systems. Although the WaDE Program is performing well within its mandate and scope, considering future improvements and addressing challenges enable this program to reach its full potential in assisting residents of the state.

Additional funding Based on the need and use of on-site wastewater systems, the WaDE Program has submitted a request for additional funding to expand the program statewide. The WaDE Program routinely documents violation rates of 15 percent to 30 percent from its door-to-door surveys. Using an even more conservative failure rate of 10 percent, it is expected that approximately 175,000 failing septic systems in North Carolina would be identified. Last year, local health departments issued approximately 7,700 septic repair permits – only 4 percent of the estimated total of malfunctioning systems in North Carolina. The local health departments do not have the staff to actively survey areas in their counties and act mainly upon complaints about the problem septic system from neighbors. The vast majority of septic systems in need of repair across the state are still in use but remain unidentified. Making WaDE a statewide program for identifying failing systems and providing and distributing grants and low-interest loans to eligible homeowners in need of septic repair would enable the removal of up to 42 million gallons per day of partially treated wastewater from North Carolina's streams and rivers. This would provide safer and healthier wastewater treatment options for many residents beyond the timeframe of the current funding. The expanded program could work with local governments, regional councils of governments and local housing rehabilitation agencies to identify potential sources of financial assistance.

2007

ENVIRONMENTAL REVIEW COMMISSION

JANUARY 23, 2007

MINUTES

For Membership List and Statutory Authority,

See ERC minutes of October 9, 2006

NCDENR
North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

February 19, 2007

The Honorable Charles A. Albertson
625 Legislative Office Building

The Honorable Daniel G. Clodfelter
408 Legislative Office Building

BY HAND DELIVERY

The Honorable Pryor Gibson
419-A Legislative Office Building

Gentlemen:

Enclosed is a summary of the Department's specific recommendations for improved management of sanitary landfills in North Carolina. These recommendations provide additional detail, but closely follow the general outline of landfill recommendations previously presented to the Environmental Review Commission. The Department has also provided draft language for these recommendations to the Environmental Review Commission's counsel, George Givens.

In both the summary and the bill draft, there is a placeholder for recommendations related to the landfill franchise statute. The Department is continuing to work on the franchise recommendation in consultation with Mr. Richard Whisnant at UNC's School of Government. The Department wants to be sure that any proposal for amendment of the franchise statute maintains an appropriate role for both local government and the State with respect to landfill siting decisions.

I look forward to working with you to improve the landfill permitting process. If you have questions about the specific recommendations, I would encourage you to contact either Assistant Secretary Robin Smith at 715-4141 or the Director of the Division of

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Waste Management, Dexter Matthews, at 508-8414.

Sincerely,

William G. Ross, Jr.
Secretary

Cc: Senator Marc Basnight
Rep. Joe Hackney
Dexter R. Matthews, Division of Waste Management
George Givens, ERC Counsel
Dorothy M. Waugaman, Commission Clerk

February 19, 2007
DENR

SUMMARY OF LANDFILL RECOMMENDATIONS

1. Specify how a landfill applicant must demonstrate financial qualifications to construct and operate the landfill.

The applicant should provide cost estimates for: performing environmental studies; acquiring the site; designing the landfill; constructing and operating the landfill; and financial assurance required for corrective action and closure of the landfill. To show financial qualification, the applicant should submit an audited, certified, financial statement and identify sufficient assets to cover the estimated costs. Where assets of a parent, subsidiary, affiliate or joint venturer are offered in support of the financial qualifications of the applicant, then that party must be listed as an owner/operator on the facility permit.

2. Expand financial assurance requirements.

Require that the landfill operator provide financial assurance to cover possible corrective action (in the event of a leak from the landfill, for example). This would be in addition to the financial assurance currently required for the cost of closing the landfill and providing post-closure case. The minimum amount of financial assurance for corrective action should be $3 million. Financial assurance for corrective action should apply to both new and existing facilities. For new facilities, the financial assurance would be required before permit issuance.

3. Strengthen environmental compliance review of potential landfill operators.

Expand the scope of the existing environmental compliance review to include any past environmental violation (not just those related to solid waste) and a larger group of people associated with the permit applicant. For example, the environmental compliance review would be broadened to cover a person who holds a minority interest in the entity applying for a landfill permit (except for minority shareholders in publicly traded corporations who do have any involvement in management or control of the corporation.)

4. Broaden the definition of "owner or operator".

Include in the definition of "owner or operator" any person who has a financial or equitable interest in the entity that has applied for the landfill permit (except for minority shareholders in publicly traded corporations who do have any involvement in management or control of the corporation.)

5. Clarify solid waste enforcement provisions.

Amend the statute sections that authorize injunctive relief and civil penalties for solid waste violations to expressly allow the use of those enforcement remedies in response to a violation of a permit issued by the Department or an order issued by the Commission for Health Services. Increase the maximum civil penalty allowed for a solid waste or hazardous waste violation. Authorize the Department to recover the costs of investigating a violation.

6. Require notice to the Department of any significant change in the structure or assets of the business entity that holds a landfill permit.

The Department should be notified within 30 days of any significant change in the structure of the business entity that owns or operates the landfill facility; the identity of any person or business entity previously identified as an owner or operator of the facility pursuant to G.S. 130A-309.27(a)(1); or in the financial assets identified in the financial qualification of the owner or operator. A change is significant if it could effect the financial qualifications of the permit holder or result in a change in the identity of the owners or operators for purposes of either financial qualification or environmental compliance review. When the Department receives notice of a change, it can require a new environmental compliance or financial qualification review.

7. Set standards for safe transportation of solid waste by railway or barge.

Containers used to transport solid waste should be leak-tested and covered. Records of leak testing should be retained at the permitted solid waste facility for 3 years. It would be a violation to allow liquid to enter a container of solid waste or to allow solid waste, liquids or odors to escape from a container.

8. Require a traffic study for larger solid waste facilities.

Require that applications for solid waste management facilities proposed to handle more than 100,000 tons of waste per year include a study of the traffic impacts of the facility. The results of the study would be considered in the permit decision.

9. Authorize local landfill liaisons.

Authorize a local government with planning authority over a sanitary landfill that has a service area of greater than a 100-mile radius to designate a landfill liaison. The liaison would be a certified landfill manager, but would not direct the operation of the landfill. The landfill liaison would have authority to enter the landfill facility at reasonable times and inspect the landfill operation for purposes of: ensuring that the facility meets all local requirements; identifying and notifying the Department of potential violations; and identifying and notifying the Department of potentially hazardous conditions.

10. Require the permittee to employ an independent quality assurance engineer to oversee construction of the landfill.

The permittee should employ a licensed engineer who is independent of both the landfill owner and any person engaged in the design or construction of the landfill to inspect during construction. The project engineer would be responsible for certifying that construction of the solid waste management facility units, leachate handling facilities and landfill appurtenances conforms to the plan approved by the Department, the permit to construct, and the rules adopted by the Commission.

11. Establish minimum standards for new landfills and for landfill expansions onto previously unpermitted property.

Minimum standards for new landfills and for landfill expansion onto property that was not included within the scope of a previous permit would include:

a. double liners and a leachate collection system for municipal solid waste landfills;
b. composite liners for construction and demolition landfills;
c. a minimum separation of 5 feet between the bottom elevation of the waste (or the liner system, if the landfill has a liner) and seasonal high groundwater and bedrock;
d. a 200-foot buffer between the waste boundary and streams or wetlands (unless no feasible alternative location is available that would comply with the buffer requirement); and
e. a prohibition against siting landfill units in the 100-year floodplain or in area reclaimed from the floodplain.

12. Establish new standards for construction of lined sanitary landfill units permitted on or after the effective date of the bill

Specific standards for leachate collection systems and liners would include:

a. leachate collections systems should be designed to maintain a head of less than one foot during leachate recirculation.
b. the leachate collection system should be designed to return the head to one foot or less within 72 hours based on a 25 year-24 hour design storm falling on an empty cell.
c. geomembrane base liner systems must be tested for leaks and damage.
d. leachate collection lines should be designed and constructed to allow for remote camera inspection and cleaning. Lines should be cleaned and remotely inspected annually.
e. all pipes used to carry leachate should be constructed with dual containment outside of the lined disposal unit.
f. new units and lateral expansions should be constructed without pipe penetrations of the bottom liner, whether for leachate, stormwater or gas.

13. Direct the Commission for Health Services to review landfill rules and adopt new rules necessary to protect public health and the environment.

Rules adopted by the Commission should:

a. establish standards for the collection, control and utilization or destruction of landfill gasses at municipal solid waste landfills;
b. establish standards for the construction, operation, and maintenance of bioreactor landfills;
c. establish criteria for development of bird and wildlife management plans; and
d. incorporate measures necessary to minimize impacts to natural, historic and cultural resources, including but not limited to wetlands, critical fisheries habitat, parks, recreation areas, cultural and historic sites, and potential water supplies.

14 Require that all sanitary landfills have a waste screening plan to ensure that the facility is in compliance with waste bans.

15 Require an environmental study of very large landfills and landfills with an extended service area.

The existing exemption from the N.C. Environmental Policy Act for landfills owned and operated by local governments should be removed for facilities that receive more than 300,000 tons of waste per year; have a total disposal capacity of more than 15 million cubic yards of solid waste; or have a service area of more than 100 miles in radius. An environmental study should also be required for privately-constructed landfills that will exceed one of more of those thresholds. The environmental document would need to meet the standards for an environmental impact statement under the N.C. Environmental Policy Act and rules adopted by the Department of Administration to implement the act. The documents would also be subject to the same public notice and a public hearing would be required.

16. Change landfill franchise authority to differentiate between landfills that provide local service and those that have large regional or multi-state service areas.

The Department is still working on the specific recommendation to alter local government franchise authority.

17. Add a new statute section setting out the grounds for denial of a landfill permit.

The statute should authorize the Department to deny a landfill permit if it finds one of the following:

(a) Construction or operation of the landfill would violate water quality standards for groundwater or surface waters;

(b) The landfill would jeopardize a renewable resource of more than local concern, such as watersheds or aquifers that are sources of public water supply.
(c) Construction or operation of the landfill would damage fragile or historic areas or areas containing environmental or natural resources of more than local significance. Examples of these areas would include national or State parks or forests; wilderness areas; historic sites; recreation areas; segments of the natural and scenic rivers system; wildlife refuges, preserves and management areas; areas that provide habitat for threatened or endangered species; primary nursery areas and critical fisheries habitat designated by the Marine Fisheries Commission; and Outstanding Resource Waters designated by the Environmental Management Commission.
(d) Construction or operation of the facility would jeopardize public rights to access or use public trust waters.
(e) The facility will be located in a natural hazard area, such as an area subject to excessive seismic activity, that would increase the risk to public health or safety.
(f) The proposed facility would be inconsistent with statutory standards or rules adopted by the Commission for Health Services.
(g) The proposed facility would be inconsistent with ordinances adopted by the local government that has planning jurisdiction over the site of the proposed facility.
(h) There is a practicable alternative to be proposed landfill that would have less adverse impact on public resources.
(i) Construction of the landfill would contribute to cumulative effects that would damage a natural, historic, or cultural resource protected under the statute.

18. Establish permit fees for solid waste facilities. A copy of the proposed fee schedule is attached. Fee revenue would be used to support the solid waste regulatory program.

19. Establish a state-wide surcharge on disposal of solid waste at $2 per ton. The surcharge would apply to municipal solid waste and to construction and demolition waste that is either disposed of at a permitted solid waste facility or moves through a permitted transfer station en route to a disposal facility outside the State. The surcharge would be used to pay for cleanup of orphan landfills and other orphan inactive hazardous waste sites; provide state matching funds for remediation, monitoring and maintenance of Superfund sites in North Carolina; provide funds to local government for redevelopment of contaminated sites; and provide funds for administration of contracts to cleanup orphan landfills and inactive hazardous waste sites.

DRAFT
DENR
Feb. 19 2007

PROPOSED PERMIT FEES FOR SOLID WASTE MANAGEMENT FACILITIES

"**§ 130A-293.1. Fees applicable to permits for solid waste management facilities.**

(a) It is the intent of the General Assembly that the fees collected pursuant to this section shall be used to support the Department's solid waste management program.

(b) The Solid Waste Management Account is established as a non-reverting account within the Department. All fees collected under this section shall be credited to the Account and shall be used for personnel and other resources necessary to do any one or more of the following:

(1) Provide a high level of professional review of permit applications for solid waste landfills and other solid waste management facilities;

(2) Provide timely review of permit applications;

(3) Improve monitoring of solid waste management facilities;

(4) Increase compliance activities related to solid waste management facilities; and

(5) Review and update rules governing the construction and operation of solid waste landfills to recognizing advances in technology and research to better protect public health and the environment.

(c) Applicants for permits shall pay an application fee according to the following schedule:

(1) Municipal Solid Waste Landfill accepting less than 100,000 tons/year of solid waste-New Permit-$25,000

(2) Municipal Solid Waste Landfill accepting less than 100,000 tons/year of solid waste-Amendment -$15,000

(3) Municipal Solid Waste Landfill accepting less than 100,000 tons/year of solid waste – Modification - $1,500

(4) Municipal Solid Waste Landfill accepting 100,000 tons/year or more of solid waste - New Permit - $50,000

(5) Municipal Solid Waste Landfill accepting 100,000 tons/year or more of solid waste – Amendment - $30,000

(6) Municipal Solid Waste Landfill accepting 100,000 tons/year or more of solid waste – Modification - $3,000

(7) Construction and Demolition Landfill accepting less than 100,000 tons/year of solid wasteNew Permit-$15,000

(8) CONSTRUCTION AND DEMOLITION Landfill accepting less than 100,000 tons/year of solid waste-Amendment -$9,000

(9) CONSTRUCTION AND DEMOLITION Landfill accepting less than 100,000 tons/year of solid waste – Modification - $1,500

(10) Construction and Demolition Landfill accepting 100,000 tons/year or more of solid waste - New Permit - $30,000

(11) Construction and Demolition Landfill accepting 100,000 tons/year or more of solid waste – Amendment - $18,500

(12) Construction and Demolition Landfill accepting 100,000 tons/year or more of solid waste – Modification - $2,500

(13) Industrial Landfill accepting less than 100,000 tons/year of solid waste-New Permit-$15,000

(14) Industrial Landfill accepting less than 100,000 tons/year of solid waste-Amendment -$9,000

(15) Industrial Landfill accepting less than 100,000 tons/year of solid waste Modification - $1,500

(16) Industrial Landfill accepting 100,000 tons/year or more of solid waste New Permit - $30,000

(17) Industrial Landfill accepting 100,000 tons/year or more of solid waste Amendment - $18,500

(18) Industrial Landfill accepting 100,000 tons/year or more of solid waste Modification - $2,500

(19) Tire Monofill New Permit - $1,750

(20) Tire Monofill Amendment - $1,250

(21) Tire Monofill Modification - $500

(22) Treatment and Processing New Permit - $1,750

(23) Treatment and Processing Amendment $1,250

(24) Treatment and Processing Modification $500

(25) Transfer Stations New Permit - $5,000

(26) Transfer Stations Amendment - $3,000

(27) Transfer Station Modification - $500

(28) Incinerator New Permit - $1,750

(29) Incinerator Amendment - $1,250

(30) Incinerator Modification - $500

(31) Large Compost Facility New Permit - $1,750

(32) Large Compost Facility Amendment - $1,250

(33) Large Compost Facility Modification - $500

(34) Land Clearing and Inert New Permit - $1,000

(35) Land Clearing and Inert Amendment - $500

(36) Land Clearing and Inert Modification -$250

(d) The application permit fee under this section shall be paid upon submission of the permit application.

(e) A permitted solid waste management facility shall pay an annual permit fee on or before August 1 of each year according to the following schedule:

1. Municipal Solid Waste Landfill $3,500
2. Post Closure Municipal Solid Waste Landfill $1,000
3. Construction and Demolition Landfill $2,750
4. Post Closure Construction and Demolition Landfill $500
5. Industrial Landfill $2750
6.. Post Closure Industrial Landfill $500
7. Transfer Station $750
8. Treatment and Processing Facility $500
9. Tire Monofill $500
10. Incinerators $500

11. Large Compost Facility $500
12. Land Clearing and Inert Debris Landfill $500

(f) As used in this section, the following definitions apply:

(1) 'New permit' means all of the following:

a. An application for a new solid waste management facility not previously permitted by the Department. It includes one site suitability review, the initial permit to construct and one permit to operate the constructed portion of a phase included in the permit to construct.

b. An application that proposes to expand the boundary of a permitted waste management facility for the purpose of expanding the permitted activity.

c. Any application that includes a proposed expansion to the boundary of a waste disposal unit within an existing permitted solid waste management facility.

d. An application for a substantial amendment to a solid waste permit, as defined in G.S. 130A 294(b1).

(2) 'Permit amendment' means all of the following:

a. An application for a permit to construct and one permit to operate for the second and subsequent phases of landfill development depicted in the approved facility plan for an existing solid waste management permit.

b. An application for a renewal or a permit review every five years after issuance of the existing solid waste management facility permit, as required by rule.

c. Any application that proposes a change in ownership or corporate structure of a permitted solid waste management facility

(3) 'Permit modification' means all of the following:

a. an application for any change to the plans approved in the existing permit for a solid waste management facility that does not constitute a 'permit amendment' or a 'new permit'."

b. a second or subsequent permit to operate for a constructed portion of a phase included in the permit to construct.

MINUTES
ENVIRONMENTAL REVIEW COMMISSION
23 January 2007

The Environmental Review Commission (ERC) met on Tuesday 23 January 2007 at 9:30 a.m. in Room 1228 of the Legislative Building. Senator Albertson presided.

The following members were present: Senators Albertson, Bingham, Dorsett, Kinnaird and Weinstein; and Representatives Gibson, Hackney, Harrell, Harrison, Justice, and Warren. Mr. George Givens, Commission Counsel; Jeffrey Hudson, Assistant Commission Counsel; Jennifer McGinnis, Assistant Commission Counsel; Susan Iddings, Assistant Commission Counsel; Jennifer Mundt, Commission Analyst; Mary Watson, Acting Commission Clerk; and Dot Waugaman, Commission Clerk; were also present.

On 3 January 2007, notice was sent to members and interested parties via e-mail and regular mail. A copy of the notice is included in the attachments to these minutes as **Exhibit A**. Copies of the agenda for the meeting and visitor registration sheets are included in the attachments as **Exhibits B** and **C**.

Senator Albertson called the meeting to order. He then asked Mr. George Givens to present his report and explain the agenda items. Mr. Givens pointed out that there were two packets of reports with an explanation memorandum from Ms. Jennifer Mundt dated 23 January 2007 at their desks (see **Exhibit D**). The first package of reports includes a Report on the Feasibility and Desirability of Acquiring Land and Establishing a State Park at Cabin Lake, dated 15 January 2007 (see **Exhibit D-1**); and a report submitted by Mr. Peter Anderson, Executive Director of the Center for Competitive Waste Industry, titled, "Day of Reckoning: Protecting California Taxpayers from the Looming Landfill Crisis" (see **Exhibit D-2**). Mr. Anderson presented on behalf of the International Brotherhood of Teamsters on the liabilities associated with existing and proposed landfills at the ERC meeting on 13 December 2006. The other memorandum, also from Ms. Mundt, dated 23 January 2007, attached a copy of the written public comments on the La Capra Associates, Inc. study (see **Exhibit E**). An updated copy of "Status of Reports to the ERC Required by Law (see **Exhibit F**) was also made available. Other reports submitted are attached to specific agenda items and will be identified below. Mr. Givens commented that the day's agenda would focus on parks, recreation and land conservation, but will also include other important items, some of which were carried over from the December and earlier January meeting.

Senator Albertson introduced Mr. Phil Baddour, Chair of the Board of Trustees, Clean Water Management Trust Fund (CWMTF), to speak about the annual report on the implementation of the Trust Fund, projects and awarded grants (see **Exhibit G** for a copy of the report). He introduced Mr. D. G. Martin, who has assumed the position of interim director of the CWMTF Board. Mr. Baddour stated a primary goal of the Board of Trustees is to take a close look at ways to improve grant review criteria. He suggested integrating the Trust Fund's existing criteria with the common criteria set forth in the Session Law adopted in 2005. The Board endorsed his recommendation that more weight be given to good water quality applications from economically distressed local communities.

Senator Albertson introduced Mr. Richard Rogers, Assistant Secretary for Natural Resources, DENR, to speak about the Conservation Easement Program and progress for preserving 1 million acres of natural land by the end of 2009 (see **Exhibit H** for a copy of his PowerPoint presentation, **Exhibit I** for a copy of the Annual Million Acre Report, and **Exhibit J** for a copy of the Annual Report of the Conservation Easement Program). He commented that the state is at a critical point where the conservation challenges need to be faced head on and a strategic plan developed. He said private land conservation across the state is not being maximized.

In 2006 the Department took on establishing a stewardship program to include an ecosystem enhancement program for easements being used to mitigate Department of Transportation highway projects. There are 75 properties being monitored in partnership with land trust communities through contracts. The cost of the program is being determined. Money from the projects is put in an endowment to allow DENR to finance a property monitoring program.

Another area is the Conservation Tax Credit (CTC) Program. The program has also provided several easement properties across the state that need to be monitored. DENR staff is now determining the status of the properties, specifically who is responsible for monitoring and assuring that the appropriate conservation benefits are being realized for the state. The CTC Program is going to hire a stewardship analyst to manage the program.

The Conservation Grant Fund (CGF) allows DENR to set up various funds (an endowment fund an interest bearing account, and an operating account) to be used in a multitude of ways. Interest on the endowment fund is being used to monitor the easements. It is also being used in conjunction with the Military Support Act, passed in 2005 and funded in 2006 for $1 million. Almost one-third of the $1 million has been allocated for use on and around military bases. The funds cannot be used to purchase land, but the Fund does allow payment for transaction, survey, and other costs associated with the purchase of land.

The CTC program has been in existence since 1983. Because of the cap on donations for tax credit for individuals and businesses, a lot of excess value goes into the program, thereby reducing the amount paid for the properties. The costs have averaged about $600 per acre. Over 154,000 acres of land have been conserved through the program. Mr. Rogers brought three legislative recommendations to the Commission: (1) corporate donations (pass through entities and increase incentives to donate), (2) clarify the language of "other conservation purposes", and (3) define a property appraisal method.

Mr. Rogers ended his presentation with a request for funding for supporting conservation to sustain and keep the network of natural systems together for economic, natural resource, and quality of life benefits.

Senator Albertson introduced Mr. Lewis Ledford, Director, Division of Parks and Recreation, DENR to present the annual report on the Parks and Recreation Trust Fund (see **Exhibit K** for a copy of his PowerPoint presentation, **Exhibit L** for a copy of the Parks and Recreation Trust Fund Program Overview and Annual Report, and **Exhibit M** for a commemorative brochure celebrating 90 years of stewardship of the North Carolina State Parks).

Senator Albertson then introduced Ms. Lisa Riegel, Executive Director, Natural Heritage Trust Fund, to present the semi-annual report on acquisitions made with funds from the Natural Heritage Trust Fund (see **Exhibit N** for a copy of her PowerPoint presentation, and **Exhibit O** for a copy of the annual report). The Fund receives income from 25% of the state's portion of the Deed Stamp Tax, $15.00 per plate from additional fees for personalized license plates, and interest. The money can be and is used to leverage other money from the state, from the federal government, and from private sources.

Senator Albertson introduced Representative Lucy Allen, Co-Chair of the Land and Water Conservation Commission, to present a report on the work of the Commission and recommendations based on the findings of the report (see **Exhibit P** for a copy of the Executive Summary and **Exhibit Q** for a copy of the Media Coverage Clip Book, 5 September 2006 through 17 January 2007). In addition to the meetings held in Raleigh, the Commission met in three venues across the state: Asheville (280 attended, 65 people spoke); Greenville (275 attended, 45 people spoke); and Greensboro (290 attended, 79 people spoke).

Representative Gibson asked what the Commission heard concerning the bond pool—schools, transportation, water and sewer, and conservation. Representative Allen replied that the Commission focused on conservation because it is more intangible than other bond possibilities. There was great support for land and water conservation, but there was a lot of debate about who would pay for it.

Representative Harrison asked about when the ERC would hear about the Farmland Preservation Fund. Mr. Givens replied that he would check the status of a report and let members know. (Later in the meeting, Mr. Givens asked Senator Albertson to recognize Ms. Joy Hicks of the Fiscal Research Division to tell the members the status of the report. Ms. Hicks stated that the Agriculture Development and Farmland Preservation Trust Fund annual report does not come to the ERC. It goes to the Joint Committee on Governmental Operations Subcommittee on Natural and Economic Resources. Mr. Givens added that Mr. Maximillian Merrill of the Department of Agriculture is responsible for the report. Mr. Merrill advised that a report will be forthcoming soon. Mr. Givens said he will draft legislation to add to the reporting requirement that the report will come to the ERC.

Senator Albertson introduced Ms. Suzanne Klimek, Director of Operations, Ecosystem Enhancement Program (EEP), DENR, to present the annual report on the Implementation of the Ecosystem

Enhancement Program and use of the Ecosystem Enhancement Fund, including an inventory of property and easements (see **Exhibit R** for a copy of the PowerPoint presentation and **Exhibit S** for a copy of the 2005-2006 Annual Report of the program). Ms. Klimek commented that the EEP is an example of environmental streamlining that is a model for the nation. The work of the program is compensatory mitigation, basically restoration to offset unavoidable impacts to aquatic resources. Mitigation is required because of provisions the federal Clean Water Act.

The EEP started with a three-way memorandum of agreement between DENR, DOT, and the Army Corps of Engineers. Since the beginning of the program, no DOT projects have been delayed because of compensatory mitigation, in contrast to the situation prior to the establishment of the program where 40 percent of DOT's road projects were delayed because compensatory mitigation was not in place. All work of the EEP is outsourced. Staff members work with environmental consulting firms, private mitigation bankers, government agencies, non-government organizations, and universities to plan restorations so the mitigation provides the most benefit. They design and construct the restoration projects, acquire the land in association with all the projects, and monitor the projects over a five-year period to make sure the mitigations meet their success criteria.

The EEP has to provide compensatory mitigation within the same watershed as the environmental impact. They work closely with state and federal agencies on a daily basis. One way is through their Program Assessment and Consistency Group, made up of Division of Water Quality, Division of Coastal Management, EPA, Army Corps of Engineers, US Fish and Wildlife Commission, among others. The liaison council made up of environmental consulting firms, mitigation providers, land trusts, non-government land associations to inform the Group of what they are doing and to engage them in understanding what is going on with the program. The EEP reports to the Board of Transportation and the Department of Transportation, because they manage a large sum of money on their behalf. The most important interaction they have is the Annual Report to the ERC.

Because the EEP consolidates all requirements they have to meet, not only for the Department of Transportation but also for private entities across the state and for managing the Nutrient Offset Program and the Buffer Mitigation Program, and they work strategically to meet requirements across the state to maximize environmental and economic efficiency. To do that, they evaluate customer needs in terms of mitigation that has to be in place to complete their projects. They also evaluate environmental needs on a watershed approach. They look at where in the land space it make the most sense to apply the restoration dollars.

The DOT's needs have been falling off annually, approximately 30 percent, due to two things. The first is the Transportation Improvement Program is not as active because of their funding issues. They are also doing a better job of determining what the environmental impacts are going to be. There is also a slight reduction in participants of the traditional in lieu fee program, but the buffer and nutrient offset programs are continuing to increase in activity.

They do review the cost of delivering the restoration annually. This includes the cost of acquiring the land, designing projects and constructing the projects. Those costs are increasing. Therefore they are engaged in a rule revision process to update the schedule of fees for compensatory mitigation. They last looked at their costs in 2003, and increased the stream fee at that time. They now have more data on costs than they have ever had, helping them to determine a figure that can be backed up with data. The data shows they can justify distinction across the state in terms of urban, rural and coastal environments. Costs are higher in urban and coastal areas because land values are increasing. They also want to set fees to reflect the actual costs being incurred. The process is underway, and the public comment is open until February 15.

The regulatory entities are interested in whether or not the program is complying with the permit requirements they have taken on as they relate to compensatory mitigation, and are they meeting their goal of advancing mitigation ahead of the impact as established in the tri-party memorandum of agreement. Their currently managed assets (1,471,107 linear feet) are more than the required amount through 2008 (1,379,553 linear feet), demonstrating they are advancing mitigation, and the compliance with what they have in the system is very high. They have had similar success with wetland assets. Buffer and nutrient offset mitigation programs are also highly compliant with required mitigation.

Representative Gibson asked about mitigation during the removal of dams. Ms. Klimek said EEP has had good results from the projects they have supported. They are asking the Army Corps of Engineers for consensus on guidance on how to go about removing the dams. Ms. Klimek also commented that the EEP has more data on project cost now than they ever have had in the past, which allows fee schedules to be set more accurately.

Senator Albertson introduced Mr. Bruce Nicholson, Brownfields Program Manager, Division of Waste Management, DENR, to report on the effectiveness of the Brownfields Property Reuse Act (see **Exhibit T** for a copy of the annual report). The program has facilitated almost $2 billion in committed private investment in brownfields in North Carolina. Lenders who had previously turned down requests for loans for such projects are now advising developers of the brownfields properties. The program is part of the landscape for cleanup of environmental problems. The program promotes more sustainability and property redevelopment. It recycles and reuses infill properties and counters the continued sprawl into green spaces. Because of the popularity of the program and the leveling off of federal funds, the program will use the statutory authority for imposing fees, probably an additional $3,000 for each applicant. For most developers, the fee would be nominal. With the additional resources provided through the fee, more staff could be hired, and the program of cleanup and redevelopment of environmentally impacted properties would continue to meet the challenges of its success.

Senator Albertson introduced Ms. Robin Smith, Assistant Secretary for Environment, DENR, to speak on the report of the findings and recommendations of the Governor's Hazardous Materials Task Force (see **Exhibit U** for a copy of the report). The Task Force was set up to respond to the questions that arose as a result of the explosion at Environmental Quality Company (EQ), a hazardous waste facility in Wake County.

Ms. Smith reported on the results of environmental tests done in the surrounding community to the Committee. She said air quality monitoring staff was on site within a few hours after the fire. They began taking air quality data the following morning as soon as they were cleared by the first responders to get close enough to the site to set up their equipment. Water quality staff was on site the following morning to begin monitoring surface water in the vicinity of the fire to insure that contaminants were not reaching the streams in the vicinity. No significant water or air quality violations were found in either of the monitoring efforts. The first responders set up berms around the fire site so that stormwater runoff was not leaving the site and contaminating surface waters. Rain helped air quality. In the following weeks DENR did screen some homes and businesses in the community surrounding the site, because there was a great deal of concern about the possibility of contamination. DENR developed a cooperative program with the Department of Health and Human Services (DHHS) and took samples at 39 sites in the community. Exterior and interior wipe samples were taken as well as soil samples. Most of the homes that were tested had interior mercury vapor testing. All mercury vapor testing came back negative. The interior wipe sampling basically all came back negative. One high lead level appeared to be associated with lead based paint in the house, not with the fire and explosion. The soil and exterior wipe sampling picked up a variety of heavy metals and other constituents, which could be explained by naturally occurring events.

There were a couple of hot spots for arsenic that appeared to be related to arsenic sources on the site. Old pressure treated wood decking is a known source of arsenic. The same was true for the one site where a higher than average mercury level was found. It appeared to be the result of contamination from an automobile repair and maintenance facility. They found no contamination that could be attributed to the fire and explosion. Virtually everything found was within naturally occurring levels. The full report on the off-site screening around the Apex facility is on the DENR website. The offsite screening in the Apex case cost the state approximately $170,000.

Ms. Smith then reviewed the recommendations from the Task Force (see **Exhibit U**).

Representative Harrison asked if the Task Force discussed the disclosure of hazardous situations in real estate transactions. Ms. Smith replied she did not recall that the subject came up during the Task Force meetings. She added that the Task Force moved in the direction of requiring the facility operator or the permit applicant (for a new facility) to notify property owners directly, not to get involved in property transfers.

Representative Justice asked if it would be too much of a burden on local fire departments to have them involved in containing hazardous waste problems without having the information they need. Ms. Smith replied that all sites have at least one annual inspection by the fire department. She added that the Task

Force specifically recommended that there be a review of the State Building Code and the way that it addresses labeling of hazardous materials, so that fire personnel who conduct the inspections would be able to tell more easily what is in the storage container and what its properties are. The Building Code Council has been asked to look at container labeling to see if there needs to be different labeling requirements. DENR is also routinely sharing their inspection reports of the facilities with the local fire officials. The Task Force suggested they also send them copies of compliance orders so the local fire officials will have a record of the deficiencies found during DENR inspections.

Representative Gibson asked if the business representatives on the Task Force had any concern about the proprietary nature of some of the information that they would be required to put in the public domain. Ms. Smith replied that the information they would need to share would not be proprietary in nature. What is needed is to know what materials are on site and what the characteristics of those materials are.

The meeting adjourned at 12:25 p.m.

Representative Pryor Gibson, Co-Chair

Senator Charlie Albertson, Co-Chair, Presiding

Dot Waugaman, Commission Assistant

Senator Daniel Clodfelter, Co-Chair

LIST OF EXHIBITS

Exhibit A Notice of Meeting dated 3 January 2007

Exhibit B Agenda of Meeting

Exhibit C List of Attendees

Exhibit D Package of Reports with memorandum from Jennifer Mundt dated 23 January 2007

D-1 Report on the feasibility and desirability of acquiring land and establishing a State Park at Cabin Lake, dated 15 January 2007

D-2 Report entitled, "Day of Reckoning: Protecting California Taxpayers from the Looming Landfill Crisis" submitted by Peter Anderson, dated 2004 (presented at the ERC meeting on 13 December 2006

Exhibit E Supplemental memorandum from Jennifer Mundt dated 23 January 2007 attaching written public comments on the La Capra Associates, Inc. study: *Analysis of a Renewable Portfolio Standard for the State of North Carolina*, dated December 2007

Exhibit F Status of Reports to the ERC Required by Law, dated 22 January 2007

Exhibit G 2006 Annual Report from the Clean Water Management Trust Fund

Exhibit H PowerPoint Presentation by Mr. Richard Rogers on the *Million Acres Report* and *Conservation Easement Program*

Exhibit I Annual Million Acre Report, dated 1 September 2006, transmitted by memorandum dated 22 January 2007 by Mr. William G. Ross, Jr., Secretary, DENR

Exhibit J Annual Report to the ERC on the Conservation Easement Program, dated 1 November 2006

Exhibit K PowerPoint Presentation by Mr. Lewis Ledford, Director, Division of Parks and Recreation, DENR, on the Parks and Recreation Trust Fund

Exhibit L 2005-2006 Annual Report on Parks and Recreation Trust Fund

Exhibit M Brochure, North Carolina State Parks: Celebrating 90 Years of Stewardship

Exhibit N PowerPoint Presentation by Ms. Lisa Riegel, Executive Director, National Heritage Trust Fund

Exhibit O Natural Heritage Trust Fund Annual Report for Calendar Year 2006

Exhibit P Executive Summary of the Land and Water Conservation Study Commission

Exhibit Q Media Coverage Clip Book, 5 September 2006-17 January 2007 for the Land and Water Conservation Study Commission

Exhibit R PowerPoint Presentation by Suzanne Klimek, Director of Operations, Ecosystem Enhancement Program, DENR

Exhibit S 2005-1006 Annual Report of the Ecosystem Enhancement Program-

Exhibit T Annual Report to the NC General Assembly entitled, "The NC Brownfields Program", dated October 2006

Exhibit U Report to the Governor from the Governor's Hazardous Materials Task Force, dated 14 December 2006

EXHIBIT A

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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3 January 2007

TO: Members of the Environmental Review Commission
Interested Parties

FROM: George F. Givens, Commission Counsel
Dot Waugaman, Commission Clerk

RE: **Notice of Commission Meeting**
Notice of Planning Meeting
Schedule of Future Meetings
Meetings of Interested Parties (605 Working Groups)
Additional Information

COMMISSION MEETING:

The Environmental Review Commission (Commission) will meet at 9:30 a.m. Wednesday 17 January 2007 in Room 544 of the Legislative Office Building in Raleigh.

At this meeting, the Commission will continue studies for which the Commission is responsible, hear reports from State agencies, discuss topics to be considered at future meetings, and attend to other matters. Listed below are potential agenda topics for this meeting and for future meetings. More specific information regarding the agenda for the 17 January meeting of the Commission will be developed at the staff planning meeting discussed below.

STUDIES

1) Issues related to solid waste management (S.L. 2006-244, Sec.4)

2) Issues related to the nutrient offset payment program with regard to the costs associated with providing nutrient controls that are adequate to offset point source and nonpoint source discharges of nitrogen; whether nutrient offset payments should be authorized for additional nutrients, including phosphorus; and whether the nutrient offset program should be expanded to other areas of the State (S.L. 2006-215, Sec. 2)

3) The merger of the organization and functions of the Ecosystem Enhancement Program and the Clean Water Management Trust Fund with the Joint Legislative Transportation Oversight Committee (S.L. 2006-248, Sec. 16)

REPORTS *(Report due dates are indicated in parentheses)*

General/Miscellaneous:

4) Annual report on the evaluation and adjustment of the boundaries of the area served by each Metropolitan Planning Organization (G.S. 136-202(d)) *(1 November)*

5) Annual report on the mercury minimization plan prepared by the Department of Environment and Natural Resources (G.S. 130A-310.57) *(1 November)*

6) Quarterly report on the activities of the Environmental Management Commission (G.S. 143B-282(b)) *(15 January)*

7) Interim Report by the Biofuels Energy Strategic Plan Work Group on the Development of the Strategic Plan (S.L. 2006-206, Sec. 3.2) *(15 January 2007)*

Air Quality:

8) Interim Report on the Costs and Benefits of Reducing Oxides of Nitrogen, Particulate Matter, and Other Greenhouse Gases from Motor Vehicles (S.L. 2006-248, Sec. 43) *(15 January 2007)*

Hazardous Waste Management:

9) Annual report on the Effectiveness of the Brownfields Property Reuse Act (G.S. 130A-310.40) *(1 October)*

10) Report on the findings and recommendations of the Governor's Hazardous Waste Task Force

Land Resources:

11) Annual report on implementation of the Sedimentation Pollution Control Act of 1973 (G.S. 113A-67) *(1 October)*

Parks and Recreation:

12) Parks and Recreation Trust Fund Annual Report, Fiscal Year 2005-2006 (G.S. 113-44.15(c)) *(1 October)*

13) Report on the Conservation Easement Program and inventory of all conservation easements held by the Department of Environmental and Natural Resources (G.S. 113A-235(c), S.L. 2004-124, Sec. 2.2) *(1 October)*

14) Report on acquisitions made with funds from the Natural Heritage Trust Fund (G.S. 113-77.9(e)) *(Semi-annually, within 30 days of revision)*

15) Annual report on the State's progress made towards Preserving One Million Acres of farmland, open space, and conservation lands (G.S. 113A-241(c), S.L. 2004-195, Sec. 2.3) *(1 October)*

16) Report on the Feasibility and Desirability of Acquiring Land and Establishing a State Park at Cabin Lake (S.L. 2006-138, Sec. 3) *(15 January 2007)*

Solid Waste Management:

17) Solid Waste Management Annual Report (G.S. 130A-309.12(c), G.S. 130A-309.06(c)(8), G.S. 130A-309.63(e), G.S. 130A-309.06(c)(10), G.S. 130A-309.85, G.S. 130A-309.06(c)(11), G.S. 130A-309.06(c)(12), 136-28.8(g), G.S. 130A-309.06(c)(13), 143-58.2(f)) *(15 January)*

18) An evaluation of the recycling industry, the markets for recycled materials, the recycling of polystyrene, and the success of State, local, and private industry efforts to enhance the markets for these materials. (G.S. 130A-309.06(c)(6)) *(15 January)*

Water Quality:

19) Annual report on the Wastewater Discharge Elimination Program (S.L. 2001-452, Sec. 2.9) *(15 October)*

20) Implementation of the Clean Water Management Trust Fund; projects and awarded grants. (G.S. 113-145.6A(a) and S.L. 2002-148, Sec. 3) *(1 December)*

21) Implementation of the Ecosystem Enhancement Program and use of the Ecosystem Enhancement Fund, including inventory of property and easements. (G.S. 143-214.13) *(1 November)*

22) Follow-up discussion of the report on the evaluation of the training and qualification requirements for approval as an animal waste management systems technical specialist (S.L. 2006-38, Sec. 2) *(15 November 2006)*

Water Quantity:

23) Annual report by the Catawba/Wateree River Basin Advisory Commission and the Yadkin/Pee Dee River Basin Advisory Commission (G.S. 77-117) *(1 October)*

PLANNING MEETING:

To facilitate development of the agendas for the 17 and 23 January meetings of the Commission, to plan for subsequent meetings of the Commission, and to receive input from interested persons regarding the work of the Commission, the Commission Counsel will hold an informal planning meeting at **10:00 a.m. on Monday 8 January 2007 in Room 605 of the Legislative Office Building**. Persons who wish to participate in the development of the agenda for meetings of the Commission, or who are interested in any matter before the Commission, are invited to attend.

SCHEDULE OF FUTURE MEETINGS:

The Environmental Review Commission is scheduled to meet at 9:30 a.m. on Tuesday 23 January 2007 in Room 1228 of the Legislative Building. It may be necessary to reschedule this meeting.

The Commission may also meet once the General Assembly is in session (G.S. 120-70.44). When the Commission meets while the General Assembly is in session, written notice will not be mailed to persons on the mailing list. Rather, notice will be given at a session of the Senate and House of Representative as provided by G.S. 143-318.12(b) and will be distributed by email. The Commission will resume a regular schedule of monthly meetings following adjournment of the 2007 Session of the General Assembly.

MEETINGS OF INTERESTED PARTIES (605 WORKING GROUPS):

The Commission Counsel will hold meetings of interested parties on specific topics as indicated below:

Underground Storage Tank Working Group
10:00 a.m. Friday 26 January 2007 – 605 Legislative Office Building

ADDITIONAL INFORMATION:

If you have questions related to the Commission, you may contact the Commission Counsel or other Commission staff at (919) 733-2578.

EXHIBIT B

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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AGENDA
9:30 a.m. Tuesday 23 January 2007
Room 1228 Legislative Building
Raleigh, North Carolina

1. Call to order
   Senator Charles W. Albertson, Presiding

2. Introductory remarks by Cochairs *(5 minutes)*
   Senator Charles W. Albertson
   Senator Daniel G. Clodfelter
   Representative Pryor A. Gibson

3. Report to the Commission and explanation of agenda items *(10 minutes)*
   George F. Givens, Commission Counsel

4. Annual report on the implementation of the Clean Water Management Trust Fund; projects and awarded grants (G.S. 113A-257) *(15 minutes)*
   Philip A. Baddour, Chair of the Board of Trustees
   Clean Water Management Trust Fund

5. Discussion of issues related to parks, recreation, and land conservation *(Total time: 55 minutes)*

   Discussion of conservation planning for North Carolina including the Conservation Easement Program and progress made towards preserving one million acres of farmland, open space, and conservation lands (G.S. 113A-235(c), S.L. 2004-195, Sec. 2.2; G.S. 113A-241(c), S.L. 2004-195, Sec. 2.3) *(20 minutes)*
   Richard E. Rogers, Assistant Secretary for Natural Resources
   Department of Environmental and Natural Resources (DENR)

Annual report on the Parks and Recreation Trust Fund, Fiscal Year 2005-2006 (G.S. 113-44.15(c)) *(10 minutes)*
Lewis R. Ledford, Director
Division of Parks and Recreation, DENR

Semi-annual report on acquisitions made with funds from the Natural Heritage Trust Fund (G.S. 113-77.9(e)) *(10 minutes)*
Lisa D. Riegel, Executive Director
National Heritage Trust Fund

Report and recommendations of the Land and Water Conservation Study Commission (S.L. 2006-223) *(15 minutes)*
Representative Lucy T. Allen, Cochair
Land and Water Conservation Commission

6. Annual report on the Implementation of the Ecosystem Enhancement Program and use of the Ecosystem Enhancement Fund, including inventory of property and easements (*20 minutes*)
Suzanne H. Klimek, Director of Operations
Ecosystem Enhancement Program, DENR

7. Report on the effectiveness of the Brownfields Property Reuse Act (G.S. 130A-310.40) *(20 minutes)*
Bruce I. Nicholson, Brownfields Program Manager
Division of Waste Management, DENR

8. Report on the findings and recommendations of the Governor's Hazardous Materials Task Force (*30 minutes).* The text of the full report is available on line at: http://www.enr.state.nc.us/docs/HazardousWasteTaskforceReport.pdf
Robin W. Smith, Assistant Secretary for Environment
DENR

10. Commission discussion and announcements

11. Adjourn

SCHEDULE OF FUTURE MEETINGS:

The Commission will likely meet one or more times while the General Assembly is in session (G.S. 120-70.44). When the Commission meets while the General Assembly is in session, written notice will not be mailed to persons on the mailing list. Rather, notice will be given at a session of the Senate and House of Representatives as provided by G.S. 143-318.12(b) and will be distributed by email, if possible. The Commission will resume a regular schedule of monthly meetings following adjournment of the 2007 Session of the General Assembly.

OTHER MEETINGS:

The Commission Counsel will hold meetings of interested parties on specific topics as indicated below:

Underground Storage Tank Working Group

10:00a.m. Friday 26 January 2007 – 605 Legislative Office Building

ADDITIONAL INFORMATION:

Persons having questions about the Commission meeting or other matters related to the Commission may contact Commission Counsel or other Commission staff at (919) 733-2578.

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — January 23, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Patrick Baffkin	NMFS
DAVID BARNES	Poyner Spruill
Wendy Kelly	HMW
Josh Patrick	NCAOA
Lisa Sorg	Independent Weekly
Randall Gooch	Waste Management
Thomas Moore	Edwisten & Webb
John Freyer	Preservation Society
Christa Wagner	NC Sierra Club
David Knight	TNC
CAROLINE HOWE	LT. GOV'S OFFICE

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — January 23, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Dan Moore	MRR Southern
Greg Terrell	Solid W. Mgmt Coun. Htly
Chris Roof	MRR Southern
Jane Preyer	Envtl Defense
Doug Lassiter	NCSTA
DG Martin	CWMTF
Tom Bean	NCED / NCSEA
Jim Kuszaj	MCIC
Preston Howard	MCIC
David Mickey	BREAC
Lori Ann Harris	[illegible]

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — January 23, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
TAD BOGGS	NCDENR
Mike Abraczinskas	NCDENR-DAQ
David Medlin	NC State Grange
Linda Pearsall	NC DENR
Cliff Vogel	Gov's office
Tommy Stevens	NCPC
Kim Hibbard	NCLM
Gayle Wilson	Orange County
Paul Sherman	NCFB
DAN CRAWFORD	Electricities of NC
Marge Anders Limbert	Land for Tomorrow.

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — January 23, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Anita Watkins	NCLM
Lisa Schell	CWMTF
DAN CRAWFORD	Electricities
Estherine Davis	Electricities
Kate Dixon	Land for Tomorrow
Marvelion Merrill	DCDACS
Amy Simms	NCDENR
Don Reuter	DENR-DPR
Bill Flournoy	NC DENR
Anthony Nelson	NCACC

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — January 23, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Erin Kinsey	NC Conservation Network
Frances Parks	Citizen For Safe Environment P.O. Box 183 Calypso, N.C. 28325
Brunetta Bradshaw	299 Bradshaw Crow RD. Faison N.C. 28341 Citizen for Safe Environment
Evelyn Warren	1371 Warren Rd. Faison, N.C. 28341 Citizens for a safe Environment
Jerry Bass	682 Emmett Jackson Rd. Faison, N.C. 28341 — C.S.I.
Chris Anderson	504 Emmitt Jackson Rd Faison N.C.
Suzanne Klimek	DENR - EEP
Kimberly Jones	" "
Barbara Satterfield	" "
Jeff Manning	DENR - DWQ
Elizabeth Dalton	NCRVMA

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — January 23, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
[signature]	McAdes Consulting Inc
Bruce Nicholson	NC DENR - Raleigh
Edgar Miller	CTRC
Cathy a Krogh	DENR
[signature]	NCPMA
Doug Howey	NCPMA

EXHIBIT D

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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23 January 2007

MEMORANDUM

To: Members of the Environmental Review Commission
From: Jennifer Mundt, Commission Analyst
Re: Reports to the Commission

The following report has been submitted by the Department of Environment and Natural Resources (DENR) to the Environmental Review Commission (Commission) since the last reports distribution on 17 January 2007. This report is designated as a read only and is attached to this memorandum:

1. Report on the feasibility and desirability of acquiring land and establishing a State Park at Cabin Lake. 15 January 2007. Authority: S.L. 2006-138, Sec. 3.

The following report has been submitted by Peter N. Anderson, Executive Director of the Center for Competitive Waste Industry who presented on behalf of the International Brotherhood of Teamsters on the liabilities associated with existing and proposed landfills at the Commission's meeting on 13 December 2006:

1. Day of Reckoning: Protecting California Taxpayers from the Looming Landfill Crisis. 2004.

The following report has been submitted by the Clean Water Management Trust Fund to the Commission and will be distributed in connection with ***Agenda Item # 4***:

1. Annual report on the implementation of the Clean Water Management Trust Fund. 1 December. Statutory Authority: G.S. 113A-257.

The following reports have been submitted by Department of Environment and Natural Resources (DENR) to the Environmental Review Commission and will be distributed in connection with today's Agenda Items as noted below:

1. Annual report on the Conservation Easement Program and inventory of all conservation easements held by DENR. 1 October. Statutory Authority: G.S. 113A-235(c), S.L. 2004-195, Sec. 2.2. ***Agenda Item #5***

2. Annual report on the State's progress made towards preserving one million acres of farmland, open space, and conservation lands. 1 October. Statutory Authority: G.S. 113A-241(c), S.L. 2004-195, Sec. 2.3. ***Agenda Item #5***

3. Annual report on the Parks and Recreation Trust Fund, Fiscal Year 2005-2006. 1 October. Statutory Authority: G.S. 113-44.15(c). ***Agenda Item #5***

4. Semi-annual report on acquisitions made with funds from the Natural Heritage Trust Fund Statutory Authority: G.S. 113-77.9(e). ***Agenda Item #5***

5. Annual report by DENR on the implementation of the Ecosystem Enhancement Program and use of the Ecosystem Enhancement Fund. 1 November 2006. Statutory Authority: G.S. 143-214.13. ***Agenda Item #6***

6. Annual Report by DENR on the Effectiveness of the Brownfield Property Reuse Act. 1 October 2006. Statutory Authority: G.S. 130A-310.40. ***Agenda Item #7***

7. Report on the findings and recommendations of the Governor's Hazardous Materials Task Force. ***Agenda Item #8***

Please contact George Givens, Jeff Hudson, Jennifer McGinnis, or Jennifer Mundt at (919) 733-2578 if you have any questions or comments.

EXHIBIT D-1

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

January 17, 2007

MEMORANDUM

TO: Co-Chairs of the Environmental Review Commission
Senator Charles Albertson
Senator Daniel Clodfelter
Representative Pryor Gibson

FROM: William G. Ross Jr., Secretary

RE: Feasibility and Desirability of Establishing a State Park at Cabin Lake

S.L. 2006-0138, Section 3, requires the Department of Environment and Natural Resources to report to the Environmental Review Commission on the feasibility and desirability of establishing a state park at Cabin Lake. Attached is the required report.

If you have any questions, please contact Lewis Ledford, Director of the Division of Parks and Recreation, at 919-733-4181.

WGR/LRL

cc: Lewis R. Ledford, Division of Parks and Recreation

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FEASIBILITY AND DESIRABILITY OF ESTABLISHING A STATE PARK AT CABIN LAKE

N.C. Division of Parks and Recreation
January 2007

INTRODUCTION

In 2006, the NC General Assembly directed the N.C. Division of Parks and Recreation to study the feasibility and desirability of acquiring land and establishing a state park at Cabin Lake in Duplin County. Cabin Lake is currently owned and operated by Duplin County as a county park. N.C. Division of Parks and Recreation staff visited the site, reviewed relevant data and files, and interviewed the director and staff of the Duplin County Department of Parks and Recreation. A biologist from the N.C. Natural Heritage Program visited the site to evaluate the significance of its natural resources.

LOCATION

Cabin Lake is a 194-acre county park located in the eastern part of Duplin County, about five miles northwest of Beulaville along NC 111. The park was established on a 64-acre impoundment of Cabin Creek, a tributary of Limestone Creek, which in turn flows into the Northeast Cape Fear River.

Duplin County is in the southeastern coastal plain of North Carolina. At about 819 square miles, it is the 9th largest county in North Carolina. The 2005 population was 52,141. The county has 10 incorporated municipalities. Major economic sectors in Duplin County are agriculture, livestock, textiles, and manufacturing. James Sprunt Community College is located in Kenansville, the county seat.

According to the N.C. Department of Commerce, travel expenditures in Duplin County are estimated to be approximately $31.8 million, generating $1 million in local taxes and supporting 200 jobs. Tourist attractions include historic homes, four National Register Historic Districts, museums, farms open to visitors, including Glenwood Farms, and the Duplin Winery, which offers daily public tours. Accommodations include several hotels and inns, and three campgrounds – Cabin Lake County Park and two private campgrounds: Lake Leamon, located near Wallace and offering picnicking, swimming, boating, and full hookup campsites; and Maxwell Mill Park, located near Pink Hill and offering a fishing lake, swimming pool, boat rentals, and full hookup campsites.

Most of Duplin County is within Cape Fear River Subbasin 03-06-22. The Northeast Cape Fear River flows south through the county. Major tributaries include Goshen Swamp, Grove Creek, and Stockinghead Creek, flowing from the west, and Limestone and Muddy Creeks, flowing from the east. Cabin Creek is a tributary of Limestone Creek. It is about four miles long, and is classified by the N.C. Division of Water quality as B Swamp, which means the water is used for body-contact recreation, as well as fishing, boating, agriculture, and aquatic life. The swamp classification means the stream has naturally occurring low velocity, low pH, and low dissolved oxygen.

HISTORY

Cabin Lake and its associated park were constructed as part of a watershed improvement project begun in the late 1960s. Sponsored by the Duplin County Soil and Water Conservation District, the Duplin County Board of Commissioners, and the Duplin Development Commission, the project was intended to improve drainage, to prevent erosion and flooding, to improve water supply, and to provide recreation. The project included channel restoration (clearing and snagging) in Limestone Creek, channel excavation and drainage on the laterals, a land treatment program for local landowners, and purchase of land and construction of a recreation lake.

In 1969, a special election was called by the Duplin County Commissioners to determine whether to levy a special "watershed improvement tax" of 10 cents per hundred dollars of valuation. The funds would be used for prevention of floodwater and sediment damage and for "development and maintenance of water resources." The measure passed overwhelmingly, with 1135 votes for and 324 against. By supplementing its tax money with federal and state funding, the county was able to leverage its funds and maximize the return on its investment.

Engineering for the project began in 1972, and a public meeting was held in 1975 to update the public on the plans and schedule for the work. An environmental inventory was conducted by the N.C. Wildlife Resources Commission in 1976, and a Preliminary Investigation Report was prepared in 1977. A second public meeting was held in 1978 to present the Preliminary Investigation Report to the public. Approximately 70 landowners attended, and only one voted against the project.

Over 800 easements were secured from affected landowners to allow work on their properties, and work on the first phase of the project began in 1982. The last phase of the project was the 194-acre park. The 64-acre lake was completed in 1994, and the public facilities were completed in 1998.

CURRENT USE

In 1995, Duplin County was awarded a grant of $49,707 from the N.C. Parks and Recreation Trust Fund (PARTF) for the development of facilities at Cabin Lake County Park. Facilities constructed at the park include a small entrance station/office, individual RV and tent campsites, two group camping sites, picnic tables and an 8-table picnic shelter, canoe and paddle boat rentals, a boat launch, two playgrounds, a swim beach and bathhouse, two fishing piers, and associated parking and restrooms. A well-maintained, 2 ½-mile hiking trail circles the lake. The trail is used as a running track by the nearby high school.

The park is open Thursday through Sunday year round, and the admission fee is $3. The park operating budget is approximately $165,000 per year, which is about 75 percent of the $219,000 budget of the Duplin County Parks and Recreation Department. There are no other county parks, but two athletic fields are leased to provide ballfields for local teams.

The park's facilities are attractive to group users who rent the group campsites and the picnic shelter. Appendix A shows group reservations at the park since 2004.

NATURAL HERITAGE SIGNIFICANCE

Cabin Creek County Park was surveyed by a biologist from the N.C. Natural Heritage Program to identify significant natural heritage values. The vegetation community of the

lake shoreline was found to be in an early succession stage due to its young age. Upland slopes adjacent to the lake have been altered by past timber management. There are a few acres along the east shore where young-mature beech (*Fagus grandifolia*) and oaks (*Quercus alba, Q. falcate, Q. nigra*) are scattered among very small regenerating trees. The larger trees are up to 1.5 feet in diameter at breast height, but the habitat is dominated by small trees with diameters only 2-7 inches across. In time, this area may produce a mosaic of maturing mesic and dry-mesic hardwood forests.

In summary, the biologist identified no habitat of natural heritage significance at the park. However, he noted that any future botanical survey of the site should look for the very rare Raven's seedbox (*Ludwigia ravenii*) along the shore. This plant was found about 0.8 mile to the west of the reservoir in 1957.

STATE PARK SYSTEM CRITERIA

The State Parks Act states that the state parks system shall consist of representative examples of North Carolina's unique biological, geological, archeological, recreational, and scenic resources. New state park system units shall be added by an act of the General Assembly and shall address the needs described in the Systemwide Plan. All additions shall be accompanied by adequate appropriations for land acquisition, development, and operations. Addition of new units to the State Parks System should focus on preserving sites of statewide significance and on ensuring that representative examples of the state's resources are protected.

While expansion of the system is important, new parks must be selected carefully to ensure that they contribute to fulfilling the purposes of the system and that they justify the considerable public investment in acquisition and long term management. The Division has developed criteria for evaluating proposed new units to the state parks system. The evaluation criteria are divided into minimum and measured criteria.

The minimum criteria are used for initial evaluation of proposed park sites. The four basic criteria are:

- Statewide significance of the site's resource themes;
- Size (sufficient acreage to protect principal resources and to provide appropriate facilities with minimal impacts to principal resources);
- Absence of incompatible features (through roads, intrusive development, incompatible vistas and air, water and noise pollution threats); and
- Public access free of limitations inhibiting management and public use

Sites which do not meet these minimum criteria are removed from consideration. If a site meets the minimum criteria requirements, it is then evaluated using measured criteria, which include:

- Number of high priority resources;

- Rarity of natural resources;
- Threat to natural resources;
- Degree of threat / urgency of acquisition;
- Presence of rare and endangered species;
- Interconnection of the site with other protected areas;
- Presence of superlatives (one of a kind, biggest or best example);
- Demand for state parks system units that are staffed and open to the public; and
- Suitability for providing high quality recreation

SUITABILITY OF CABIN LAKE

Statewide significance - A proposed new unit of the state parks system must contain a high quality example of a natural resource (biological, geological, archeological, recreational, or scenic) of statewide significance. In this context, statewide significance means one of the best examples of its kind in the state, or likely to attract visitors from other regions of the state. A biologist from the N.C. Natural Heritage Program found no natural heritage resources of statewide significance at Cabin Lake Park. While the park is scenic and has high quality recreational amenities, these qualities were judged not to be of statewide significance.

Size - A proposed addition to the state parks system must have sufficient acreage to protect the principle resources. Areas proposed as state parks or state recreation areas should have a minimum of 400 acres. Cabin Lake contains less than 200 acres and has little potential to be significantly enlarged. State natural areas may contain less than 400 acres, but they do not contain extensive recreational facilities. Cabin Lake is not suitable as a state natural area.

Absence of incompatible features - A new state park should be relatively unspoiled and should not contain incompatible features such as roads that cannot be closed; intrusive development; significant threats to air or water quality that cannot be controlled; sources of excessive noise that cannot be controlled; and incompatible vistas. Cabin Lake Park is attractive and does not contain substantial incompatible features.

Public access - A new state park should have adequate public access and should be free from limitations, such as zoning or deed restrictions, that would inhibit management of public use. Cabin Lake County Park meets this criterion.

A site proposed for addition to the state parks system must meet all of the above minimum criteria to be eligible for further consideration. Cabin Lake County Park meets some but not all of the criteria, and so it was determined to be unsuitable as an addition to the State Parks System. Because the site did not meet the minimum criteria, the measured criteria were not applied.

Development of the park is essentially complete, so the cost of developing a state park on the site would be low. However, this advantage does not outweigh the lack of statewide significance and the insufficient size.

CONCLUSIONS

Cabin Lake County Park is an attractive, well-maintained park with a variety of recreational facilities. It is popular for group use activities. However, the natural and recreational resources of the site were determined not to be of statewide significance, and at 194 acres the park does not meet the minimum acreage guideline for a state park. Therefore, the establishment of a state park at Cabin Lake is not recommended.

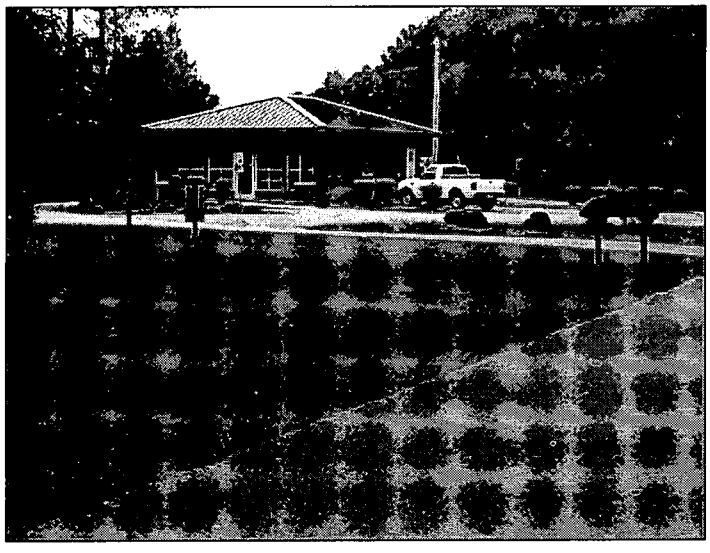
Cabin Lake was found to be more typically suited for operation as a local park. The park is an asset to the county's economy and quality of life. The park has a long history of public support going back to the special watershed election of 1969, and the county has done a good job in designing, constructing, and operating the park. The county has made a substantial investment in the park, and has received considerable federal and state funds to support the project.

Zip code data on group users is not available, but according to park staff a large proportion of group users are from outside the county. It is likely they contribute to the county economy through purchases of groceries and gasoline, in addition to the rental fees they pay to the park for the use of the facilities. The park also provides accommodations for visitors to other county attractions such as the Duplin Winery and Glenwood Farms, and can play an important role in the county's efforts to attract tourism and business.

The park is very popular with group users and in the long term, rental demand could probably support another picnic shelter and more group camping. This would also allow the park to remain open to the general public at the same time a large group is renting facilities. Additional acreage would probably be needed to expand the facilities. An indoor area for classrooms and displays would make the park more useful for local school groups and community college classes.

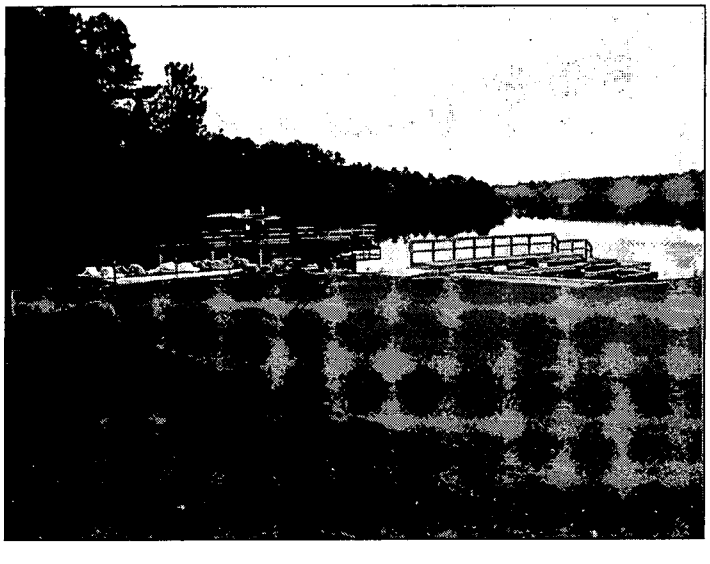
The park is still fairly new and would benefit from more public awareness and promotion. More and better signs and increased exposure in county publications and websites would make people more aware of the park. It would also be beneficial for the park to install a traffic counter to better assess visitation.

CABIN LAKE COUNTY PARK

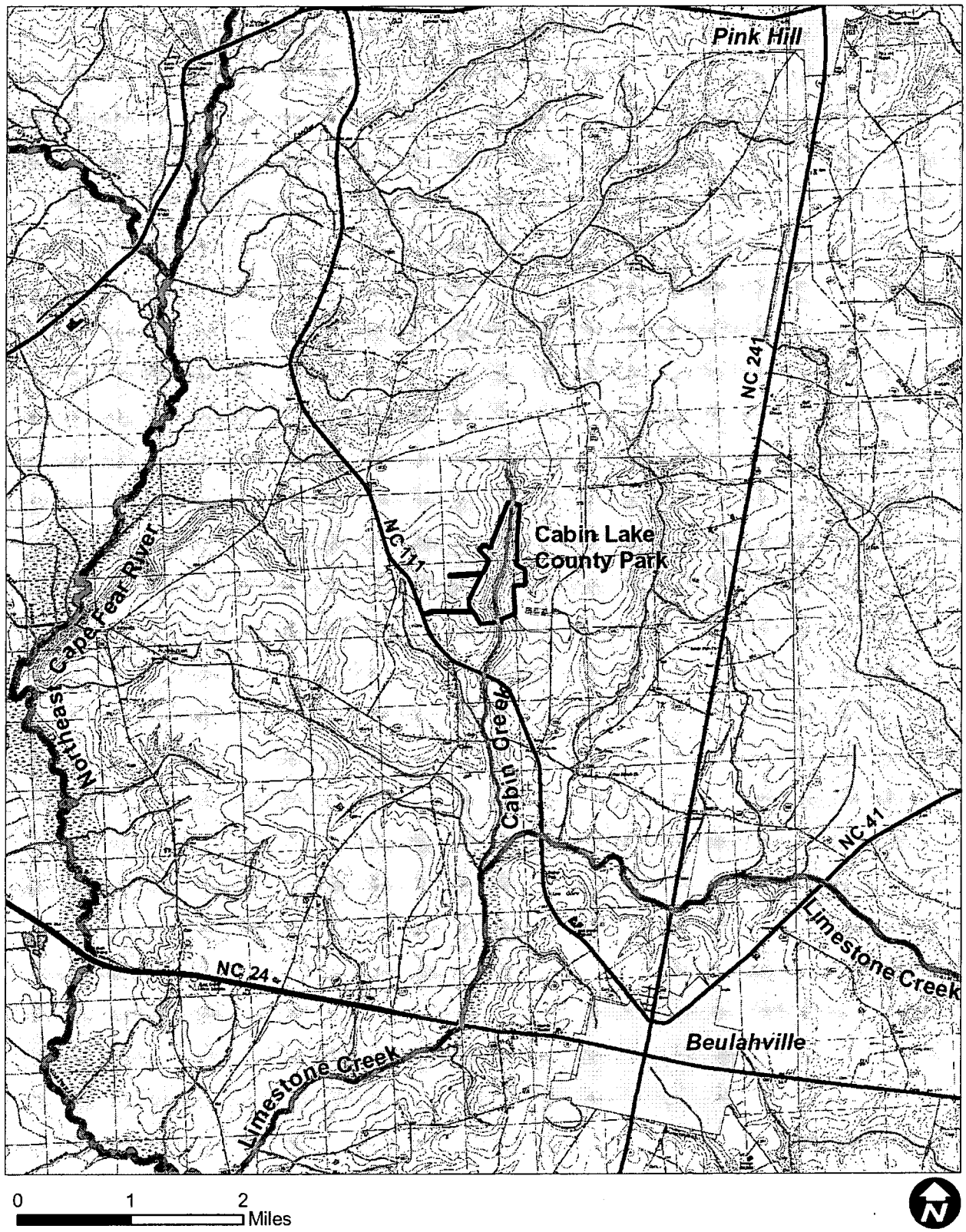


Welcome Center/Office

Park Road

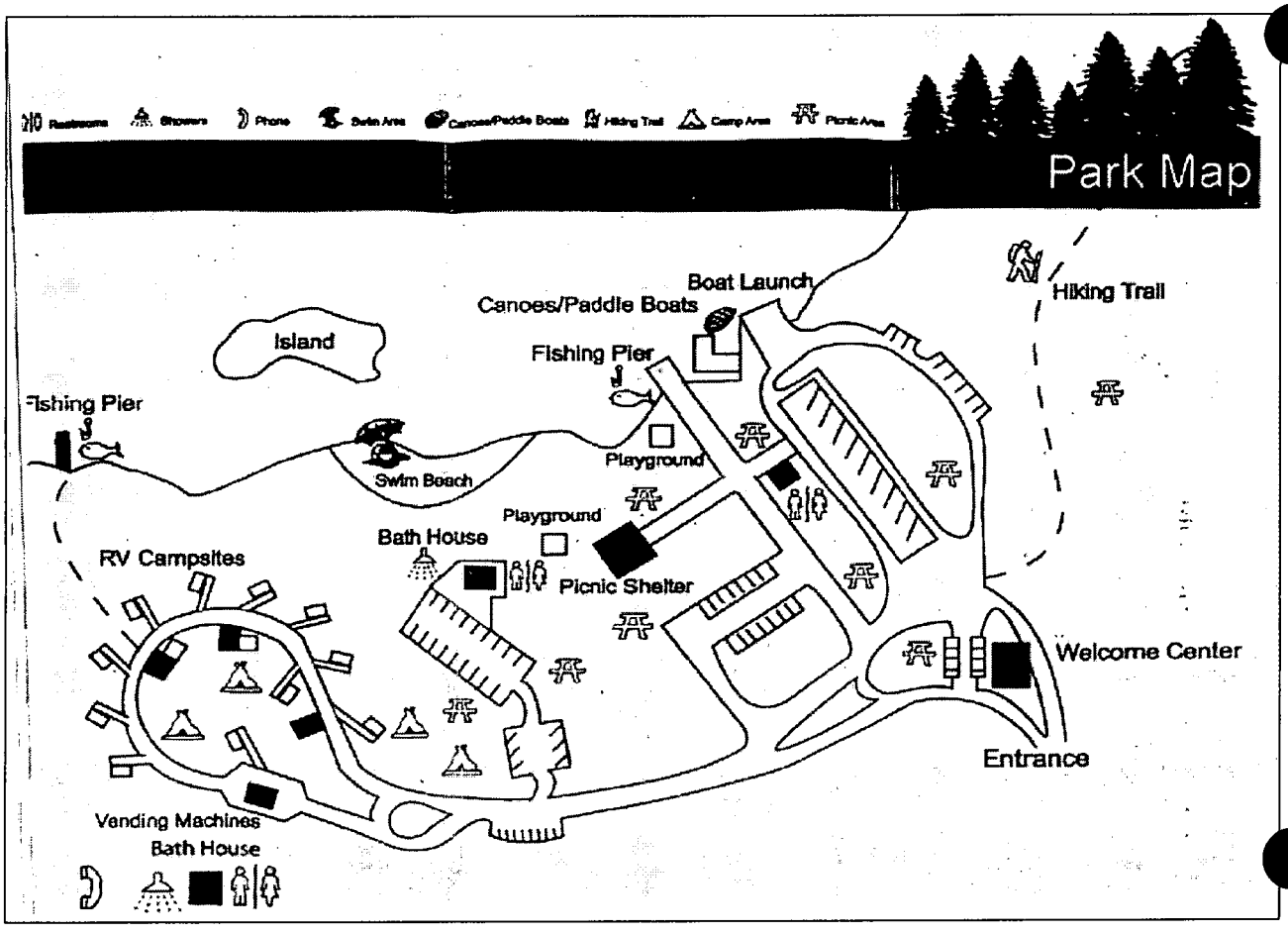


Lake/Boating Area



Cabin Lake County Park
Location

Cabin Lake County Park
Lake Under Construction



Cabin Lake County Park
Facilities

APPENDIX A
Group Camping and Picnic Shelter Reservations at Cabin Lake County Park

(Cabin Lake County Park Records, 2006)

Date	No. of Days	Facility	Group/Individual	No. of People
March 26 2004	2	Park	Duplin County Girl Scouts	
April 2 2004	3	RV Tent Area	John Phillips	
April 2 2004	1	Swim Beach Tent Area	Chris Ambrose	30
April 3 2004	1	Swim Beach Tent Area	Bobby Bland	
April 3 2004	1	Picnic Shelter	Amanda Mobley	
April 4 2004	1	Picnic Shelter	Whosoever Will (church)	
April 10 2004	1	Picnic Shelter	Gray Branch Baptist Church	
April 17 2004	1	Picnic Shelter	Unity FWB Church	
April 23 2004	1	Swim Beach Tent Area	Mark Ellenburg	
April 30 2004	3	Swim Beach Tent Area	Wrightsboro Baptist Church	
April 30 2004	1	RV Tent Area	Union Chapel Christian Church	25
May 7 2004	2	Swim Beach Tent Area	Cub Scout Pack 241	
May 7 2004	1	RV Tent Area	Woodington LDS Church	
May 9 2004	1	Picnic Shelter	Graham Horn	
May 14 2004	1	Swim Beach Tent Area	Cub Pack 392	
May 14 2004	2	RV Tent Area	Good Sams RV Club	
May 15 2004	1	Picnic Shelter	Margaret Smith	
May 21 2004	1	RV Tent Area	Duplin County Schools	15
May 21 2004	3	Swim Beach Tent Area	Donna Banks	60
May 22 2004	1	Picnic Shelter	James Roa	
May 22 2004	1	RV Tent Area	Sally Hughes	
May 29 2004	2	RV Tent Area	John Thompson	30
May 29 2004	1	Picnic Shelter	Timothy Taylor	
May 29 2004	1	Swim Beach Tent Area	Cub Scout Pack 260	
May 30 2004	1	Picnic Shelter	McGowen Family	
June 3 2004	2	RV Tent Area	Junior Girl Scout Troop 402	
June 4 2004	2	Swim Beach Tent Area	Holly Rouse	
June 5 2004	1	Picnic Shelter	Sonya Howell	
June 6 2004	1	Picnic Shelter	Smith Presbyterian Church	
June 11 2004	2	RV Tent Area	Ronnie Adams	
June 11 2004	2	Swim Beach Tent Area	Roseboro Church of God	
June 13 2004	1	Picnic Shelter	Tracy Sumner	
June 13 2004	1	Picnic Shelter	Tammy Justice	
June 18 2004	1	Swim Beach Tent Area	Bill Cotton	25
June 18 2004	3	RV Tent Area	John Thompson	
June 19 2004	1	Picnic Shelter	Dyrek Miller	
June 20 2004	1	Picnic Shelter	Joel Alvarez	25
June 25 2004	2	RV Tent Area	Goldwings Motorcycle Club	
June 26 2004	1	Picnic Shelter	Daniel Smith	
June 26 2004	1	Picnic Shelter	Patricia Garrett	20
June 26 2004	1	Swim Beach Tent Area	Dawn Smith	30
June 27 2004	1	Picnic Shelter	Charles Harrell	20
July 2 2004	9	RV Tent Area	Dennis Raynor	
July 3 2004	2	RV Tent Area	William McCleary	
July 4 2004	1	Picnic Shelter	Dawn Smith	
July 10 2004	1	Picnic Shelter	Glenda Barton	
July 11 2004	1	Picnic Shelter	Sarecta Methodist Church	

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APPENDIX A
Group Camping and Picnic Shelter Reservations at Cabin Lake County Park

(Cabin Lake County Park Records, 2006)

Date	No. of Days	Facility	Group/Individual	No. of People
July 14 2004	1	Picnic Shelter	NCSU Tobacco Tour	
July 17 2004	1	Picnic Shelter	Andrea Torres	30
July 24 2004	1	Picnic Shelter		
July 30 2004	2	Swim Beach Tent Area	Turning Point Assembly	40
July 30 2004	2	RV Tent Area	Gospel Chapel	
July 31 2004	1	Picnic Shelter	Cody Sumner	
August 7 2004	1	Picnic Shelter	Old Salem Chapel Church	
August 8 2004	1	Picnic Shelter	Michael Stevens	30
August 15 2004	1	Picnic Shelter	Angelia Casteen	20
August 20 2004	2	Swim Beach Tent Area	Cub Scout Pack 22	
August 21 2004	1	Picnic Shelter	First Christian Church	50
August 22 2004	1	Picnic Shelter	Greg Ogren	25
August 28 2004	1	Picnic Shelter	Jakes Event	
August 31 2004	8	RV Tent Area	Ellen Garrett (canc)	
September 2 2004	4	RV Tent Area	Ashley Trogdon	
September 3 2004	4	RV Tent Area	Christine Cote	
September 3 2004	2	Swim Beach Tent Area	Rose Hill Troop 45	20
September 4 2004	1	Picnic Shelter	Williams Family	
September 10 2004	2	RV Tent Area	Rose Hill Troop 45	
September 11 2004	1	Picnic Shelter	Amanda Mobley	
September 11 2004	1	Swim Beach Tent Area	Eric McLamb	30
September 12 2004	1	Picnic Shelter	Denis Salisbury	25
September 18 2004	1	RV Tent Area	Billy Waters (canc)	12
September 19 2004	1	Picnic Shelter	Farm Bureau	
September 24 2004	2	RV Tent Area	Lynwood Harper	
October 1 2004	3	RV Tent Area	Ashley Trogdon	
October 8 2004	1	RV Tent Area	Calypso Baptist Church	20
October 8 2004	1	Swim Beach Tent Area	Rose Davis	35
October 9 2004	1	Picnic Shelter	Iris Jones	
October 15 2004	2	RV Tent Area	Doug Swain	150
October 22 2004	2	RV Tent Area	Wrightsboro Baptist Church	20
October 22 2004	1	Swim Beach Tent Area	Cub Pack 392	60
October 23 2004	1	Picnic Shelter	Blended Fellowship Church	60
October 24 2004	1	Picnic Shelter	Marvena Pierce	25
October 29 2004	3	RV Tent Area	John Thompson	
October 29 2004	2	Swim Beach Tent Area	Cindy Gordon	50
October 30 2004	1	Picnic Shelter	Rhonda Lockamy	45
October 30 2004	1	Picnic Shelter	Byrd's Chapel	
November 1 2004	1	Picnic Shelter	Duplin Correctional Facility Staff	40
November 5 2004	2	Swim Beach Tent Area	Wayne Uplift Resource Assn	30
November 5 2004	1	Swim Beach Tent Area	United Pentacostal Church	40
November 12 2004	2	Swim Beach Tent Area	Royal Rangers	20
November 12 2004	2	RV Tent Area	Stan Harvell	20
November 20 2004	1	Swim Beach Tent Area	Troop 80	20
November 20 2004	2	RV Tent Area	Pack 2	45
December 3 2004	1	Picnic Shelter	Solid Waste Employees	60
March 18 2005	2	Swim Beach Tent Area	Kinston First Church	20
March 18 2005	2	RV Tent Area	Troop 244	20

Blank = No data

APPENDIX A
Group Camping and Picnic Shelter Reservations at Cabin Lake County Park

(Cabin Lake County Park Records, 2006)

Date	No. of Days	Facility	Group/Individual	No. of People
March 26 2005	1	Picnic Shelter	Gray Branch FWB	60
April 1 2005	2	Swim Beach Tent Area	Cub Scout Pack 35	45
April 3 2005	1	Picnic Shelter	Olivia Miller	50
April 8 2005	1	RV Tent Area	Beulaville Baptist Church	30
April 15 2005	2	Swim Beach Tent Area	Wayne Uplift Resource	30
April 22 2005	1	RV Tent Area	Union Chapel Church	20
April 22 2005	2	Swim Beach Tent Area	Jesus Christ Church of Latter Day Saints	90
April 29 2005	2	RV Tent Area	Dawn Smith	30
April 29 2005	1	Swim Beach Tent Area	UMC Cub Scout Pack 392	60
April 30 2005	1	Picnic Shelter	Shane Tyndall	10
May 2 2005	1	Picnic Shelter	Rose Hill Magnolia Elem. School	20
May 7 2005	1	Picnic Shelter	Shirley Williams	30
May 8 2005	1	Picnic Shelter	Charles Health	20
May 12 2005	1	Picnic Shelter	NCSU	30
May 13 2005	2	Swim Beach Tent Area	Shane & Tina Crumton	
May 13 2005	1	RV Tent Area	Kenansville Elementary School	20
May 13 2005	1	Picnic Shelter	Kenansville Elementary School	
May 14 2005	1	Picnic Shelter	Jimmy Mercer	
May 17 2005	1	Picnic Shelter	Duplin County	
May 20 2005	1	Picnic Shelter	Probation parole office	50
May 20 2005	1	RV Tent Area	Bethel Wesleyan Church Youth Group	20
May 20 2005	2	Swim Beach Tent Area	Donna Banks	85
May 21 2005	1	Picnic Shelter	James Whaley	25
May 25 2005	2	RV Tent Area	Wayne Uplift Resource	30
May 27 2005	1	Swim Beach Tent Area	Church of Latter Day Saints	20
May 28 2005	1	Picnic Shelter	Donna Davis	
June 3 2005	2	RV Tent Area	Brogden Chapel	30
June 5 2005	1	Picnic Shelter	Hector Reyes	
June 10 2005	1	Swim Beach Tent Area	West Road Pentecostal Holiness Church	26
June 11 2005	1	Picnic Shelter	Calypso Presbyterian Church	
June 12 2005	1	Picnic Shelter	Hallsville Presbyterian Church	75
June 19 2005	1	Picnic Shelter	Church Gloria de Antiquia	
June 22 2005	1	Picnic Shelter	Kaye Buckner	20
June 25 2005	1	Picnic Shelter	Doug Kitzmiller	25
June 25 2005	1	Picnic Shelter	Daniel Smith	50
June 25 2005	1	Picnic Shelter	Feliecia Kerr	
June 26 2005	1	Picnic Shelter	Bethel Presbyterian Church	
June 29 2005	8	RV Tent Area	Joe Price	
July 1 2005	1	Picnic Shelter	New Christian Chapel Baptist Church	35
July 1 2005	2	RV Tent Area	Woodrow Heath	20
July 2 2005	1	Picnic Shelter	Janet Jones	35
July 2 2005	2	Swim Beach Tent Area	Derrik Martin	20
July 3 2005	1	Picnic Shelter	Sandy Plain Church	30
July 9 2005	1	Picnic Shelter	Kinston Girl Scouts	
July 15 2005	1	Swim Beach Tent Area	Ruffin Hill	40

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APPENDIX A
Group Camping and Picnic Shelter Reservations at Cabin Lake County Park

(Cabin Lake County Park Records, 2006)

Date	No. of Days	Facility	Group/Individual	No. of People
July 15 2005	1	Picnic Shelter	Myra Horton	30
July 15 2005	1	Picnic Shelter	Ruffin Hill	
July 16 2005	1	Picnic Shelter	Ruffin Hill	40
July 17 2005	1	Picnic Shelter	Cabin Missionary Church	
July 23 2005	1	Picnic Shelter	Byrd's Chapel	
July 30 2005	1	Swim Beach Tent Area	Zion PFWB Church	
July 30 2005	1	Picnic Shelter	Anita Sumner	
August 5 2005	1	Swim Beach Tent Area	Believer's Fellowship	20
August 7 2005	1	Picnic Shelter	Iglesia Bautista Sinai Church	80
August 13 2005	1	Picnic Shelter	Salem Chapel Church	50
August 19 2005	2	Swim Beach Tent Area	Turning Point Assembly Church	30
August 19 2005	2	RV Tent Area	Teresa Williams	20
August 20 2005	1	Picnic Shelter	Turning Point Assembly Church	50
August 26 2005	2	PARK CLOSED TO PUBLIC	Murphy Family Ventures Employee Appreciation Day	
September 3 2005	1	Picnic Shelter	Duplin County	200
September 9 2005	2	Swim Beach Tent Area	Troop 45	
September 11 2005	1	Picnic Shelter	Warsaw United Methodist Church	30
September 17 2005	1	Picnic Shelter	Amanda Mobley	
September 23 2005	2	PARK CLOSED TO PUBLIC	Royal Ranger Pow-Wow	275
September 30 2005	2	Swim Beach Tent Area	Cub Scout Pack 215	
October 7 2005	2	Swim Beach Tent Area	Adam Evans	10
October 8 2005	1	Picnic Shelter	Iris Jones	
October 9 2005	1	Picnic Shelter	Michael Stevens	
October 14 2005	1	Swim Beach Tent Area	Cub Pack 392	60
October 14 2005	2	RV Tent Area	Richlands Boy Scouts Pack 215	80
October 21 2005	2	PARK CLOSED TO PUBLIC	Pack 226	200
October 28 2005	2	RV Tent Area	Annette Huffman	50
October 28 2005	2	Swim Beach Tent Area	Hugo Pack 424	60
November 4 2005	1	Swim Beach Tent Area	Pack 27	
November 12 2005	1	RV Tent Area	Anita Sumner	
November 12 2005	2	Swim Beach Tent Area	Lori Barnes	
November 13 2005	1	Picnic Shelter	Currie Horne's Marien Repair	30
December 2 2005	1	Swim Beach Tent Area	Stacey Klinkicht	15
December 10 2005	1	Picnic Shelter	Jackie Crute	30
January 13 2006	2	Swim Beach Tent Area	Pack 937 Sneads Ferry	25
January 13 2006	2	RV Tent Area	Joe Pascal	15
February 10 2006	2	Swim Beach Tent Area	Scout Troop 35	
March 24 2006	2	RV Tent Area	Troop 42	
March 31 2006	2	PARK CLOSED TO PUBLIC	Duplin County Girl Scouts	
April 8 2006	1	Picnic Shelter	Cabin FWB Youth Club	
April 15 2006	1	Picnic Shelter	Grey Branch FWB Church	100
April 16 2006	1	Picnic Shelter	Brenda Heath	
April 19 2006	4	RV Tent Area	Wayne Uplift	45
April 21 2006	1	Swim Beach Tent Area	Cub Pack 392	60

Blank = No data

APPENDIX A
Group Camping and Picnic Shelter Reservations at Cabin Lake County Park

(Cabin Lake County Park Records, 2006)

Date	No. of Days	Facility	Group/Individual	No. of People
April 28 2006	2	RV Tent Area	Richlands Boy Scouts Pack 215	110
April 29 2006	1	Picnic Shelter	Unity Free Will Baptist Church	30
April 30 2006	1	Picnic Shelter	Shane Tyndall	15
May 5 2006	2	Swim Beach Tent Area	First Church of God	25
May 5 2006	2	RV Tent Area	Cub Scout Pack 1240	30
May 12 2006	1	Picnic Shelter	NC Probation/Parole	45
May 12 2006	2	Swim Beach Tent Area	Pack 33 Garner	100
May 12 2006	1	RV Tent Area	Lisa Corbette	30
May 13 2006	1	Picnic Shelter	Cody Sumner	20
May 14 2006	1	Picnic Shelter	Graham Horn	25
May 19 2006	2	Swim Beach Tent Area	Pack 273 Rivermont Presb. Church	
May 20 2006	1	RV Tent Area	Richard Yarborough	25
May 25 2006	6	RV Tent Area	Troy Hudson	
May 26 2006	5	RV Tent Area	Roy Blackburn	
May 26 2006	1	Swim Beach Tent Area	Sandy Plain Church	
May 30 2006	1	Picnic Shelter	Kenansville Elementary School	
June 4 2006	1	Picnic Shelter	Whosoever Will (church)	30
June 9 2006	2	RV Tent Area	Brogden Chapel	30
June 10 2006	1	Swim Beach Tent Area	Hallsville Presbyterian Church	50
June 10 2006	1	Picnic Shelter	Hallsville Presbyterian Church	
June 11 2006	1	Picnic Shelter	Hallsville Presbyterian Church	
June 16 2006	2	Swim Beach Tent Area	Family Karate Center	15
June 17 2006	1	Picnic Shelter	Portia Seaberry	
June 18 2006	1	Picnic Shelter	Bethel Presbyterian Church	
June 23 2006	1	RV Tent Area	Union Chapel Church	
June 24 2006	1	Picnic Shelter	Penny Smith	40
June 30 2006	7	RV Tent Area	Ed Davidson	
July 1 2006	1	Picnic Shelter	Joyce Pearsall	25
July 9 2006	1	Picnic Shelter	Oakdale FWB Chruch	
July 16 2006	7	RV Tent Area	Dennis Raynor	
July 21 2006	2	Swim Beach Tent Area	Pack 210	30
July 22 2006	1	Picnic Shelter	Betholite Missionary Baptist Church	30
July 29 2006	1	Picnic Shelter	Maria Banderas	60
July 30 2006	1	Picnic Shelter	Faith Temple Baptist Chruch	30
August 4 2006	2	Swim Beach Tent Area	Pack 937	
August 6 2006	1	Picnic Shelter	Chastity Moore	30
August 12 2006	1	Picnic Shelter	Girl Scout Troop 532	30
August 18 2006	1	Swim Beach Tent Area	Potters Wheel Ministry	20
August 19 2006	1	Picnic Shelter	AKA	40
August 26 2006	1	Picnic Shelter	Kelly Antwine	
September 16 2006	1	Swim Beach Tent Area	Troop 355	
September 22 2006	2	RV Tent Area	Goldsboro Boy Scout Troop 8	25
September 23 2006	1	Swim Beach Tent Area	Bernae Leah Miller	30
September 23 2006	1	Picnic Shelter	Bethel Wesleyan Church	70
September 29 2006	2	Swim Beach Tent Area	Cub Scout Pack 215	40
September 30 2006	1	Picnic Shelter	New Freedom FWB Church	30
October 6 2006	2	Swim Beach Tent Area	Turning Point Assembly	
October 7 2006	1	Picnic Shelter	Turning Point Assembly	
October 7 2006	1	Park	Christian Outdoor Fellowship	100

Blank = No data

APPENDIX A
Group Camping and Picnic Shelter Reservations at Cabin Lake County Park

(Cabin Lake County Park Records, 2006)

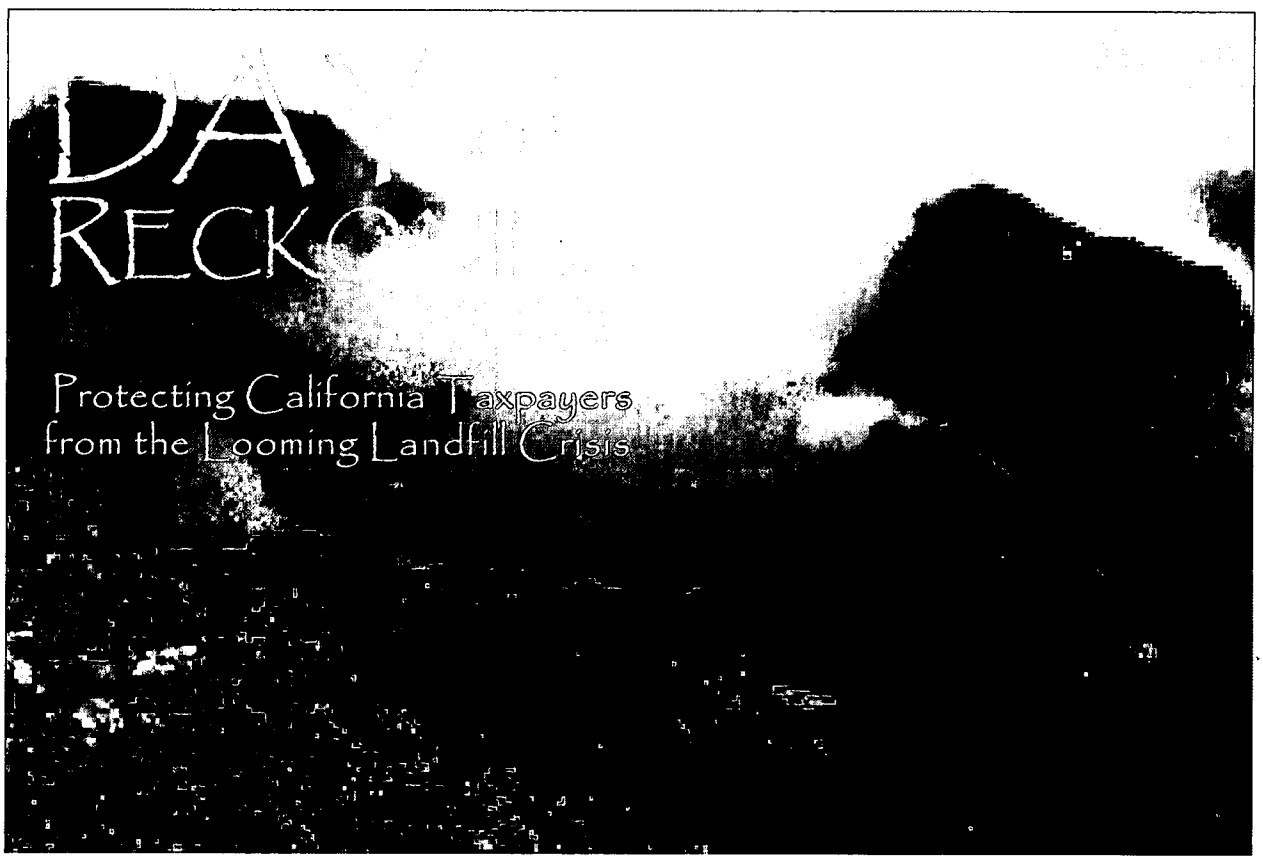
Date	No. of Days	Facility	Group/Individual	No. of People
October 13 2006	2	Swim Beach Tent Area	Richlands Cub Scout Pack 214	125
October 14 2006	1	Picnic Shelter	Jones Family Reunion	50
October 15 2006	1	Picnic Shelter	Harley Owners of Wilmington	30
October 20 2006	2	PARK CLOSED TO PUBLIC	Pack 226	300
October 27 2006	1	Swim Beach Tent Area	Westminster UMC Cub Pack 392	60
October 27 2006	2	RV Tent Area	Cub Scout Pack 210	55
October 29 2006	1	Picnic Shelter	Oakdale Church	
November 3 2006	2	RV Tent Area	Brian Pace	90
November 10 2006	1	RV Tent Area	Calypso Baptist Church	30
November 11 2006	1	Swim Beach Tent Area	Pack 9 Richard Yarborough	
November 17 2006	2	Swim Beach Tent Area	Rose Davis Cub Scouts Pack 447	25
January 12 2007	2	Swim Beach Tent Area	Cub Pack 937	40
January 12 2007	2	RV Tent Area	Boy Scout Troop 937	15
May 4 2007	2	RV Tent Area	Annette Huffman	50
May 18 2007	2	PARK CLOSED TO PUBLIC	Pack 215	125
June 16 2007	1	Picnic Shelter	Carr Family Reunion	30
October 13 2007	1	Picnic Shelter	Jones Family Reunion	

Blank = No data

EXHIBIT D-2

v. 3

a Report to the
GRASSROOTS RECYCLING NETWORK
from the
CENTER for a COMPETITIVE
WASTE INDUSTRY



December 2004

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Cover photo is of the catastrophic collapse of the Rumpke landfill, near Cincinnati, in 1996. The photograph is by Cheryl Allen of the Ohio DNR, and is reprinted with her permission.

"Delayed closure of insolvent S&Ls greatly compounded FSLIC's losses by postponing the burial of already dead S&Ls. Mid-1983 would have been the optimum time to close hopelessly insolvent S&Ls. Instead, Congress chose to put off the eventual ***day of reckoning****, which only compounded the problem."*

Bert Ely in the "Savings and Loan Crisis"
from the Concise Encyclopedia of Economics

WASTE INDUSTRY

December 6, 2004

Ms. Resa Dimino, Board Chairperson
Grassroots Recycling Network
210 N. Basset Street
Madison, Wisconsin 53703

Dear Ms. Dimino:

The Center for a Competitive Waste Industry is pleased to provide you with the report that you commissioned for the California Integrated Waste Management Board evaluating the adequacy of landfill financial assurance, *Day of Reckoning – Protecting California Taxpayers from the Looming Landfill Crisis.*

On the one hand, we found California has among the most comprehensive set of regulations for post-closure financial assurance relative to any other state in the U.S., or in Europe.

On the other hand, we also found that the manner in which financial assurance is presently structured in California, as elsewhere, only addresses a small sliver of the probable risks — risks that will rise dramatically in the years following closure. Consequently, in the future, states will face billions of dollars in exposure from impending landfill failures for which they essentially have no protection.

Current amounts designated for financial assurance can be less than $^{1}/_{100}^{th}$ of the exposure to the states at all but small, remote, or arid sites. Moreover, separate from the wholly inadequate amounts, the assurance mechanisms include ones that are inappropriate and, in all respects, do not extend to the period after the defined end of post-closure care when the risks are greatest. Thus, current procedures are effectively useless to protect taxpayers.

For that reason, we retained insurance experts to help us develop an entirely new and market-based approach geared to address the unique probabilistic occurrence of the risks that extend after care is ended. If pursued, we believe that the state, its taxpayers and the large corporations that use municipal landfills, can be protected from the enormous surprise costs that will almost certainly arise.

We have enjoyed working on this project, and stand ready to provide any further assistance that you or the California Integrated Waste Management Board may require.

THE CENTER *for a* COMPETITIVE
WASTE INDUSTRY

*by:*_____

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Acknowledgments

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Peter Anderson, ***Executive Director***
CENTER *for a* **COMPETITIVE WASTE INDUSTRY**

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Abbreviations

BFI	Browning Ferris Industries
CAAA	Clean Air Act Amendments of 1990
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (aka "Superfund")
CIWMB	California Integrated Waste Management Board
CT	Conversion technologies
DHECB	Department of Health and Environmental Control Board of South Carolina
EPA	U.S. Environmental Protection Agency
EEILI	Extended Environmental Impairment Liability Insurance
EREF	Environmental Research and Education Foundation
FDIC	Federal Deposit Insurance Corporation
FHLBB	Federal Home Loan Bank Board
FML	Flexible membrane liner
FSLIC	Federal Savings & Loan Insurance Corporation
GAO	Government Accountability Office
HSWA	Hazardous and Solid Waste Amendments of 1984 to the Resource Conservation Recovery Act
OIG	Office of the Inspector General of E.P.A.
LCS	Leachate collection system
MBT	Mechanical-biological treatment
MSW	Municipal solid waste
NEPA	National Environmental Policy Act
PPCP	Pharmaceutical and personal care products
RCRA	Resource Conservation and Recovery Act of 1976
S&L	Savings and loan associations
SEC	Securities and Exchange Commission
SOYD	Sum-of-the-years digits
SWANA	Solid Waste Association of North America
WMI	Waste Management, Inc.

Executive Summary

This report is in response to the request by the Integrated Waste Management Board for public comment on how long the landfill 30 year post-closure period and financial assurance should extend and which assurance mechanisms should be favored.

We explain why, instead of tinkering around the edges in this way, the urgent need now is to completely overhaul California's financial assurance regulations for privately owned landfills. For municipalities that own landfills, the need for fundamental reform is less pressing because, when the future problems arise, they will presumably be around to respond and have the capability to tax.

Essentially, everyone has been focusing on the wrong questions, whether it be lengthening the period of care or tightening the mechanisms for showing assurance to pay for what has been called care.

In fact, there is no extended post-closure period that would protect the environment, because long term care only serves to prolong isolation of the waste load from infiltration by rain and runoff for a while. Since the decomposition that produces leachate and landfill gas only proceeds when water is present, and since it is only a matter of time after post-closure care ends and before the untended cover degrades, the instigation of major uncontrolled releases is just temporarily kept at bay. But that surcease will last only so long as the cover is maintained – no matter how long that time is extended. Then, whenever care finally stops, the latent hazards will reassert themselves.

Furthermore, while indeed some of the mechanisms are grossly inadequate to provide assurance, the job of reforming them, while necessary at some level, completely obscures the real point. That is the magnitude of the risks at major sites could be in the order of one hundred times greater than contemplated in the current regulations. Tallying the costs at all the sites together, the final price tag for the state of California to clean up today's landfills may be in the order of $26.4 billion.

Because of that, and because the risks of future corrective actions and third party injuries are not only great, but also probabilistic and highly variable in their occurrence, most of the current mechanisms, which attempt to provide assurance for minor, predictable and periodic maintenance costs, are essentially useless when viewed against that wider pallet.

Only insurance coverage for major risks that extends beyond the end of post-closure holds the promise to meet the challenge. Also, that coverage must be sufficient to truly remediate the site so that it no longer is a threat to the environment, rather than the merely palliative measures. That is all most Superfund efforts are limited to.

In addition, significant changes are needed in the existing assurance structures for the routine maintenance that is intended to be covered. One of the mechanisms does not, in fact, add any real assurance as do third-party and trust instruments. That is the so-called financial means test that rests assurance on the corporation's own balance sheet, which is, in essence, no more than a 50 year IOU.

Also, trust funds and third party instruments should be adapted to provide assurance for care in perpetuity, because maintenance will be required for many years, or decades, beyond the defined 30 years of post-closure.

Less critical but of importance, trusts would be stronger were the payments into the fund front-ended, and the third party mechanisms would be enhanced were the state's right to collect made automatic in the event the policy is canceled.

Alternative recommendations put forward in a waste industry report, in which the post-closure period is ended when certain tests find that leachate and gas releases are below levels of concern, are flawed. Even if the observed discharges at the end of post-closure is within limits, the real problem lies out beyond the end of that period.

The Board is urged to act decisively and with all deliberate speed, because the State is the middle of a financial crisis and the short time remaining to rectify the rule's flaws is rapidly passing. Failure to utilize the market place by insuring against these enormous risks in order to overcome the inherent limitations of regulations will almost certainly short circuit the State's progress on its painful path to fiscal recovery. ☞

Introduction

The Coalition to Protect States from Long-Term Landfill Liabilities presents this analysis and recommendations in response to the question asked by the California Integrated Waste Management Board. That question, which recapitulates the way we have all looked at this issue in the past, is how long the post-closure period and financial assurance for municipal solid waste landfills should last.

As we delved into the matter, we found that this manner of parsing the issue fails to grapple with the inherent failing of today's liner-based landfills. For that reason, we have taken the liberty of rearranging our response to provide an answer that, we believe, will better help the Board understand the deeper issues. What we learned from our top-to-bottom review is that there is a need to devise an entirely new assurance mechanism that can grapple with major site failures, which are probabilistic in their occurrence and will probably arise after whatever post-closure period is specified.

What follows is divided into four sections. In the first, we look back in time to the period when EPA's federal landfill regulations were first developed to demonstrate why asking for advice on revising the length of the post-closure is the *wrong question*.

See page 5

In the second, we show where California's current financial assurance *rules are inadequate* to protect the state from billions of dollars in liabilities.

See page 37

In the third, our *recommendations* are provided to stave off a financial crisis for the state.

See page 89

Lastly, the *proposal by the waste industry* is evaluated and shown to have no probative value for regulatory purposes.

See page 117

We stand ready to further assist the Board in any way we can to help insure that California, its municipalities and other states, are protected from the responsibility for the massive long-term landfill liabilities. ☞

Chapter I

The Wrong Question

The major question put by the California Integrated Waste Management Board's notice is how long the post-closure period ought to be extended.

Landfills are more likely to fail after the 30 year post-closure ends, and therefore there is no period that can be adequate.

Currently, of course, the defined post-closure period in California, during which financial assurance is required, is 30 years, recapitulating the length of time specified by federal rule. Before turning to the reasons why any length of time, nonetheless 30 years, is unsupportable, the SIDEBAR provides a short trip back in time to the derivation of the three decade time frame.[1]

That history illuminates the misapplication of key facts and the lack of technical grounding for this, as with so much else, in today's landfill regulations. Indeed, a decade later, EPA officials interviewed by its Inspector General finally conceded "that the 30-year time frame was *not based on specific scientific criteria or research studies*."[2]

But, apart from the fallacious basis for pegging post-closure care at 30 years – with its inference that no problems can arise after that time – the focus on how long the post-closure period should be extended fails to confront the real question.

Fallacious Basis for 30-Year Rule

Before the current generation of *dry tomb landfills*, with liners and gas and liquids removal systems, there were *sanitary landfills* that, before WWII, began replacing open dumps. Sanitary landfills were limited to covering each day's wastes with a soil cover to discourage vermin and other disease vectors and to reduce odors, followed by a few feet of permeable soil on top when the site closed.

But, nothing was done to prevent infiltration of rainfall so that the groundwater and air would not be polluted by the hazardous gases and leachate produced when that moisture causes the garbage to rot. For this reason, the trash in that saturated environment very quickly underwent rapid fermentation – something which does not occur in dry tomb designs with their elaborate barriers that keep the site dry for a time until the liners degrade.

In these sanitary landfills – which have nothing to do with today's dry tomb sites where the waste is kept dry, albeit only until the barriers degrade after 30 years – people observed that fermentation dwindled after about 20 to 50 years. From that experience that is inapplicable to today's facilities, 30 years was incorrectly selected as the time that a dry tomb site would be largely stabilized.

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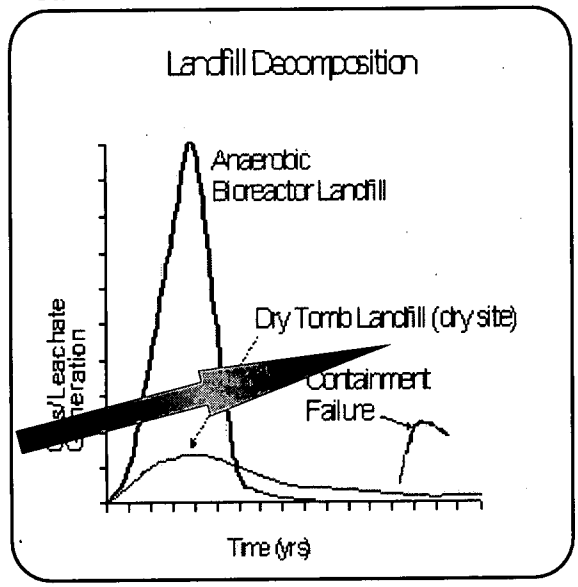
1 G. Fred Lee and Anne Jones-Lee, *Municipal Landfill Post-Closure Care Funding: The '30-Year Post Closure Care' Myth* (Monograph 1992), at p. 4.

2 U.S. Environmental Protection Agency Inspector General, *RCRA: RCRA Financial Assurance for Closure and Post-Closure* (No. 2001-P-007, March 28 , 2001), at p. 31 (emphasis added).

To grasp the key issues that have lain beneath the surface, the profound implications of the staff's presentation to the Board in November of 2003 that opened this proceeding need to be incorporated into the answer to the question the Agency has asked.[3]

Staff Post-Closure Maintenance Slide No. 8



Staff's Slide No. 8 from its presentation to the Board (reproduced in the graphic along side) presciently shows that "containment failure" can occur *after* the post-closure period ends. More recently, the Staff later amplified its views in its most recent report to the Board:

> "However, the initial term of 30 years for P[ost] C[losure] M[aintenance] is unlikely to resolve all the environmental issues related to a closed landfill in California. Since Subtitle D was promulgated, research shows that certain wastes in some landfills stabilize in a short period of time and that, at those landfills, the potential to impact the environment may only last for a short portion of the conventional 30-year PCM period. On the other hand, some landfills may remain a threat to the environment for longer than 30 years. For example, stakeholders have reported to Board staff that landfill gas control systems have had to be installed at landfills that had not operated for up to 60 years. Dry tomb landfills (favored by Subtitle D and 27 CCR) indefinitely suspend and/or retard the decomposition process such that a breach in containment (e.g. extreme climate or earthquake event or inappropriate land use, or simply failure of equipment or containment barriers) could trigger uncontrolled production and release of landfill gas and leachate, and public contact with waste. *The state of the science thus indicates that municipal solid waste landfills will in many cases pose a significant threat to the environment well beyond the conventional 30-year PCM period.*" [4]

---

3 Staff *Post-Closure Maintenance Presentation* to CIWMB Permit and Enforcement Committee (November 3, 2003), Power Point Slide No. 18.

4 CIWMB, Discussion Paper Regarding Postclosure Maintenance Beyond the Initial 30 Years and Financial Assurance Demonstrations (December 6, 2004) (emphasis added). On-line at: http://www.ciwmb.ca.gov/Agendas/agenda.asp?RecID=1015&Year=2004&Comm=PEN&Month=12.

What this implies is that the overarching problem arises *after* financial assurance has ended and jurisdiction for post-closure care has largely lapsed – and please note the irony in this statement – that is the case no matter how long care is extended. That creates a profound impediment to constructing a workable system of protecting taxpayers from long-term landfill liabilities.[5]

...no matter how long the period of care is extended, it will be insufficient...assurance must run longer than the period of care

Because of this inherent fallacy, the answer to the Board's question is regardless of how long the period of care is prolonged, it will be insufficient. To work, assurance to provide funds after care ends, which is when the problems are most likely to arise, must run longer than the period of care. Although an assertion that later problems will be worse than earlier ones may appear counter-intuitive at first blush, this ought not be considered controversial. As will be documented later, the EPA, the Inspector General, other states and the leading engineers in the landfill industry also acknowledge the essential point that the failures of greatest concern are most likely to arise after the post-closure period is over and care ends.[6]

Therefore, in order to address the underlying issues, we need to look beyond those elaborate engineered systems and the artificial time constructs surrounding them. That is why the Board's question needs to be restated if the State of California and its municipalities are to protect themselves from the enormous long-term landfill liabilities. For there are billions of dollars in liability for cleaning up and compensating damages at many of the 279 open and 116 closed Class III landfills that will inevitably be abandoned by their owners, most likely before their containment fails.

After laying out the factual basis for this quandary in this section, and explaining the inherent limitations of current assurance mechanisms in the next,[7] the section that follows puts forward a solution that extends current assurance mechanisms to meet these widely unrecognized challenges.[8]

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5 The distinction between the time that *financial assurance* is provided and that over which *legal liability* attaches is critical to understand. Although the regulations in California purport to impose liability in perpetuity, without the funds to pay for future problems, there would be no practical way to enforce the rule.

6 *See* pages 11 and 18*ff.*

7 *See* page 37.

8 *See* page 89.

The Fallacy of Subtitle D Rules

The statement that long term liabilities could run into the tens of billions of dollars may sound like groundless rhetoric to those schooled on repeated claims that modern landfills are state-of-the-art facilities guaranteed to protect the environment. But, although once only the province of environmental, not landfill, experts, a new widely shared consensus of the two disciplines is emerging. Today, both join in the conclusion that, in fact, the very foundations and latticework of the Subtitle D rules are fatally flawed.

...the very foundations and latticework of the Subtitle D rules are fatally flawed.

Claims that the Subtitle D rules would protect the environment have never been erected on technical facts, but rather were only girded by political expediency. In order to understand why this is the case, please permit a slight detour to the origins that led to the current landfill designs and the infirmities that followed. Those designs just delayed and did not prevent pollution, as a recounting of the regulation's history shows.

History of Limitations of Current Rule

Our household and commercial garbage includes major volumes of decomposable matter, such as unrecycled paper, food scraps and uncomposted yard trimmings, which EPA estimates to be about two-thirds of the landfilled waste stream, as shown in FIGURE 2.[9]

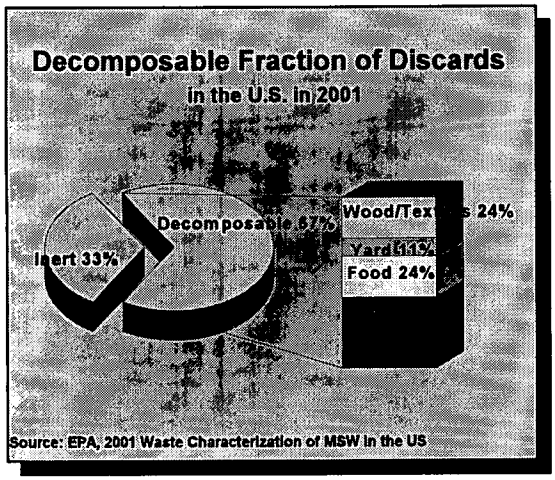

FIGURE 2

These things that rot are the source of much of the problem of safely managing wastes in the ground. For after trash is discarded in a landfill, the conditions are created in which micro-organisms grow and sustain decomposition of the organic fraction. That process keeps the site biologically active producing effluents and emissions that are a significant challenge to control.[10]

Along with the microbes, which are always a part of garbage, and heat, the critical limiting condition for bioactivity is moisture. Some moisture is entrained in the incoming waste, but is soon largely consumed. That leaves precipitation, which enters the site freely before it is capped, as the chief contributor of moisture in non-arid areas. Afterwards, rain and runoff

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9 Environmental Protection Agency, *Characterization of Municipal Solid Waste in the U.S.: 2001 Update*, TABLE 3, at p. 36.

10 George Tchobanoglous, *et al.*, *Integrated Solid Waste Management* (McGraw-Hill, 1993), at p. 369.

only infiltrates in very minor amounts through defects in manufacture or installation of the cover. But later, major volumes will percolate through breaches that are inevitable with the passage of time, at least for all those who do not consider the idea of perpetual care to be realistic.[11]

When liquids continue to be present – or when precipitation later reenters the site – leachate is formed that drains out of the waste load, carrying with it toxic substances such as vinyl chloride, benzene and toluene which are ubiquitous in household and commercial trash. There, at the bottom of the landfill, the dangerous effluent is poised to leak through any breaches in the liner into the underlying water table, which all too often connects to our drinking water supplies.[12]

Obviously, if hazardous leachate forms, it must be isolated before it reaches our drinking water supplies in order to protect public health and the environment. That is what Congress intended to require in the Hazardous and Solid Waste Amendments of 1984 (HSWA) when it enacted comprehensive amendments to the original Resource Conservation and Recovery Act (RCRA) of 1975, and which govern federal waste policy today.[13]

Note that, as amended, RCRA set a particularly high standard for environmental protection, one that was not significantly undercut, as is the Clean Air Act Amendments (CAAA), by competing demands to diminish the environmental protections in order to give greater recognition to cost considerations. RCRA mandated the federal rules creating minimum standards for the states were supposed to insure that "at a minimum ... there is *no reasonable probability of adverse effects* on health or the environment from disposal of solid waste."[14]

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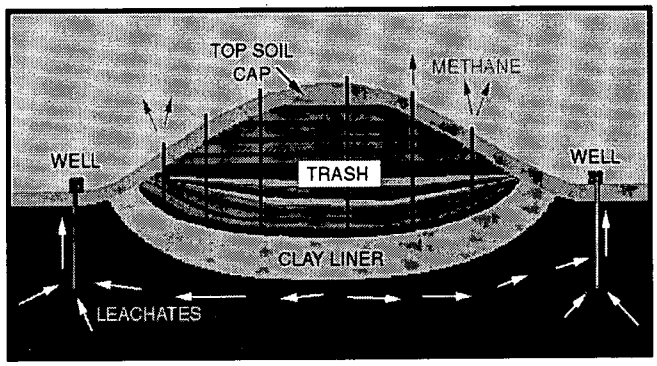
11 William Robinson, *The Solid Waste Handbook: A Practical Guide* (John Wiley & Sons, 1986), at p. 286.

12 Lan ier Hickman, Jr. *Principles of Integrated Solid Waste Management* (Amer. Academy of Env. Eng. 19, 99) at pp. 411-412. Also, methane gas is generated, in addition to leachate, in the anaerobic, or oxygen starved, conditions deep inside landfills that carries moisture entrained in the trash or is infiltrated with rainfall or runoff. Methane transports many of those volatile organic compounds into the atmosphere, and, by itself, the gas is also a greenhouse gas with 21 times the warming potential of CO_2. This is a matter of equal importance, but is not dealt with here only to keep the length of this report manageable.

13 42 U.S.C. §§6901-6992.

14 42 U.S.C §6944(a) (italics added).

To achieve these objectives, EPA proposed regulations in 1988, and promulgated them in 1991, based upon principles of isolating the dangerous waste load. The rule's effectiveness depends upon the practical feasibility of perpetual care.[15] Along with piping and pumps to extract liquids and gas, the rules required composite liners on the top, bottom and sides of landfills in order to keep precipitation from entering into and the leachate from leaking out of the facility.[16] It further provided for post-closure care, requiring the landfill owner to be responsible for maintaining the site for 30 years after it is closed.[17]



Schematic drawing of barrier systems in modern landfill
Credit: University of Michigan

The rule did not, on the other hand, give consideration to preventing leachate and gas from forming in the first place by banning organics from land disposal — similar to what it did by banning large volume hazardous wastes in 1991,[18] and more directly what Europe wound up moving toward by ordering dramatic reductions of organics in landfills beginning in 1999.[19]

EPA's regulations were said to "entomb" the waste, isolating it from the environment in perpetuity.[20] However, on examination that was probably one of the worst strategies to have deployed because no barrier structures constructed by man or woman last forever, and the very idea of perpetual care by human institutions in some sort of garbage priesthood is dubious at best.

[Entombment] was probably one of the worst strategies because no barrier structures last forever, and the very idea of perpetual care by human institutions is dubious at best

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15 56 FEDERAL REGISTER 50978 (October 9, 1991).

16 40 CFR §258.40. As noted above, there are a parallel set of concerns with regard to uncontrolled landfill gas emissions in 40 C.F.R. PART 60 SUBPART WWW. They are omitted in the interest of brevity, not because they are less important. Adding gas collection would more than double the length of this report.

17 40 C.F.R. §258.51.

18 40 C.F.R. §258.20.

19 European Community, COUNCIL DIRECTIVE 1993/31EC (April 26, 1999), at Art. 5, ¶1 and ¶2. More later on page 32.

20 42 U.S.C. §§6901-6992 and 40 C.F.R §258.40. California P.R.C. §43020 and 27 C.R.R. §17406.

As EPA's technical staff repeatedly warned in the decade of the 1980's leading up to the promulgation of Subtitle D in 1991, even composite liners "will ultimately fail" within decades after the agency's post-closure care requirements have expired,[21] "and when they do, "leachate will migrate out of the facility."[22] Yet, the EPA staff recognized, the duration of a landfill's hazardous loadings that needs to be isolated may be "many thousands of years,"[23] long after the time when discharges will occur.

What we have actually accomplished with liner systems is only to postpone – not prevent – pollution, and to possibly the very worst time, when the responsible parties have left the scene, the assurance funds have expired, the remediation systems are no longer functional, the costs to correct the problem are substantially greater than would have been required to prevent them, and the states, cities and taxpayers are left with the multi-billion dollar costs of cleaning it all up. Then, decomposition will resume as infiltration reignites a whole second wave of leachate and gas generation. But, now that will be happening at the very time when the active and passive barriers and capture systems have been breached or fallen into disrepair, as well as at a time when monitoring is no longer ongoing and maintenance will not occur until a gross exhibition of environmental impact attracts attention.

...liner systems only postpone – and do not prevent – pollution, and to possibly the very worst time

Recent anecdotal studies, while not rigorous, provide some suggestion of just how brief a reprieve liners really provide. A survey conducted in 2001 by the EPA's Inspector General found that landfill covers began experiencing demonstrable failures before the nominal post-closure period had expired. After cover failure, rainfall will begin to re-infiltrate the waste load making it dangerously biologically active all over again.[24]

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21 53 FEDERAL REGISTER. 168, at pp. 33344-33345 (August 30, 1988).

22 46 FEDERAL REGISTER 11128-11129 (February 5, 1981). Similar: "A liner is a barrier technology that prevents or greatly restricts migration of liquids into the ground. No liner, however, can keep all liquids out of the ground for all time. Eventually liners will either degrade, tear, or crack and will allow liquids to migrate out of the unit. Some have argued that liners are devices that provide a perpetual seal against any migration from a waste management unit. EPA has concluded that the more reasonable assumption, based on what is known about the pressures placed on liners over time, is that any liner will begin to leak eventually." FEDERAL REGISTER (July 26, 1982), at pp. 32284-32285.

23 46 FEDERAL REGISTER 28314-28328 (May 26, 1981). *See, also*, Commission of the European Community, *Management and Composition of Leachate from Landfills: Final Report* (1994), at p. 7, TABLE 1.2. H. Belevi and P. Baccini, "Long Term Behavior of Municipal Solid Waste Landfills," *Waste Management and Research* (1989), at p. 43. Peter Flyhammar, *The Release of Heavy Metals in Stabilized MSW by Oxidation* (Swedish Department of Water Resources, Nov '99), at p. 20 TABLE 10.

24 Office of the Inspector General, *RCRA Financial Assurance for Closure and Post-Closure* (2001-P-007) (March 30, 2001), at pp.33-34. On-line at: http://www.epa.gov/oigearth/audit/list301/finalreport330.pdf.

(continued...)

Even if we momentarily put out of mind what happens after the end of post-closure, the maintenance of the cover during that period is not a simple matter. Patching small tears in those thin, one-sixteenth inch plastic liners before they propagate into big ones is not easy. Nor, for that matter, is finding breaks buried and hidden under the vegetation and several feet of dirt that tops the cover to stabilize the site from erosion.[25] In any event, repairs are never as effective as the original installation, even with the best of intentions. When the end is in sight for a private operator's legal liability at a site that has not produced revenues in years, those intentions may not always be the very best.

If the monitoring systems were really able to provide sufficient advance notice of liner failure to avert major damage while the landfill owner was still on the scene, there might be some cold comfort in procrastinating further. However, that last avenue for justifying delay is foreclosed because of yet another defect in Subtitle D's rules. The wells

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[24] (...continued)
"In our sample," the Inspector General reported, "we found several examples of [cover] barriers failing during the first 30 years. Most of the states in our sample reported animal or weather-related damage at their sites. Repairs were required at one facility after wild pigs rooting in the near surface soil caused erosion of the landfill cap. In another state, black bears have been a problem. We found other examples of landfill caps eroding, damage to caps due to animal burrows, and a drainage channel being destroyed after heavy downpours. Other sites needed maintenance due to vegetation growth. Additionally, unexpected events other than natural erosion occurred at other sites which required maintenance activities. For example, at one site an automobile drove through the fence surrounding the facility, destroying the leachate treatment system. Another landfill site required repairs after children dug under a fence into a landfill site in order to skateboard on an old truck ramp."

Most important to note is that fact that this study just recorded instances where there was a visible manifestation of breaches at the surface, excluding tears in the synthetic liner beneath the topsoil occurring from other causes not apparent from above, such as from subsidence, roots or faulty installation, which may not provide visible clues. For more, *see* NOTE 25 below.

[25] 40 C.F.R. §60.753(d) and §60.755(c) are the EPA standards for detecting gas leakages, commonly referred to as the "sniff test," which may be argued, would disclose the location of any leak holes in the geomembrane. But, the type of monitoring protocol in EPA's landfill air rule is based on placing flux boxes at approximate equal distances from each other about 100' apart in a grid across the surface looking for methane 500 ppm above background rather than optical scanning of the entire surface. That protocol can only perform the job of showing where defects exist in the cover if the emissions are diffused fairly equally across the surface of the landfill within reasonably defined variability. In fact, this is not the case for capped landfill cells in which most gas leakages are high flux emissions through occasional tears or breaks in the geomembrane.

Thus, as an example, if there were one hot spot per acre, and 10 across a 100 acre landfill, the probability of detecting those 10 hot spots in a year, using a Poisson Distribution, would be 2.4×10^{-38}, which is a decimal point followed by 38 zeros and then 2. Consequently, the required monitoring will be effectively useless at detecting all of the problems that would show where repairs are needed, except by chance, even if the rule is seriously adhered to during post-closure and not undertaken without purposeful intent to manipulate the results. Lastly, the rule permits termination of gas control and testing when reported emission rates of non-methane organic compounds decline below 55 tons per year, 40 C.F.R. §60.752(b)(2)(v)(C), something that may be achieved before the end of the post-closure period with well maintained caps or in arid areas. For a further discussion of the "sniff test," *see* NOTE 9 on page 123.

used to detect contamination are spaced about 200' from each other — too far apart to detect most finger-like plumes escaping through small breaches in the synthetic liners in modern landfills under most soil conditions.[26]

Even were such an unlikely detection achievable, the time that the alarm would be raised would be too late. In the composite liner, two-feet of clay is required to underlie the flexible membrane and be designed to retard seepage for approximately 25 years following a tear in the plastic sheet.[27]

Furthermore, depending upon the type of aquifer, the leachate may take decades more after escaping the torn synthetic liner to course through the unsaturated zone, and from there to groundwater layer to finally reach the periphery about 150 meters away where the monitoring wells are arrayed. That is to say, we would almost never be aware that the landfill is leaking for as many as 50 or probably more years even though a pathway to contaminated drinking water has been irretrievably opened up.[28] And, even then, by that time the cost of remediation for thousands of sites across the country will be a massive expense.

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26 40 C.F.R. §258.51. This monitoring system might have worked in the pre-Subtitle D era of unlined landfills that relied upon "natural attenuation" when these monitoring regimens were first developed. For leaks from unlined landfill produce very large, generalized plumes that will be detected by almost any deployment of wells. However, neither unlined, nor clay-only liners, are any longer considered an adequate barrier to the migration of leachate from the landfill into the groundwater.

Current standards require composite plastic/clay liners, and plastic sheets tend to shear in at a single location. Consequently, the plume from a small tear will tend to be very narrow and finger like in shape. A typical two-foot long tear or rip would be expected in a sand aquifer system to spread laterally to only about ten feet within 150 meters of the source where wells are typically arrayed. The probability of such a tendril-shaped leak through a composite liner being detected when the leak reaches the perimeter where the wells are located, when those wells are 200 or more feet apart and have a detection radius of perhaps 1-foot, is an exceedingly low probability event. J. Cherry, "Groundwater Monitoring: Some Deficiencies and Opportunities," Hazardous Waste Site Investigations: Towards Better Decisions, *Proc. 10th ORNL Life Sciences Symposium*, Gatlinburg, TN, May 1990.

Other landfills may be underlaid with soils that have low hydraulic conductivity, which resists easy passage of liquids through it, and that may cause some wider dispersion of the plume by the point of compliance. But, even in those types of soils, leachate will often tend to follow preferred paths of flow in channels through the denser earth, thereby overriding its general resistance to flow. At other times, in an effort to maximize air space at economically attractive near-in sites without room to expand, the landfill footprint is close to the property line, in which case there can be an insufficient distance traversed to the monitoring wells for dispersal to have occurred.

27 40 C.F.R. §258.40(b). The clay is to have a hydraulic conductivity of 10^{-7} cm/sec., which, using Darcey's law, equates to 25 years for liquids to seep through the clay part of the composite liner, unless the clay directly under a break in the overlying flexible membrane has become desiccated or suffered cracking.

28 G. Fred Lee. "A Groundwater Protection Strategy for Lined Landfills," 28 *Environmental Science & Technology* 584 (1994). H.. Haitjema, "Ground Water Hydraulics Considerations Regarding Landfills," 27 *Water Res. Bull.* 791-796 (1991).

The last time when California can still have time to act to protect against the environmental liabilities, which are likely to occur after the end of post-closure, is while the landfill is still operating. After the facility is closed and no longer producing revenue, the regulators' leverage is so attenuated to be unequal to the task. Moreover, even were the owner were somehow inclined to comply against its financial interest, the cumulative costs would exceed its capacity to do so.[29]

...the last time when California can still have time to act to protect against environmental liabilities after the end of post-closure is while the landfill is still operating

Time is Late for Correcting Assurance Problems

However, even if a landfill is currently operating, that does not mean major new costs can readily be imposed upon the owner to correct inadequate assurance regulations. The nearer the date when the landfill is expected to close, the fewer the years to amortize any such new costs. With less years to spread the cost, the greater will be the additional cost per ton to generate the desired reserves, and our examination shows California is already on the brink of being unable to realistically correct its course.

TABLE 1 is a sensitivity analysis that shows for different add-on assurance liabilities how the cost per ton increases the closer retirement approaches (Years 1 to 15), as well as for more aggressive corrections to the assurance amount to reflect the sorts of costs being incurred under the Superfund program ($1, $5, $10, $25 and $50 million).[30]

Impact of Amortizing Financial Assurance on the Cost per Ton from Late-Life Assurance Requirements

Late Assurance Cost	When the Years of Operation Remaining to Closure Are														
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
$1 million	$0.35	$0.36	$0.38	$0.40	$0.42	$0.45	$0.48	$0.52	$0.58	$0.65	$0.75	$0.91	$1.16	$1.68	$3.2
$5 million	$1.75	$1.82	$1.90	$1.99	$2.10	$2.24	$2.40	$2.61	$2.88	$3.24	$3.76	$4.53	$5.82	$8.41	$16.2
$10 million	$3.50	$3.64	$3.80	$3.98	$4.20	$4.47	$4.80	$5.22	$5.76	$6.49	$7.51	$9.06	$11.64	$16.82	$32.4
$25 million	$8.76	$9.10	$9.49	$9.95	$10.51	$11.18	$12.01	$13.05	$14.41	$16.22	$18.78	$22.64	$29.10	$42.06	$81.0
$50 million	$17.52	$18.19	$18.98	$19.90	$21.01	$22.35	$24.01	$26.10	$28.81	$32.45	$37.57	$45.29	$58.21	$84.12	$162

Source: Center for Competitive Waste Industry

TABLE 1

Thus, if the additional cost to provide improved assurance were, illustratively, $5 million (second row), the per ton cost would be $1.75/ton (second column) if instituted at the

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29 *See, e.g.*, page 79.

30 The assumptions used in constructing this amortization table are that the after-tax cost of money is 8% per year, the operating life of the landfill is 15 years, and all the garbage in the landfill when closed will total 5 million tons. Later, the report explains the reasons why actual costs to remediate mega MSW landfills will vastly exceed the experience under Superfund, which is what was used in this table.

time waste was first received, but $16.20/ton were the new requirements not imposed until the last year of the site's life (last column).

If one plots this data on a graph, something becomes immediately apparent that is very important for decision-makers to recognize. FIGURE 3 shows that there is an inflection point for each of the curves beginning at about 10 years after waste emplacement – five years before the end of life for a 15-year site. At about that time, the steady increases in annual amortization expense per ton dramatically takes a sharp turn upwards hyperbolically.

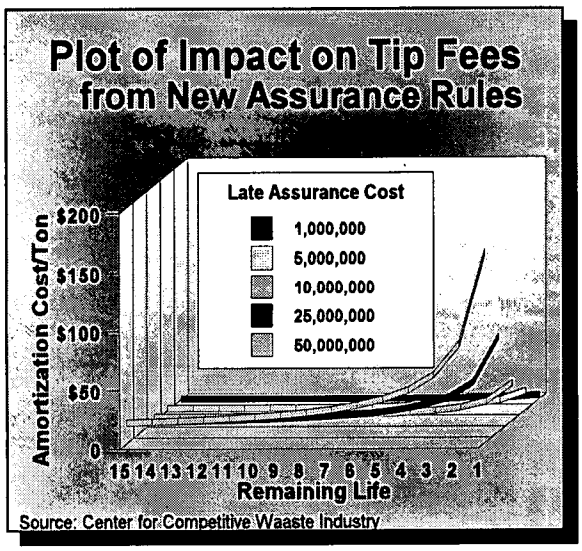

FIGURE 3

Any attempt to impose new and costly requirements at any time on the private sector will be resisted vigorously. This graph shows how that resistence will reach a political flashpoint among owners of landfills in those last 5 years of the facilities' projected lives.

Among the myriad complications that might arise is the case where two trash companies are competing in a market, each with their own landfill. But one site has just opened and the other is close at its end-of-life. The tipping fee of the one about to close would, therefore, become double the first's, and hence would effectively be put out of business under almost any set of conditions. Either the owner could attempt to stay open to collect revenues to fund a trust, but have no customers from whom to collect, or he or she would just walk away.

In order to use this information to assess how many years the Board has to act, we need to know how many years remain until California's landfills are expected to close. The histogram in FIGURE 4 shows the distribution of the State's landfills by the time remaining before the end of the site's permitted life.[31]

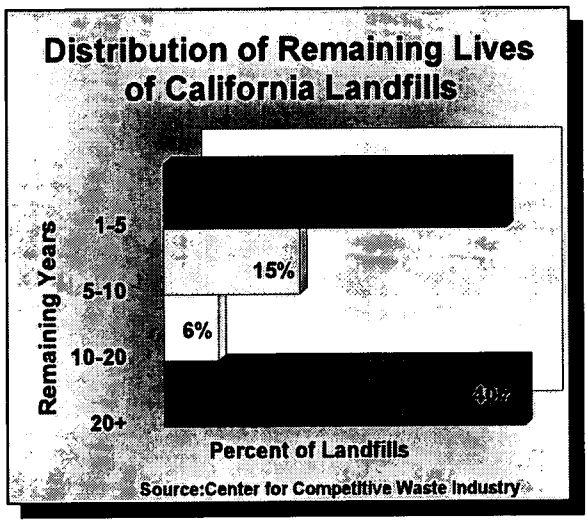

FIGURE 4

Thirty-eight percent of the sites are currently within five years of their permit's end, which looms so close that, as TABLE 1 showed, we may expect to see costly new requirements met with the fiercest resistence and threats to walk away. Fifteen percent are five to 10 years from retirement. That is on the border-line in which there might be the political practicality to impose essential corrections to current practices, with some further latitude with the 6% with 10 to 20 years.

Forty percent have permits that extend their lives more than 20 years. Only if all of the sites had more than 20 years remaining life would there be little imperative for the State to act quickly to remedy today's law. But, in fact, more than half do not offer that latitude to California.

Take-Away Lessons

The first lesson is that because additional barriers only further delay, but do not prevent, the time when the barriers will ultimately fail, doing anything more of that sort – including improved or extended post-closure maintenance – will only prolong, and therefore also fail to resolve, the inherent problem.

...extended post-closure maintenance will only prolong, and therefore also fail to resolve, the inherent problem

Today's short-sighted approach recapitulates the very same out-of-*sight* tactic that sullies the last hundred-year history of waste management. For millennia before that, the citizenry threw their garbage out the window into the streets to be eaten by roaming bands of pigs and picked up by scavengers. All the while they prided themselves as being above their prehistoric ancestors who dropped their rubbish on the floor. As the modern era dawned with new attitudes

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31 Calculated from the comprehensive CIWMB landfill data base of open landfills receiving municipal solid waste and accepting more than 50 tons per day. The data base does not show which landfills are likely to receive permits to expand further on the existing site, nor which of those are vertical expansions that might delay the time when closure occurs. The latter could effect the distribution of remaining lives such that a larger fraction would have more years remaining before closure.

towards sanitation in the last century, progress was then claimed because the offal was hauled to smoldering open dumps out just beyond the city walls.[32]

Now the contemporary rendition of our past behavior is more elaborate. In the twenty-first century, the construction of garbage pits are bolstered by limited engineered systems to shift problems out-in-*time*. But, at heart, the two are the same thing. Both constitute a relentless refusal to resolve the threats that landfilling creates as a political expedient in order to avoid acknowledging the true cost of wasting — and, as a consequence, the full economic potential of diversion.

Whether moved in time or in place, all of them serve only to transpose the problem. So, no longer are we heaping garbage over the city walls to get the unsightly refuse off of the streets.[33] But, instead, we are conveying the inevitable injuries that the liners only temporarily hold in check, like a perverse form of disinheritance, from our children to our grandchildren.

...there is no more time to postpone addressing the myriad failings of current landfill rules if California is to protect itself from billions in liabilities.

The other lesson is that there is no more time to postpone addressing the myriad failings of current landfill rules if California is to protect itself from billions in liabilities. Already almost half of the landfills are so near to closure that the practical options are limited for them. The time to act is now. Either that or be responsible for leaving the State with bail-out costs so large they could force the State from its current financial crisis into a irretrievable downward spiral.

Industry Concedes Problem

Assertions about the fallibility of dry tomb landfills, once branded by some in the landfill industry as fighting words, are today no longer controversial. They have, through the passage of time and the weight of the evidence, become the new conventional wisdom.

The early warnings from EPA's technical staff discussed on page 11, were most recently reinforced from an investigation and field study conducted by the agency's Inspector General –

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32 U.S. Environmental Protection Agency, *Development of Construction and Use Criteria* (EPA530-SW-19D-73) (1973), at p. III-1; Martin Melosi, *Garbage in the Cities: Refuse, Reform and the Environment: 1880-1980* (Texas A&M University Press, 1981), at p. 36. Constance McLaughlin Green, *Washington Village and Capital, 1800-1878* (Princeton University Press, 1962), at p. 271. Susan Strasser, *Waste and Want: A Social History of Trash* (Henry Holt & Co., 1999), at pp. 112 - 124. Garrick Louis, "A historical context of municipal solid waste management in the United States,"22 *Waste Management & Research* 306, 310 (2004).

33 Melosi, *supra*, at p. 14.

"EPA officials have stated that based on current data and scientific prediction, the release of contaminants may eventually occur, even with the application of best available land disposal technology. There is concern that *these barriers will merely postpone the inevitable release of contaminants until after the 30-year liability has expired.* As previously stated, some sites contain materials which are highly resistant to decomposition or which remain toxic forever. There have been several studies to determine the expected life span of landfill liners, and opinions on this issue vary widely. The bottom line is that not even the manufacturers claim that their liners will last forever."[34]

What began as an underlying concern among EPA's technical experts in the years before the final compromises were made in those Subtitle D rules, has in more recent years been increasingly recognized by many of the states charged with implementing those regulations. The testimony of the staff of the California waste board cited on page 6 are not the only warning flags to have been raised by state regulators. Washington state's Department of Ecology has similarly said:

"The extent to which today's landfills adequately protect human health and the environment is a subject of debate, however. Requirements that govern siting, operation, closure, and post-closure are stringent and extensive. While the newest landfills are state-of-the-art facilities, they are far from benign in their impacts. Landfills may still affect the air, land, and water but to a significantly lesser degree than before today's standards went into effect. As waste decomposes in landfills, methane and other hazardous gases are generated. Methane is a greenhouse gas concern because its impact is twenty-three times that of carbon dioxide (EIA). Leachate from decomposing matter in landfills can contain hazardous constituents. If landfill liners and/or leachate collections systems fail, then groundwater and surface-water pollution can occur. No liners are engineered to be 100 percent impenetrable or to last forever without some sort of failure. In fact, US EPA officials have stated that problems can occur more than thirty years after closure of a landfill, pointing out that 'even the best liner and leachate collection system will ultimately fail due to natural deterioration.'"[35]

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34 Office of the Inspector General, *RCRA Financial Assurance for Closure and Post-Closure* (2001-P-007) (Mar. 30, 2001), at pp. 33. On-line at: http://www.epa.gov/oigearth/audit/list301/finalreport330.pdf. (Emphasis added.)

35 Washington Department of Environmental Protection, *Background Information for Beyond Waste Document* (2004), at p. 3. On-line at:http://www.ecy.wa.gov/pubs/0404008k.pdf.

In addition, the Wisconsin Department of Natural Resources has also pointed to the same inherent flaw in dry tomb designs for landfills:

"... the responsibility of responding to long-term problems at dry-tomb landfills will fall on future generations, and the funding requirements could quite likely fall on state and local governments." – John Skinner

"The problem with dry tomb landfills is that the organic wastes in them remain largely undecomposed. They represent a continuing and large potential source of methane gas, as well as a potential source of groundwater pollutants. The essentially perpetual management of these problems represents a long-term financial liability to the waste management industry, and potentially to the state, if public monies have to be used to clean up future problems."[36]

Furthermore, in the last three years, many in the landfill industry have conceded these basic facts, as well. The Executive Director of the Solid Waste Association of North America (SWANA), John Skinner previously headed EPA's Office of Solid Waste where he had a major role in drafting Subtitle D. Dr. Skinner has recently written:

"The problem with the dry-tomb approach to landfill design is that it leaves the waste in an active state for a very long period of time. If in the future there is a breach in the cap or a break in the liner and liquids enter the landfill, degradation would start and leachate and gas would be generated. Therefore, dry-tomb landfills need to be monitored and maintained for very long periods of time (some say perpetually), and someone needs to be responsible for stepping in and taking corrective action when a problem is detected. The federal Subtitle D rules require only 30 years of post-closure monitoring by the landfill operator, however, and do not require the operator to set aside funds for future corrective action. Given the many difficulties of ensuring and funding perpetual care by the landfill operator, *the responsibility of responding to long-term problems at dry-tomb landfills will fall on future generations, and the funding requirements could* ***quite likely fall on state and local governments.***"[37]

Dr. Skinner's predecessor at SWANA, Lanier Hickmanexpressed the same view more forcefully:

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36 Testimony of Suzanne Bangert, Director Wisconsin Department of Natural Resources Bureau of Waste Management Before the Assembly Committee on Natural Resources on Clearing House Rule 04-077 (April 27, 2005).

37 John Skinner, "Composting and Bioreactors," *MSW Management* (July/August 2001), at p. 16 (emphasis added).

"Currently many policymakers view F[inancial] A[ssurance] for landfills from the perspective, 'If it ain't broke, don't fix it.' However, *the question is not 'if' there will be future landfill problems, but 'when.'* Since FA requirements are the last line of defense before the public winds up with the costs for corrective action, it is critical that an FA mechanism be able to guarantee coverage of expected landfill costs."[38]

"... the question is not 'if' there will be future landfill problems, but 'when.'" – Lanier Hickman

Or another from environmental scientists in industry –

"...The dry containment method of operating a landfill has been described as long-term storage of waste rather than waste treatment or waste disposal, and does have some significant drawbacks. There will always be pockets of moisture within waste, and *it is generally accepted that all lining and capping systems will eventually leak so rain and/or groundwater will eventually enter the site.* Thus, the decomposition of the organic fraction of the waste will eventually occur, with resulting emissions of landfill gas and leachate. Since pipes and pumps buried within the waste eventually clog up and fail, there will be less chance of collecting and treating these emissions if they occur in the distant future."[39]

Or from one of the premier landfill engineers –

"The containment provided by these landfills offers environmental protection initially; however, at some point *beyond the 30-year [postclosure] period, there may be partial failure(s)* of the containment lining system (underlying and overlying the waste). The primary environmental issue associated with partial containment system failure and moisture infiltration is the potential associated increase in gas and leachate production and the resulting impact of uncontrolled leachate and/or landfill gas releases to the environment. The nature and magnitude of the releases exiting the landfill and their resulting impacts are directly related to the amounts of organic waste not yet decomposed."[40]

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38 Rob Arner, H. Lanier Hickman and Cristine Leavitt, "Dump Now, Pay Later?" *MSW Management* (Sept. 2000).

39 Peter White, *Integrated Solid Waste Management: A Lifecycle Inventory* (Aspen Pub. 1999), at p. 275.

40 John Pacey, *et. al., The Bioreactor Landfill - An Innovation in Solid Waste Management*, Monograph (2001), at p. 2 (emphasis added).

And from another landfill engineer–

"The driving force behind the use of reactive landfill technologies arises from market concerns and community expectations that conventional landfills are no longer practical and profitable as a means of disposal for MSW."[41]

Waste Age, the waste industry trade magazine, opined as well that:

"[I]n the next few years, some facilities closed in the past will be nearing the end of the 30-year period for which closure and post-closure costs were calculated. What then? The contamination may still exist, but the financial assurance coverage will have been calculated on the assumption that costs would extend for only 30 years. If the owner/operator disappears from the scene at that point, the financial assurance designed as a backstop may be inadequate to ensure continued care. Regulators are concerned about this."[42]

There simply is no longer any tenable basis to defend Subtitle D's liner-based regulatory scheme on technical grounds. Any basis for the rule must be found elsewhere.

Political Not Technical

Why, then, did the political appointees in EPA adopt liner-based regulations in 1991, when they were fully informed by their own technical staff at the time that engineered barriers will eventually fail? That question was answered by the EPA Inspector General a decade later in 2001. Extensive interviews with the agency's technical staff established that *the reason was political, not technical*–

"Landfill design requirements and post-closure maintenance for both Subtitle C and Subtitle D facilities are expected to prevent leakage in the short term; however, their long-term effectiveness in controlling releases of contaminants is unknown. EPA and others have stated that it is likely that some disposal facilities will leak at some period after they close. ...

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41 Pat Sullivan, "Just What is a Bioreactor Landfill," *MSW Management* (July/August 2000). *See, also*, Lee, G.F. and Jones-Lee, A., "Assessing the Potential of Minimum Subtitle D Lined Landfills to Pollute: Alternative Landfilling Approaches," *Proc. Air and Waste Management Assoc.* 91st Annual Meeting, San Diego, CA. Lanier Hickman, "Ticking Time Bombs," *Municipal Solid Waste News* (SWANA) (March 1995). Abraham Michaels, "Solid Waste Forum on Landfills," *Public Works* (April 1995). D.P. Komilis, R.K. Ham, R. Stegmann, "The Effect of Landfill Design and Operation Practices on Waste Degradation Behavior: A Review," 17 *Waste Management and Research* 20-26. (1999).

42 Jeffery Bromme, "Avoiding a Financial Crisis," *Waste Age*, May 2005, at p. 28.

"However, some who commented were concerned that an extended time frame would place an economic burden on smaller businesses. Therefore, EPA officials *acknowledge the lack of criteria or scientific basis* for establishing the 30-year post-closure time frame. ... EPA made the decision to establish the time frame at 30 years, seemingly *based on a compromise of these competing interests*. EPA officials we spoke to agreed that the 30-year time frame was *not based on specific scientific criteria or research studies*."[43]

That is to say, in confidential interviews protected from repercussions, the agency's staff essentially informed the Inspector General that the Subtitle D regulations were politically compromised and never were supported with any technical basis to insure that "there is *no reasonable probability of adverse effects* on health or the environment..."[44]

Rather, according to EPA, flawed liner rules were deliberately adopted to keep the costs of compliance down, allegedly to reduce the "economic burden on smaller businesses."[45] But, the facts do not support such a defense.

Weak Rules Are Not Justified to Protect Small Operators

Even this extralegal economic defense appears to mask the real underlying basis for knowingly writing rules that neither protect the environment nor meet the statutory requirements of RCRA. An examination of the record simply does not support a claim that the rules sidestepped essential environmental measures in order to reduce the "economic burden on small businesses," or, for that matter, the consumer.

The regulations did directly exempt or otherwise provided looser standards for the smallest landfills,[46] and offered a cheap exit strategy to encourage the small and mid-sized unlined landfills whose owners were expected to, and did, accept that offer to close down with limited liability.[47]

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43 U.S. Environmental Protection Agency Inspector General, *RCRA: RCRA Financial Assurance for Closure and Post-Closure* (No. 2001-P-007) (March 28, 2001), at p. 31 (emphasis added).

44 42 U.S.C §6944(a) (emphasis added).

45 Inspector General, *op cit.*, at p. 31 (emphasis added).

46 40 C.F.R. §258.1(e)(2). 56 Federal Register 50988 (October 9, 1991).

47 40 C.F.R. §258.1(d)(1).

But, most telling, elsewhere EPA specifically admitted that its intent was not to protect the small landfill owner, but rather to encourage large regional landfills, and, apart from rural areas with few people, to force those small landfills to shut down:

> "[W]ith respect to small MSWLFs [EPA's intent] was that the move to greater regionalization, in order to benefit from the economies of scale, would be a secondary benefit of the [rule].[48]

This was at a time when the only large privately owned landfill in the country was an 800 acre facility owned by Browning Ferris (BFI) near Poland, Ohio, and two publicly owned landfills, Fresh Kills in New York City and Puente Hills in Los Angeles.

Nor is there any perceptible financial burden on the customer from stronger standards. For a typical household, doubling disposal costs to avoid these long term problems would equate to the price of one cup of coffee per household per month.[49] That would seem to be a small price that most would gladly pay to protect the water that their children, and their children, will drink.

Even if RCRA permitted compromising essential protections to lessen the "economic burden on small businesses" – which it does not – the rules do not appear to have been weakened for that reason. There seemed to be a very different purpose, at least in the minds of the large waste firms who successfully lobbied the agency for modifications in the rules in order to achieve their narrow interests. That was to push off the problem to the future when they were no longer libel, at the expense of the public, which will have to pay for the costly clean up.

A graphic example is the fact that the originally proposed rules provided for two phases of post-closure care, the first was a 30-year period of focused maintenance and a second, and longer, period to follow afterwards.[50] Three years later when the final rule was promulgated, the second phase after 30-years, which is necessary to provide care over the extended period that the site was known to remain a threat to the environment, was eliminated.[51]

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48 56 FEDERAL REGISTER 50989 (October 9, 1991)

49 A typical household discards approximately one ton of garbage each year. The cost of adequate regulations may be benchmarked against a mixed waste processing system, such as the Bedminster model that stabilizes the incoming waste so that only inert residue is landfilled, and which costs out at about $60/ton. Doubling fees from California's current $32/ton, Leone Young, "Learning the ABCs of Solid Waste," *Resource Recycling* (November 2003), at p. 11, to $60 per ton, equates to a little more than $2 per household per month.

50 Proposed 40 C.F.R. §258.31. 53 FEDERAL REGISTER 33345 (August 30, 1988).

51 40 C.F.R. §258.61. 56 FEDERAL REGISTER 51011 and 51094 (October 9, 1991).

Liner Rules Protect Monopoly Not Groundwater

A short detour to understand how and why political forces led to a distortion of the regulatory process in order to achieve market advantage, rather than environmental protection, is necessary to, by learning from history, not be doomed to repeat it here. For, the primary economic interest protected by the decision to adopt the fatally compromised landfill rules was not the small operator, nor, for that matter, the smaller municipalities. Rather, the ones who reaped the greatest benefits were the national waste firms.

...there is an almost certain probability those adverse effects will eventually happen

These are the very large garbage companies that came into being by first rolling up thousands of small operators, privatizing once publicly-owned operations and later by merging with other consolidators. Key to their strategy, at the same time they also combined (or "vertically integrated") collection operations in each market with their own landfills to form what they called "hub and spokes." The "Big Three" companies today include Waste Management, Inc., Allied Waste Industries (which also operates in some markets as Browning Ferris Industries), and Republic Services, together with $19.3 billion in annual revenues.[52]

A short digression is essential into the way the modern waste industry evolved in order to understand the strategic needs of the Big Three that led EPA to promulgate landfill rules it knew were in violation of the controlling statute. Rules that the agency was aware not only failed to insure that "there is *no reasonable probability of adverse effects* on health or the environment,"[53] but, more to the point, that there *is* an almost certain probability those adverse effects will eventually happen in a significant number of cases.

To exist and thrive, these companies had to achieve pricing power, which is the ability to charge more than the price that would exist in a free market. That was necessary because creating a national company out of thousands of local haulers incurred major costs. These included premiums paid to close so many deals, the expenses and confusion involved in integrating diverse companies, overheads to oversee far flung operations, attenuated lines of control and the loss of entrepreneurial spirit at the local level. Unless there were substantial efficiencies garnered by virtue of the acquisitions, prices had to exceed market rates in order to offset all of these losses. Also, they had to produce the kinds of out-sized earnings sufficient to satisfy the same investors who financed the buying

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52 Bradley Coltman, *Collecting Trash and Generating Cash* (Deutsche Bank, August 22, 2002), at p. 9. Securities and Exchange Commission Form 10-Ks for 2003.

53 42 U.S.C §6944(a) (emphasis added).

spree to roll up the smaller players in the market. Otherwise Wall Street would cash out and leave the firms ripe for a takeover that would break them up.[54]

Yet, the long march over three decades to consolidate the fragmented waste industry into national companies never made economic sense in a truly free market because garbage hauling was inherently a low-tech, local business with few barriers to entry and no grand economies of scale past the local level. At the very beginning of the era of consolidation there were some efficiencies gained from merging the fragmented market of very small, two or three truck haulers. However, those scale efficiencies were largely exhausted before the consolidators expanded past the metropolitan level.[55]

This was a matter of some pressing importance, because, by the close of the 1980s, the industry's ability to raise prices by collusion and intimidation had faltered in the face of disclosure, litigation and publicity.[56] Succeeding attempts in the early nineties to paper over the fact of low performance with serial acquisitions, which make analysis of a company's fundamentals impossible, and Enron-style bookkeeping were quickly exposed, as well.[57]

Regulation of landfills, as Waste Management, Inc.'s founder, Mr. Dean Buntruck, was among the first to appreciate, had by the 1990s become the best vehicle to achieve the anti-competitive pricing power necessary to justify the continued existence of national waste companies.[58]

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54 Peter Anderson, "Endgame: Consolidation and Competition in the Solid Waste Industry," *MSW Management* (December 1999). On-line at: http://competitivewaste.org/reports/CCWEndgamet.PDF.

55 M. Malloy, "Allied Waste Industries: Letting Them Grow," *Waste Age* (Aug '98), at p. 28, quoting Allied CEO Thomas Van Weeden that "The reality of this business is that it's local. There's no great synergy in running businesses in Chicago and Indiana, let alone in the Northeast from here." *Also,* Peter Anderson, "Mergers in the Waste Industry: How Greater Densities Affect Collection Efficiency, *MSW Management* (September 1999), on-line at: http://competitivewaste.org/reports/ccwipact.pdf.

56 Persistent reports of collusion between Waste Management and Browning Ferris Industries (BFI) caught the attention of the plaintiff's bar, which soon found the companies' own sales people were a source to uncover collusion because orders to not compete ran up against their commission-based pay scale. In 1988, the inability of large corporations to keep secrets and other disclosures led to a massive class action antitrust lawsuit, *Cumberland Farms v. Browning Ferris Industries,* Case No. 87-3717, that settled for $80 million. Excerpts from the record documenting these disclosures can be found on-line at: http://www.ebic.org/company/bfi/cumbfarm.html.

57 Abe Briloff, "Recycled Accounting: It Enhances Waste Management's Earnings," *Barrons* (Aug 6 '90), at pp. 16-17. M. Bari and B. Shim, *Waste Management: Getting Focused on the Long Term, Big Picture Cash Flow Story* (Deutsche Bank, Apr 22 '99), at pp. 2-3. R. Abelson, "Gorging on a Diet of Deals: In Acquisitions, Complex Finances Can Distort Results," *The New York Times* (Jul 5 '98).

58 Andrew Webb, "Waste Management Cleans Up," *Chicago* (June 1990). Goldman Sachs, *Titans of Trash* (December 11, 2002), at p. 32.

Because disposal is a bottleneck in the garbage industry, once landfill dominance is achieved in a geographic area, any independent hauler attempting to slash rates in order to break into a market could be price squeezed through discriminatory tip fees at the disposal site when his or her garbage trucks drove up to offload.[59] But, for that to happen, first some way to shutter (or force the sale of) the thousands of public and small private landfills across the country would have to be found, and barriers to entry into disposal had to be created through regulatory burdens. Otherwise, the new entrant would be able to evade the cartel's vice-like control over disposal.[60]

Regulation of landfills had become the best vehicle to achieve the anti-competitive pricing power necessary to justify the continued existence of national waste companies

Since the strategy of the national waste firms is based on gaining market power through control over landfills, the contours of EPA's disposal rules wind up being fundamental to industry's ability to charge monopoly disposal fees without fear of new competition.[61]

Landfills, and, more so, the rules that govern their design, are the keys to the temple.[62]

The fact that disposal is a bottleneck in the waste industry is a necessary but not a sufficient condition to that end. In the absence of limitations on new landfill construction, new players would enter the market and build enough landfills to meet all the demand. But, carefully crafted environmental rules, Mr. Buntrock saw, could create near-insurmountable barriers to new entry into the market for landfills to close the vice around any hauling competition outside of the cartel.

However, to disfigure regulation, from a tool to protect the environment into an accessory to quash competition, required a delicate balancing act. In order to distort public policy to private ends in this way, government requirements needed to be sufficiently expensive and protracted to force the small competing landfills out of business and to discourage new players. Subtitle D rules did that by requiring multi-million dollar

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59 Phillip Lentz, "Small, New York hauler feels pinch: Mob-controlled cartels gone, but influx of national firms hurts Crown Waste," *Waste News* (Aug 3 '98), quoting Jerry Antonacci of Crown Waste Corp.:

> "We don't fear competition on the street. Our fear for the future is the dumps. The public companies control the dumps, and if they want to raise the price to $70 a ton, they can — with a snap of their fingers — put everyone out of business."

60 Mari Bari, *The Solid Waste Industry: A Look Out to 2005...There's still money to be made* (Deutsche Morgan Grenfell, October 1, 1997).

61 Leone Young, *Solid Waste ABCs Revisited* (Citigroup Smith Barney, May 27, 2003), at p. 3-4.

62 Peter Anderson, "Keys to the Temple," *Solid Waste Digest* (EXECUTIVE REVIEW 2004).

investments too great for most of the small owners and towns, thereby slashing the number of landfills from 7,683 to 3,581 in the early years of the nineties.[63]

On the other hand, those requirements could not be so expensive that landfills become more costly than the alternatives to disposal that compete with it. Examples of alternatives to landfills include expanded diversion efforts, waste-to-energy plants and conversion technologies, all of which would conceivably be competitive with landfills were they not subsidized by inadequate regulations.

An analogy shows that this is a rather significant constraint. After the Second Arab Oil Embargo in 1979, the oil companies soon discovered that their new found pricing power came from selling scarcity, not a product or service. However, notwithstanding the fact that the cartel could make oil scarce, competition from outside the industry can give consumers alternatives to oil to meet their energy needs. Gas lines had created panic in the spot markets and higher profits soon followed. But the run ups at the pump also provoked quantum leaps in energy conservation and switching to natural gas. That threatened the oil industry's ability to sustain premium, instead of commodity, prices. This is the reason, ever since, OPEC has carefully refrained from fully exploiting its short term monopoly power in order to avoid instigating major conservation or fuel shifting in response.[64]

In fact, that very sort of distorted regulatory tacking of landfill rules closely mimics much of what is necessary to happen for the industry to accumulate market power. EPA itself observed that its rules would lead to a shift to larger landfills, whose sheer size and licensing requirements create major barriers to entry,[65] although presumably it felt that larger size landfills were necessary to marshal adequate resources to safely operate a disposal facility.[66]

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63 U.S. Environmental Protection Agency, *List of Municipal Solid Waste Landfills* (EPA 530-R-96-006) (June 1996), at p. 1.1.

64 Daniel Yergan, *The Prize: the Epic Quest for Oil, Money, and Power* (Simon & Schuster, 1991), at 746. Gerald Seib, "Saudi Official Says Handoff May be Imperiled," *Wall Street Journal* (April 27, 2004).

65 *See* page 22.

66 Undoubtedly, EPA believes that the megafills will exhibit superior environment performance, and that fact is what motivated their bias to larger landfills. There are two problems with what EPA says.

First, the Agency's comment in the Federal Register confuses the acknowledged problems of maintaining the substantial investments in dollars and expertise required to build and operate engineered sites for *small* landfills, with the absence of any such similar invidious showing for *mid* size facilities. Indeed, because there has not been adequate validation of the basic safety systems when extended for such out-sized facilities, and because there are many serious concerns when scaling up about escalating complications, and because the implications of a catastrophic sidewall failure at a sites several hundreds of feet high and extending over hundreds of acres is so portentous, we really do not have a technical basis for comparing the long-term risks of megafills (400 feet high) vs. moderate sized landfills (100 feet high).

(continued...)

What is clear is that the requirement for substantial investment in the underlying infrastructure of a landfill in order to *delay* pollution soon economically forced the shift to mega-fills due to their lower costs per ton. Mega-fills are landfills that dramatically swelled in size to become approximately one-hundred times larger than the volume of a typical site in the pre-Subtitle D era.

However, while front-end capital investments were increasing due to regulation, that is not the same as per-ton costs that the customer sees. With these mega-fills three, four, five or six times higher than before, *unit* costs actually wound up being driven down from more than $30 to often less than $20 per ton. That was because so much more material was encased between each acre of the expensive liners and leachate collection pipes on the bottom and final cover and header lines at the top.[67] TABLE 2 illustrates the enormous scale efficiencies achievable by enlarging a landfill to its maximum reach once a

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66 (...continued)
Second, EPA may have also confused the *lower unit costs* that larger landfills will provide with questions about *safety*, even though the two elements are distinct. In fact, there has never been any rigorous engineering analysis to validate whether the engineered landfill's design components could simply be scaled up to reach megafill proportions without untoward side effects to the environment. A longer discussion of this issue can be found at page 123.

67 56 FEDERAL REGISTER 50989 (October 9, 1991). Chartwell, *Solid Waste Digest* (1991-2002) Chartwell reports gate prices that are approximately one-third more than discounted prices). EPA justified its intent by claiming that the result would be to better protect the environment, as the displaced smaller landfills had too few resources and were too poorly managed to properly do the job. However, as this report makes clear, regardless of how poorly the small sites were maintained, the megafills did not really protect the environment either. At best, they just did a better job of delaying the onset of groundwater contamination, and their sheer size did so at the further expense of creating whole new risks in the form of catastrophic site failure.

On the other hand, to give the EPA its due, certainly one could agree that they achieved a major incremental advance in 1991-1993 by forcing a shift from open dumps to some level of engineered facilities in an era when there were, variously, 10,000 to 20,000 open dumps across America. Politically, they would be entitled to rebut, it may not have been possible at that time to do more.

However, even were that granted, this is the year 2003, twelve years after the Subtitle D rules were issued. No matter what the correct reading of the politics in 1988-1991, responsible officials would have informed decision-makers and stakeholders that the liner approach was only an intermediate strategy and that work needed to proceed with dispatch for a long term resolution.

site has been environmentally permitted and the local community has been accommodated with host fees.[68]

Incremental Capital Cost to Build Larger Landfills							
	Width (Feet)	Length (Feet)	Height (Feet)	Volume (Cu.Yds.)	Acres	Capital Cost (Total)	Capital Cost (per ton)
Small	600	1,200	100	888,889	16	$9,896,907	$1.73
Medium	1,200	2,400	200	7,111,111	66	$39,587,629	$0.87
Large	2,000	4,000	333	32,921,811	183	$109,965,636	$0.52

Source: Center for Competitive Waste Industry

TABLE 2

However, most tragic were the ultimate consequences of EPA's efforts to drastically trim regulations in an attempt to keep disposal costs low. For they may not have fully understood that *cost* is something very different from *price*. We can see this palpably from looking at how the leading national consolidator reacted at the first indications of market power.

In 1999, USA Waste merged with Waste Management, Inc., and simultaneously acquired the major regional waste company in the northeast, Eastern Environmental, which they believed gave them dominance in many of that region's markets. Just days after the U.S. Department of Justice approved the Eastern acquisition,[69] the new Waste Management announced "eye-popping spot market price hikes" averaging 89% on an unweighted basis.[70]

Although subsequent events later showed that they did not have the market power that they thought they did, and many of the increases were later rescinded, the episode is very important for regulators. It revealed that the true intent of the waste consolidators is not to protect the consumer by keeping landfill *costs* artificially low with rules that are

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68 The assumptions for the TABLE are: Sideslope: 4:1; Capital cost/acre: $600,000; Term: 15 years; and Cost of money: 8%. Capital costs include land acquisition, composite liner, final cover, leachate collection system, gas collection system, and associated share of monitoring wells, compactors and scale house.

69 U.S. Department of Justice, "Competitive Impact Statement," in re *U.S. v. Waste Management*, Civil No. 98-CV-7168 (February 2, 1999).

70 Bob Brown, "WMI Raises Tip Fees," *Waste News* (March 1, 1999). For a rare, inside view of the subterfuge used by the large consolidating waste firms to evade anti-trust review through the use of stalking horses that acquire smaller garbage companies at their secret behest, *see* new Waste Management's lawsuit against its own prior executives. Amended Complaint in re *Waste Management v. Louis Paolino* (Case No. 99-CV-930). The complaint can be found on-line at: http://competitivewaste.org/reports/CCWWasteCourt.PDF. *See, also*, for more on the Eastern Environmental merger, Peter Anderson, "Mergermania Approaches Endgame and the Eastern Merger Story," *Waste News* (September 6, 1999).

demonstrably inadequate. Rather, the intent seems more likely to have been crafted to reserve leeway to add monopoly premiums on top of a fair return without, in the process, pricing themselves out of the market to recycling or incinerators. To do that, they must have the cooperation of the regulatory community.

Thus, the other lesson from this history is that any attempt to temper landfill *costs* by improperly constraining necessary environmental regulations will eventually result in dramatically higher *prices* anyway. Consumers are likely to eventually wind up paying as much as or more than they would have with bonafide rules. But, instead of the price premium going to make a down payment on a safer environment for their children, it will have gone for a lavish lifestyle for the executives and supercharged capital gains for stockholders who bought into the pollution sector early.

...any attempt to temper landfill costs by improperly constraining necessary environmental regulations will eventually result in dramatically higher prices anyway

Waste Management, Inc., and the industry group who prepared a financial assurance report that is discussed later,[71] are asking regulators to deliberately ignore Subtitle D's known fallacy and to shift the cost responsibility due to inevitable liner failures in the future after the post-closure period ends from the landfill owners to the states.

Such cost shifting will reduce the present value of lifetime landfill costs away from the site's owner. It will also improve the quality of earnings reported by Wall Street analysts, who have become concerned about the financial uncertainty of the trash companies' exposure to prolonged post-closure periods.[72] But, some extensive naivete would seem to be required to expect that those savings will be reflected in lower prices to the consumer as the waste consolidators' market dominance over landfills grows. And, most certainly, even if, for the sake of argument, it were – which it will not – the long-term liabilities will later fall to the taxpayer and dwarf any short-term savings.

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71 *See* page 117.

72 UBS Warburg, Global Equity Research: *SFAS 143: Impact on Landfill Accounting* (August 26, 2002). Credit Suisse First Boston, *Greenline – Operating Trends Are Starting to Pick-Up* (November 26, 2002).

The Alternatives Considered Have Been Skewed

Similarly, also anathema to the national waste firms' business strategy was any regulatory structure that followed Europe's conclusion that rotting garbage cannot be managed in the ground. The European Commission shifted its fundamental approach from the discredited *design-based containment model* (liner-based landfills) to *operational restrictions* (banning organic material, along with hazardous waste, from land disposal that are the source of the insoluble problems). A strategy based upon banning organics from land disposal could divert that fraction of the waste stream away from ever arriving at the landfill. But organics constitute 60% of their present inflows.[73] Were they suddenly diverted under a ban, the supply of disposal airspace would dramatically overrun demand, and the monopoly value of landfill domination would effectively become worthless.[74]

Undoubtedly, that is why the waste industry's analysts have stated that –

""Recycling is a competitive threat to disposal, the primary business of publicly traded solid waste companies.... *[R]ecycling has long been the enemy of the solid waste industry, stealing volumes otherwise headed for landfills.* ...[L]ess recycling should lead to accelerating disposal volumes, which in turn should lead to pricing leverage for landfill operators. Primary beneficiaries of such a trend, in our view would be highly vertically integrated waste companies like Waste Management and Allied Waste..."[75]

"[R]ecycling has long been the enemy of the solid waste industry, stealing volumes otherwise headed for landfills." – Waste industry analysts

Understanding the Achilles heel of the coming garbage cartel raises disturbing inferences about EPA's myopia now that no one can any longer ignore the undeniable fact that its earlier entombment strategy was fatally flawed. Policy, law and best practices all would seem to impel the Agency to at least consider non-landfill solutions to the problem of managing organic and hazardous materials.

The Agency's own integrated waste hierarchy states that the preferential order of managing solid waste is reduce, reuse, recycle, compost, waste-to-energy, and only last

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73 U. S. Environmental Protection Agency, *Characterization of Municipal Solid Waste in the U.S.: 1999 Update*, TABLE 3.

74 Peter Anderson, "Endgame: Consolidation and Competition in the Solid Waste Industry," *MSW Management* (December 1999), on-line: http://www.competitivewaste.org/reports/CCWEndgamet.PDF.

75 Morgan Stanley Dean Witter, *Equity Research Briefing Note* (July 20, 1999), at p. 1; *Environmental Services: Solid-Waste Pricing Debate Intensifies* (March 2, 1998), at p. 1; *Equity Research Briefing Note*, January 21, 1999), at p. 1 (emphasis added)

landfilling.[76] This would suggest that priority would now be given to correcting the flaw in its Subtitle D rules by source separating the troublesome organic fraction from the trash that cannot be recycled by first composting, and second energy conversion technologies (CTs). Last might be pretreatment to stabilize a mixed waste stream before the stabilized residual is deposited in the ground.

Similarly, whatever outcome is ultimately selected, the National Environmental Policy Act (NEPA) compels agencies to at least give full consideration to a full spectrum of alternatives when taking major action significantly affecting the environment.[77]

Moreover, the fact that Europe did complete a comprehensive investigation, concluded that organics cannot be safely managed in the ground, and ordered 65% reductions in of land disposal organic materials by 2015, gives further weight behind the operational alternative of banning organics from land disposal.[78]

However, contrary to its own policies, its statutory mandate, and what is being done in much the rest of the developed world, EPA ignored the expanded composting-conversion technology-pretreatment options because of a preoccupation with a very different landfill-based approach.

In the late 1990s as these problems with EPA's Subtitle D rules became inescapable, Waste Management, Inc., proposed to the Agency its alternative approach for resolving the long term threats of dry tomb landfills. As the next generation landfill, it argued for a wet-cell design, known as "bioreactors." In a bioreactor, instead of attempting to keep the landfill dry by blocking rainfall out, massive amounts of liquids are deliberately added in an attempt to accelerate decomposition and better stabilize the site before it is closed, in theory, reducing those long term concerns.[79]

The unique problems that bioreactors raise are several, but are before the Board's Permit and Enforcement Committee in another proceeding and are beyond the focus of this docket. Suffice it to say briefly that, among many other things, the concept of essentially liquefying landfills, which are typically manmade mountains 200-300 or more feet high and contained by little more than a two-foot berm and plastic tarp, has raised

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76 U.S. Environmental Protection Agency, *Agenda for Action* (1995).

77 42 U.S.C. §§4321 *et seq.*

78 European Community, COUNCIL DIRECTIVE 1993/31EC (April 26, 1999), at Art. 5, ¶1 and ¶2.

79 Waste Management, *The Bioreactor Landfill: The Next Generation of Landfill Management* (Monograph, Undated). *See, also*, Debra Reinhart, et al., *Landfill Bioreactor Design and Operation* (Lewis Publishers, 1998), at p. 3.

major concerns, especially in view of the major side wall failures that have occurred during testing.[80]

Regulators in many states and within EPA are worried about site stability and catastrophic sidewall failure inasmuch as this has already occurred on several occasions during tests. Further added to this disturbing mix is the fact that, EPA appears to be accepting Waste Management's insistence that the rules should be compromised in a transparent ploy to keep costs below its competition from diversion and conversion.[81]

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80 V. L. Wilson, et. al., "Avoiding the Slippery Slope," *Waste Age* (Feb 2001), at p. 43. Letter from Montgomery Watson to WI DNR, dated Sept. 22, 2000, re Metro Landfill in Franklin, WI. The National Recycling Coalition has submitted a comprehensive compendium of major bioreactor problems in a letter to EPA dated February 1, 2002, in *Re Project XL Site-Specific Rulemaking for Implementing Waste Treatment Systems at Two Virginia Landfills*, Docket No. F-2001-WVLP-FFFFF – RIN 2090-AA30.

81 For examples of industry statements that demonstrate the intent to specify design elements so that costs would not be increased, *see, e.g.*, William Fisher, "Down in the Dumps: Where Do We Go From Here?: Waste Management Overview," *Raymond James Equity Research* (April 17, 2000): "[T]he area of leachate recirculation and related bioreactor landfills represents a technology-based initiative that is getting dramatically increased attention within the landfill industry and holds enormous potential to improve landfill profits, with limited incremental investments." *See, also*, Prentis Shaw, "Bioreactor Landfills: But Does It Save Money," *Waste Age* (July 2000), at 16. "Proponents add that the cost of the basic piping and pumps for recirculating leachate and accelerated gas extraction will be offset by recirculating instead of treating leachate and by recovering 50% of the airspace through higher final densities so that "bioreactors landfills save money in the long-term."

For a specific example, *see,* Gary Hater, *Economics of Eight Scenarios for Landfill Bioreactors as Compared to a Base Case Subtitle D Landfill* (WASTETECH 2001) (Feb. 13, 2001), at p. 10. This study by Waste Management's bioreactor expert analyzes the effect of further limitations on the steepness of the side slope of the landfill, which is one of the critical safety factors used to stabilize these manmade mountains, that independent regulators might impose on bioreactors. EPA rules for dry tomb landfills restrict side slopes to a ratio of 3:1 (horizontal to vertical). However, several states have found from observation that 3:1 is too steep to reliably stabilize, and instead require a 4:1 side slope at dry tomb landfills in which, for the short to mid term, the waste mass is in fact very dry and stable. Most objective observers would conclude that when a landfill's site stability will be significantly compromised by doubling and tripling liquid additions, the very first thing that would at least be evaluated is the need to decrease the steepness of the side slope to 4:1. After all, there is already a major body of professional engineering opinion that 4:1 slope limitations are even required in dry tomb landfills. Yet formal requests to EPA to add 4:1 side slopes to the research agenda have been rejected. Mr. Hater's study suggests the reason:

> "[T]hese are some of the benefits and risks [of bioreactors] that have been intentionally excluded ... Change in slope construction from 3:1 to as much as 4:1 and the resulting loss of airspace."

This carefully couched language suggests that the imposition of a 4:1 side slope would doom bioreactor economics, which it would. Shallower sidewalls mean less volume of waste overlying the same footprint. The difference equates to a 25% loss in the overlying air space and an increase in the per ton charge in about the same proportion, which is greater than the net 20% volumetric gain from accelerating decomposition. Because the shallower sidewall ratio needed to lessen the chance of catastrophic collapse causes volume losses that make the design uneconomic, the safety measure has been excluded from consideration.

(continued...)

The only thing that need be taken note of here is the fact that EPA chose to ignore its integrated waste policy, violate the environmental impact statement (EIS) law and ignore the actions of other leaders in the developed world by focusing all of its energies on advancing bioreactors without any consideration of the constructive non-landfill alternatives. Apart from whatever the ultimate resolution should be, EPA improperly refuses to even consider the environmental alternatives. Most would expect that ought to be uppermost in the mind of an agency that is predominately operating under technical, not political, criteria.

Three years after it was sent, EPA continues to refuse to even respond to a detailed letter from the legal counsel for the National Recycling Coalition formally requesting an environmental impact statement and alternative's analysis.[82] One does not need to know the answer as to whether, ultimately, bioreactors are a good or a bad idea. Bioreactors on-the-cheap raise such serious concerns of their own that major alternatives with higher priority ought to at least be given consideration when the Board comes to find a solution to the problem that is practical and will work through its investigation of post-closure care.

The Real Issue

No matter what the political influences have been in the past that overrode the technical facts, state regulators now need to part ways with the actions in Washington, which create the impression that political considerations dominate the decisions. While EPA will not itself be financially responsible for the costs its inappropriate actions are expected to engneder, the states will, along with municipalities and some of the largest corporations with the deepest pockets that used the landfill.[83] The critical juncture in time has arrived when what was once a long term problem off over the horizon is beginning to come around the bend into view.

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81 (...continued)
Moreover, prior to the advent of bioreactors, landfills with high moisture content, in this case due to the presence of paper mill sludges, have been required to reduce side slopes to not just 4:1, but 6:1. §NR504.09(2)(h), Wis. Admin. Code. Needless to say, not only is no investigation being given to 4:1, but also not to 6:1 side slopes because of the cost implications.

82 Letter dated October 4, 2000, from Clifford Case to EPA, in its Bioreactor Proceeding, Docket No. F-2000-ALPA-FFFFF.

83 Many of America's largest companies may have thought they had evaded Superfund's joint-and-severally legal thicket by moving their industrial hazardous wastes to their own controlled sites and only tangentially using MSW landfills for non-process wastes. But, so far they have failed to recognize that, even though they themselves are no longer landfilling hazardous wastes at MSW sites, small generators and households are, and eventually, that will result in the states having to run costly clean up projects when the barrier systems ultimately fail. With limited budgets, states will be under enormous financial pressures to litigate with any other potentially responsible parties with deep pockets.

One by one, landfills will be orphaned to the States. As the cover layers protecting these orphaned landfills begin to deteriorate, major environmental incursions can be expected to occur in non-arid regions. That will cause the sites to fail, after which those that threat aquifers will presumably be added to the Superfund queue, just as had negligently been apportioned with the thousands of open dumps shuttered by the Subtitle D rules.[84]

The price tag for remediation can be in the tens of millions of dollars just for palliative care at each failing landfill, and hundreds of millions to excavate and stabilize urban sites that are not in abandoned mines, tens of billions in aggregate for California,[85] and the bill will be laid at the feet of California, not EPA, whose Superfund chest is empty, leaving the cost to the taxpayers, not the polluters.[86]

Today's system of financial assurance is broken and cannot be salvaged by tinkering around the margins with slightly longer post-closure care periods, by hoping that later case-by-case reviews will resolve things, or by enhancing segregation of assurance funds.

Thus, the correct question has little to do with the past manner this debate has been framed, which has focused on maximizing the flexibility for the landfill owners to both reduce their costs and optimize their opportunity to shift the inevitable costs to the state. Instead, now that the problem looms immediately in view, the Board should look to new mechanisms that will first innoculate the state from the impending costs of failing landfills, and then restructure the going-forward operating requirements for MSW landfills to insure that this predicament is not repeated in the future.

Today's system of financial assurance is broken and cannot be salvaged by tinkering around the margins

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84 40 C.F.R. §258.1(d). The open dumps prohibited by section 4005 of RCRA, variously estimated to be 10,000 to 20,000 in number, were only required to install a final cover over the site. No maintenance was required of the cover, nor, saliently, was any monitoring mandated. Whatever the actual motivation, the effect was only to briefly delay the consequences for leaving unaddressed thousands of garbage pits known to be a threat to health and the environment for others when these sites wind their way onto the Superfund queue after damage to drinking water supplies has already occurred, the public has been harmed and the cost to remediate the situation will be prohibitively costly.

85 *See* page 41.

86 Government Accounting Office, *Superfund Program: Current Status and Future Fiscal Challenges* (GAO-03-850, September 2, 2003), at p. 3: "The balance of the Superfund trust fund available for future appropriations has decreased significantly since 1996, while additional hazardous waste sites continue to be placed on the NPL. The Superfund trust fund revenues from taxes, cost recoveries, interest, fines, and penalties have decreased from more than $2 billion in fiscal year 1995, the year the taxing authority expired, to less than $370 million in fiscal year 2002 when presented in constant 2002 dollars." See, also, Office of the Inspector General, *Congressional Request on Funding Needs for Non-Federal Superfund Sites* (Report 2004-P-00001, January 7, 2004, at p. 4.

States and municipalities that wish to protect themselves from major financial liabilities, instead of bailing out one small industry at the expense of all the others, need to split themselves off from Washington's long years of regulatory abdication and march to their own drummer. ☞

Chapter 2

Inadequacies of the Current Rules

Current assurance rules only cover costs to mow the lawn – with almost nothing for corrective action – and also permit mechanisms that provide neither cash nor third party guarantees

This chapter asks whether California's existing post-closure rules effectively protect the State from the costs of failing landfills. That question begins with an evaluation with how well the current code is written. After reviewing the Board's current rules for providing assurance that long-term post-closure care will be undertaken, the cost items that are missing from the assurance list are discussed, as well as the fatal deficiencies in the mechanisms to provide assurance themselves. This is followed by a proposal to fill in the gaping holes in the Integrated Waste Management Board's rules.

No doubt the themes that follow will be startling for those who have come to believe that there is a functioning mechanism to protect against landfill's long-term liabilities. But, just as is shown below, in 1990, before EPA had even finalized its assurance rules on which California's are based, the Government Accountability Office (GAO) had exposed the major limitations of EPA's parallel rules for hazardous waste sites, which had been adopted earlier:

"Owners/operators are liable for any postclosure costs that may occur. However, few funding assurances exist for postclosure liabilities. EPA only requires funding assurances for maintenance and monitoring costs for 30 years after closure and corrective action costs once a problem is identified. No financial assurances exist for potential but unknown corrective action, off-site damages, or other liabilities that may occur after the established postclosure period."[1]

Unfortunately, neither criticism by the GAO nor its Inspector General have had any apparent effect on EPA to reform its procedures.

California's Current Post-Closure Care and Assurance Rules

California's fabric of regulations for protecting the environment after landfills end their operating lives is erected on a three-legged stool requiring landfill owners to do the following:

- *Closure.* Properly close the site at the end of its operating life, including a final cover to minimize infiltration of rainfall;[2]

- *Post-Closure Care.* Maintain and monitor the site after closure, albeit to a lesser degree than during operation, for at least 30 years following the time it closed (and possibly longer);[3] and

- *Financial Assurance.* Use one of eight mechanisms that appear to, but often do not actually, provide financial assurance that there will be the necessary funds for some, but not all, maintenance for the first 30 years after closure, so the State can complete these tasks in the event the owner fails to do so.[4]

As compared with other states, the three chapters in the California code through which post-closure care and financial assurance weaves are very detailed, showing the greater attention the Board's staff has devoted to the issue.[5] Certainly, they are robust in comparison to many other states and to the legislative anticipation at the time of

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1 Government Accounting Office, *Hazardous Waste Funding of Postclosure Liabilities Remains Uncertain*, (GAO/RCED-90-64, 1992.

2 27 C.C.R. §§21769 - 21820.

3 27 C.C.R. §§21769 - 21780 and §§21825 -21890.

4 27 C.C.R. §§22200 - 22222.

5 27 C.C.R. CHAPS. 3, 4 and 6, at §§20950 - 22254.

enactment, when long-term problems were seen as too distant and far off in the future to register in the political calculus.

Then, the focus was more on providing landfill owners with flexibility, which translates into enabling them to transfer liability to the public. But, that necessarily implies shortchanging essential protections needed to insure that the State does not wind up responsible for cleaning up hundreds of leaking landfills.[6]

Now, as the leading edge of a massive landfill bailout begins to converge with the State's unprecedented fiscal meltdown, California simply cannot afford a failure of the regulatory process that leaves tens of billions of dollars of costs on the taxpayer.

To help frame the following analysis, TABLE 3 lists the five discrete types of costs that can be created by a landfill following closure, which financial assurances are intended to address. They are described in more detail in the following section.

Types of Post-Closure Landfill Costs
(filled in boxes indicate when occurs, checks indicate if presently covered in CA, "x"'s indicate if not presently covered)

Types of Costs	When-	
	Post-Closure	After 30 Year Post-Closure
Minor maintenance costs	✔	
Major maintenance costs	✗	
Corrective action to remediate known pollution	✔	✔
Corrective action to remediate foreseeable pollution	✔	✔
Third-party claims for bodily injury and property damage	✗	✗

NOTE: California statutes permit coverage of reasonably foreseeable corrective actions that are not known, but that authority has not yet been seriously exercised. California rules go beyond EPA minimum standards and require third party insurance during landfill operation, but not afterwards.

TABLE 3

The Costs Not Covered by the Rule

When viewed in relation to the full spectrum of probable post-closure liabilities, California's post-closure assurance rules protect the State from only a very small part of the total financial exposure that failing landfills pose. Before turning to the adequacy of

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6 P.R.C. §§43500 to 43510.

assurances for the items that are covered, here is a list of the major items that are not even included in financial assurance at all:

Understatement of Included Costs for Post-Closure Care

With the states hard pressed to seriously audit self-determined estimates by landfill owners with a self-interest in under reporting, significant costs can be expected to be omitted or grossly underestimated. Region IV of EPA found that 89 of 100 facilities submitting landfill cost estimates in their review underestimated closure costs and thus posted inadequate levels of assurance. The total amount of the underestimates was $450 million for those 89 sites,[7] and the EPA Inspector General found from its review that this is a matter of significant concern.[8]

Expensive Maintenance for Post-Closure Care

The definition of maintenance is limited to routine, minor items, such as lawn mowing, leachate treatment and occasional monitoring.[9] It excludes major, non-routine maintenance expenses that almost certainly can be expected before the end of 10-20 years of operation and 30 or more years of post-closure care. Examples are the need to replace the key final cover as it degrades that may happen every 20 or 30 years and cost approximately $20 - $40 million to replace at major landfills each time.[10] Another is to repair the mission-critical leachate collection lines and associated drainage systems that will likely become clogged and, at large landfills, can cost millions of dollars to fix *per line* when the clean out head is no longer able to clear the pipe. Although there has been very little discussion about the need to protect the states from the distinct possibility of higher maintenance costs than currently booked for public assurance, internally, the landfill industry is moving to protect themselves from these future costs.[11]

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7 Inspector General, *supra,* at p. 46.

8 Inspector General, *supra*, at p. 45.

9 27 C.C.R. §21840(c).

10 Final cover installation costs approximately $120,000 per acre and the footprint for large landfills occupies hundreds of acres. Depending upon how much clay might be recovered during replacement, the costs might be reduced somewhat. A figure of $100,000/acre would appear to be a fair composite cost. While the entire cover is not necessarily degraded by the time the warrantee expires, for example, it will be difficult to identify which parts have because the cover is overlain by dirt and vegetation. Even those sections of the cover which have not yet failed, can be expected to deteriorate soon afterwards, and that will tend to make it uneconomic to patch the known trouble spots.

11 Richard Peluso and Rodney Taylor, "How to Own a Landfill (and Sleep at Night)," *Waste Age* (November 2003), at p. 43.

Corrective Action

No protection is provided as a companion to the assurances for post-closure care to cover the major costs for corrective action during that period (or, for that matter, during operation). This includes actions to eliminate groundwater contamination from leaking landfills and to restore the site to a condition where it no longer poses a discernable threat to the environment (unless they are already known or, in the case of California, are reasonably foreseeable).[12]

Some have been aware of this fact that the major post-closure costs to address a major site failure, such as those dealt with under Superfund, have not been generally included in assurance programs.[13] But, few have appreciated the far greater issue that Superfund's efforts only touch the surface of what will have to be done to remediate failing landfills in the future.

There is no reliable data base of Superfund costs, but, what data there is suggests that it has spent about $25 million on landfills on the National Priority List. Note, however, that Superfund's experience provides a grossly inadequate basis for estimating these costs because most of its efforts have not really remediated the sites, as most people understand the term.

EPA adopted generic guidance that remediation of MSW landfills is only required to include the bare minimum of short term expedients, which it characterizes as "containment," having rejected true treatment as "impractical."

In 1991, EPA adopted generic guidance for what remediation should consist of at Superfund landfill sites. Essentially, the guidance states that remediation of MSW landfills is only required to include the bare minimum of short term expedients, which it characterizes as "containment," having rejected true treatment as "impractical."[14]

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12 27 C.C.R. §§22220 - 22222.

13 Although California's rules go beyond known to reasonably foreseeable corrective action, as shown later, the actual amounts posted are wholly inadequate for serious remedies to a failing site.

14 U.S.E.P.A., *Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites* (EPA/540/P-91/001, February 1991) (emphasis added). The report attempts to qualify its general authorization for containment-only in certain instances:

> "The NCP also contains an expectation that treatment should be considered for identifiable areas of highly toxic and/or mobile material (hot spots) that pos potential principal threats. Treatment of hot spots within a landfill will therefore be considered and evaluated."

However, the guidance also states that it is not necessary to characterize the waste body, and, therefore, the very instrument that might discern that sort of localized high risk situation before it becomes acute is

(continued...)

In application, this containment approach consists largely of capping and fencing, and sometimes relief wells, slurry walls and bottled water. These limited measures are only designed to slow down for the short-term the rate of biological activity, which is what generates and transports the releases of toxic leachate, hazardous air pollutants and greenhouse gases into the environment, and temporarily deflect some of the worst uncontrolled releases.

But, containment does not restore the site to a state where it no longer poses a threat to human health or the environment, absent the continued intervention of active and passive barriers and collection systems that will have to be continuously monitored and maintained for the centuries long time span that the releases are capable of occurring.[15] Today, we still can observe leachate being produced in landfills dating back to the Roman Empire.[16]

When the containment efforts themselves fail, as they inevitably will in the absence of institutional structures, nonetheless funding for perpetual care, the only defense for containment is the claim that the pollutants that are released into the environment will be attenuated from dilution, degradation and, underground, adsorption.

However, attenuation does not pertain to the global impacts of climate change from methane and does not protect people who live in proximity to the site from the uncontrolled emissions of hazardous air pollutants and from contaminated drinking water, unless it is sourced from a different aquifer.

Essentially, EPA's only substantive justification for authorizing minimal actions to address failed MSW landfills is the unsupported claim that they are "to a lesser extent hazardous" than licensed hazardous waste sites, and therefore only pose a "low-level threat rather than a principle threat." Its further defense is that remediation is "impractical" because of its enormous cost is only relevant if the affected public will not demand it.

But, that reliance does not hold up on examination. The constituents of MSW landfills can be a serious concern, and the catastrophic failure modes that EPA did not consider are so direct and significant the affected public is not likely to accept the use of palliative efforts.

MSW Landfill Constituents are a Serious Concern. The leachate characteristics at MSW facilities, while less in concentration, are not entirely dissimilar to

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14 (...continued)
deliberately not applied.

15 *See* NOTE 23 on page 11.

16 Allan Freeze and John Cherry, *Groundwater* (Prentice-Hall, 1979), at p. 437.

licensed hazardous waste sites. At the future time when the problems occur, their remediation will not be significantly less necessary.

First, many of the major engineered licensed landfills are not exclusively municipal waste facilities. Actually, they are often linked at the hip with old, pre-Subtitle D co-disposal sites that accepted hazardous industrial along with municipal wastes. In many cases there simply is no "bright line" between so-called modern and sanitary municipal landfills and old, discredited and leaking industrial dumps.

This often happened as an outgrowth of the waste industry's efforts to gain market power with the "hub and spoke" strategy of combining hauling with disposal assets in each geographic market. To do that, when the consolidators entered each new market, they sought to quickly purchase an existing landfill that could be more quickly re-licensed as an MSW facility than pursue environmentally qualifying a new site that could be bogged down in hearings for years.

Second, the definitions in Subtitle D rules refers to "municipal" and "sanitary" wastes, but any inference that the garbage is benign would be inaccurate. In fact, because of the small generator and household waste exemptions – and also possibly including some of the large number of variances for industrial process wastes and low-level radioactive waste – many currently recognized toxic substances continue to be a part of municipal waste discarded in Subtitle D landfills.[17]

Indeed, the actual field data examined by the EPA in 1991 as part of its Subtitle D rule process actually did "not reveal significant differences in the number of toxic constituents and their concentrations in the leachate" between sanitary and hazardous waste streams.[18] While more recent measurements suggest that today there may be somewhat different concentrations, and for some constituents, lesser concentrations, in 1991 when the Agency provided its presumptive remedy guidance, it did so in the face of its own data that concluded toxic constituents of municipal waste were not in fact less than legally defined hazardous waste.

Third, many new chemicals that wind up in the municipal waste stream, such as bromated fire retardants, which are not currently listed as hazardous today, appear

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17 40 C.F.R. §§261.4 - 261.5.

18 56 FED. REG. 196, at pp. 50982-50984 (October 9, 1991).

destined to be enumerated in the future, even though they are of the same class as many recognized toxics today.[19] Perchlorate is another.[20]

Fourth, entirely new categories of chemical compounds, which are not presently recognized as legally hazardous, appear to be a threat to human health, such as health and pharmaceutical and personal care products (PPCP) that are not regulated for disposal. These do not currently meet the tests for "priority pollutants" as being "persistent, bioaccumulative, toxic (PBT) or "persistent organic pollutants" (POP), but that distinction is based upon an arbitrary categorization.[21] In general, over time standards tend to become stricter, bringing more compounds within our recognition as being dangerous to our health.

Fifth, the present leachate measurements used to correlate with estimates of latent hazardous waste constituents in the landfills probably do not significantly capture the all of the toxic loadings presently entrained in the casings and screens of durables like computers and television screens and in some packaging. Ultimately, however, the little research which there is suggests the significant possibility that these hazardous compounds and heavy metals will leach, or the integrity of those casings will physically deteriorate, and the additives and metals will be able to migrate into the environment under the right conditions.[22] By definition, current leachate measurements fail to provide any reliable estimate of those types of hazardous effluents in the future, even though they would seem to be a significant feature in the future.

Sixth, this list shows that the issue of how much less toxics there are in municipal versus licensed hazardous waste landfills winds up being a question of *degree* and not *kind*. That in turn, bears significantly on whether it will be politically possible to keep

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19 Kellyn Betts, "Deca in the atmosphere," *Environmental Science & Technology* (Feb. 2004). Marla Cone, "Cause for Alarm Over Chemicals: Levels of common fire retardants in humans are rising rapidly, especially in the U.S.; Animal tests show effects on the brain," *Los Angeles Times* (Apr. 20, 2003).

20 T. A. McDonald, "The Risk Posed by the PBDEs, A Class of Flame Retardants," In: 6th Bienniel State of the Estuary Conference, "The San Francisco Bay-Delta Estuary: Changes and Challenges," San Francisco Estuary Project, Oakland, CA (2003). OEHHA, "OEHHA Announces Health Goal for Perchlorate in Drinking Water," Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, Sacramento, CA (2004).
On-line at:http://www.oehha.ca.gov/public_info/press/perchloratepress.html.

21 C. G. Daughton, "Pharmaceuticals and Personal Care Products (PPCPs) as Environmental Pollutants: Pollution from Personal Actions," Presentation at California Bay-Delta Authority Contaminant Stressors Workshop, US Environmental Protection Agency, Las Vegas, NV (2004).

22 Timothy Townsend, *Characterization of Lead Leachability from Cathode Ray Tubes Using the Toxicity Characteristic Leaching Procedure* (Florida Center for Solid and Hazardous Waste Management, December 1999).

putting temporary band-aids over the problem, instead of permanently resolving the problem.

Whether, on the one hand, the pollutant is just salt that makes the water taste bad along with a little benzene that might cause cancer in a few, or, on the other hand, significant benzene levels that conclusively will cause cancer in many, remedial efforts will be demanded in populated areas.

Moreover, if history is any guide, when these problems are most likely to arise, the future generations at that time will probably be more intolerant of contaminated water supplies than those today. While the health impacts from a failure to act to prevent groundwater contamination may be worse for a licensed hazardous waste landfill than for a municipal landfill, in the future either is likely to elicit a public response that demands resolution, which, as EPA notes, will not be demonstrably different from hazardous waste repairs. Thus, the costs of addressing the problem cannot reasonably be assumed substantially less for a MSW landfill than at a legally defined hazardous waste landfill.

Catastrophic Failure Modes Ignored. EPA's contemplation of what is necessary to respond to a failing landfill focus on a belief that the releases will not be significant and addressable with minor repairs.

The Agency's presumptive remedy guidance does not appear to consider catastrophic site failure, which could, like the impending failure of a large dam above a nearby town, peremptorily demand sizable repairs rather than be amenable to patch ups. Yet, major site failures appear to be an credible outcome for many landfills because critical components of the landfills' safety features necessary to keep the wastes isolated will not be maintained for the period of time required, while the sheer mass of the waste sites have increased logarithmically.

Key to understanding why this is the case the role that is supposed to be played by another critical component of today's engineered landfills, which is less well known than the liners, and that is the leachate collection system (LCS). As has been discussed, by rule the operation of the LCS, as well as cap maintenance and replacement, is scheduled to end 30 years after closure, assuming that these items remain effective even that long.[23] The critical importance of the final covers' integrity to long term site performance is sometimes recognized, but, less often is the LCS.

Sealing the bottom is a good thing to do in the sense that it may help reduce the chance of leachate seeping directly into the underlying groundwater. But, when the cap on top ultimately degrades, the whole idea of using barriers to isolate the waste load falters unless there is an additional system to remove the leachate that drains to the bottom,

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[23] 27 C.C.R. §21900. There also are very small amounts denominated for those acknowledged foreseeable corrective actions. See p. 91

which otherwise will accumulate and threaten the integrity of the liner and the stability of the site. That is the purpose of the LCS's perforated pipes arrayed across the liner, and it is mission critical to landfill safety.

Although the Board nominally retains the power to extend maintenance for these two key components, there will probably be no assurance funds available for that purpose after the end of post-closure care, making any hypothesized extension of care after 30 years a Pyrrhic accomplishment. Also, under current requirements, even if there were funds still on hand, they would just be sufficient for lawn mowing, leachate treatment and sampling. There never are any funds under the current rules to replace final covers or repair clogged collection lines even during those 30 years of care, nonetheless thereafter.[24] Moreover, with the new generation of landfills today, which are several hundred feet high, the liner and collection system are under so many tens of millions of tons of garbage, that, as a practical matter, they have become inaccessible and unrepairable notwithstanding any conceivable amount of money that could be mustered for the purpose.

In any event, there is not likely to be way to circumvent the absence of any assurance funds by compelling the original owners to perform the task of cap maintenance, nonetheless for massively expensive repairs at the bottom of the landfill, all for a site which has not produced any revenue for a generation. That is not even realistic for a company which, somehow, has remained in business, and obviously impossible for the majority that are no longer in existence.

Even if the Board, or more likely its successor agency, were to be have oversight over maintenance for hundreds of closed sites and were aware of the need for repairing failing caps, the costs would be in excess of $100,000 per acre, or billions of dollars for all the state's landfills.[25] Without assurance funds set aside for this purpose, there is no reasonable basis to assume that it will happen, even if the prerequisite institutional memory existed to do so.

Therefore, as EPA's technical staff has repeatedly stated, the cap will "eventually fail."[26] When it does, as incursions of rainfall, runoff or snow melt in non-arid sites increase through cracks and tears in the cap, localized decomposition and settlement may be expected to cause cascading failures. In some places, water will pond in the resulting dips and degrade the underlying liner components, and in others the plastic sheet will rip and the clay, crack.

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24 *See* page 39.

25 For a more detailed discussion, *see* page 128.

26 See note 21.

With the leachate collection systems out of operation, perched water tables and hydraulic head buildup on the bottom liner inside the landfill will become inevitable, unless the liner has deteriorated to the point where the leachate leaks into the aquifer more quickly than moisture intrudes from above, a highly undesirable outcome of its own.

If not, and leachate accumulates, there does not appear to be any reasonable probability that the leachate collection systems could be reactivated to remove it. Keeping these systems functioning is a challenge while they are being actively maintained and annually cleaned out. After years of stagnant drainage and disuse, the lines and drainage beds will more likely have become clogged and no longer operable were an attempt made to restart them.

From that point, unfortunately, engineering protocols do not exist to predict how the failure mechanisms will unravel, because precious little attention has been given to this overriding problem in the future. In addition, the fact that EPA has embraced the industry's push to mega-fills to 100 times their former size exacerbates all these concerns to a very significant degree, because there is no long term historical experience with such large sites to validate the engineering equations. Factor of safety analyses rely on too many assumptions, many of which are not known, to be useful for predictive purposes for any landfill, nonetheless of a mega-sized landfill, to analyze the geophysical performance of a stressed heterogeneous waste mass.

For all of these reasons, there is no way to anticipate precisely what will happen after liquids re-enter the site.

The industry hopes that the manner in which the failures will evince themselves will be minor and manageable. This is largely grounded in the fact that, although most of today's landfills are manmade mountains above grade, the base is typically dug about 30-50 feet into the ground. One could initially contemplate that the dug in side walls will keep the site stabilized so long as the hydraulic buildup does not exceed that height, and when it does,
the damage will there a "bathtub effect," as EPA has sometimes referred to it as, in which leachate spills over the sides. Presumably, were this to happen, whoever is responsible for the landfill, which as years go by would inevitably be the state, would seek to minimize their costs by drilling relief wells and constructing slurry walls to temporarily stem the overflows.

Whether that least cost approach would satisfy the technical and political needs at the time in the event that is all that happens, is not known. In any event, EPA's vision of the worst case event would actually be the least of the complications that may be anticipated. The full effects would entail dramatically greater costs, because there not be any early warning bathtub effect with leachate spilling out the toe where the sides of the landfill ties into the base, and the impacts could be so much greater than side seeps.

Among the complications are the possibility of a major landslide in which a significant part of the landfill mass becomes detached or slides off its base. For, not only is it very unlikely that infiltrating liquids will be drained out by the LCS, but also, especially in mega-sized landfills, the infiltrating liquids may remain largely perched above the below-grade base. For not only do the landfill operators use repeated passes with compactors, which weigh more than 100,000 pounds, to bring average densities greater than 1,600 pounds per cubic yard (and more than 2,200 lbs./cu.yd. at the lower depths), but also, the overlying and overpacked waste burdens hundreds of feet high are likely to compress the bottom levels to near impermeable conditions through time through settlement.[27] Furthermore, far above grade in the waste mass will be intervening layers of heterogeneous, low permeable material that will create either mounded leachate pools or perched water tables, likely to move laterally to the sides.

The more liquids are present throughout the waste mass, and especially so above grade, the lower the friction that keeps pieces of wastes next to each other from sliding by each other. That is the key condition that can reduce the shear strength, which is needed to counterbalance those forces, and threaten landfill stability.

In addition to decreases in the shear resistence, perched water tables above the bottom level will create expanding pockets of gas generation. When that happens near the exterior side walls, this phenomenon has been observed to physically lift and punch out the membrane on top, destabilizing the side walls. Presumably, other presently little understand phenomenon will occur as well.

With tens and sometimes hundreds of millions of tons of garbage held back in manmade mountains as much as 1,000 feet high by little more than a few feet of a compacted dirt berm and plastic tarp on the side walls, the consequences can pose an extreme threat to human life, as well as to environmental resources.

For these reasons, the possibility of catastrophic site failure exists along with the bathtub effect. When the possibility of major sideslope failures looms over bathtub effects at a megafill, and the site is located near developed areas, the physical threats become so substantial that palliative efforts such as cap repairs and relief wells would not seem likely to be publicly acceptable.

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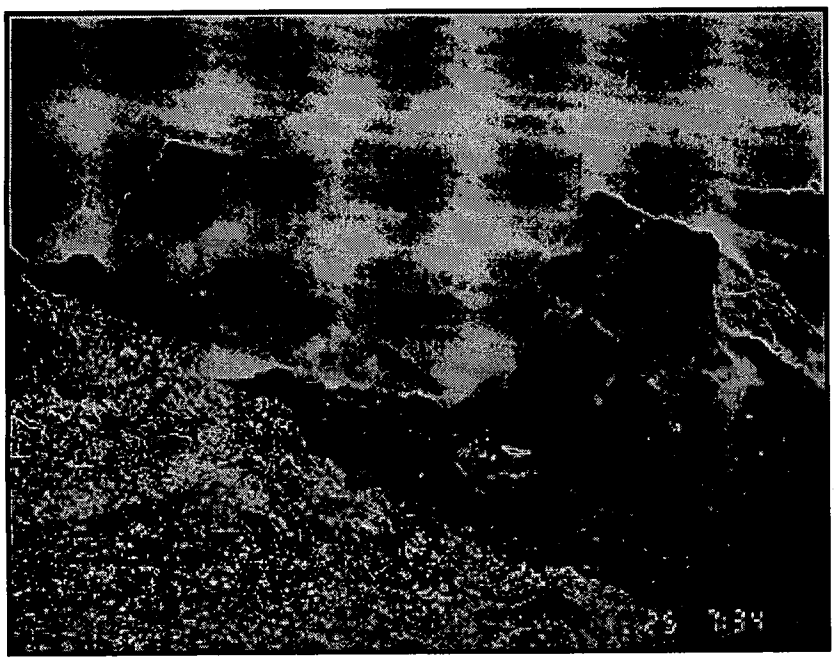
27 David Bleiker, Grahame Farquhar and Edward McBean, Landfill Settlement and the Impact on Site Capacity and Refuse Hydraulic Conductivity, *"Waste Management and Research* (1995), at p. 533. Richard Sprague, "Is Piling It Higher and Deeper the Only Answer," *MSW Management* (September/October 2001), at p. 51.

This is not an academic concern. Major landfill collapses are far more common than is publicly understood, but only because those that occurred to date have either been on the enclosed interior working areas of the site, or in uninhabited areas. But, that good fortune is only a matter of luck, not due to some sort of safety feature in today's landfill designs.



Rumpke landfill near Cincinnati collapses causing fire
Photo by Cheryl Allen

The most notorious example of a catastrophic landfill collapse in the U.S. occurred without warning in 1996 at the Rumpke landfill near Cincinnati. The photo along side shows the sheered face of the interior side wall that, without warning, catastrophically collapsed and burst into flames in March of that year.[28]

In the Rumpke case, the particular collapse occurred on one of the interior walls of the landfill. But, there is no reason to believe a future collapse will not occur on the exterior side wall, affecting whatever development surrounds the site.

The dimensions of these types of threats to tomorrow's subdivisions and malls that will surround today's landfills needs to be described to be fully grasped, as was recounted in *Waste News* –

> "Jim King remembers running, fast, as 20 acres of landfill collapsed behind him. Larry Stone, despite years of service as a police officer and firefighter, is unashamed to say the destruction overwhelmed even him.
>
> "And Dan Flannery figured he was the best equipped in the firm to help fix the problem – so he did just that.

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28 B. O. Schmucker, "Forensic Analysis of the 9 March 1996 Landslide at the Rumpke Sanitary Landfill," Proceedings 12th Annual Geosynthetic Research Institute Conference (1998), at p. 75. While the Rumpke failure involved an interior collapse and was not, itself, due to long term problems, but improper practices in expanding a cell, the episode is relevant to the consequences of any number of types of events in closed landfills that can lead to the same result, such as a failing cover and clogged or inoperable leachate collection lines, that undermine site stability.

"March 9, 1996, was a watershed date in the history of the Rumpke Sanitary landfill, 12 miles northwest of Cincinnati in Colerain Township.

"That's the day a massive portion of the landfill – known to locals as Mount Rumpke – collapsed as employees literally ran for their lives.

"The collapse, which lasted only a minute or so, has taken more than a year and a half to fix and has cost Rumpke Inc. millions in destroyed equipment, lost disposal capacity and repair costs.

"'That brought me to my knees. I can't explain the energy that I felt when I saw the 992s crumpled up,' said Stone, general manager for Rumpke's Ohio operations. The 992s are massive front-end loaders with tires taller than the men who drive them.

"Two of the huge machines were near the bottom of the hill, and the force of the slide catapulted one on top of the other.

"That brought me to my knees. I can't explain the energy that I felt when I saw the 992s [compactors] crumpled up" – Rumpke general

"'When I got there, it was a tad overwhelming,' said Stone, the former cop and fireman.

"For King, landfill operations manager, instinct kicked in as he and about seven other workers ran for cover when the hill collapsed that Saturday morning. 'As I was running down the hill, I was hollering,' he said. 'I told everybody, Run for their lives.'

"'Cracks were coming underneath my feet. It was like an earthquake.'

"They had no idea where or when the landslide would stop. 'When we ran over that hill, we didn't know if it would come out to us. We just kept on running," King said.

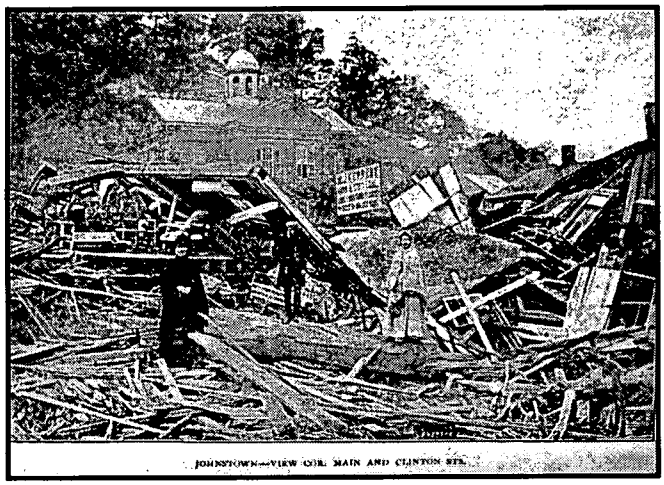
"Craig Wells was one of those workers on the run.

"Wells was the only employee near the base of the hill, pumping water out of a new cell being built. Then, the earth moved.

"'I thought it was pretty much over with at that point. It was pretty severe,' he said.

"Wells ran to a nearby truck and started to drive away. But the truck got stuck, and the trash rumbled closer and closer.

"'I figured if I was going to get it, I was getting it on the run,' Wells said. 'I thought I was going to get buried.'



The aftermath of the Johnstown Flood – corner Main and Clinton Streets.

Photo Credit: NOAA files

> "Wells outran the slide, but a wave of earth and debris lifted his truck like a surfboard.
>
> "About 20 acres ultimately collapsed into another 13 acres on the side of the landfill's massive hill. . . ."[29]

As noted, EPA has attempted to bound the consequences from these sorts of failure mechanisms as a "bathtub effect." But these recent failures, most prominently as at the Rumpke landfill, or the even more serious one near Manila the following year, illustrates that the sheer physical devastation of a full-fledged site failure at a mega-fill might more properly reassemble the far more dramatic mechanisms of a dam collapse, such as the 1889 Johnstown disaster that killed 2,200 people,[30] than a relatively benign "bathtub" overflowing its sides and requiring some mopping up.

In the Philippines case, at the Payatas landfill outside Manila, "residents recounted hearing a thunder-like burst just before the wall of garbage, looming over the town like a volcano, fell....then burst into flames.[31]

California, too, has not been exempt from experiencing these sorts of site failures, albeit not as spectacular as Rumpke, most recently at the Keller Canyon landfill in 1997. Before that, in 1978, the Acme landfill experienced a failure in Contra Costa County.[32]

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29 Jim Johnson, "Rumpke Rebuilds After Slide: Men Who Feared for Their Lives Return to Shore Up Unsteady Mountain," *Waste News* (December 22, 1997).

30 "Hundreds of Lives Lost: A Waterspout's Dreadful Work in Pennsylvania: The City of Johnstown Swept Completely Away: A Lake on the Neighboring Hills Bursts Its Barriers and Sweeps Everything Before It – Men, Women, and Children Swallowed Up by the Angry Flood – Awful Scenes Witnessed by Survivors," *New York Times* (May 31, 1889).

31 Stephanie Kriner, "More than 200 Feared Dead in Philippines After Rain-Triggered Landfill Collapse," *DisasterRelief.org* (Jul 12 '00).

32 Scott Walker and Robert Anderson, "Engineering Geology Overview of Municipal Solid Waste Landfills in Northern California," *Engineering Geology Practice in Northern California* (2001), at p. 391.

(continued...)

The only sites immune to a collapse at those built in old mine sites, such as the Eagle Mountain landfill in Riverside County, and those like the Mesquite Landfill in Imperial County sited in deserts without perceptible precipitation.

For remote landfills, conceivably there may be some who would argue that it would be politically possible and economically desirable to let massive landslides happen, imprudent though that may, in fact, be. But, that cannot be the basis for calculating future liabilities today. By the time failures are expected in today's lined landfills, most of the sites will be surrounded by the once distant cities, which in many instances will have sprawled out around them (*see* photo along side of the subdivisions adjoining the Richland Creek Road Landfill near Atlanta), just as has already happened to many of the pre-Subtitle D generation of landfills. [33]

Nearly 200 houses were sold in 15 months in the Little Mill Farm subdivision outside Atlanta next to the Richland Creek Road Landfill

Photo credit: Charlotte Teagle
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Indeed, many major urban landfills, such as the Sunshine Canyon landfill in Los Angeles, were actually originally located in population centers to minimize haul costs, without thought to the long-term consequences of contaminating drinking supplies for millions of people, nonetheless of catastrophic landslides.

Moreover, the confluence between landslides and affected populations has come very close to already happening in the U.S. Although the Rumpke disaster, large though it was, involved a collapse inside the landfill that did not threaten neighbors, three years later a catastrophe, which would have engulfed major commercial businesses, was only narrowly averted.

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32 (...continued)
Landslides also have been reported in other parts of the country at the Metro, Meadowlands, Payatas and Paxton landfills from design flaws, operator error, deliberate imprudent shortcuts, or unusual weather conditions.

33 Marc Rogoff, et al., "Urban Infilling Impacts on Solid Waste Facilities," *MSW Management* (Elements 2006), at p. 10. Deepa Patel, "Homes to go between landfills," *Atlanta Journal-Constitution* (July 18, 2004). James Hagerty, "Luxury Home for Sale: 6 Bdrms, Dumpster Vu," *Wall Street Journal* (August 5, 2004).

In 1999, while undergoing remediation efforts, the abandoned, 170 foot high Paxton II Landfill in southeast Chicago was observed with unstable slopes that threatened to release 300,000 cubic yards of garbage onto the businesses along Stony Island Avenue below, also closing Interstate Highway 94. Extensive coverage of the possible "garbalanche," forced the state to appropriate funds to install a new cap and leachate collection pumps and replanted the side slopes with new vegetative cover that has so far staved off the feared collapse.[34]

What specific steps would be demanded if someone ten, 20 or thirty years from now were to observe side-seeps from a long-closed 500 foot high landfill containing a hundred million tons of garbage, surrounded by thousands of homes and stores, is not known.

But, even if advance warnings were given, the distinct probability that a significant part of the entire site would have to be excavated and stabilized, before being redeposited somewhere else, appears to be within the realm of possibility. For, environmental sensibilities, including unwillingness to ignore risks to public health or to accept palliative responses to risks, have consistently heightened over time. Should there be no warning, as is often the case, the expense of stabilizing and reburying a mountain of trash, which has already collapsed, will be unavoidable.

As shown on TABLE 4, the costs to excavate, stabilize and re-bury the part a failing landfill needed to re-stabilize the waste body could be between $72 and $86 per ton – or hundreds of millions of dollars for a modern landfill.[35] And that is before contemplating the third party damages.

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34 Illinois Environmental Protection Agency, *Superfund Listing: Report on Paxton Landfill* (LPC #03160000033) (2004). Sarah Downey, "State Tryng to Keep Landfill from Sliding Towering Dump Could Slip Into Neighborhood," *Chicago Tribune* (Mar 14 '99). Megan O'Matz, Workers Set to Take on 170-Foot Tall Waste Heap," *Chicago Tribune* (Mar 16 '99).

35 Excavation and haul costs from the Minnesota closed landfill remediation program. Stabilization costs based upon bare-bones mechanical-biological treatment (MBT) being deployed in Europe to comply with the European Commission's 1999 Landfill Directive which ordered the phase out of land disposal by 2015. Assumptions applied to the reported $50/ton processing cost were: organic fraction, 60%; volume remaining after MBT, 70%; tip fee at new site, $20/ton, at existing site using same base, $15/ton.

Estimated Cost to Excavate and Stabilize Failing Landfill ($/Ton)	
Cost to Excavate	$ 1.50
MBT Stabilization	$ 50.00
Hauling - Low	$ 10.00
Hauling - High	$ 20.00
Re-Disposal@Exist Site	$ 10.50
Re-Disposal@New Site	$ 14.00
Total - Low	$ 72.00
Total - High	$ 85.50

Source: Center for Competitive Waste Industry

TABLE 4

The largest part of the cost is stabilization, about which some may raise questions. Under Superfund, after all, the most extensive clean ups of landfills have involved digging up the contaminated site and reburying it in a newer lined landfill.

But, modern megafills contain more than 100 times the volume of material as most of the sites dealt with under CERCLA. By itself, when we are contemplating what to do with 50 to 100 million tons of garbage in a failed site, the sheer volume precludes the option of moving that large a load to another facility, because none would be large enough to receive it. There would also be the question of why go to the expense of excavating and reburying all that waste in another facility designed with the same flaws as the one that had just failed.

For these reasons, if site failures arise in large sites as issues of concern, true remediation will almost certainly include stabilization, but, we have broken down the cost elements in the event one believes otherwise. There certainly exists the possibility that efforts to address a failing site, which has suffered significant liquid intrusions before the problem was observed, may be addressed with relief wells, surrey walls and other palliative measures. But, especially with the large megafills, and the likelihood of greater environmental sensitivities in the future than today, a hypothesized low-cost scenario doe not appear to be a high probability.

Personal Injury

Compensatory claims for personal injury and property damage to those who live in proximity to the sites from the effects of leakages are covered only in California by limited assurances, and even there only while the landfill is operating.

However, these costs are not covered at all following closure of the site, and even during operation, are capped at $1 million per occurrence at a site and $5 million for all sites owned by an operator in the state.[36]

Since coverage is not provided for occurrences in the decades following closure, much less after post-closure, there is no protection at all for the very time when injuries and physical damages are most likely to be observed, apart from the wholly inadequate $1 million cap. This could be hundreds of millions of dollars at the worst sites, and multiples more if putative damages are awarded.

Also, if the few epidemiological studies that have been done, all of which suggest a link between routine emissions and adverse health impacts,[37] are borne out in further testing, almost all sites may involve personal injury claims that would also swamp the per-site caps.

Maintenance and Environmental Impacts After Post-Closure

No coverage is provided for either routine or non-routine and expensive maintenance and all of the other environmental costs listed above after the 30 year, post-closure period is ended (or after any additional years required by administrative action during which the cover is maintained).[38]

To summarize, in addition to failing to reach past the post-closure period when problems are most expected, financial assurance does not presently cover the following types of long term landfill costs: non-routine care, palliative or remedial corrective action, or third party injuries, each of which are very expensive. *See* TABLE 5.

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36 27 C.C.R. §22215.

37 State of New York Department of Health, *Investigation of Cancer Incidence and Residence Near 38 Landfills With Soil Gas Migration Conditions, New York State, 1980-1989* (1998). *See, also*, Paul Elliot, "Risk of adverse birth outcomes in populations living near landfill sites," 323 *British Medical Journal* 363 (Aug. 2001).

38 27 C.C.R. §21900.

Types of Long Term Landfill Risks Not Covered by Existing Financial Assurance	
Type of Risk	**Description**
Non-Routine Care	Replacing the final cover repeatedly, unclogging leachate collection lines
Palliative Corrective Action (current Superfund practice)	One replacement of the cap, relief wells, slurry walls, bottled water, fencing
Remedial Correction Action*	Excavating, pretreating and then reburying the stabilized waste load
Third Party Injuries	Personal injury and property losses

TABLE 5

* California is unique in having a provision requiring coverage of "reasonably foreseeable" corrective action, which could be utilized to correct this omission here. Unfortunately, with current postings for this item varying between $162,000 and $3.8 million, the requirement has yet to be meaningfully applied.

To put all this in perspective, a typical large landfill might cost $50-$100 million to build, and generate something more than about $200-800 million in revenues over its operating life. Its financial assurance funds might be calibrated at $100,000 to $200,000 annually over more than 30 years, to total $3 to $6 million by the time the site is closed.

Yet, after the post-closure period ends, a large landfill, not located in an arid or remote region, also may be expected to leave as its legacy costs to the State the risks for the expense of a full-fledged remediation effort as well as damage awards. In serious cases, that could easily be several hundred million dollars over and above the minor maintenance costs that are covered.

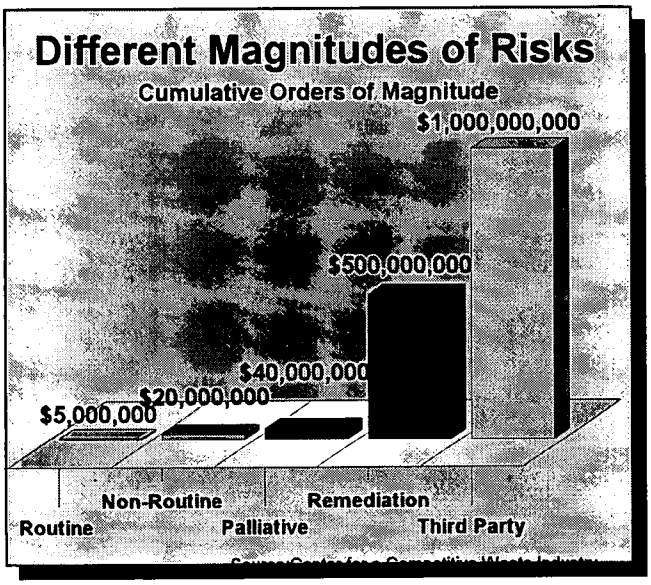

FIGURE 5

Thus, the final bill at such a site could be one hundred times what has ostensibly been set aside for long-term care, and approach or exceed the total of its 15 to 20 years of revenues.

While current assurance amounts for routine care approximate $5 million, just non-routine care, which definitely will be required, will easily exceed $20 million, and palliative corrective action might raise that to more than $50 million. But, true corrective action at a megafill could be $500 million and third party injuries in populated locals might double that. FIGURE 5 shows approximate estimates of the range of cumulative costs for the long term risks posed by landfills.[39]

But, FIGURE 5 just reflects the relative magnitude of costs at a single, major site under these alternative definitions for recognizing costs. The ultimate bill under current rules that will eventually fall to the State needs to reflect the totality from among all of the highly variable site costs.

Detailed engineering studies to project the liabilities of site failure at each of the 240 landfills in California has not yet been done. But, the preceding discussion suggests that a conservative first order proxy is that the bulk of costs at all of the sites probably is very unlikely to lies anywhere less than somewhere between $20 million to $200 million. That could be statistically represented as the standard deviation around the mean where 68% of long-term, site specific costs will fall if they are normally distributed. Under that assumption, the final costs for the state of California to clean up its landfills would well be in the order of $26.4 billion. Yet the cumulative amounts for which assurance is currently provided, or more

[T]he final costs for the state of California to clean up the landfills would well be in the order of $26.4

39 The values shown are not engineering studies, but rather are only intended to reflect the relative orders of magnitude of the different types of costs that may be incurred in the case of a major site failure at a megafill in an populated area.

often denoted without any cash balances or guarantees, probably is little more than $1 billion. If a more pessimistic set of assumptions are used and the standard deviation around the mean is $50 to $500 million, than the expected costs would be $66 billion.

Whether the assurances for the small part of the total long term costs that are covered by post-closure care requirements have real value to protect the State from regulatory failure is discussed next.

The Fatal Flaw in Financial Assurance for Minor Costs

As explained in the preceding section, most of the risks from long term landfill liabilities are not even addressed by current financial assurance procedures. With regard to the small part that is, the Integrated Waste Management Board's rules permit financial assurance to be demonstrated by a wide variety of financial instruments that largely mirror those enumerated in EPA's rules, with several key enhancements that deserve mention.

Before turning to the details of each in the next part of this chapter, the major overarching concern to emphasize has nothing to do with the usual debate in these matters as to the unique particulars of each. For example, are letters of credit as good as segregated trust funds, or are financial means tests as bad as captive insurance? All of that, while of no small importance in their own realm, is peripheral to the crux of the matter in the wider context.

For, as discussed in the prior chapter, none of these mechanisms reach the essential flaw in their common denominator. That is, regardless of the rigor of the assurance mechanism, any fund will be dismantled too soon. The problem transcends any attempt to be overcome by longer post-closure periods, and tweaking them will not repair that fundamental problem.[40]

What undercuts the entire regulatory structure currently used to provide assurance — no matter what mechanism is polished and selected — is, again, the fact that landfills are most likely to eventually leak after care finally ends. That will create the major costs after the end of the legally defined period of financial responsibility, probably sometime shortly after the minimum 30-year post-closure proof period ends, financial assurance is drawn down, and care is terminated.

Therefore, at the very point when the big ticket cost items will likely come due, the financial assurance chest will be bare, making the rigor of the assurance mechanism immaterial. So not only do these rules fail to cover landfills' real costs during the period when some assurance is provided, but also, nothing is left by the time the major items are most likely to arise.

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40 *See* prior discussion beginning at page 8.

Reading this, many will be tempted to conclude that the structural defect can be cured if only we were to extend the post-closure period beyond the minimum 30 years. That is, unfortunately, most assuredly not the case.

California's assurance rule already reserves the power to extend the minimum 30-year post-closure period on a case-by-case basis,[41] and does so more assertively than EPA's.[42] While the Subtitle D rules only permits the 30-year period to be extended if the state finds that "the lengthened period is necessary to protect human health and the environment"[43] – putting the burden of proof on the state – the Board's rule seems intended to shift the burden to the landfill owner to prove that the "landfill no longer poses a threat to the public health and safety and the environment."[44] Also, California's code makes no provision for shortening the post-closure period to less than the "*minimum* period of 30 years,"[45] as does the EPA's.[46]

There are four fatal problems in any attempt to resolve the problem with the hope of possibly extending the post-closure after the minimum thirty years have elapsed: the lack of legal authority, the interminability of the problem, the lack of funds to do so, and institutional limitations.

Difficulty of Legal Authority

First, especially for those states following the EPA model, there does not appear to be a legal basis at that point in time to extend the care period. At the end of the 30-year post-closure period, the data will probably appear to show, *incorrectly*, that the site is stabilized and safe, leading to an unjustified response to release the site from the maintenance requirements. As the EPA Inspector General has properly explained, this is a fundamentally flawed approach—

> "The [Landfill Groundwater Rule] is broad enough to allow extensions of post-closure care for potential problems. However, the regulation implies that there should be indications from leachate or groundwater monitoring that the facility may present a risk to human health and the environment. Although there may be no releases or indications of release at a landfill for

41 27 C.C.R. §21900(a).

42 40 C.F.R. §§258.72 - 258.74.

43 40 C.F.R. §258.61(b)(2).

44 27 C.C.R. §21900(a).

45 27 C.C.R. §21900(a).

46 40 C.F.R. §258.61(b)(1).

the first 30 years of post-closure, there may be a potential for releases of hazardous waste in later years."[47]

That is to say, after a careful analysis of all of the issues surrounding financial assurance, including in-depth field surveys, the Inspector General put her finger on the same fundamental infirmity with this whole process that we highlight in this report.[48] In a properly maintained site in which the integrity of the final cover is carefully managed, by the time 30 years have passed following closure, the waste load ought to be "bone dry."[49] Leachate quality measured in the sump pumps at the end of the leachate collection lines, and gas in the well heads, will have shown a record of steady improvement to the point where only the barest traces of hazardous or noxious constituents may remain.

This historic trend, which is the only hard piece of evidence that will exist at that time, will seem to show that the site has stabilized and is no longer a threat to the environment — regardless of the fact that the tests do not have any predictive of the future. In fact, they almost certainly belie the inevitable failures to come.

From that earlier discussion, and the admonishments from the Inspector General, there is little room for doubt that these temporal surface measurements will mask the real underlying problem. That is, much of the remaining undecomposed organic matter and hazardous constituents that were a part of the incoming waste effectively remains in suspended animation. Waiting patiently, the latent carbon potential sleeps until the day when the cap fails and rainfall reenters the site, reawakening leachate and gas generation all over again.

For all we know, since EPA has rejected requests that it statistically study the proportion of carbon content remaining after closure compared to when the waste first arrives,[50] the second wave of leachate generation may be greater than what was experienced during the time the site was operated.[51]

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47 Inspector General, *supra,* at p. 33. For a more detailed discussion of this problem, see page 117.

48 *See* page 117.

49 U.S. Environmental Protection Agency, *Methane Emissions in the United States: Estimates for 1990* (Report to Congress, April 1993) (EPA 430-R-93-003), at pp. 4-4 to 4-8. William Rathje, *Rubbish!: The Archaeology of Garbage* (HarperCollins NY 1st ED.)(1992), at p. 115.

50 67 FEDERAL REGISTER 47312 (July 18, 2002).

51 Indeed, a comparison of subsidence in dry tomb to bioreactor landfills suggests that less than half of the eventual decomposition will have occurred in a dry tomb landfill prior to closure. Christopher Campman and Alfred Yates, "Bioreactor Landfills: An Idea Whose Time Has Come," *MSW Management* (Sept/Oct. 2002), at TABLE 1.

Thus, when the time comes, the Board, or maybe a successor agency with a new cast of board members and staff that probably have lost the requisite institutional memory of what originally happened, will be handed a request from a waste company.

That company will not have received any revenue from the site for 30 years, and most likely will be a successor company. Just as Dow-Carbide has disclaimed any responsibility for the continuing environmental disaster at Bophal, it will loudly disclaim any knowledge or interest in what its predecessor, Union Carbide, did decades before, and stoutly and repeatedly hammer home the fact that all of the leachate tests show that the site is no longer a threat.[52] An unbounded excess of optimism would have to be summoned to anticipate a rigorous regulatory response at that future date about events that began so long before.

In any event, even if fully focused on the matter to overcome intense lobbying, for states with rules using the EPA model there does not appear to be a legal basis, at the time just before care has ended, to make an evidentiary finding that the lengthened period is necessary to protect human health and the environment.

For the California formulation that puts the burden to show no harm on the landfill owner, a determined board would be in a position to reject a petition to end assurance because of the inherent difficulty proving a negative. The real question is whether the agency will have the determination to do so when the argument is made, and accompanied by political pressure, to accept the numerous tests showing dramatic reductions in test results of constituents of concern.

Problem Only Delayed to After Care Ends

Second, and for a far more important reason, extending the care period would only prolong the problem further out in time. Eventually, that will finally reach a point when the process and its participants collapse of exhaustion and capitulate, or more likely – like the 100-year-old sewers under the streets of the City of New York that no one can any longer find – everyone forgets about the whole morass, or where the old landfill even is, as it fades under the sands of history. So, instead of the failure occurring, illustratively, in year 32, two years after care normally would end, it would happen in year 42, two years after a hypothetical 10 year extension, *ad infinitum* — but, eventually, the failure would still happen.

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52 Francis X. Donnelly, "Dow-Carbide merger assailed: Dissidents claim Carbide holds back on Bhopal liability" (*Detroit News*, May 12, 2000).

Lack of Funds

Third, for the sake of argument, imagine that the Board somehow did extend the time for an additional 10 years beyond the initial post-closure care period when the 30 years were over. Apart from the fact that the timing of the failure would, at best, just be prolonged a bit longer, there would be no funds to pay for the costs of the extended care. By the time 30 years following closure have passed, there would not be any opportunity to spread the attendant costs over the long past users of the facility. The site will not have produced any revenues for decades with which the then current owner (who almost certainly will be a successor to the original operator) could fund the obligation. Also, as the Inspector General noted:

> "When it eventually becomes necessary to conduct longer term monitoring and maintenance for these landfills, financial assurance funds may not be available for extended post-closure care if the company responsible for the landfill no longer has sufficient funds or has gone of business."[53]

That is to say, any attempt by the Board, or its successor, to later correct the fact that care will be required past 30 years could well run into the problem that, by that future point in time, the landfill owner will almost certainly not have sufficient resources to undertake the responsibilities for yet another decade, including corrective action as well as maintenance, that would follow from extending post-closure care.

Frailty of Human Institutions

Fourth, human institutions become increasingly frail when called upon to endure for protracted periods of time, such as to manage a vital, decades' long program that demands concerted action extending so many years into the future.[54] Any strategy that relies upon such engaged long term regulatory involvement is highly questionable.

Many of the Mechanisms are Inadequate on Their Own Terms

As noted above, none of the mechanisms assure necessary funds for anything in the relevant long-term after the post-closure care period during which proof of financial assurance is required. Nor do they do so for any corrective action — palliative or substantive — at any time that is not already known, nor for compensation for personal injury to the landfill's neighbors in the long run. They do not even do so for maintenance expenses that are major rather than minor in amount. Moreover, many of the mechanisms

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53 Inspector General, *supra*, at p. 29.

54 Rodd LaPorte, "Assuring Institutional Constancy: Requisite for Managing Long-Lived Hazards," *Public Administration Review* (November 1996).

also fail to provide adequate assurance for the minor maintenance items that they purport to cover.

Of those mechanisms permitted by the Board, we focus on those available to private companies, excluding those restricted to public entities because they operate so differently. The public sector generally exhibits a higher degree than the private sector of financial and environmental responsibility that bespeaks their role as public servants. Capping their differences is the fact that local governments can raise taxes to meet their obligations after the landfill is no longer revenue producing, while the private sector has no means to reliably fund major projects that no longer generate revenue in the absence of some pre funding mechanism.

Six general mechanisms are deemed permissible for privately owned Class II landfills.[55] TABLE 6 lists them, along with the section of the administrative code in which they are found and the number of landfills using that mechanism,[56] along with the parallel national data.[57] They provide a variety of financial tools some think will increase the probability that there will be funds available to undertake minor maintenance over the closed site should the owner fail to do so, but only for the defined post-closure period, after which the rules provide that the funds shall be released.[58]

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55 27 C.C.R. §§22240 - 22248. Financial means and corporate guarantees, sometimes treated discretely, are combined on this chart because they provide, essentially, the same type of assurance. There is one other that is limited to personal injury liability during the landfill's operating. *See* 27 C.C.R. §22251. Also, for the reasons discussed in the text, mechanisms limited to local governments are also not evaluated here, including, enterprise funds, pledge of revenues, government financial tests, government guarantees and self insurance. *See* 27 C.C.R. 22241, 22245, 22249 and 22252. *Similar,* federal facilities. *See* 27 C.C.R. §22250.

56 Staff *Post-Closure Maintenance Presentation* to CIWMB Permit and Enforcement Committee (November 3, 2003), Power Point Slide No. 17.

57 Inspector General, *supra*, Appendix IV: Distribution of Financial Assurance Mechanism for Active Municipal Solid Waste Landfills, at p. 59. This data is based upon a sample from seven states, and a review of the numbers suggests that it may not be representative of the country.

58 27 C.C.R. §21900.

General Mechanisms for Demonstrating Financial Assurance by the Private Sector in California and the U.S.

Mechanism	Code Citation		Landfills Using in	
	California 27 C.R.R.	U.S. 40 C.F.R	California % (actual)	U.S. % (sample)
Trust fund	§22240	§258.74(a)	27%	17%
Surety bonds	§22244	§258.74(b)	21%	48%
Third party insurance	§22248	§258.74(d)	25%	17%
Letters of credit	§22243	§258.74(c)	11%	12%
Financial means or Corporate guarantee	§22246 §22246	§258.74(e) §258.74(g)	16%	1%
Captive insurance	Largely Rejected	In dispute	0%	3%

Source: CIWMB and Center for Competitive Waste Industry

TABLE 6

The EPA, its Inspector General, the Government Accounting Office, and many states, California among them,[59] have strived to quantify or compare the relative risks that post-closure care might not be completed from among the different mechanisms that aim to protect the state from nonperformance of minor maintenance for the first 30-years following closure of landfills.

Essentially, the criteria seek to articulate different ways to measure whether sufficient assurance is provided by each mechanism. "Sufficient" will mean different things to different people. But, presumably, there can be a general agreement that "sufficient" means that there is an insignificant probability of the funds for post-closure care not being available when needed from the landfill's owner, trusts maintained by it for that purpose, or third parties with whom it has contracted to provide a second layer of support for that care.

This matter is crucial because extremely large expenses will be incurred after the landfill closed and, although the site is potentially capable of later generating massive amounts of dangerous leachate in that time, it will no longer be generating any revenues. Absent reserves built up over the operating life of the facility for those future costs, the

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59 63 FEDERAL REGISTER 17706 (April 10, 1998); Inspector General, *supra*; Government Accounting Office, *Hazardous Waste: Funding of Postclosure Liabilities Remains Uncertain* (June 1999) (GAO/RCED-90-64).

question remains as to how the post operating costs will be paid for, especially when, as noted, those costs can rise to equal the entire stream of revenues.

The criteria in TABLE 7, which we would recommend, partly recapitulates those earlier efforts The first four items, which focus on the broader issues, are ours. EPA's formal list of criteria for approving provisions for financial assurance in state plans is legal verbiage that has little utility for making a real world evaluation.[60]

[60] 40 C.F.R. §258.74(l)(1) to (4).

Criteria for Evaluating the Risk of Different Means of Attempting to Provide Financial Assurance	
Versatility to meet unexpected costs during post-closure	Since the major costs will be for corrective action and damage awards, the assurance should both contemplate these costs and also be sufficient to encompass very costly outlyers.
Longevity to meet unexpected costs after post-closure	Also, since the likelihood is that the greatest expenses will occur after the end of the post-closure period, the mechanism needs to extend its protection to that time as well.
Cancellation replacement	For those mechanisms that depend upon a third-party, there needs to be a way to attract a new provider in the case where the prior one cancels before the end of the post-closure period because the landfill owner no longer has adequate collateral, and that deterioration makes it difficult to find anyone else willing to replace the expiring policy.
Accessibility	All mechanisms should be easily accessible by the State in the event needed without the prospect of protracted litigation, and definitely ought to be accessible outside of bankruptcy litigation, the outcome of which is always impossible to predict.
Independence of third-party	Absent a trust fund, the more assurance derives from contingent payments by a third-party, the greater the need for independence from the landfill owner, because independence decreases the probability that both entities will be facing financial distress at the same time.
Financial strength of third-party	Similarly, the more that the third-party is financially strong and has diversified the risk from widespread landfill failures, the less likely that it will be unable to provide the assurance payout when called upon to do so.
Difficulty of administration	Administrative resources for future concerns are not likely to be extensive, so the mechanism should be as transparent as possible in order that agency staff can easily rely verify and monitor the mechanism.
Premature Closure	If the assurance mechanism builds up to its full value over the expected life of the landfill.
Adjust to price changes	The cost of maintenance, corrective action and damages can be expected to increase over time and the size of the fund should change with it as automatically as possible.

TABLE 7

When these criteria are objectively applied to the stock list of assurance mechanisms, there is no question but that several fail the test, even for the limited purpose of providing sufficient assurance that routine, minor maintenance costs will be covered.

Captive insurance

To its credit, the Integrated Waste Management Board and its staff previously undertook a major effort to evaluate the efficacy of pure captive insurance companies (whose sole assets are those of the landfill owner or its parent). By rejecting those that cannot be assigned to a successor company, the Board effectively rejected them as a class, because, essentially, they provide no additional assurance beyond the company's existing resources.[61]

Unfortunately, in no small measure because of shortcomings in the current statutes,[62] the Board leaned heavily for its decision on one of the lesser deficiencies with captive insurance policies – that inability to be transferred to a successor landfill owner – as a technical violation of EPA's minimum insurance standards.

That explanation could come to complicate the Board's efforts later if it placed too much emphasis on the statute's limiting provisions, and not enough on its flexibility to protect the State.

Financial means and corporate guarantee

The financial means test (and its close relation, the corporate guarantee) purport to provide assurance based upon the reported financial strength of the landfill owner today. Of all the tests EPA has permitted to show assurance, it is the only one that has none of the normal mechanisms for doing so — it has neither involvement of third parties nor the creation of a segregated trust, the foundation upon which financial assurance is normally constructed.

Those omissions are of great significance because, by diversifying the risk, third parties provide an additional layer of assurance that there will be someone who is financially capable of and contractually required to meet the landfill owner's long-term obligations should the owner later become financially unable to do so. Trusts, of course, provide an additional layer of protection by actually setting aside the required funds.

What is especially anomalous about the financial means test is that the purpose of financial assurance is to provide just such an additional layer of protection in the event of

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61 CIWMB Policy Statement Update on Financial Assurance (September 11, 2001). CIWMB Board Meeting of September 11, 2001, Agenda Item 6, Amending Standards for Acceptance of Insurance for Financial Assurance. This view is widely supported outside the private landfill industry. *See, e.g.* Inspector General, *supra*, at p. 26; Kate Goff, "When a Guarantee is No Guarantee," *MSW Management* (May/June 1999), at p. 44; James Boyd, *Financial Assurance for Environmental Obligations* (University College of London, 2001), at pp. 16 and 46; Minnesota Pollution Control Agency, *Financial Assurance Report to the Legislative Commission on Waste Management* (November 1, 1993), at p. 2.

62 P.R.C. §42601(b); §43601.5.

nonperformance of the operator's maintenance functions. This putative test, on other hand, provides nothing above the assets of the company itself, which were always there before assurance requirements were imposed. All that it does is tell us which landfill owner is currently a major company today, and since that has little to no meaning for the company's status decades from now, the mechanism does not afford any significant ability to predict its utility in the future when called upon.

Note, too, that the aberrant financial means test was neither required nor suggested by Congress in its 1984 Hazardous and Solid Waste Amendments to RCRA,[63] nor was it a part of EPA's original assurance rules when Subtitle D regulations were promulgated in 1991(although it was under consideration).[64] A subject of very heated controversy when proposed afterwards, the test was only added in 1998, seven years later.[65]

The purpose of this late addition to its financial assurance rules, EPA stated, was "to increase flexibility" and "provide regulatory relief by establishing additional, less costly mechanisms for owners and operators to comply with existing financial assurance requirements."[66] "Today's rule," EPA averred, "adds a financial test that allows a less costly means of providing financial assurance to entities financially capable of covering the costs themselves, through self-insurance, or relying on a guarantor that meets the financial test."[67]

EPA's claims that flexibility did not come at the expense of protection for the states did not convince anyone outside of the major waste firms who were the new rule's beneficiaries. Mr. Lanier Hickman was the long time director of SWANA and a vigorous advocate of modern engineered landfills. Even in retirement, he has taken on the role of watching over their development in order to prevent abuses that would ultimately undermine the whole approach. As EPA moved to adopt this rule change, he reacted with total dismay --

> "Between this action [for publicly owned facilities] and the [pending] net-worth provisions for privately owned landfills, the country has eliminated the guarantee that financial resources will be there should they be needed...*The net-worth provision for the private sector is not worth the paper that identifies the net worth pledge.* Companies come and go, subsidiaries close when the landfill is filled; the money will not be

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63 42 U.S.C. §6901.

64 56 FEDERAL REGISTER 50978 (October 9, 1991).

65 63 FEDERAL REGISTER 17706 (April 10, 1998).

66 63 FEDERAL REGISTER 17706 (April 10, 1998).

67 63 FEDERAL REGISTER 17715 (April 10, 1998).

there...*[T]he public has been terribly violated* – today, and more importantly, one or two generations from now."[68]

The month after the rule change appeared in the Federal Register, *MSW Management* magazine, the trade organ for the municipal landfill industry, editorialized –

> "In it, EPA develops its rational for the action, taking pride in reducing costs involved in the issuance of third-party assurance instruments by an estimated $68 million per year. Pegging the total potential liability for closure and post-closure care costs at $6.8 billion [not counting the costs of corrective action or damages for personal injury] – you may feel a twitch in your gizzards at what appear to be remarkably low estimates given the cost of recent environmental restoration projects – the agency adds a few novel twists to the notion of 'assurance.' These appear to allow larger landfill-owners to substitute creative accounting practices for rock-ribbed guarantees that real reserves will be there if ever needed. As we've all just recently seen, some larger landfill-owners have demonstrated a real talent when it comes to creative accounting practices, and those with a strong sense of humor will appreciate the timing of EPA's high regard for accounting ethics given those recent revelations. Perhaps renaming the agency WSPA (Wall Street Protection Agency) makes senses. ...
>
> "In this, along with a great many other burdens of our overextended lifestyle, *we seem hell-bent on passing down the costs of proper stewardship to our heirs....*
>
> "When Subtitle D was proposed, it seemed that EPA was doing just that [not ignoring the long term costs of landfilling], but now one has to wonder. *When we allow politics to enjoy equal footing with principle, we're asking for trouble.*"[69]

An exhaustive academic study of financial assurance prepared for the University College of London concluded that financial means did not provide sufficient assurance due to its lack of identifiable and discrete assets in case of need, compounded by multiple complications limiting the regulator's capability to supervise, and the inability of financial reports to anticipate sudden changes in financial condition –

> "The problem with self-demonstration and guarantees, in a nutshell, is that there exists no financial instrument dedicated to environmental obligations....[I]t involves no specific financial asset to which a regulator

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68 Lanier Smith, "No Guarantee," *Waste News* (January 20, 1997).

69 John Trotti, "Editors Comments: Landfill Financial Responsibility: Whose Interests Are We Protecting Now?", *MSW Management* (May/June 1998), at p. 6 (emphasis added). *See also*, Rob Arner & Cristine Leavitt, "Dump Now, Pay Later? Landfill Financial Assurance Mechanisms Are Burying the True Costs," *MSW Management* (December 1999).

can lay claim in the event obligations are not performed. The assets claimed by a self-demonstrating firm are much more ephemeral. Assets are not specifically dedicated to assurance in a legally binding way and must therefore be sought in competition with other creditors, if those assets are in place and have value at all once obligations come due."[70]

Essentially, then, the absence of a supporting third-party or an independent trust in the financial means' mechanism leaves the same self-insurance that the Board rejected when the construct was dressed up as captive insurance, albeit now is limited to large, and *reportedly* financially healthy, companies.

The reasons why self-insurance has no basis for inclusion in landfill financial assurance standards include the following:

- Conflict of interest;
- Bankruptcy is the ultimate test;
- Reported financial statements cannot be relied upon;
- The states neither have the capability, nor are given the information, to meaningfully evaluate the company's underlying condition and be able to assess the validity of the initial financial claims;
- Initial showings of financial strength have no bearing on a company's condition 50 years from now;
- Relative improvement by larger firms is not the same as sufficient improvement to protect the states;
- Even if the companies do survive for decades hence, and their financial situation does not deteriorate, they could not afford to undertake care;
- There is no evidence that regulators will have advance warning of impending financial distress to create a meaningful "trigger" to go secure alternative assurance;
- A financially stressed company is not likely to be able to secure alternative assurance; and

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70 *Op cit*, Boyd, at pp. 47 to 50.

- Once a firm becomes insolvent, in the absence of a segregated fund, the state has no special claim to attach the company's remaining assets in bankruptcy court.

This is why the rule change unleashed a firestorm of criticism from within the landfill industry as well as without. Because the federal corporate means test preceded the States' MSW assurance rules on the subject, a review of EPA's actions needs to be added to the analysis.

Conflict of Interest. Before reaching the issue of whether any financial test today can anticipate a firm's financial condition decades into the future, there are immediate tensions which this mechanism creates that undermine proper care in the post-closure period. When a financial test is used, the state creates a strong economic incentive for the landfill owner to short change maintenance. This is because, under this mechanism, any funds not spent on upkeep at a closed landfill – which is no longer revenue producing – flows through to the company's bottom line, increasing its profitability.

Bankruptcy. The end of the line that each financial assurance mechanism must ultimately address is whether those assurances are reliably able to come through a bankruptcy proceeding intact. Where will the long term liabilities stand in the eyes of the Master in Bankruptcy?

As the experiences of Dow Corning's breast implant litigation and the long line of companies entwined in the asbestos imbroglio demonstrate, environmental clean up costs and damage awards can well be among the many items that are a "dischargable claim" under bankruptcy laws. Only the erection of a well-constructed trust fund or bond instrument has a reliable prospect of surviving under the police and regulatory power exception.[71]

All of these factors make clear that there was no technical basis for adding net worth tests to the list of acceptable means of demonstrating financial assurance. The rule's elaborate edifice of reported working capital and net worth, cash flow, bond ratings, letters from chief financial officers and certified public accountants are largely worthless for establishing the sufficiency of assurance needed by the State. It meets none of the criteria that one would look to in order to gauge whether the assurance is sufficient to protect the .

Were the landfill owner's financial health to decline precipitously, as is not uncommon especially over such long time periods, and were the Board somehow to become aware of the fact before its terminal stages, there would be no realistic ability at

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[71] 11 U.S.C. §362(b)(4). Richard Epling, "Impact of Environmental Law on Bankruptcy Cases," 26 WAKE FOREST L.R. 69 (1991).

that late date to find some other mechanism to replace it. The time to set aside a sinking fund would probably have passed. The competing demands to make payroll and keep the doors open on any working capital would almost certainly trump the need for funding a substitute form of assurance, as the firm tottered on bankruptcy and would force the unsecured long-term care fund to the back of the line in bankruptcy court. And, of course, there would be no third party to lean on or trust fund to clutch on to.

Adding financial means as an approved mechanism did violence to the most fundamental tenets of assuring coverage of long-term liabilities. The matter lies outside the range of reasonableness, within which reasonable men and women might legitimately disagree.

All that the financial means test does is lower the true cost of landfilling and create an additional regulatory barrier to entry that invidiously works against new entrants into the market for disposal, as many commenters on the proposed rule argued to EPA.[72] The large waste firms, who appear strategically working to form a cartel, will not have to put up millions in cash or weaken their balance sheet to cover post-closure care. But, the new company on the block will have to come with cold hard cash or reduce its leverage to borrow. As had happened in the original enactment of Subtitle D, environmental protection had become confused with cartelization.

Financial Statements Are Unreliable. But, most troubling with corporate tests is their reliance on the self-reported financial condition of the landfill owner, along with the financial officers and certified public accountants who prepare the books. In fact, earnings reports and balance sheets can and are subject to gross misstatements that may belie net worth, ratios and other claims of financial vigor.

Some may excuse EPA's obviously misplaced reliance on reported earnings, because they feel that this problem did not become apparent until the collapse of Enron in 2002, four years after EPA promulgated its corporate financial assurance amendments.

The Enron debacle, which unfolded in late 2001 and crested as 2002 began, demonstrated that reported financial results have no necessary relationship to reality. They turned out to be meaningless because the boards of directors, who often received lucrative personal consulting business, did not want to know what was going on; the prestigious Big-Five accounting firms chose to look the other way because they were more interested

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72 63 FEDERAL REGISTER 17717 to 17719 (April 10, 1998). In response, EPA conducted an analysis that it concluded, showed that this was not a concern because even third party financial assurance costs for large landfills was very small. USEPA, *Subtitle C and D Corporate Financial Test Analysis Issue Paper: Market Effects of the Financial Test* (Background Documents for April 10, 1998 Federal Register Publication). The Agency did not explain why, if this were an accurate depiction of the issue, the large waste companies expended so many resources, first to convince EPA to adopt the corporate test over a storm of criticism, and, second, subsequently to be permitted to use captive insurance companies, which are not true third parties.

in high margin consulting fees than audits; the financial analysts were clueless; the country's largest and most hallowed banks turned out to be more interested in investment banking profits than abstaining from giving their imprimatur to transactions it knew to be fraudulent, and the Securities and Exchange Commission – the regulators themselves – had not even reviewed Enron's books for years before the collapse.[73]

But, any claim that this critique of EPA's financial assurance amendments to its rules in 1998 stems from Monday morning quarter backing is dispelled by a closer look at earlier accounting scandals – scandals among the premier waste management company, for whose benefit the net worth tests were especially crafted.

In 1997, the Securities and Exchange Commission (SEC) began an investigation of the books of Waste Management, which had an earlier brush with accounting irregularities in 1994, and which is only one using financial means tests in California. In February of 1998, that investigation led to a $3.54 billion pretax write down for the years 1992 to 1997, effectively wiping out most of the earnings over that period. At the time, that was the largest accounting restatement in U.S. history.[74]

One would have thought that, in June of 1998, any responsible agency, acting on the basis of the facts, would have held up the promulgation of rules when it read the extensive reports of Waste Management's massive bookkeeping derelictions. After all, the entire foundation of the Agency's pending rule was premised on the accuracy of reported statements. But, overwhelming, undisputed facts undermining the value of reported values seemed to have no effect on the Agency.

Nor did EPA seem to take notice of the near complete financial meltdown that occurred the following year on the morning following the July 4th weekend when even worse financial malfeasance surfaced.

Two months earlier on May 24, 1999, it should be mentioned, Mari Bari with Deutsche Bank, the most respected analyst in this industry group, not content to regurgitate management claims like most of the rest, finished her own independent review of Waste Management's books. Nonetheless, the astute and diligent Ms. Bari concluded

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73 Michael Schroeder, "The Enron Debacle Spotlights Huge Void in Financial Regulation," *Wall Street Journal* (December 13, 2002); Michael Schroeder, "Enron Reports Weren't Reviewed Fully by SEC for Several Years Before Collapse, Wall Street Journal (January 18, 2002); Paul Beckett, "How Energy Traders Turned Bonanza Into a Historic Bust," *Wall Street Journal* (December 31, 2002); Alex Berenson, "A Tattered Andersen Fights for Its Future," *Wall Street Journal* (January 13, 2002).

74 Jonathan Weil, "Waste Management Suit by SEC Zings Anderson," *Wall Street Journal* (March 27, 2002).

that "WMI's fundamentals [are] attractive and [we] believe that the stock [then, slightly off its $60 high, at $54] is still cheap."[75]

Even one month before in the closing days of June, "[g]lowing financial forecasts, reaffirmed by [COO] Proto ... lent strong supporting evidence of the vast potential promise for WMI's future. Investor confidence, buoyed by analysts' ratings, soared."[76]

Then came July 6th. *Waste News* asked rhetorically:

"How could that happen?

"That's the foremost question on the lips of analysts and investors who last week exacted a stiff price for Waste Management Inc.'s shocking announcement it would fall $250 million short of second-quarter revenue projections.

"The troubling news about the industry kingpin came out of the blue and sparked a 'bloodbath,' in the words of one analyst. Waste Management shares plunged $19.63 to close July 7 at $33.94, a 37 percent drop.

"As investors rushed to get out – more than 70 million shares traded – the company's value fell nearly $12 billion in one day. Waste Management's nightmare dragged down share prices of all its competitors as well, with Allied Waste Industries Inc. tumbling more than $2.81 and Waste Connections Inc. dipping $2.25.[77]

Bad though that was, things went from bad to worse:

"On July 13, a week after the initial tremor rocked the company, Proto admitted the company had been too aggressive with its projections. But he denied there were any systemic problems eroding WMI's performance and said he was confident that revised but still heady growth assumptions were attainable.

"By the end of the month, however, a second warning of lowered earnings cut another $5.50 off the stock price in a day. Proto said the company would conduct a comprehensive review of operations to root out

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75 Deutsche Bank, *Good Times for Landfill Pricing* (May 24 '00), at p. 71.

76 Bob Brown, "WMI: It was a very bad year," Waste News (December 20, 1999).

77 Bob Brown, "WMI Takes Nosedive: Company Promises Details of Drop in August," *Waste News* (July 12, 1999).

the trouble. In addition, the board voted to sell up to $2 billion in assets to shore up shaky finances."[78]

At the end of months reviewing the books by 1,160 outside auditors at the cost of $3 million a day, $1.4 billion was written off the books, and that was on in addition to the $3.54 billion write down from the year before.[79]

All that was followed by a lawsuit brought against Waste Management and its auditor, Arthur Andersen, by the SEC charging six former waste company executives of securities fraud, alleging that they concocted "a systemic scheme to falsify earnings and other measures of financial performance." According to the *Wall Street Journal*, the SEC spokesperson said '[o]ur complaint describes one of the most egregious accounting frauds we have ever seen.'"[80]

Further adding to the available evidence of the times, this was recapitulated during the same period of time by another waste company specializing in hazardous waste, Safety-Kleen, whose bankruptcy is described later. The former chief financial officer and the former chief executive officer of the hazardous-waste disposal company were ordered by the SEC to pay fines for their role in a massive accounting fraud by materially overstating the company's revenue and earnings in financial reports and press releases in order to meet Wall Street's earnings projections. Between 1999 and the beginning of 2000, they improperly adjusted their earnings by $265.9 million, a boost of 83.1%.[81]

Through it all, EPA did not appear to evince any concern in the final financial assurance rules it adopted for the inherent problems relying on company books. Along with a cascading tide of massive bookkeeping scandals at Sunbeam, Rite-Aid, Cendant, Adelphia Communications, Xerox, Enron, Tyco, WorldCom, HealthSouth Corp. and, most recently, Parmalat — Waste Management's serial propensity to falsify its financial statements and misrepresent its earnings and balance sheet were all, apparently, ignored by EPA.

The Agency continued rules to accept what the facts show to be undue risks of misstatements in reported balance sheets. Although the EPA would not itself suffer were their indifference to these major risks to lead to a financial meltdown, the states, along

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78 Bob Brown, "WMI: It was a very bad year," *Waste News* (December 20, 1999).

79 Jeff Bailey, "Star Rescue Team Gets Tarnished by Taking on Waste Management," *Wall Street Journal* (February 29, 2000). Michael Schroeder, "Suit Says Policing Audits is Conflict for SEC," *Wall Street Journal* (February 22, 2001).

80 Jonathan Weil, "Waste Management Suit by SEC Zings Anderson," *Wall Street Journal* (March 27, 2002).

81 Complaint in *SEC v. Safety-Kleen* (U.S.D.C.S.D.N.Y., December 12, 2002), at p. 4.

with municipalities and the largest corporations who use the landfills, would be left to raise taxpayers in order to cover the attendant costs.

States Capabilities and Access. Even if the state regulators had ready and reliable access to the data purporting to show an applicant's net worth, there are serious questions whether they would be able detect accounting misstatements, and access to underlying information to verify the claims. For any landfill owner (including parent companies) with landfills outside California, the State's task is further complicated because, in order to verify the reported financial ratios and net worth, regulators must have accurate and current data each year on all of the other landfills as to their future liability and how (or if) those liabilities, and any other associated liabilities, have been accounted for to subtract from the assets.[82]

Compounding the problem, a key provision of the EPA rule significantly eliminates for the states their concerns whether they have the very substantial expertise in accounting and finance, intimate knowledge of the company's operations across the country, and a detailed understanding of the financials unique to this industry. For EPA also made it unlikely that the state regulators would ever see the supporting documents to review.

A subsection of the federal self-insurance provision provides that financial claims are not even required to be submitted to the state permitting authority, nonetheless require that the state independently review the self-interested claims. That point is at such marked variance to sound regulatory principles that it deserves to be repeated and emphasized:

> **The EPA's rule provides that the permitting state authority should normally never even see, nevertheless review, the purported claims, which allegedly support financial means.**

All that is required under the federal rule is for the landfill owner to maintain a copy of its claim in its files, and notify the state only once when the claim is first made that copies of the backup documents are in the owner's files.[83]

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82 *Op cit*, Boyd, at pp. 48 to 49.

83 40 C.F.R. §258.74(e)(2)(vi). This does not appear to be due to inadvertence inasmuch as the policy is repeated later in EPA rule-making over records concerning even more worrisome hazardous waste disposal. *See, e.g.*, EPA Docket F-2001-SPRF-FFFFF - Hazardous Waste Management System; Standardized Permit; Corrective Action; and Financial Responsibility for RCRA Hazardous Waste Management Facilities. There would appear to be a deliberate policy to both make it substantially more difficult for the staff of the state regulatory agency to independently evaluate the naked representations in the operator's filing, and also to prevent the affected public from having access to regulatory documents of potentially great importance to their welfare. On the other hand, California's rules do require the operator to submit the supporting material to the Board. 27 C.C.R. §22246(h).

Major concerns exist about the decision to allow the financial test as an approved assurance mechanism in and of itself. But, this particular provision, which acts to remove any process for the states to assess a landfill owner's financial means, would seem to eliminate any basis to claim that this test provides any substantive assurance of anything.[84]

Nominally, states that do not override federal rule may, on some occasions, get access to some of those documents. However, that is only *if* the state can prove, without access to those documents to do so, that because of changing circumstances the owner may "no longer meet the [rule's] requirements." At the point at which the landfill owner's financial predicament has become so widely known that the state has become aware of it from published reports would almost always be after it is too late to repair the problem.

To a similar effect, no provision is made for states to challenge the first posting when it receives notice that the landfill owner has put it financials on file in its office. Needless to say, the public, which will later be asked to pay higher taxes for to bail out the private landfill owner, can never see the records absent the state's choosing to subpoena them.[85]

Fortunately, at least the practice in California is to require the submission of all of the underlying documents used to support a claim of financial means.

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84 An examination of the details of how EPA interpreted the highly questionable financial means test only raise more disturbing questions. Another example is an interpretation of the financial test rule that the agency issued for Subtitle C facilities in 1997.

Even though the Securities and Exchange Commission required public corporations to recognize future liabilities on their balance sheets in their annual reports, EPA said it will permit landfill owners to "adjust" their reporting to delay recognition of certain known future liabilities in the statement of the firm's financial strength. These adjusted statements, which omit major future costs, could then be used to excuse the company from being required to post cash or to contract with third parties to insure that the post-closure maintenance is done. Memorandum from Elizabeth Cotsworth to RCRA Policy Advisors, re Obsolete Language in the Financial Test for Subtitle C Treatment Storage and Disposal Facilities, dated February 27, 1997:

> "[I]n reporting for 'post retirement benefits other than pensions' (e.g. health benefits for retirees), FASB Statement 106 allows either an immediate or deferred recognition of these benefits as liabilities. Since either method is allowable under generally accepted accounting principles for financial reports, EPA will allow companies to use the immediate recognition method for their financial reporting to the SEC and the delayed method for purposes of the financial test."

The issue here is whether a private company that looks financially strong today will also be sufficiently vigorous 40, 50 or 60 years in the future to continue making substantial outlays, which although necessary to protect the environment, are non-revenue producing for the firm.

This technical sounding memorandum makes the entirely untenable assertion that a showing of a firm's financial strength necessary to provide that extraordinary assurance can ignore major future costs that it will have to cover at the same time in the future.

85 40 C.F.R. §258.74(e)(2)(vi).

Ignores Long Term. EPA has largely defended the overlying rational for the financial means test based upon analyses showing that small firms fail more frequently than larger ones.[86] However, its supporting analysis looks at short term correlations and does not even purport to predict a firm's financial vitality *as much as 50 years or more in the future*, which is the time period the landfill owner is supposed to be liable for maintenance and remediation (when a 15 to 20 year operating life is added to a 30-year post-closure period).

In the longer term that pertains here, any such short-term correlations between size and business failures become immaterial as technological and social changes undermine once vaunted positions in the market. During such a long time frame, industrial giants which once had double and triple A bond ratings like the once redoubtable Penn Central Railroad, Bethlehem Steel and Pan American Airlines have gone bankrupt due to technical change. Today, AT&T's debt, once at the apex of financial security, is rated junk bond status and only a fire sale acquisition stands between it and bankruptcy. Or, reminiscent of what may the future may bode for the landfill industry, the bankruptcies of Dow Corning and Johns Manville were largely due to a failure to anticipate the size of environmental liabilities that attach to their product or service. In the last 22 years, there have been 21 bankruptcies involving companies with more than $10 billion and as much as $103 billion in assets before their filing.[87]

Moreover, all of that just concerns the difficulty predicting how the winds of change can upend once great megaliths of the economy. Separately at issue is the inherent difficulty inferring financial strength from reported results due to fraudulent books that is discussed later.

Essentially, then, there is only way to rely upon the present volume of assets of the landfill operator to anticipate its future financial vitality. That is in the hypothetical case in which the regulator is informed of the firm's declining economic well-being in time to find and to secure replacement assurance from someone else. Yet, as noted, warning flags were not raised in advance of many historic bankruptcies, and third-party instruments are normally only issued when the risks are adequately collateralized, something a distressed company at that future time will not have.

Even Healthy Firms Could Not Afford Care. In aggregate, the costs of care during the post-closure period are so large that even landfill companies that remain financially healthy for such extended time frames will probably not be able to afford to make the required outlays if they relied on the financial test instead of setting aside the necessary funds while the site was still operating.

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86 63 FEDERAL REGISTER 17714 to 17718 (April 10, 1998).

87 BankruptcyData.com, *The Largest Bankruptcies 1980-Present* (2002).

What is missing is the fact that indices of corporate size and profitability underpinning EPA's financial test fail to fully contemplate the fact that waste firms that are larger also will tend to have many more landfills — each with their long-term landfill liabilities. While some, but not all, of the tests attempt to screen for that fact, they must fail because each severely undercounts the magnitude of those liabilities.

Putting aside the larger concern that the enormous costs of corrective action and third party injuries are not considered, and also ignoring the concern whether landfills in other states are properly tallied, major and incontrovertible maintenance liabilities are not counted as a deduction from assets, because only minor and not inevitable major maintenance costs are accounted for. As discussed earlier, that could run nine times more than the incidently lawn mowing type of costs that are recognized.[88]

FIGURE 6 provides a graphic example of the difference between the major liabilities for more complete maintenance (but not corrective action) to the cash that a large landfill company might have to pay after the site is closed. Waste Management's net income and free cash flow is compared to the annual routine and non-routine costs of post-closure care for its stable of landfills.

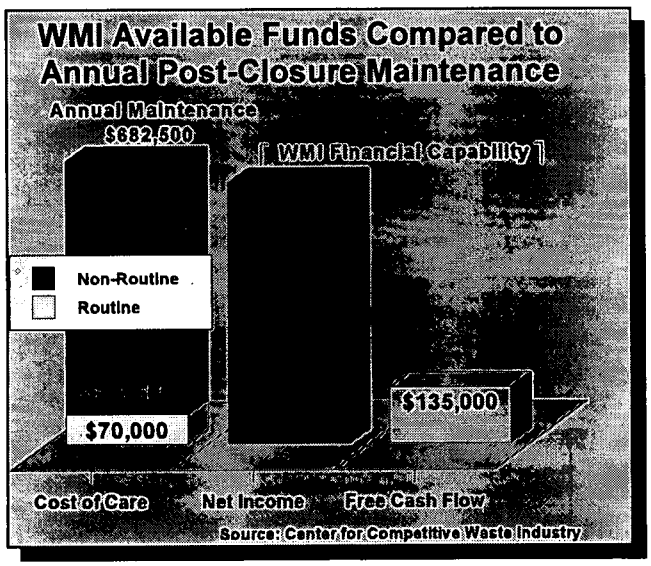

FIGURE 6

The annualized cost of cap replacement every 20 years is used as a surrogate for the constellation of maintenance activities that will be required to maintain the site above and beyond lawn mowing and well sampling. It is, please note, a conservative one, omitting, for example, the enormous costs of repairing clogged leachate collection lines when obstructions can be cleared with clean out heads, and which is likely to be a recurring problem over time.

Because these post-closure costs are not related to any revenue producing activity, there does not appear to be a realistic opportunity to finance these annually recurring expenses. Not only is its earnings stream insufficient, but, in reality, the only available long term funding source for post-closure care is the firm's free cash flow, not its net income that includes non-cash items, such as depreciation. In the example shown in this chart, the average annual maintenance costs, $685,000 per year – conservatively stated – will be

88 *See* page 40.

more than five times greater than Waste Management's cash flow, $135,000 — before considering the corrective action or third party injuries.[89]

Relative Improvement Is Not Sufficient. Before turning to whether the regulator is likely to receive timely warning of decline, the very predicate of EPA's justification of self-insurance also completely fails to address a more fundamental question. That is whether a large firm's current financial girth – by itself and apart from the irrelevant question of whether that affords *relatively more* assurance than a firm with less weight that the agency purported to test – provides *sufficient* assurance that the State will not be left to pay for private costs. Inasmuch as very few companies, regardless of how strong they may appear today, can be expected to be sufficiently healthy 50 years in the future to pay massive sums to remediate retired and nonrevenue producing assets, any such claim would be fatuous.

Regulators Unlikely to Receive Time Warning of Financial Decline. In any event, the record is replete with instances in which the regulators either did not receive timely notice of changing financial circumstances, or were unable to find a replacement assurance mechanism when it did.

A study of 673 bankruptcies between 1996 and 2001 by Bloomberg found that 363 companies' last filed financial statements – 54% – contained no cautions by the auditor in the months before bankruptcy.[90]

In Dow Corning's case, the company went from an AA bond rating into bankruptcy in one year brought upon by the breast implant litigation costs. None of that, however, had inhibited Dow from submitting a claim of financial means based upon accounting gimmicks just before this happened. Its RCRA site was left without adequate coverage for closure and post-closure costs.[91]

In the case of Safety-Kleen, the company was in a weakened financial condition when it received notice in 2000 that its surety company, Frontier Insurance, had been removed by the U.S. Treasury from its approved list (Treasury approval of sureties is required by EPA's rule).

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89 Waste Management data is from its Form 10-K (2003), at pp. 4, 47 and 48. The annual report only indicates that the company had 284 landfills in 2003 that it owned or operated. Not shown is what proportion of that total are those for which it has financial responsibility, nor the closed landfills, nor new landfills that will be built in the future. We assumed that in the future there would be 350 landfills that WMI would be responsible for providing post-closure care. Cap replacement costs were described earlier in note 10.

90 Stephen Taub, "Teetering on the Brink – But No Audit Warning," *CFO.com* (April 25, 2002).

91 *Op cit*, Boyd, at p. 48.

The Treasury list, however, was only intended for qualifying completion insurance/bonds for road building contracts over the next six months, not over decades. It was never intended for the purpose of long term viability, and EPA could not have been unaware of that when it chose it, nor that there are institutions which do look out over the short term.

The insurance rating agencies are the institutions which evaluate the long term health of insurance companies, and those rated A and above can be expected to have set aside reserves that are generally understood to be adequate for long term health using sound underwriting principles.

Without any other explanation for EPA's odd choice for ratings, there cannot but be a concern that it chose to not to use the appropriate mechanism because of pressure from the landfill companies who wanted to minimize their costs by being allowed to buy very low cost plans from companies that could not necessarily be expected to make good were things to go wrong.

The result was to permit landfill sureties which were little different from the insolvent savings & loans in the early 1980s, which kept themselves afloat by offering unaffordably high, but federally insured, interest on brokered CDs in a desperate effort to continue enticing depositors that was no more than a Ponzi scheme.

Frontier offered low ball premiums to attract customers, knowing it could not afford to pay out on major claims, and their financial ratings reflected this fact.

Safety-Kleen, in turn, had selected it because Frontier was the only surety that would give it a bond when it did not have adequate collateral to secure coverage from a surety which would have the ability to pay out if required to do so. Once delisted, the hazardous waste company found itself without coverage and with a balance sheet too weak to secure a replacement policy. In short order, an investigation found that its books had not properly accounted for such things as long term liabilities, resulting in overstating earnings by $534 million in the prior two years.

The EPA had structured its rule in a way that permitted hopelessly weak sureties to qualify, and therefore failed to take cognizance of the analogous laws of physics that like particles attract each other. Weak sureties, with their low premiums and anemic requirements for collateral, attract weak companies which are seeking a bond, and that creates a fatal lack of independence between the two, with a high likelihood of the surety's failure causing the failure of the insured.

There should have been no surprise, then, had the EPA crash tested its rule, in which case it would have seen that both the surety and the landfill owner could fail at the

same time.[92] The two failure events were linked, rather than being independent of each other, as is necessary for third party guarantees to add assurance.

Worse than the company's predicament was the one facing the EPA. When a company is a going concern, a regulator's threat to shut down its disposal facilities, from which it generates significant cash flow, might well be a credible warning. However, when the company's viability is degraded, and the firm is tottering on bankruptcy, which Safety-Kleen did enter shortly thereafter, what tools does the regulator have? EPA tried issuing a series of deadlines for the company to come into compliance, but to no effect.[93]

In the end, Safety-Kleen, sheltered by the bankruptcy court, only offered pennies on the dollar to communities that hosted its hazardous waste landfills for the legacy costs it orphaned to the taxpayer, and only then if they agreed to release the company of all future claims. At its Sumpter County hazardous waste landfill near Lake Marion, South Carolina, Safety-Kleen offered the municipality $49 million, most of which was allocated for continuing care, while projections indicate the taxpayers will be liable for $133 million in clean up costs if there is a major leak, by some state estimates, and over a billion dollars according to others.

Tragically, this could have been avoided. Twelve years earlier, after meeting privately with the company, the appointed board for the state's Department of Health and Environmental Control had ignored internal studies and its own staff's recommendations, which urged imposition of a $133 million cash bond, and instead permitted a unsecured corporate guarantee.

Because of the political influence which the company had exerted, it was able to force the state to accept that deal, against its wishes."[94]

California's Predicament. Sixteen percent of California's Class III landfills in number (not size) use either the financial means test, or its close variant, the corporate guarantee,[95] which the Board incorporated into the California standard, in response to the

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92 Government Accounting Office, *Financial Statement, Restatements: Trends, Market Impacts, Regulatory Responses and Remaining Challenges* (GAO-03-138, October 23, 2002). Betsy McKay, Safety-Kleen Says Restatement Reduced Earnings for Fiscal 1997-1999, *Wall Street Journal* (July 10, 2001). Jim Johnson, "Clean Harbors buys Safety-Kleen unit," *Waste News* (March 4, 2002). Arlie Porter, "Waste dump closed, Safety-Kleen Site," *Post and Courier* (January 23, 2000).

93 *Op cit*, Boyd, at pp. 40-41.

94 Sammy Fretwell, "Landfill deal threatens S.C. lake, taxpayers, *The State* (June 13,2004), as is discussed in more detail later in the EPILOGUE on page 137.

95 Staff, *Post-Closure Maintenance Presentation* to CIWMB Permit and Enforcement Committee (November 3, 2003), Power Point Slide No. 17. This data should be expanded to provide a weight-adjusted breakdown, and the names of each landfill whose assurance is provided within each category should be stated.

statute under which it operates.[96] This includes the following five privately owned landfills: Altamont, Simi Valley, Kirby Canyon, CWMI Kettleman Hills and Guadalupe Disposal Site, all of which are owned by Waste Management, Inc. *See* TABLE 8 for details.[97]

California MSW Landfills Using Financial Means Test to Show Proof of Financial Assurance

Landfill	Owner	Capacity (cu.yds.)	Remaining Life (cu.yds.)
Altamont	WMI	58,900,000	15,843,000
Simi Valley	WMI	43,500,000	9,473,131
Kirby Canyon	WMI	36,400,000	57,271,507
CWMI Kettleman Hills	WMI	4,200,000	3,374,413
Guadalupe Disposal	WMI	16,500,000	12,662,789

Source: Center for Competitive Waste Industry

TABLE 8

Perhaps because the enabling statute was thought to partly constrain its ability to presumptively exclude any mechanism permitted by EPA, the Board appears to have attempted to deal with the inherent fallacies of net worth tests with a strategy of strengthening the weak trigger mechanism in the federal rule. The California trigger requires an annual filing by the landfill owner of its audited financial condition. If there is a weakened showing, the rule requires the filing to be accompanied by a demonstration of an alternative form of assurance.[98] But, even though the staff in California, unlike many other states, is receiving these reports, the trigger remains wholly ineffectual as an attempt to repair the gaping holes in the means test.

As before, the fact that the company books cannot be relied upon to establish the true financial health of the firm at a given point in time, and the further fact that financial collapse can occur in the space of months, is just the beginning of the problem. Again, by the time the Board becomes informed of serious questions about the earlier financial reports and is in a position to act, there almost certainly will be no way left to establish a new assurance mechanism to replace it.

Moreover, as to some of the other problems with the attempted repair, it only requires the landfill owner to make subsequent filings of any change in circumstances 90

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96 P.R.C. §43601(b); §43601.5.

97 CIWMB Response, dated January 13, 2004, to RecycleWorlds' FOIA Request. CIWMB SWIS Data Base.

98 27 C.C.R. §22246(h).

days following the end of its fiscal year (which in the Waste Management case described above was nine months later), after which the Agency will take several months to issue a notice of deficiency, followed by another 60 days for "the operator [to] obtain alternate coverage," and, if the company cannot, another 10 days to notify the Board of the failure.[99]

As we have seen, in the real world, there is a distinct possibility that not only can a drastic change in financial condition occur suddenly, as opposed to a gradual deterioration over time as the rule envisions, but also third party guarantors are not in the business of providing assurance for shaky businesses. For that reason, the waste company cannot be expected to secure alternative assurances when it has entered a time when even the Board has become aware of there being financial deterioration.

What practical recourse will the Board have at that time when it is no longer dealing with a going concern or when the dispute is whether to fully prepay into a fund to maintain a nonrevenue producing asset? When payments to pension funds are suspended, where in line will the Master in Bankruptcy place the State's interest in distant, and seemingly non-critical, problems? The answer is probably none and toward the rear, as the Safety-Kleen bankruptcy graphically demonstrated.

Nor is it likely that a bottom-fisher, vulture or a turnaround artist that acquires the distressed company with landfill assets would also include in its offer to purchase the shuttered disposal facilities and the unknown liabilities attached to them, which is precisely why banks do not foreclose on mortgages of buildings overlying brownfields.

The Board's long journey towards a rational financial assurance program that can truly protect California from billions in budgetary demands during its fiscal crisis must begin with the urgent and pressing need to eliminate the financial means test. Although the Board formally acted against most captive insurance companies due to their lack of assignability, its action was underscored by a serious concern about the lack of assurance provided by self-insurance. The exact same basis for its concerns over captive insurance apply to the financial means test, yet another form of self-insurance.

How to do that in the face of the statutory admonition to not exclude the use of any mechanism permitted under federal law[100] is dealt with as part of the next section of this report.[101]

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99 27 C.R.R. §22246(h)-(k). Also, the Board can seek further information between filings. 27 C.C.R. §22246(i).

100 P.R.C. §43601

101 *See* page 89.

Letters of Credit, Surety Bonds & Insurance v. Trust Funds

The five basic remaining types of approved mechanisms for assurance can be divided into two groups, those that depend upon third parties to add further assurance, and those that resort to segregated trust funds.

Third Party Approaches. Letters of credit, insurance and surety bonds are all mechanisms that increase the level of assurance by involving a third party, which contractually agrees to step in if the landfill owner fails to perform minor and routine post-closure maintenance. They provide assurance by diversifying the risk of nonperformance beyond the resources of the landfill owner because, if there is true independence, the probability of non-performance by the landfill owner will not affect the probability of default by the other party. Both parties to the contract are, therefore, unlikely to be financially in distress at the same time. Also, financial institutions, which are often the third parties, may have greater insulation from some of the economic vicissitudes that impact other businesses.

Segregated Fund Approaches. Trust funds, on the other hand, provide additional assurance by segregating the entirety of the funds required for long-term care by the time the site is anticipated to close. Assurance comes from the fact that, at the time non-performance occurs, the cash is physically present without any need to be concerned about the status of another, third-party to be able to provide the necessary funds at that time.

Comparison Between the Two Approaches. The main distinguishing features between these legitimate forms of assurance turns on differences in protection against premature shutdown, misestimation of the cost of care, and the accessibility of the funds.

Essentially, the great strength of the three third-party mechanisms (surety bonds, letters of credit and insurance) over segregated instruments (trusts funds) is that the full amount specified for closure and minor post-closure maintenance is Day One coverage. On the day when the landfill first receives waste, the owner must begin paying premiums that provide the defined coverage.

On the other hand, segregated mechanisms slowly accumulate the full amount over the anticipated operating life of the landfill. Thus, if the site is forced to close earlier than expected, there may not be sufficient funds to cover the planned expenditures on long-term care.

As for the segregated approaches, their strength is the assuredness that, if called upon, the funds will be there for the state to access, regardless of the financial turbulence

the landfill owner is experiencing or the possibility of simultaneous economic stress of the third party or its preference to litigate rather than to pay out on the policy.

On the other hand, the third-party approaches have a back-end weakness. Were the operator to experience financial stress and cause the surety, insurance company or bank to conclude the risks of continuing the policy have become too great in light of changes in the landfill owners' ability to collateralize the coverage, they could prospectively cancel the policy. There are buffers intended to protect against that eventuality, but they are not foolproof.

The rule provides that any policy must include a provision that insures that a 120-day warning is given prior to the effective date of any cancellation notice. During that time, the intent is that, first, the landfill owner would find replacement coverage. Alternatively, was that not possible, the state has the legal right to cash out of the policy's coverage and place the monies into a stand-by trust fund to insure that minor maintenance expenses are covered.

However, as to the first, a replacement policy would seem unlikely if the original third party determined that the owner's financials had declined.[102] As to the second, there is the nontrivial risk that the state could fail to exercise its right to lay claim to the assurance funds before the rule's mandated three-month advance notice has passed.[103]

In addition, some have raised questions whether some third-parties may refuse to pay all or part of a state's claims in the event there is non-performance without the specter of costly and protracted litigation.

Lastly, both the segregated approach as well as most of the third-party mechanisms fail to provide protection against the risk that the landfill owner significantly underestimated the cost of routine care, as he or she has a self-interest in doing, and as the Inspector General found is occurring.[104] Among the three third-party mechanisms, only insurance has the practical capability of providing protection against underestimation to the extent that the maximum coverage of the base policy and any umbrella for any exceedances is not less than the amount of the final costs for the state to undertake completion of maintenance responsibilities.

Since premium costs typically reflect a probabilistic assessment of the policy being exercised, and, if so, of how much the claim may be, insurance will tend to offer substantially lower costs to provide more conservative margins of protection above the bare bones estimates of future costs of care than other mechanisms. Those other

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102 *See* NOTE 26 on page 82.

103 40 C.F.R. §258.74(b)(6), §258.74(c)(3), and §258.74(d)(6).

104 Inspector General, *supra*, at pp. 45-46.

mechanisms will also tend to require collateral in the amount of the face value of the coverage.

Reasonable people will disagree about which mechanism is preferred for minor long-term maintenance expense, because they both have roughly comparable degrees of strengths and weaknesses. But that is not to say that either has yet to be sufficiently fleshed out to truly protect the interests of the state in not bearing the costs of massive cleanups for orphaned landfills.

In the next section, we will make proposals on how to patch up the holes in surety bonds and letters of credit.[105]

Early Trust Fund Withdrawals Would be Too Risky

The Board's notice also asks whether, and under what conditions, the operator should, in the future, be permitted to draw down trust funds as post-closure care proceeds and the anticipated future demands decline.

If there is no reasonable chance that the actual costs that will be incurred after closure may exceed the amount specified in the Post-Closure Maintenance Plan, and if there is no possibility that the Board may need to extend the minimum 30-year post-closure period, then there could be a basis for permitting early draw-downs, as is the current practice.

However, neither hypothetical assumption is correct. As noted earlier,[106] the current scope of maintenance plans is limited to minor items, and excludes major maintenance, such as replacing the final cover and repairing clogged leachate collection lines that will almost certainly be required.

Equally salient is the fact that the Board's rule, which purports to give it the right to extend the post-closure period beyond 30 years, is effectively meaningless unless there are assurance funds available at that time to continue care. Extending the care period to 40 or 50 years, for example, would be an exercise in futility were the former site operator defunct in the absence of segregated funds available to the state to, itself, render that care. Moroever, as shown earlier, even a financially viable large landfill company does not have the cash flow to pay the aggregated costs of its many holdings for non-revenue producing purposes.[107]

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105 *See* page 110.

106 *See* page 40.

107 27 C.C.R. §21900(a). *See* page 79.

Therefore, the rules should be amended to deny premature draw downs from landfill operator's financial assurance mechanism until at least the end of the post closure period, if not the site reaching final storage quality. ☞

Chapter 3

The Correct Answer

The market, in the form of insurance, should be used to determine long term landfill risk and protect

As presently phrased, the answer to the Board's question is that extending the post-closure period will not prevent landfill's long term problems from becoming an obligation of the State and its municipalities. But, saying that, and nothing more, does little to constructively advance the ball down the field, and so let us move onto the basic principles learned from this rather lengthy analysis.

The focus of the existing rule is on providing assurance that the *hundreds of millions* of dollars of *maintenance* costs for closed landfills do not devolve into a liability of California's taxpayers. However, we now know that the far more critical issue is how to develop new mechanisms that will insure that the *billions* of dollars in *environmental* liabilities do not wind up as an obligation of the State.

For that reason, this chapter first addresses the environmental issues and makes a key proposal to protect the State that differs significantly from the existing assurance structures. After that, recommendations are also made on how to modify the existing assurance provisions to better afford protection with regard to those lesser maintenance issues.

Protecting States Against Long-Term Environmental Liabilities

What has too long been missing from the financial assurance debate is recognition of the fact that most of the licensed dry tomb landfills will probably pollute after the end of the post-closure period.[1] Costs in just California could be in the tens of billions of dollars – none of which is covered by any of the mechanisms in place as they are currently applied.[2]

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1 Although there are also concerns about the magnitude and severity of uncontrolled landfill gas emissions during operation, those views are not uncontroverted, as are, to large measure, the ones surrounding groundwater contamination. To simplify discussion here, but not concede the air issue, this report is confined to a discussion of groundwater contamination.

2 Approximately, 70% of the 240 landfills subject to financial assurance are in non-arid areas, and Superfund cleanups of sites with greater hazardous constituents may cost about $25 million a site for containment.

(continued...)

Those environmental liabilities that will follow post-closure are not just critical to address because of their greater magnitude than the relatively minor maintenance costs during post-closure. Even more of a factor is that only a small proportion of post-closure responsibilities are expected to be abandoned. On the other hand, since the largest environmental failures will tend to become manifest only after the owners' liabilities have lapsed, virtually all of the *post* post-closure environmental problems will be orphans of the State by definition.

Uncovered Long-Term Costs

There are three types of environmental landfill liabilities for which the State needs to be protected: corrective action to remediate, not just contain, pollution by landfills; injuries to third-parties by pollution from landfills during post-closure or afterwards; and major maintenance expenses during post-closure.

Corrective Action. Current federal and state rules notably fail to address the probability that most of the licensed and engineered, dry tomb landfills will leak after the end of the post-closure period. The EPA rule only speaks to corrective action of environmental failures for "known" situations, i.e. leakages that have already been detected.[3] Since the federal regulations relieve the landfill owner of any further responsibility, including that for financial assurance, after about 30 years, and since most liner failures will not become "known" in that strict sense until after the end of the post-closure period,[4] the current federal financial assurance structure does not address the major liability facing the states.

One of the Bush Administration's stated policy objectives has been to devolve regulation to the states.[5] Whatever the pros and cons of that agenda, less publicized has been its companion policy to also devolve to the states the liabilities from industrial pollution that deregulation permits to continue. Devolving liability to the states violates the very intent of financial assurance.

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2 (...continued)
Although it may be the case that the hazardous constituents of a municipal landfill may be less than for a hazardous landfill, the repair costs will not likely be substantially different in terms of relative magnitudes because the groundwater is contaminated either way.

3 40 C.F.R. §258.73(a).

4 *See* page 8.

5 John Stanton and April Fulton, "Supporters predict quick confirmation for Leavitt at EPA," *Congress Daily* (August 12, 2003). Mark Hertsgaard, "Trashing the Environment," *The Nation* (January 16, 2003). Todd Wilkinson, "Eyes on Washington, The Environmental Guide," *The Amicus Journal*,(Spring 2001).

To its credit, California's rule goes beyond the federal minimum and also requires assurance for corrective action that is "reasonably foreseeable."[6] At this time, only the state's Water Boards have acted to implement this provision, and, for that reason, only attempts to apply it for damages related to impairment of the state's waters. TABLE 9 shows the amounts presently posted for foreseeable corrective action among the state's 25 largest privately owned landfills for which data is available.

Amounts Designated for Corrective Action at Largest Private Landfills in California
2003

Landfill	Permitted Capacity (Cu.yd.)	Corrective Action		
		Mechanism	Cost	Cost/Yd
Chiquita Canyon	45,889,550	Insurance	$489,192	$0.01
Altamont	58,900,000	Surety Bond	$722,766	$0.01
Otay Annex	59,857,199	Letter of Credit	$183,000	$0.003
Sycamore	27,947,234	Surety Bond	$162,000	$0.01
Simi Valley	43,500,000	Surety Bond	$551,551	$0.01
Bradley West	38,600,000	Surety Bond	$3,799,210	$0.10
Durham Road	19,271,000	Surety Bond	$903,023	$0.05
WM Lancaster	22,645,000	Surety Bond	$551,560	$0.02
Antelope Valley	6,480,000	Surety Bond	$421,303	$0.07
Kettleman Hills	4,200,000	Surety Bond	$330,365	$0.08
Ostrom Road	41,822,300	Trust Fund	$1,536,720	$0.04
Quadalupe	16,500,000	Surety Bond	$288,631	$0.02
Cold Canyon	8,773,339	Letter of Credit	$396,000	$0.05
			Average	$0.04
			Stand. Dev.	$0.03
			Coef.of Var.	86%
			Lowest	$0.003
			Highest	$0.08

SOURCE: CENTER FOR COMPETITIVE WASTE INDUSTRY

TABLE 9

As indicated in the table, the amounts posted for reasonably foreseeable corrective action range from $162,000 at the Sycamore landfill to $3.8 million at Bradley West, with an average value of $795,025. Converting the indicated costs to a per cubic yard figure to normalize for the different size facilities shows a range of one-third of a cent per yard to 8¢/yd.

The amounts currently recorded for reasonably foreseeable corrective action are both too small to even cover non-routine maintenance, such as just the first of many $10-plus million cap replacements, nonetheless corrective action for containment or, needless

6 27 C.C.R. §22221(a).

to say, true remediation. In addition, the large variation among those landfills, in which reported values for foreseeable corrective action is so large, there does not appear to have been consistent regulatory guidance or review on the subject to the permitees to insure compliance with the intent of the rule in practice.

All corrective action, properly defined, whether known or occurring during or after the post-closure proof period, should be covered for remediation.

Third-Party Injuries. The other major long-term environmental landfill liability claims would be from third-parties for personal injury and property damages in the event pollutants escape from the landfill or there is catastrophic site failure. Because either environmental excursions or site failures will tend to occur before the incipient failures leading to those events are detected, funds will be needed both to make those injured whole as well as to recover site stability. Costs related to preventive actions, such as replacing a cap or installing relief wells are not as likely to be involved.

Unlike the federal law, California code requires landfill owners to provide coverage for third party injuries. However, similar to federal hazardous waste statutes, that requirement ends when the site is closed — precisely when the coverage is most likely to be needed.

Coverage for personal injury and property damage should be extended as long as can be provided after closure, and appropriate assurance mechanisms need to be adapted to increase the probability that landfill neighbors will not be left exposed at the very time when injuries are most likely. More about how to do that through insurance is discussed later.

Major Maintenance. Things like replacement of caps and clogged leachate collection lines do not come within the ambit of current itemized maintenance costs, even though they can incur major expenses. They are not currently considered as routine and predictable, but they very likely involve measures that will be needed during the post-closure period to prevent leakages.

One means to do so would be a perpetual care fund accumulated as a sinking fund over the site's life for things that are relatively predictable such as the recurring need to replace the final cover at regular intervals over the centuries that the waste load remains a potential threat. Clogged lines are less predictable, but at the very least they should be flushed, cleaned and tested annually to lessen the occurrence rate of serious jams blockages that cannot be removed with major surgury.

New Times Demand Action

In the 1990s, financial assurance rule-making focused on optimizing "flexibility" for the landfill owners.[7] However, in practice, that seemed too often to translate into minimizing their costs and maximizing their opportunities to shift risks to the public. Today, times have drastically changed and reached a critical turning point.

Now is the time that action is compelled because most now recognize that most of the dry tomb landfills will, in the words of EPA, "ultimately fail."

Now is also the time because, with each passing day, more of today's landfills come too close to the end of their operating lives to be readily absorb new and costly assurance requirements and to amortize makeup dollars at an affordable level.

Lastly, now is the time because, at the end of 2003, California had a $14 billion debt and another $4 billion structural deficit. The costs of bailing out landfills, if the Board fails to act in the near future, will ultimately translate into even more cutbacks in aids to local government, health and welfare and education services and other critical needs for the citizens of California.

Very interestingly, while the appropriate response is contested, there is a wide consensus between the public sector and the private waste industry that now is the time that there should be resolution about how the endpoint of post-closure care will be determined. The Inspector General has advised that:

> "The consequence of not addressing the problem of postclosure care may be that the state or federal government will be left with the financial burden of addressing any remaining post-closure care necessary at these facilities. It is important to assess the need for additional post-closure care while the facility is in an economic position to fund additional postclosure care. Rather than passing the problem of postclosure care on to future generations, the problem should be addressed now, and solutions implemented for each landfill long before the end of the 30-year period ..."[8]

The waste industry financial assurance paper discussed later reaches that same conclusion.[9] Their report states:

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7 63 FEDERAL REGISTER 17708 (April 10, 1998).

8 Inspector General, *supra*, at p. 43.

9 *See* page 117.

"Defining the end of post-closure care is currently a topic of great interest within the solid waste community. It is important to address this subject sooner rather than later because, if the period is lengthened, as much time as possible will be needed to accrue the requisite funds, and a large number of pre-Subtitle D landfills are passing the end of post-closure care."[10]

Obviously, this report is only one of a long line of such documents questioning the foundation of today's financial assurance structures as a fitting vehicle to provide the states with full protection against major long-term landfill liabilities. Because the day of reckoning from those years of accommodation is rapidly approaching, the debate has recently shifted to where the law demands it should be. That is to eliminate the public's risk rather than the operators' risk, because pollution delayed will otherwise ultimately wind up as a government obligation, which will result in higher taxes and lawsuits seeking deep pocketed potentially responsible corporate parties.

Moreover, some concerned state regulators, seeing a fiscal crisis coming around the corner, have, commendably, already attempted to resolve the transparent shortcomings of current financial assurance rules, but within the limits of the tools currently in use.

These proposed regulations have usually conceptualized a new perpetual care mechanism to supplement existing instruments. An example of this process is what is used for long term cemetery care. The Wisconsin Department of Natural Resources conducted a study that compared the cost of a traditional proof of financial responsibility period for post-closure maintenance to a perpetual proof period. Annual payments into a trust fund over an assumed 15-year site life would increase from $178,000 to $330,000 per year. In addition, they added an entirely hypothetical $10 million proof of financial responsibility for corrective action that would be also be funded through annual payments during the 15-year site life. This would require annual payments to a trust fund of $480,000. So, the combined additional payments into trust funds would be $632,000/year. For a five million-ton landfill, this would equate to $1.89/ton in the case where the cost is spread over a 15-year life.[11]

But, those earnest efforts to address the problem, while commendable, do not reach to the heart of the problem. To understand why, an understanding is necessary of the difference between *assurance* and *insurance*. Without an understanding of that basic construct, a solution that matches the appropriate mechanism with the distinct problems landfills pose will elude our grasp.

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10 Jeremy Morris, *et al.*, "Performance-Based System for Post-Closure Care at MSW Landfills — A New Approach to the Current 30-Year Time-Based System of Subtitle D" (2003), at p. 3.

11 Dennis Mack, *Evaluation of Proposed Financial Assurance Enhancements* (WI Department of Natural Resources, 2003). Assumptions included: inflation, 2%/yr., interest, 4%/yr., site life, 15 years. The comparison was between perpetual care and the 40 year post-closure period used in Wisconsin, not the EPA 30 year period.

Assurance v. Insurance

There are twin aspects of long-term landfill liabilities that are very distinct. One type is the routine and relatively predictable items, such as minor maintenance costs that occur within the post-closure period, which is what the financial assurance rules most directly seek to address.

The other type is a major release of pollutants, which would have adverse impacts on the environment and public health, and have a significant probability of occurrence at some unpredictable time in the future, to widely varying extents.

For the first type of liability, namely the relatively predictable maintenance items (trusts, surety bonds and letters of credit), all can be appropriate mechanisms for assuring the State that it will not be left with the costs of undertaking long term maintenance where the operator fails to do so – but only if their structures are reinforced, as is described later.[12]

However, all of them have several limitations if an attempt is made to apply these mechanisms to the latter type of environmental liability. The first and debilitating problem that the usual assurance mechanisms cannot address is, again, their lack of long arms to reach failures that occur *after* the end of the legally defined post-closure period, which is the very time when most of the releases will probably occur.

The second problem stems from the probabilistic nature of these environmental concerns. We know that in non arid areas there will be containment failures that reignite uncontrolled biological activity and pollute the environment at some point in the lives of most of us reading this report. We just do not know precisely when or the precise (or even approximate) clean up costs at each site.[13] Yet, the traditional mechanisms all rely upon defining a coverage period as if we can predict the time within which it will occur.

The third is that, once there is an environmental failure, the extent of the costs for corrective action and personal injury will vary widely, perhaps between $10 million and $500 million at a site when most outliers are counted. If third party injuries are included, as they should be, the final tab could double the top end of the range.

Where any given landfill's cleanup costs will fall within that range is something that is uniquely site specific. Its final place in that cost range will depend upon such things as the quality of the barriers and the collection system, the rigor of the maintenance

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12 *See* page 110.

13 There will also be pollution from landfills in arid areas, albeit the scant rainfall and depth to groundwater will probably delay their impacts longer into the future, beyond the point that society is likely to acknowledge them.

program, the depth to groundwater, the source of local drinking water, and the distance to and size of adjoining populations now and in the future.

Unlike national insurance companies with years of experience, the states neither retain insurance actuaries, nor do they have the wide-ranging commercial data base for the entire country, which is necessary to make reliable actuarial computations. In these circumstances, the states are no in a position to set the assurance amount without either, conservatively, grossly overcharging some or, recklessly, undercharging others.[14]

Finally, the environmental liabilities are not easy to define. Not only, as noted, are they probabilistic rather than fixed, but also, any attempt to specify them is highly susceptible to political pressures. In an administrative proceeding to determine a finite value would be met by a hailstorm of highly paid experts attesting to the small probabilities that they believe exist for major problems. The affected public would be unlikely to afford to participate in an evidentiary level. Outgunned, most state departments would wind up in such a perverted fact-finding process with a low ball result, which would have been driven by those with a direct self-interest in freighting all risks that they are responsible for onto the public.

For all of these reasons, none of the standard instruments in use for landfill financial assurance can efficiently protect the states from the near-certainty of environmental liabilities, albeit in an unknown amount and at an uncertain time. Fortunately, there is something that fits the bill, and that is insurance which is explained in the next part of this chapter.

Insurance Is a Market Based Solution for Corrective Action and Third-Party Injuries

Of all those that have been considered, insurance is the only mechanism for financial assurance that approaches meeting all of the peculiar requirements necessary to protect the state and its taxpayers from long term landfill liabilities.

Insurance has many advantages over the other instruments, but current policies, as they are presently constructed, do not yet meet all the necessary requirements, and there some impediments to the their being crafted for landfill's needs. Yet, nonetheless, the state is in a position to create a new market for insurers so that they could meet those needs by recombining existing terms.

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[14] For a further discussion, *see, op cit,* Boyd, at p. 15.

Advantages

Insurance is well positioned to protect the state against long-term landfill risks because its structure is suited to the nature of the risks, insurance is already involved with landfills, its mechanism is economically efficient, and its application avoids conflicts of interests.

The Structure of Insurance Is Suited to the Nature of the Risks. Insurance is our economy's long-standing and time-tested mechanism for addressing the probabilistic nature of pollution, including that from landfill failures on third parties and the potentially costly corrective actions that will follow. It provides a mechanism specifically crafted to protect the insured from the economic risks when the overall long-term frequency to those in an identifiable group is predictable, but its occurrence to anyone at any given time is not. By grouping people with a similar risk in a pool, the cost to protect against that risk can be shared, lowering its price to each member of the pool.

Homeowners, for example, know that in any year some houses will burn down, understandably wish to be protected from that risk, and, obviously do not want to set aside the full cost of rebuilding when there is only a very small possibility of its happening to them that year. Insurance fits the bill for most of us, costing a few hundred dollars a year to insure a several hundred thousand dollar house, protecting us fully in the case where it is our house that burns.

So long as the incidence, magnitude of costs and time of occurrence from landfill failures vary from site to site, and there is a rational way to make actuarial predictions, insurance will tend to be less costly than other assurance mechanisms. This is in contrast with post-closure costs that either are constant (i.e. cover maintenance) or largely predictable (i.e. periodic cover replacement) for which, since the probabilities are 1, insurance holds no advantages.

Insurance is Already Engaged Insuring Landfills. Indeed, the insurance industry is already heavily involved in writing policies for injury to third parties at hazardous waste landfills during their operating lives.[15] AIG, XL/ECS and Zurich are companies that have long insured the hazardous waste disposal industry, and, after some unexpected losses during the early eighties, by 1992 were making a comfortable profit from underwriting those risks.

Although not mandated by rule, like hazardous waste sites many MSW landfill owners also insured for third-party damages during the operating life of the sites.[16] In

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15 40 C.F.R. §265.147.

16 These policies establish an important precedent, although, in this particular application, the concern that has been raised as to these policies is whether the insured promises to make good to the insurer on any

(continued...)

California, of course, the landfill rules are stricter than in most other states and require insurance for third party damages. But, none presently extends coverage after closure, nonetheless after post-closure, and that is a telling limitation with these policies because that is when claims are most likely to occur. Nonetheless, the principle and experience history, albeit limited, is an important precedent to extend it out in time to when it will really be needed.

Note, though, that the policies state regulators often see used in the post-closure period, and which are labeled as insurance, are not are not real insurance instruments. True insurance provides protection against risks that have a probability of less than 1, and only pay out to the policy holder when a covered event occurs for the eligible costs up to the policy limit.

On the other hand, the particular type of insurance that some landfill owners use after closure is not real insurance even though it is provided by insurance companies. These policies distribute funds each year following closure for the projected costs of periodic and routine care over the next 30 years, and for which the probability of its occurring is 1. Referred to as *finite risk* policies, their purpose is not to insure against risk, but rather to provide an annuity matched to future costs in a way that achieves other objectives. An example might be to gain tax advantages, because payments into a trust fund, were the owner to establish his or her own annuity-like instrument, are not tax deductible, but disbursements to pay insurance premiums, as an expense of doing business, are.

Insurance Is Economically Efficient. Insurance is the only mechanism that provides full coverage for premiums for less than the amount of the coverage, because the gains from spreading risk dwarves the transaction costs of providing a policy. Any other attempt to use trust or bond instruments in sufficient amount to cover the worst case, so that the State does bear the costs of private mistakes, would be far more expensive for the landfill owners to purchase. The larger the pool that the state can create by regulation, the lower the costs of coverage tend to be.

Insurance Does Not Suffer Conflicts of Interest. Insurance also overcomes the crippling infirmity of the current system that, effectively, largely relies upon the party with an overwhelming self-interest in understating the risk to define the amount of assurance needed. Imagine for a moment an assurance proceeding to attempt to establish a perpetual care fund that would bring corrective action under the financial assurance umbrella.

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16 (...continued)
claims that arise. In that case, the insurance companies are pricing the policies to a greater extent based upon the balance sheet of the landfill owner and the risk of its not being able to make repayment rather than the risk involved. As such, these types of premiums are not a measure of risk, even for the short-term during the landfill's operating life.

The hearing would be inundated by the landfill owner's hired experts stoutly declaiming, in direct proportion to the size of the fees they charge, the attenuated nature of the risk involved, but without backing up their opinion with their own money. Against that, the public's unfunded voice would be muted, and the agency's staff would be under political pressure to accommodate in the political theater without sufficient regard to the technical merits.

Even were these political pressures removed from the equation, the fact that the risks are probabilistic make it impractical to address with an administratively determined point estimate. When remediation costs might as easily be $25 million and $250 million, some facilities would be asked to provide assurance for ten times more than will wind up being necessary, and that would be extremely difficult to impose.

With the insurance mechanism, the matter could be moved, in the spirit of the times, from a regulatory to a market-based environment. It would be handed over to a third-party in the marketplace, which has decades of expertise in risk assessment, and which puts its own money at risk behind its conclusions. Moreover, because it will be liable for underestimation, that third-party would tend to share the same interest as the States in not under-assessing the magnitudes of the risks involved.

Balancing that, so long as two or more insurance companies offer the desired type of policy, competitive market forces would dampen any tendency to overestimation. Finally, with probabilistic risks, insurance is the least-cost mechanism for providing assurance because the risks are spread among the members of the pool.

Even for those vigorously opposed to the government intervening in the market place in order to correct its imperfections, insurance is now seen as playing a vital market-based role in protecting society. Most recently, the Bush Administration has been reported as embracing insurance as a market-based mechanism for driving chemical and other facilities to take greater precautions against terrorism:

> "Homeland Security officials in the Bush administration are considering ways to use the insurance industry as a free-market-friendly vehicle to drive chemical facilities, food companies, utilities, and other businesses to take greater precautions against terrorist attacks without heavy-handed new regulations."[17]

That is not to say, however, that insurance does not have problems that need to be addressed before this type of mechanism can work appropriately for landfill liabiilties.

Disadvantages

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17 Charlie Savage, "US sees insurers as possible tool in terror fight," *Boston Globe* (February 22, 2005).

On the other hand, insurance, especially as it is presently offered, is not a panacea. Fully understanding its limitations is necessary in order to construct new forms that will most closely meet the objective to protect the state from the enormous long-term landfill liabilities.

There are four potential problems insuring against these landfill risks under current insurance practices. Fortunately, each can be surmounted so that insurance, with all of its inherent advantages can be utilized in this context.

The September 10th Problem. Except for occurrence-based policies that are normally no longer written extending more than 5 years, environmental insurance are usually for a 1, 2 or 3 year term, with the premiums and coverage related to what, and what transpires, in that year the premium is paid. This is what is typically done, for example, with the current environmental liability policies required for hazardous waste landfills.

But, that would not meet the needs here as we have described them, because the real risks arise only long after the site is closed and, especially following the end of post-closure care. As annual policies, the premiums need only reflect the slight risks expected over the next twelve months, and can be oblivious to the very real and significant risks in the future. This is especially the case when there is scant hard data about the long-term consequences of entombment because insufficient time has occurred to date.

When policies are reissued annually to continue coverage for the risk of a future event that has not yet occurred, the insurance industry will be tempted to discount that uncertainty in the future, believing that it has a safety net. The underwriters may perceive that they can increase premiums in succeeding years to recover the payout in the event a worst case event were to later materialize. A recent example is insurance for the risk of a terrorist attack, which on September 10, 2001 was essentially calculated at or close to zero, notwithstanding several reports warning of the risk. Only after the wake up call on September 11th were very expensive riders needed to cover a showplace building in a major city.[18]

Thus, the question is whether an insurance instrument can be constructed that telescopes recognition of the long term risks into today's annual premiums by insurers who otherwise may not assess this type of difficult-to-determine future risk, in which the incidence of those risks increases over time.

To understand this issue for assessing risks, there are two general types. First is the risk of a person crashing into another car while driving, which, all other things being equal, is the same this year as it will be in the future. On the other hand, there is the risk that a person will die in a year, which is very small for a person in his or her youth, but

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18 S. Roy Woodall, Jr., *Terrorism Insurance in the Post September 11 Marketplace* (Congressional Research Service, December 7, 2001).

then later in life increases significantly.

Landfill liabilities are more like life insurance than auto insurance, in that the probability of failure increases over time and rises appreciably after the end of the care period. Further complicating things, like the risk of a major terrorist attack in the United States, accidents that have not yet occurred are difficult to recognize. Yet, unless the initial premiums for landfill liabilities reflect that future uptick for dramatically higher risks 50 years from now, the funds will never have been collected while the site was operating to pay for the cost of coverage in the critical years after post-closure.

The Medium Probability/High Cost Event Problem. The insurance industry has long been accustomed to marketing policies for risks that have a low probability of occurring, but experience a high loss when they do. An example would be the risk of someone's house burning down. Because the probabilities are low, the cost of the premium can also be small even though the entire house may have to be replaced. This makes these policies easy to market to the consumer.

When the probability of a high cost event is no longer low, however, and the probability becomes 25% instead of 1%, for example, then the premiums need to be larger, and they become less marketable. For this reason, insurance companies have not historically been interested in products such as this.

But, that inhibition only applies to products that customers have a choice whether to purchase. Were the state to require insurance as a condition for operating a landfill, then a market will have been created that is not dependent upon a low price, and the commercial reason for this lack of interest in medium/high risk events will no longer exist. That means, a necessary component of landfill insurance for corrective action in the long term will depend upon state action to make the market.

Long Reach Provisions Have Limitations. Two generally understood insurance instruments – claims made with very long extended discovery of claims provisions (or long tail), and occurrence policies – are generally thought of when attempting to cover long term risks. But, in addition to their limited availability, their terms do not sufficiently cover the type of claims that are more likely to arise from landfill failures.

Occurrence policies extend their coverage past the end of the term of the insurance during which premiums are paid, theoretically for an unlimited period of time after the last premium was paid, as long as the injury originally began, even if it did not then become cognizable, during the time the insurance was in effect.

Claims-made policies, on the other hand, are usually written to only insure against claims made within the term of the policy. However, extended discovery and completed operations provisions can be added to cover risks that may not become evident until after

the end of the life of the policy, or of the period when premiums are paid. These can extend coverage for a specified number of years beyond the last premium paid for occurrences at the site.

In any event, the restriction to injuries that began during the term of the policy undermines their applicability to landfill injuries. To be covered, the injury must arise from an event that can be shown to have occurred while the insurance was in force, such as from injuries with a long latency period like mesothelioma, a rare cancer that typically did not become apparent until decades after workers were exposed to asbestos. With current landfill designs, the breach of the barrier systems that leads to a release of pollutants – nonetheless the additional time to migrate through the soil into drinking water supplies before people are first exposed – is not likely to occur until decades later after the site has been closed.

Moreover, the insurance industry rarely issues policies with this sort of long tail for more than 5 years because of unexpected payouts that have arisen and the tax complications they create.

Tax Complications. Not only have insurance companies experienced too many unexpected payouts with some of these long tail policies, but also the uncertainty of whether they will at some undefined time in the future leaves prolonged exposure to those risk subtracting from reported profitability. Regardless of how well hindsight later ultimately shows that an insurance company has estimated the probabilities of a future occurrence, accounting rules require that the insurance company's net income be determined at the end of each year based on what is known at that time.

Insurance with a very long policy term, unfortunately, leaves unresolved potential liabilities on the balance sheet of the insurance company for an indefinite period. In assessing profitability, investors do not give any credit for the company's estimation of the profitability that a claim will only be made in a small number of cases.

Consequently, insurance companies cannot be expected to offer long term liability occurrence policies regardless of how large a market the state creates through regulations.

New Combination of Existing Provisions

The insurance industry does not presently have off-the-shelf products to offer the sorts of policies that would protect the states from the environmental failures after the end of post-closure described earlier.[19] However, the needed coverage can be assembled from policy terms that are commonly in use today, but grouped together in a new way.

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[19] *See* page 16.

Two generally understood insurance instruments – claims made with very long extended discovery of claims provisions (or long tail), and occurrence policies – were considered. But neither provides adequate assurance for long-term landfill failures and both are largely unavailable anymore.

Claims-made policies are usually written to only insure against claims made within the term of the policy. Occurrence policies, by definition, extend their coverage past the end of the term of the insurance, theoretically for an unlimited period of time, as long as the injury originally began, even if it did not then become cognizable, during the time the insurance was in effect.

However, extended discovery and completed operations provisions can be added to claims made policies in order to cover risks that may not become evident until after the end of the life of the policy, or of the period when premiums are paid. These can extend coverage for a specified number of years beyond the last premium paid for occurrences at the site, and effectively make this variation on a claims made resemble an occurrence policy.

For obvious reasons, too many expensive payouts has meant that occurrence policies are no longer written for the environmental liability of landfills because of the open-ended period of liability. Long-tail policies may still be found, but they substantially limit the number of years for the extended period to usually less than five years and that makes them inapplicable to the long stretches of time over which landfills risks arise.

Attempts to get insurers to write longer policy terms are not likely to be fruitful because of the uncertainty that the prolonged exposure creates in the reported profitability to their investors. Regardless of how well hindsight later ultimately shows that an insurance company has estimated the probabilities of a future occurrence, accounting rules require that the insurance company's net income be determined at the end of each year based on what is known at that time.

Insurance with a very long policy term, unfortunately, leaves unresolved potential liabilities on the balance sheet of the insurance company for an indefinite period. In assessing profitability, investors do not give any credit for the company's estimation of the probability that a claim will only be made in a small number of cases. The entire potential liability is seen as subtracting from their earned returns. For these reasons, these policies are not common, and, when available, do not extend much more than five years from the current year – not, as needed here, the 20 or more years after the landfill closes 15 years from now.

In any event, the basis for either instrument undermines its utility for the landfill case. To be covered, the injury must arise from an event that can be shown to have occurred while the insurance was in force, such as from injuries with a long latency period like mesothelioma, a rare cancer that typically did not become apparent until decades after

workers were exposed to asbestos. With current landfill designs, the breach of the barrier systems that leads to a release of pollutants – nonetheless the additional time to migrate through the soil into drinking water supplies before people are first exposed – is not likely to occur until decades later after the site has been closed.

However, there is one tool that can work to protect the State from the potential for environmental liabilities at landfills into the future. After considerable analysis with assistance of insurance experts, we believe that the best insurance vehicle for this situation is, first, a multi-year five year, claims-made policy that will be cancelled and rewritten on an annual basis as a matter of right for extended periods of time in order to reach the coverage time frames involved with landfill failures.

Second, the requirement for this type of insurance policy on each site should be combined with a segregated future insurance premium fund that has built-up to a sufficient amount at closure to pay the annual premiums into the future in the likely event that eventually the current landfill owner departs the scene and is unable to pay the premiums for the insurance renewals .

Third, added to that policy should be an incidence reporting coverage trigger as opposed to a claims made and reported coverage trigger. The incident reporting trigger is intended to insure that the premiums paid today fully incorporate the long term risks of any individual insured site based on the extensive data the insurance industry has accumulated on landfill claims in the past twenty years.

Insurance coverage has to be provided over an extended period of time, which far exceeds the present 30-year post-closure period. Annual policies are available for environmental liabilities, of course, and on occasion three or even five year policies are sometimes offered. To extend the coverage out further in time, policies currently exist for closure and long term care insurance that provide the insured with the guaranteed right to repeatedly renew the policy at the end of its term. These same provisions could be incorporated for this liability insurance policy.

Perpetual Care Fund for Future Premiums. A potential deficiency in the claims made type of insurance is that coverage only lasts for as long as premiums continue to be paid. Also, the insurance company may raise premiums in future periods based upon general inflation and/or adverse loss experience across all of the insured landfills.

By itself, then, this leaves two problems: the first is how to insure premiums get paid long after the waste company no longer exists, and the second, how to do so in the face of possible fee hikes.

To insure that premiums continue to be paid, reserve funds to pay for recurring premium charges can be established at the time of closure from funds that accumulate over the operating life of the landfill. The size of these funds at closure can be calculated to

reach a sufficient size so the earnings on the fund are larger than required for the annual future premium payments while continuing to have enough left over to continue generating adequate earnings for this purpose forever. The formula also needs to reflects expected changes in price levels.[20]

September 12th Premiums. This calculation may not on its own contemplate significant bump ups in premiums due to later adverse experience, as what happened in the terrorism case. That is where incidence reporting feature of the insurance policy design comes in.

In incident reporting, the filing of an incident report during the term while the insurance policy is in force would trigger coverage for a claim at any point in the future when a actual claim is finally made. Also, the definition of "incidence" could be specified to include events that are expected to lead to a covered claim under the policy.

An incident reporting provision in an environmental liability policy would almost certainly force the underwriters to evaluate the long term risks of a site and incorporate them in their current premiums. By requiring this insurance, the long term risks of a site will be captured in the ongoing costs of the insurance during its site life in a competitive insurance market. If a site has low risk, the premiums will be lower and high risk sites will either pay higher premiums or be considered to be uninsurable. Making open market insurance a requirement for permiting is also a way for regulators to screen out high risk sites based on the loss experience of the insurance industry.

Encouraging the insurer in this way to recognize the long-term risks beyond the 5 year term of the current policy is key. For only if this is done can the State know how much to collect each year the landfill is operating in order to accumulate reserves adequate to recurringly pay the premium over time. Were premiums instead set on a "September 10th" basis, the insurer would, undoubtedly, at a later date dramatically increase the premium, which the reserves would be inadequate to pay, and the policy wind up be cancelled.

Importantly, because of the way accounting rules work for the insurance industry, the incident reports would not be reflected as a liability in the insurance company's financial statements.

Components of EEILI Policy. Other aspects of this proposed vehicle would include limiting insurance to those companies with an A.M. Best rating of "A+" or better, and reinsurance.

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20 This is similar to the calculations done by cemeteries that offer perpetual care of grave sites. It is calculated as:

$$\text{Periodic Outlay} \times \frac{1}{\text{Interest\%} - \text{Inflation\%}}$$

For lack of an existing name, we call this combination of insurance features "Extended Environmental Impairment Landfill Insurance" (EEILI). Its features are summarized in TABLE 10

Features of Extended Environmental Impairment Landfill Insurance
Claims-made policy including –
✓Five year term
✓To provide extended coverage, policy cancelled and renewed each year for another five year term
✓Incidence reporting
✓Coverage for environmental impair.
Insurance protection including –
✓A.M.Best "A+" or better
✓ Reinsurance
Perpetual premium payment fund at closure

TABLE 10

Included at the end of this report as ATTACHMENT A is an Insurance Note by two experts in insurance that discusses these issues and concludes that there is no theoretical problem in insuring these risks and doing so past the end of the post-closure period, but there are no policies written that do all of these things. They add that there is a reasonable likelihood that developing these policies would be achievable, but only if, after careful study, the states created a market by mandating such coverage.[21]

Ideally, these policies would be renewable forever and have very high limits of several hundred million dollars. However, ideal coverage is not likely to be available in the market, and an in-depth insurance study by experts in the field would be necessary to assess what is the maximum coverage available from the smallest acceptable number of companies willing to offer it.

The Board should commission a study the full extent that dependable insurance policies could be purchased that would meet the needs of protecting the state and its citizens from the costs over the long term before the site is stabilized for remedial corrective action and third party bodily injury and property damages. TABLE 11 shows the

[21] *See* page 141.

major questions that the study should address.

Insurance Questions to Resolve
✔What government mandates are necessary to create a market for extended environmental impairment landfill insurance
✔Whether the program operation can be improved by grouping all landfill policies in the State together
✔The maximum coverage that could be available
✔The possibility for different maximum coverages at different sites that exhibit significantly different risk profiles
✔The longest term available for a renewing policies
✔The policy language that would minimize the opportunities for an insurance company to disclaim coverage

TABLE 11

The Risks of Insurance Failure Are Manageable. In theory, insurance most closely matches the requirements of protecting states against the long term liabilities from catastrophic landfill failures in the future. At the same time, whenever a third party is used to protect against risks, the possibility must be considered of that counter party failing at the same time as the landfill company is unable to perform its post-closure duties.

This concern is the reason why the third party is usually required be truly independent of the landfill company. In this way, the diversity of circumstances effecting the two will tend to reduce the chance of failure by both from a common event at the same time. That underlies the objections to captive insurance companies whose financial well-being is closely interconnected to the landfill owner, making the possibility of a common failure likely.

In addition to diversification of risk, there are a number of specific measures that can be utilized to further reduce the risks of an insurance company failure affecting the state's coverage, because insurance companies can go bankrupt, too, as demonstrated by the Frontier experience discussed earlier, although that technically involved a surety, not an insurance company.[22]

The insurance rating agencies are what evaluates the long term health of insurance

22 *See* page 80.

companies, and we know that those rated A and above have set aside reserves that are generally understood to be adequate for long term health using sound underwriting principles.

So, first, the rules need to be changed to restrict insurance to those with A and above ratings. But, also, insurance risk should be diversified as well by requiring both pooling of insurance and reinsurance mechanisms, which, in combination, make the risk of insurance default extremely low.

The risk of even carefully devised insurance will not be zero. But, nothing has a zero risk, not even lock boxes, which can come up short because the site failure occurs prior to the lock box being filled over the anticipated operating life of the facility that never was completed. Furthermore, interest rates used to calculate the required amortization can be lower than projected, or unexpectedly high inflation can cause the costs of remediation to far exceed what was anticipated. Also, a municipality or the state could raid the lock box during a budget crisis if control over the instrument is not under the auspices of a truly independent third party.[23]

Proto-Insurance Alternatives. In addition, there are other non-traditional proto- insurance mechanisms for protecting against risk, as the financial markets have become increasingly efficient in the past several decades in first monetizing risks and then using securitization, or at other times complicated hedging techniques, to provide instruments that closely resemble the sort of protection from risks that was once provided only by insurance companies.

Over the last ten years, in particular, new approaches to financing risk have been developed that offer alternatives to the conventional use of insurance contracts. These include:

- Catastrophe-linked bonds (covering both single locations and entire portfolios - for earthquake and/or windstorm risk) ;

- Catastrophe-linked swaps (where e.g. the losses arising from a portfolio of windstorm risk are exchanged for those arising from a portfolio of earthquake risk);

- Catastrophe basis swaps (where instrument payout depends on value of actual losses incurred for a particular peril by a single insurer or reinsurer vs. value of an index which aggregates the loss experience of multiple insurers or reinsurers)

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23 Earlier this year, the city of Tucson, Arizona "raided its landfill closure fund of $18 million and added it to the general fund balance" in order to shore up its bond rating. "Refuse Funds Rescued Tucson," *Solid Waste Report* (December 10, 2004) , at p. 241.

•Contingent surplus notes (derivative that pays investors U.S. Treasury rates or a share of an insurer's surplus, depending on whether certain contingencies arise)

•Catastrophe equity puts (Insurer or reinsurer has right to sell equity at a pre-negotiated rate if a specified catastrophe occurs)

• Loss-sensitive convertible debt (coupon is not paid if if losses or loss ratio exceeds a specified threshold)

• Residual value derivatives (Instrument pays issuer if aggregate value obtained on lease resales falls a specified amount below expected value)

• Life insurance securitization (Long-term cash flows which have low expense load are used to fund short-term cash flows which have high expense load);

Because the financial markets offer capacity over 1000 times that of the insurance market, they represent a potentially attractive way to finance "difficult" risks. The study group that we propose to follow up on this report should look carefully at such alternative risk financing methods, along with more conventional approaches including traditional insurance, the use of insurer pools and government-sponsored insurers, for different layers of coverage. In this way, the most efficient mechanism can be crafted to protect California's tax payers at the least cost.

Legal Authority. The authority to pursue the future corrective action part of this issue lies in the salient difference between the federal rules and California's. Although EPA limits financial assurance to corrective actions that are "known," California's adds "or are reasonably foreseeable."[24] Now that most recognize that all liner-based landfills will, in the words of EPA, "ultimately fail",[25] the eventual need for corrective action is reasonably foreseeable and a new program of corrective action insurance is required along with the existing maintenance assurance.

Nothing in the restrictive language of the statutes precludes this. While the law requires the Board to permit the use of any mechanism for financial assurance for minor *maintenance* (subject to conditions), that specification does not extend to assurances for reasonably foreseeable *corrective actions*. For the provision only applies its requirement to permit all mechanisms approved by EPA to matters dealing with "evidence of financial *ability*." "Financial ability," in turn, is defined as that which "provide[s] for closure and

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24 27 C.C.R. §22221(a).

25 *See* page 11.

postclosure *maintenance*,"[26] there is no statutory impediment to limiting financial assurance for corrective action to insurance mechanisms if that is what is necessary to protect the State.

With regard to personal injury and property damages (or "operating liability"), the statutes require financial assurance for "claims resulting from the operations of the disposal facility which occur before closure."[27] While the law's *exclusio* principles makes the matter not entirely free from ambiguity, the fact that the ingredients for subsequent uncontrolled releases in the form of organic and hazardous wastes are all present before closure would seem to permit the Board to proceed to achieve the overall objectives of the Act. To be certain of the political acceptability of this position, the draft rules can highlight the issue along with the Board's interpretation, and invite legislative intervention if it believes the agency misunderstands the statute's intent.

Improving Existing Rules for Minor Maintenance

With all that said about the failure of conventional financial assurance mechanisms to address reasonably foreseeable corrective action, most continue to have vitality for routine minor maintenance during the delimited post-closure period. However, for the reasons set forth in the last chapter, one mechanism does not, and that is the financial means test. It should be repealed or, if a state's statutes do not permit that, at the very least, these corporate IOUs should be substantially conditioned.

The segregated funds, on the one hand, and third party instruments such as surety bonds and letters of credit, on the other, together continue to have vitality for routine, minor maintenance. Whether the first is preferable to the other is a difficult question to answer. Segregating cash obviously, on the surface, seems to provide more certitude because there does not appear to be any need to be concerned with the probabilities of both parties to the contract suffering financial duress at the same time.

At the present time, the simultaneous failure of the insurance company and the insured in the Frontier/Safety-Kleen case is freshest in observers' minds. For the moment, that probably will tend to bias contemporary opinions towards trust funds. If nothing else, the case raised the question of whether each counterparty's financial health is truly as independent of the other as originally thought, which is the basis for attributing greater assurance through diversification of risk when a third-party countersigns the long-term care obligation. In that case, the failure of the insurer appears to have been, at least partially, a contributory cause of the collapse of the insured.[28]

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26 P.R.C. §43601(b) and §43600(b) (emphases added).

27 P.R.C. §44040.

28 *See* page 82 and NOTE 92.

However, the certitude associated with trusts is not consummated until the fund builds up to its full amount in equal amortization payments paid-in each year throughout the *expected* operating life of the landfill. There is a non-trivial chance that a landfill may be required to be shut down for regulatory reasons prior to the time it was anticipated to close, such as has recently happened in regard to the major Pottstown and Live Oak landfills, outside Philadelphia, Pennsylvania and Atlanta, Georgia, respectively.[29] Indeed, that also happened to a landfill that used a trust fund mechanism in California at the Yuba Sutter disposal area landfill, which was closed by the Regional Water Quality Control Board before the fund was complete.[30]

Also, premature closure may happen independently for financial reasons, or in combination with regulatory complications. Moreover, if landfill critics are correct about systemic failings of their design and operation,[31] a significant number of landfills might wind up shuttered unexpectedly at one time, creating very sizable financial burdens for the states.

Were segregated funds widely required, and were Pottstown and Live Oak a bellwether of a future trend that reaches a critical mass and culminates in cascading closures, there would be massive occurrences of unfunded trust funds at the same time.

Nonetheless, whether one concludes that trust or third-party assurance mechanisms are preferable in concept, as currently articulated, they each have shortcomings that require minor modifications to repair.

Finally, none of these mechanisms currently extend assurance for the maintenance costs that will continue far past the end of the defined post-closure plan. As is done to assure funds to maintain cemetery plots for eternity, perpetual care funds for maintenance of the landfill should be established. A lump sum set at closure that is sufficient, accounting for interest earning additions and maintenance cost withdrawals, to balance out and preserve the principle.

Condition Financial Means

By rights, the financial means test and corporate guarantee should be repealed outright. Contrary to the very intent of financial assurance, they offer no additional protection apart from their limitation to larger companies, which offers especially small comfort in the era of Enron's collapse.

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29 Dawn Fallik, "State orders owners of landfill in Pottstown to close the site," *Philadelphia Inquirer* (December 4, 2003); Eric Stirgis, "Landfill closing affirmed," *Atlanta Journal-Constitution* (December 9, 2003).

30 Response to RecycleWorlds' FOIA Request from Garth Adams, dated January 13, 2004.

31 *See* page 8*ff.*

However, the laws that the Board operates under do permit compliance with financial assurance rules under any mechanism permitted under EPA's rules,[32] which includes the financial means test and corporate guarantee.[33]

On the other hand, the purpose of that part of the statutes is to provide for "the long term protection of air, water, and land from pollution due to the disposal of solid waste [which] is best achieved by requiring financial assurances of the closure and post-closure maintenance of solid waste landfills."[34]

More to the point, the same provision that bars "exclud[ing] the use of any mechanism permitted under federal law," also specifically adds that, at the same time as it approves the test, "the board may [also] adopt regulations that reasonably condition the use of one or more of these mechanisms to ensure adequate protection of public health and safety and the environment."[35]

Clearly, the fatal infirmities of the financial means test, which has led to its near universal condemnation, demands the adoption of conditions, without which the financial means test would fail, as the statute also requires, to "ensure adequate protection of public health and safety and the environment." Only by doing so can the Board harmonize these two otherwise inconsistent provisions.

The condition for any landfill owner using financial means should be a requirement that the company's balance sheet be backstopped with the other legitimate forms of assurance, trusts, surety bonds, letters of credit or insurance to cover the possibility that the company may fail to perform minor maintenance during post-closure due to either false or incomplete representations in its financial reports or significant changes in the market that erodes its former financial strength. That is to say, the purpose of requiring a second tier of assurance is only to cover the risks that the financial means test coverage fails.

The industry might be heard to complain that this would essentially negate its legal right to choose financial means. But, for one thing, the statute requires the Board to condition any instrument where it is necessary to protect the environment, and for another, the landfill owner is free to select insurance as its backstop. While surety bonds and letters of credit would effectively require the owner to fully collateralize the face amount of the risk, insurance companies quantify those probabilities and spread the risk among those in the same pool. In that way, the cost of a backstop insurance premium would be

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32 P.R.C. §43601(a).

33 40 C.F.R. §258.74(e) and (g).

34 P.R.C. §43500.

35 P.R.C. §43601

the price that the market assigns to the risk of nonperformance.

If the private landfill industry's representations are correct and there are no serious risks, then that fact will be reflected in very low premiums, and the substance of the complaint evaporates. Only in the case where the market has determined that those representations are not true would the premium would be expensive. But, if that is the case, that is precisely the type of situation that the Legislature has demanded the Waste Board protect the State from.

This would seem to be squarely in the boundaries and intent of the laws. However, were there any serious question, again the Board could prepare such a rule amendment in draft and send a copy to the legislature substantially before its final adoption to invite the Legislature, should they disagree, to amend the statute to bar such an action.

Reform Trust Funds

Segregated trusts do not become fully funded until the originally projected closure date, leaving a possible funding hole when the operator fills the site faster than specified in the permit application or in the case when regulators order the shutdown of the site because it threatens public health or the environment.

Pre-funding the trust at the onset of landfill operations would, obviously, be the ideal remedy to fix this problem. However, setting aside such a large a sum before any revenues have been received, or borrowing the funds to do so, might be argued to be too onerous a burden on the landfill owner, especially for a new entrant into the market. If a reasonable compromise is sought, one possibility would be to use any of several standard techniques for accelerating depreciation, such as sum-of-the-years-digits (SOYD), in order to advance the time when most of the funds will have been set aside in the event there is premature closure. TABLE 12 illustrates how the current pay-in schedule compares to that accelerated basis.

Percent Unfunded in Trust Fund After Each Year		
End of Year	Straight Line	Sum of Years Digits
1	93%	88%
2	87%	76%
3	80%	65%
4	73%	55%
5	67%	46%
6	60%	38%
7	53%	30%
8	47%	23%
9	40%	18%
10	33%	13%
11	27%	8%
12	20%	5%
13	13%	3%
14	7%	1%
15	0%	0%

Source: Center for Competitive Waste Industry

TABLE 12

Essentially, after half of the scheduled 15-year site life, the current system would only have set aside half of the necessary funds, while SOYD would have set aside about three-quarters of the total.

Correct Third-Party Mechanism

The third-party mechanisms, including sureties, letters of credit and insurance, have a weak link that very well could turn out to be a very serious one. In the event of cancellation, the state must affirmatively act to cash out the policy before the three-month notice period expires or possibly wind up being responsible to care for the site during post-closure.

Third-party policies should be changed so that, upon the issuance of a 120-day cancellation notice, the state is deemed to have automatically exercised its right during that period to claim the funds on the 120th day, unless, before the end of that time, it affirmatively decides not to do so.

That change in the legal meaning that follows from inaction is essential because there is a very serious risk that the state will, for innumerable reasons, fail to act in the 120-day period, even though it would intend to. Issuance by default has long been discredited as a regulatory procedure because, historically, it has led to unintended

approvals occurring due to the passage of time, rather than regulatory intention.[36]

Add Perpetual Care for Maintenance After Post-Closure

None of the existing mechanisms, which are only intended to provide assurance for the expense of minor maintenance until the defined post-closure period ends, presently extends any assurance for after that time, even though care will essentially be required forever.

Although the current statutes may not provide the authority to do so, to correct for this omission, the amount of a trust fund at closure would need to be calculated using a perpetual care calculation, which is to be sufficient, after netting each year's inflation adjusted earnings on and withdrawals from the fund, to retain the necessary principle amount in order to pay the cost of care in perpetuity.

Alternatively, sometimes consideration is given to the use of the finite-risk form of insurance and other third party mechanisms, instead of trust funds, because they have tax advantages. If this is done, prior to closure, a fund should be accumulated sufficient to pay the premiums forever.

To do this, the following simplified equation can be used to approximate the size of the fund whose earnings will be sufficient to pay the expected annual outlays, after accounting for inflation, while leaving the principle intact.

$$Perpetual\,Care = Initial\,Payment_{future\,dollars} \times \frac{1}{Interest - Inflation}$$

EQUATION 1

The initial payment is the amount anticipated will be required to be spent on care in the first year following closure, after accounting for inflation in the years before the site is closed.

[36] See, e.g., 40 C.F.R. §70.8(e). *Virginia v. Browner* (4th Cir. 1996), 80 F.3d 869, 874.

Chapter 4

The Industry Proposal is Not Relevant

Taking measurements shortly after closure, while the cap is maintained, disguises the major problems almost certain to follow in the future

A consortium of landfill companies, consultants and engineers have submitted a report to the Board, financed by Waste Management, and organized by the waste industry's Environmental Research and Education Foundation (EREF), coordinated by GeoSyntec, and dealing with financial assurance (the "Waste Industry Paper"). Among the listed authors are officials from Waste Management, Inc., the private waste industry trade association, consultants with extensive client lists of landfill companies, and two professors.[1]

In this chapter, we evaluate the report to determine whether it has any use by states in setting their post-closure care and financial assurance requirements.

The stated purpose of the Waste Industry Paper is "to present a performance-based system for evaluating post-closure care at MSW landfills." Essentially, the report lays out the authors' view that, first, the length of post-closure care is a site specific issue, and, second, taking certain measurements will establish when long term care can be reduced and/or terminated.

As to the first point, the fact of site diversity is certainly not in dispute – *so long as it not meant to imply that, at the end of 30 years, we have the tools to conduct a site specific analysis that can provide a valid technical basis to determine that facility's threat to the environment after the end of post-closure care or that a site can be considered stabilized before the second wave.* As to the second, and as to the authors' bona fides to make that determination, they ignore the salient facts, and, consequently, their paper is not useful for decision-making by the Board.

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[1] Jeremy Morris, *et al.*, "Performance-Based System for Post-Closure Care at MSW Landfills — A New Approach to the Current 30-Year Time-Based System of Subtitle D" (the "Waste Industry Paper") (2003). On-line at: http://www.erefdn.org/rpts_summary_ordrs/PostClosureCareInterimRept.pdf.

For one thing, the whole idea of taking measurements at the end of the post-closure period in order to predict environmental threats decades later after the cap is breached is technically invalid. That is precisely when leachate generation is at its lowest point. For another, the prism through which the authors filter the facts to reach their conclusions does not reflect the direct interests of the State.

The Proposed Procedure Is Technically Invalid

In place of a relatively fixed 30 year post-closure period, the Waste Industry Paper posits a new structure for post-closure care which it terms the Evaluation of Post-Closure Care Model. The purpose of the model is said to be "to enable regulators to make confident decisions on maintaining, extending, reducing, or modifying the current 30-year post-closure period."[2]

To help make those decisions, the model proposes taking measurements of the quantity and quality of the leachate in the collection system, gas management, groundwater monitoring wells and cap maintenance toward the end of the base-level 30 year post-closure period and sets "trigger points" for exceedances that would require either additional maintenance or remediation.

But, their proposal ignores the fundamental quandary that liner-based landfills must confront. The barriers, and their maintenance, only delay environmental threats until after the time the site is no longer cared for. Unfortunately, the better the job of maintaining the site – which is what these measurements chronicle – the more severe will be the environmental threats that will be transferred to the future after care ends. For good site maintenance quickly drives moisture out of the load after closure to conditions that are so dry they contain less moisture than in a piece of lumber, or as Bill Rathje often says, "bone dry."[3]

In that state, and until the landfill cover degrades to let rain reenter the site resuming decomposition, there will be very little biological activity to generate leachate and landfill gas. The whole premise of the Waste Industry Paper is that these deceptively low readings expected at the end of post-closure mean the site has stabilized and is no longer a threat to the environment. But that is not true. The reality is that such a clean bill of health is a mirage that masks the looming cover failure and second wave of leachate and gas generation.

Further ironies abound in the waste industry position, which rewards the sites with the tightest seal. If the site has been kept dry, then less of the organic portion of the trash

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2 *Op cit., Morris,* at p. 2.

3 U.S. Environmental Protection Agency, *Anthropogenic Methane Emissions in the United States: Estimates for 1990* (Report to Congress, April 1993) (EPA 430-R-93-003), at pp. 4-4 to 4-8. William Rathje, *Rubbish!: The Archaeology of Garbage* (HarperCollins NY 1st ed.)(1992), at p. 115.

will have rotted prior to closure, with the resulting leachate being collected and treated. But, after post-closure ends, the amount of the decomposable fraction, which carries over to threaten the future, will be that much greater.

Moreover, the longer the post-closure period is extended, the more certain there will be no responsible parties or functioning pumps or monitoring systems to respond when the barriers ultimately fail and the site is flooded.

The truth of this rebuttal is found in the conclusions of the EPA and its Inspector General. Twenty-five years ago, when EPA issued its proposed Subtitle regulations, it noted–

> "[E]ven the best liner and leachate collection system will ultimately fail due to natural deterioration, and recent improvements in MSWLF containment technologies suggest that releases may be delayed by many decades at some landfills. For this reason, the Agency is concerned that while corrective action may have already been triggered at many facilities, *30 years may be insufficient to detect releases at other landfills.*"[4]

Even more on point is the EPA Inspector General's conclusion that this is a fundamentally flawed approach. To repeat her previous citation —

> "The [Landfill Groundwater Rule] is broad enough to allow extensions of post-closure care for potential problems. However, the regulation implies that there should be indications from leachate or groundwater monitoring that the facility may present a risk to human health and the environment. *Although there may be no releases or indications of release at a landfill for the first 30 years of post-closure, there may be a potential for releases of hazardous waste in later years.*"[5]

But, not only do the Inspector General's conclusions demonstrate that the industry paper is invalid, GeoSyntec, the same consulting company that now puts this proposal forward, recognized the same thing. In a lengthy report focusing on liner performance that GeoSyntec and two others prepared for the EPA, they found:

> "After closure of such a landfill, the final cover system (which will typically contain a [geomembrane] to satisfy present-day federal regulations) will essentially eliminate infiltration into the landfilled waste. Consequently, over time, leachate and gas generation will progressively decrease and eventually cease. A nominal stabilization of waste (i.e., partial conversion of the decomposable organic constituents and leaching or fixation of hazardous waste constituents) will probably occur by the end of the post-closure period, although this process will be

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4 53 FEDERAL REGISTER 168, at pp. 33344-33345 (August 30, 1988) (emphasis added).

5 Inspector General, *supra*, at p. 33 (emphasis added).

incomplete due to a deficit of moisture in the landfill. ... The waste will retain a latent capacity to generate leachate and gas and release pollutants should moisture be reintroduced into the landfill in the future. The goal with this strategy is to prevent a reoccurrence of leachate or gas generation in the future. This goal can be achieved through perpetual maintenance of the final cover system. ...

"[However, a]fter the post-closure period, requirements for ongoing maintenance and monitoring are suspended ... consistent with current regulations that prescribe a minimum post-closure period of 30 years. For this strategy to be effective in the long term, events that occur after the end of the post-closure period must not result in unacceptable groundwater or air pollution. These events may include degradation of the final cover system, renewed leachate and gas generation, accumulation of leachate and gas in the unit, and, eventually, migration of these waste by-products from the unit. An assessment of the eventual impacts requires evaluation of: (i) the potential for long-term degradation of the final cover system; (ii) water infiltration through the final cover system in its long-term condition; (iii) leachate and gas generation resulting from the water infiltration; (iv) the potential for long-term degradation of the liner system; (v) gas migration through the final cover system in its' long-term condition and leachate and gas migration through the liner system in its' long-term condition; and (vi) impacts to groundwater resulting from the leachate and gas migration and impacts to air resulting from gas migration.

"Potential groundwater impacts associated with this type of strategy depend on a variety of factors. Any impacts may be acceptable if long-term contaminant migration rates are low and/or if the landfill is located in a favorable hydrogeologic setting. Conversely, if anticipated contaminant migration rates are high and the landfill is in a vulnerable hydrogeologic setting, the long-term consequences of this strategy may not be acceptable. In the future, when regulators and design engineers assess the need to extend the post-closure period of a particular landfill beyond the 30-year regulatory minimum, they will need to perform an assessment of the type described in the preceding paragraph. The authors recommend that, for new landfills, this assessment process be included at the initial design stage, within the framework of a long-term management strategy."[6]

To pull out the essence of this lengthy and guarded exposition for clarity: at the time the post-closure period ends — which is when the industry paper proposes to test for future threats — leachate will have "ceased" yet "[t]he waste will retain a latent capacity to generate leachate and gas and release pollutants should moisture be

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6 Rudolph Bonaparte (GeoSyntec Consultants), David Daniel and Robert Koerner, *Technical Resource Document: Assessment and Recommendations for Improving the Performance of Waste Containment Systems* (EPA/600/R-02/099, December 2002), at *Appendix G:: Long-Term Landfill Management*, p. G-4.) This report can be found on-line at: http:/www.epa.gov/ORD/NRMRL/Pubs/600R02099/600R02099.pdf.

reintroduced into the landfill in the future."

In the end, were the private waste industry's plan adopted, those landfills which have been well constructed, operated and maintained will probably be permitted to reduce their post-closure period to substantially less than 30 years – which, presumably, is the very point of this exercise. Indeed, their tables, which show leachate flow rates trending to negligible levels by nine years after closure suggest that, in application, their conclusions will lead to an attempt to end post-closure care after 10 years following closure.[7]

On the other hand, those which have not maintained their sites might be required to extend post-closure to more than 30 years in order to have time to repair the landfill cover so that the tests, which essentially measure reactions only when water infiltrates through inadequately maintained covers, can be passed.

But, in either case, the problem is not solved. Rather, once again, pollution is only shifted to after the end of post-closure – whenever that occurs. And, if the problem is not solved but only shifted in time, the landfill, which by that time may be leaking, will wind up as an orphan of the State.

Therefore, whatever use that the private waste industry chooses to make of the model, the proposal is not relevant for the State of California's concerns.

The Proposers' Viewpoint Does Not Reflect California's Interests

There is another set of issues with regard to this report separate from the disconnect between the proposal and reality. That relates to the extent to which the drafters' opinions can be relied upon to implement the model were it adopted.

The authors of the Waste Industry Paper have years of expertise in landfills. No one would question their credentials. However, when choosing what questions to ask, which facts to acknowledge, what weight to accord competing claims and what conclusions to draw, everyone views these controversial issues about landfill safety through the unique lens that reflects the lives that they have lived and, even more so, the amalgam of interests they represent, including by those that employ or contract with them.

That is an entirely proper and appropriate thing in our society. No one can question everyone's right to make a living in a profession of their choosing, and, in

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7 Environmental Research & Educational Foundation, *Performance-Based System for Post-Closure Care at MSW Landfills: A Procedure for Long-Term Stewardship Under RCRA Subtitle D* at the Wisconsin Department of Wisconsin Department of Natural Resources Natural Resources (March 11, 2004), at FIGURE 3.

drawing his or her conclusions, to sift the facts through a strainer that reflects those interests. But acknowledging that right of the individual does not, on the other hand, mean every expert's opinion can be relied upon by regulators merely because of the breadth of his or her credentials.

In the case now before the Board, several of the authors of the report are employed by Waste Management, Inc., and the waste industry trade association. They have a legitimate self-interest in minimizing regulatory costs on their industry and shifting to the public as much as they can of the risks that flow from their choices. For that, they cannot be properly criticized. But, neither can they complain if the Board asserts the competing interests of the public and the State.

For the trash industry's interest is not the same as anyone else's, and certainly not of the State of California, which in a zero sum game with the large waste companies over who will bear the palpable long term risks after landfill closure. And, this concern over the objectivity of the reports' authors is not limited to the obvious self-interested landfill companies and their trade representatives.

The concern extends to the independent consultants and academes who also penned this report and, notwithstanding their elaborate depictions of models and the modules within the models, also choose to ignore the overriding problem of liner-based landfills that vitiate the very underpinnings of those models. Any hope that their influence might leaven the more obvious self interest of the landfill industry is clouded by that omission on the face of their document. It is also shown by their past record.

As a case in point, one of the paper's authors is employed by GeoSyntec, a major landfill consultant. GeoSyntec has been subcontracted by the Board to undertake a Landfill Facility Compliance Study that is supposed to provide a comprehensive picture of MSW landfill environmental performance in California.

Yet, their study design intended to discern environmental problems was largely limited to listing currently observed code violations at operating and recently closed landfills and comparing the number of reported violations to the various performance characteristics of landfills. However, the major problems are most likely to occur in the future, not in the present where the analysis focuses.

When a tear, rupture or hole appears in the plastic liner, the two feet of underlying clay is rated to retard seepage for approximately 25 years (unless the clay is cracked directly under the break). Depending upon hydrological conditions, the escaping leachate may take 20-100 years to reach the periphery where the monitoring wells are arrayed, but are so far apart, the tendril-like plume is almost to certain to pass between them undetected. By the time we become aware of a major problem, the aquifer will almost certainly have been intractably contaminated, but that will not be for decades

hence.[8]

Landfill gas emissions, too, are unlikely to be cited for rule violations, inasmuch as no direct monitoring of gas emissions is even required and the indirect tests are meaningless.[9]

Consequently, the snapshot Geosyntec is taking of infractions recorded today is exceedingly unlikely to provide a glimpse of the big picture.

The thing that is really being assessed is the difference in observed short-term leakage of leachate at unlined compared to lined landfills, and as regards lined landfills only, the quality controls used during construction of those landfills and the rigor of enforcement. That may tell us something that would further support the decision that was made more than twenty years ago to reject natural attenuation and require liners, but nothing about whether the barrier systems resolve the problem over long time frames. Criteria that might uncover systemic problems in the overall liner-based philosophy itself decades in the future has been omitted, even in the face of the fact that Subtitle D is largely discredited.

Thus, when GeoSyntec was petitioned by the National Recycling Coalition to add

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8 *See* NOTE 26 on page 13 for a detailed description of these issues.

9 The Landfill Air Rule is found at 40 C.F.R. Part 60 Subpart WWW, and contains no provisions that require direct monitoring of gas emission rates or volumes because the gas is released across the landfill face that may exceed 100 acres, not through a smokestack.

There is a requirement that the surface concentration of methane above the landfill's face not exceed 500 parts per million, which is sometimes called the "500 ppm" or the "sniff" test. This measurement is to be taken quarterly, every 98 feet along the perimeter of the landfill and in a serpentine grid pattern across the collection area during typical weather conditions. 40 C.F.R. §60.753(d) and §60.755(c). The test does not, however, have any technical validity for the following reasons:

(1) There is no established relationship between the 500-ppm concentration limit and anything other than odor control. Five hundred parts per million is essentially an operational standard – like the maintenance of negative pressure and oxygen/nitrogen infiltration provisions. It is only intended to approximate the release level of a gas system that is as well managed as it can be within severe cost constraints. But, that engineering approach never asks whether a well maintained system using current design parameters achieves the legally mandated protection of public health and the environment.

(2) The measurement methodology is structured to only detect diffused emissions such as might occur in a clay-only cap, and it will not detect emissions at landfills with a composite landfill that includes a synthetic geomembrane in which uncontrolled releases are funneled through localized hot spots. Using Poisson probability analysis, in a hundred acre landfill with 10 hot spots, the probability of detecting just one of those 10 hot spots in a year using EPA's protocols would be 0.0522%, or one in 2,000. The probability of detecting all 10 of them would be 2.4×10^{-38}.

(3) The particular monitoring protocols in the rule are so easily manipulated as to thoroughly undermine the rule's effectiveness. 40 C.F.R. §60.755(c). A prominent example would be by taking readings on days with high barometric pressure that suppresses gas releases.

data fields for factors that might illuminate the problems that will occur in the future, the consulting firm refused.[10] A good example that illustrates the type issues in contention relates to the leachate collection system (LCS), which is mission critical for the safety of the site.

The LCS's job is to collect and remove the liquids that drain to the bottom of the landfill in order to prevent their pooling that would threaten liner integrity, site stability and the so-called "bathtub effect."[11] Unfortunately, the collection pipes and their overlying drainage beds are prone to clogging, which can cripple their functionality. Also, as the size of landfills increases, the weight of the overburden becomes greater, the distance to conduct repairs longer, and the length of the collection pipes must increase proportionately. That longer length compounds the drainage problem because the pipes are installed in 12-20 foot segments. Over a quarter mile run, that may require laying more than 100 segments. So many segments are difficult to set in a straight line that can be readily cleaned, and that many junctures are created that may, over time, become unglued.

A continuing threat to the ability of these systems to remove excess liquids is the problem of clogged pipes from microbial action and clog materials such as sand in the drainage beds, exacerbated by organic matter and calcium concentrations from the waste load.[12] That is why annual clean outs is so critical for maintaining performance through post-closure. One of the indices of impending problems in this critical component of these systems is the record of the annual clean outs of the collection pipes. Those records will show whether there was an inability of the clean-out head to transverse the entire length of the pipe due to blockages.[13]

And, indeed, this is not an infrequent occurrence that can be ignored. When the Wisconsin Department of Natural Resources undertook an informal survey of LCS performance in the state, it found 62 collection lines at 14 landfills had been reported to the agency as too clogged to permit the passage of the clean-out head, and many of those were constructed to modern pipe standards.[14]

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10 Letter from National Recycling Coalition to the CIWMB, dated August 22, 2001, at p. 8. E-mail from CIWMB to NRC, dated April 29, 2003, conveying the firm's response to the request.

11 40 CFR §258.40(a)(2).

12 Kerry Rowe, "Particle Size and Clogging in Granular Media Permeated with Leachate," 126 *Journal of Geotechnical and Geoenvironmental Engineering* 9 (September 2000), at p. 775. I.R. Flemming, "Field observations of clogging in a landfill leachate collection system," 36 *Geotechnology Journal* 685 (1999)

13 27 C.C.R. §20340.

14 Staff Survey, *Blocked Leachate Collection Lines* (WI Dept. of Nat. Res., 2003). Unfortunately, there was insufficient political support that would have permitted a technical follow up to determine whether there had been an increase in the hydraulic head over the liner in order to properly assess the severity of the (continued...)

Evidence of clogged lines is one way to discern whether serious problems may lie down the road. But GeoSyntec has rejected looking at the issue. Instead, it acts as if the Board's interest in evaluating landfill performance could be assuaged by focusing solely on factors that have almost no chance of disclosing the kinds of future problems of major concern and by excluding such bellwether criteria like LCS performance that have some chance of uncovering the possibility of future problems.

Another example is found in the lack of objectivity that mark the work of Prof. Morton Barlaz, a coauthor of the Waste Industry Paper and one of the principals of EPA's Life Cycle Management Study, which compares competing alternatives to managing discards. Among many other matters of concern, when Prof. Barlaz quantified the ability of the bottom liner to prevent leakages, he proposed a "leachate collection efficiency of 99.8%" for the long term over centuries.[15] This, even though, as noted, EPA's technical staff, the agency's waste office director in charge of writing the Subtitle D rules, and a wide spectrum of those within the landfill industry anticipate that the liners will fail while the landfill continues to represent a threat to the environment.[16]

In a meeting with the National Recycling Coalition, he defended his assumption that liners would perform perfectly for such a long time based upon studies of leak rates from hazardous waste landfills. Under RCRA's Subtitle C, hazardous waste landfills are required to have a double composite liner system, with leak detection in between, that makes it possible to take measurements over the short-term time frame during which the cover is rigorously being maintained. But, by definition that analysis contained no data of use to predict long term performance after maintenance of the cover ceases 30 years following closure.

For the sake of argument, let us ignore all these reasons why the basis for the industry proposal is unsound and assume for the moment that their plan is adopted in order to anticipate what is likely to happen. Then, even if the proposed post-closure testing finds excess leachate concentrations, their predispositions create further issues on how the results will be interpreted. Those biases make it difficult to exclude the possibility that these practitioners will reinterpret the results and find mitigating circumstances that obviate the need to act.

They may be expected to fall back on theories of natural drainage through gravel beds to purportedly sidestep the need to repair clogged leachate collection lines, and natural attenuation when leakages finally become apparent to avoid a Superfund cleanup.

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14 (...continued)
problem.

15 U.S. Environmental Protection Agency, *Life Cycle Process Model Documentation: Calculation of the Cost and Life Cycle Inventory for Waste Disposal in Traditional, Bioreactor and Ash Landfills* (1999), at Part 7.2.1, p. 3.

16 *See* page 11.

But, these are concepts that were discredited twenty years ago, are not permissible under Subtitle D during operation, and hence, ought not be allowed afterwards.[17]

The Ultimate Test for the Validity of This Proposal is Simple

Fortuitously, telling concessions recently proffered by Prof. Barlaz during a debate over his proposal make the final assessment of its validity by the Board simple, and reduce it to a matter of policy that requires no specialized technical knowledge.

Prof. Barlaz was confronted with the fact that, at the time he believes declining leachate flow rates may justify ending scheduled care, he has no data to show that the site will not leak later should the cap fail because substantial volumes of organic wastes remain. Therefore, he was asked, wasn't his argument dependent on the cap being maintained "forever" to insure that rainfall never reenters the waste load. For, when the cap "ultimately fails," as EPA repeatedly has said it eventually will, and moisture reenters the site, there will a second wave of major uncontrolled releases as a function of that volume of decomposable material remaining in the waste.

Revealingly, he did not deny the fact that, were the cap to fail later, he had no basis to assure the landfill would not then be a potential threat to people and the environment. Instead, he rested his case on a claim that the cap would be maintained for the indefinite future — but, most notably, by the states, not by the landfill owners. He did not, as one may imagine, explain the significant implications of how this hand-off would work. Let us elaborate on what that might entail, because almost no one else will see the wisdom in such an idea.

Landfill Owners Would Shift the Burden of Care to the State

To defend the fact that he does not have any data on the amount of the decomposable fraction remaining after closure — at the same time he maintains that no

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17 *See* 40 C.F.R. §258.40(a) and (b), which are the sections in EPA's Subtitle D regulations that require both a composite liner and an active leachate collection system, thereby ending the prior regulatory era that relied upon natural attenuation sites without engineered barriers. Even though natural attention was no longer permitted in the design of landfills after the promulgation of the Subtitle D regulations in 1991, EPA came under intense pressure from the landfill industry to accept natural attenuation as an appropriate corrective action to respond to engineered landfills that later failed, threatening public health or the environment. Environmental Protection Agency, *Symposium on Natural Attenuation of Ground Water* (EPA/600/R-94/162, September 1994). Concerned about hostile public reaction that it was leaving polluters "off the hook," Guy A. Tomassoni, "The U.S. EPA Regulatory Perspective: Natural Attenuation as a Remedial Option for Contaminated Ground Water, *Symposium*, but unable to completely reject the proposal in all situations, the Agency's final directive on the subject clearly disfavored the practice and sought to impose substantial procedural obstacles to its being relied upon without a substantial active treatment counterpart. Environmental Protection Agency, *Use of Monitored Natural Attenuation at Superfund and Underground Storage Tank Sites*, (RCRA Directive Number 9200.4-17P, Ap 21 '99).

measurements need to be taken as a precondition before ending post-closure care to demonstrate that there is no substantial latent bioactivity — he made a telling admission:

> "You asked if the site will no longer be cap dependent. That's a pretty tall order...I don't in my mind see us working to a situation where we are not cap dependent...If [uncontrolled releases later] did occur, I think we have to go right back to the fact that the cap failed.
>
> "If the cap failed, and if *you* do what we said to do in the Cap Module, you'd go in and fix the cap.
>
> "Now if you don't believe that *society* has the mechanism to insure that you go back and fix the cap, I personally can't address that. That's a regulatory matter."[18]

What Prof. Barlaz appears to be telling the states is two things, and the validity of the industry approach is completely dependent upon them:

① The final cover is monitored and maintained far beyond 30 years, and, in fact, in perpetuity, and

② The responsibility for perpetual care and all of the attendant costs will be undertaken by the states (assuming that is what he intends to imply when he indicates that "[y]ou" and "society" will undertake care), but in any event not the owners of the landfills.[19]

Under the landfill industry model, then, in practice sometime following 10 years after a landfill closes when leachate flows are expected to be negligible, any of the minor assurance funds that are still posted would be returned to the owner.[20] The state would then effectively assume responsibility by default for both monitoring the sites and repairing, and periodically replacing, the final covers on all of the closed landfills, as well

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18 Presentation by Prof. Mort Barlaz before the Wisconsin Department of Natural Resources' Landfill Stability Subcommittee of the Leachate Collection System Technical Advisory Committee, on March 1, 2004, in Madison, Wisconsin (emphasis added). A video tape of the proceeding prepared by the agency.

19 On consideration, once Prof. Barlaz was forced to acknowledge the fact that a landfill remains a potential threat nearly forever, he really had no choice but to make the assumption that society (or the state) would assume these perpetual care responsibilities. For there would not appear to be any credible basis to assert that corporations can be expected to have an existence that extends for hundreds of years.

20 Or alternatively, depending upon what financial mechanism was used, the associated liability recorded on the books of those using the financial test would be removed, or premiums paid to third party guarantors would be terminated.

as raising the funds for the substantial costs.[21]

That is to say, closed landfills and their final covers do not take care of themselves. Active maintenance is essential and that would, truly, be an monumental task, as costly as it would be difficult.

Perpetual Periodic Cap Replacement Would Cost $55 Billion

If, for the moment we just look at replacing covers after the end of their typical warrantee period of 20 years,[22] and, put aside the cost of maintenance in between replacement, the costs to do so would be very substantial.

While the cost for cap replacement is site specific, typical costs are approximately $120,000 per acre.[23] Landfills in California, for which the Board has data, average 318 acres per site.[24] California currently has 240 landfills under financial assurance.[25] If, as a working number, 300 closed landfills were to become the responsibility of the state, approximately fifteen landfills would require cap replacement each year, essentially forever, at an aggregate cost each year in today's dollars of $572.4 million.

When an expenditure for some purpose is required to be recurringly made over a number of years, the cost in a single year does not adequately value its true magnitude, because the future stream of continuing payouts are not accounted for. A better measure of its cost in this case is considered to be the value today of all those future years'

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21 To be clear, the Industry Proposal does not explicitly make the statement that the landfill owners' legal responsibility will terminate in as little as 10 years after closure. But, that would appear to be the only result of a process that purports to establishes a basis — deliberately erected on palpably invalid principles — for finding that a well maintained site closed only 10 years is no longer a threat to the environment. It is the only result because, other than for poorly maintained sites, the opposite interpretation would not result in any change in the status quo, other than less frequent monitoring, a very minor cost item.

22 Inspector General, *RCRA Financial Assurance for Closure and Post-Closure, supra*, at p. 31.

23 Staff Report to the Technical Advisory Committee on 1200' Leachate Collection Systems, Wisconsin Department of Natural Resources (March, 2004).

24 CIWMB, SWIS Data Base.

25 CIWMB, SWIS Data Base.

outlays, something that is referred to as its "present value." The present value today of the stream of all the annual costs in the future of periodically replacing the caps, were it realistic to accomplish and it achieved its intended purpose, would be $55.6 billion.[26]

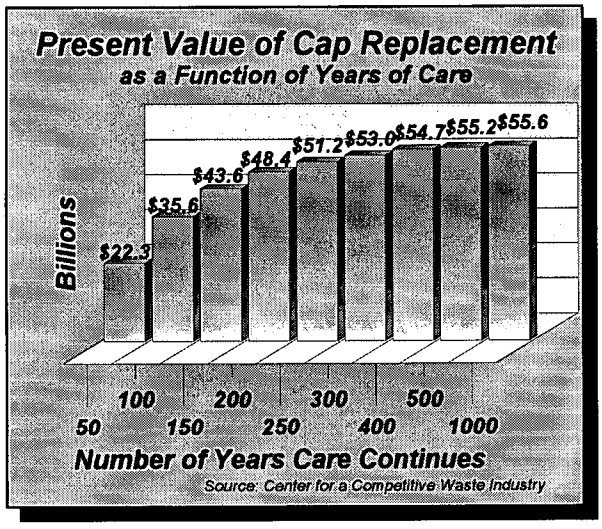

FIGURE 7

FIGURE 7 shows how the present value stream of that level of expenses varies with the length of time the responsibility is performed. It indicates that the value today of all those future expenditures begins to plateau at about $50 billion after 200 years, and hyperbolically reaches its zenith at around $56 billion after a thousand years of care. This would be 86% of the $64,878,701 in revenues that California raised through all its taxes in the most recent fiscal year.

However, while disturbing enough by itself, this hypothetical exercise begs the more significant questions in five ways.

The Legislature and Governor Would Have to Agree to Raise Taxes

First off, the proposal assumes that the Legislature and Governor would be willing to raise the necessary taxes by even one dollar, nonetheless a half-billion dollars each and every year, essentially forever. Worse yet, the political pain entailed in raising taxes to that extent would not go to things that public officials like to claim credit for in order to offset the calumny they would receive from irate citizens for the new levies.

The significant tax increase would not, for example, reduce class size in the critical lower grades from 20 to 16 students, nor would it provide health care for 40,000 families below the poverty line, nor relieve congestion in east L.A., nor would it provide a 5% reduction in corporate taxes to improve business climate.

Instead, the hard fought tax increase would be used to pay for the costs of managing the sites abandoned primarily by three companies in the private sector, which had earned substantial profits from them during the units' operating lives. This would seem to do violence to the very tenets of our free market system, which is erected on the principle that prices are fairly allocated when beneficiaries of a good or service pay the attendant costs, as well as to people's basic sense of fairness. A high probability cannot be attached to such a tax increase being enacted.

[26] This calculation assumes a long term inflation rate of 3% and a discount rate of 6% for the present value.

Without the necessary funds from the Legislature, the Waste Board or its successor agencies would be unable to do anything to maintain the sites.

The State Will Need Institutional Memory and Resources for Centuries

The so-called "cap module," which Prof. Barlaz looks to for resolving these major problems, also assumes that the state will have the institutional capacity to perform such a task for that length of time, even if funding were not an impediment.

In this regard, there must be a distinction made between the presumed vitality of the states as an organizing principle of government in the U.S. for a substantially longer time than private corporations – which many would agree with – and the ability of their administrative agencies to continuously monitor and remediate several hundred sites spread across the state for centuries, through changes in administrations, parties in power, bureaucratic retirements, administrative reorganizations, economic vicissitudes, tax revolts, earthquakes, global warming and other environmental catastrophes, and any number of other epoch changing events – which most would question.

Therefore, even if the will and capacity on the part of the state were present today, there is no reasonable basis to assume that would be perpetuated for such a long period of time, five times as long as the entire history of California to date.

Annual Maintenance Needed as well as Cap Replacement

Although some manufacturers warrantee geomembranes for 20 years, that does not, in any way, necessarily mean that one can reliably wait for two decades before involving oneself in maintaining the cap to last even that long. Warrantees do not generally extend to damage from improper installation or burrowing animals, intruding roots, subsidence that either causes ponding at the surface, rips the plastic sheet or breaks the seal around the sagging gas well heads, or any other event that punctures the liner. In the absence of an aggressive maintenance program, that can occur at any time between the times when the entire cap is replaced.[27]

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27 A standard warranty exclusion states:

> "This Warranty is effective from installation and is for a period of 20 years for 60 mil HDPE when installed for normal uses and services for which it is designed and manufacturer, in any customary weather which may be encountered and which is not customarily considered to be in the nature of an Act of God, casualty or catastrophe, such as but not limited to earthquake, flood, piercing hail or tornado. Normal use and services excludes, among other things but without limitation, the exposure of the liner to chemicals known to be harmful to the liner, mechanical abuse by machinery, equipment or people or excessive pressure or stress from any source."
>
> "...
>
> "In no event shall liability exceed the amount of the sale price of the material...and under no

(continued...)

In fact, then, if the caps are not replaced for 20 years, there must be a monitoring regimen to detect and then patch any intermittent tears or ruptures of the thin liner no thicker than a credit card laid and seamed together over hundreds of acres during the years between replacement. Otherwise, the liquid intrusions will rekindle another wave of leachate and gas generation, as a function of the remaining organic fraction.

Moreover, one or two such minor intrusions of liquids will probably not remain localized. Seemingly minor leakages at one location will tend to cascade catastrophically, because the process of decomposition will cause voids below that will lead to settlement at the surface over that spot. As the ground under the thin liner settles, additional and larger breaks in the barrier will probably follow letting in even more rainfall, causing successive rounds of cascading failures that soon will reach major proportions.

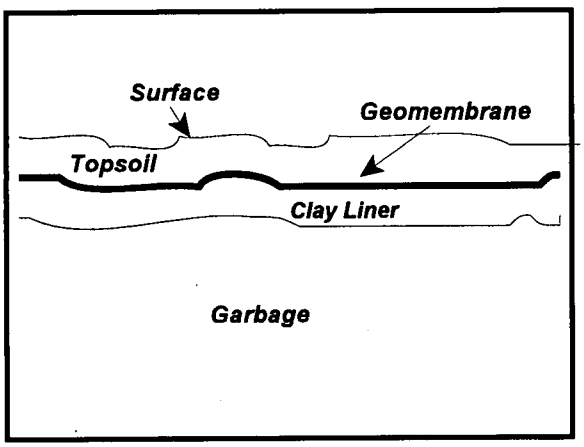
For these reasons, absent such a continuous and aggressive maintenance protocol, again across hundreds of landfills each and every year for centuries, the periodic cap replacement program, even if it were feasible, would be of little utility.

Cap Maintenance is Extremely Difficult and Ineffective

Even the best run maintenance program runs into the problem that there is no easy way to detect early ruptures in the geomembrane.

One part of cap maintenance is mowing the lawn to clip trees whose roots might puncture the liner, and also replacing and regrading topsoil lost to erosion. But, the other part is the detection of potential problems in the underlying barrier layers before they become serious and hard to address. This is something that is difficult to do.

For the key low-permeable synthetic geomembrane is buried under two feet of dirt (*see* schematic along side), which is used to check erosion and absorb infiltration. Then, beneath the geomembrane are two or more feet of clay that, if not desiccated or cracked, delays the movement of liquids in or gas out of the landfill, and together with the plastic sheet, makes up the



Cross section of landfill cover

27 (...continued)
circumstances shall there be any liability for incidental or consequential damages..."

composite liner.[28]

Thus, whether at any point in time there is degradation of the barrier layer, two feet below, and not visible from, the surface, is not something that is possible to observe directly, other than distressed vegetation and settlement. There are more reliable indirect indices of cap tears that are beginning to emerge, but they are not yet demonstrated nor are they easy to apply. An example is the development of infra-red scanning techniques to identify high flux points of methane emissions across the surface, because landfill gases tend to rapidly escape where there are small tears in the cover.[29] Others are under development.

But, these all tend to be costly, time consuming, labor intensive, sophisticated, subject to interpretation and complex. Multiply that by the more than 100,000 acres of aggregate landfill cover in California, and subdivide that total among the 300 different sites where these sorts of complicated tests need to be done, each year, for hundreds of years, and the enormity of the task becomes apparent, and, in the end, highly improbable to accomplish, especially on a timely basis.

At the point at which initial infiltration has caused settlement, indentations and bowls will begin to be visible at the surface in the event someone does a comprehensive survey of the survey over those extensive areas. But, even then, the question remains: by that point in time, will the problem has progressed to the point that the forces leading to major site failures may have already been put in motion.

Perpetual Care is Impractical, and Therefore, Far More Costly Remediation Will Be Required

If, because of all these obstacles, the State is today acknowledges it is either unwilling or unable to provide effective maintenance of the cover at least each year between periodic cap replacements over the next thousand years, then a whole set of far more costly consequences arise that dwarf even the major expense involved in cap replacement, and raise fundamental questions about the reasonableness of the theoretical modules in the Waste Industry Paper. Even if the State does not acknowledge this limitation, public institutions are unable to endure for those extended periods of time.

The key safety feature in a landfill intended to address the problem when liquids eventually infiltrate the cover is the leachate collection system (LCS). During operation, and ostensibly extending through the legally circumscribed 30-year post-closure care

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28 40 C.F.R. §258.60(a).

29 Stephen Piccot, *et al.*, "Field Assessment of a New Method for Estimating Emission Rates from Volume Sources Using Open-Path FTIR Spectroscopy," 46 JOURNAL OF THE AIR & WASTE MANAGEMENT ASSOCIATION 159 (February 1996). Also, a careful inspection of vegetation to identify brown spots, which might be due to methane leakages, is better than nothing, but is not a comprehensive solution.

period, the system's perforated pipes, arrayed in gravel drainage beds over the bottom liner, remove liquids that have entered through tears in the cover and drain to the bottom of the landfill. Because liquids trigger decomposition that creates and mobilizes pollutants, and also threatens site stability, the LCS is mission critical to the safe management of the site (*see* page 51) .

But, after postclosure care, the LCS is scheduled to be removed from service and will no longer be operational.[30] Moreover, there are many serious concerns, which we described previously, whether the systems will still be functional in any case, even if someone were to desire to resume its operation after the 30-year care period has ended.

This means a that a cover liner, once it becomes slightly damaged, and is followed by early infiltration, can all too quickly run out of control, at which point in time the original safety systems will not be available to intercede. If this likely event occurs, then the costs that will be incurred could well be those necessary to remediate the site and reimburse third parties for damages to them. For a mega-fill in a populated area with normal rainfall, this could well run into the hundreds of millions of dollars – per site – as the earlier discussion pointed out.[31]

These, then, are the very significant concerns that are ignored when Prof. Barlaz conveniently dismisses considering the feasibility of assigning to the states the enormous custodial responsibilities of insuring the integrity of the final covers at thousands of landfills for hundreds of years –

> "Now if you don't believe that *society* has the mechanism to insure that you go back and fix the cap," he told the Wisconsin DNR, "I personally can't address that. That's a regulatory matter."

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For these reasons, the model should not be used, and if, nonetheless, it were, it ought not be applied by people such as the authors of this report, who have so resolutely resisted objective recognition of facts contrary to their preconceived views. ☞

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30 40 C.F.R. §258.72-258.74. Under the California rules, 27 C.C.R. §21900(a), as a technical matter the landfill owner has the burden of proof at the end of the 30 year care period to show that the site no longer poses a threat to the environment before he or she may terminate care. Although the fact that this stronger provision was promulgated is a good thing, it does it provide a means of insuring that funds are re-upped for the task. Also, by itself, the rule is no guarantee that it will be enforced when the time comes in the face of aggressive lobbying to look the other way. Nor, for that matter, is there any means today to know whether the current owner of the site will even be in existence 40 or 50 years from now, nevertheless have the financial wherewithal to make major financial expenditures out into the future with regard to a site that closed decades earlier, and hasn't produced any revenues in decades..

31 *See* page 41.

Conclusion

To protect its taxpayers, California's financial assurance rules for landfills urgently need to be overhauled, and at the earliest possible time.

While the State's regulations are comprehensive as far as they go, they do not reach the fundamental problem with financial assurance rules throughout the United States . That is their failure to address the implications of the fact that liners only delay and do not prevent pollution. This means that most landfills will leak and require major corrective action in the future, probably after the end of the post-closure period.

Not only is it critical to address this omission if California is to be protected from untold billions of dollars in costs to remediate hundreds of orphaned landfills, but also, a new mechanism is needed to address high risk, probabilistic events like liner failures, rather than predictable and periodic maintenance costs.

In this report, we suggest that insurance is the appropriate mechanism for this sort of risk and urge the Waste Board to commission a study to evaluate its feasibility.

We also point to lapses in the current regulations directed at providing assurance for those routine maintenance expenses. The financial means test badly needs to be backstopped by insurance. Less critical, but important, if third party policies are canceled, the state should automatically cash out of those policies, and the pay-ins to trust funds should be front-ended.

With California in the midst of one of its worst fiscal crises in its history, with the enormity of costs facing the State as today's landfills close only to leak afterwards, and with the time very short to amortize the expense of new assurance requirements as many of the state's landfills approach the last half of their operating lives, action is needed at the earliest possible time.

Furthermore, the Board needs to put its finger in the dike to prevent the perpetuation of these problems stemming from the current flawed operational standards for our landfills. In the future over the remainder of this decade, as Europe and parts of Canada are doing, land disposal of decomposables should be phased out.

The ramifications of inaction are too high to delay. ❑

(A summation of our specific recommendations are set forth in Attachment B.)

Epilogue

The final lesson for California from South Carolina's financial crisis over Safety-Kleen's abandoned Pinewood landfill

"Some of these things you just want to put out of your mind," Richard Jabbour reflected recently, recalling the financial fallout from the Pinewood landfill near the shores of South Carolina's Lake Marion, which is the state's largest reservoir, over two aquifers, which provides drinking water to the state's coastal plain. "This," he exclaimed, "is one of them."

Jabbour was referring ruefully to a vote he had cast in 1995, which eliminated monetary protection the state had established the year before to insulate its taxpayers from the landfill's long-term liabilities. Over the next few years, he had slowly awakened to the realization that Pinewood had become a financial albatross around the state's neck because of that decision he had made to ignore the technical facts and acquiesce to political pressure.

Back in 1977, an old clay pit began a new life as a kitty litter mine, and, a year later was converted into a loosely regulated hazardous waste dump. Thereupon, the landfill went through a dizzying succession of different owners. First there was SCA, and then Laidlaw, which later morphed into Safety-Kleen.

By 1985, regulators had come to realize that the landfill's liners would eventually fail, threatening the water supply for tens of thousands of people. Eventually, they later projected, a major cleanup would be necessary that could cost as much as $1 billion.

[South Carolina] projected a major cleanup would be necessary that could cost as much as $1 billion.

After a series of confounding twists and turns, in 1994, the Board of the Department of Health and Environmental Control (DHEC) had required Laidlaw to post a $133 million cash bond before expanding the hazardous waste dump. But only the first $14.5 million installment was ever paid when the company's political machine was wheeled into action.

During the year that followed, Laidlaw spent $250,000 lobbying the Legislature, generating the political pressure to steam roll over the Department's technical decision.

When the DHEC Board sat down to revisit the issue the following year, three new and more compliant members had been appointed, and they decided to let the operator, itself, determine how to provide financial assurance. To no one's surprise, the company offered up a corporate IOU, which had no more value than its dubious balance sheet. But, there was – everyone was assured – no need for concern. After all, this was a strong $2 billion company.

But, as spring gave way to the summer of 2000, things came unglued. Safety-Kleen, the site's last owner, ominously decamped its offices from Columbus to Delaware, and, thereupon, filed for bankruptcy. Then, this year, it offered South Carolina a take-it-or-leave-it annuity allegedly worth $49 million for the long term costs of maintaining the site and. In the exceedingly unlikely event anything was left over, that would be no more than a *de minimus* down payment on the possibly billion dollar cost to clean up Pinewood. Even that pittance was contingent on their being legally relieved of responsibility for all future liabilities.

"We felt surely they would never go bankrupt," remembered Roger Leaks, who had been one of those new Board members appointed to remove the bonding requirement. "Maybe," he now wonders, "we should have held out for cash."

"The costs could be astronomical," fretted Sandra Molander, another former state environmental board member. "I'm sure there's not enough money there," she said.

But, by then, the horse was out of the barn. In the end, South Carolina realized it had little choice but to sign the release in order to get any cash. At that point, the state with license plates that say "Beautiful Places," and which prides itself on the benefits of being business-friendly, recognized they had been diddled, boxed in by political machinations into accepting a billion dollar liability for chump change.

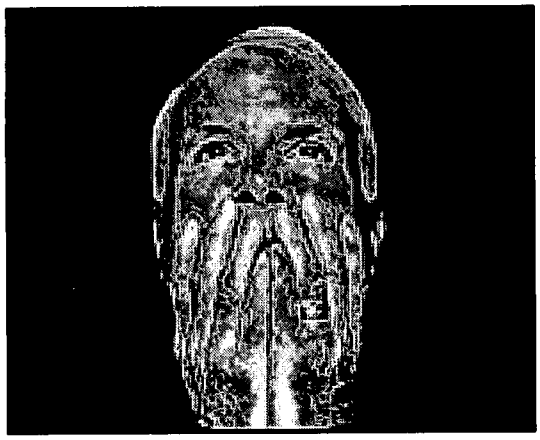
Lake Marion stands as a poster child, teaching the rest of us how trading away protection from long-term landfill liabilities for political crumbs has been a monumental mistake..

Although Pinewood hasn't failed yet, a fuse has been lit because the site's toxic brew festers behind barriers doomed to eventually degrade. Someday, in the not to distant future, that ticking time bomb will detonate a massive tax increase to pay for the cleanup.

Lake Marion stands as a poster child, informing the rest of us how trading away protection from long-term landfill liabilities for political crumbs has been a monumental blunder.

❖

In the career of many in public life, there comes along one trial by fire that, by its enormous stakes, transcends the political adage, to get along, go along. Like the trillion dollar S&L debacle a generation before, now landfills' future risks exemplify those cases, made exceptional by their sheer magnitude, which must be carved out from the customary way politics is practiced in America.



***"I fear the [Keating 5] episode probably will be on my tombstone."* – John McCain**

For most of us, we can, and we do, learn from history. And, by doing so now, we will not come to suffer the same fate as John McCain and Alan Cranston, both good men, honorable men, who slipped up once following Charles Keating's siren song nearly 20 years ago. Now, they expect to have that mistake on their tombstone as the legacy for which they will be remembered, rather than for all the good works they had championed over the course of their lives.

Past generations of regulators had the luxury of passing the buck to the next, but those days are now gone. Today is the day of reckoning, and this generation of regulators has – to paraphrase Roosevelt during those earlier times when the S&L's faced their first crisis – a rendevous with destiny.

The time for you to act is now.* ❐

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* The Lake Marion story has been extensively chronicled by *The State*'s reporter, Sammy Fretwell. The background and quotations described in this Epilogue were largely excerpted from his article "Landfill deal threatens S.C. lake, taxpayers," published on June 13, 2004. The McCain quote in the photo caption is from his autobiography, John McCain, *Worth Fighting For* (Random House, 2003), at p. 204. Notably, as McCain wrestled with a bout of cancer that made him confront his mortality, he rued that "twelve years after [the conclusion of the Keating Five scandal] I still wince about it and find that—

"if I do not repress the meaning, its recollection still provokes a vague but real feeling that I had lost something very important, something that was lost in pursuit of gratifying ambitions, mine and others', and that I might never possess again as assiduously as I once had."

Attachment A

NOTE BY INSURANCE EXPERTS ON THE FEASIBILITY OF INSURING FOR CORRECTIVE ACTION AND THIRD PARTY INJURIES AFTER THE END OF THE POST-CLOSURE PERIOD

The purpose of this note is to discuss the feasibility of providing reliable insurance coverage for the risks of corrective action and third party claims from pollution by municipal solid waste landfills during the operation, closure and after the end of the post closure period if the responsible party is unable or unwilling to do so.

The authors of this discussion are Prof. Daniel Anderson, CPCU and Leslie P. Schultz Professor of Risk Management and Insurance at the University of Wisconsin-Madison, and David Dybdahl, CPCU. Our vitæ are attached.

In our opinion:

1. A two billion dollar annual revenue, environmental insurance market has for over twenty years offered insurance products to cover precisely the risks for corrective action and third party damages associated with the operation, closure and long term care of landfills. These policies can insure the sites out to 30 year time frames but are usually written for periods shorter than five years.

2. As a theoretical question, it should be possible to estimate the risks associated with landfills sufficiently to underwrite insurance policies that provide environmental insurance coverage that extends beyond the end of the post-closure period.

3. Although there are currently active insurance markets for corrective action and third party damages during operation, closure and post-closure, as a practical matter, the insurance industry does not presently offer policies today that would provide coverage following the end of post-closure period.

4. There are, however, current examples of insurance and various financial markets being utilized to fund corrective action during closure and post-closure of very large hazardous waste sites in the United States, for coverage periods greater than 30 years. One such site has long term care funding for perpetuity. Insurance models already exist to address the risk of reopeners of landfill after the RCRA post closure period expires. These existing financial models could be modified to address the long term funding needs of landfills for perpetual care for corrective action and third-party damages.

5. Based on past experience with hazardous waste sites we believe that it is possible with the support of regulators to underwrite the risks of perpetual care. But several issues need to be resolved before a definitive conclusion can be reached as to the feasibility and probability of doing so.

6. There is a risk that any individual insurance company providing insurance protection over an extended period of time decades into the future could become insolvent before the premiums it collected for the risks of corrective action and third party damages during the operating period of the landfill can be utilized to pay for the perpetual care of the site. Therefore a form of long-term insolvency protection must be built into the perpetual care funding model. We believe that this can be done through a multi layer backstop consisting of:

   a. Limiting eligible insurers to those rated by rating agencies such as A. M. Best as A+ as the first line of defense.

   b. Adding reinsurance as an additional line of defense against insurance company failure over such extended periods of time.

   d. Creating a state insurer insolvency fund to add a final line of defense.

5. One of the major policy considerations in assessing the prospects for eliciting a market for environmental insurance is whether California or the federal government would require by statute or rule that all landfill operators licensed by the State must do so in order to create an adequate risk pool and demand for the insurance policies. Without that underpinning, the prospects of the successful development of a perpetual care insurance market would not be favorable. Whether the Board, the Legislature and/or the Governor consider whether the post-closure risks are sufficiently great as to enact or promulgate such a policy to insulate the State from substantial costs that could in worst case circumstances run into the billions of dollars is something that we cannot comment on.

6. Among the factual questions that will need to be investigated before firm decisions can be reached as to whether to impose new insurance requirements of this type are the following:

   a. The ability to estimate the range of costs of corrective action and third party damages (including the price of defense), and the ability to rank individual landfills by their site specific risk.

   b. The extent that uncertainty increases with longer periods of time that coverage is extended.

c. The likelihood of receiving favorable tax treatment of loss reserves.

d. The feasibility of voluntary participation by the insurance industry.

e. Potential financial models to create perpetual care insurance policies

7. Were a comprehensive study of these issues conducted, we believe that the Board would in a posture to determine whether the insurance industry would offer the sought after coverage in the event the State required it, and the range of possible prices that might be charged.

Attachment B
SUMMARY OF RECOMMENDATIONS

The following recommendations are made in this report. The Integrated Waste Management Board should –

1. Make a determination that:

   a. There is a risk of substantial liability for the incidence of major maintenance expenses, corrective action and third-party damages from municipal solid waste landfills after they are closed;

   b. This risk extends past the end of the defined post-closure period; and

   c. Current financial assurance mechanisms do not protect against either current or future environmental risks or routine care after the end of the post closure period.

2. Commission a study to determine whether Extended Environmental Impairment Landfill Insurance can protect the State of California from these liabilities.

3. Amend the existing financial assurance rules for minor maintenance expenses to, preferably, require the accelerated accumulation of a perpetual care fund for minor and major maintenance costs during the operating life of the site, or in the alternative:

   a. Retain the full value of the assurance funds in the mechanism until the end of the post-closure period because there is a significant probability that unanticipated maintenance expenses will arise.

   b. Require that payments into trust funds be accelerated using a mechanism such as sum-of-the-years digits.

   c. Require that, if a surety bond and letter of credit is cancelled, the State shall be assumed to have exercised its right to claim the funds under the mechanism on the 120th day following notice of cancellation unless the State affirmative acts to forego its right to do so prior to that time.

   d. Restrict the use of the financial means test by conditioning its use upon insurance.

4. Reject the predicate in the Waste Industry Paper that the length of the period of time when post-closure care is required can be determined by measurements taken prior to time that the final cover is likely to have failed.

5. Phase out the land disposal of decomposable matter to less than 50% by weight in any new cell or lateral or vertical expansion of an existing landfill or new landfill after 2005; 40%; after 2006; 30% after 2007; 20% after 2008; 10% after 2009; and 5% after 2010.

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Copies of this report can be ordered from the web at
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or by phone, toll-free, at (800) 449-1010

EXHIBIT E

General Assembly of North Carolina
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23 January 2007

MEMORANDUM

To: Members of the Environmental Review Commission
From: Jennifer Mundt, Commission Analyst
Re: Reports to the Commission – **Supplement Number 1**

This memorandum supplements the Reports to the Commission memorandum dated 23 January 2007.

The following has been submitted by the North Carolina Utilities Commission to the Environmental Review Commission (Commission) since the last reports distribution on 17 January 2007. This material is designated as a read only and is attached to this memorandum:

1. Written Public Comments on the La Capra Associates, Inc. study: *Analysis of a Renewable Portfolio Standard for the State of North Carolina.* December 2006.

Please contact George Givens, Jeff Hudson, Jennifer McGinnis, or Jennifer Mundt at (919) 733-2578 if you have any questions or comments.

Written Public Comments

on the

La Capra Associates, Inc. study:

Analysis of a Renewable Portfolio Standard for the State of North Carolina

dated December 2006

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2. Duke Energy Carolinas, LLC
3. Dominion North Carolina Power
4. North Carolina Electric Membership Corporation
5. North Carolina Sustainable Energy Association
6. Sustainable Energy Consulting
7. CMS Generation
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9. North Carolina Farm Bureau Federation
10. Cardinal Energy Service, Inc.
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12. Joint Comments by North Carolina Sustainable Energy Association, North Carolina Sierra Club, Environmental Defense, Carolinas Clean Air Coalition, North Carolina Conservation, Network North Carolina Waste Awareness & Reduction Network, North Carolina Interfaith Power & Light, and Chatham Olive
13. Walter Foy Clark
14. Rachel Niketopoulos & Chris Caudill
15. Edwin B. Cox
16. Tracy Golaszewski & Dovid Friedlander
17. Boone Guyton
18. Daren Bakst

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Notice Announcing the Availability of an Analysis of a Renewable Portfolio Standard for the State of North Carolina and Request for Public Comments
December 13, 2006

FILED
DEC 15 2006
Clerk's Office
N.C. Utilities Commission

On January 24, 2006, the Environmental Review Commission (ERC) of the North Carolina General Assembly adopted a motion requesting the North Carolina Utilities Commission (Commission) to undertake a study of the potential costs and benefits of enacting a renewable energy portfolio standard (RPS) in this State. The process proposed to and adopted by the ERC requires the Commission to issue a request for proposals (RFP) and to ultimately contract with an experienced consultant to perform the study under the direction and guidance of the Commission.

After evaluating the responses to the RFP, the Commission engaged La Capra Associates to perform the analysis requested by the ERC. On December 13, 2006, the Commission and La Capra presented the results of the study to the ERC.

The Commission is soliciting written comments on the report from the public to be provided to the ERC. Any written comments should be signed and mailed to the Chief Clerk, North Carolina Utilities Commission, 4325 Mail Service Center, Raleigh, North Carolina 27699-4325 or hand delivered to 430 North Salisbury Street, Fifth Floor, Raleigh, North Carolina 27603. The Commission will accept such comments through January 19, 2007.

The following documents are now available on the Commission's web site: http://www.ncuc.net/rps/rps.htm.

- Letter from George Givens, Counsel for the Environmental Review Commission, to Jo Anne Sanford, Chair, North Carolina Utilities Commission, February 23, 2006
- *Analysis of a Renewable Portfolio Standard for the State of North Carolina*, La Capra Associates, December 2006
- *A Study of the Feasibility of Energy Efficiency as an Eligible Resource as Part of a Renewable Portfolio Standard for the State of North Carolina*, GDS Associates, Inc., December 2006
- Presentation to the Environmental Review Commission, La Capra Associates, December 13, 2006

# # #

Progress Energy

January 19, 2006

FILED

JAN 19 2007

Clerk's Office
N.C. Utilities Commission

Ms. Renne Vance, Chief Clerk
North Carolina Utilities Commission
P. O. Box 29150
Raleigh, North Carolina 27626-0510

RE: Comments Regarding "Analysis of a Renewable Portfolio Standard for the State of North Carolina" performed by La Capra & Associates

Dear Ms. Vance:

Pursuant to the North Carolina Utilities Commission's notice requesting comments on the study and report "Analysis of a Renewable Portfolio Standard for the State of North Carolina" performed by La Capra & Associates, Carolina Power & Light Company, d/b/a Progress Energy Carolinas, Inc. hereby submits its comments in that regard.

Very truly yours,

Len S. Anthony
Deputy General Counsel

Attachment

240575

Progress Energy Service Company, LLC
P.O. Box 1551
Raleigh, NC 27602

STATE OF NORTH CAROLINA
UTILITIES COMMISSION

FILED
JAN 19 2007
Clerk's Office
N.C. Utilities Commission

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of:	)	
	)	
Request of the North Carolina Sustainable Energy Association for Appropriate Proceedings to Determine the Potential for Energy Efficiency Resources to Meet the Demand for Electricity in North Carolina	)	**COMMENTS OF PROGRESS ENERGY CAROLINAS, INC.**

Pursuant to the North Carolina Utilities Commission's ("the Commission") notice requesting comments on the study and report "Analysis of a Renewable Portfolio Standard for the State of North Carolina" performed by La Capra & Associates, Carolina Power & Light Company, d/b/a Progress Energy Carolinas, Inc. ("PEC") submits its comments in that regard.

First, the La Capra Renewable Portfolio Standard (RPS) study provides useful input into the public policy deliberations concerning consideration of policies promoting renewable energy resources in North Carolina. PEC commends the Commission for the process employed to conduct the study, including creation of the RPS Advisory Group.

As acknowledged by La Capra, their analysis was not performed using sophisticated and comprehensive utility planning models similar to those routinely used by utilities in integrated resource planning. Also, due to budget and time constraints, La Capra used simplifying assumptions and aggregate data in the analysis. These methods produce results that may be reasonable indicators of relative costs, but the results are not precise. Similarly, the analysis of energy efficiency programs utilized screening criteria

and methods different from the analysis usually employed and accepted in regulatory proceedings, including integrated resource planning proceedings, in North Carolina. Their analysis did not evaluate the potential impact on electric rates paid by consumers using methods routinely accepted in North Carolina. Nonetheless, the results are useful in evaluating the scenarios examined by La Capra.

As explained in the report, there are a host of other details to be considered as the State considers the question of whether or not to adopt a RPS, and these issues require careful attention.

The La Capra RPS Study concludes that "North Carolina should *[emphasis added]* have sufficient renewable resources within the State to support a 5% RPS..." within a 10-year period. The study also concludes that "The State would have difficulty meeting a more aggressive 10% RPS with only renewable resources located within North Carolina. A 10% RPS focused solely on generation supply would only be achievable by the inclusion of larger hydroelectric generation and the development of wind in both the western part of the State and in off-shore locations." The report does conclude however, that "Inclusion of energy efficiency as an eligible RPS resource in addition to larger hydroelectric generation and wind in the western part of the State would enable the State to achieve a 10% RPS..." The report finds that adoption of a RPS will increase the costs of meeting the electricity needs of North Carolina consumers, and result in increased rates when compared to the current utilities' resource plans, which rely more on conventional, less-costly generation sources. Based upon the assumptions and analytical methods used, the study finds that certain RPS scenarios including energy efficiency and significant reliance on wind generation in the mountains, along with the inclusion of

larger hydroelectric generators results in a savings to customers. However, these assumptions may well be impractical and therefore the conclusion very uncertain, as explained in the report.

PEC's studies have consistently concluded that the vast majority of renewable energy resources and those DSM/energy efficiency programs that fail the rate impact measure test will cause electricity rates to be higher than would otherwise be the case. As a result, with minor exceptions, PEC has not relied upon such resources to meet its service obligations.

Whether it is in the public interest for the State to require the use of these higher cost resources to meet the electricity needs of North Carolina is a public policy issue that is to be determined by the General Assembly after weighing the qualitative and quantitative benefits of such resources against their impact on the state's electricity rates. As simply a tool to be used by the State to implement such an energy policy, PEC requests that it be assured of timely recovery of all costs incurred in meeting such requirements, if they are imposed.

Importantly, there are several critical assumptions underlying and supporting the La Capra conclusions regarding availability and cost of renewable resources and energy efficiency programs that may be unrealistic. These assumptions include:

- The ability to site and build several hundred MW of wind generators in the eastern part of the State, under the 5% scenario. It is currently unclear what issues and challenges may have to be addressed to site and build these generators.

- A 10% RPS would require between 900 to 2,300 MW of off-shore wind. At 3 MW per turbine, that means building up to 767 wind turbines off the coast of North Carolina. Numerous challenges would have to be solved to make the off-shore wind practical and economic. The report notes that a 10% RPS is likely impractical if it depends on this off-shore wind.
- The report also explains that if off-shore wind is impractical, then a 10% RPS requirement can only be achieved by reliance upon the inclusion of energy efficiency programs, larger hydroelectric generators, and development of wind in the western part of the state. But one of the obstacles to development of wind in that part of the State is the Mountain Ridge Protection Act of 1983, which adds substantial uncertainty to large-scale wind development in the mountains. The report notes that until the Ridge Law is clarified, some of the most cost-effective renewable resources are stymied. That leaves no identified resources to meet the 10% RPS scenario, rendering it impractical, even if energy efficiency and large hydro are included.

While the report states that adoption of a RPS can mitigate the need for some baseload capacity, depending on the scenario, it goes on to explain that additional intermediate (combined cycle) generation will be required. In addition, Mr. Jonathan Winer, lead consultant and one of the authors of the report, has explained that even if a

RPS were adopted, the coal and nuclear plants currently being planned by the utilities would still be needed.

PEC agrees with the report that there are a host of other details that require careful consideration regarding the question of adoption of a RPS. These issues and details include, but are not limited to:

- Development and implementation of a mechanism, such as an annual adjustment clause, to provide the utilities with timely recovery of all costs associated with meeting the RPS requirements.
- Development and inclusion of sufficiently flexible mechanisms to minimize compliance costs, such as provisions for the purchase of Renewable Energy Certificates (RECs) and for making alternative compliance payments.
- As demonstrated by the La Capra analysis, meeting a RPS would be challenging in North Carolina. Any consideration of a RPS should include a broad definition of qualifying renewables to enable achievement of the RPS targets and provide opportunities for a wide and diverse array of technologies to meet the requirements as cost-effectively as possible.

PEC appreciates the opportunity to submit these comments, and looks forward to continuing participation in discussion of these issues.

Respectfully submitted this 19th day of January, 2007.

PROGRESS ENERGY CAROLINAS, INC.

Len S. Anthony
Deputy General Counsel

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

FILED
JAN 19 2007
Clerk's Office
N.C Utilities Commission

Notice Announcing the Availability of an Analysis of a Renewable Portfolio Standard for the State of North Carolina and Request for Public Comment	)	**COMMENTS OF DUKE ENERGY CAROLINAS**

Pursuant to the North Carolina Utilities Commission's (the "Commission") Request for Public Comments, dated December 13, 2006, on the study and report entitled, "Analysis of a Renewable Portfolio Standard for the State of North Carolina," performed by La Capra & Associates (the "La Capra RPS Study"), Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company") is pleased to provide these comments.

Duke Energy Carolinas recognizes the growing interest of the public, our customers, our shareholders and our legislators in planning for a reliable and responsible energy supply now and in the future. As the La Capra RPS Study discusses, renewable energy resources and energy efficiency initiatives are important components of that vision. Duke Energy Carolinas commends the North Carolina Utilities Commission (NCUC) for engaging La Capra Associates to further explore these public policy issues.

Duke Energy Carolinas believes the La Capra RPS Study is a valuable starting point in evaluating the impacts of a Renewable Portfolio Standard ("RPS") for North Carolina. However, the La Capra analysis, as they acknowledge, does not use comprehensive utility planning models similar in scope and detail to those used by Duke and other utilities in developing their integrated resource plans. Instead La Capra relied on simplifying assumptions and aggregate data in its analysis. Duke believes that more detailed analysis is necessary including detailed market potential studies for our service territory in order to identify and develop new cost-effective

energy efficiency products and services for Duke customers. A detailed analysis should also evaluate the potential impact on electric rates paid by customers for these products.

Duke Energy Carolinas agrees that increased energy efficiency and renewable generation are important parts of our future energy portfolio. However, the La Capra study recognizes that even with the 5% or 10% RPS, at least 3000 megawatts of baseload generation will be needed by 2017 (see Table 13). The La Capra 5% RPS scenarios all contain 500 additional MW of intermediate conventional generation and two of the three 10% scenarios add 840 MW of additional conventional peaking generation than the utility portfolio. In other words, all La Capra scenarios appear to require additional conventional generation in amounts comparable to Duke's current plans. This point was publicly acknowledged by Mr. Jonathan Winer, lead consultant and one of the authors of the report.

The La Capra RPS Study focuses primarily on (i) whether North Carolina has the physical resources to support an RPS, and (ii) the economic impact of adopting an RPS. In particular, the study finds that existing eligible RPS resources (including energy efficiency) in North Carolina combined with greater hydroelectric generation and wind energy would enable the State to achieve a 10% RPS. Duke Energy Carolinas believes the assumptions underlying this conclusion do not adequately account for the availability and costs associated with developing such resources. In particular, the Company believes that identification of eligible RPS resources should include consideration of technological, regulatory, economic and public support issues that are not sufficiently explored in the La Capra Study. For example, development of wind energy projects, which is a key component of the La Capra RPS Study, is likely to encounter siting obstacles due to the limitations of existing North Carolina law, as well as potential public resistance. The La Capra Study does not address how these and other challenges might be overcome.

The La Capra RPS Study also finds that implementation of an RPS will increase the costs of meeting the electricity demands of North Carolina consumers. Duke Energy Carolinas' own studies and experience with renewable energy resources support this conclusion. It is ultimately a public policy issue as to whether the benefits of energy efficiency and RPS outweigh the cost impact on electricity rates in the state and how they should be implemented.

If an RPS or energy efficiency requirement is adopted for North Carolina, and Duke Energy Carolinas and other utilities are required to make investment in energy efficiency and renewable generation in response to such a requirement, Duke Energy Carolinas requests that a mechanism be put in place to provide utilities with timely recovery of costs incurred to meet the requirements. Also, to protect customers from unexpected rate increases, several program options should be explored. Included in these options to be explored should be a cap on rate impacts and provisions to allow for a reduction in the RPS or efficiency targets if unexpected increases in rates occur. Further, a market for trading renewable energy credits should be designed and explored for integration with other markets.

Finally, Duke Energy Carolinas believes energy resource selection, planning and financing issues are interrelated and must be assessed together in order to provide North Carolina consumers with the lowest-cost, most reliable generation portfolio. For this reason, Duke Energy Carolinas encourages the development of consistent energy policies that discuss customer rate impacts, changes in reliability, other generation sources, cost-recovery, and long-term system planning impacts, such as generation, transmission, and distribution, concurrently with the adoption of an RPS.

Duke Energy Carolinas appreciates the opportunity to submit these comments and looks forward to working with all stakeholders to continue the evaluation of these very important issues.

Dominion Resources Services, Inc.
Law Department
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Dominion®

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FILED
JAN 19 2007
Clerk's Office
N.C. Utilities Commission

January 18, 2007

Via Overnight Mail

Chief Clerk
North Carolina Utilities Commission
430 North Salisbury Street, Fifth Floor
Raleigh, North Carolina 27603

Re: Comments of Dominion North Carolina Power on Renewable Portfolio Standards Study

Dear Commissioners:

Virginia Electric and Power Company d/b/a Dominion North Carolina Power ("Dominion" or the "Company") submits these comments, as requested by the North Carolina Utilities Commission ("Commission") on December 13, 2006, upon the *Analysis of a Renewable Portfolio Standard for the State of North Carolina*, La Capra Associates, December 2006 ("La Capra Report") and *A Study of the Feasibility of Energy Efficiency as an Eligible Resource as Part of a Renewable Portfolio Standard of the State of North Carolina,* GDS Associates, Inc., December 2006 ("GDS Report," together with the La Capra Report, the "RPS Study").

INTRODUCTION

Dominion appreciates the opportunity to comment upon the RPS Study. The issues surrounding renewable energy portfolio standards ("RPS"), including energy efficiency measures, are important issues to be examined in the provision of electric energy in North Carolina. Dominion serves over 114,000 retail customers in its North Carolina service territory in the Northeast portion of the State, including portions of the Outer Banks. As a public utility in North Carolina, Dominion is committed to ensuring that the people and businesses of North Carolina have access to the electric energy that is provided in a reliable manner at just and reasonable rates. Dominion is also committed to minimizing the impact to the environment while carrying out its public utility responsibilities.

Dominion believes that the RPS Study is a good first step in outlining the issues that need to be confronted in analyzing renewable portfolio standards, including energy efficiency. The Company does not believe, however, that the RPS Study is sufficiently developed so as to be relied upon by policy makers for the purposes of crafting a

renewable portfolio standard in North Carolina. As will be discussed below, the RPS Study makes a number of assumptions to support its conclusions, does not fully evaluate significant issues and does not address the need to ensure the availability of electric energy at reasonable rates by requiring adequate cost recovery for any potential RPS or energy efficiency measures. This being said, the Company intends to work with interested parties towards workable incentives for renewable energy in North Carolina.

COMMENTS

The RPS Study lacks sufficient analysis of the rate impact on customers and does not address the issue of cost recovery.

The RPS Study does not provide sufficient analysis of the total rate impact of a RPS and associated energy efficiency measures. On page vii of the La Capra Report, the admission is made that: "These cost comparisons do not include all costs that may be incurred by either renewable generation, energy efficiency, or conventional generation, such as system operation costs or regional transmission upgrades that are highly site and resource specific." These costs can be significant and cannot be ignored as incidental. The failure to make a complete economic analysis makes the RPS Study incomplete. Policy makers need complete information in order to make an accurate cost/benefit analysis when considering the establishment of renewable portfolio standards.

It is telling that the La Capra Report recognizes that current avoided costs may not make a RPS cost-effective. One of the solutions to this problem proposed in the La Capra Report is to set the RPS standard high enough to force "demand" driven prices. [1] What is not sufficiently analyzed in this study is the impact on ratepayers who will be forced to pay higher rates to cover these costs.

The GDS Report states that a third party administrator would need to provide $409 million in incentives (in today's dollars) over twenty years to achieve the energy efficiency savings component of a RPS.[2] Moreover, this is with the assumption that the incentives would cover only 50% of such incremental costs.[3] Presumably these funds ultimately would come from ratepayers. In addition, if $409 million only represents 50% of the incremental costs, then ratepayers would shoulder the burden of spending the additional $409 million, as well, meaning the real cost to appears to be over $800 million.

Finally, both the La Capra Report and the GDS Report do not address utility cost recovery for items such as administrative costs and the impact that these measures will have on a utility's volume of sales, including the associated impact on earnings. A thorough customer rate impact analysis cannot occur without a complete understanding

[1] La Capra Report at 86.
[2] GDS Report at 1-4, 8.
[3] *Id.*

of all costs. The Company believes that to be effective any potential RPS, with or without an energy efficiency component, must address full cost recovery for suppliers.

The recommendations within the RPS Study do not allow for out-of-state renewable energy to count towards any potential RPS.

Dominion is concerned that the study did not evaluate the benefits to North Carolina of allowing out-of-state renewable energy to count toward any potential RPS. Such allowance is very common nationally. Indeed, 17 of the 22 states with such standards allow renewable energy purchases from neighboring states and/or regions to count toward their goal. There may be instances where development or purchase of renewable resources may be completed more cost effectively outside of North Carolina. In this scenario, ratepayers would pay less for renewable energy if the energy were developed in or purchased from a neighboring region. North Carolina's citizens could still benefit from any resulting air quality improvements. Allowing out-of-state renewable resources to count toward an RPS is particularly important for Dominion. With most of our generation in another state, much of our opportunity to build and operate renewables exists outside of North Carolina.

In addition, Dominion's membership in PJM places the company in a unique position. PJM is a regional transmission organization.[4] Through its membership in PJM, the Company's North Carolina retail customers enjoy numerous benefits such as enhanced reliability, optimized system planning, improved resource adequacy, short-term operational pricing signals and access to additional generation capacity. Membership in PJM provides access to renewable energy which could be at a lower cost to Dominion's customers than if imported from other parts of North Carolina. To limit our ability to provide cost effective renewable energy to our customers in North Carolina could substantially increase Dominion's North Carolina customers' costs.

Providing access to other markets helps provide the economic incentives to utilize renewable energy sources. In addition, in the nonrenewable fuel market, namely coal, imports from out of the state are allowed. By restricting the renewable market at its infancy, while the other fuel markets are not similarly restricted, may actually create a disincentive for the utilization of renewable energy. Dominion would encourage a broader, more expansive approach to imports thereby allowing for more opportunities for the renewable market to develop.

[4] Dominion sought and received regulatory approval to join PJM from the Federal Energy Regulatory Commission ("FERC"), the Virginia State Corporation Commission and the North Carolina Utilities Commission ("NCUC" or "Commission"). On April 19, 2005, the NCUC issued its approval for Dominion North Carolina Power to join PJM under several conditions. With approval by the regulating entities, Dominion integrated operation of its transmission facilities into PJM on May 1, 2005.

The RPS Study falsely assumes that renewable resources built in North Carolina will be exclusively dedicated towards any future statewide RPS goal

The RPS Study seems to assume that any developed renewable resources will be utilized exclusively in North Carolina, thereby ignoring the possible economic benefits that might be realized from the resources in other nearby markets, such as PJM. A recent example of this situation can be found by Craven County Wood-Energy Limited Partnership ("CCWE") which is currently selling into this market. CCWE sells 48 MW of renewable energy to DTE Energy, which markets the power in the PJM market. Power is delivered over a 230 kV interconnection and is transmitted to the PJM market through the Progress Energy Transmission system. In short, any future RPS goals should be set with the realization that generators using renewable resources in the state may pursue economic gains in the wholesale market and outside of the state as opposed to selling its capacity and energy within North Carolina.

The RPS Study does not sufficiently analyze transportation and interconnection costs.

Dominion does not believe that the RPS Study takes into sufficient consideration the costs associated with transporting renewable power supplies. Before any cost/ benefits of renewable portfolio standards can be made, there should be a full analysis of all of the RPS costs, not just parts of them.

For example, the RPS Study failed to provide a complete, detailed economic assessment of the costs of wind and biomass generation. By not providing a complete analysis of all of the costs involved in providing wind and biomass generation, the RPS Study necessarily understates the financial costs to providing such renewable energy. One of the most significant costs involves providing wind farms with access to electric transmission facilities. If transmission facilities are not nearby, building such transmission lines to deliver the wind farm's power can be extremely costly. These construction costs are in addition to the siting and permitting costs for the wind farm and transmission lines and the potential need to acquire land for the transmission facilities. It should also be noted that many wind farms rely on federal tax incentives which are subject to political and fiscal considerations of Congress. In fact, the RPS Study states that without the federal tax credit, the incremental cost of this form of RPS may be 40% higher.[5] Without this tax incentive, a wind project's financial viability may be questionable.

In regard to biomass generation, the costs of biomass in the RPS Study were not adjusted to account for the cost of transportation, the variability of different materials in different regions, or the costs of retrofitting any existing generation facility to

[5] La Capra Report at xv.

accommodate biomass in its daily operations. The installed costs vary for different power plants, so the total cost of biomass is not an average cost, but rather a cumulative cost and as such may be much higher than anticipated. For example, the cost of piping landfill gas to any plant for use in combustion is highly sensitive to distance. Thus, just because the gas is available, does not make it economical to utilize.

The Constitutional issues raised in the La Capra report are not addressed.

On page 87, the La Capra Report states that: "An explicit exclusion of out-of-state resources may raise questions under the Commerce Clause of the Constitution." Dominion believes that such a significant issue should be explored more thoroughly, particularly as the report to date has excluded the use of renewable imports. In short, a constitutional issue of this magnitude should have been reviewed in greater detail in the report.

A tracking system must be established to measure the effectiveness of RPS.

In order to measure the effectiveness of a RPS, a tracking system is necessary. For example, in PJM the Generation Attribute Tracking System ("GATS") provides supply information on the fuel source, emissions, as well as other generation characteristics. These systems require resources and take considerable time to develop. The functional design of GATS was developed through considerable deliberation of the PJM GATS Working Group. This stakeholder group began meeting in late 2001. It was comprised of representatives from various state agencies in the PJM region (such as state public utility commissions, state environmental protection offices, state energy offices and consumer advocates) as well as PJM market participants, environmental advocates, other PJM stakeholders and PJM staff. Failing to capture the costs of developing and maintaining these systems fails to reflect the total costs and technical abilities needed to accomplish a RPS in North Carolina. Such a system is particularly important if there are incentives and disincentives applied in achieving certain levels of RPS.

Complexities surrounding a "Program Administrator" must be examined.

Throughout the RPS Study there are references to a "program administrator" for energy efficiency initiatives. It should be noted that the value of a third party administrator is currently being examined by the North Carolina Utilities Commission.[6] The issues involved in utilizing a third party administrator, its funding, and its authority are complex. Dominion does not think such issues should have been merely assumed in the RPS Study.

[6] Docket No. E-100, Sub 110.

Impact on Jobs and Economic Development

The impact of RPS on jobs and economic development in North Carolina could be profound. As North Carolina competes in a global marketplace and against other states for jobs, even seemingly small increases in marginal costs can cause jobs to be outsourced overseas or make North Carolina unattractive for new job producing facilities. Whether it is a manufacturing facility or a customer call center, small changes in energy costs can impact the bottom line of a business. Dominion believes that further study of the impact of electric rates needs to be performed before mandated RPS targets are made. It should also be noted that the laws of supply and demand will also apply to renewable energy. RPS targets could cause the cost of renewable fuels, generation, and transmission to increase significantly over current projections.

The RPS Study unnecessarily limits biomass co-firing to wood residue only.

Dominion favors a broad definition of eligible fuels in a renewable portfolio standard to encourage deployment of a wide range of environmentally beneficial sources and technologies. Dominion is concerned that the RPS Study did not evaluate the benefits to North Carolina of co-firing with fuels other than wood residue. There may be instances where other environmentally beneficial waste products (e.g., tobacco waste, washed peanut hulls, pre-consumer waste paper, and agricultural waste) may be cost-effectively co-fired.

The RPS Study Ignores Dominion's membership in PJM, which provides unique opportunities for demand-side benefits to its customers

With Dominion's integration into PJM, including the associated operating and planning benefits therein, the Company has the opportunity to participate in a market that functionally assesses the economic value of demand-side initiatives. Access to PJM pricing expands the tariff-based DSM pricing opportunities for Dominion customers. The Company believes that offering dynamic pricing tariffs that can better reflect the varying costs of electricity production, combined with the public and private market offering new products, services and standards to customers, will help yield conservation and energy efficiency in North Carolina.

The RPS Study does not take into account the unique circumstance of Dominion, with its membership in PJM, in its analysis of renewable portfolio standards and energy efficiency. Dominion believes that this omission makes the Study incomplete. Dominion believes it is important to ensure that the benefits that North Carolina customers receives from PJM are not negatively affected by any future RPS on conservation-related programs as contemplated by the RPS Study.

CONCLUSION

Dominion appreciates the opportunity to offer these comments. Dominion does not oppose the appropriate utilization of renewable energy and energy efficiency programs so long as any such programs provide sufficient incentives for the development of a robust renewable energy market, are not unduly restrictive, and provide for full cost recovery for suppliers. These comments are offered in the spirit of helping policy makers understand the shortcomings in the RPS Study so that they can seek additional information to assist in their decision making

Sincerely,

Vishwa B. Link

Vishwa B. Link

North Carolina Electric
Membership Corporation

January 19, 2007

FILED
JAN 19 2007
Clerk's Office
N.C. Utilities Commission

VIA HAND DELIVERY

Renne Vance, Chief Clerk
North Carolina Utilities Commission
430 North Salisbury Street
Dobbs Building
Raleigh, NC 27603-5918

Re: ***Comments of North Carolina Electric Membership Corporation Regarding the* Analysis of a Renewable Portfolio Standard for the State of North Carolina**

Dear Ms. Vance:

The North Carolina cooperatives applaud the ERC for directing the NCUC to conduct an independent study of a potential renewable portfolio standard (RPS) in North Carolina. It is vitally important for policy makers to have an independent assessment to consider as they deliberate such an important issue. The consultants who were selected to conduct this study are industry recognized leaders in this field. We also appreciate the opportunity to participate in the process through the RPS Advisory Group.

The North Carolina cooperatives have long supported responsible stewardship of the environment. We recognize the growing importance of energy independence for our national security. Therefore, the cooperatives consider renewable energy as an important component of a balanced energy supply strategy. This is particularly true for cooperatives, as many renewable technologies, such as biomass and wind, are predominately located in rural areas.

The cooperatives also believe that energy efficiency and other demand-side management (DSM) programs play an important role in reducing the need for future generation, and continue to actively promote energy efficiency among their consumers through education, rebates and other programs.

As consumer-owned businesses, the North Carolina cooperatives operate "at-cost" and must immediately pass on increased costs directly to the consumer. Our service territories include some of the most economically depressed in the state. Many of these consumers simply cannot afford even a small increase in utility costs. Clearly, we are very concerned that any discussions of possible mandates for renewables or energy efficiency adequately consider the impact to the end-use consumer who will ultimately foot the bill.

On its surface, the RPS study presents a relatively favorable view of the potential impact of an RPS. NCEMC does not intend to debate the methodology or results of the study. However, a number of the study's findings should be carefully scrutinized by policymakers as a potential RPS is deliberated.

- The study correctly concludes that there are a limited number of viable renewable technologies in North Carolina. In fact, while some states have proposed an RPS as high as 20%, only a 5% RPS is achievable in NC without inclusion of energy efficiency or non-conventional renewables.
- The study concludes that a 5% RPS would only result in a 1% increase in rates. However, this amounts to $750 million dollars additional cost to NC consumers. A 10% RPS would cost consumers $2.7 billion in additional costs. These are significant costs by any measure, and the impact of adding these costs to the consumers electric bill should be given due consideration.
- The study concludes that inclusion of energy efficiency would enable the state to achieve a 10% RPS with an overall cost reduction. It is important to note that the energy efficiency analysis was a simplified screening analysis, based on published studies, not a detailed, NC-specific study. While NCEMC supports allowing utilities the flexibility to use energy efficiency to meet a portion of a proposed RPS, we believe a more detailed study of the benefits of energy efficiency measures should be conducted before decisions are made. In particular, the studies should consider the different impacts of energy efficiency measures in rural and urban areas, and the extent to which benefits of energy efficiency are already captured in existing programs.
- The energy efficiency analysis assumes that efficiency programs will be administered by a program manager, with a 50% incentive level for participants. Structuring a program of this type and determining the proper funding mechanism is a significant undertaking in itself, and should not be taken lightly.
- The study shows that the cost of renewables is significantly higher than the utilities' avoided cost. With the exception of landfill methane (Figure 3) the cost of renewables is higher than new conventional coal. These findings are consistent with our experience, in which renewable developers have demanded prices two to three times what we currently pay for base load power. With the availability of renewables very limited, we are concerned that a mandated RPS will take away any incentive for developers to price their projects competitively, pushing prices even higher.

- The study indicates that nearly half of the practical renewable resource potential would come from on-shore wind projects (Table ES-1). The issues associated with siting wind projects in sensitive mountain and coastal areas must be dealt with if the renewable targets cited in the report are to be realized.
- The study also assumes a practical potential for hydro development of 425 MW (Table ES-1) at a total of 93 sites (Table 5). Again, we are concerned that the practicality of realizing this potential development must be questioned in light of historical opposition to hydro development for environmental and other reasons.
- While the study focuses on incremental renewable energy, the report notes that the state already has over 2,000 MW of renewables in place. It is important that utilities be given proper credit in any proposed standard for renewables already in place.

In summary, NCEMC supports inclusion of renewable energy and energy efficiency programs as part of a balanced and responsible energy strategy. However, the results of the RPS study show that such a strategy is not without significant costs to the consumer and presents a number of significant implementation issues. It is essential that policy makers consider the ultimate costs of any proposed mandate, and ensure that if a mandate is enacted, it be structured to minimize the impact on the rate-paying public.

Should you have any questions, please do not hesitate to contact me at 919.875.3032.

Sincerely,

David L. Beam
Senior Vice President
Corporate Strategy

DLB/bl

NCSEA

North Carolina Sustainable Energy Association

Promoting a clean and renewable energy future

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January 19, 2007

FILED
JAN 19 2007
Clerk's Office
N.C. Utilities Commission

North Carolina Utilities Commission
430 N. Salisbury St
Raleigh, NC 27603

RE: Public Comments on NCUC's "Analysis of a Renewable Portfolio Standard for the State of North Carolina"

The North Carolina Sustainable Energy Association ("NCSEA") appreciates this opportunity to comment and commends the North Carolina Utilities Commission for their leadership in commissioning this non-biased study of the costs, benefits and economic potential of a Renewable Portfolio Standard for the state of North Carolina ("RPS Study"), which also incorporated the economic potential of a small subset of the low-cost energy efficiency measures currently available. The RPS Study is an energy modeling effort. Thus, when drawing policy conclusions, decision-makers must not only assess the specific results of the report, but also consider the model's sensitivities and omissions. It is NCSEA's intention to highlight several of these areas.

1. Energy efficiency is a low-cost resource, and the model should account for scenarios that include efficiency implementation measures greater than 2.5 percent of projected retail sales.

NCSEA has dedicated substantial effort to highlighting the importance of energy efficiency (e.g., reference intervener submissions in docket no. E-100, Sub 103). The RPS Study did not contradict our prior evidence. Rather, it highlighted energy efficiency's critical role in the State's electricity future (i.e., its ability to reduce rates or neutralize rate impacts). Therefore, NCSEA believes that the RPS Study results combined with prior energy efficiency data and material submitted to the Commission warrants an investigation of the La Capra model's sensitivity to increased energy efficiency measure implementation beyond 2.5 percent. The RPS Study results signify that increased energy efficiency will produce favorable results from the La Capra model – one reason to suggest that portfolio standards greater than 10 percent are not out of reach.

2. The model's results should be considered within the construct of more specific North Carolina data when applicable. Residential solar hot water systems are one example.

Residential Solar Hot Water Example

Data cited by GDS in Appendix A, page 84, came from the American Council for an Energy Efficient Economy ("ACEEE") book, *Consumer Guide to Home Energy Savings*, 8th ed., 2003. The cost of a solar hot water system yielding 3,442 kWh annually was listed at $2,500. Using their assumed discount rate of 10 percent and inflation rate of 2.5 percent (Appendix E) in the standard formula for installment loans, the result is an annual payment of $294. Dividing this by 3,442 kWh yields their quoted value of $0.085 per kWh.

A commercially available solar hot water system of the same capacity in North Carolina has a levelized cost of $0.043 per kWh, making full use of current tax credits and using more realistic financing assumptions. We'll go through the assumptions and calculations in detail:

> Southern Energy Management of Cary installs a two panel system designed for a family of four for $4,500. Discount rate is 3% real and loan finance rate is 5% real, corresponding to (approximately) 5.5% and 7.5% nominal respectively with an inflation rate of 2.5%. Federal tax credit is 30% and state tax credit is 35% with a cap of $1,400. Federal tax rate is 30%. The service life and financing term are each 25 years.
>
> Results are shown in the table. Assuming the loan is financed through a home mortgage or home equity loan whose interest can be taken as an itemized deduction on the Federal tax return, the reduction in taxes has a present value of $387, further lowering the effective system cost. Since that benefit materializes over time, it is considered to be equivalent to a loan from the home owner to himself at the discount rate, paid back in installments of $22.22 a year. The result is an annual total payment of $148.73 with an energy yield of 3442 kWh, or $0.043 per kWh.

Characteristics of our North Carolina based model vs. the ACEEE system are:

(1) Higher gross system cost;
(2) Inclusion of current state and federal tax credits;
(3) Federal and state tax deduction of interest cost;
(4) Longer system life; and
(5) Lower discount and interest rates.

Characteristic number five deserves comment.

> A discount rate is the implied rate of return of an investment with a comparable degree of risk to the one under consideration. In the case of a solar hot water system, energy generation is highly predictable, with virtually no volatility. An investment of comparable degree of risk is a U.S. Treasury note, with historic nominal yields in the 5-6% range and inflation averaging about 2.5%. Thus, a realistic real discount rate for low-risk investments is approximately 3%. Indeed, the Federal Energy Management Program and Office of Management and Budget specify discount rates of approximately 3% in life-cycle cost analysis of energy efficiency projects. Interest rates for loans can vary considerably, of course, but home mortgage rates have been as low as 5% in recent years and remain below 7% nominal in most areas of the U.S. Thus, 7.5% nominal seems considerably closer to current norms than the 10% assumed in the GDS analysis.

NCSEA recognizes that the purpose of the GDS study was to demonstrate that cost-effective energy efficiency savings equal to 2.5 percent of electricity use were obtainable. However, it seems likely that this study will be relied upon extensively for energy resource planning in North Carolina for some time to come. The RPS Study's objective was easily met without including solar hot water. Since solar hot water comprised one quarter of the total technical potential for energy savings in the residential sector (Table 5-2), it represents a measure well worth *serious*

consideration in energy efficiency programs in North Carolina. Solar hot water should be seriously considered due to the dramatic impact it could have in lowering energy demand cost-effectively.

Residential Solar Hot Water System in North Carolina

Assumptions:	Discount (real)	3.00%	Loan interest (real)	5.00%	
	Fed. Tax rate	30%	State tax rate	n/a	
	Fed. Tax credit	30%	State tax credit	35%	($1,400 max)
	Service /finance life	25	Annual energy saved	3442	kWh

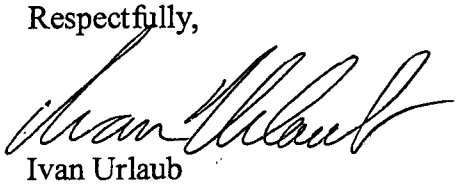
System cost - gross	$4,500.00	
Federal tax credit		-$1,350.00
State tax credit		-$1,400.00
Fed tax on state tax credit		$420.00
Interest deduction on Fed tax (present value)		-$387.00
Credits	-$2,717.00	
System cost - net	$1,783.00	
Annual payments:		
Loan		$126.51
Interest deduction on Fed tax2		$22.22
Total	$148.73	
Cost of energy (annual payment/energy)		$0.043

3. A Renewable and Efficiency Portfolio Standard should promote resource diversity and provide benefits to all consumers. Combined heat and power (CHP) generation should be included in any standard.

According to material published by the North Carolina Solar Center, "CHP generation can be used for building space conditioning, district heating and cooling and agricultural or industrial processes". CHP can provide significant cost savings to industrial and commercial users – stakeholders who should also gain from the benefits of renewable energy and energy efficiency. These benefits can include reduced sensitivity to fuel price fluctuations as a result of CHP's higher fuel efficiency, significant cost savings, and it can serve as primary power, standby, or peak shaving. In short, ignoring CHP ignores a Renewable and Efficiency Portfolio Standard's purpose – to promote diverse fuel resources, provide and support in-state economic development, and reduce environmental impacts of electricity generation.

In summary, North Carolina is now well positioned to act on its own opportunity to encourage the economic and social benefits of renewable energy and energy efficiency. In fact, it can do more. It can be the Southeast's regional leader in energy policy as no other Southeastern states have made the noteworthy commitment to a Renewable Policy Standard. In addition, the RPS Study incorporates the benefits of energy efficiency and identifies the need for a Renewable *and Efficiency* Portfolio Standard – an important recognition of energy efficiency as a low cost resource. Thus, NCSEA supports a North Carolina Renewable and Efficiency Portfolio Standard.

Respectfully,



Ivan Urlaub
Executive & Policy Director

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JAN 16 2007
Clerk's Office
N.C. Utilities Commission

Thomas Henkel, Ph.D
Sustainable Energy Consulting
3 Mt. Bolus Rd.
Chapel Hill, NC 27514

January 12, 2007

Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, NC 27699-4325

MSC Folder (RPS)

Reference: Analysis of Renewable Portfolio Standard for the State of North Carolina and Request for Public Comments

Dear Sir:

Both the GDS Associates **A Study of the Feasibility of Energy Efficiency as an Eligible Resource as Part of a Renewable Portfolio Standard for the State of North Carolina** and La Capra Associates **Analysis of a Renewable Portfolio Standard for the State of North Carolina** appear to contain computational problems in their assessments of the economic suitability of two solar energy technologies for inclusion in RPS legislation. My comments follow.

Clerk mail
Watson

I. Solar Tax Incentives. As of this date, the Federal 30% income tax credit has been extended through the end of 2008, and it looks like the new Congress may extend the Federal tax incentives through 2017. The excellent solar energy resources cited by La Capra and the combination of Federal and North Carolina solar tax incentives in the commercial and industrial sectors mean that North Carolina has one of the best solar energy investment environments of all of the states, including those states like California, New Jersey, and New York that offer solar rebates instead of tax incentives. These solar tax incentives buy down the net capital costs of commercial solar energy systems by around 80% when the owners can use their tax liabilities this way. The Solar Energy Industries Association (SEIA) has concluded that the North Carolina investor-owed utilities can apply tax incentives on solar energy equipment that they own and operate with the permission of the NCUC.

The tax incentives that are presently available for commercial solar energy systems are the Federal 30% Investment Tax Credit (with no limits), the Federal 5-year MACRS (accelerated depreciation), the North Carolina 35% tax credit (with a $2.5M limit per project), and a North Carolina 10-year straight line depreciation. For the residential market, there are the Federal 30% income tax credit to a limit of $2000 and the North Carolina 35% income tax credit to a limit of $1400 on a solar hot water system. It is unclear if La Capra and GDS have correctly applied all of these tax incentives to their analyses of solar energy technologies. The only references to solar energy tax incentives are on pages 37 and 39 of the La Capra report, and they are incomplete as written. The GDS report fails to even mention solar tax credits.

I request the Utilities Commission staff require La Capra and GDS to re-examine any computations in the study that can include solar tax incentives to reduce the levelized costs of electricity generated or displaced, and to insure that these incentives are properly factored into their computations.

II. Analysis of a Renewable Portfolio Standard for the State of North Carolina.

La Capra fails to include solar PV as an acceptable renewable energy technology because the computed levelized costs of $0.20/kWh to $0.35/kWh are too high. (See Figure 3 on page 8 and Table 8 on page 42). Levelized cost is defined on page 97 of the Study as "A single cost (often stated as a rate per kWh or MWh) that would produce the same economic outcome as a series of varying costs over the economic life of an investment." Yet it is unclear from the statements on page 41 and Table 8 what actual methodology was used to compute the levelized costs other than 20 years is assumed to be the economic life of a system. On page 36, the assumed installed costs of PV range from $8,000/kW (large commercial systems) to $12,000/kW (small residential systems), and the annual PV production varies from 1665 kWh/kW-yr to 1706 kWh/kW-yr. Using these data, the computed costs of $0.20/kWh to $0.35/kWh appear to be simply installed costs divided by 20 years of total PV electricity production. These don't appear to take into account all solar tax credits and the changing value of money over 20 years.

It is unclear how La Capra computes levelized costs. Several years ago, the staff of Duke Engineering and Services (DE&S), a subsidiary of Duke Energy, developed an Excel spreadsheet calculator that uses the NPV function to compute a single cost of a commercial solar energy system where the various tax incentives are applied over different time periods with discount rate as an input to estimate the change in the value of money over time. (This follows the La Capra definition of a levelized cost.) For example, the Federal 30% ITC is taken in the first year, the 5-year MACRS schedule is over 6 years, the North Carolina tax credit is taken over 5 years, and the North Carolina straight line depreciation schedule is over 10 years. NC tax credits are treated as income for Federal tax purposes. For a large commercial solar PV installation at $8000/kW with a 5% discount rate, this calculator produces a system present value cost of $1516/kW, which is 19% of the capital costs. This suggests that instead of a levelized cost of $0.20/kWh, the cost should be closer to $0.072/kWh when all commercial tax incentives are included in the calculations.

It is noted that La Capra computed wind power levelized costs of $0.055/kWh to $0.105/kWh on Table 8 page 42 with production tax credits included, and La Capra includes wind as an economically viable technology for RPS legislation. Therefore, it must be concluded that if La Capra were to compute levelized costs for solar PV by including all applicable tax incentives, large commercial PV systems could also be included as viable for a North Carolina RPS. The impact of including solar PV in RPS legislation can be illustrated by the following example: were commercial building rooftops with a total area equal to the land area surrounding the Shearon-Harris nuclear power plant used for solar PV systems, around 3200 MW could be installed.

I request the Utilities Commission require La Capra to re-evaluate solar PV by recalculating the levelized cost of electricity in a way that includes all applicable solar tax incentives, and to make a solar PV resource assessment.

III. A Study of the Feasibility of Energy Efficiency as an Eligible Resource as Part of a Renewable Portfolio Standard for the State of North Carolina.

In its evaluation of an acceptable energy efficiency measure to be included in an RPS, GDS has established an arbitrary electricity levelized cost savings of $0.05/kWh. Levelized cost per lifetime kWh saved is defined in the report as the annual cost of an installment loan payment over the life of the energy efficiency measure divided by the annual kWh savings. (This differs from the La Capra definition of a levelized cost.)

For residential solar hot water (SHW) systems, Table 5-4 on page 38 of the report lists the levelized cost as $0.085/kWh. Appendix E lists an assumed discount rate of 10% (nominal) with inflation of 2.5%, and page 84 of the report lists the cost of a residential SHW system as $2500, an annual electricity savings of 3442 kWh, and a 20-year lifetime. This information is credited to a 2003 ACEEE publication. It is unclear how GDS arrived at their stated levelized costs other than they computed the annual premium of a 20-year loan and divided it by the annual energy production of the SHW system. Because the computed residential levelized cost is greater than $0.050/kWh, solar hot water was rejected as a measure to be included in the RPS. Were the calculation less than $0.050/kWh, Table 5-2 on page 36 shows that this measure could save approximately 25% of all considered measures by 2017.

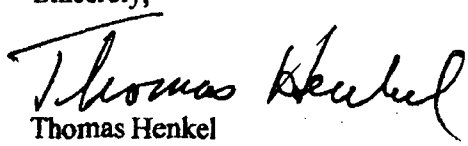
Because GDS used residential solar hot water system incremental costs from a 2003 publication and failed to mention tax credits in their report, it is doubtful that they included the 2006 appropriate solar tax incentives. For a capital cost of $2500, the DE&S calculator, while incorporating the applicable solar tax credits, produces a present value cost of $1186 at a 10% discount rate, which is 47% of the incremental capital cost. Therefore, with tax incentives included, the levelized cost calculation should produce a value of approximately 47% of $0.085/kWh or about $0.043/kWh.

I also question if a 10% discount rate is reasonable for an investment in a reliable energy system at today's price of money.

I request the Utilities Commission require GDS to re-evaluate the residential solar hot water energy efficiency measure by recalculating the levelized cost of energy saved and insuring that all appropriate tax incentives are included.

Thank you for considering my comments. I will be happy to respond to any questions the Commission staff may have about my analyses.

Sincerely,



Thomas Henkel

CMS ENERGY
Generation

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January 15, 2007

MISC. RP Folder

Mrs. Renne Vance
Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27603

Re: Comments on the "Analysis of a Renewable Portfolio Standard for the State of North Carolina"

Clerk's w/d Watson

Dear Mrs. Vance:

Please find attached comments on the above referenced document.

Sincerely,

Wade Bennett

Wade Bennett
General Manager – Biomass Operations
CMS Generation

Comments on the "Analysis of a Renewable Portfolio Standard for the State of North Carolina"

I would like to commend La Capra Associates and the North Carolina Utilities Commission on a thorough and realistic assessment of renewable energy opportunities and costs and the subsequent impact to North Carolina ratepayers.

That being said, I do have one correction and several comments to make. Having served over 10 years as plant manager at Craven County Wood Energy, a 50 mw biomass electrical generating facility in New Bern (referenced in the report), and now responsible for operations at four such facilities nation wide and some 150 mw of biomass generating capacity, I believe I am qualified to offer some practical comments.

The correction I need to point out is the fuel cost listed for "Wood Block 1" New Biomass plants on Appendix F Operating Cost Assumptions (page 118). This cost is shown as $2.05/mmbtu, but to be consistent with the $40/dry ton cost shown on Appendix F Fuel Cost Assumptions (page 116), the correct number is $2.35/mmbtu (a dry ton of wood typically has about 17 mmbtu available). This number is correctly shown in Section 3.2 of the report. The $2.94/mmbtu cost shown for "Wood Block 2" New Biomass correctly corresponds to the $50/dry ton shown on the Fuel Cost Assumptions.

That being said, the extremely low and even negative fuel costs (-$0.40 to +$0.19) shown for co-firing biomass on these same pages is misleading and leads one to the conclusion that co-firing biomass is an order of magnitude cheaper than other renewables. The same should be said of Table 8 on page 42, which explains in a footnote that the fuel costs shown for co-firing actually represent only the incremental cost above coal. I therefore recommend that any comparison of costs of the different generating technologies show the full cost of electricity generated from co-firing biomass.

It is unclear to me how and if this is factored into the utility rate impact modeling. Since co-firing biomass displaces coal, the full cost of the biomass must be factored in and not just the differential above coal costs.

The report does a good job in pointing out that co-firing does not help toward needed capacity additions. The report states that this is factored into the economic model.

Another unfair comparison is that biomass generating facilities are modeled using an economic life of only 20 years whereas coal and nuclear generation is allowed an economic life of 40 years resulting in a lower levelized cost. These are purely commercial assumptions and have nothing to do with the relative potential technical longevity of these facilities. A wood waste fired power plant is very similar to a coal plant in its basic steam cycle technology, and it has a comparable if not longer life due to its relative simplicity. An example of this can be seen in many operating power houses in aging pulp and paper mills today.

My final point is that it is imperative that any RPS introduced include existing resources. Biomass resources have become competitive markets, and if new biomass generation comes on line at a premium to existing generation it has an unfair economic advantage in competing for the same biomass resources. The report does accurately show the higher costs of new biomass compared with today's market, but it is inevitable that new generation will compete for the cheapest resources available and market prices will increase for all generators. By excluding existing generators the RPS could therefore have a negative affect by adding new renewable generation but losing existing, resulting in a small or negative net capacity change.

BAILEY [B&D] DIXON

Carson Carmichael, III

ccarmichael@bdixon.com

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January 19, 2007

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Clerk's Office
N.C. Utilities Commission

BY MESSENGER
Ms. Renee Vance
Chief Clerk
North Carolina Utilities Commission
Dobbs Building
Raleigh, North Carolina

Re: Analysis of a Renewable Portfolio Standard for the State of North Carolina and Request for Public Comment

Dear Ms. Vance:

Please find CIGFUR's comments in accordance with the Commission's solicitation for public comments regarding the Report issued to the ERC by the Commission and La Capra.

Please let us know if you have any questions.

Sincerely,

BAILEY & DIXON, L.L.P.

Carson Carmichael, III

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N.C. Utilities Commission

CIGFUR's Comments on the
Analysis of A Renewable Portfolio Standard for the State of North Carolina
Prepared by La Capra Associates, Inc. – December 2006

Introduction

The following comments are submitted by the Carolina Industrial Group for Fair Utility Rates (CIGFUR)[1]. CIGFUR members are vitally interested in the continued availability of an adequate supply of reliable electric power at the lowest reasonable rates to ratepayers in North Carolina and, consequently, wish to be involved in any consideration of a renewable portfolio standard (RPS) for the State. CIGFUR does not oppose expansion of utility-owned capacity, purchased capacity (including capacity based on renewable energy), or demand-side management (DSM) provided it can be demonstrated that the alternative selected results in least cost rates to ratepayers without subsidies or undue discrimination.

The *Analysis of A Renewable Portfolio Standard for the State Of North Carolina* (Report) provides a first analysis of an RPS for the State and appears to be a good, initial effort in this complex and dynamic area of inquiry. Due to the complexity of this subject matter and the uncertainty associated with a forecast of variables affecting the future, certain assumptions were required in an attempt to model the variables associated with this undertaking. Therefore, it should be recognized that, while the Report may be a best-efforts attempt to gain insight into the impact of future variables and uncertainties, the future is always subject to change as more information becomes known and measurable.

Conflicts with Existing Ratemaking Principles

CIGFUR is concerned by any proposal to change the present regulatory system in order to provide a subsidy or preferential treatment for renewable energy in connection with implementation of an RPS. For example, the North Carolina Utilities Commission (NCUC or

[1]The CIGFUR groups, CIGFUR I, II and III, are associations of large, industrial purchasers of power in North Carolina from the three investor-owned electric utilities operating in the State.

Commission) has established the avoided cost rates paid by North Carolina utilities for power purchased from qualifying facilities by keeping ratepayers indifferent to whether power is supplied from utility-owned generation or non-utility generation. The Report states:

> Existing average avoided cost[44] rates (4 to 6 cents per kWh) for wholesale energy including capacity paid to Qualifying Facilities under PURPA are insufficient for new renewables to be built in the State. Avoided costs are calculated based on marginal power costs, which reflect the weighted cost of generating electricity on the margin, and the capacity cost associated with new combustion turbines. However, the avoided cost calculation does not take into account the full cost of new baseload generation. Furthermore, many of the existing non-utility owned generators' long-term contracts are expiring, and those projects are facing lower avoided cost rates for the energy today, risking potential closure of the facilities. Others are considering wheeling the energy into PJM and selling the energy out-of-state where wholesale prices are higher and there is potential opportunity to participate in other states' RPS programs.
>
> [44]"Avoided cost" is defined in the Federal Public Utility Regulatory Policies Act of 1978 (PURPA) as "the cost to the electric utility of the electric energy which, but for the purchase from such cogenerator or small power producer, such utility would generate or purchase from another source." 16 U.S.C. § 824a-3. The avoided cost is designed to produce no rate impact to customers and reflects the marginal cost of generating electricity, but does not necessarily reflect the all-in cost of building baseload generation." Report, p. 7.

The Report also states that some of the renewable generation for the RPS does not provide capacity value.[2] To the extent capacity is not supplied when capacity is required, the value of the power is significantly reduced and reliability becomes an issue. Energy supplied at off-peak times may produce a burden on utilities and ratepayers, rather than a benefit. These issues need to be analyzed fully prior to any change in the North Carolina method of regulation of electric service.

Another significant area of concern is associated with long-standing integrated resource planning criteria. Currently, utilities are required to present IRPs to address comprehensively their plans for future capacity, purchased capacity or demand-side management to provide reliable service to ratepayers on a least cost basis. This process has served North Carolina well over many years and should not be abandoned or changed substantially without full and adequate consideration of all ramifications. The least cost standard is a fundamental regulatory

[2]Report, page 59.

principle that should not be abandoned. Utilities and ratepayers need to know that the ground rules for fair, efficient least cost ratemaking without discrimination have not changed and will not change. If the IRP process and least cost standard are abrogated, more problems will be created than solved.

Some North Carolina industries produce energy from wood products or chemical processes that are extremely efficient and conserve the State's resources. However, the avoided cost rates established by the Commission do not currently provide for the economic sale of that efficient energy to utilities. It would be unreasonably discriminatory to set a different, higher level of avoided cost rates for new participants in order to establish an RPS for North Carolina. This would allow new participants to take advantage of the higher avoided cost rates at the expense of existing ratepayers who offer more efficient sources of energy. There is no doubt that the increased cost would be passed through to ratepayers as stated on page 41 of the Report:

> "The output of the non-utility-owned projects is assumed to be sold to utilities under long-term power purchase agreements (PPA) for a fixed price that is equivalent to a levelized cost which allows the owner to earn a market return on investment. The cost for the PPAs will be passed through to ratepayers."

Phantom Taxes or Subsidies Should Not be Allowed

A subsidy forced on ratepayers by higher avoided cost rates, abandonment of the least cost criterion or a rate increase caused by a Public Benefits Fund is in actuality a new, "phantom" tax levied on North Carolina citizens. A new tax should not be levied on North Carolina citizens through a process before the NCUC. New taxes should be levied only by the General Assembly. Public benefit funds or payments for purchased power above avoided cost, are equivalent to taxes and should not be called anything else.

Additional Costs Associated with a RPS

The Report does not review analyze costs imposed by the necessary expansion to the transmission grid or substations that will be required by certain renewable projects such as offshore windmills. The cost and operating problems associated with offshore windmills or other renewable energy projects should not be minimized. For example, transmission lines are difficult to construct in many geographic areas and may meet resistance from North Carolina property owners.

The costs and problems associated with renewable energy projects must be taken into account before any new action is taken to promote them. For example, energy that is contingent on wind may not be available when needed and cannot be counted on for meeting peak load requirements of North Carolina ratepayers. Reliability may be strained, and additional utility generation may be required for system reliability in addition to the renewable energy. These issues must be considered and evaluated prior to establishment of a mandatory RPS requirement.

Existing Clean Air Requirements

Utilities in North Carolina have the responsibility of meeting very strict clean air requirements under the Clean Smokestacks law (2001 N.C. Sess. Laws 2002-4). A significant amount of capital is being invested to produce clean energy from existing North Carolina generation. Since North Carolina is "ahead of the curve" with respect to clean energy from existing fossil-fueled plants, it may not be necessary for North Carolina to rely on renewable energy for environmental reasons to the same extent required by other states with plants that are not already required to be environmentally friendly. Is it reasonable for North Carolina ratepayers to fund extremely clean fossil-fueled plants and in addition subsidize renewable energy in an attempt to stay "ahead of the curve" with respect to clean generating technology.

Energy Efficiency is Not Renewable Generation

Section 5 of the Report considers energy efficiency as a method of reducing the rate impact of an RPS. Energy efficiency is always a consideration for manufacturing industries located in North Carolina. Energy efficiency is also mandated through standards in the manufacture of appliances and in building codes. Energy efficiency is separate and apart from generating electricity using other than fossil-fueled sources. Energy efficiency will stand on its own and should not be used to mask the increased cost that may be associated with an RPS. Energy efficiency can be pursued without renewable generation that must be subsidized because it is not the least cost option.

Job Impacts

Section 7.1 of the Report considers non-energy related benefits on an RPS including job gains and losses. A model was used to derive this information, and, obviously, many assumptions were required for this forecast. The Report projects that new jobs may be created from a requirement to obtain power from renewable sources and that jobs may be lost from increased prices that would burden existing North Carolina companies. The Report also considers that certain renewable equipment is not manufactured in North Carolina. Indeed, industries in North Carolina are already subject to global competition and may be forced to cease operations or locate elsewhere due to increased costs. CIGFUR does not believe that new jobs should be weighed against old jobs as a basis for a mandatory requirement for new forms of generation. The least cost standard is the fairest way to proceed with cost-based rates for all ratepayers. Introduction of a subsidized, more costly form of energy with a netting of new jobs versus old jobs should not be considered as a basis for establishing an RPS standard. A phantom tax that subsidizes new sources of power may result in new jobs but would be indifferent to the fact industries paying the subsidy will likely lose jobs. North Carolina residents

who work in the North Carolina manufacturing industries should not be forced to subsidize a new industry that may cause the loss of their jobs.

Respectfully submitted, January 19, 2007.

BAILEY & DIXON, L.L.P.

By: _____
Ralph McDonald
Carson Carmichael, III
Attorneys for CIGFUR
Post Office Box 1351
Raleigh, North Carolina 27602
(919) 828-0731

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NORTH CAROLINA
FARM BUREAU FEDERATION

TELEPHONE (919) 782-1705 / P. O. BOX 27766 / RALEIGH, NORTH CAROLINA 27611

January 19, 2007

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Raleigh, NC 27699-4325

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Dear Commissioners:

The North Carolina Farm Bureau Federation appreciates this opportunity to provide comments regarding the North Carolina Utilities Commission's "Analysis of a Renewable Portfolio Standard for the State of North Carolina" (RPS Study).

Agriculture is North Carolina's number one industry, accounting for $68 billion in annual economic activity. We are the state's largest farm organization and, with 500,000 member families, among the state's largest organizations. North Carolina Farm Bureau supports the utilization of renewable energy and energy efficiency and commends the North Carolina Utilities Commission and the Environmental Review Commission for authorizing this study. We recognize that renewable resources and efficiencies are essential components of balanced energy supply and energy independence. Farmers are in a position to benefit greatly from the utilization of agricultural biomass, animal manure, poultry litter, forest biomass, and wind power. However, we are cognizant of the possible negative impacts of a mandated RPS and an unbalanced energy efficiency program in North Carolina.

North Carolina Farm Bureau is deeply concerned about the negative impact of rising energy costs on North Carolina's farm families, rural citizens and agribusinesses. These costs are jeopardizing our state's rural economy and squeezing the budgets of hard working citizens. As you know, North Carolina has recently enjoyed low electricity costs compared to other regions of the United States. The RPS Study predicts a rise in electricity rates for nearly all evaluated RPS scenarios. This RPS rate increase, though small, would be added to the anticipated rate increases due to new baseload construction. Farmers and rural citizens cannot afford rising electricity rates to be compounded with the already rising oil and natural gas prices. Farmers do not have the ability to pass on these increased production costs. Clearly, the state must identify and develop local sources of renewable energy, but at a cost that does not threaten the rural economy.

North Carolina Farm Bureau supports utilities using energy efficiency as a flexible tool to meet increasing demand. The RPS study proposes an energy efficiency program paying for 50% of the efficiency measures through a central administrator. The energy efficiency analysis was completed based on a review of published reports and not a detailed, North Carolina specific analysis. In the analysis, agriculture is considered within the industrial sector with no agricultural specific efficiency measures evaluated. We are concerned that a statewide energy efficiency program will disproportionably tax the agricultural sector with little to no qualifiable energy efficiency measures available. In this case, North Carolina farmers will shoulder their part of the program cost but realize very little of the benefit.

North Carolina's farmers and agribusinesses, like the rest of the state's consumers, are dependent on imported energy feedstock to keep their operations in business. It is critical that North Carolina continue to implement sound energy policy that provides reliable and affordable electricity. Part of that sound energy policy includes expanding the utilization of our abundant renewable resources. North Carolina Farm Bureau encourages the increased use of renewable resources as a part of the growing energy portfolio. We believe that voluntary, incentive based, market driven approaches provide for a proper balance between renewable energy, energy efficiency, and affordable electricity. North Carolina Farm Bureau supports the utilization of renewable energy and energy efficiency and look forward to our involvement in the development of sound energy policy.

Again, thank you for allowing us the opportunity to comment on the "Analysis of a Renewable Portfolio Standard for the State of North Carolina".

Sincerely,

M. Paul Sherman
Air & Energy Programs Director

Cardinal Energy Service, Inc.

Financial, Management, & Energy Supply Services

N. West Street, Suite 103
Raleigh, North Carolina 27603

Telephone 919 834-0909
Facsimile 919 834-7012
acgivens@cardinalenergy.com

January 19, 2007

JAN 19 2007
Clerk's Office
N.C. Utilities Commission

Ms. Renne Vance, Chief Clerk,
North Carolina Utilities Commission,
4325 Mail Service Center,
Raleigh, North Carolina 27699-4325

Subject: Renewable Portfolio Standard for North Carolina

Dear Ms. Vance:
Attached are 40 copies of the comments of Andrew C. Givens concerning a Renewable Portfolio Standard and energy efficiency measures for North Carolina.

Sincerely,

Andrew C. Givens

Andrew C. Givens

Comments to the North Carolina Utilities Commission

Regarding

Establishment of a Renewal Portfolio Standard for Electric Generation In North Carolina

Submitted by:
Andrew C. Givens[1]
Cardinal Energy Service, Inc
Raleigh, NC

January 19, 2007

The Environmental Review Commission and the North Carolina Utilities Commission should be applauded for examining the issues related to a Renewable Portfolio Standard (RPS) and energy efficiency measures for North Carolina. The reports of the La Capra Team provide important background information for discussion and further consideration of these issues.

The pattern of overall energy consumption in this country is significantly higher than is necessary or appropriate to maintain and continue to improve our standard of living. As a result of our energy consumption we have degraded our environment, risked our health through polluted air, reduced our national wealth and impacted the value of the US dollar by massive spending on foreign fossil fuel resources, become energy dependent upon remote oil-rich countries around the world, and become politically and militarily weaker. There is a better way and we should work to find and implement it.

Some of these issues relate more to our oil use than to electricity generation and consumption in North Carolina. However, the prices of energy resources are linked in the market, and as oil prices rise, the cost of energy substitutes such as coal and gas trend upward. In addition, our addiction to careless energy consumption is broad, and a change in our consumption will require an overall increased awareness of energy cost and a rational dialogue to find a more satisfactory approach toward meeting our future energy needs.

---

[1] Andrew Givens is an energy and utility consultant with over 25 years experience and has been directly involved in the renewable energy industry in North Carolina for over seven years. During this time he has worked with landfill gas developers, hydro operators and developers, hog waste project developers, and has analyzed the availability of renewable energy in North Carolina including hydro, landfill gas, animal waste, wind and solar energy development. In addition, he was directly involved in the initial development of the NC GreenPower program which supports the development of renewable generation across the state of North Carolina. The comments and positions expressed in this document are the personal and professional positions of Andrew Givens as a concerned resident of North Carolina, and are not sponsored or on behalf of any other party or organization.

Based on the information discussed below, North Carolina should adopt a program with its primary focus being energy efficiency with intermediate term support for the development of renewable resources and cleanup of utility fossil generation. Energy efficiency will lead to an overall reduction in the consumption of resources now and into the future. It will stimulate the development of new energy efficiency technologies. It will reduce the total carbon released into the air. It will reduce the need for new infrastructure such as power plant sites and transmission lines. A Renewable Portfolio Standard (RPS) based primarily on development of new renewable resources will be putting our eggs in a basket which has a higher resource cost than even the existing electric generation mix and has the potential to be a long term financial burden to the electric customers of North Carolina.

In fact, electric generation from many renewable resources in North Carolina is not resource efficient, as discussed below. In order for these resources to be developed, income tax credits, federal production tax credits, NC GreenPower support payments and other sources typically are needed. While these support programs may make the development feasible for a developer, this does not change the fact that most of these forms of generation require more resources and cost more than conventional generation. The development and operation of many renewable resources consumes significantly more capital, labor, equipment, and fuel resources to produce a kWh of electricity than with the current production scheme. By imposing a long term requirement to develop and utilize renewable resources without regard to the total resource cost, we are choosing the more resource intensive option.

Some renewable energy technologies are at the early stages of their development and may become resource efficient after an initial growth period. A properly structured Renewable Portfolio Standard (RPS) could be an appropriate mechanism to facilitate development of the initial renewable electric generation to help these industries reach an efficient scale. However, such an RPS must provide that the technologies eventually meet the competitive challenges, and that the long term development be based on resource competition, without support.

Again, we should not reject the development of the renewable generation strategies, but it is important to clearly understand the high cost of these generation technologies and the limited potential for them in North Carolina. We should move ahead on a sustainable basis and this requires that we develop a strategy which is based on the total resource efficiency principles. This requires a reduction of energy use through improved energy efficiency, and by requiring utilities to reduce emissions.

A closer examination of the La Capra report and consideration of specific development issues in North Carolina shows the difficulties with a reliance on major renewable electric generation.

1. The potential for hydro generation of 66 – 425 MW may be overstated. The stakeholder process leading to the formation of the NC GreenPower program addressed the development of hydro generation and showed the depth of controversy regarding existing and new hydro generation. At that time, existing hydro generation was not wholeheartedly supported, and there was severe opposition to new impoundments for hydro generation. It was clear that any new hydro generation which would be included in

the program would have to meet the Low Impact Hydro standards. It will be difficult to meet these standards in the development of potential sites in North Carolina.

The redevelopment of hydro generation sites in the early 1980s, following the federal PURPA law of 1978, led to the review of most, if not all, hydro sites in the state and the redevelopment of many viable sites. These operators have struggled to maintain feasibility of these sites over the last 20 years. There are few developable sites available which do not have serious environmental, operational, or financial issues limiting their development.

Some of the potential hydro sites listed on the INL database used by La Capra have already been developed and are among those in operation. Others sites on the INL list have serious issues related to development, or are rated at a significantly higher capacity than can be expected. While the INL database may be one of the best national databases available for a generalized analysis, it has lead to an overstatement of the actual available resource in North Carolina. Realistically, it is difficult to see more than 20 MW of additional small hydro generation developed in North Carolina.

2. The wind resource was shown to be about 26% to 42% (500-1,500 MW) of the practical potential renewable resource. The availability of the feasible wind resource may be overstated, based on the following factors:

   a. Wind generation is a seasonal resource which cannot be dispatched by a utility and cannot be counted on by the utility to serve specific peak loads. For this reason, the utility must provide other generation resources during low-wind periods and may not be able to significantly reduce the generation capacity required to meet the system load during peak times. On the other hand, wind generation could provide energy during periods of favorable wind, and offset the consumption of fossil fuel at some other plants.

      While the La Capra report reflects this seasonality of the wind resource, it can be easy to over estimate the resource value until the seasonality is worked into the integrated resource plan of the utility. For this reason, it may not be accurate to sum a projected capacity figure for wind generation with other seasonal resources such as hydro and solar, which may typically generate during other parts of the year.

   b. Based on the wind resource maps, the on-shore wind resource in eastern North Carolina is primarily located in areas of Hyde and Carteret Counties and within Albemarle and Pamlico Sounds. La Capra recognized that the development of wind farms typically requires some addition of transmission facilities to get the wind power to the grid, and included a generic cost for these transmission facilities. The specific sites in eastern North Carolina are particularly remote from the major transmission facilities. At most of these sites, lengthy transmission lines would be required, particularly in Hyde County and locations in the sounds. There are major issues related to construction in wetlands, waterfowl habitat, and

military aviation. This would be an even greater issue if the wind resource were to include a loop connection to the grid, as would be normal for a major generating resource.

c. The development of the wind resource in the mountains appears to be dependent on the legislation or litigation regarding the current "Ridge Laws." La Capra points out that the development would only involve approximately 100 miles, or 5% of the ridgelines above 3000 feet. While this may be true, these are, for the most part, the highest and most prominent 100 miles of ridges in the western part of the state. The resource is located primarily in five areas; 1) north of Boone, 2) Grandfather Mountain area, 3) Mount Mitchell area, 4) Mount Pisgah area, and 5) the Great Smoky Mountains. The Blue Ridge Parkway runs along or near many of these ridges. While the people of North Carolina may find wind turbines to be acceptable in these locations, it is clear that they will have a major impact on the mountain views.

d. The impact of the wind generation also includes the access and clearing of the sites for construction and operation. Particularly in the mountains, the construction and long term maintenance of access roads may be a significant cost and will have an environmental impact.

e. While some polls of people near potential wind farms show an acceptance of these developments, experience in some areas after generation has been added is mixed, and in some cases further development has been halted as a result.

f. The success of the wind industry in other states reflects the fact that other states, particularly the west coast states, certain mountain and plains states have a much greater wind resource than does North Carolina. The wind generation may be feasible in those states because of the significant federal production tax credits and the state mandates, rather than because they were resource efficient projects.

Based on the coastal or mountain locations and the transmission issues, a reasonable estimate of the development cost of wind generation in North Carolina would be at or above the high end of the cost data shown in the La Capra report. That is 9.1¢ per kWh. When looking at the total resource cost of putting a kWh of wind power on the gird, including the PTC and income tax credits, the cost may be 12¢ to 15¢ per kWh. While incentives may lead to the development of 10 MW to as much as 50 MW of wind generation may be developed in some coastal areas, it is not prudent to anticipate more wind generation to be developed in the state.

3. The biomass resource is shown to be approximately 35% to 50% (953 – 1239 MW) of the practical potential renewable resource in North Carolina. This is certainly a resource which can be effectively utilized for electric generation, particularly for co-firing at existing coal plants. The La Capra report points this out and discussed the need to address the related fuel supply, environmental, and regulatory issues.

A significant limitation of the biomass resource comes from the increase price of the fuel once the industry grows and a market develops for what once was waste. Experience in other locations has shown that as foresters and farmers see the wood waste or crop waste as a byproduct to be sold, the market develops and suppliers seek the highest price for their product. La Capra referred to this and to the importance of locating plants at a sufficient distance from each other to reduce this impact. However, plants must locate where there is access to the transmission grid and transportation. As the industry grows, there may well be an overlap of fuel supply areas and escalating prices. If the wood and agricultural waste generation industry does develop, this competition for fuel resources may quickly cap the feasible level of generation.

Most of the job creation related to the renewable power industry as discussed by La Capra is in the area of biomass generation. As shown in Figure 26 on page 72 of the report, most of these jobs are related to providing the fuel for the biomass facilities. Much of this employment is presumed to be the gleaning of wood residue from timbering sites and transportation of the fuel to plants. While many of the rural areas which would host these generation facilities can use the boost in employment which this would bring, we must recognize that these are not high paying jobs and not the jobs which the state has been promoting elsewhere.

4. Landfill gas generation appears to be the most developable renewable resource, with a number of projects in North Carolina in operation for 5 years or more. In many situations, however, the most efficient use of the gas has been direct use by large users rather than for the generation of electricity. This direct use avoids the energy losses inherent in electric generation and delivery to the grid. Where the site specific circumstances call for it, however, the utilities should be receptive to the electricity entering the grid. Recognizing the current mix of direct use and generation facilities, and the regulations regarding control of landfill methane, it is more reasonable to expect 50 MW of generation from landfill gas.

   North Carolina has an ample supply of animal and poultry waste and the generation of electricity would serve several goals. Researchers have been searching for the appropriate digestion, combustion, gasification, or other disposal technologies and have had some success. Some of these technologies include electric generation. Typically, the farm based generation facilities would produce less electricity than is used on the farm. While centralized facilities have been discussed, they have faced issues such as transportation cost and biosecurity hazards. While it is appropriate to be optimistic that new disposal methods will be found, it is unclear that any significant generation will be put on the grid through these technologies.

   With regard to solar energy, solar thermal heating and passive solar heating continue to be effective systems in many cases. The installed cost of photovoltaic panels, including the electronics, remains very high on a per kWh basis. The industry continues to improve the efficiency of the cells and works toward reducing the delivered cost of the panels. However, the longstanding hope that solar electric power will be competitive with utility

generation remains in the distance, in part because of the specialized electronics, battery storage, and labor intensive nature of many of the installations. To facilitate the continued development of this hopeful technology, it may be reasonable to support solar technology through programs such as NC GreenPower. La Capra showed little photovoltaic energy involved in the RPS.

Elimination of all energy subsidies to allow the market work – The competitive market is the basic structure in our economy for the allocation of resources and for the determination of what is consumed and what is produced. While it is far from being a perfect allocator of resources, it proves to be an effective reflection of the preferences of the American consumers' willingness to spend their wealth as long as the market is not manipulated by other forces. The existence of subsidies to different energy sources and to energy producers tends to understate the resources used in providing the energy to the customer. This has distorted the consumption patterns, typically encouraging our increased consumption.

The effective market requires that the customer see the full resource requirements in the price. This should include the value of the environmental impacts which they cause. A mismatch between the resources required and the cost to the customer thwarts the effective market mechanisms and should be eliminated. Examples of this include the direct and indirect federal support to fossil fuel industries, sub market oil and gas leases, use of excessive depreciation periods, and tax advantages not related to the energy production and service role of the suppliers.

Many of the energy subsidies are the result of federal action and the State of North Carolina may not be able to directly change them. However, we should eliminate those subsidies where we can and encourage the federal government to do so. We should also be cautious about implementing any long term support programs which artificially support the development of less resource efficient energy alternatives.

Impact on the customer - Establishing a RPS, income tax credits, Production Tax Credits or other mechanisms may make certain renewable energy projects feasible for development, but the programs do not make these generation projects more economically feasible or resource efficient. These programs work for the developer because the customer to pays for a portion of the project directly through electric rates, and the taxpayers pay the rest through the government programs. In fact the customer/tax payer pays for all of the resources used but, only sees a part of the resource cost.

How much does he see? According to the La Capra report the electric rates may increase by about 1% with the 5% renewable energy RPS. Today this is in the neighborhood of $90,000,000 to $100,000,000 per year. In addition to this direct increase, taxpayers may pay that much again in tax relief for the developers. The total cost may be well above $150,000,000. This is not instead of the currently anticipated cost of power, but in addition to the currently anticipated cost of power. This could be a major burden on the people on North Carolina. This should be imposed on the people of North Carolina only if programs to clean up the utility emissions or to produce energy efficiency are more expensive or ineffective.

Energy Efficiency Needs to be the Focus - Energy efficiency is the only substantive way to reduce the carbon emissions, cut the need for new utility infrastructure, and cut our dependence upon foreign energy resources, and develop high paying long lasting jobs. Achieving energy efficiency is a complex task which requires a wide variety of programs. One cannot show off a new plant for not producing energy. One cannot count the kWh's which were not consumed. Energy efficiency cannot be achieved through a single program or contract. It has to involve committed leadership together with a broad package of consumer programs and state regulations.

One of the strongest reasons for adopting the energy efficiency route is shown in the La Capra report. The report shows that by meeting only ¼ of the 5% RPS with energy efficiency measures will lead to an absolute reduction in the electric rates after the initial installation period. Meeting or exceeding the 5% level with energy efficiency should further reduce the power cost, with a direct benefit to the customers. The economy of the state will provide a strong incentive for job growth throughout the state.

The GDS report provides a solid array of energy efficiency programs. Likewise, the State Energy Office has years of experience encouraging the adoption of these programs in the state and within the state government. These efforts are largely based on the Energy Star program by DOE which have helped improve the energy efficiency of the housing stock, commercial buildings, and state facilities. These steps will produce energy savings for years to come where they have been undertaken.

To reach a more effective level of energy efficiency will require 1) technical advances, 2) regulatory action, and 3) leadership. Following the oil shocks of the 1970s, technical advances for appliances, lighting, building controls, motors, and HVAC systems were developed and have entered the market. These advances have helped to moderate the growth in energy use and show the way for more energy efficient measures in the future. Further technical advances are achievable and it is in the interest of the people of North Carolina to support and encourage these steps.

During the last 30 years many regulatory steps have been taken to improve energy efficiency, including implementation of improved building codes, better appliance standards, and mandated energy efficiency in government buildings. These steps should be strengthened as appropriate.

While it is a complex issue, the state should also consider modifying the regulation of electric and gas utilities to allow them to earn a return on their successful energy efficiency activities. These companies have a unique understanding of energy production, energy markets, and customer behavior. While they have earned a return on assets to produce and sell energy in the past, the regulatory scheme could be modified to channel their current position in the market to sell energy efficiency. In addition, the market could be revised to allow additional third party operators to "sell" energy efficiency in the state. This is an area which others states have also considered, and North Carolina should further develop such a solution.

Possibly the most important action which the state can take toward energy efficiency is to provide the high level leadership toward an energy efficient ethic. The State Energy Office has been involved extensive in programs and working for their implementation by those already interested and involved. They may be well positioned to play a major role in this task. However, in order to have a significant impact on the energy awareness of the broad population it will be necessary to involve the highest elected and appointed officials.

Conclusion: It is very important to review and consider renewable generation alternatives both now and in the future. The La Capra report has done a good job of identifying these resources. However, a realistic look at the development of these resources in North Carolina specifically leads to the conclusion that no more than 200 to 300 MW renewable generation can be developed in North Carolina, even with the support of a Renewable Portfolio Standard.

In determining the appropriateness of an RPS it is important to establish a yardstick of total resource efficiency prior to committing the ratepayer's money over the long run. While many improvements have been made to the renewable generation technologies over the last 10 years, most of the renewable resources available in North Carolina are expected require higher electric rates, even with significant government incentives.

On the other hand, energy efficiency measures offer to reduce the customer's bills, to reduce the utility infrastructure and to provide many of the benefits of renewable generation. The North Carolina Legislature and the Utilities Commission should focus on energy efficiency measures and emissions regulations to address the concerns at hand.

Comments by the **Southern Alliance for Clean Energy** to the North Carolina Utilities Commission on the Analysis of a Renewable Portfolio Standard for the State of North Carolina: January 19, 2007

FILED
JAN 22 2007
Clerk's Office
N.C. Utilities Commission

We are pleased that the North Carolina Utilities Commission (NCUC) has commissioned the Analysis of a Renewable Portfolio Standard by La Capra Associates. The Southern Alliance for Clean Energy (SACE) supports the requirement for a Renewable Portfolio Standard in North Carolina to provide energy security through diversifying the state's energy mix, increasing rural economic development and providing greater environmental protection.

After review of the study, we believe that the study underestimates the potential for both renewable energy and energy efficiency. We believe the study used a lower cost of future generation than what is being seen in the North Carolina market. Using the incorrect lower cost numbers of new generation, the study fails to show the full extent that renewables and energy efficiency can provide in economic benefits. In addition, the report did not give economic value to the current and potential reductions in emissions from renewable energy and energy efficiency. These economic values could be significant as nitrogen and sulfur emissions continue to increase. To add to these escalating costs is the strong likelihood of carbon regulation that will have a significant impact on utility cost in the future.

We believe the potential use of cost effective renewable energy is also underestimated because La Capra Associates was directed to use a more restrictive screen for qualifying wood resources, which was used in the NC GreenPower program. SACE participated in the NC GreenPower stakeholder process that established the restrictive screen used for qualifying wood resources. SACE supported the restrictive screen in NC GreenPower because customers are asked to pay a higher price voluntarily, therefore should get a more "premium" product, i.e. more wind or solar. With a mandate, we would fully expect that a broader definition of wood resources be used, but still with a focus on sustainable forest and agriculture practices. The result would be more biomass at a lower cost than what the study indicates.

After reviewing the GDS Associates study "A Study of the Feasibility of Energy Efficiency as an Eligible Resource as Part of a Renewable Portfolio Standard for the State of North Carolina," we have identified certain aspects of the study that would tend to indicate that the results are conservative. Primarily, these comments are focused on the determination of the achievable potential and the avoided cost.

For the residential sector, GDS estimated that the achievable potential is approximately half of the technical potential, that is, 20.4% of 2017 residential sector electricity sales. After determining what was achievable, GDS determined the "achievable cost-effective" potential. Generally, we would expect a study to determine the "economic" potential after determining the technical potential. In determining the economic potential one

study shows 0% maximum achievable potential and 0% achievable potential (Table 1-7), but in fact the study shows a 5.1% potential. As another example, we could not find the information showing a maximum achievable cost-effective potential of 4.9% and 4.8% in the residential and commercial sectors in the study for Wisconsin as GDS asserts. Even if one accepts the average of cost-effective achievable potential in the commercial sector as accurate, North Carolina's cost-effective achievable potential would effectively be limited by the avoided costs in other states and the politics of energy efficiency in other states.

The industrial sector potential in the present study relies even more heavily upon the averages of estimates in potential studies done in other states and utility service territories and we would reiterate the same concerns for this sector. To be clear, we find GDS' methodology in determining the technical potential in all these sectors to be generally sound. It is the reliance on other studies to identify the achievable and cost-effective achievable potential that concerns us.

Stephen A. Smith
Executive Director
Southern Alliance for Clean Energy

FILED
JAN 19 2007
Clerk's Office
N.C. Utilities Commission

January 17, 2007

North Carolina Utilities Commission
430 N. Salisbury St
Raleigh, NC 27603

RE: Public Comments on NCUC's "Analysis of a Renewable Portfolio Standard for the State of North Carolina"

Please find the following public comments of the signatories of this letter to the North Carolina Utilities Commission in response to the December 2006 report "Analysis of a Renewable Portfolio Standard for the State of North Carolina" conducted by La Capra Associates, GDS Associates and Sustainable Energy Advantage, LLC and commissioned by the NC Utilities Commission at the request of the legislative Environmental Review Commission.

We commend the North Carolina Utilities Commission for their leadership in commissioning this non-biased study of the costs, benefits and economic potential of a Renewable Portfolio Standard for the state of North Carolina ("RPS Study"), which also incorporated the economic potential of a small subset of the low-cost energy efficiency measures currently available.

At this time, 20 states and Washington, D.C. have implemented Renewable Portfolio Standard requirements. As each of these states advances in their respective implementations, their progress is a sign that (1) technical and non-technical concerns surrounding renewable energy electric generation and energy efficiency measures can be constructively resolved through collaborative rulemaking, (2) Renewable Portfolio Standards as a policy tool are succeeding (i.e., states are not racing to repeal their respective statutes), and (3) in fact, several states have increased their Renewable Portfolio Standards requirement in response to early compliance by electric utilities and/or ratepayer support for more aggressive growth and development of renewable energy resources and industries.

North Carolina is now well positioned to act on its own opportunity to encourage the economic and social benefits of renewable energy and energy efficiency. In fact, North Carolina can do more and do it better. North Carolina can be the Southeast's regional leader in energy policy as no other Southeastern states have made the noteworthy commitment to a Renewable Portfolio Standard. In addition, the NC Utilities Commission's RPS Study incorporates the benefits of energy efficiency and identifies the need for a Renewable *and Efficiency* Portfolio Standard – an important recognition of energy efficiency as a low cost resource. Thus, the signatories to this letter support a Renewable and Efficiency Portfolio Standard.

When considered as a whole, the RPS Study provides sufficient information and evidence for the state legislature to have confidence in a decision to create a mandatory Renewable and Efficiency Portfolio Standard for the state of North Carolina. The study was broad in scope, used conservative assumptions that likely underestimate the amount of renewable energy and energy efficiency that could feasibly be developed and implemented in North Carolina, engaged a broad range of stakeholders, and demonstrated clear benefits – both economic and social – of a Renewable and Efficiency Portfolio Standard in North Carolina. The subsequent comments

highlight the RPS Study's positive conclusions and stress additional items that should be considered when reflecting on its results.

1. Reliability is not sacrificed when the State's renewable energy resources are utilized.

Interruptions in the supply of electricity to customers can be caused by disturbances in the power system's generation, transmission, or distribution components. Interruptions can also be caused by the unavailability of adequate resources to supply the utilities' electricity customers. The RPS Study addresses reliability – specifically focusing attention on the economic analysis of the power system's generation component and resource availability.

Contrary to historical opinion, the RPS Study results show that relative to the modeled Utilities Portfolio set forth in their combined 2006 Integrated Resource Plans, the RPS Study's Alternative RPS portfolio ("Renewable and Efficiency Portfolio Standard") - a resource portfolio comprised of conventional generation and an established standard that includes in-state renewable energy resources and comprehensive energy efficiency measures – can also:

(1) Achieve the capacity requirement necessary to ensure reliability;
(2) Meet, and in most years, exceed the projected energy needs; and
(3) **Offset the need for over 1,800 MW of baseload generation – coal and nuclear** (RPS Study, page 57).

Furthermore, this result is calculated within the constraints of the conservative model assumption that "intermittent" resources such as wind and hydropower will not contribute to the State's capacity requirements. Other states' experiences challenge this assumption as renewable energy generation is demonstrating that these resources have an inherent capacity value.

2. A Renewable and Efficiency Portfolio Standard has a positive impact on the State's economy.

The RPS Study illustrates that, due to the utilization of North Carolina fuel resources and more labor intensive electric generation technologies, a ten percent Renewable and Efficiency Portfolio Standard can create a net increase of approximately 2,700 jobs per year for twenty years. Not only does the Renewable and Efficiency Portfolio Standard create more jobs relative to the business-as-usual Utility Portfolio, it also strengthens the State's labor market – the result of a neutral rate impact due to reductions in energy demand. Total energy expenditures will not necessarily increase, which translates into an in-state economic market that attracts business and supports economic growth. Again, the RPS Study provides strong evidence that a Renewable and Efficiency Portfolio Standard will actually stimulate economic growth.

In addition to the fact that the Renewable and Efficiency Portfolio Standard's economic benefit remains primarily within North Carolina, it creates an opportunity for benefits to be spread throughout the State. The La Capra analysis indicates that the highest return job-related benefit comes from the installation of solar technologies, anaerobic digesters, and the development of biomass generation facilities that source their fuel from within North Carolina. A review of the RPS Study's resource supply assessment shows that such *economic development would not be*

isolated to specific State counties or regions. The wealth can be spread throughout the State - not only in job-related benefits but increased property tax revenue as well.

3. <u>The RPS Study's model inputs over-estimate the cost of renewable energy and under-estimate the cost of conventional generation technologies.</u>

The RPS Study significantly under-estimates the future cost of a new coal-fired power plant for baseload and intermediate load power generation. It is highly likely that the actual rate impacts of a State Renewable and Efficiency Portfolio Standard of 10 or possibly 20 percent will be lower than the projected Utilities Portfolio. This is due to two current developments that show no signal of reversing:

(1) Currently operating coal and nuclear facilities are now subject to increased operation costs as a result of increasing prices for all conventional electric generation fuels – prices that the La Capra study refers to as "dramatic increases." We submit these are more than just dramatic price increases – they are fundamental changes in the fuel resource market that are already occurring (i.e., the price floor for power generation fuels has risen). Pressures on fuel markets are significant. One such pressure is the proposed construction of over 90 new coal generation facilities nationwide, which are leading utilities to secure new Central Appalachian Coal (CAP) and Northern Appalachian Coal (NAC) fuel contracts such as Duke's recent purchase of NAC. A second such pressure is transportation costs necessary to import conventional fuels from other states and foreign countries. Reflected in increased rail rates, the capacity of our country's rail infrastructure is stressed and will only be alleviated with substantial future investments that represent a significant cost. A cost that will, at least in part, be passed on to ratepayers.

(2) The most recent industry experiences reveal significant cost overruns for proposed coal and nuclear power facility construction. To date, over 100 new coal power and 19 new nuclear power facilities are proposed nationwide. Repeatedly, electric utilities and contractors are raising their cost estimates for these proposed facilities due to the rising and unpredictable costs of materials, design considerations, fuel waste management, and shortage of construction labor.

For example, Duke Energy recently increased their capital and construction labor cost estimate for their proposed Cliffside power plant by 50 percent, up from $2 billion to more than $3 billion, which is not reflected in the RPS study. With further analysis, it is our belief that that this cost increase alone could be enough to neutralize a significant portion of any potential rate increase from a 10 percent Renewable and Efficiency Portfolio Standard that is 7.5 percent renewable energy and 2.5 percent energy efficiency as modeled in the RPS Study's Scenario III. One needs to look no further than the RPS Study's sensitivity analysis to see that capital costs can substantially impact the costs and benefits modeled in the RPS Study. Although many renewable generation resources have higher capital costs per megawatt associated with capital equipment relative to conventional generation, they are much more flexible in terms of size and typical development and construction time frames. Thus, capital risk associated with

conventional power sources can be alleviated if the State relies less on the financial success of a few, large-sized conventional projects.

The RPS Study also over-estimates costs for renewable energy sources. Nationwide, the cost of renewable energy technologies has steadily declined for 30 years, and the RPS Study sets overstated cost assumptions that do not fully account for these trends and observed North Carolina business conditions. As an example, the RPS Study estimates the 2007 levelized cost of solar photovoltaic power to be approximately 20 cents per kWh for commercial systems and 35 cents per kWh for residential systems. However, current NC GreenPower data reveals that companies are offering to sell both commercial and residential solar photovoltaic power in the range of 14 cents and 18 cents per kWh respectively – a strong indicator that the modeled 20 and 35 cents per kWh is overstated.

4. A Renewable and Efficiency Portfolio Standard is the State's best opportunity to improve North Carolina's utility industry in an approach that addresses the causes of global climate change.

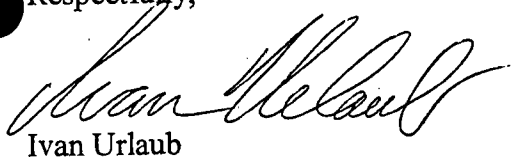
As stated in the RPS Study, it is clear that a Renewable and Efficiency Portfolio Standard will diversify the State's resource mix. A Renewable and Efficiency Portfolio Standard can alleviate the potential risk of increased costs associated with carbon dioxide emissions from fossil-based generation. Such a policy would reduce the forthcoming carbon dioxide cost that our electric utilities - and by connection their customers and shareholders – will face in the future with a utility portfolio that is already heavily weighted in coal and projected to increase.

The RPS Study concludes that a 10 percent Renewable and Efficiency Portfolio Standard can reduce carbon emissions that are causing global climate change by over 13.6 million tons of carbon dioxide equivalent per year. Duke Energy, the North Carolina Utilities Commission and North Carolina General Assembly are aware that federal regulation of carbon emissions is imminent in the next five years, and State action to curb carbon emissions from the electric utility sector is a possibility. These bodies are also aware that if approved, Duke Energy's proposed 1,600 MW Cliffside coal power plant will annually emit 11 million tons of carbon.

In summary it is our assessment that through a collaborative approach, which utilized conservative input metrics for cost and other variables, this RPS Study has shown with confidence that Investor Owned Utilities can deliver low-cost, reliable baseload power by adopting a 10 percent Renewable and Efficiency Portfolio Standard. In fact, it is our position that a 20 percent standard is not unattainable. Rather, it should be the gold standard.

A required Renewable and Efficiency Portfolio Standard satisfies the North Carolina Utilities Commission's mandate while delivering greater job creation, economic, environmental, and public health benefits that collectively advance our State's economic growth. As the RPS Study demonstrates, a diversified utility portfolio of conventional fuel sources, renewable energy resources and energy efficiency promotes a level of growth that is greater than the results shown if we choose a utility portfolio that relies on the electric utilities business-as-usual approach to our state's future economic advancement.

Respectfully,



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January 18, 2007

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FILED
JAN 19 2007
Clerk's Office
N.C. Utilities Commission

Dear Utility Commission Members:

I am writing to offer my comments regarding the technical report presented to you in December 2006 titled "*Analysis of a Renewable Portfolio Standard for the State of North Carolina.*" First and foremost, the Utilities Commission should be commended for its foresight in requesting this study. As the report states, the economic and environmental opportunities afforded by energy efficiency standards and renewable energy options are significant and should be fully explored by state policymakers.

However, my support for the report's conclusions is contingent on the implementation of measures to protect the beauty of North Carolina's mountain and coastal resources. Efforts to comply with future RPS standards must not be met at a significant cost to some of our state's most beautiful and valuable resources. I am particularly concerned with the report's "expanded renewables" option that would necessitate a "clarification" of the Mountain Ridge Protection Act to allow for "utility-scale" wind turbines on North Carolina's highest mountain ridges. And although at-sea wind energy generation shows great promise, near-shore coastal siting of wind turbines should be scrutinized for similar aesthetic and environmental reasons.

Many of the renewable energy options presented by the report are straightforward and appear non-controversial constituting what is often termed "low hanging fruit." These include biomass options that convert waste to energy from landfill gas, wood residue and animal waste. A good example is the plan to build an ethanol plant in Robeson County powered by methane gas from the county's landfill – a plan that will allow the county to keep carbon credits that could be sold to industries required to reduce greenhouse gas emissions.

Other very promising biomass options include energy generation from crop-based materials such as corn starver and wheat straw. These options are particularly attractive to the agricultural community in that they could offset some of the negative impacts resulting from years of declining production from tobacco and other farm products.

According to the report, biomass options, combined with small hydro and some wind power (presumably from small turbines or eastern wind), would enable North Carolina to support a 5% RPS "with a relatively small impact on retail electricity rates." If energy efficiency standards are added, the 5% goal is more readily achievable with a dramatic

reduction in cost. I strongly believe that the Utilities Commission should adopt a 5% RPS coupled with meaningful energy efficiency standards. I do not support a 10% RPS in that it would necessitate the large-scale development of utility-scale wind turbines on North Carolina's mountain ridges. The remainder of comments are specific to the Mountain Ridge Protection Act.

The Mountain Ridge Protection Act of 1983

It was the development of the Sugar Top condominium in 1982 that united landowners, responsible developers, environmentalists, and local and state politicians to press for the passage of North Carolina's Mountain Ridge Protection Act. One of the primary objectives of the Act, which became law in 1983, is to protect the natural beauty of the state's mountains. To achieve this objective, the law limits the height of structures on high mountain ridges to 40 feet. There are exceptions for "structures of a relatively slender nature and minor vertical projections of a parent building, including chimneys, flagpoles, flues, spires, steeples, belfries, cupolas, antennas, poles, wires and *windmills*." Regarding the exception for windmills, the state's Attorney General has stated that the legislative intent in 1983 was to exclude the traditional, solitary farm windmill which has long been used in rural communities. He believes the Ridge Law must apply to wind facilities with their multiple large towers with stroboscopic lighting, stretching for miles along one of the state's most valuable resources – our scenic mountain ridges. For anyone doubting the wisdom of the Attorney General's 2002 decision, take note of the enormous controversy and multiple lawsuits in two of our neighboring states – Virginia and West Virginia. Unlike North Carolina, neither state has a law to protect scenic mountain resources the result of which has been a blossoming of organizations to address concerns of unregulated wind energy development. Some of these groups are listed below with websites.

Today's modern wind turbines stand between 300 and 400 feet. This is approximately three times the height of the 10-story SugarTop Condominium in Avery County. It was the development of SugarTop in 1982 that united landowners, responsible developers, environmentalists, and local and state politicians to press for passage of North Carolina's Mountain Ridge Protection Act.

Today's wind turbines are larger than the "experimental" wind turbine that was erected on Howard's Knob in Watauga County in the 1980s and to be effective, they must come in multiples. Even if one could argue that the "windmill exclusion" in the Ridge Law was inserted to accommodate the Howard's Knob project, it is a huge stretch to say that the exclusion should extend to multiple wind turbines that could possibly occupy hundreds of miles of North Carolina's beautiful ridgelines.

Over the last four decades, great effort has been devoted to preserving the beauty of North Carolina's mountains. In addition to the Ridge Law, there was the 1970s fight to prevent the damming of the New River – a dam that would have flooded hundreds of miles of beautiful mountain valleys and drowned one of the world's oldest and most scenic rivers. Back then, very much like today, the nation was focused on energy. In the

aftermath of the Arab Oil Embargo of 1973, the promise of renewable hydroelectric power was a strong draw and the New River Valley was a candidate. One of the arguments against the dam was that *energy conservation* was not considered as an alternative to the project. The dam was ultimately stopped, and in 1976 the beautiful New River was classified a Wild and Scenic River - a designation that helps insure it will remain a national treasure. Surely our mountain ridges deserve the respect as our mountain river valleys.

And one cannot forget the efforts the late Hugh Morton, one of North Carolina's great voices in land stewardship. As a businessman, Mr. Morton clearly understood the vital link between the physical beauty of North Carolina's mountains and the region's economic development. When the National Park Service wanted to extend the Blue Ridge Parkway he fought hard – not against Parkway itself but against extending the road in a manner that would forever scar the beauty of the mountain he so deeply loved. The result was the construction of one of the most magnificent sections of the Blue Ridge Parkway with minimal intrusion to the environment and natural beauty of Grandfather Mountain. The Parkway and Grandfather Mountain continue to draw thousands of annual visitors, a testament to Mr. Morton's wisdom

The potential magnitude of "utility-scale" wind development in North Carolina's mountains can be discerned from comments by Dr. Dennis Scanlin, Department of Technology at Appalachian State University. Dr. Scanlin estimates 1,000 miles of mountain ridges in the state (approx 150,000 acres) have good "utility-scale" wind resources. With the exception of the Ridge Law and a local ordinance in Watauga County, there is little regulatory control over the placement of "utility-scale" turbines. Without regulatory control, property owners, tourism related businesses, city and county governments and some environmental organizations would be left scrambling to respond.

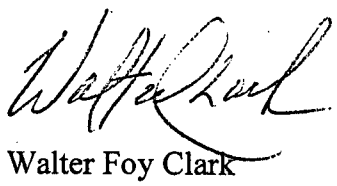
No one should deny the benefits of wind energy – it is renewable, relatively pollution free and a largely untapped source of electricity. Small-scale wind turbines (residential and business installations) are already up and running in North Carolina, including at least one generator in Ashe County. In Buncombe County, a residential property owner recently installed a system that not only generates power for the residence, but is designed to deliver excess electricity back to the utility company through North Carolina's GreenPower program.

Unlike "utility-scale" systems, small wind systems usually don't require expensive utility system upgrades or the acquisition (often by condemnation) of miles of private property for high voltage utility line corridor. And sites for small systems are plentiful in western North Carolina. Dr. Scanlin estimates that there is 5 times more land on lower elevation mountain ridges, relative to high ridges, where smaller turbines will work well. This is a huge energy resource that can be tapped without violating the beauty of our state's highest peaks.

Finally, utility-scale wind would only make a small dent in meeting North Carolina's energy needs. By some estimates, a complete "build-out" of available mountain ridges in

North Carolina might result in meeting 6% of our energy needs (the 30% of the time when wind blows sufficiently to produce electricity in western NC). In a state that has an electrical energy growth of 2% annually, any benefit from utility-scale wind could be erased in 2-3 years. It's just not worth the trade-off particularly when there remains untapped potential in small wind and other renewables.

Respectfully yours,



Walter Foy Clark
310 Pogue Street
Raleigh, NC 27607
919.325.7992
oldorchard@skybest.com

or

410 Swansie Shepherd Road
Lansing, NC 28643
336.384.2774

Regional organizations concerned about utility scale wind energy include:

In Virginia, see Virginia Wind at http:/// www.vawind.org; Highlanders for Responsible Development at www.protecthighland.org;

In West Virginia, see Mountain Communities for Responsible Energy at www.wvmcre.org; Protect Pendleton County at www.protectpendleton.com; Friends of Beautiful Pendleton County at www.hushhushrushrush.com; or Friends of the Allegheny Front at www.friendsoftheallegheny front.org.

For more general information about wind power concerns, see Citizens for Responsible Wind Power, Inc. at www.responsiblewind.org; Stop Ill Wind at www.stopillwind.org; or National Wind Watch www.wind-watch.org

908 West South Street
Raleigh, NC 27603
January 17, 2007

Chief Clerk
430 N. Salisbury Street, 5th Floor
Raleigh, NC 27603

RSP
Misc Folder

FILED
JAN 19 2007
Clerk's Office
N.C. Utilities Commission

Dear Sir or Madame:

We are writing to urge you to implement the 5% renewable energy standard recently recommended in the La Capra Consultants report. North Carolina is lagging behind the more than 20 states that now require utilities to use renewable energy. As homeowners in Raleigh, we do not want to see construction of any more nuclear or coal plants - the time to begin a serious switch-over to renewable energy is now!

An Appalachian State University study says "Wind power is an excellent option for North Carolina homes, farms, businesses, schools, and utilities interested in producing clean, independent electricity (www.wind.appstate.edu)." We all breathe the same air, and we all have a responsibility to help take care of our environment. A modest rate increase, and intelligent investment from our state utilities, is a price we're all willing to pay for cleaner air and a healthier place to live.

Sincerely Yours,

Rachel Niketopoulos & Caudill

Rachel Niketopoulos and Chris Caudill

January 19, 2007

To: Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, NC 27699-4325

HAND DELIVERED

FILED
JAN 19 2007
Clerk's Office
N.C. Utilities Commission

From: Edwin B. Cox
4611 Powder Mill Rd.
Chapel Hill, NC 27514

RPS
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Reference: Analysis of Renewable Portfolio Standard for the State of North Carolina and Request for Public Comments

I appreciate the major accomplishment represented by bringing together a mountain of data into a coherent picture. In many cases, it was necessary to use generic data to simplify this task.

With time to assess these results and think about how to make them more specific to North Carolina, I have been able to develop some alternate views that yield results we think the Commission may find helpful in its deliberations. My comments specifically relate to the analysis of solar hot water systems as an energy efficiency measures.

Such was the case in the GDS analysis of residential solar hot water systems as an energy efficiency measure. Data cited by GDS in Appendix A, page 84, came from the American Council for an Energy Efficient Economy (ACEEE) book, *Consumer Guide to Home Energy Savings*, 8th ed., 2003. Cost of a solar hot water system yielding 3442 kWh annually was listed at $2500. Using their assumed discount rate of 10% and inflation rate of 2.5% (Appendix E) in the standard formula for installment loans, the result is an annual payment of $294. Dividing this by 3442 kWh yields their quoted value of $0.085 per kWh.

A commercially available solar hot water system of the same capacity in North Carolina has a levelized cost of $0.043 per kWh, making full use of current tax credits and using more realistic financing assumptions. I'll go through the assumptions and calculations in detail:

Southern Energy Management of Cary installs a two panel system designed for a family of four for $4,500. Discount rate is 3% real and loan finance rate is 5% real, corresponding to (approximately) 5.5% and 7.5% nominal respectively with an inflation rate of 2.5%. Federal tax credit is 30% and state tax credit is 35% with a cap of $1,400. Federal tax rate is 30%. The service life and financing term are each 25 years.

Results are shown in the table. Assuming the loan is financed through a home mortgage or home equity loan whose interest can be taken as an itemized deduction on the Federal tax return, the reduction in taxes has a present value of $387, further lowering the effective system cost, shown as installments of $22.22 a year. The result is an annual total payment of $148.73 with an energy yield of 3442 kWh, or $0.043 per kWh.

Characteristics of our N.C.-based model vs. the ACEEE system are: higher gross system cost; the inclusion of current state and federal tax credits; federal and state tax deduction of interest cost; longer system life; and lower discount and interest rates. The latter deserves comment.

A discount rate is the implied rate of return of an investment with a comparable degree of risk to the one under consideration. In the case of a solar hot water system, energy generation is highly predictable, with virtually no volatility. An investment of comparable degree of risk is a U.S. Treasury note, with historic nominal yields in the 5-6% range and inflation averaging about 2.5%. Thus, a realistic real discount rate for low-risk investments is approximately 3%. Indeed, the Federal Energy Management Program and Office of Management and Budget specify discount rates of approximately 3% in life-cycle cost analysis of energy efficiency projects. Interest rates for loans can vary considerably, of course, but home mortgage rates have been as low as 5% in recent years and remain below 7% nominal in most areas of the U.S. Thus, 7.5% nominal seems considerably closer to current norms than the 10% assumed in the GDS analysis.

We recognize that the purpose of the GDS study was to demonstrate that cost-effective energy efficiency savings of 2.5% of electricity use were obtainable and that this objective was easily met without including solar hot water. However, it seems likely that this study will be relied upon extensively for energy resource planning in North Carolina for some time to come. Since solar hot water comprised one quarter of the total technical potential for energy savings in the residential sector (Table 5-2), it represents a measure well worth serious consideration in energy efficiency programs in North Carolina for the dramatic impact it could have in lowering energy demand cost-effectively.

Table. Residential Solar Hot Water System in North Carolina

Assumptions:	Discount (real)	3.00%	Loan interest (real)	5.00%	
	Fed. Tax rate	30%	State tax rate	n/a	
	Fed. Tax credit	30%	State tax credit	35%	($1400 max)
	Service /finance life	25	Annual energy saved	3442	kWh

System cost - gross	$4,500.00	
Federal tax credit		-$1,350.00
State tax credit		-$1,400.00
Fed tax on state tax credit		$420.00
Interest deduction on Fed tax (present value)		-$387.00
Credits	-$2,717.00	
System cost - net	$1,783.00	
Annual payments:		
Loan		$126.51
Interest deduction on Fed tax2		$22.22
Total	$148.73	
Cost of energy (ann'l payment/energy)		$0.043

2210 Van Dyke Ave.
Raleigh, NC 27607
January 18, 2007

Chief Clerk
430 N. Salisbury St., 5th Floor
Raleigh, NC 27603

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JAN 19 2007
Clerk's Office
N.C. Utilities Commission

RSP
Misc Folder

To Whom it May Concern:

We are writing to express our strong feelings about saying YES to implementing a 5% renewable power standard in North Carolina. Actually, 5% isn't enough, but we have to start somewhere. North Carolina is behind 22 states that already require this minimum standard. As citizens of Raleigh and the Earth, we care deeply about our environment and it's future.

The Department of Energy has shown that a national standard would actually save money by reducing the use of natural gas in power plants. That would reduce the price that all consumers pay for natural gas, making up for the higher cost of renewable power. We are totally opposed to building a nuclear power plant in Raleigh. There is no need when we have endless amounts of wind and solar power available all the time. We need to stop polluting our atmosphere- the more pollution we have in the air, the more CO2 that gets trapped in our atmosphere, and the more our temperatures change drastically. Snow in Raleigh, hurricanes in England, summer-like days in Chicago in December; let's do what we can to make an impact now.

Sincerely,

Tracy Golaszewski
Dovid Friedlander

Boone Guyton
WNC Green Building Council

378 Jenkins Valley Rd
Alexander, NC 28701

FILED
JAN 22 2007
Clerk's Office
N.C. Utilities Commission

January 16, 2007

Chief Clerk, North Carolina Utilities Commission
4325 Mail Service Center, Raleigh,
North Carolina 27699-4325

MSC RPS

Dear Sir or Madam:

I would like to encourage the implementation of a Renewable Portfolio Standard for North Carolina as a way to improve the sustainable generation and conservation of energy. Both energy efficiency and renewable generation will provide more jobs as well as an improved environment. Global warming is a problem that must be addressed my many means and this is one that will help North Carolina be in a better position in the future for energy consumers and for employment opportunities as well as for our environmental well being.

Sincerely,

Boone Guyton

Boone Guyton
Member WNC Green Building Council

January 19, 2007

Renne Vance
Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4325

FILED
JAN 19 2007
Clerk's Office
N.C. Utilities Commission

Hand delivered to:
430 North Salisbury Street
Fifth Floor
Raleigh, North Carolina 27603

RE: Report on a renewable portfolio standard for NC

Dear Ms. Vance:

I want to express my gratitude for this opportunity to provide comments on the renewable portfolio standard (RPS) report. These comments are mine alone and do not necessarily reflect the views of the John Locke Foundation.

I. Process

Before getting into the substance of the report and issues involving an RPS, I would like to discuss the process that was involved in developing the report.

The Utilities Commission formed an RPS advisory group without public notice. These individuals were invited to serve without giving other interested parties the same opportunity to serve. In addition, the meetings of this advisory group have not been open to the public. To this day, there are still no records for any of the meetings (including minutes, agendas, etc).

This process may have violated the state's open meetings law. A key question is whether this advisory body constitutes a "public body." As listed under § 143-318.10, this body appears to meet the requirements of a "public body" and be subject to the open meetings law: the individuals were appointed to this body and they were authorized to exercise an advisory function.[1]

At a minimum, even if the law does not apply, the process was precisely the type of closed-door policymaking that has undermined the public's confidence in state government and hurts the credibility of this report.

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[1] See N.C. Gen. Stat. § 143-318.10 at http://www.ncga.state.nc.us/EnactedLegislation/Statutes/HTML/BySection/Chapter_143/GS_143-318.10.html

II. Overview

A renewable portfolio standard is a requirement that utilities provide a certain percentage of electricity through renewable means of energy as opposed to fossil fuels, such as coal and natural gas. North Carolinians already have the option of voluntarily supporting renewable energy sources through NC GreenPower. As seen with this program, North Carolinians have very little demand for renewable energy.

An RPS also would impose very high costs to consumers, presumably for environmental reasons. However, renewable energy sources, especially wind power, are themselves serious threats to the environment. For an "objective" report, it is very concerning that little space, if any, was dedicated to discussing the well-known environmental problems of renewable sources.

III. Lack of Support for an RPS

If policymakers want to see if the public would support an RPS, they do not need to look any further than the limited support for NC GreenPower. Individuals and businesses can contribute money to help generate energy through renewable sources. As in other states, citizens have chosen not to support renewable sources of energy. According to NC GreenPower, "Excepting large scale hydroelectric power, less than 1% of our current power supply comes from renewable resources."[2]

In fact, as stated in the report, "the NCGP [NC GreenPower] program thus far has been able to provide 0.011% of the State's energy needs." Average participation rates nationally, according to the report, "have remained steady at just more than 1% of customers." This also does not mean that 1% of energy comes from renewable sources. It only means that 1% of customers participate to some extent in these programs (footnote 41 in the report seems to clarify this point).

The very reason for an RPS is to force consumers to support renewable energy because voluntary programs do not work. For those policymakers that respect consumers and their choices, an RPS never would be an option.

IV. The High Cost of an RPS

The report acknowledges that an RPS that requires 5% of electricity to be generated through renewable sources (a 5% RPS) will increase rates for consumers. A 10% RPS will increase the costs even more. The report however tries to offset these high costs by pushing energy efficiency programs. To be clear, using renewable sources would not save money—it would cost more money for consumers. It is only through energy efficiency programs that these high costs allegedly can be offset.

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[2] See NC GreenPower FAQ web page at http://www.ncgreenpower.org/about/faqs.html

The report tries to make a 5% RPS and 10% RPS look like it is all coming from renewable sources. However, 25% of the RPS would be coming from alleged energy efficiency savings. This means that a 5% RPS is really a 3.75% RPS and a 10% RPS is really a 7.5% RPS. Energy efficiency is not a renewable source of energy. Without taking into consideration energy efficiency, any RPS would drastically increase rates. Common sense tells us that if the sources of energy cost more, then the rates will increase.

These energy efficiency programs are the same failed demand-side management programs that have existed in North Carolina for decades. Consumers already have funded these programs through buried and hidden charges in their electricity rates.

Demand-side management programs, which are designed to reduce demand for electricity, have failed for numerous reasons. Some of these reasons, as listed in the State Energy Office's "State Energy Plan," include "the cost of peak power plants, such as gas turbines, has become so low that they are less expensive than reductions in peak demand for DSM [demand-side management] programs." In other words, it costs less to generate electricity than to fund these programs. Another reason is "some DSM programs were not able to provide the peak demand savings projected." Finally, "utilities sought to lower their costs in order to increase their competitive edge."[3]

This final reason is very important. If North Carolina is going to have a deregulated and competitive electricity marketplace, it would not work with myriad programs designed to reduce demand for electricity. A utility would not want to enter a new market if they have to reduce demand for their product. A utility never would be able to achieve any type of competitive edge.

Somehow, the report estimates that these programs will reduce electric energy use 14% by 2017. There is ample history in North Carolina to determine whether this is a realistic number—it is highly unlikely that the state has ever come close to 14%. The report acknowledges, "North Carolina would need to undertake an *extraordinary* effort to achieve this level of savings."

Consumers and Subsidies

The report does not recognize that North Carolinians already are paying for renewable sources in addition to higher rates. There is the federal production tax credit that provides 50% of the cost of production for renewable sources of energy. These credits are mentioned in the report, but it does not mention the fact that North Carolinians, like other citizens of the country, pay for that credit. There also is a separate federal tax credit for solar power that is 30%.

In addition, North Carolina has its own subsidy for renewable sources. There is a state tax credit that offers 35% of the cost of installing renewable energy systems. Both the

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[3] North Carolina State Energy Plan at p. 24.

state and federal subsidies are costs to taxpayers. If these subsidies somehow disappeared, then the rates that have been projected in the report would be drastically higher. In fact, the federal production tax credit has regularly expired in the past, with Congress eventually renewing the credit.

V. The Environmental Costs of an RPS

It is quite amazing that the report does not discuss most of the tremendous environmental problems with an RPS. For example, wind power uses up an incredible amount of land. Coal uses only 1,950 acres for a 1,000 megawatt power plant. Nuclear power uses even less land—it uses 1,700 acres. Wind uses an astounding 192,000 acres. This is about 100 times more land needed for wind than coal and nuclear.[4]

"Wind farms" are the worst enemy of birds. Even the Sierra Club has called them "the Cuisinarts of the air."[5] Some environmental groups have tried to at least minimize the damage of wind farms. The Center for Biological Diversity, for example, filed a lawsuit against the owners and operators of the Altamont Pass (CA) wind farm to try and reduce the number of bird deaths. At this site alone, about 1,000 birds a year are killed, including birds that are endangered.[6]

The North Carolina Attorney General in a February 4, 2002 letter to the Tennessee Valley Authority argued against a wind farm based not only on the North Carolina Mountain Ridge Protection Act but also the aesthetic problems associated with wind farms:

> The EA [the environmental assessment for a proposed windfarm] itself concludes that 'construction and operation of the [Stone Mountain] windfarm facilities would permanently alter the visual landscape character resulting in a significant [adverse] visual impact [in Watauga County, North Carolina],' and 'would create substantial visual discord and adverse contrast while reducing scenic attractiveness and tranquility.'[7]

Other renewable sources also have environmental problems. Solar energy takes up a massive amount of land. Biomass, as the report points out, creates problems with air pollution. "From an environmental standpoint, combustion of biomass leads to many of

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[4] H. Sterling Burnett, "Wind Power: Red Not Green," Brief Analysis, National Center for Policy Analysis, February 23, 2004 citing *The Energy Advocate* and the Tennessee Valley Authority.

[5] *Ibid.*

[6] Taylor, James M., "Environmental Group Files Suit Against California Wind Farm," The Heartland Institute.

[7] North Carolina Attorney General letter to the Tennessee Valley Authority regarding "Environmental Assessment for the 20-MW Windfarm and Associated Energy Storage System Facility," February 4, 2002.

the same kinds of emissions as the combustion of fossil fuels, including air pollutants, greenhouse gases, and solid wastes (ash)."

VI. Economic Harms

The report argues that an RPS will lead to more jobs and increased property tax revenues. Forcing consumers to subsidize an industry will not create more jobs. It simply creates different jobs and drives up the cost of labor for existing employers. It takes money from consumers that can be used for other and more productive purposes, and shifts it to a favored industry.

As it relates to property taxes, the report does not discuss the problems wind farms could have on the values of neighboring properties. It also does not consider the possibility that the land would be used for more productive purposes.

Here are just a few other critical economic problems that do not seem to be considered in the report:

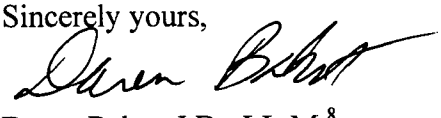
- Firms that have to pay higher rates may move out of the state.
- Firms that would otherwise move into the state would be dissuaded from coming to North Carolina.
- Wind farms would be located on the coast and in the mountains, both prime tourism locations. The impact on tourism could be significant.

VII. Conclusion

An RPS would be bad for North Carolina. *Forcing* consumers to pay for inefficient, environmentally-unfriendly, and costly sources of energy is a bad policy option. An RPS is simply a corporate subsidy program for energy sources that do not have the necessary demand or viability to succeed on their own. In the future this may change, but this is the current reality. Wishing this away by taking money out of the hands of consumers at best would not work, and at worst is an unethical use of the state's power.

Thank you again for this opportunity to provide this comment.

Sincerely yours,



Daren Bakst, J.D., LL.M.[8]
Legal and Regulatory Policy Analyst

[8] I would like to express my thanks to Geoffrey Lawrence, research intern, for his hard work and assistance in the formulation of this comment.

Status of Reports to the ERC Required by Law

Organized by topics: air quality, coastal issues, env. health, fishing, general, hazardous substances, land resources, parks and conservation, solid waste, water quality, water quantity, wetlands

air quality

DAQ	Report To/ Authority	Report Due	Status*
Study issues related to monitoring emissions of mercury and the development and implementation of standards and plans to implement programs to evaluate available control technologies; shall estimate the benefits and costs of alternative strategies to	EMC, ERC S.L. 2002-4, Section 12	Annually (Interim 1 Sep 2003) (Findings 1 Sep 2005)	Sep 03 distrib 2/24/04 Sep 04 oral 11/19/04 Oct 05 oral 11/22/05
Study issues related to the development and implementation of standards and plans to implement programs to control emissions of carbon dioxide (CO2) from coal-fired generating units and other stationary sources; evaluate available control technologies and	EMC, ERC S.L. 2002-4, Section 13	Annually (Interim 1 Sep 2003) (Findings 1 Sep 2005)	Sep 03 distrib 2/24/04 Sep 04 oral 11/19/04 Oct 05 oral 11/22/05

DAQ (DENR)	Report To/ Authority	Report Due	Status*
Shall study the costs and benefits of reducing emissions of oxides of nitrogen, particulate matter, and greenhouse gases from motor vehicles in this State. Shall also consider standards adopted in other states.	ERC, LCGCC S.L. 2006-248, Sec. 43	Interim : 15 Jan 2007 Final; 1 April 2007	Jan 07, distrib 1/17/07

DENR	Report To/ Authority	Report Due	Status*
Cost of the Title V program	ERC, Fiscal Research GS 143-215.3A(c)	Annually (1 Nov)	Mar 00 mail 3/29/00 May 02 oral 5/21/02 Jan 04 distrib 2/24/04 Nov 04 oral 11/19/04 Nov 05 distrib 3/8/06 Dec 06 distrib 12/13/06

DENR, Utilities Commission	Report To/ Authority	Report Due	Status*
Implementation of SL 2002-4 (Clean Smokestacks)	ERC, Joint Legislative Utility Review Committee S.L. 2002-4, Section 14	Annually (1 Jun 2003)	28 Jan 03 30 May 03 distrib 2/24/04 June 04 oral 11/19/04 June 05 distrib 11/05 June 06 distrib 10/09/06

Department of Transportation (DOT)	Report To/ Authority	Report Due	Status*
Evaluation/ adjustment of region served by each Metropolitan Planning Organization	ERC, Joint Legislative Transportation Oversight Committee GS 136-202(d)	Nov 1 of each year regions evaluated and adjusted (every 5 years, including year following federal census)	Oct 04 oral 11/19/04 Jan 07 dist 1/17/07
Plan developed with DOA, Commerce, DENR to reduce VMT & vehicle emissions from private sector employee travel.	ERC, Joint Legislative Transportation Oversight Committee GS 143-215.107C(e)	Annually (Oct 1)	02/02/04 distrib 3/25/04 Included in TDM Program Oral 1/13/05 Jan 06 distrib 2/14/06 Nov 06 oral 11/15/06

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

EXHIBIT F

DOT	Report To/ Authority	Report Due	Status*
Plan developed with DOA, DOT, DENR to reduce VMT & vehicle emissions from State employee travel.	ERC, Joint Legislative Transportation Oversight Committee SL 1999-328(4.6) G.S. 143-215.107C(d)	Annually (Oct 1)	Mar 02 Distrib 5/21/02 Letter distrib 02/24/04 Oral 1/13/05 Jan 06 distrib 2/14/06 Nov 06 oral 11/15/06

EMC	Report To/ Authority	Report Due	Status*
Desirability of requiring and the feasibility of obtaining reductions in emissions of oxides of nitrogen (Nox) and sulfur dioxide (SO2) beyond those required by G.S. 143-215.107D.	ERC, General Assembly SL 2002-4, Section 11; S.L. 2006-79	Annually, starting 2007 (Sep 1)	Mar 06 distrib 4/11/06

climate change

Joint Legislative Commission on Climate Change	Report To/ Authority	Report Due	Status*
Report of findings and recommendations by the Commission	General Assembly and ERC S.L. 2005-442, Sec. 11; S.L. 2006-73, Sec. 1	Interim: 15 Jan 2007 Final: 15 April 2008	

coastal issues

CRC	Report To/ Authority	Report Due	Status*
Evaluate the impacts on water quality and other environmental impacts from the new urban waterfront area development authorized by this act and evaluate the costs and benefits from the development to the area in which the development is located.	ERC S.L. 2004-117, Sec. 4	Annually (beginning 1 Oct 05). Final report due 1 Oct 2010.	

fishing

CRC, EMC, and MFC	Report To/ Authority	Report Due	Status*
Progress in developing and implementing Coastal Habitat Protection Plans	ERC, S&A GS 143B-279.8(e)	Annually (Sep 1)	Sep 01 distrib 01/30/02 Sep 03 distrib 2/06/04 Sep 04 distrib 11/18/04 Feb 06 distrib 3/8/06 Oct 06 distrib 11/15/06

DENR	Report To/ Authority	Report Due	Status*
Fish kills within the preceding year	ERC GS 143B-279.7(c)	Annually (Dec 1)	Feb 02 oral 2/21/02 Jan 04 distrib 2/24/04 Jan 05 distrib 1/13/05 Jan 06 distirb 2/14/06 Dec 06 distrib 12/13/06

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

DENR (Secretary)	Report To/ Authority	Report Due	Status*
Individual Coastal Habitat Protection Plans	ERC, S&A GS 143B-279.8(f)	30 days after complete or substantially revise draft plan	Aug 04 distrib 11/05

General

Community Conservation Assistance Program Advisory Committ	Report To/ Authority	Report Due	Status*
Findings of its program review	Speaker, President Pro Tem, Appropriations chairs, ERC, FRD S.L. 2006-78, Sec. 5	31 March 2007	

DENR	Report To/ Authority	Report Due	Status*
Findings on the success of the Express Review Program	Fiscal Research and ERC 143B-279.13(c)	Annually (1 March)	April 06 oral 4/11/06
Cost of State's environmental permitting program	ERC, Fiscal Research GS 143-215.3A(c)	Annually (Nov 1)	April 00 distrib
Cost of implementing the Mining Act of 1971	ERC GS 74-54.1(c)	Annually (Sep 1)	Jan 02 distrib 01/30/02 Aug 03 distrib 02/06/04 Oct 04 distrib 10/21/04 Sep 05 distrib 11/22/05 Dec 06 distrib 12/13/06
One-Stop Permit Assistance Program - # of environmental permits subject to this section that took more than 90 days to issue or deny, the types of permits those were, the reasons for the extended processing time of those permits, ...	ERC, NER subcommittees, Fiscal Research S.L. 2000-67(13.7) S.L. 2001-424 (19.6) S.L. 2004-124, Sec. 12.12	Annually (beginning 1 March 07)	29 July 2003 oral 5/05/04 Oct 04 oral 10/21/04 Dec 05 oral 12/20/05

DENR (Secretary)	Report To/ Authority	Report Due	Status*
State of the Environment Report	General Assembly,ERC GS 143B-279.5(a)	Feb 15 of each odd-numbered year	Feb 1, 2000

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

EMC	Report To/ Authority	Report Due	Status*
EMC operation, activities, programs, and progress (see also other reports with "EMC Quarterly Report" noted at the end of the topic line)	ERC GS 143B-282(b)	Quarterly (Jan 15, Apr 15, Jul 15, Oct 15); upon request	Apr 03 distrib 2/6/04 Jan 04 oral 2/6/04 July 04 distrib 10/21/04 Oct 04 oral 10/21/04 Jan 05 distrib 1/13/05 Apr 05 oral 11/22/05 Jul 05 oral 11/22/05 Oct 05 oral 11/22/05 Jan, April 06 oral 4/11/06 June, Oct 06 oral 10/9/06 Jan 07, oral 1/17/07

Soil and Water Conservation Commission (DENR)	Report To/ Authority	Report Due	Status*
Report on the Community Conservation Assistance Program, including asummary of projects that received State funding pursuant to the Program, the results of the evaluation conducted pursuant to, and a summary of the effectiveness of the Program.	ERC, FRD G.S. 143-215.74M(e)	Annually (beginning 31 January 2007)	

State Water Infrastructure Commission	Report To/ Authority	Report Due	Status*
Recommendations by the Commission	General Assembly and ERC G.S. 159G-67	Annually (1 November)	Nov 06 oral 11/15/06

Study Commission on Beneficial Uses of Industrial Hemp	Report To/ Authority	Report Due	Status*
Shall study the many beneficial industrial uses of industrial hemp, including the use of industrial hemp oil as an alternative fuel and the use of industrial hemp fiber in construction and paper products.	2007 General Assembly and ERC S.L. 2006-248, Sec. 55	1 December 2006	

hazardous substances

DENR	Report To/ Authority	Report Due	Status*
Implementation of the Resident Inspectors Program at commercial hazardous waste facilities	ERC GS 130A-295.02(m); SL 2006-79	Annually (Oct 1)	Oct 2002 (distrib 1/16/03) Sep 03 distrib 02/24/04 Sep 04 distrib 10/21/04 Jan 06 distrib 1/24/06 Nov 06 distrib 11/15/06
Evaluation of effectiveness of Brownfields Property Reuse Act	ERC GS 130A-310.40	Annually (Oct 1)	Feb 02 oral 2/21/02 Jan 03 oral 1/28/03 Jan 04 oral 2/24/04 Oct 04 distrib 10/21/04 Jan 06 oral 1/24/06 Dec 06 oral 1/23/07

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

DENR (Division of Waste Management)	Report To/ Authority	Report Due	Status*
Implementation of comprehensive hazardous waste management plan; implementation of the comprehensive hazardous waste plan, including an evaluation of how well the State and private parties are managing and cleaning up hazardous waste.	ERC GS 130A-294(i) SL 2002-148, Sec. 4	Annually (1 Oct)	5 Oct 03 distrib 02/24/04 July 04 distrib 10/21/04 Jan 06 distrib 1/24/06 Nov 06 oral 11/15/06

DENR (Secretary)	Report To/ Authority	Report Due	Status*
Inactive Hazardous Waste Sites Program	ERC GS 130A-310.10	Annually (Oct 1)	Jan 03 oral 1/28/03 Sep 03 oral 2/24/04 Oct 04 distrib 10/21/04 Jan 06 oral 1/24/06 Nov 06 distrib 11/15/06

DENR, Office of State Budget and Management	Report To/ Authority	Report Due	Status*
Amount and source of available funds used for 10% cost share required for Superfund cleanup of NPL sites, the o&m costs associated w/ these cleanups, and the cleanup of priority inactive hazardous substance or waste sites	ERC, Gov Ops SL 1999-237(15.6)(b)	30 days after spend Superfund/ Inactive Haz Sites funds	Sep 03 distrib 2/24/04 June 04 distrib 10/21/04 May 05 distrib 11/22/05 Aug 05 distrib 11/22/05 Jan 06 oral 1/24/06

land resources

DENR	Report To/ Authority	Report Due	Status*
Annual report and analysis of how the implementation of SPCA is affecting activities that contribute to the sedimentation of streams, rivers, lakes, and other waters of the State; shall also review effectiveness of local programs	ERC G.S. 113A-67; S.L. 2004-195, Sec. 2.1	Annually (beginning 1 Oct 05)	Dec 05 oral 12/20/05 Dec 06 oral 1/17/07

Onsite wastewater

DENR	Report To/ Authority	Report Due	Status*
Shall evaluate whether: (i) the program resulted in a reduction in the length of time improvement permits or authorizations to construct are pending in the participating counties	ERC S.L. 2006-136, Sec. 3	Annually (beginning 1 October 2007)	

parks and conservation

DENR	Report To/ Authority	Report Due	Status*
Report on the conservation easement program + inventory of all conservation easements held by DENR	ERC GS 113A-235(c) SL 2004-195, Sec. 2.2	Annually (Oct 1)	Jan 03 oral 1/16/03 Dec 03 oral 4/22/04 Oct 04 oral 1/13/05 Mar 06 oral 3/14/06 Jan 07 oral 1/23/07
Shall study vehicle use at Fort Fisher State Recreation Area, including consideration of: the demand for vehicle access to the beach during different times of the year; the impact of vehicles on sea turtles and nesting birds;...	ERC S.L. 2004-124, Secs. 12.3.(b) and 12.3.(c)	1 Feb 2005	Mar 05 distrib 3/8/06

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DENR (North Carolina Parks and Recreation Authority)	Report To/ Authority	Report Due	Status*
Activities and allocations from the Parks and Recreation Trust Fund from the prior fiscal year	ERC, Gov Ops, NER, Fiscal Research GS 113-44.15(c)	Annually (Oct 1) + progress (March 15)	Mar 03 distrib 03/20/03 Oct 03 oral 4/22/04 Oct 04 oral 1/13/05 Mar 05 distrib 4/22/05 Mar 06 oral 3/14/06 Oct 06/Jan07 oral 1/23/07

DENR (Secretary)	Report To/ Authority	Report Due	Status*
Acquisitions made with funds from the Natural Heritage Trust Fund	ERC, NHTF Trustees, Gov Ops, NER, Fiscal Research GS 113-77.9(e)	Semiannually, within 30 days of each revision	Nov 03 oral 4/22/04 Sep 04 oral 1/13/05 Sep 05 distrib 3/14/06
Progress towards attaining the State's goal of protecting one million acres of farmland, open space, and conservation lands	ERC, Governor GS 113A-241(c) S.L. 2004-195, Sec. 2.3	Annually (Oct 1)	Jan 03 oral 1/16/03 Dec 03 oral 4/22/04 Sep 04 oral 1/13/05 Mar 06 oral 3/14/06 Jan 07 oral 1/23/07

Division of Parks and Recreation of DENR	Report To/ Authority	Report Due	Status*
Study the feasibility and the desirability of acquiring land and establishing a State Recreation Area at Blewett Falls Lake. The study shall include estimates of the cost of developing the proposed recreation area.	ERC S.L. 2004-24, Sec. 2	1 December 2005	Dec 05 distrib 3/8/06

Parks and open space

Land and Water Conservation Study Committee	Report To/ Authority	Report Due	Status*
Shall report its findings and recommendations	ERC S.L. 2006-223, Sec. 11	1 Feb 2007	

Parks and Recreation

DPR (DENR)	Report To/ Authority	Report Due	Status*
shall study the feasibility and the desirability of acquiring land and establishing a State Park at Cabin Lake.	ERC S.L. 2006-138, Sec. 3	On or before 15 January 2007	Jan 07 distrib 1/23/07

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Renewable Energy

Biofuels Energy Strategic Plan Work Group	Report To/ Authority	Report Due	Status*
Shall report on the development of the strategic plan, including any preliminary findings, recommendations, and legislative proposals	ERC S.L. 2006-206, Sec. 3.2	Interim: 15 Jan 2007 Final: 1 April 2007	Interim Report Jan 07, oral 1/17/07

solid waste

DENR	Report To/ Authority	Report Due	Status*
Solid Waste Management Annual Report (see also other reports with "SWM Annual Report" noted at the end of the topic line)	Governor, ERC GS 130A-309.06(c)	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06
Assessment of the recycling industry and recyclable materials market (SWM Annual Report)	ERC GS 130A-309.06(c)(6)	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06
Condition and use of funds in the Solid Waste Management Trust Fund (SWM Annual Report)	ERC GS 130A-309.12(c) GS 130A-309.06(c)(8)	Annually (Jan 15)	Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06
Scrap Tire Disposal Account (SWM Annual Report)	ERC GS 130A-309.63(e) GS 130A-309.06(c)(10)	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06
Management of white goods (SWM Annual Report)	ERC, Revenue Laws Study Committee GS 130A-309.85 GS 130-309.06(c)(11)	Annually (Jan 15)	Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06
Recycled materials specified or used in DOT contracts (SWM Annual Report) (DPPEA portion)	ERC, Gov Ops, Trans Oversight GS 136-28.8(g) GS 130A-309.06(c)(12)	Annually (Jan 15)	Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06
Purchase of materials and supplies with recycled content by State institutions (SWM Annual Report) (DPPEA portion)	ERC, Gov Ops GS 143-58.2(f) GS 130A-309.06(c)(13)	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05

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DOT and DOA	Report To/ Authority	Report Due	Status*
Bid procedures and the purchase and use of reusable, refillable, repairable, more durable, and less toxic supplies and products (SWM Annual Report)	ERC GS 130A-309.14(a1)(3) GS 130A-309.06(c)(9) S.L. 2003-340, Sec. 1.6	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 05 oral 1/13/05

Governor	Report To/ Authority	Report Due	Status*
Litter enforcement, prevention, and removal efforts.	ERC, JLTOC, NER Subcommittees SL 2001-512, Sec. 9 and 10 GS 147-12(b); SL 2006-79, Sec. 15	Annually (March 1)	Mar 02 oral 3/21/02 Dec 03 oral 4/20/04 Oct 04 distrib 10/21/04 Mar 06 oral 5/3/06

State Board of Education	Report To/ Authority	Report Due	Status*
Recycling efforts of public schools in the State	ERC, Joint Legislative Education Oversight Committee SL 2001-512, Sec. 11	Annually by Dec 15 (2003-2007)	Dec 03 distrib 04/20/04 Dec 04 distrib 1/13/05 Dec 05 distrib 3/8/06 Dec 06 distrib 12/13/06

Water Quality

DENR	Report To/ Authority	Report Due	Status*
Shall evaluate the training and qualification requirements for approval as an animal waste management systems technical specialist pursuant to G.S. 139 4(d)(11)	ERC S.L. 2006-38, Sec. 2	15 November 2006	Rec'd Nov 7 06 Distributed + Oral 11/15/06

water quality - general

Catawba/Wateree River Basin Advisory Commission	Report To/ Authority	Report Due	Status*
Annual report, including any recommendations.	Governor of NC, ERC, Governor of SC, SC General Assembly G.S. 77-117	Annually (1 Oct)	

Clean Water Management Trust Fund (Chair, Board of Trustees)	Report To/ Authority	Report Due	Status*
Implementation of the Clean Water Management Trust Fund; Projects awarded grants	ERC, Gov Ops, NER Subcommittees, Fiscal Research GS 113A-257	Annually (Dec 1)	Jan 03 oral 1/16/03 Dec 03 oral 4/22/04 Jan 05 oral 1/13/05 Mar 06 oral 3/14/06 Jan 07 oral 1/23/07

Commission for Health Services	Report To/ Authority	Report Due	Status*
Shall evaluate the desirability and feasibility of developing and implementing a pilot program whereby any individual seeking to use an innovative wastewater system that employs peat based technology, at the individual's residence must meet certain reqs.	NER Committees, Fiscal Research, ERC S.L. 2004-161, sec. 8.1	15 Jan 05	

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DENR	Report To/ Authority	Report Due	Status*
Status of permitting and inspecting animal waste management systems/ Animal Waste Compliance Report	ERC, Fiscal Research GS 143-215.10M SL 2002-148 (Sec. 6)	Annually (Oct 1)	Oct 03 oral 3/25/04 Oct 04 oral 10/21/04 Dec 05 oral 3/8/06 Nov 06 oral 11/15/06
Shall evaluate the need for and availability of information that identifies poultry facilities that may be subject to regulation under G.S. 143-215.10C, or options for obtaining this information.	ERC S.L. 2004-176, sec. 7	1 Jan 05	1/20/05
Wastewater Discharge Elimination System program	ERC, Fiscal SL 2001-452(2.9)	Annually (15 Oct)	Dec 03 distrib 02/06/04 19 Nov 04 oral Dec 05 oral 12/20/05 Jan 07 oral 1/17/07
Whether to continue pilot program for inspection of animal waste management systems.	ERC, General Assembly SL 2005-276, Sec. 12.7(c)	Oct 15, 2005	Dec 05 distrib 3/8/06

DENR (Division of Water Quality)	Report To/ Authority	Report Due	Status*
Compliance/ enforcement of water quality laws for facilities that discharge into surface waters	ERC, Fiscal Research GS 143-215.9A SL 2002-148(Sec. 5)	Annually (Oct 1)	Dec 03 oral 3/25/04 Oct 04 distrib 11/19/04 Sep 05 distrib 3/8/06 Nov 06 distrib 11/15/06

DENR (Divisions of Water Quality, Soil & Water Conservation)	Report To/ Authority	Report Due	Status*
Pilot program for inspection of animal waste management systems, including a comparison of the costs of conducting operations reviews and inspections under the pilot program with the costs of conductng ors and insps pursuant to 143-215.10D and 143-215.10F	ERC, Fiscal Research,NER SL 1999-329(3.3) SL 2001-254(6) SL 2002-176 (1.2)	Semiannual: 15 April and 15 Oct	Oct 03 oral 3/25/04 Oct 04 distrib 11/18/04 Dec 05 distrib 3/8/06 Oct 06 distrib 11/15/06

DENR (Soil and Water Conservation Commission)	Report To/ Authority	Report Due	Status*
Effectiveness of projects funded under the Agriculture Cost-Share Program for Nonpoint Source Pollution Control	ERC, Fiscal Research GS 143-215.74(e)	Annually (Jan 31)	21 March 2002 Dec 03 distrib 2/24/04 Mar 06 distrib 3/8/06

DENR, EMC	Report To/ Authority	Report Due	Status*
Basinwide Water Quality Management Plans	ERC GS 143-215.8B(d)	Annually (Oct 1)	Oct 03 oral 2/6/04 Oct 04 oral 10/21/04 Feb 06 distrib 2/14/04 Nov 06 distrib 11/15/06

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EMC	Report To/ Authority	Report Due	Status*
Progress in developing and implementing wastewater collection system permit program (EMC Quarterly Report)	ERC 143-215.9B	Quarterly (Jan 15, Apr 15, Jul 15, Oct 15)	Apr 03 distrib 2/6/04 Apr 03 oral 2/24/04 April 04 oral 3/25/04 July 04 distrib 10/21/04 Oct 04 oral 10/21/04 Apr 05 oral 11/22/05 Jul 05 oral 11/22/05 Oct 05 oral 11/22/05 Jan, April 06 oral 4/11/06 June, Oct 06 oral 10/9/06 Jan 07 oral 1/17/07
Implementation of stormwater runoff rules and programs	ERC GS 143-214.7(e)	Annually (Oct 1)	Dec 03 oral 2/6/04 Update 3/25/04 Oct 04 oral 10/21/04 Oct 05 oral 11/22/05 Nov 06 distrib 11/15/06
Extent to which facilities seeking new or modified discharge permits are funded with public funds; their impact on water quality; whether there are cost-effective alt. technologies that would achieve greater water quality benefit (EMC Quarterly Report)	ERC GS 143-215.1(h)	Quarterly (Jan 15, Apr 15, Jul 15, Oct 15)	Apr 03 distrib 2/6/04 Apr 03 oral 2/24/04 April 04 oral 3/25/04 July 04 distrib 10/21/04 Oct 04 oral 10/21/04 Apr 05 oral 11/22/05 Jul 05 oral 11/22/05 Oct 05 oral 11/22/05 June, Oct 06 oral 10/9/06 Jan 07 oral 1/17/07
Study water quality in drinking water supply reservoirs in the State to determine whether the reservoirs meet current water quality standards	ERC S.L. 2005-190, Sec. 2.(a)	1 May 06	Mar 06 oral 4/11/06
Findings on identification and adoption of control criteria necessary to prevent excess nutrient loading in drinking water supply reservoirs; adoption of nutrient management strategy and permanent rules; (EMC Quarterly Rpt)	ERC S.L. 2005-190, Sec. 2.(b), Sec. 3.(e) and (f)		Jan, April 06 oral 4/11/06 June, Oct 06 oral 10/9/06 Jan 07 oral 1/17/07
Progress in developing and implementing nutrient management strategies for water supply reservoirs identified in Sec. 3 of act.	ERC S.L. 2005-190, Sec. 4	Annually beginning 1 April 2006	April 06 oral 4/11/06
Progress in developing engineering standards to allow regional interconnection of municipal and domestic wastewater collection systems (EMC Quarterly Report)	ERC SL 1999-329(11.1)	Quarterly (Jan 15, Apr 15, Jul 15, Oct 15)	Apr 03 oral 2/24/04 April 04 oral 3/25/04 July 04 distrib 10/21/04 Oct 04 oral 10/21/04 Apr 05 oral 11/22/05 Jul 05 oral 11/22/05 Oct 05 oral 11/22/05 Jan, April 06 oral 4/11/06 June, Oct 06 oral 10/9/06 Jan 07 oral 1/17/07

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Roanoke River Basin Bi-State Commission	Report To/ Authority	Report Due	Status*
Annual report, including any recommendations.	Governor of NC, ERC, Governor of VA, General Assembly of VA G.S. 77-98	Annually	

Upper Neuse River Basin Association	Report To/ Authority	Report Due	Status*
Activities and programs to develop cooperative, comprehensive, integrated State-local watershed management plan for the Upper Neuse Rier Basin to serve as a model watershed management approach	ERC, Gov Ops, Fiscal Research SL 1998-212(14.15)	Mar 1 each year until plan is complete (begin 1999)	Oct 03 distrib 02/06/04

Water Quality Workgroup (DENR & NCSU)	Report To/ Authority	Report Due	Status*
Status of tasks: Synth current science on water quality;Identify knowledge gaps, fill with projects;Maintain water quality data website; Org & eval existing water quality databases; Prioritize knowledge gaps for $; Develop Rivernet mon syst.	ERC, NER Chairs, Chancellor of NCSU G.S. 143-215.8D	Annually (Jan 30)	Jan 02 oral 2/21/02 Present to SAENR 6/04

Water Resources Research Institute	Report To/ Authority	Report Due	Status*
Modeling and Monitoring of the Neuse River - Final report	ERC S.L. 2005-386, Sec. 2.3	1 November 2005	

Yadkin/Pee-Dee River Basin Advisory Commission	Report To/ Authority	Report Due	Status*
Annual report, including any recommendations.	Governor of NC, ERC, Governor of SC, SC General Assembly G.S. 77-117	Annually (1 Oct)	

water quality - ground

DENR	Report To/ Authority	Report Due	Status*
Implementation of Pay for Performance Program (in UST report)	ERC SL 2001-442, SL 2003-340, Sec. 2	Annually 1 Sept (ending Oct 1, 2006)	21 Mar 2002 16 Jan 2003 Mar 04 oral 5/05/04 Jan 05 1/13/05 Oct 06 oral 10/9/06

DENR (Secretary)	Report To/ Authority	Report Due	Status*
Contamination, site, and fiscal information related to the Dry-Cleaning Solvent Cleanup Act of 1997	ERC GS 143-215.104U	Annually (Oct 1)	Jan 02 oral 2/21/02 Dec 03 distrib 3/25/04 Sep 04 distrib 10/25/04 Jan 06 oral 4/11/06 Nov 06 distrib 11/15/06

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Leaking Petroleum Underground Storage Tank Cleanup Program	ERC GS 143-215.94M SL 2002-148(Sec. 7)	Annually (1 Sept)	Jan 03 oral 1/16/03 Jan 04 oral 4/22/04 Oct 04 oral 10/21/04 (no written) Oct 06 oral 10/9/06 (no written)

DENR (Secretary) and Commissioner of Agriculture	Report To/ Authority	Report Due	Status*
Results of study and progress in developing a coordinated regional approach to the phaseout of MTBE as an additive to motor fuel	ERC S.L. 2005-93, Sec. 4	Interim 1 March 06 Final 1 March 07	Mar 06 distrib 3/8/06

water quantity

DENR	Report To/ Authority	Report Due	Status*
Evaluate water conservation measures being implemented in the State and identify incentive programs and other voluntary programs that can help foster water conservation and reuse.	ERC, EMC SL 2002-167, Sec. 5; SL 2004-195, Sec. 4	Interim 15 Mar 03 Final 15 Feb 04	25 Aug 03 oral 3/25/04

DENR (Division of Water Resources)	Report To/ Authority	Report Due	Status*
Implementation of State Water Supply Plan	ERC, Gov Ops GS 143-355(n)	Annually (Sep 1)	Sep 03 oral 2/24/04 Nov 04 oral 11/19/04 Nov 05 oral 11/22/05 Oct 06 oral 10/9/06

Drought Management Advisory Council	Report To/ Authority	Report Due	Status*
Shall report on implementation of act; include review of drought advisories issued by the Council and any recommendations to improve coordination among local, State, and federal agencies; public water systems; and water users	Secretary of ENR, Governor, and ERC G.S. 143 355.1(g); S.L. 2004-195, Sec. 2.5	Annually (beginning 1 Oct 05)	Oct 05 oral 11/22/05 Oct 2006 oral 10/9/06

wetlands

DENR	Report To/ Authority	Report Due	Status*
Implementation of Ecosystem Enhancement Program and use of Ecosystem Enhancement Fund, including inventory of property and easements	ERC GS 143-214.13	Annually (Nov 1)	Dec 01 oral 01/30/02 Jan 03 oral 1/28/03 Dec 03 oral 5/5/04 Jan 04 oral 01/20/05 Dec 05 oral 12/20/05 Dec 06 oral 1/23/07

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EXHIBIT G

Cleanwater
MANAGEMENT TRUST FUND

CWMTF TRUSTEES

Chair, Philip A. Baddour, Jr.
GOLDSBORO

Ron Beane
LENOIR

Yevonne S. Brannon
RALEIGH

Norman C. Camp, III
RALEIGH

Rick Coleman
TABOR CITY

Karen Cragnolin
ASHEVILLE

John Crumpler
RALEIGH

Rance Henderson
MORGANTON

Joseph M. Hester, Jr.
ROCKY MOUNT

William Hollan
WINSTON SALEM

Robert Howard
SOUTHPORT

Charles Johnson
GREENVILLE

Kevin Markham
CARY

Chuck McGrady
HENDERSONVILLE

Dickson McLean, Jr.
LUMBERTON

John McMillan
RALEIGH

Johnnie Mosley
KINSTON

Peter Rascoe
EDENTON

Stan Vaughan
CHARLOTTE

Claudette Weston
WINSTON SALEM

Jerry Wright
JARVISBURG

January 19, 2007

MEMORANDUM

TO: The Honorable Marc Basnight, Co-Chairman
The Honorable Jim Black, Co-Chairman
Joint Legislative Commission on Government Operations

The Honorable Charlie Albertson, Co-Chairman
The Honorable Dan Clodfelter, Co-Chairman
The Honorable Pryor Gibson, Co-Chairman
Environmental Review Commission

The Honorable David Weinstein, Co-Chairman
The Honorable Mary McAllister, Co-Chairman
The Honorable Edith Warren, Co-Chairman
Joint Appropriations Subcommittee on Appropriations for Natural and Economic Resources

Mr. Lynn Muchmore, Director, Fiscal Research Division
Ms. Kristen Walker, Fiscal Research Division

FROM: Philip A. Baddour, Jr., Chairman, Board of Trustees

Re: Clean Water Management Trust Fund's 2006 Annual Report

TEL (919) 733.6375 | FAX (919) 733.6374 | www.cwmtf.net
1101 OBERLIN ROAD, SUITE 102, RALEIGH, NC 27605
1651 MAIL SERVICE CENTER, RALEIGH, NC 27699-1651

One North Carolina Naturally

Introduction

The Board of Trustees of the Clean Water Management Trust Fund (CWMTF) is writing to thank the members of the General Assembly of North Carolina for your continuing strong support for investments in clean water and to make our annual report to the General Assembly and the public pursuant to GS 113A-257.

The Board is also writing to report to the General Assembly on management and stewardship of conservation easements pursuant to Section 6.22 of Session Law 2005-276.

Thanks to the General Assembly, North Carolina continued to make progress in protecting and restoring water quality in calendar year 2006.

Background

The 1996 General Assembly created the Clean Water Management Trust Fund (CWMTF) (Chapter 113A Article 18 (GS 113A-251 et seq.)), "to clean up pollution in the State's surface waters and to protect and conserve those waters that are not yet polluted."

The CWMTF "shall be used to help finance projects that specifically address water pollution problems and focus on upgrading surface waters, eliminating pollution, and protecting and conserving unpolluted surface waters, including urban drinking water supplies" and "to build a network of riparian buffers and greenways for environmental, educational, and recreational benefit."

The CWMTF's non-regulatory, incentive-based programs complement North Carolina's environmental regulatory and educational programs and help ensure both a strong economy and healthy environment.

The CWMTF is an independent agency housed for administrative purposes in the Department of Environment and Natural Resources (DENR.) A 21-member board of trustees establishes criteria, allocates funds, reviews applications, approves grants, and hires the executive director. Seven members are appointed by the Governor; seven by the General Assembly upon the recommendation of the President Pro Tempore of the Senate; and seven by the General Assembly upon the recommendation of the Speaker of the House. An advisory council composed of the Commissioner of Agriculture, Chair of the Wildlife Resources Commission, Secretary of DENR, and Secretary of Commerce or their designees advises the board of trustees.

Local governments, state agencies, and nonprofit conservation organizations, such as land trusts, may apply for grants. The next deadline for applications is March 1, 2007.

Moneys from CWMTF may be used to acquire conservation easements or land in fee simple to preserve riparian buffers, wetlands, floodplains, and greenways; to restore riparian buffers, streams, and wetlands; to repair failing wastewater collection and treatment systems; to eliminate failing septic tanks and straight pipes; to prevent, reduce, collect and treat stormwater pollution; to plan water quality projects; and for

administration and staff. The board works through three principal committees: acquisitions, infrastructure/wastewater, and restoration/stormwater.

CWMTF application forms for grants, grant evaluation guidelines, enabling legislation, lists of the board of trustees, staff directory, news releases, and other reports and documents are available at www.cwmtf.net.

The executive director, two deputy directors, contracts and real estate acquisition manager, administrative officer, public information officer, and executive assistant are based in the central office in Raleigh. Five field representatives cover the coast, piedmont and mountain regions of the state. A part-time water quality advisor is home based.

The Board of Trustees adopted an annual administrative budget of up to $1,975,000 for fiscal year 2006-2007 at its September 2006 meeting. The Board increased the budget to $2,075,000 at its October 2006 meeting. The Board approved new positions for a wastewater project manager, stormwater project manager, paralegal, stewardship coordinator, and receptionist at its September 2006 meeting. The wastewater project manager and stormwater project manager will probably be hired in the first quarter of 2007.

In 2006, The Board of Trustees met ten times - in Lake Lure, Tabor City, Lexington, Lake Logan in Haywood County, Wallace, Mt. Airy, Washington, and four times in Raleigh. In 2007, the Board plans to meet at least six times in Currituck or Dare Counties, McDowell County, Alamance County, and Raleigh.

Progress and Challenges

The CWMTF continued to make strides in reaching performance targets outlined in the state's Progress Board 2001 report entitled ***North Carolina 20/20***. Designed to significantly improve water quality throughout the state by the year 2020, the targets included increasing the percentage of water bodies fully supporting their uses, ensuring that 100 percent of all North Carolinians have access to clean and safe drinking water, protecting and improving water quality to ensure the continued viability of the state's fisheries.[1] Projects funded by CWMTF in 2006 are in one form or another linked to almost all of these targets.

In the last year, CWMTF also continued to help the state achieve its goal of preserving a million acres of open space, as set out in GS 113A-240, assisted Governor Easley implement his One North Carolina Naturally initiative, and further protected the State's military bases from encroachment brought on by incompatible development.

The Numbers

In almost all the areas cited by the North Carolina 20/20 report, CWMTF grants are playing a role in reaching those performance targets. Here are some examples:

[1] North Carolina 20/20: A Report About the Future of North Carolina; N.C. Progress Board, December 2001

- The CWMTF and its partners have helped protect 4,277 miles of riparian buffers and preserve 391,805 acres of land, thereby ensuring streams, rivers, lakes, and shellfishing waters will be able to support their uses for drinking water, recreation, fisheries and other uses. CWMTF has invested over $395,500,000 in land and water conservation.
- The CWMTF has funded 117 riparian buffer, stream and wetland restoration projects totaling over $79,300,000 to help maintain and preserve these important ecosystems.
- CWMTF acquisition and restoration grants have been used to protect shellfishing waters, to help restore waters in areas closed to shellfishing, to restore oyster reefs and other fisheries habitat, and to provide public access to public waters.
- The CWMTF has assisted local governments with 171 wastewater improvement projects, investing over $170,400,000 to reduce discharges and more effectively treat wastewater so that fewer nutrients and other pollutants enter our rivers.
- CWMTF grants have funded 57 stormwater management projects totaling over $43,300,000 to reduce pollution from urban runoff and decrease flooding.

Since 1996 the CWMTF Board of Trustees has approved 945 grants for a total of more than $711,500,000. CWMTF grants have leveraged at least $1,143,000,000 or 161% in private and other public funds.[2]

New Leadership at CWMTF

After five and a half years of service, Robert D. Howard resigned as Chairman of the Board of Trustees on December 1, 2006. Governor Mike Easley appointed Philip A. Baddour, Jr., as Chairman of the Board on December 6, 2006.

Bill Holman, CWMTF's executive director for six and a half years, resigned effective December 27, 2006 to become a Visiting Scholar at the Nicholas Institute for Environmental Policy Solutions at Duke University. The Board hired D.G. Martin on January 7, 2007 as interim executive director. The board will hire a search firm to assist it in hiring a new executive director.

2006 Summary of Projects

During calendar year 2006, The CWMTF Board of Trustees and staff reviewed a total of 299 applications requesting over $411,500,000, including 24 requests for mini-grants and donated easement grants.

During the spring grant cycle (2006A Cycle), 162 applications requesting $251,100,000 in the spring of 2006 were reviewed. 137 applications requesting more than $160,400,000 in the fall of 2006 (2006B Cycle) also were reviewed by staff and trustees.

[2] See Appendix A: Summary of Funded Projects 1997-2006

Thanks to appropriations from the General Assembly and to the closing out of old grants the Board of CWMTF approved 97 water quality grants totaling over $59,700,000 through August 2006 (2006A Cycle) and approved 81 grants totaling over $56,000,000 between September and November 2006 (2006B Cycle). A total of 178 projects for $115,800,000 were approved for funding in calendar year 2006.

Five of those approved grants provided $7,518,000 to help finance clean water/military protection projects involving Marine Corps Air Station Cherry Point's Piney Island Bombing Range in Carteret County, Marine Corps Camp Lejeune/New River and US Army Fort Bragg/Pope Air Force Base. The Board committed $2,270,000 of its remaining special indebtedness authorized by Session Law 2004-179, Finance Vital Projects (HB 1264), to help protect Piney Island.

2006 Highlights

In 2006, the CWMTF Board continued to approve a diverse mix of projects: 47percent of its grants funded acquisition projects; 32 percent funded infrastructure/wastewater grants; 19 percent funded restoration/stormwater efforts; and the remainder funded planning and mini-grants.

Key projects for the year included:

International Paper Company Lands: In 2006, The Nature Conservancy (TNC) purchased 76,711 acres of riparian buffers, wetlands, floodplains and uplands in the Chowan, Roanoke, and Upper Tar River Basins and in the Juniper Creek/Green Swamp of Brunswick and Columbus Counties from International Paper Company at a cost of almost $80,000,000 in 2006. The TNC/IP purchase is one of the largest land and water conservation deals in NC history.

TNC, WRC and State Parks requested over $46,000,000 from CWMTF to acquire these lands for game lands and state parks. The Board approved about $16,300,000 at its August and November meetings (2006A-017, 2006A-019, 2006A-022, & 2006A-027). The Parks & Recreation Trust Fund (PARTF) committed over $1,100,000, and Natural Heritage Trust Fund (NHTF), over $3,600,000 in October to match CWMTF funds. The State Treasurer also sold some timber bonds for WRC authorized by the 2006 General Assembly to match CWMTF funds. The Board will consider additional grants to acquire the TNC/IP lands over the next two years.

Hickory Nut Gorge State Park: CWMTF provided two grants to expand the new Hickory Nut Gorge State Park in Rutherford County: $2,309,000 to help acquire the 301-acre McCraw/Worlds Edge II tract (2006A-002) and $1,600,000 to help acquire the 996-acre Chimney Rock Park (2006B-017).

Alligator River: CWMTF continued its effort to help protect the ecosystem around this valuable river and estuary in Hyde and Tyrrell Counties. Another key piece of the puzzle was protected with a $1,700,000 grant to WRC to begin acquisition of the 8467-acre GMS tract (2003A-032) in Tyrrell County.

Lake Rhodhiss: CWMTF has also worked for years with WRC, Foothills Conservancy and Crescent Resources to protect the confluence of the Johns and Catawba Rivers and the impaired waters of Lake Rhodhiss in Burke County. In 2006, CWMTF provided $4,266,000 to expand game lands by 2248 acres (2006A-013).

Blue Ridge Parkway: CWMTF helped the Conservation Trust of North Carolina (CTNC) protect both Big Crabtree Creek and the Blue Ridge Parkway in McDowell County with a $132,000 grant (2006A-011).

Pigeon River: Haywood County is working with the Towns of Canton and Clyde to buy out properties in the Pigeon River floodplain and to establish a greenway between the two towns. CWMTF provided $1,000,000 to begin the acquisition effort (2006A-014).

Mill Creek: In 2006, CWMTF provided $357,000 to match $457,000 in Civil War Preservation Trust Funds to help protect both Mill Creek and the Bentonville Battlefield in Johnston County (2006B-005).

Watershed Protection: CWMTF continued its partnership with local governments to protect "abandoned" WS-I water supply watersheds for future drinking water sources and public use by providing a grant of $3,580,000 to the Town of Sylva to acquire a conservation easement on its 1088-acre Fisher Creek watershed in the Plott Balsam Mountains (2006A-043). Sylva is donating half the value of the land.

In 2006, CWMTF continued to work with local governments to protect drinking water supplies by providing $1,189,000 to Orange Water & Sewer Authority (OWASA). The funds will be used to protect 74 acres in the University Lake watershed (2006B-027). In addition, CWMTF also provided a number of grants to support the Upper Neuse Clean Water Initiative to help protect Falls Lake and other reservoirs.

Regional Wastewater Improvements: CWMTF provided $2,000,000 to help Elkin, Jonesville and Ronda – three towns in three counties – convert to a regional wastewater collection and treatment system (2006A-509).

The Town of Bolton in Columbus County received $1,989,000 to improve wastewater treatment and connect to Whiteville (2006A-601).

A grant of $2,500,000 to Harnett County will help it to partner with Fort Bragg in a regional wastewater system and will remove failing septic systems (2006A-512). Marion will use $2,500,000 in CWMTF funds to remove a discharge from the Catawba River and to improve its wastewater treatment plant (2006B-512).

Wilson will use a $1,323,000 grant to pump treated wastewater to local industries for process water use (2006A-535).

Seaboard received $500,000 to address leaky sewer lines (2006A-527). Lumberton will use $246,000 to connect homes with failing septic tanks on Merrill Road to its wastewater system (2006A-604). CWMTF provided assistance to many other small towns.

Stormwater Management: With the help of a $2,647,000 CWMTF grant, Fayetteville's Public Works Commission will improve protection of Glenville Lake, one of the City's drinking water supplies (2006A-701).

CWMTF also formed two unique partnerships with two other State agencies to improve and demonstrate the importance of stormwater collection and treatment at the North Carolina Zoological Park in Randolph County (2006A-709) and North Carolina Museum of Art in Wake County (2006A-707).

Stream and Wetlands Restoration: Durham Soil & Water Conservation District will restore a section of Lick Creek in the Falls Lake watershed with a $539,000 CWMTF grant (2006A-402).

Goldsboro has launched an ambitious plan to restore Stoney Creek, a tributary of the Neuse River. CWMTF provided over $2,000,000 to help (2006A-403).

Mecklenburg County will continue to implement its plan to restore Little Sugar Creek and McAlpine Creek with $1,000,000 and $845,000 CWMTF grants, respectively (2006A-404 & 2006A-405).

The North Carolina Coastal Federation continues one of the largest wetland restoration projects in North America at North River Farms in Carteret County. CWMTF provided $532,000 for the effort (2006B-402).

Washington County wants to plan for the growth coming to its beautiful Albemarle Sound waterfront. CWMTF provided $100,000 (2006B-816). CTNC is working with community development corporations to plan for park protection and stormwater management in affordable housing developments. CWMTF provided $135,000 for the project (2006B-806).

Farm and Ranchland Protection: CWMTF provides matching funds for Federal Farm and Ranchland Protection Program Funds (FRPP). CWMTF provided $716,000 to the Conservation Trust for NC (CTNC) to match federal funds to protect the 513-acre Averette Farm on the Tar River in Granville County (2006A-008) and $612,000 to protect the 199-acre Slagle Farm on Cartoogechaye Creek in Macon County (2006B-012).

Conservation Reserve Enhancement Program (CREP): CWMTF continued its partnership with the North Carolina Division of Soil & Water Conservation (DSWC) in providing $6,506,000 for most of the State's match for the federal Conservation Reserve Enhancement Program **(CREP)** (2006B-404). CWMTF is pleased with the improvements that DSWC has made to CREP.

2006 Legislative Action

None of CWMTF's achievements in 2006, or in the last decade would have been possible without the support of the North Carolina legislature.

The General Assembly continued its strong support for protecting and restoring water quality in 2006. Session Law 2005-276, Current Operations and Capital Improvements Act of 2005 (SB 622) appropriated $100,000,000 in recurring funds to CWMTF in each year of the biennium.

The General Assembly also appropriated $575,000 in recurring funds and $425,000 in non-recurring funds to the DSWC to expand CREP to other river basins. CWMTF appreciates appropriations from the General Fund for this expansion. The General Assembly appropriated $3,160,852 in non-recurring funds to DENR to match federal funds for the Clean Water State Revolving Loan Fund.

The General Assembly fully funded CWMTF partners - the Parks and Recreation and Natural Heritage Trust funds - for fiscal year 2006-2007. The General Assembly also appropriated $15,000,000 to assist the North Carolina Division of Parks and Recreation with the purchase of lands at the new Hickory Nut Gorge State Park in Rutherford County.

SL 2006-231 (SB 1621), WRC Special Indebtedness, by Senator David Hoyle, will provide up to $20,000,000 to help the Wildlife Resources Commission match CWMTF funds to help acquire game lands from International Paper.

In other legislative action, Representative Pryor Gibson introduced HB 2208, CWMTF Amendments, to enable the Board of Trustees of CWMTF to consider both CWMTF's clean water criteria and the common criteria established by Session Law 2005-474, Clarify Clean Water Funding. SL 2005-474 (HB 1095) applies common criteria and limits for grants for drinking water, wastewater treatment and stormwater projects funded by the Department of Environment and Natural Resources (DENR) and CWMTF. HB 2208 was enacted as Session Law 2006-178.

Representative Gibson also introduced HB 2164, Sanitary District Powers. HB 2164 was enacted as SL 2006-214. It provides sanitary districts with the same authority to require mandatory hookups for water and wastewater service as other units of local government have.

SB 1566, Stormwater Management 2006, by Senator Dan Clodfelter, was enacted as SL 2006-246.

SL 2006-201 (HB 1843), State Government Ethics Act of 2006 applies to CWMTF and other executive branch agencies.

2007 Legislative Issues

CWMTF appreciates the General Assembly's appropriation of $100,000,000 in recurring funds for CWMTF in fiscal year 2006-2007 and will work to justify continued funding at this or an increased level during each year of the 2007-2009 biennium, to address the more than $17 billion of needs to protect and restore water quality in North Carolina.

CWMTF also appreciates the General Assembly's dedicated appropriations of state deed excise stamp tax and personalized license plate revenues to our partners at the Natural Heritage Trust Fund (NHTF) and Parks & Recreation Trust Fund (PARTF).

CWMTF has provided State funds to match Federal Farm and Ranchland Protection Program (FRPP) and Federal Forest Legacy (FFL) funds for several years. Because the CWMTF standard easement is quite different from the required FRPP and FFL easement, appropriations to the NC Agricultural Development and Farmland Preservation Fund in the NC Department of Agriculture may be a better fit for protecting working lands than CWMTF. However the Board and staff of CWMTF remain committed to providing funds to match available federal farmland and forestland protection funds for projects which provide clean water benefits.

At its December 21, 2006 meeting, the Board unanimously endorsed the Chairman's recommendation to direct the Board's Grant Criteria Committee to improve CWMTF's grant review criteria, to integrate CWMTF's existing criteria with the common criteria set out in Session Law 2005-454, and to give more weight to good water quality applications from economically distressed local governments. The Board is committed to following the direction of the General Assembly set out in GS 113A-254(a1) to give priority to applications for wastewater collection system projects and wastewater treatment works projects that serve economically distressed local government units. The Board may seek additional clarification and guidance in this endeavor.

The 2006 General Assembly authorized a study of merging CWMTF and the Ecosystem Enhancement Program. The Joint Transportation Oversight Commission and the Environmental Review Commission approved a request for proposals at their November meetings. Proposals were due on December 22, 2006. A study of the merger is scheduled for completion in June 2007. Both CWMTF and EEP were established in 1996. GS 113A-254(c) currently prohibits CWMTF from funding compensatory mitigation. The Board will review the pros and cons of such a proposal and may have a recommendation on it following its review. CWMTF will fully cooperate with the General Assembly and its consultants in the consideration of this question.

At its March 12-13, 2006 meeting in Lexington, the Board of CWMTF adopted a resolution endorsing the Land for Tomorrow Initiative to increase funding for land and water conservation and historic preservation by $200,000,000 per year for five years.

During 2006, the Board of CWMTF also adopted a resolution endorsing an additional $1,000,000,000 Clean Water Bond over five years for investments in drinking water, wastewater, and stormwater.

The Board of CWMTF is also interested in working with the General Assembly to explore whether acquisition of the International Paper lands in Eastern NC, Duke Power lands on the Catawba River, Alcoa and Progress Energy lands on the Yadkin/Pee Dee River, and military base buffers might be financed with one-time appropriations and with special indebtedness similar to SL 2004-179, Finance Vital Projects (HB 1264). CWMTF, Natural Heritage Trust Fund, and Parks & Recreation Trust Fund have committed all of the $45,000,000 in funds authorized for park and game land expansions and military protection projects in 2004.

CWMTF supports additional General Fund appropriations to operate and expand the Division of Soil & Water Conservation's Conservation Reserve Enhancement Program (CREP).

The moratorium that the General Assembly first enacted on new and expanded lagoon and spray field swine waste treatment systems in 1997 is due to expire in September 2007. CWMTF would welcome guidance from the General Assembly on what role, if any, CWMTF should play in funding the conversion of swine waste systems to new technology.

CWMTF uses maps of streams and wetlands to review and score applications for funding, set priorities and to determine water quality benefits. CWMTF supports and would benefit from implementation of the "Plan to Improve the Mapping and Digital Representation of Surface Waters in North Carolina" adopted by the Geographic Information Coordinating Council (GICC) in January 2005. The 2005 General Assembly funded phase I of the plan in SL 2005-1, the Hurricane Recovery Act of 2005. Additional appropriations to fund phase 2 and other phases to improve stream maps statewide would benefit CWMTF.

North Carolina's Conservation Income Tax Credit Program encourages many landowners to sell or donate conservation easements or to sell their land at bargain prices. This stretches and leverages the funds that CWMTF and the other conservation trust funds provide. The NC Department of Environment and Natural Resources may recommend expansion and improvement of this important incentive in 2007.

Valuation of conservation easements for ad valorem taxation varies by county. Landowners in some counties may face increased property taxes after they donate or sell their development, timber or other usage rights. CWMTF supports legislation that would enable owners of property in the agricultural or forestry present use tax classification to remain taxed at that rate after they donate or sell conservation easements.

Major landowners continue to sell large tracts of conservation property. International Paper sold more than 600,000 acres in North Carolina in 2006.

Duke Energy/Crescent Resources has agreed to make some lands available for conservation as part of the Catawba/Wateree FERC agreement. Alcoa and Progress Energy will probably agree to make some lands available for conservation as part of the

expected Yadkin/Pee Dee FERC agreement. The combined existing resources of CWMTF and our partners at Natural Heritage Trust Fund, Parks & Recreation Trust Fund, and the Wildlife Resources Commission will not be able to respond to all these potential opportunities without more funds. CWMTF would support one-time appropriations to help respond to these once in a generation opportunities.

Stewardship of Conservation Easements

Section 6.22 of SL 2005-276 directed CWMTF to study the management and stewardship of conservation easements and report its findings to the Environmental Review Commission.

CWMTF has provided funds to land trusts to monitor and steward approximately 173 conservation easements since 1997. The Board has expressed concerns about whether this is the best way to insure proper stewardship of permanent conservation easements held by the State. The Board has also expressed concerns about whether CWMTF stewardship funds are being managed professionally, whether CWMTF stewardship funds are restricted to stewardship activities and are properly audited and reported to CWMTF, and whether CWMTF easements are being monitored and reported on annually.

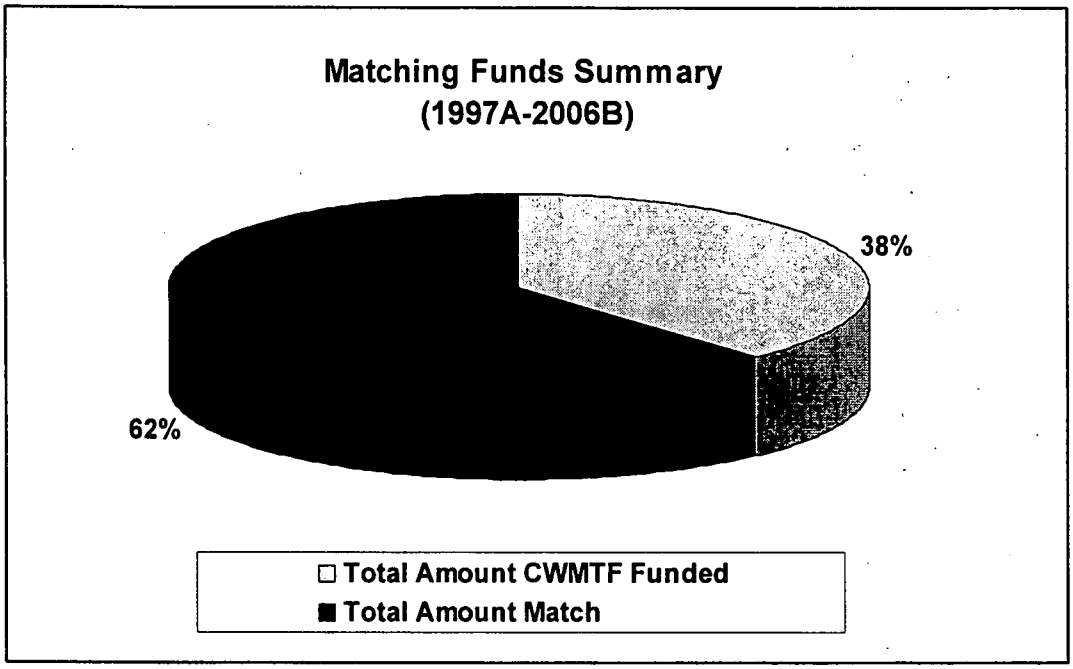
In 2006 the Board voted to create a CWMTF stewardship program with funds managed by an endowment held by a third party. In September the Board authorized a stewardship coordinator position to manage CWMTF's stewardship program. CWMTF plans to fill the position in 2007.

Since 2004 CWMTF contracts have included language stating that stewardship funds will not be paid to grantees until the Board adopts a final policy on stewardship. CWMTF has funded 109 projects, including 33 new projects in 2006, for which stewardship funds will be needed and that have not been paid. CWMTF is holding these funds until the stewardship endowment fund is established.

Appendix A
Summary of Funded Projects 1997 – 2006

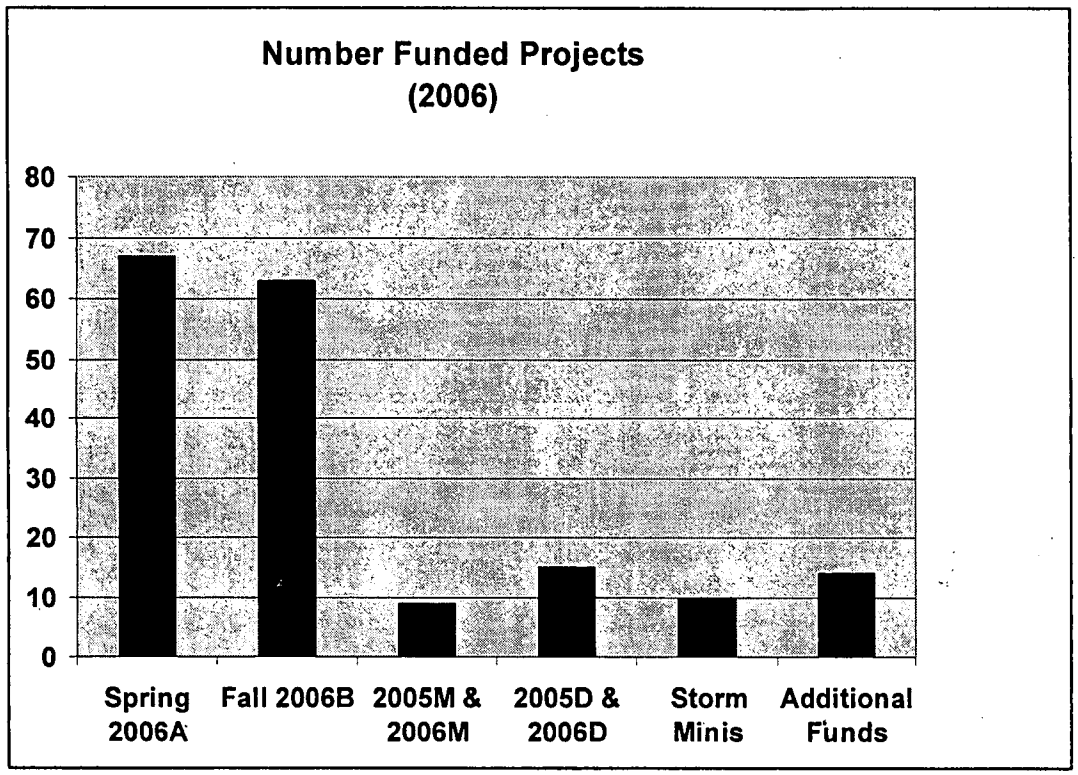
Matching Funds Summary (1997A-2006B Cycles)

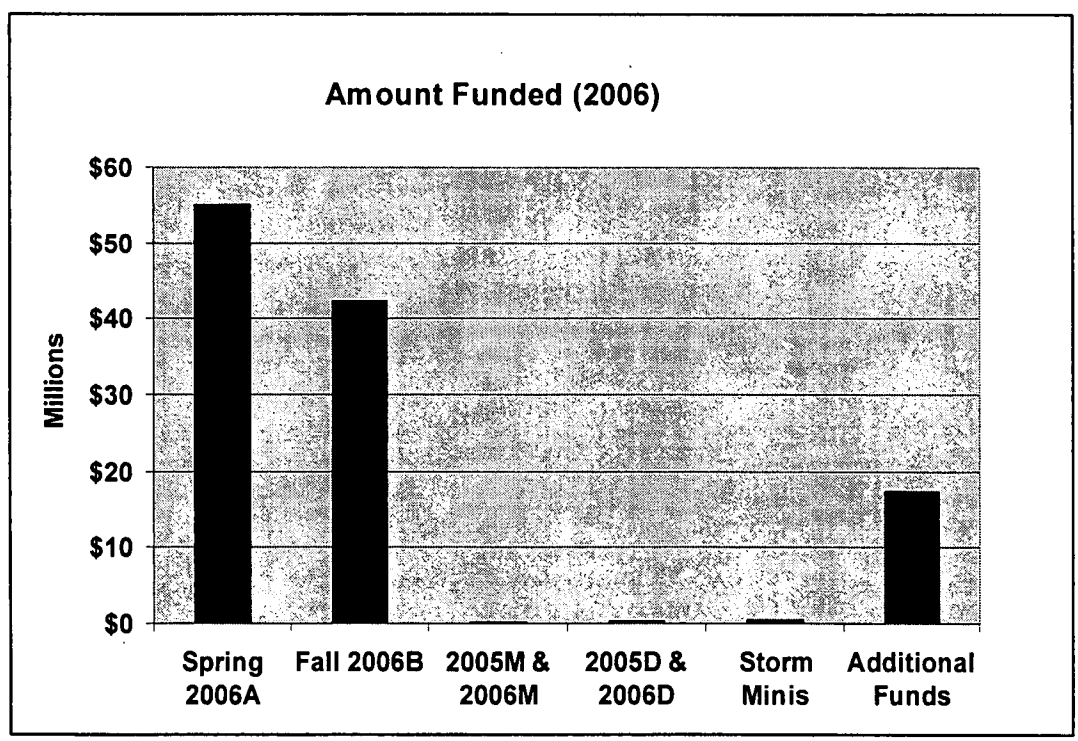
Total Project Cost	Total Amount CWMTF Funded	Total Amount Match	% Leveraged Funds
$1,854,664,473	$711,596,473	$1,143,068,000	161%



Funded Projects During 2006 Calendar Year

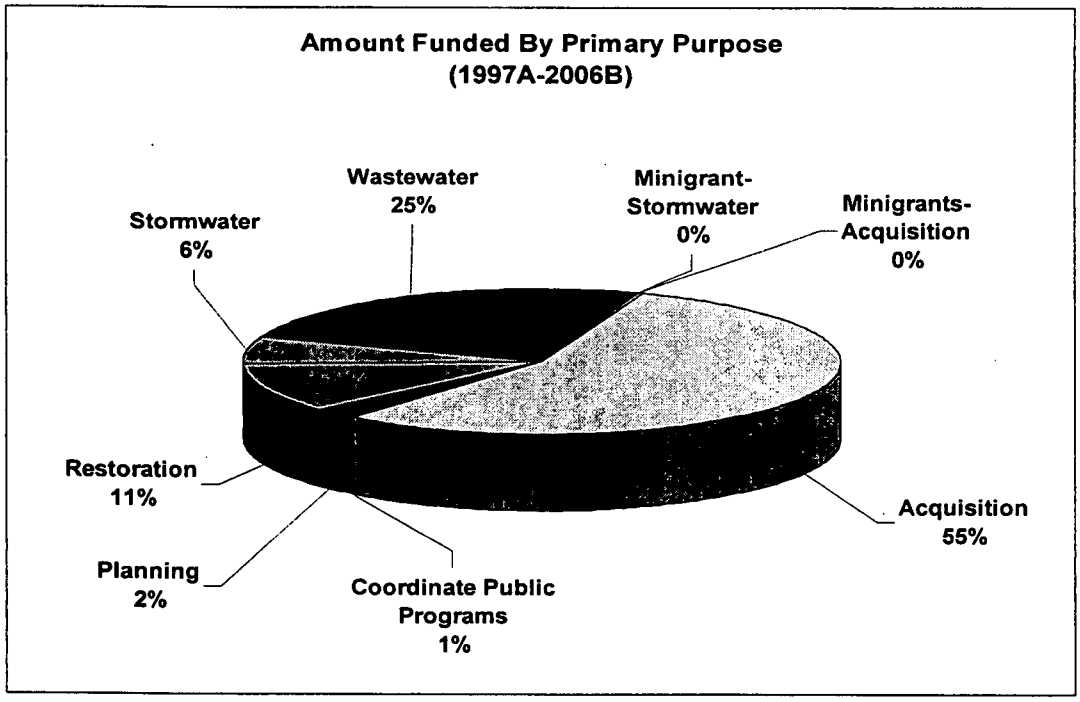
	Number Projects	Amount Funded	Comments
Spring 2006A	67	$55,089,000	Regular Cycle
Fall 2006B	63	$42,367,000	Regular Cycle
2005M & 2006M	9	$173,675	Standard Minigrants
2005D & 2006D	15	$331,295	Donated Conservation Easement Minigrants
Storm Minis	10	$403,000	Stormwater Minigrants
Additional Funds	14	$17,459,500	Additional Funding For 4 Previously Approved Projects
Total	**178**	**$115,823,470**	
Total New Projects Excluding Additional Funding	**164**	**$98,363,970**	

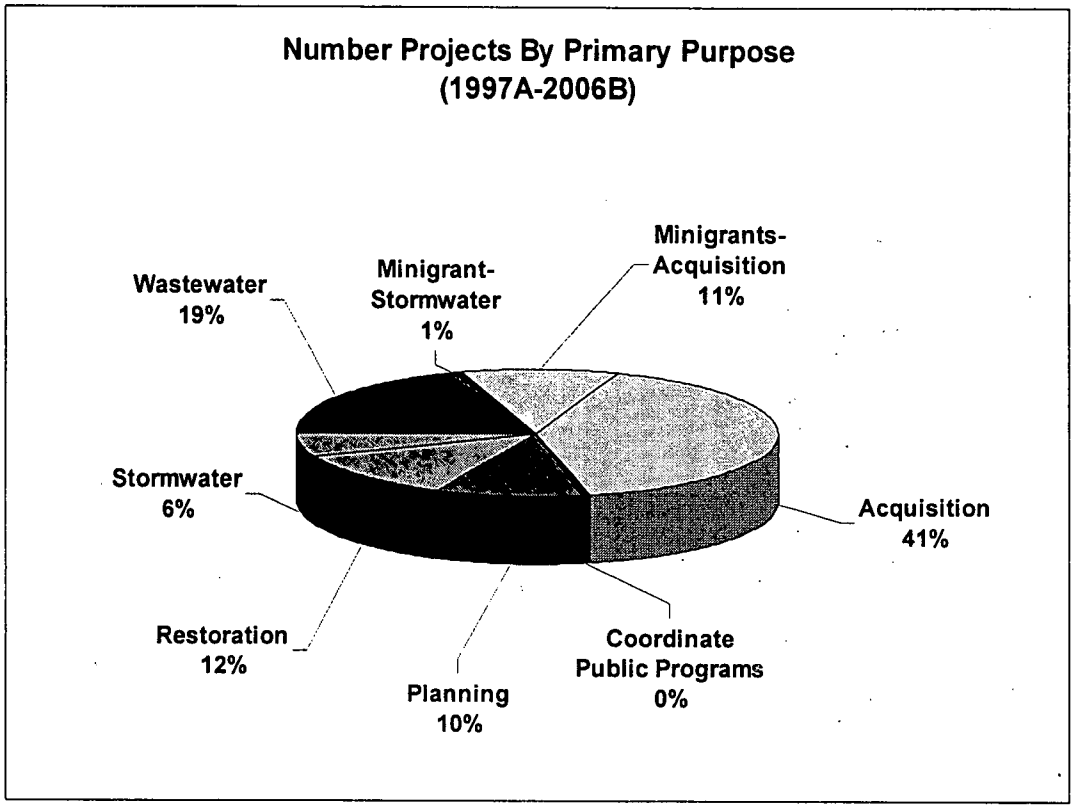

Number Funded Projects
(2006)
80
70
60
50
40
30
20
10
0
Spring 2006A
Fall 2006B
2005M & 2006M
2005D & 2006D
Storm Minis
Additional Funds


Amount Funded (2006)
Millions
$60
$50
$40
$30
$20
$10
$0
Spring 2006A
Fall 2006B
2005M & 2006M
2005D & 2006D
Storm Minis
Additional Funds

Funded Projects Summarized By Primary Purpose (1997A-2006B Cycles)

Primary Purpose	Number Projects	Amount Funded	Notes
Acquisition	387	$393,303,244	Includes fee simple, easements, and greenways.
Coordinate Public Programs	3	$5,750,000	
Planning	92	$11,954,297	
Restoration	117	$79,305,976	Includes stream restoration, ag BMPs, and other types of ecological restoration
Stormwater	57	$43,301,982	
Wastewater	178	$175,364,377	
Minigrant- Stormwater	10	$403,000	
Minigrant- Acquisition	101	$2,213,597	
Minigrant- Donated	57	$1,205,122	
Minigrant- Standard	44	$1,008,475	
Total	945	$711,596,473	



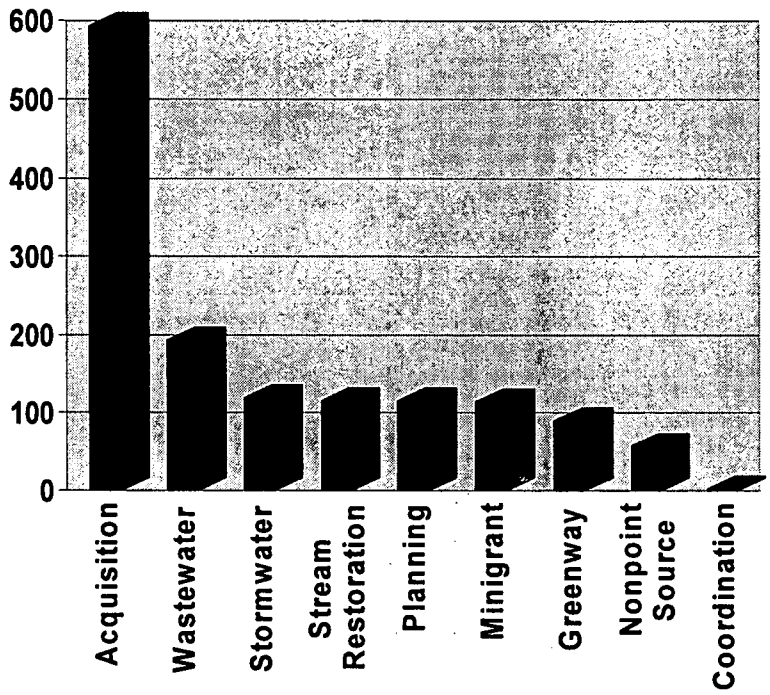


Funded Projects Summarized by Individual Project Component (1997A-2006B Cycles)*

Project Type, including multiple purposes	Number Projects
Acquisition	594
Wastewater	194
Stormwater	120
Stream Restoration	116
Planning	116
Minigrant	115
Greenway	90
Nonpoint Source	58
Coordination	3

***Takes into consideration projects with multiple purposes.**

Number Projects By Purpose (1997A-2006B)

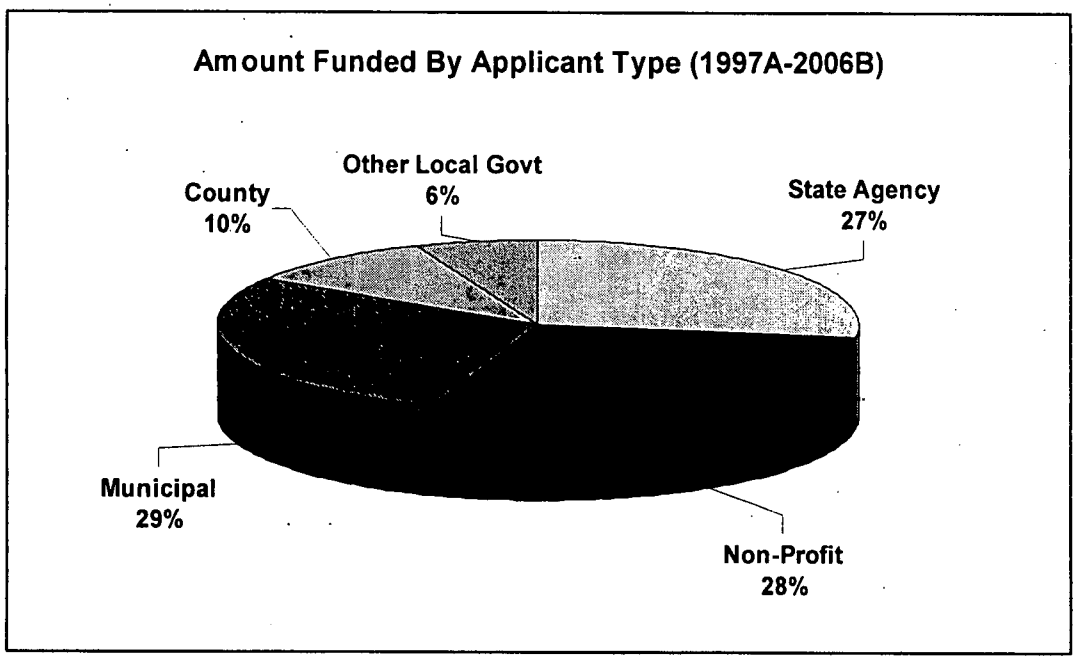


Wastewater Subcomponents (1997A-2006B Cycles)

Wastewater Subcomponents	Number Projects	Wastewater Subcomponents	Number Projects
Sewer System Repair	55	Elimination of Permitted Discharge	23
Wastewater Collection System	46	Reuse	21
WWTP Repair	31	Repair Failing Septic Systems and Elimination of Straight Pipes	13
Decommission WWTP and Reroute Waste	26	Backup Generation	12
Nondischarge of Waste (incl. Land App)	25		

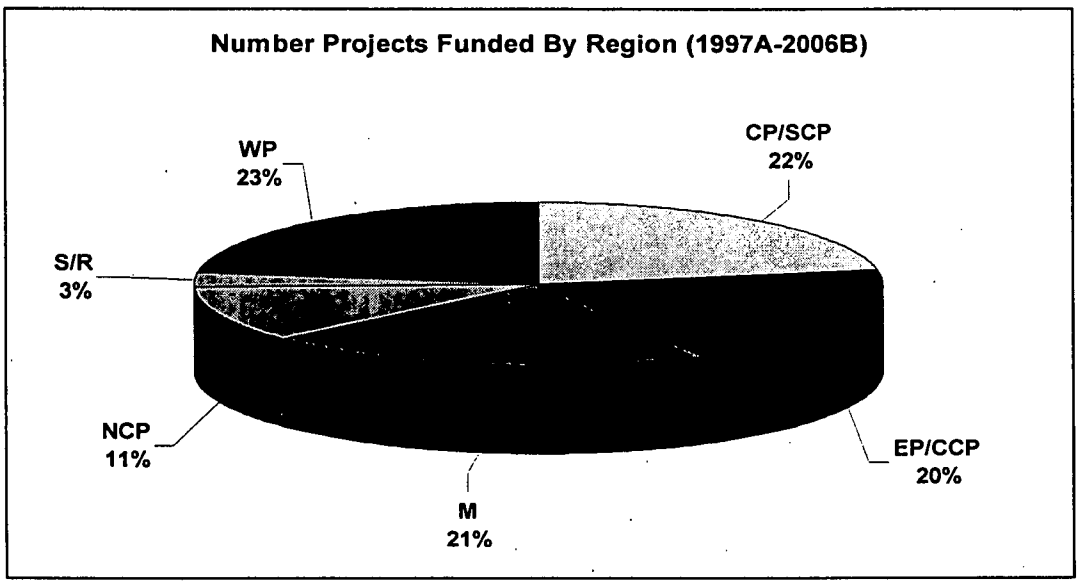
Funded Projects Summarized By Applicant Type (1997A-2006B Cycles)

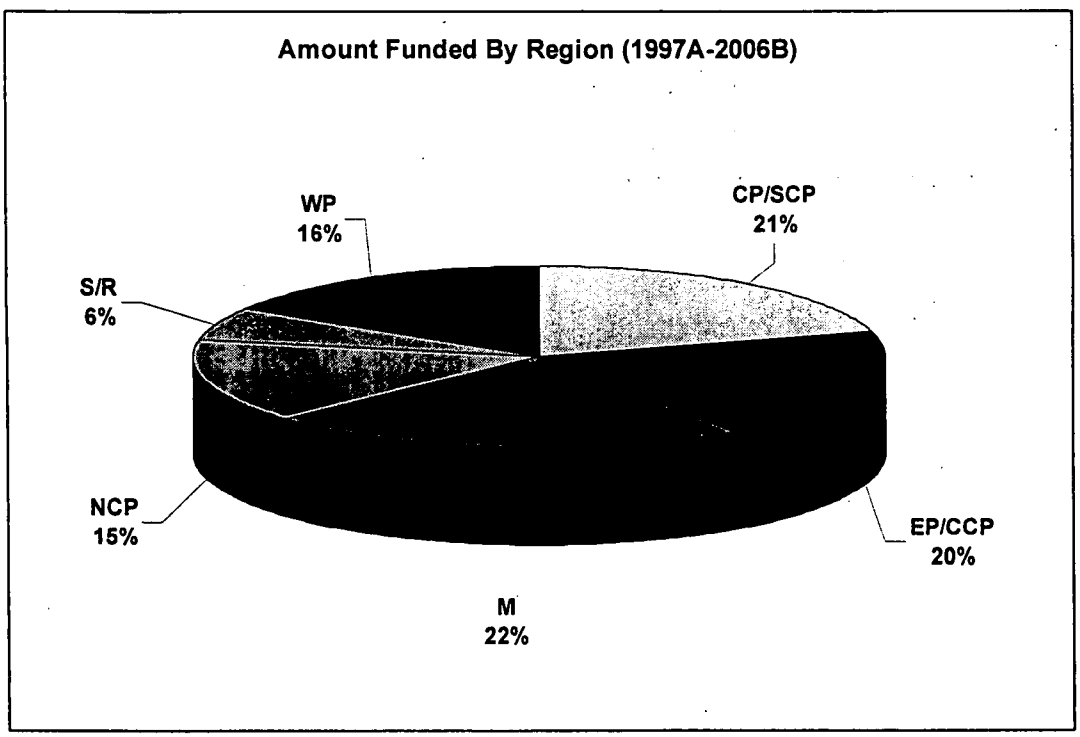
Applicant Type	Number Projects	Amount Funded
State Agency	128	$192,945,335
Non-Profit	361	$200,834,224
Local Government Total	456	$317,816,914
Municipal	279	$203,287,910
County	108	$70,463,300
Other Local Govt	69	$44,065,704
Total	945	$711,596,473



Funded Projects Summarized By Region (1997A-2006B Cycles)

Region Name	Region Abbreviation	Number Projects	Amount Funded
Central Piedmont/Southern Coastal Plain	CP/SCP	210	$147,185,452
Eastern Piedmont/Central Coastal Plain	EP/CCP	189	$141,600,405
Mountains	M	199	$160,484,574
Northern Coastal Plain	NCP	106	$105,972,131
Statewide/Regional	S/R	26	$42,011,056
Western Piedmont	WP	215	$114,342,855
	Total	945	$711,596,473


Number Projects Funded By Region (1997A-2006B)
WP
23%
CP/SCP
22%
S/R
3%
NCP
11%
EP/CCP
20%
M
21%


Amount Funded By Region (1997A-2006B)
WP
16%
CP/SCP
21%
S/R
6%
NCP
15%
EP/CCP
20%
M
22%

Funded Projects Summarized By River Basin (1997A-2006B Cycles)

River Basin	Number Projects	Amount Funded
Cape Fear	150	$116,892,050
Neuse	113	$85,104,170
Yadkin	107	$70,204,000
Catawba	98	$67,175,123
French Broad	66	$51,976,789
Lumber	64	$35,945,402
Tar-Pamlico	58	$36,901,460
New	45	$11,539,632
Statewide/Regional	38	$53,260,506
Pasquotank	37	$35,552,005
White Oak	37	$35,105,141
Little Tennessee	35	$32,728,967
Roanoke	33	$23,222,600
Broad	23	$22,957,890
Watauga	20	$8,085,928
Chowan	14	$20,218,810
Hiwassee	6	$3,851,000
Savannah	1	$875,000
Total	945	$711,596,473

CWMTF Funded Versus Requested For All Projects (1997A-2006B Cycle)

Summary of Requested vs Funded Totals (97A-06B)

	Number	Amount
Requested	1636	$1,841,621,429
Funded	945	$711,596,473
% Funded	58%	39%

Summary of Requested vs Funded by Region (97A-06B)

Region	Requests-No. Projects	Funded-No. Projects	% Number Projects Funded	Amount Requested	Amount Funded	% Amount Funded
Central Piedmont/Southern Coastal Plain	382	210	55%	$439,433,678	$147,185,452	33%
Eastern Piedmont/Central Coastal Plain	359	189	53%	$415,304,894	$141,600,405	34%
Mountains	337	199	59%	$345,104,761	$160,484,574	47%
Northern Coastal Plain	177	106	60%	$281,997,605	$105,972,131	38%
Statewide/Regional	52	26	50%	$88,696,012	$42,011,056	47%
Western Piedmont	329	215	65%	$271,084,479	$114,342,855	42%
Total	1636	945	58%	$1,841,621,429	$711,596,473	39%

Projects Funded by CWMTF in Calendar Year 2006

Application Name	Approval Date	Amount Funded	Applicant Type	County	River Basin
Ahoskie, Town of - WW/ Nucor Steel Reuse project, Ahoskie Creek	8/14/2006	$3,000,000	Local Government - Municipal	Hertford	Chowan
American Forests - Plan/Storm/ Watershed Mapping, McDowell Creek	11/13/2006	$43,000	Non-profit	Mecklenburg	Catawba
Beaufort County - Septic/ Terra Ceia School, Broad Creek	11/13/2006	$107,000	Local Government - County	Beaufort	Tar-Pamlico
Beaufort, Town of- Plan/Storm/ Stormwater Planning, Town and Taylor Creeks	8/14/2006	$50,000	Local Government - Municipal	Carteret	White Oak
Bladenboro, Town of - Plan/WW/I&I Study, Big Swamp	11/13/2006	$40,000	Local Government - Municipal	Bladen	Lumber
Blowing Rock, Town of- Stormwater Minigrant/ Stormwater Master Plan	4/10/2006	$40,000	Local Government - Municipal	Watauga	Catawba
Blue Ridge Rura Land Trust - Mini Donated/ Tobin Farm, South Beaver Creek	3/13/2006	$25,000	Non-profit	Ashe	New
Blue Ridge Rural Land trust - Donated Mini/ Coffey-Tract, Aho Branch	4/10/2006	$20,000	Non-profit	Watauga	New
Blue Ridge Rural land Trust - Donated Mini/ Reece Tract, Watauga River	4/10/2006	$25,000	Non-profit	Watauga	Watauga
Blue Ridge Rural Land Trust - Donated Mini/ Tate Farm II, Ripshin Creek	1/9/2006	$25,000	Non-profit	Ashe	New
Blue Ridge Rural Land Trust - Mini/ YMCA Herring Ridge Tract, Big Warrior Creek	2/13/2006	$25,000	Non-profit	Wilkes	Yadkin
Blue Ridge Rural Land Trust - Thornton Farm Tract, Cove Creek	2/13/2006	$25,000	Non-profit	Watauga	Watauga
Blue Ridge Rural Land Trust- Donated Mini/Fairey & McDowell Tracts, North Toe River	9/11/2006	$25,000	Non-profit	Yancey	French Broad
Bolton, Town of- Septic/ Treatment Plant Construction, Friar Swamp	8/14/2006	$1,989,000	Local Government - Municipal	Columbus	Lumber
Brevard, City of - Stormwater Minigrant/ Comprehensive planning, Nicholson Creek et al	10/9/06	$40,000	Local Government - Municipal	Transylvania	French Broad
Broadway, Town of - Plan/WW/ Comprehensive Planning, Daniels Creek	11/13/2006	$40,000	Local Government - Municipal	Lee	Cape Fear
Bunn, Town of- Plan/WW/ Engineering Report on I&I Evaluation, Crooked Creek	8/14/2006	$24,000	Local Government - Municipal	Franklin	Tar-Pamlico

Caldwell County- Acq/ Yadkin River Greenway	11/13/2006	$111,000	Local Government - County	Caldwell	Yadkin
Camden County/Currituck County- Sawyer's Creek	7/10/06	$1,000,000	Local Government - County	Camden	Pasquotank
Carolina Land & Lakes RC&D- Plan/Rest/ Lake Rhodhiss Watershed Restoration Plan	8/14/2006	$40,000	Local Government	Burke	Catawba
Carolina Mountain Land Conservancy - Acq/ McCraw Tract, Worlds Edge, Broad River (Assigned to NC Div of Parks and Recreation)	8/14/2006	$2,309,000	Non-profit	Henderson	Broad
Carolina Mountain Lands Conservancy- Acq/ McElrath Tract, Seniard Creek	11/13/2006	$968,000	Non-profit	Henderson	French Broad
Carolina Mtn Land Conservancy- Donated/Mini; Skipper Ridge, Upper Green River	9/11/2006	$20,120	Non-profit	Henderson	French Broad
Carrboro, Town of - Stormwater Minigrant, Bolin Creek	11/13/2006	$45,000	Local Government - Municipal	Orange	Cape Fear
Carteret Community College- Storm./ Bogue Sound Constructed Wetland	4/10/06	$50,000	State Agency	Carteret	White Oak
Caswell Beach, Town of- Septic/WW/ Package Plant and Septic Tank Elimination, Elizabeth River	11/13/2006	$2,500,000	Local Government - Municipal	Brunswick	Cape Fear
Catawba Lands Conservancy - Acq/ Duncan-Rankin Preserve, Stanley Creek	8/14/2006	$596,000	Non-profit	Gaston	Catawba
Catawba Lands Conservancy - Acq/ Rhyne Creek Preserve, Stanley Creek	11/13/2006	$470,000	Non-profit	Gaston	Catawba
Charlotte, City of - Storm/ Campbell Creek Stormwater Initiative, Muddy Creek	11/13/2006	$125,000	Local Government - Municipal	Mecklenburg	Catawba
Chatham County- Wastewater Reuse	1/9/06	$250,000	Local Government - County	Chatham	Cape Fear

Chowan County- Plan/Storm/ Stormwater Drainage Study	8/14/2006	$85,000	Local Government - County	Chowan	Chowan
Civil War Preservation Trust - Acq/ Bentonville Battleground, Mill Creek	11/13/2006	$357,000	Non-profit	Johnston	Neuse
Colerain, Town of - Storm/ Constructed Wetland, Chowan River	11/13/2006	$71,000	Local Government - Municipal	Bertie	Chowan
Conservation Fund, The - Minigrant/ Gateway Wetland, Rock Spring	2/13/2006	$18,000	Non-profit	Vance	Tar-Pamlico
Conservation Trust for NC - Plan/Acq/ Conservation-Based Development Plans For Low-Income Communities, Statewide	11/13/2006	$135,000	Non-profit	Statewide-Regional	Statewide-Regional
Conservation Trust for North Carolina - Acq./ Averette Tracts 10&12, Tar River	8/14/2006	$117,000	Non-profit	Granville	Tar-Pamlico
Conservation Trust for North Carolina - Acq./ Averette Tracts 1-9, Tar River	8/14/2006	$716,000	Non-profit	Granville	Tar-Pamlico
Conservation Trust for North Carolina - Acq./ Lankford Tract, Boone Fork Creek	8/14/2006	$349,000	Non-profit	Watauga	Watauga
Conservation Trust for North Carolina - Acq./ Little Switzerland Tract, Big Crabtree Creek	8/14/2006	$132,000	Non-profit	Mitchell	French Broad
Durham Soil and Water Conservation District - Rest/ Lake Michie Restoration	11/13/2006	$275,000	Local Government	Durham	Neuse
Durham SWC District- Rest/Lick Creek Restoration	8/14/2006	$539,000	Local Government - County	Durham	Neuse
Elizabethtown, Town of- WW/ I&I Rehabilitation, Phase II, Browns Creek	11/13/2006	$855,000	Local Government - Municipal	Bladen	Cape Fear
Elkin and Jonesville, Towns of- Plan/WW/Storm/ GIS Mapping, Elkin Creek	8/14/2006	$70,000	Local Government - Municipal	Surry	Yadkin
Elkin, Town of- WW/ Regionalization with Jonesville, Rhonda, Yadkin River	8/14/2006	$2,000,000	Local Government - Municipal	Surry	Yadkin
Ellerbe, Town of - WW/ UV Disinfection, Toms Creek	3/13/06	$50,000	Local Government - Municipal	Richmond	Yadkin

Eno River Association - Acq/ Coulter Tract, Eno River	8/14/2006	$63,000	Non-profit	Durham	Neuse
Eno River Association - Minigrant/ Stollings Tract, East/West Forks Eno River	11/13/2006	$25,000	Non-profit	Orange	Cape Fear
Eureka, Town of- WW/ I&I Rehabilitation, Nahunta Swamp	8/14/2006	$923,000	Local Government - Municipal	Wayne	Neuse
Fayetteville, Public Work Commission- Storm/ Glenville Lake Stormwater Management	8/14/2006	$2,647,000	Local Government - Municipal	Cumberland	Cape Fear
Fayetteville-Cumberland Parks and Recreation - Acq/ Cape Fear River Greenway	11/13/2006	$289,000	Local Government	Cumberland	Cape Fear
Fishing Creek Soil & Water Conservation District - Acq/ Iles Farm, Roanoke Rapids Lake	5/8/06	$13,500	Local Government	Halifax	Roanoke
Fletcher, Town of- Stormwater Minigrant/ Comprehensive Planning, Cane Creek, et al	10/9/06	$40,000	Local Government - Municipal	Henderson	French Broad
Foothills Conservancy of NC - Acq/ Johns River Tract I North, Lower Creek	8/14/2006	$4,266,000	Non-profit	Burke	Catawba
Goldsboro, City of- Rest/ Stoney Creek Restoration	8/14/2006	$485,000	Local Government - Municipal	Wayne	Neuse
Goldsboro, City of- Rest/ Stoney Creek Restoration	11/13/06	$1,598,000	Local Government - Municipal	Wayne	Neuse
Hamlet, City of - WW/ Regionalization w/ Rockingham, Marks Creek	11/13/2006	$472,000	Local Government - Municipal	Richmond	Yadkin
Harnett County- WW/ South Central Regional Treatment Facility, Little River	11/13/2006	$2,500,000	Local Government - County	Harnett	Cape Fear
Haywood County - Acq./ Pigeon River Buffer Project	8/14/2006	$1,000,000	Local Government - County	Haywood	French Broad
Highlands, Town of- Stormwater Minigrant/ Stormwater Master Plan, Cullasaja River	4/10/2006	$40,000	Local Government - Municipal	Macon	Little Tennessee
Hoke County - Acq/ Yadkin River Greenway	11/13/2006	$388,000	Local Government - County	Hoke	Cape Fear

Kitty Hawk, Town of - Storm/Rest/ Stormwater BMPs, Kitty Hawk Bay	11/13/2006	$543,000	Local Government - Municipal	Dare	Pasquotank
Land Trust for Central North Carolina - Donated Mini/ Kepley Tract, Reedy Creek	1/9/2006	$17,100	Non-profit	Davidson	Yadkin
Land Trust for the Little Tennessee - Acq/ Anselmo Tract, Cowee Creek	11/13/2006	$86,000	Non-profit	Macon	Little Tennessee
Land Trust for the Little Tennessee - Acq/ Raby Bend II Tract, Little Tennessee River	8/14/2006	$123,000	Non-profit	Macon	Little Tennessee
Land Trust for the Little Tennessee - Acq/ Slagle Farm Tract, FRPP, Cartoogechaye Creek	11/13/2006	$612,000	Non-profit	Macon	Little Tennessee
Land Trust for the Little Tennessee - Minigrant/ Fain Mountain Tract, Marble Creek	11/13/2006	$25,000	Non-profit	Cherokee	Little Tennessee
LandTrust for Central NC - Acq/ Birkhead Wilderness, West Fork Little River	11/13/2006	$1,000,000	Non-profit	Randolph	Yadkin
Littleton, Town of- Stormwater Minigrant/ Bens Creek Stormwater Plan	4/10/2006	$21,000	Local Government - Municipal	Halifax	Tar-Pamlico
Lucama, Town of- WW/ I&I Rehabilitation, Black Creek	8/14/2006	$285,000	Local Government - Municipal	Wilson	Neuse
Lumber River Conservancy - Donated Mini/ Ballard Tract, Lumber River	2/13/2006	$4,000	Non-profit	Hoke	Lumber
Lumberton, City of- Septic/ Merrill Road Collection System; Meadow Branch Drainage	8/14/2006	$246,000	Local Government - Municipal	Robeson	Lumber
Maiden, Town of - WW/ WWTP Upgrades, Clark Creek	11/13/2006	$1,856,000	Local Government - Municipal	Catawba	Catawba
Marion, City of - WW/ Regionalization, Discharge Elimination and I&I, Corpening Creek	11/13/2006	$2,500,000	Local Government - Municipal	McDowell	Catawba
Martin Community College- Stormwater Minigrant/Dog Branch	7/10/2006	$50,000	Local Government - County	Martin	Roanoke
Mecklenburg County- Rest/ Little Sugar Creek Restoration Initiative, Phase VIII	8/14/2006	$1,000,000	Local Government - County	Mecklenburg	Catawba

Mecklenburg County- Rest/ McAlpine Creek Restoration Project	8/14/2006	$845,000	Local Government - County	Mecklenburg	Catawba
Mecklenburg County- Storm/ Recycling Center Retrofit, Mountain Island Lake	11/13/2006	$145,000	Local Government - County	Mecklenburg	Catawba
Mooresville, Town of - WW/ WWTP Upgrade, Rocky River	11/13/2006	$2,000,000	Local Government - Municipal	Iredell	Catawba
Morehead City - Stormwater Minigrant/ Calico Creek	7/10/2006	$50,000	Local Government - Municipal	Carteret	White Oak
Mount Airy, City of - Plan/Storm/ Stormwater Management Initiative, Ararat River	8/14/2006	$95,000	Local Government - Municipal	Surry	Yadkin
Mount Gilead, Town of- Plan/WW/Storm/ GIS Mapping, Harner Creek	8/14/2006	$29,000	Local Government - Municipal	Montgomery	Yadkin
Mount Gilead, Town of- WW/ I&I Rehabilitation, Pee Dee River	8/14/2006	$55,000	Local Government - Municipal	Montgomery	Yadkin
Mountain Valleys RC&D - Mini/ Ebbs Chapel School, Laurel Valley Creek	7/10/2006	$25,000	Non-profit	Madison	French Broad
National Committee for the New River - Acq/ Main Tracts, North Fork New River and Mine Branch	11/13/2006	$116,000	Non-profit	Watauga	New
Nature Conservancy, The - Acq/ Timber Tracts, Chowan River	8/14/2006	$1,489,000	Non-profit	Hertford	Chowan
Nature Conservancy, The - Acq/ Timber Tracts, Chowan River	11/13/06	$5,721,000	Non-profit	Hertford	Chowan
Nature Conservancy, The - Acq/ Timber Tracts, Lower Roanoke River, Lower	8/14/2006	$152,000	Non-profit	Halifax	Roanoke
Nature Conservancy, The - Acq/ Timber Tracts, Lower Roanoke River, Lower	11/13/06	$4,141,000	Non-profit	Halifax	Roanoke
Nature Conservancy, The - Acq/ Timber Tracts, Upper Tar River; 19 Tracts	8/14/2006	$2,758,000	Non-profit	Nash	Tar-Pamlico
Nature Conservancy, The - Acq/ Timber Tracts, Upper Tar River; 19 Tracts	11/13/06	$1,259,000	Non-profit	Nash	Tar-Pamlico
NC Coastal Federation - Rest/ North River Farms Restoration, Ward Creek	11/13/2006	$532,000	Non-profit	Carteret	White Oak
NC Coastal Land Trust - Ac/ Indian Creek Tracts	8/14/2006	$528,000	Non-profit	Camden	Pasquotank

NC Coastal Land Trust - Acq./ Humphrey Tract, Shaken Creek	2/13/06	$7,000	Non-profit	Pender	Cape Fear
NC Coastal Land Trust - Acq/ Allen Tract, Everett Creek	11/13/2006	$1,833,000	Non-profit	Onslow	White Oak
NC Coastal Land Trust - Acq/ Henry Tract, Turnagin Bay, Cherry Point Encroachment	8/14/2006	$730,000	Non-profit	Carteret	Neuse
NC Coastal Land Trust - Acq/ South Topsail Beach, Topsail Sound	11/13/2006	$1,055,000	Non-profit	Pender	Cape Fear
NC Div Soil & Water Conservation-Acq/ Conservation Reserve Enhancement Program (Phase III)	7/10/06	$2,501,000	State Agency	Statewide-Regional	Statewide-Regional
NC Div Soil and Water Conservation - Rest/ Conservation Reserve Enhancement Program Phase IV	11/13/2006	$6,506,000	State Agency	Statewide-Regional	Statewide-Regional
NC Museum Of Art- Storm/Rest NCMA Environmental Site, House Creek	8/14/2006	$1,573,000	State Agency	Wake	Neuse
NC Parks and Recreation - Acq./ Timber Tracts, Little Fishing Creek	8/14/2006	$744,000	State Agency	Halifax	Tar-Pamlico
NC Parks and Recreation - Acq/ Chimney Rock State Park, Fall Creek	11/13/2006	$1,533,000	State Agency	Rutherford	Broad
NC Parks and Recreation - Acq/ Powell Tract, Deep River	11/13/2006	$315,000	State Agency	Chatham	Cape Fear
NC Soil and Water Conservation-Storm/ Community Conservation Assistance, Statewide	8/14/2006	$557,000	State Agency	Statewide-Regional	Statewide-Regional
NC State University- WW/ Alternative Swine Waste System, Cape Fear Tributary	8/14/2006	$1,059,000	State Agency	Sampson	Cape Fear
NC Wildlife Resources Commission - Acq./ Chalk/Howell Tracts, Cartledge Creek	8/14/2006	$433,000	State Agency	Richmond	Yadkin
NC Wildlife Resources Commission - Acq./ Jessup Millpond Tract, Harrison Creek	8/14/2006	$648,000	State Agency	Cumberland	Cape Fear

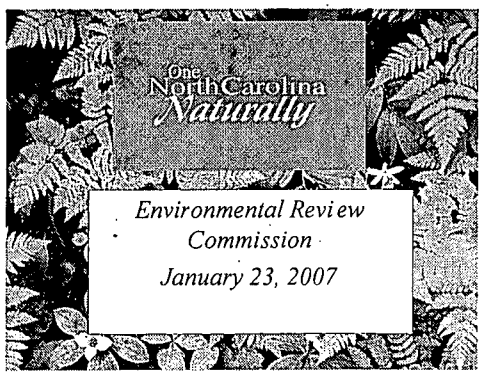
NC Wildlife Resources Commission - Acq./ Mountain Creek Tracts	8/14/2006	$277,000	State Agency	Richmond	Yadkin
NC Wildlife Resources Commission - Acq/ Graves Tract, Hyco Creek	11/13/2006	$159,000	State Agency	Caswell	Roanoke
NC Wildlife Resources Commission - Acq/ Odum Tract, Kinney-Cameron Lake	11/13/2006	$57,000	State Agency	Scotland	Lumber
NC Wildlife Resources Commission- Acq./ GMS Tract, Alligator River	8/14/2006	$1,700,000	State Agency	Tyrrell	Pasquotank
NC Wildlife Resources Commission-Acq/ Brumley Tract, Country Line Creek	11/13/2006	$256,000	State Agency	Caswell	Roanoke
NC Zoological Park- Storm/Constructed Wetland, Soules Swamp	8/14/2006	$406,000	State Agency	Randolph	Cape Fear
New Hanover County - Acq/ Harrell Tract, Smith Creek Greenway	11/13/2006	$500,000	Local Government - County	New Hanover	Cape Fear
New Hanover County Airlie Gardens - Plan/Storm/ Bradley Creek Stormwater Plan	11/13/2006	$25,000	Local Government - County	New Hanover	Cape Fear
Northwest Piedmont Council of Governments - Plan/Acq/ Yadkin River Corridor Planning	8/14/2006	$50,000	Local Government	Surry	Yadkin
Orange Water and Sewer Authority - Acq/ Ray Tract, University Lake	11/13/2006	$1,189,000	Local Government - County	Orange	Cape Fear
Perquimans County- Rest/ Newbold- White House and Greenway, Perquimans River	8/14/2006	$340,000	Local Government - County	Perquimans	Pasquotank
Piedmont Land Conservancy - Acq/ Iseley Tract, Haw River	11/13/2006	$144,000	Non-profit	Alamance	Cape Fear
Pineville, Town of - Plan/Storm/ Bioretention and BMP Study, Sugar Creek	11/13/2006	$30,000	Local Government - Municipal	Mecklenburg	Catawba
Randleman, Town of - Plan/WW/ I7I Rehabilitation Plan	8/14/2006	$42,000	Local Government - Municipal	Randolph	Cape Fear
Red Springs, Town of- WW/ Relocate Discharge & Outfall Upgrade, Little Raft Swamp	8/14/2006	$1,850,000	Local Government - Municipal	Robeson	Lumber

Resource Institute, Inc.- Rest/ Ararat River Restoration Sites	8/14/2006	$455,000	Non-profit	Surry	Yadkin
Resource Institute, Inc.- Rest/ Ararat River Restoration Sites	11/13/06	$455,000	Non-profit	Surry	Yadkin
Resource Institute, Inc.- Rest/ Big Creek Restoration	11/13/2006	$736,000	Non-profit	Surry	Yadkin
Rich Square, Town of - Plan/WW/ I&I Study, Bridgers Creek	11/13/2006	$40,000	Local Government - Municipal	Northampton	Roanoke
Rich Square, Town of- WW/ Treatment Plant Upgrades, Bridgers Creek	8/14/2006	$403,000	Local Government - Municipal	Northampton	Roanoke
Roanoke Rapids, City of- Rest/Storm/ Roanoke Tributary Restoration Project	8/14/2006	$788,000	Local Government - Municipal	Halifax	Roanoke
Rocky Mount, City of - Septic/ Legget Park, Tar River	11/13/2006	$512,000	Local Government - Municipal	Edgecombe	Tar-Pamlico
Rutherford College, Town of- WW/ Pump Station & Outfall Rehabilitation, Island Creek	8/14/2006	$385,000	Local Government - Municipal	Burke	Catawba
Sandhills Area Land Trust - Acq/ Blue Tract, Little River	11/13/2006	$123,000	Non-profit	Moore	Cape Fear
Sandhills Area Land Trust - Acq/ McKay Tract, Naked Creek	11/13/2006	$153,000	Non-profit	Richmond	Lumber
Sandhills Area Land Trust - Acq/ River Road Hardwoods Tracts, Cape Fear River	11/13/2006	$630,000	Non-profit	Cumberland	Cape Fear
Sandhills Area Land trust - Acq/ Snipes and Turner Tracts, Cape Fear River	11/13/06	$174,000	Non-profit	Cumberland	Cape Fear
Sandhills Area Land Trust - Acq/ Spring River Land Tract, Cape Fear River	11/13/2006	$275,000	Non-profit	Cumberland	Cape Fear
Seaboard, Town of- WW/ I&I Rehabilitation, Ivy Creek	11/13/2006	$500,000	Local Government - Municipal	Northampton	Chowan
Selma, Town of - Plan/WW/ Comprehensive I&I Plan, Neuse River	11/13/2006	$40,000	Local Government - Municipal	Johnston	Neuse
Selma, Town of - WW/ Emergency Backup Generator, Neuse River	11/13/2006	$40,000	Local Government - Municipal	Johnston	Neuse

Smithfield, Town of- Rest/ Johnston Memorial Hospital Project, Buffalo Creek	8/14/2006	$223,000	Local Government - Municipal	Johnston	Neuse
Southern Appalachian Highlands Conservancy - Acq/ Powdermill Creek Tract, North Toe River	8/14/2006	$1,070,000	Non-profit	Avery	French Broad
Southern Appalachian Highlands Conservancy - Acq/ Webb Tract, Cedar Creek	11/13/2006	$2,369,000	Non-profit	Jackson	Little Tennessee
Southern Appalachian Highlands Conservancy- Acq./ Wilburn Tract, South Toe River	8/14/2006	$611,000	Non-profit	Yancey	French Broad
Southport, City of- WW/ Discharge Elimination & Regionalization II, Cottage Creek	8/14/2006	$3,000,000	Local Government - Municipal	Brunswick	Cape Fear
Southwestern NC RC&D, Inc. - Plan/Acq/ Working Lands Preservation, Upper Pigeon River	11/13/2006	$17,000	Local Government	Haywood	French Broad
Sparta, Town of - Stormwater Minigrant/ Stormwater Drainage Study, Bledsoe Creek	4/10/2006	$27,000	Local Government - Municipal	Alleghany	New
Spruce Pine, Town of - Plan/Acq/ Greenway Feasibility, North Toe River	11/13/2006	$24,000	Local Government - Municipal	Mitchell	French Broad
Stantonsburg, Town of - WW/ I&I Rhabilitation, Contentnea Creek	11/13/2006	$400,000	Local Government - Municipal	Wilson	Neuse
Surf City, Town of - WW/ Acquisition of Land Application Site, ICW	11/13/2006	$2,000,000	Local Government - Municipal	Onslow	Cape Fear
Surry SWC District- Acq./ Surry County Greenway, Yadkin Tributaries	8/14/2006	$81,000	Local Government	Surry	Yadkin
Sylva, Town of- Acq./ Plott Balsam Mountains, Fisher Creek	8/14/2006	$3,580,000	Local Government	Jackson	Little Tennessee
Tabor City- WW/ Regional Sewer Initiative, Grissett Swamp	8/14/2006	$420,000	Local Government - Municipal	Columbus	Lumber
Tabor City, Town of - Stormwater Minigrant, Grissett Swamp/Huggins Creek	11/13/2006	$50,000	Local Government - Municipal	Columbus	Lumber
Tar River Land Conservancy- Acq./ Jones Farm, Flatrock Creek	8/14/2006	$62,000	Non-profit	Franklin	Tar-Pamlico

Tar River Land Conservancy-Donated/Mini - Goodfred Tract, Tar River	8/14/2006	$25,000	Non-profit	Edgecombe	Tar-Pamlico
Tar River Land Conservancy-Donated/Mini - Martha Morton Tract, Tar River	8/14/2006	$25,000	Non-profit	Granville	Tar-Pamlico
Tar River Land Conservancy-Donated/Mini; Jane Morton Tract, Tar River	8/14/2006	$25,000	Non-profit	Granville	Tar-Pamlico
Tar River Land Conservancy-Donated/Mini; Perry,Bagwell,Powell Tracts; Tar River	10/9/2006	$25,000	Non-profit	Granville	Tar-Pamlico
Tar River Land Conservancy-Donated/Mini; Wilde Tract, Tar River	9/11/2006	$21,725	Non-profit	Nash	Tar-Pamlico
Tar River Land Conservancy-Minigrant; Daniels Tract, Big Peachtree Creek	9/11/2006	$2,575	Non-profit	Franklin	Tar-Pamlico
Tar River Land Conservancy-Minigrant; Foster Tract, Sandy Creek	10/9/2006	$3,100	Non-profit	Vance	Tar-Pamlico
Triangle Greenways Council-Mini/ St. Ambrose Church Tract, Walnut Creek	8/14/2006	$25,000	Non-profit	Wake	Neuse
Triangle Land Conservancy - Acq/ Grizzle Tract, Rocky River	11/13/2006	$60,000	Non-profit	Chatham	Cape Fear
Triangle Land Conservancy- Acq/ Goldston Tract, Rocky River	11/13/2006	$595,000	Non-profit	Chatham	Cape Fear
Triangle Land Conservancy-Donated Mini/Hundley Tract, Rocky River	7/10/2006	$23,350	Non-profit	Chatham	Cape Fear
Triangle Lands Conservancy-Acq./ Stevens Tract, Haw River	8/14/2006	$155,000	Non-profit	Chatham	Cape Fear
Troy, Town of - Mini/ Country Club Tract, Densons Creek	2/13/2006	$25,000	Local Government - Municipal	Montgomery	Yadkin
Troy, Town of- WW/Acq/ Land Application Site and Greenway, Dumas Creek	8/14/2006	$1,455,000	Local Government - Municipal	Montgomery	Yadkin

Trust for Public Land - Acq/ Clinebelle Tract, Beddingfield Creek	11/13/2006	$359,000	Non-profit	Wake	Neuse
Valle Crucis- Rest/ Community Park Phase II, Watauga River	8/14/2006	$153,000	Local Government - Municipal	Watauga	Watauga
Wake County - Acq/ Liles Farm Tract, Lake Benson	11/13/2006	$250,000	Local Government - County	Wake	Neuse
Wake Forest, Town of- Rest/ Richland Creek Greenway Project, Phase II	11/13/2006	$346,000	Local Government - Municipal	Wake	Neuse
Washington County - Plan/Acq/ Sustainable Development Planning, Albermarle Sound	11/13/2006	$100,000	Local Government - County	Washington	Pasquotank
Washington, City of - Acq/ Barger Tract, Pamlico River	11/13/2006	$60,000	Local Government - Municipal	Beaufort	Tar-Pamlico
Wilmington, City of - Storm/ Hewletts Creek Shellfish	8/14/06	$240,000	Local Government - Municipal	New Hanover	Cape Fear
Wilson, City of- WW/ Reclaimed Water Expansion, Contentnea Creek	8/14/2006	$1,323,000	Local Government - Municipal	Wilson	Neuse
Windsor, Town of- Acq./ Cashie River Tract	8/14/2006	$210,000	Local Government	Bertie	Roanoke
Wingate, Town of- WW/ Sewer Repair, Rays Branch	8/14/2006	$100,000	Local Government - Municipal	Union	Yadkin
Winston-Salem, City of- Rest/ Reynolds, Silas, Monarcas & Muddy Creek Restoration	8/14/2006	$192,000	Local Government - Municipal	Forsyth	Yadkin
Zebulon, Town of- WW/ Reclaimed Water Expansion, Little Creek	8/14/2006	$1,009,000	Local Government - Municipal	Wake	Neuse
Total Amount Funded		**$115,823,470**			



Overview

- Million Acres Report
- Conservation Easement Program
- North Carolina's Changing Landscape
- Conservation Planning

Million Acres Report 2006

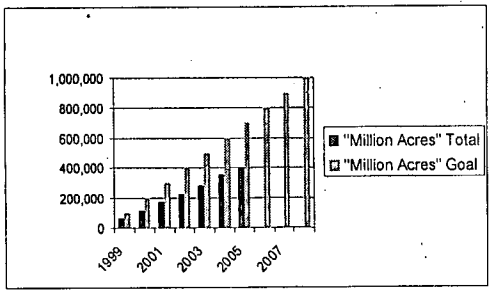
Program Overview

- General Assembly establishes Million Acres Initiative in 1999
  - Requires permanent conservation measures
  - 10 years allowed to acquire additional million acres 1999 - 2009.

The Numbers

- 2005 Acre total 53,431 acres
- Total since January 1999 405,521 acres

Progress Toward Million Acre Goal



CONSERVATION EASEMENT PROGRAM ANNUAL REPORT 2006

ARTICLE 16
Conservation Easement Program

- Conservation Easement Program, 113A-230
- Conservation Tax Credit Program, 113A-231
- Conservation Grant Fund, 113A-232

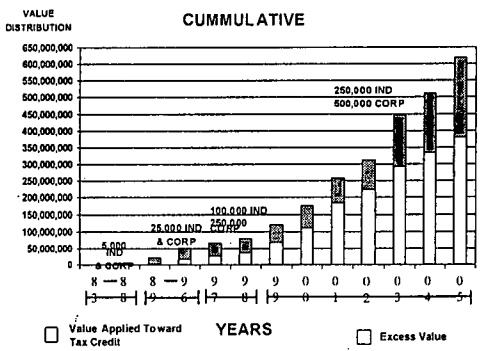
CONSERVATION EASEMENT PROGRAM 2006

- DENR Stewardship Program
  - Conservation Resource Enhancement Program (EEP)
  - Stewardship Analyst

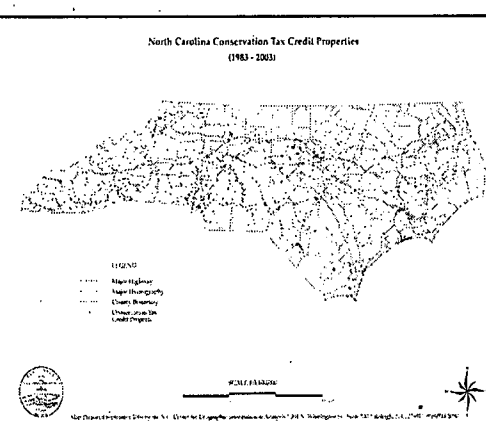
Conservation Grant Fund 2006

- Senate Bill 1117 - Military Support Act

NCCTC PROGRAM STATISTICS



Effective Date 8/15/06



Recommendations
2007 Legislature

- Corporate Donations
  - Pass Through Entities
  - Incentive To Donate
- Other Conservation Purposes Clarified
- Property Appraisal method defined

North Carolina's Changing Landscape

- Population Growth
  - Loss of critical farm and forest lands
  - Loss of habitat
  - Degraded surface waters
  - Reduced Air Quality
  - Land values increasing
  - Loss of our Rural Heritage

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DENR

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  - Integrate natural resource programs
  - Focus effort on coordinating conservation Green Infrastructure
    - Landscape planner
  - Working Lands Conservation
  - Placed Based Economic Development
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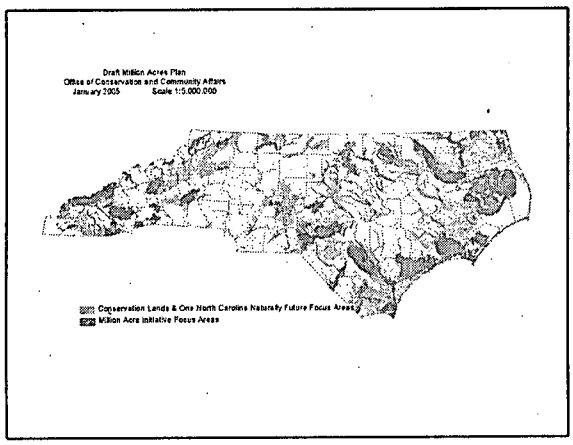
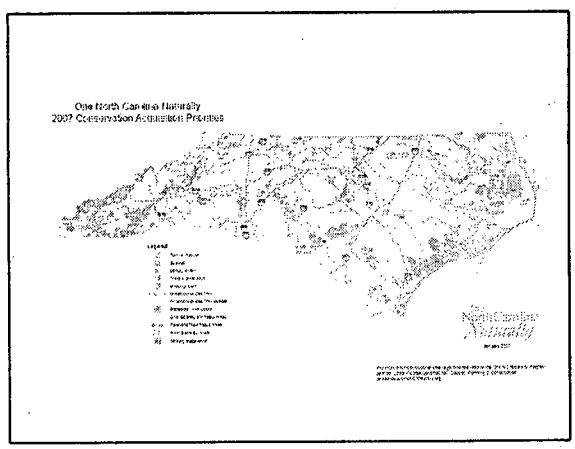
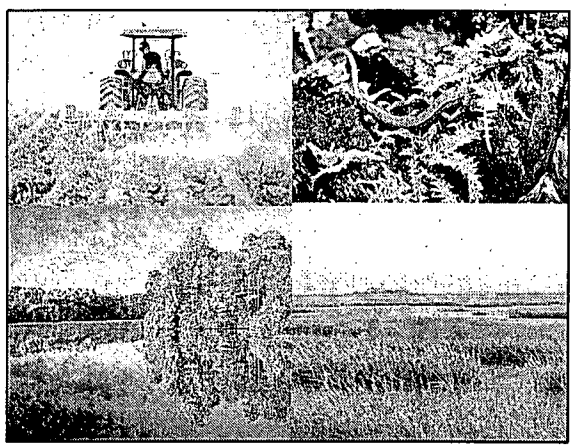
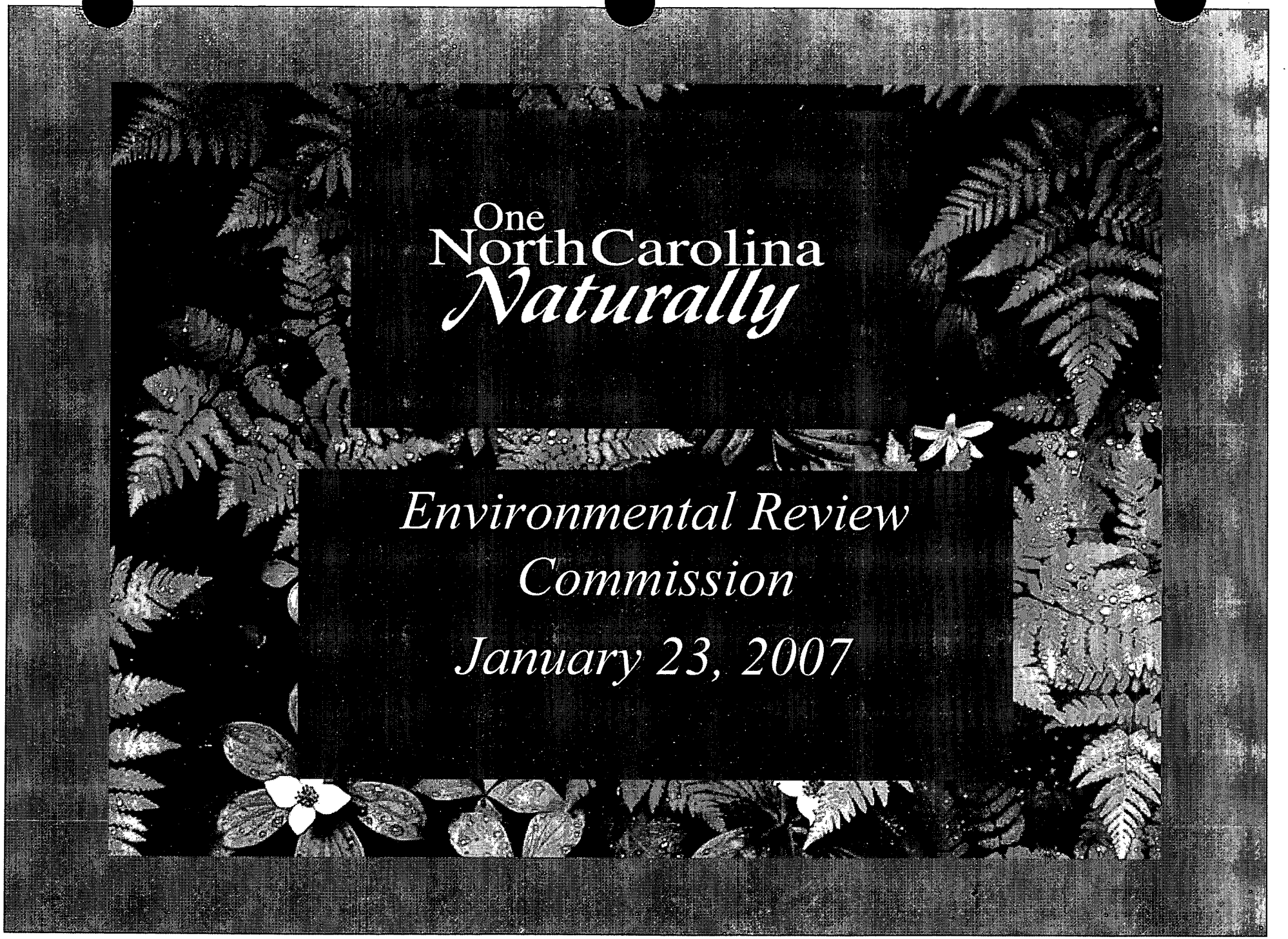







One
North Carolina
Naturally
Environmental Review
Commission
January 23, 2007

Overview

- Million Acres Report
- Conservation Easement Program
- North Carolina's Changing Landscape
- Conservation Planning

Million Acres Report 2006

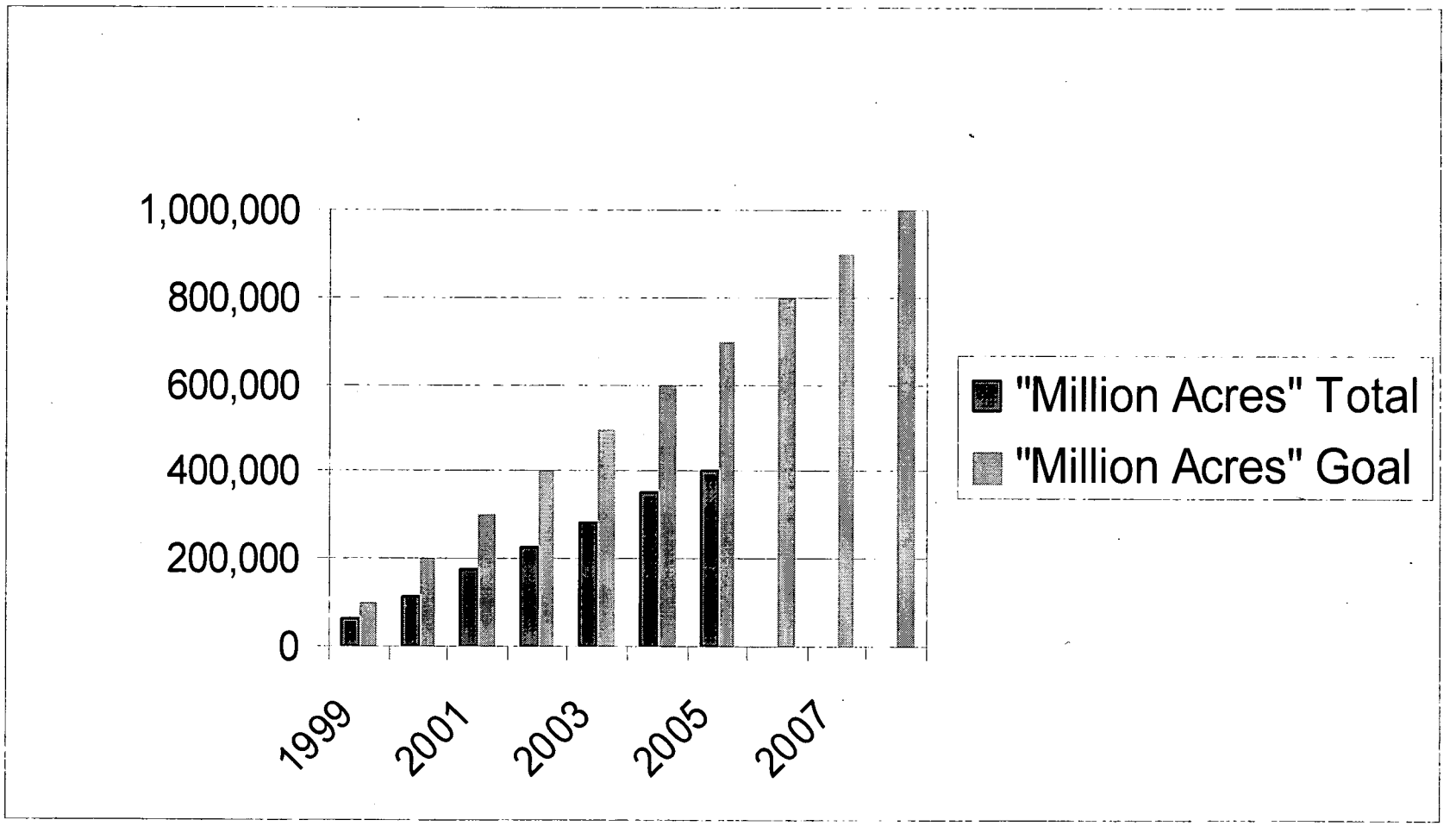
Program Overview

- General Assembly establishes Million Acres Initiative in 1999
  - Requires permanent conservation measures
  - 10 years allowed to acquire additional million acres 1999 - 2009.

The Numbers

- 2005 Acre total 53,431 acres
- Total since January 1999 405,521 acres

Progress Toward Million Acre Goal



CONSERVATION EASEMENT PROGRAM ANNUAL REPORT 2006

ARTICLE 16
Conservation Easement Program

- Conservation Easement Program, 113A-230
- Conservation Tax Credit Program, 113A-231
- Conservation Grant Fund, 113A-232

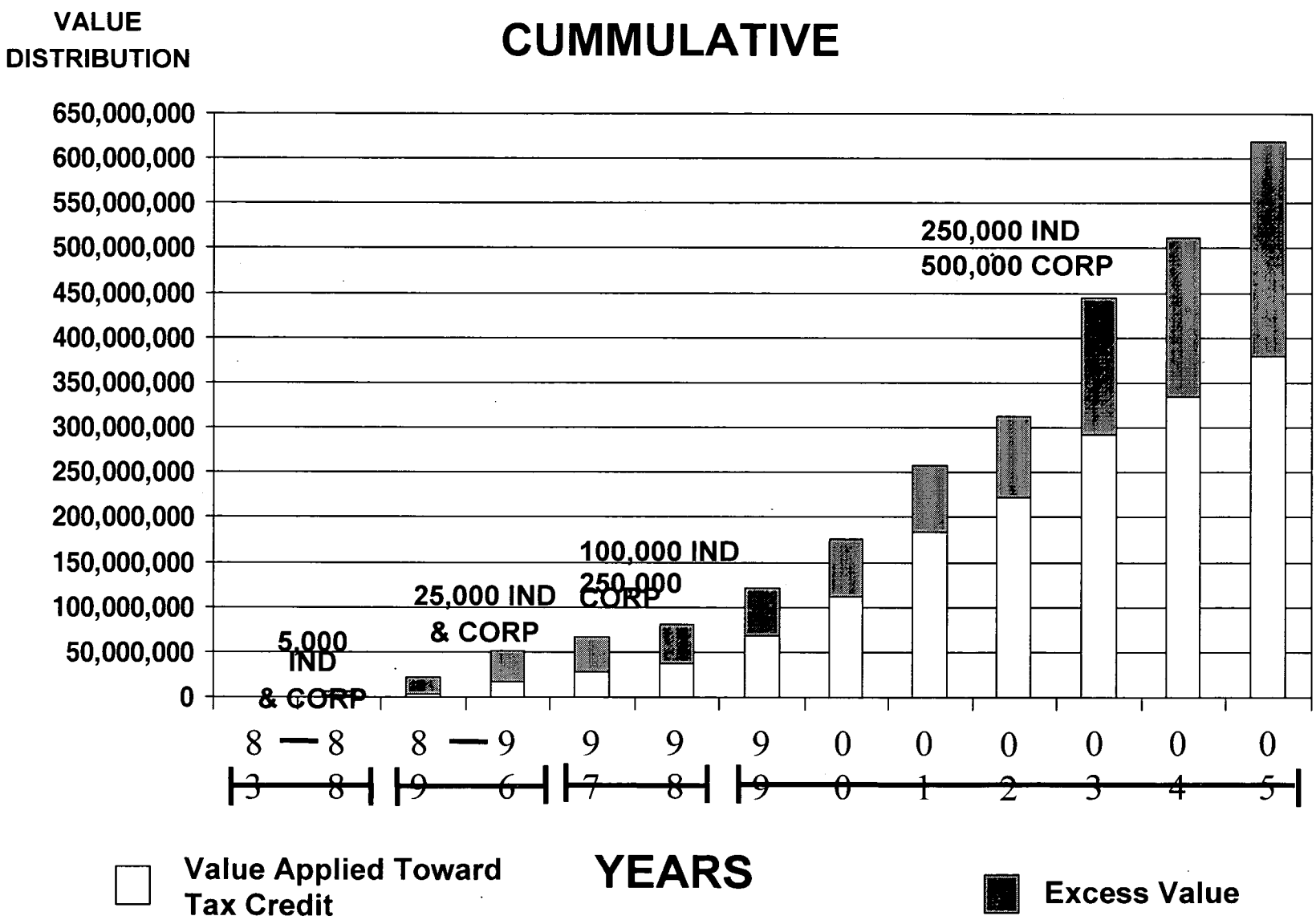
CONSERVATION EASEMENT PROGRAM 2006

- DENR Stewardship Program
  - Conservation Resource Enhancement Program (EEP)
  - Stewardship Analyst

Conservation Grant Fund
2006

- Senate Bill 1117 - Military Support Act

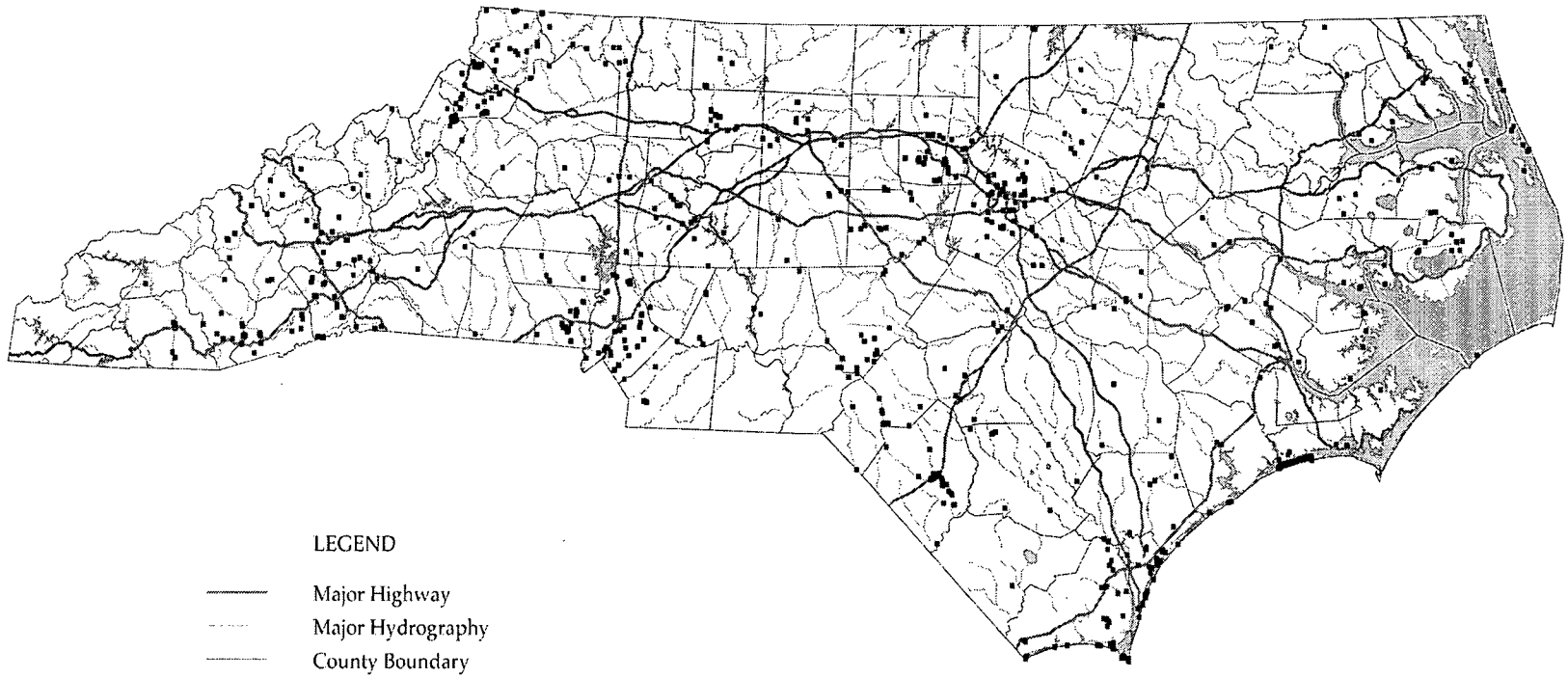
NCCTC PROGRAM STATISTICS



Effective Date 8/15/06

North Carolina Conservation Tax Credit Properties

(1983 - 2003)



LEGEND

- Major Highway
- Major Hydrography
- County Boundary
- Conservation Tax Credit Property

SCALE 1:3,100,000

0 50 100 150 MILES

N W E S

Map Prepared September 2004 by the N.C. Center for Geographic Information & Analysis * 301 N. Wilmington St., Suite 700 * Raleigh, N.C. 27601 * (919)733-2090

Recommendations
2007 Legislature

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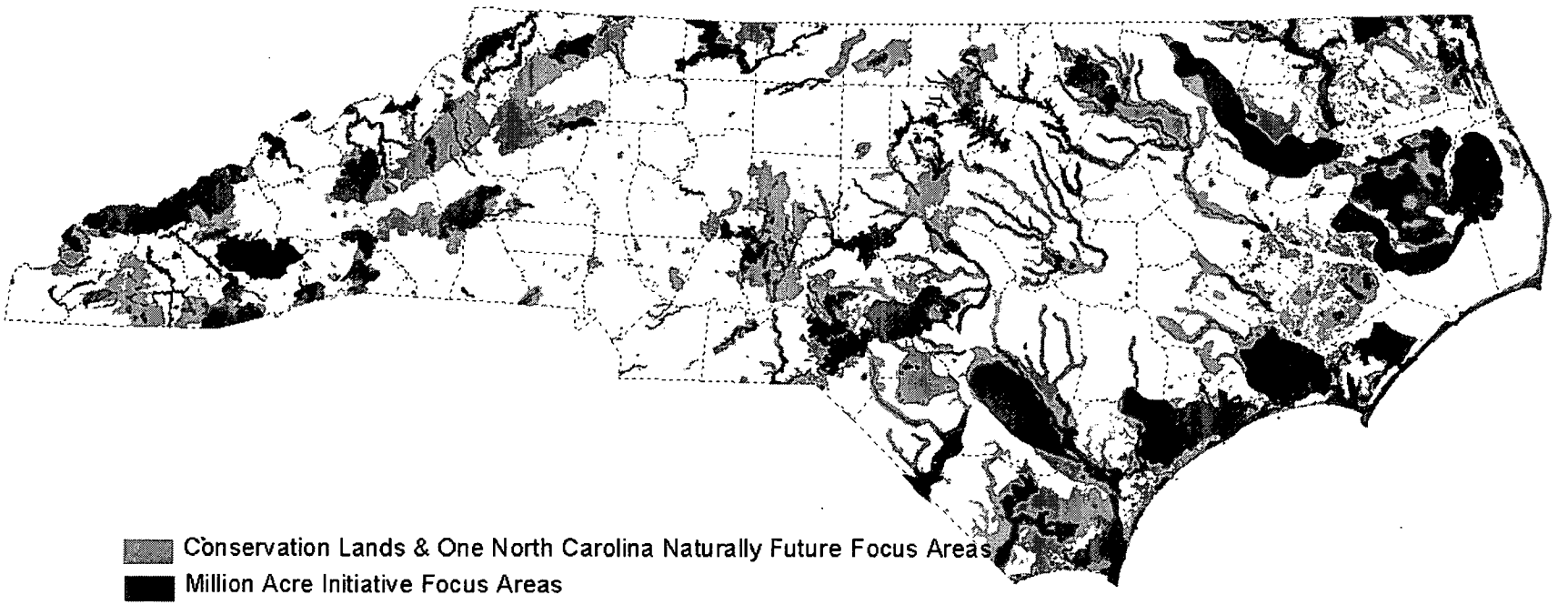
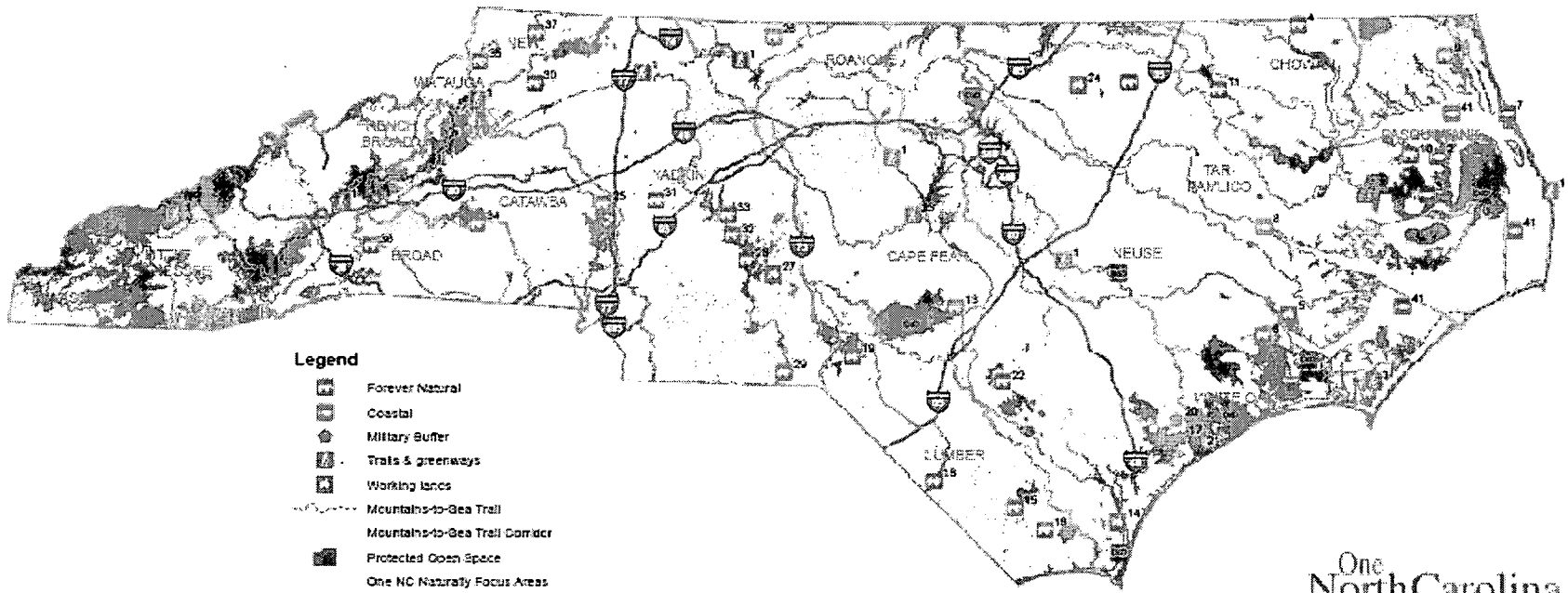
Draft Million Acres Plan
Office of Conservation and Community Affairs
January 2005 Scale 1:5,000,000



One North Carolina Naturally
2007 Conservation Acquisition Priorities



Legend

- Forever Natural
- Coastal
- Military Buffer
- Trails & greenways
- Working lands
- Mountains-to-Sea Trail
- Mountains-to-Sea Trail Corridor
- Protected Open Space
- One NC Naturally Focus Areas
- Farmland Trust Focus Areas
- River Basin Boundary
- Military Installation

One North Carolina *Naturally*

January 2007

For more information/comments regarding this map or the One NC Naturally Program, contact: Linda.Pearsall@ncmail.net, Director, Planning & Conservation or see www.oneNCNaturally.org

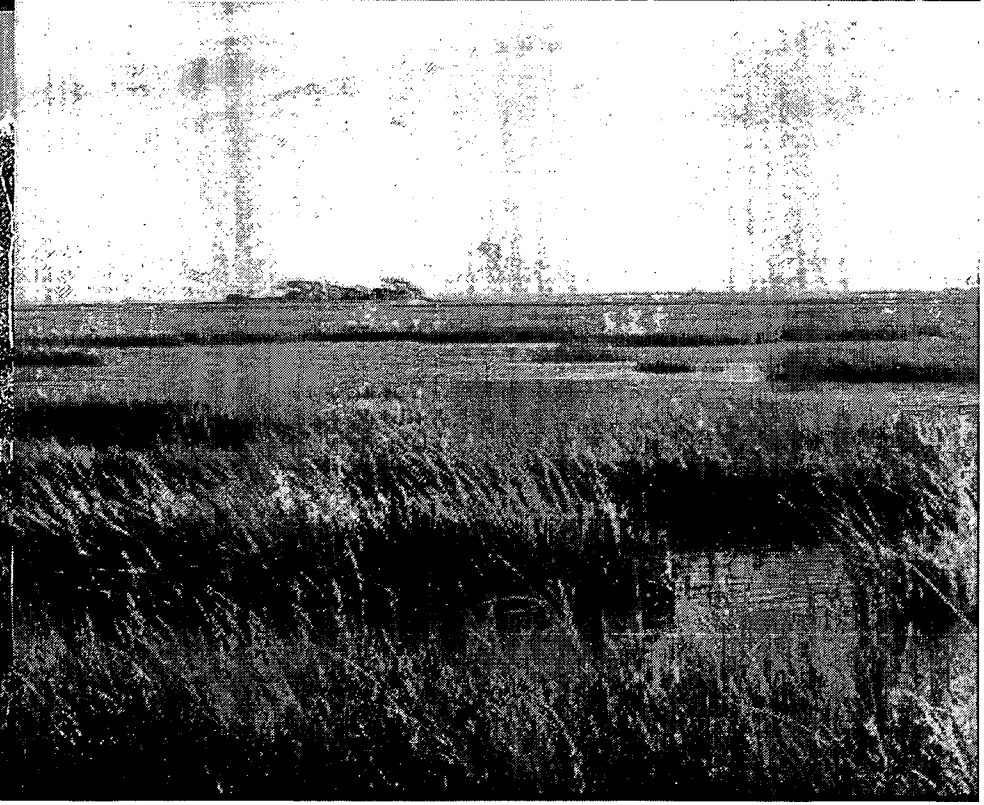


EXHIBIT 1

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

January 22, 2007

MEMORANDUM

TO: Senator Charlie Albertson
Senator Daniel Clodfelter
Representative Pryor Gibson

FROM: Secretary William G. Ross

SUBJECT: Annual Million Acre Report

G.S. 113A-241(c) requires the Department of Environment and Natural Resources to report to the Governor on the state's progress toward attaining the goal of preserving one million acres by the end of 2009. Attached is this year's report. If you have any questions, please contact Richard Rogers in the Office of Conservation and Community Affairs. Richard can be reached at Richard.Rogers@ncmail.net or 715-4152.

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Phone: 919-733-4984 \ FAX: 919-715-3060 \ Internet: www.enr.state.nc.us/ENR

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2006 Annual Report
NC Million Acre Initiative

Presented to the Governor of North Carolina and the Environmental Review Commission of the North Carolina General Assembly

Sept. 1, 2006

By the North Carolina Department of Environment and Natural Resources
Office of Conservation and Community Affairs

The Latest Numbers

At the end of the seventh full year of the North Carolina Million Acre Initiative (Jan. 1, 1999 – Dec. 31, 2005), private and public land protection partners across the state have permanently protected an additional **405,521** "Million Acre" acres. These partners reported adding **53,431** of those acres during the 2005 calendar year. This is a decrease in the rate of land protection in North Carolina from the previous year.

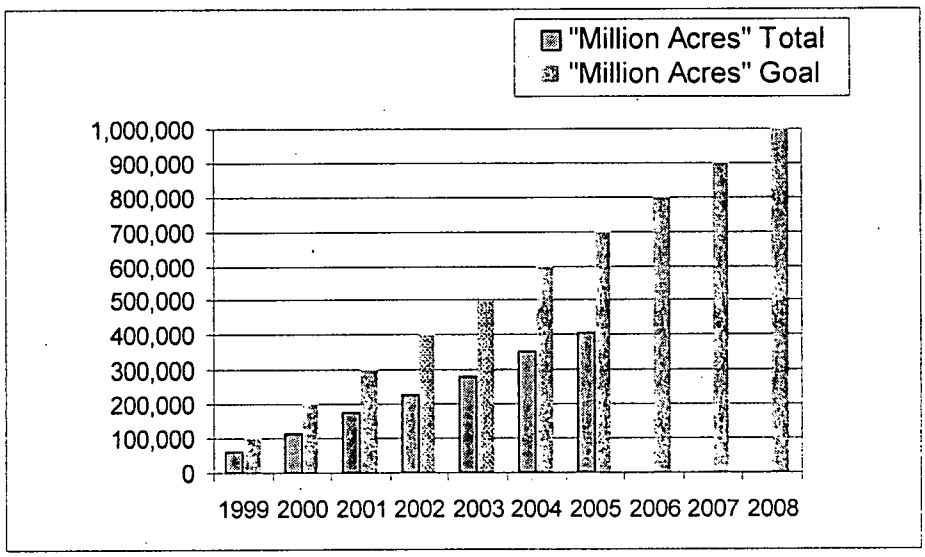
The Clean Water Management Trust Fund (CWMTF), Natural Heritage Trust Fund (NHTF) and Parks and Recreation Trust Fund (PARTF) merit special mention in the Million Acres report, as their contribution to conservation is for the most part not shown in the Million Acres report. This is because the credit for acres gained generally goes to the state agencies, local governments and local land trusts with which the Trust Funds work. For example, since 1996, CWMTF and its partners have helped protect 3,612 miles of riparian buffers and helped preserve 317,529 acres of land. Demand for conservation funding is increasing, as shown by the trend in Clean Water Management Trust Fund applications, which in 2005 set new records in both the numbers of requests (237) and the amount requested ($252 million). The CWMTF was able to award a total of $112 million to 159 projects in calendar year 2005. Similarly, NHTF awarded $28 million in 2005, to help protect 19,469 acres. Since 1987, NHTF has funded protection of 228,949 acres of public lands, held by state agencies and open to the public.

The table at the end of this report describes in detail the number of acres protected by sector (state government, local government, etc.), by program and by time period. To avoid confusion, only official reports of new acquisitions (from surveys, interviews and questionnaires) make it into the final total. Estimations for non-respondents are not included.

The lands protected in 2005 represent important natural areas for habitat, recreation opportunities, working forests, and riparian buffers to maintain water quality and protect floodplains, among others. However, the amount of land protected each year is insufficient to meet the goal of permanently protecting an additional million acres by Dec. 31, 2009 (G.S. 113A-240 and 241). In fact, at its current pace, our land protection efforts do not even match

the rate at which open space is being lost in the state, which currently amounts to about 100,000 acres per year. The primary barrier is the availability of public and private funding for new protection projects. If we intend to meet the Million Acre goal by the end of 2009, more money for land protection must be found. The graphic below illustrates progress toward the Million Acre goal.

Table 1: Progress toward our goal of one million acres of permanently protected open space



One landmark reached in 2005 was the culmination of a five-year agreement establishing a framework for a partnership between DENR, the North Carolina Coastal Land Trust, The Nature Conservancy, and Weyerhaeuser. The terms of the agreement, a Memorandum of Understanding, established standards for corporate management activity during the five-year period, ensuring that the ecological value of specific natural areas owned by Weyerhaeuser would not be compromised while protection was being negotiated. In addition, Weyerhaeuser offered a right-of-first-refusal option to acquire the areas targeted for conservation, if they were earmarked for sale. DENR's Natural Heritage Program identified 7,804 acres of significant natural areas when it conducted inventories of Weyerhaeuser properties in 1998 and 1999. The inventories also provided a critical scientific assessment of the biological value of lands under consideration. The partners saw the agreement as a landmark in cooperative conservation, giving them a chance to work together over a period of years to identify, plan for, and protect the land. Included in the

land protected as a result of the MOU was over 2,585 acres along Swift Creek and the Neuse River at the Weyerhaeuser Company's Cool Springs and Neuse River Floodplain Tracts in Craven County between Vanceboro and New Bern, where the North Carolina Coastal Land Trust established permanent conservation easements. Together these tracts protect over 9.0 miles of frontage along the Neuse River and Swift Creek.

While this project shows the effort and length of time potentially required to conserve the most important lands, it also demonstrates the conservation benefits. In addition to the natural areas conserved through this collaboration, including longleaf pine and swamp forest habitats, much of the Cool Springs Tract itself is presently managed by the Weyerhaeuser Company as a working forest and as a regional environmental education facility. The Coastal Land Trust worked several years to raise almost $3 million in public grants to purchase conservation easements on the Cool Springs Tract. Funding for this project was provided by the North Carolina Clean Water Management Trust Fund, the North Carolina Attorney General's Environmental Enhancement Grant, and the U.S. Department of Agriculture's Forest Legacy Program. As an indication of its commitment to conservation, Weyerhaeuser Company donated a conservation easement on the nearby 927-acre Neuse Floodplain Tract.

The Program

In addition to working to increase the rate at which land is being protected in North Carolina, the Million Acre Initiative continues to work towards making information about land protection tools and techniques more broadly available, and to encourage conservation planning. The Million Acre Initiative, as part of the One North Carolina Naturally program, and with other partners, continues to slowly but steadily increase awareness among North Carolinians about the need for additional land conservation to protect our valuable natural ecosystems.

The Office of Conservation and Community Affairs has demonstrated its commitment to working lands by assigning a staff position to coordinate and implement working lands protection. The coordinator, based in the Piedmont, will work statewide. Projects already

underway include Soil & Water Conservation and Forestry Information Day events; increasing working lands activity for Districts by assisting with Voluntary Agricultural Districts; encouraging the development of county Agriculture Protection Plans; and working with partners to develop criteria to help identify priority farmlands for conservation.

In the coming months the Million Acre Initiative and the One NC Naturally program will work to implement recommendations from local public input. The One North Carolina Naturally Program continues to work with regions to determine appropriate next steps and to develop implementation strategies for the various regional plans. Specific projects will vary depending on the needs within each region, but in addition to the working lands coordinator mentioned above, the Office of Conservation and Community Affairs has assigned a coordinator for resource-based economic development based in the Mountain region, and another coordinator based in the Coastal region to implement and coordinate the Coastal Habitat Protection Plans (CHPPs).

The Million Acre Initiative itself has identified potential focus areas for reaching the goal in a manner that maximizes benefit to biodiversity conservation. Within the N.C. Natural Heritage Program 'Macrosites' are approximately 3 million acres of unprotected land – areas that contribute to ecosystem function for clusters of natural areas and/or managed conservation lands. These areas include undeveloped and little-degraded lands, as well as farmland and working forests that buffer natural areas and connect habitats. This approach helps focus protection of open space, without specifically targeting one million acres of private land. While the Million Acre Initiative has been working to identify targeted areas for conservation, other planning efforts are underway, including the One North Carolina Naturally initiative and the Wildlife Action Plan.

Looking Ahead

The 53,431 acres permanently protected in 2005 was a disappointingly small step forward, in some respects, and it looks as though 2006 will also be a tough year for new land protection

projects. The limits in North Carolina's conservation funding remain a challenge. The General Assembly did not include any substantial additional funding for land acquisition in 2005. The 2006 Capital Improvements budget earmarked $15 million for Hickorynut Gorge State Park -- the only land conservation project specified in the budget. The money for Hickorynut Gorge is a good start, as is fully funding the North Carolina Clean Water Management Trust Fund, but with little federal money available, the burden for land protection falls squarely within the State.

In regard to current federal disposition toward conservation lands, one event that occurred in early 2006 demonstrated that the public has strong commitment to land conservation. The President's 2007 Budget for the U.S. Forest Service included a legislative proposal that would sell more than 300,000 acres of National Forest – lands considered 'protected" by most – to continue a federal program that supplements payments to rural schools in heavily forested counties. Almost 10,000 acres were identified for sale in North Carolina, but public outcry prompted Congress to reject the proposed sale. Governor Mike Easley also expressed strong opposition to the sale, writing to the U.S. Department of Agriculture and noting that the proposal came just as the state is working on a long-term strategy to preserve a million acres statewide by 2009. The U.S. Department of Agriculture has indicated that this proposal may return next year, and the State will have to be dedicated to both adding new lands, and remaining vigilant about lands already protected.

As noted in last year's report, it will be difficult to meet the Million Acre goal without a working lands component that helps to maintain local production of agriculture and forest products. Of particular interest would be a dedicated source of funding for conservation of North Carolina's farms and forest lands. There have been numerous suggestions for ways to generate funding, and it is time to examine some of these suggestions more closely.

In building momentum for additional conservation funding, the Land for Tomorrow Coalition was successful in catalyzing Senate Bill 1122, the "Land and Water Conservation Study." This act creates the Land and Water Conservation Study Commission to evaluate current sources of conservation funding, collect information on tools to protect land and water, draft a report

summarizing research and making recommendations, hold public meetings and present to the General Assembly and the Environmental Review Commission on or before Feb. 1, 2007.

Beautiful landscapes, mild climate and hospitable people draw new residents to our State, as does the strong and diverse economy. To be honest, most of us probably take these landscapes for granted. However, North Carolina's population is projected to increase 50% over the next 25 years. At the current rate of development, 4 million new residents will translate to 8 million acres developed. While we can't say for certain how much land will be permanently altered in the next 25 years, it is safe to say that much of the development is likely to occur on lands that currently have forests or farms – destroying open spaces around larger urban areas. In order to ensure the ecological health of North Carolina, we need to not only step up the rate of land protection, but to identify which lands should be conserved, and which lands are best suited for development to accommodate our new residents. As development pressures intensify and land prices increase, so does the importance of protecting our high priority conservation areas, be they wildlife habitats, areas for passive recreation or water quality protection, or places that supply us with food and fiber. Some of the prioritization could be achieved by combining information from sources such as the Wildlife Action Plan, proposed greenways and trails, Significant Natural Heritage Areas, identified priority agriculture and forestry lands, the Land for Tomorrow Coalition five-year plan, Coastal Habitat Protection Plans, buffers for military bases, Million Acre Initiative, ecological 'connectors'/wildlife corridors, etc. into a green infrastructure plan for the One North Carolina Naturally initiative.

The concept of green infrastructure represents an interconnected green space network designed for its natural resource values and for associated benefits to human populations, and such a comprehensive conservation plan can help us see how individual green spaces and working landscapes across North Carolina fit together into an essential network for ecological and public health. The term was coined to elevate the attention of the areas that provide our natural life-support system to the same level as "Gray Infrastructure." What if our local and state government decision-makers put as much effort into planning and protection of green infrastructure as they do into the planning and upkeep of roads, sewer lines, and buildings? With the anticipated influx of new residents, and the importance of open space for the natural

environment and public health, this idea should be given serious consideration. The green infrastructure approach can also emphasize the economic value of protecting natural lands to better communicate this viewpoint to public officials.

Understanding the interrelationships among the priority areas for conservation will help us target our protection efforts so that we maximize the cost effectiveness and the natural protection value of our investment, and improve North Carolina's quality of life. As tens of thousands of acres each year are permanently altered from their existing natural condition for new development, increased awareness about the importance of setting aside some portion of our critical and unique lands is essential. A combination of planning and coordination at the local, regional and state level, with adequate funding incentives to implement the plans, is crucial. The partners listed in the attached summary table will no doubt continue their efforts, and the One North Carolina Naturally program will look for ways to expand land conservation efforts, and make the future greener for our state.

Acres Under Permanent Protection

(note: a blank cell means no data were collected. 0 means no land was protected)

State Agency	category	Acres Protected 1/99 - 12/03	Acres Protected 1/04 - 12/04	Subtotal through 12/04	Acres Protected 1/05 - 12/05	"Million Acre" Total
DENR - FOREST RESOURCES	state forest	5,716	1,117	6,833	1,028	7,861
DENR - SOIL AND WATER	conservation reserve enhancement program	1,870	376	2,246	524	2,770
	hog farm buyout	1,027	386	1,413	256	1,669
WILDLIFE RESOURCES	game lands	61,273	33,721	94,994	10,740	105,734
DENR - Ecosystem Enhancement Program(*)	wetlands & riparian mitigation	1,528	7,776	9,304	2,160	11,464
DENR - PARKS AND REC.	state park	21,333	2,218	23,551	6,172	29,723
	state natural area	2,398	2,831	5,229	775	6,004
	state trails				765	765
	state rec area	2	0	2	0	2
DENR - COASTAL MNGMT.	coastal reserves	28,961	0	28,961	0	28,961
	submerged lands	0		0	0	0
DoA&CS - PLANT INDUSTRY	state nature preserve	9,011	517	9,528	19	9,547
	other lands					
DCR - HISTORIC SITES	state historic sites	543	23	566	73	639
STATE UNIVERSITY SYSTEM	university property					
SUBTOTALS		133,662	48,965	182,626	22,512	205,138
Local Governments						
CITY AND COUNTY GOVERNMENTS (**)	parklands, greenways, watershed protection, etc.	17,435	2,159	19,594	2,342	21,936
SUBTOTALS		17,435	2,159	19,594	2,342	21,936
Federal Agency						
US FISH AND WILDLIFE SERVICE	national wildlife refuge	10,250	2,429	12,679	0	12,679
USDA FOREST SERVICE	national forests	6,443	336	6,779	305	7,084
USDA-NRCS WETLAND RESERVE PROGRAM	wetlands reserve	9,530	899	10,429	1,761	12,190
NATIONAL PARK SERVICE	national park	6,675	872	7,547	93	7,640
SUBTOTALS		32,898	4,536	37,434	2,159	39,593
Local Land Trusts						
NC LAND TRUSTS (***)	protected lands	64,152	10,149	74,301	19,654	93,955
SUBTOTALS		64,152	10,149	74,301	19,654	93,955
Other Conservation Groups						
THE NATURE CONSERVANCY(****)	nature preserves	20,698	4,944	25,642	3,242	28,884
AUDUBON SOCIETY	nature preserves	0	0	0	0	0
AMERICAN FARMLAND TRUST	farmland	0	0	0	0	0
PRESERVATION NC	historic preservation	636		636	44	680
NC COASTAL FEDERATION(*****)	nature preserves	5,223	252	5,475	2,878	8,353
DUCKS UNLIMITED	waterfowl habitat	5,935	446	6,381	600	6,981
SUBTOTALS		32,492	5,642	38,134	6,764	44,898
TOTALS		280,639	71,451	352,090	53,431	405,521

*Formerly Wetlands Restoration Program. EEP closed on 9,457 acres in 2005; 7,297 of those acres are held by other state agencies or land trusts.

**Local governments include LWCF projects closed, PARTF projects funded, CWMTF local projects closed, and counties that responded to information requests.

***25 local land trusts that regularly partner with the Conservation Trust for North Carolina. Local land trusts also conveyed 6,918 acres to local, state, and federal government in 2005, and assisted in partnership or facilitated the purchase of 6,446 acres of protected lands.

****The Nature Conservancy closed on 8,633 acres in 2005, including 1,238 acre Shelter Swamp property, counted here. During the same period, TNC transferred 6,146 acres to the State of North Carolina.

*****NC Coastal Federation 2005 figures include 1,443-acre Quaternary tract, to be transferred to WRC

Prepared by NCDENR (SMP) September 1, 2006

EXHIBIT J

CONSERVATION EASEMENT PROGRAM

ANNUAL REPORT

TO THE

ENVIRONMENTAL REVIEW COMMISSION

November 1, 2006

Pursuant to NC G.S. 113A-235(c), the Department of Environment and Natural Resources reports to the Environmental Review Commission each year on the implementation of Article 16, the Conservation Easement Program. This Article, 113A-230 through 113A-235, includes enabling legislation for a program for conservation easement promotion/education, conservation tax credit promotion/education and quality assurance of conserved lands, and enabling legislation for a conservation grant fund. The following reports on these programs.

NC Department of Environment and Natural Resources

THE YEAR IN SUMMARY

Over the past year significant progress has been made in the development and integration of the programs within Article 16.

Conservation Easement Stewardship. The use of conservation easements continues to grow, although the rate of growth has slowed. The department (DENR) began stewardship of some of its conservation easements this year, and plans to expand its activities for stewardship oversight incrementally.

Conservation Tax Credit Program. The number of acres and estimated value of donations of interests in real property donated for conservation purposes remains stable, but has not grown in several years. Over the last year, applications for certification have been approved for the conservation of 15,000 acres, which brings the total conserved acreage to 154,000 for the duration of the program. Also, last year the tax credit facilitated bargain sales to the state at prices $46.7 million below appraised market value.

Conservation Grant Fund. Two of this conservation tool's grants programs received funds for the first time this year. The Military Support Act will make grants from a one-time appropriation for transaction costs associated with the buffering of military training areas with compatible land uses, and annual stewardship monitoring grants began on conservation easements held by the Ecosystem Enhancement Program.

ANNUAL PROGRAM UPDATE

Conservation Easement Program 113A-230. Having been established in 1997, this program is administered as part of the NC Conservation Tax Credit Program (NCCTC). The Conservation Easement (CE) program is intended to use promotion, education, and quality assurance to increase the use of conservation easements as a tool to accomplish conservation goals, such as the Million Acre Initiative. A graph (Attachment A) of NCCTC Program Statistics shows the increasing use of conservation easements through this program, due primarily to the growing acceptance of CEs within the farming and forestry communities. Further, CEs are a key element of the Clean Water Management Trust Fund, Ecosystem Enhancement Program, and Conservation Reserve Enhancement Program as the mechanism for water quality protection in most transactions. Also, CEs are held by programs such as State Parks, Coastal Reserves, and Forest Legacy as a tool for accomplishing their missions.

In 2005 the Department began taking the first steps toward funding conservation easement quality assurance related activity. With the increasing number of CEs generated through the Clean Water Management Trust Fund, Ecosystem Enhancement Program, Conservation Reserve Enhancement Program, and other programs, comes a growing responsibility for monitoring and effective management of their conservation values. This was begun in 2006 as a centralized receipts-based program supported by

any agency prepared to make payments into the Conservation Grant Fund Endowment to cover administrative/management costs. The intent is to expand this Stewardship Program incrementally until all conservation easements held by the State are assured proper monitoring and management of their public purposes and values.
At this writing, two agencies have contracted to participate in the Stewardship Program: the Ecosystem Enhancement Program, and the Conservation Reserve Enhancement Program. Beginning in 2007 two additional stewardship monitoring expansions will be pursued: (1) All DENR agencies that hold CEs received through the NCCTC Program will submit annual stewardship monitoring reports, and (2) all private nonprofit land trusts will be asked to confirm their stewardship monitoring of CEs received through the NCCTC Program.

To accomplish optimum use of conservation easements by private landowners and to realize their related economic advantages, the program needs to provide more than superficial information and guidance. While a more substantial and in-depth outreach program could greatly increase the use of conservation easements, as seen on the referenced graph after 1997, it will also require more attention to the costs and complexities of conservation easement drafting and stewardship. By combining the CE Program with the NCCTC Program, the Department operates a limited CE Program (promotion and education), yet the conservation benefits of CEs cannot be optimized without attention to existing administrative constraints.

Conservation Tax Credit Program 113A-231. The State's Conservation Tax Credit was established in 1983 and this Department's role was passive, to respond to donor's applications for certification of their gifts of interests in real property for conservation purposes. In 1997 the Department received the authorization to begin a non-regulatory program of education/promotion to increase the use of conservation tax credits. Over the last ten months NCCTC/CE presentations were made at workshops organized by other groups for landowners and land related professionals, and the NCCTC display was sent to other workshops or conferences.

Graphs (Attachments B & C) of NCCTC Program Statistics show the acreage and estimated value of donations over the duration of the program. Cumulatively, more than 154,000 acres valued in excess of $617 million has been donated. A table (Attachment D) of donations by County shows that there have been donations in eighty-eight of the State's counties.

Over the duration of Conservation Tax Credit use, it has leveraged the donation of $230 million of excess value that was above the amount that could be used to create the maximum credit allowed (Attachments E, F, & G).

Further, when used in conjunction with bargain sales, the conservation Tax Credit (Attachments H & I) can yield substantial savings for conservation trust funds, local governments, and nonprofit organizations purchasing land. For example, in 2005 alone, the gift portion of bargain sales to the State that qualified for the Conservation Tax Credit allowed the acquisition of conservation lands by the state at a price $46.7 million below

appraised market value. Over the duration of the program, all grantees have saved more than $131 million through bargain sales facilitated by the tax credit incentive.

The Department has the statutory responsibility to protect real property and interests in real property conserved in perpetuity by State incentive programs. Fulfillment of this responsibility will require monitoring of these properties to assure that their conservation purposes are not jeopardized. The new but limited stewardship monitoring (quality assurance) program discussed under Conservation Easement Program, above, needs to be expanded incrementally to all conserved properties (both CE and fee simple). The current absence of permanent, full time staff and line item budget prohibit implementation of these activities to further protect the public's conservation assets.

The increasing benefits from the Conservation Tax Credit Program have been derived mostly from increases in the maximum tax credit allowed. Nevertheless, steadily increasing land values reduce the incentive offered by the Conservation Tax Credit over time. Therefore, the maximum credit allowed must increase periodically to retain the program's effectiveness.

The Conservation Tax Credit is currently applied against State income taxes. Yet, there are landowners that cannot use this conservation incentive because they are required to pay other types of taxes. Consideration might be directed toward broadening the types of taxes to which the credit can be applied.

A more substantial and in depth outreach program could greatly increase donations of real property for conservation purposes from the use of conservation tax credits. To date the Department has provided minimum support for this function while the Conservation Tax Credit Program has operated in a limited fashion in the absence of permanent, full time staff or line item operating budget. This is a continuing limitation on the program's potential success.

Conservation Grant Fund 113A-232. Established in 1997, it was intended to stimulate the use of conservation easements, to improve the capacity of private nonprofit land trusts and agencies to successfully accomplish conservation projects, to better equip real estate related professionals to pursue opportunities for conservation, to increase private landowner participation in land and water conservation, and to provide an opportunity to leverage private or other public monies for the stewardship of conservation easements. To date the Department has not received an appropriation to actualize the complete menu of Conservation Grant Fund activities and address the structural weaknesses it was intended to correct.

In 2005, actions were taken to start up two of the Conservation Grant Fund's functions. (1) The General Assembly approved one-time funding in the amount of $1,000,000 for the transaction cost function. This will be directed to the conservation of land that buffers military bases and training areas with compatible land uses. These Military Support Act funds became available in July of 2006, and the first grant cycle will be completed by the end of the year. It appears that approximately $316,000 will be

expended in the first cycle on five projects. Grant cycles will continue until available funds are expended. This program is explained in more detail in (Attachment J). (2) The Department began the process of creating a centralized program that assures proper quality assurance (monitoring and management) of the conservation easements held by its agencies, as part of the stewardship cost function. The Stewardship Program became operational in 2006 as a receipts based operation involving the Ecosystem Enhancement Program and the Conservation Reserve Enhancement Program. An administrative position for this program has been approved, will be funded out of receipts, and will be filled in 2007. Further Stewardship Program expansion involves DENR agencies and private nonprofit land trusts being asked to report their annual stewardship monitoring of CEs received through the NCCTC Program beginning in 2007, at no cost to the Conservation Grant Fund. Until a continuing source of funding can be secured, additional expansion of this program of conservation quality assurance in perpetuity will be constrained.

RESULTS FROM 2006 LEGISLATIVE SESSION

SB 521 carried over from the 2005 Session. While it was not ratified, it was supplanted by Session Law 2006-66, Section 24A.4.(a)(2) which required the Revenue Laws Study Committee to review: "The effectiveness of the tax credit for certain real property donations" and report to the 2007 General Assembly. DENR and the Department of Revenue (DOR) are preparing recommendations for several minor amendments to clarify administrative issues related to the jointly administered NCCTC Program.

RECOMMENDATIONS FOR SUBSTANTIVE LEGISLATION IN 2007

As a result of the ongoing Revenue Laws Study Committee Review, it appears that three topics will be the focus of attention for possible NCCTC amendments.

(1) **NCCTC For Partnerships (Pass Through Entities).** A recent amendment to Department of Revenue (DOR) statutes, governing the way all pass through entities may claim tax credits, deferred its effect on the NCCTC until 1/1/2005 and that has since been extended until 1/1/2006 and then 1/1/2007. At that time, partnerships and other pass through entities will be limited to a maximum allowed credit of $250,000 for donations under the NCCTC, regardless of the value of the donated interests in real property. This has the potential to be a significant disincentive on the scale of donations and gift portion of bargain sales. Under consideration to address this loss of incentive is allowing pass through entities to claim the same maximum allowed credit ($500,000) as other corporations, with each pass through recipient limited to the maximum individual NCCTC of ($250,000) or portion thereof, would partially address the loss of incentive to the NCCTC. The effective date of such amendment should be 1/1/2007.

(2) **Qualifying Conservation Purposes**. Under current law, the qualifying conservation purposes include the catch-all phrase, "other similar land conservation purposes." Differences in the statutory construction of this phrase developed between DENR and DOR. Under consideration to address

this discrepancy is elimination of this phrase and substituting six new, specific conservation purposes: forestland or farmland conservation, watershed protection, conservation of natural areas as that term is defined in G.S. 113A-164.3(3), conservation of natural or scenic river areas as those terms are used in G.S. 113A-34, conservation of predominantly natural parkland, or historic landscape conservation.

(3) **Appraised Value**. Concerns regarding the accuracy of the stated fair market value of donated property have also risen. Current law does not require any specific documentation, other than a certification by DENR of a proper conservation purpose. The DOR has reported problems associated with taxpayer use of restricted appraisal reports to establish the fair market value of the donation. Restricted appraisal reports are reports done specifically for one person and contain little or no information relied upon by the appraiser to formulate the property's value. Under consideration to address this issue is requiring a taxpayer claiming the credit to submit as support for the credit either a self-contained or a summary appraisal report, which are two types of reports defined by Standards rule 2-2 of the Uniform Standards of Professional Appraisal Practice and required to have certain information included supporting the valuation determination. A taxpayer may elect, for fee simple donations of property only, to use the county's appraised value of the property as adjusted by the sales assessment ratio.

OTHER TOPICS FOR CONSIDERATION

Through management of the NCCTC Program and observation of evolving approaches to conservation through incentives, a number of topics may deserve consideration. The following could improve administration of the NCCTC and/or the incentive offered by the state for donation of interests in real property for conservation purposes.

(A) **Reports.** Since its inception, Fiscal Notes for proposed amendments to the NCCTC have been problematic because of the limited available data. DOR and DENR have previously agreed to several achievable data items that could be reported annually. This includes the: (1) number of taxpayers that claimed a credit, and (2) total cost to the General Fund of the credits claimed. This is useful information in its own right and is worth pursuing. Nevertheless, it would be greatly enhanced by knowing the difference between the total value of credit available, and the total value actually used to offset tax liability. This information would provide a depth of insight needed for ongoing refinement of the NCCTC.

(B) **Corporate Incentive To Donate**. Since its creation in 1983, the NCCTC has only been applied against income taxes. With the sunset provision for how corporate passthrough entities claim tax credit, some of the incentive for conservation donations will be eliminated. One approach for regaining the breadth of NCCTC applicability would be to allow the credit to be used against Franchise Tax and Gross Premium Tax. This would appeal to corporate landowners that may be otherwise constrained from

considering the donation of real property for conservation purposes, because they are not required to pay income taxes or they have limited income tax liability.

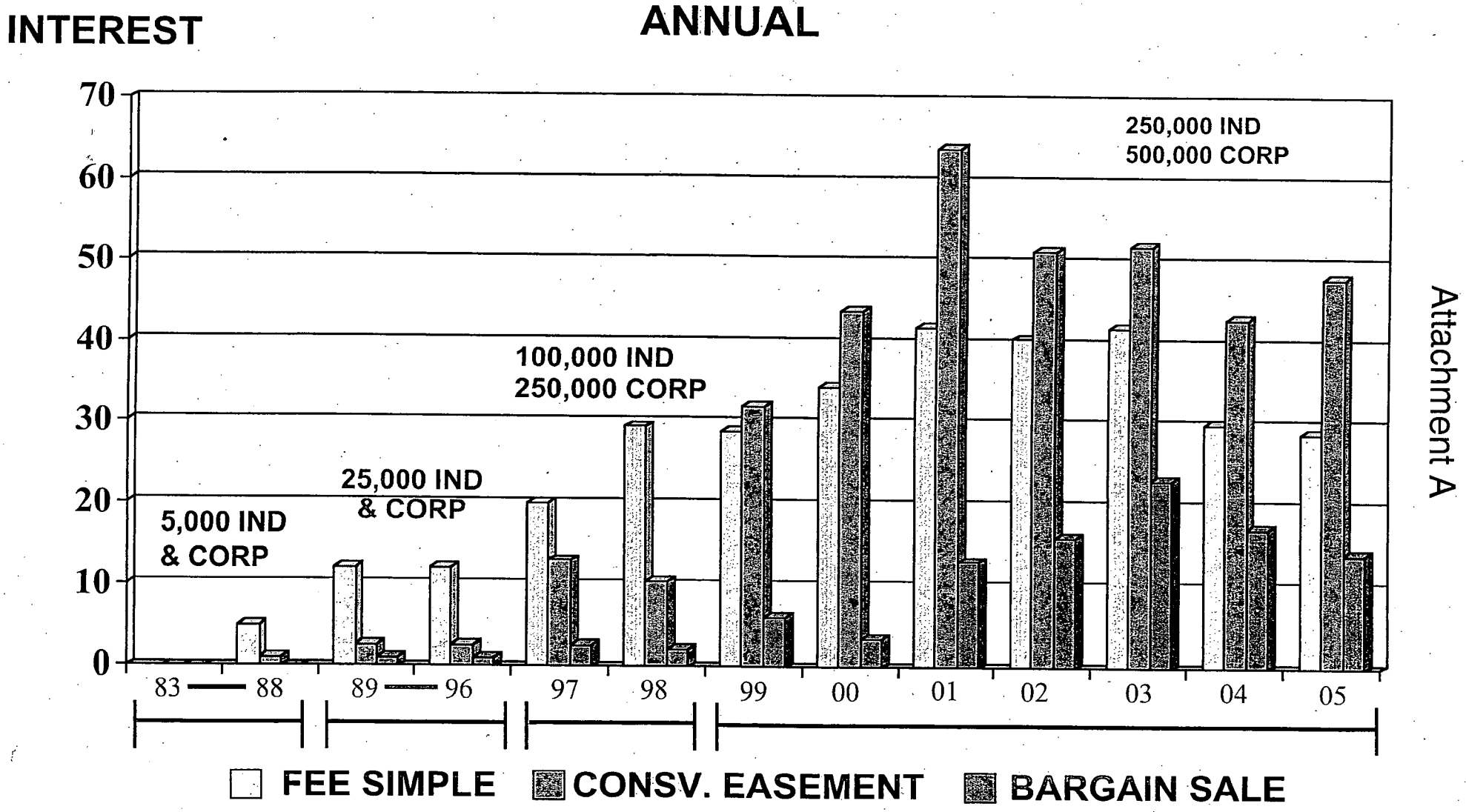
(C) **NCCTC Refundability.** The NCCTC was created as an incentive for landowners to donate interests in real property for conservation purposes. While the concept has been very successful and has been emulated in other states, there is still a category of landowner that finds little incentive in the program. "Land-rich and cash-poor" landowners [typically owners of working landscapes such as farms and forests] receive disproportionately low return from their conservation donation for a tax credit. Several states with more recent conservation tax credit programs have addressed this issue by authorizing "transferability" for their tax credits, but this involves a considerable administrative workload. The issue could be addressed more simply through "refundability," where those donors with larger income tax liabilities will have the option of electing a credit, while those donors with lower income tax liabilities will have the option of electing a partial refund. As proposed, a 50% refund of any remaining credit amount would be authorized after the second year of carry forward (third year including the year of donation). In this way, land-rich and cash-poor landowners would have more incentive to donate interests in real property for conservation purposes. If enacted, it would be three years before any refunds were paid.

(D) **Index Credit Cap.** Since its establishment in 1983, the maximum credit allowed for the NCCTC has been raised three times (1989, 1997, and 1999). Further requests for increases are inevitable as increasing property values decrease the incentive provided by the NCCTC. These dynamics can be addressed by indexing the credit cap. The incentive to donate would then be stabilized relative to land value, and repetitive legislated increases would be avoided. As proposed, an increase equal to 75% of the Consumer Price Index (CPI) would be calculated from the last year of credit cap increase, with the cap increasing incrementally in the year following a cumulative increase of $25,000 for individuals and $50,000 for corporations. If previously enacted: since the last credit cap increase occurred in 1999, the index threshold would have been passed in 2004, would have been announced in 2005, and 2006 would be the year an automatic indexed increase took effect. Thus, a credit cap increase is due, to avoid a loss of incentive for voluntary donations of interests in real property for conservation purposes. In the absence of indexing authority, an increase in existing credit caps to $275,000 for individuals and $550,000 for corporations is timely.

(E) **Charitable Purpose Flexibility.** To be eligible for a NCCTC, the donated land must yield one or more of the required public conservation purposes. Nevertheless, minor parts of donated tracts may not contribute to the conservation purpose and may not be allowed to be converted to another purpose without conflict with the tax credit statues. While it would be inappropriate to allow wholesale or unsupervised conversion of

conservation properties to other uses, there may be justification to consider allowing small parts that do not contribute to conservation purposes to be converted to another charitable purpose under a specific process of checks and balances administered by the NCCTC Program. This flexibility would be consistent with the concept of providing incentives for community based charitable activity, while allowing compatible but diverse land uses, without jeopardizing the public conservation benefits required by the NCCTC.

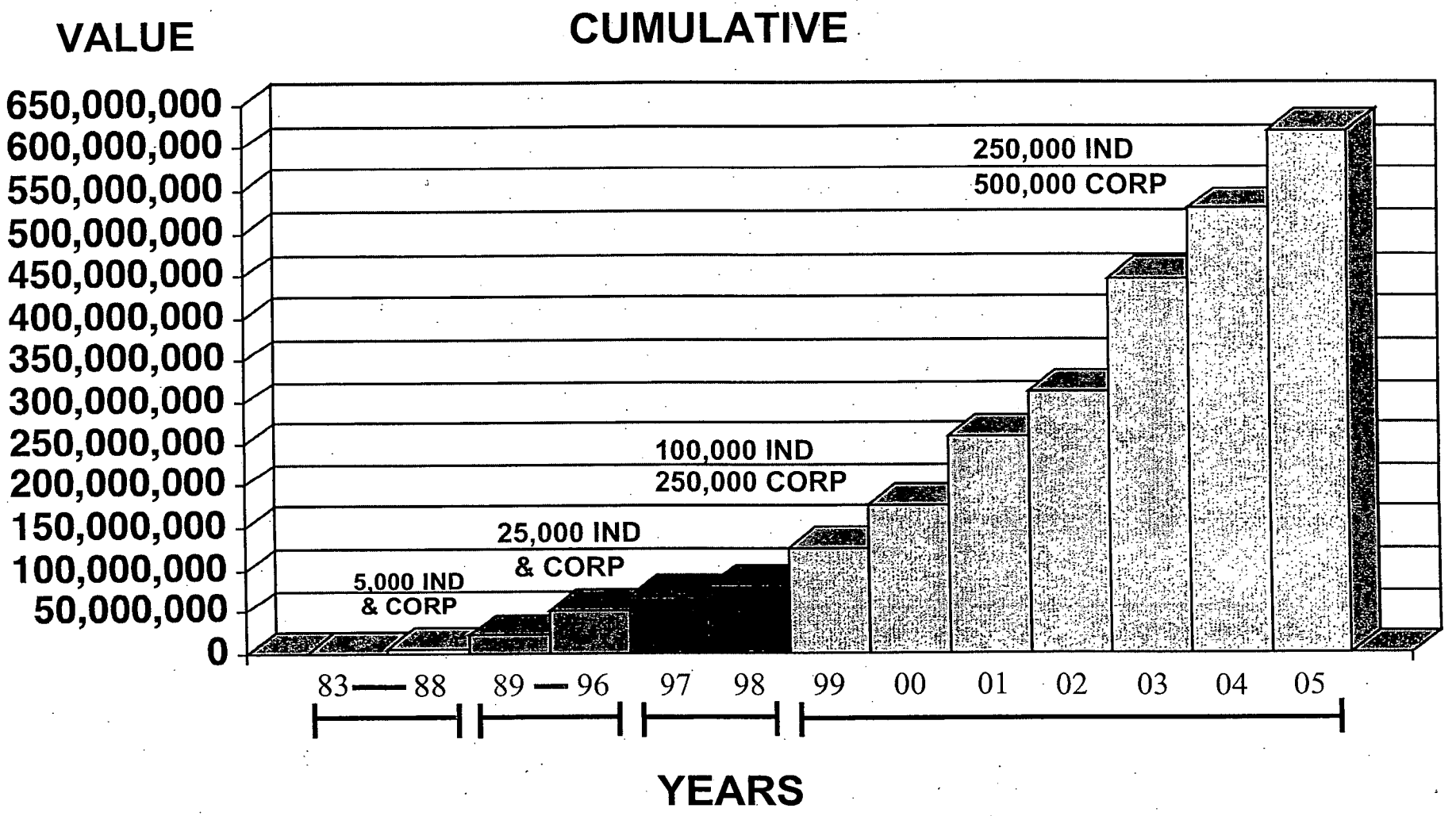
NCCTC PROGRAM STATISTICS



Attachment A

Effective Date 8/15/06

NCCTC PROGRAM STATISTICS

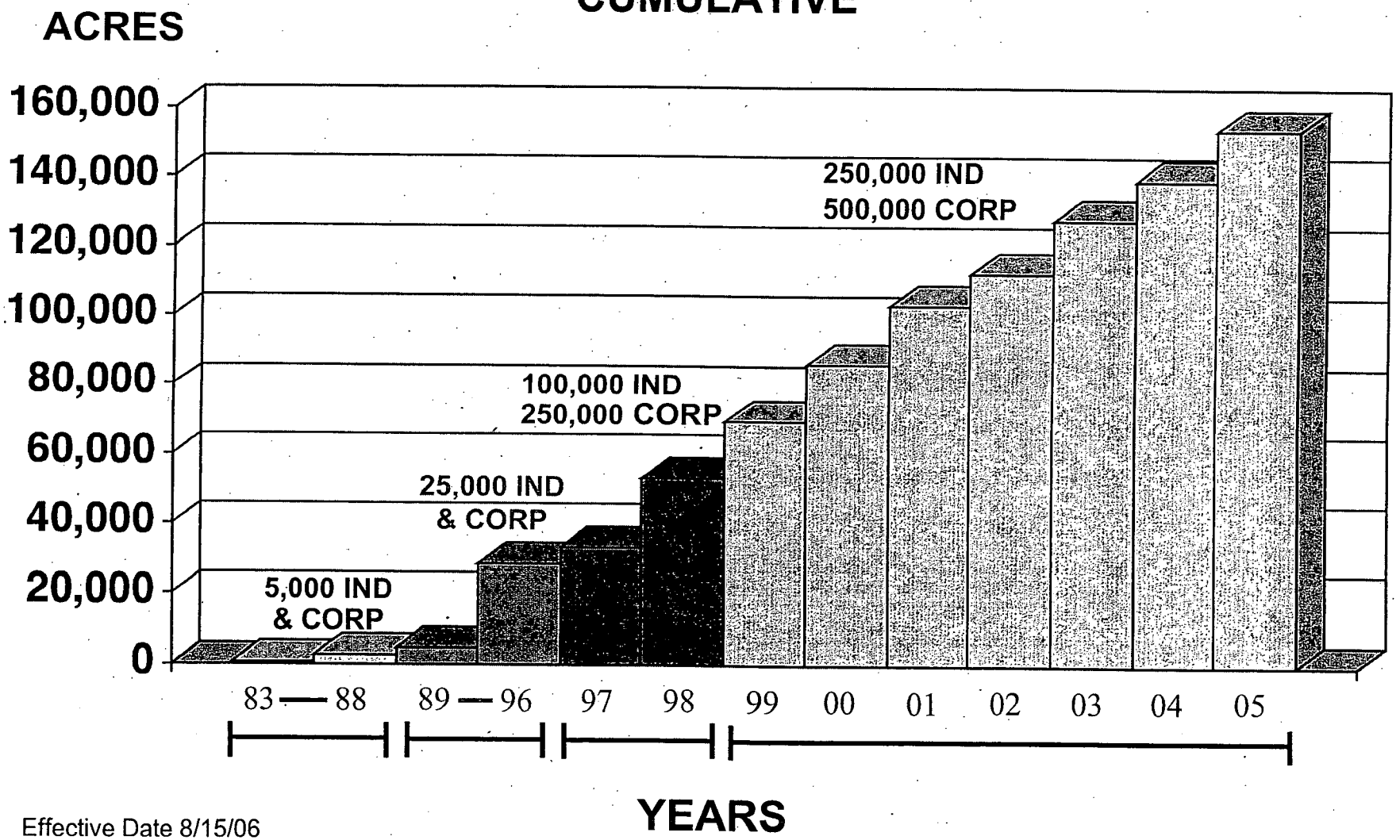


Attachment B

Effective Date 8/15/06

NCCTC PROGRAM STATISTICS

CUMULATIVE



Effective Date 8/15/06

Attachment C

Attachment D

North Carolina Department of Environment and Natural Resources

North Carolina Conservation Tax Credit Program

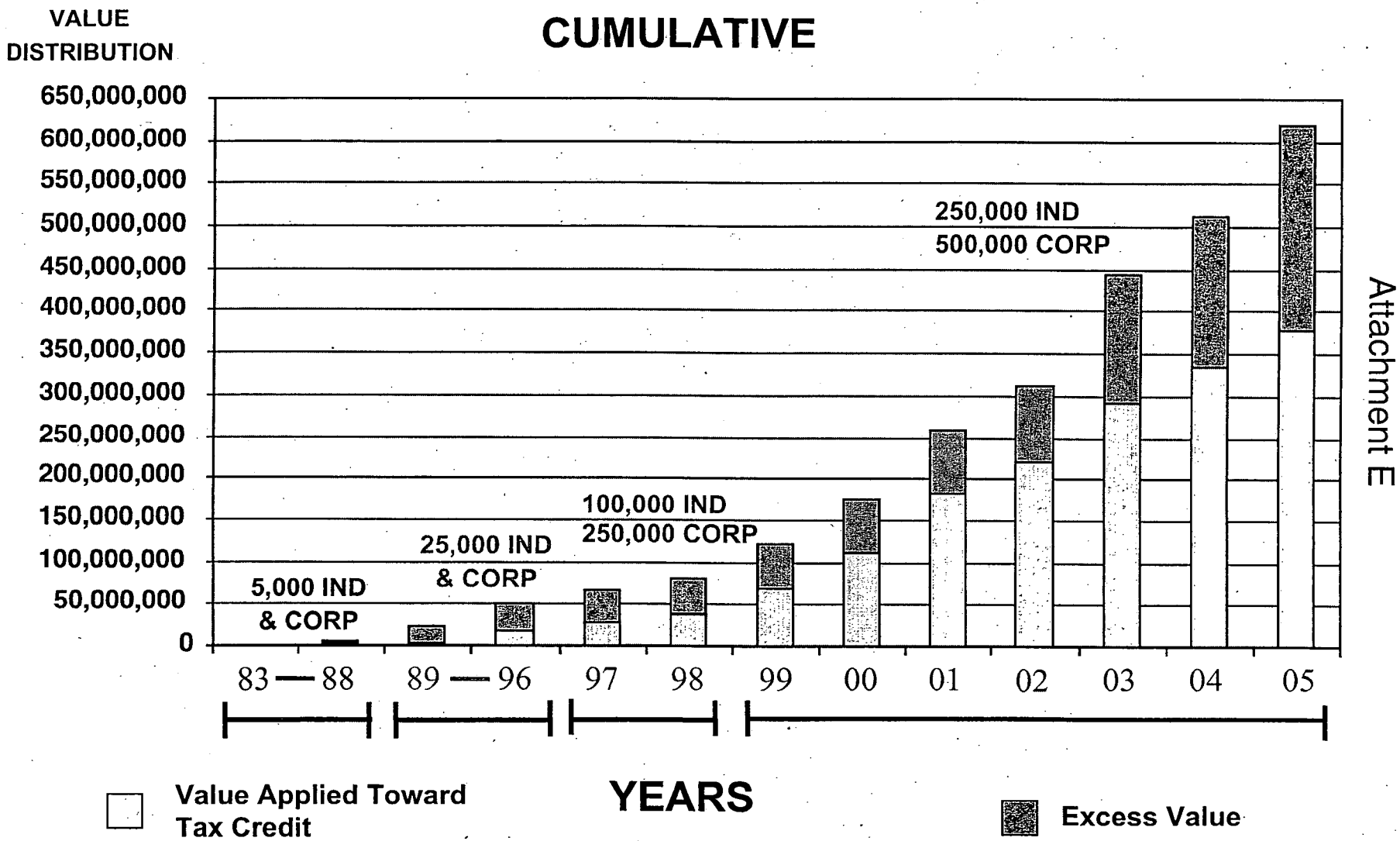
Home Contacts NC Gov.com

Donations by County 1983-2005

ALAMANCE	3	CUMBERLAND	7	JOHNSTON	10	RANDOLPH	7
ALEXANDER	1	CURRITUCK	4	JONES	1	RICHMOND	2
ALLEGHANY	6	DARE	8	LEE	2	ROBESON	32
ANSON	1	DAVIDSON	1	LENOIR	0	ROCKINGHAM	0
ASHE	23	DAVIE	2	LINCOLN	5	ROWAN	20
AVERY	17	DUPLIN	4	MACON	7	RUTHERFORD	5
BEAUFORT	6	DURHAM	17	MADISON	4	SAMPSON	3
BERTIE	0	EDGECOMBE	0	MARTIN	0	SCOTLAND	6
BLADEN	4	FORSYTH	14	MCDOWELL	3	STANLY	8
BRUNSWICK	45	FRANKLIN	11	MECKLENBURG	45	STOKES	8
BUNCOMBE	19	GASTON	18	MITCHELL	3	SURRY	5
BURKE	4	GATES	11	MONTGOMERY	4	SWAIN	1
CABARRUS	2	GRAHAM	2	MOORE	16	TRANSYLVANIA	26
CALDWELL	1	GRANVILLE	7	NASH	2	TYRRELL	6
CAMDEN	3	GREENE	0	NEW HANOVER	35	UNION	4
CARTARET	15	GUILFORD	16	NORTHAMPTON	0	VANCE	1
CASWELL	2	HALIFAX	3	ONSLOW	10	WAKE	58
CATAWBA	0	HARNETT	3	ORANGE	23	WARREN	2
CHATHAM	17	HAYWOOD	9	PAMLICO	5	WASHINGTON	5
CHEROKEE	0	HENDERSON	19	PASQUOTANK	3	WATAUGA	26
CHOWAN	2	HERTFORD	2	PENDER	16	WAYNE	7
CLAY	0	HOKE	5	PERQUIMANS	1	WILKES	6
CLEVELAND	1	HYDE	9	PERSON	0	WILSON	1
COLUMBUS	2	IREDELL	13	PITT	4	YADKIN	0
CRAVEN	8	JACKSON	16	POLK	5	YANCEY	3

Effective 8/15/06

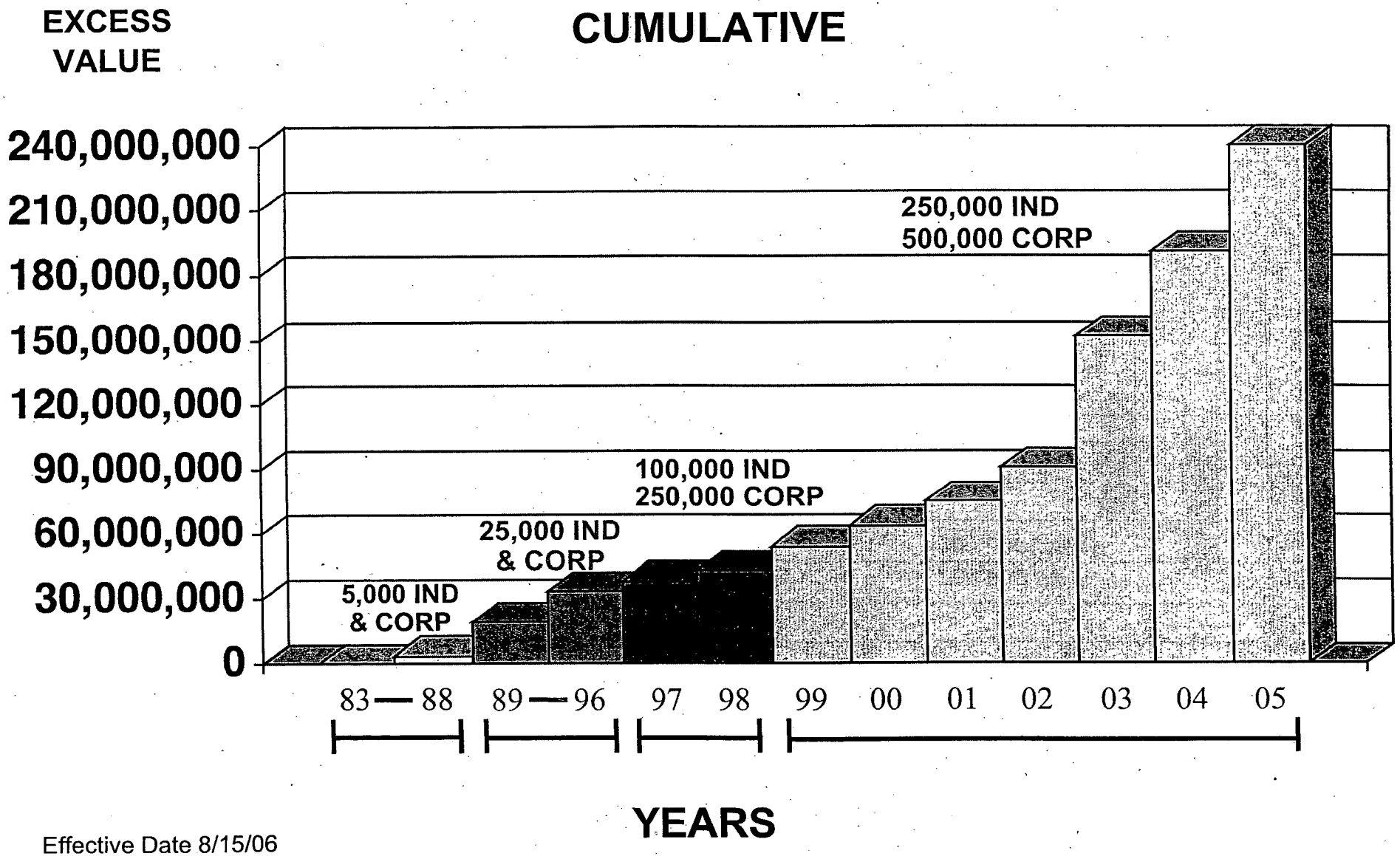
NCCTC PROGRAM STATISTICS



Attachment E

Effective Date 8/15/06

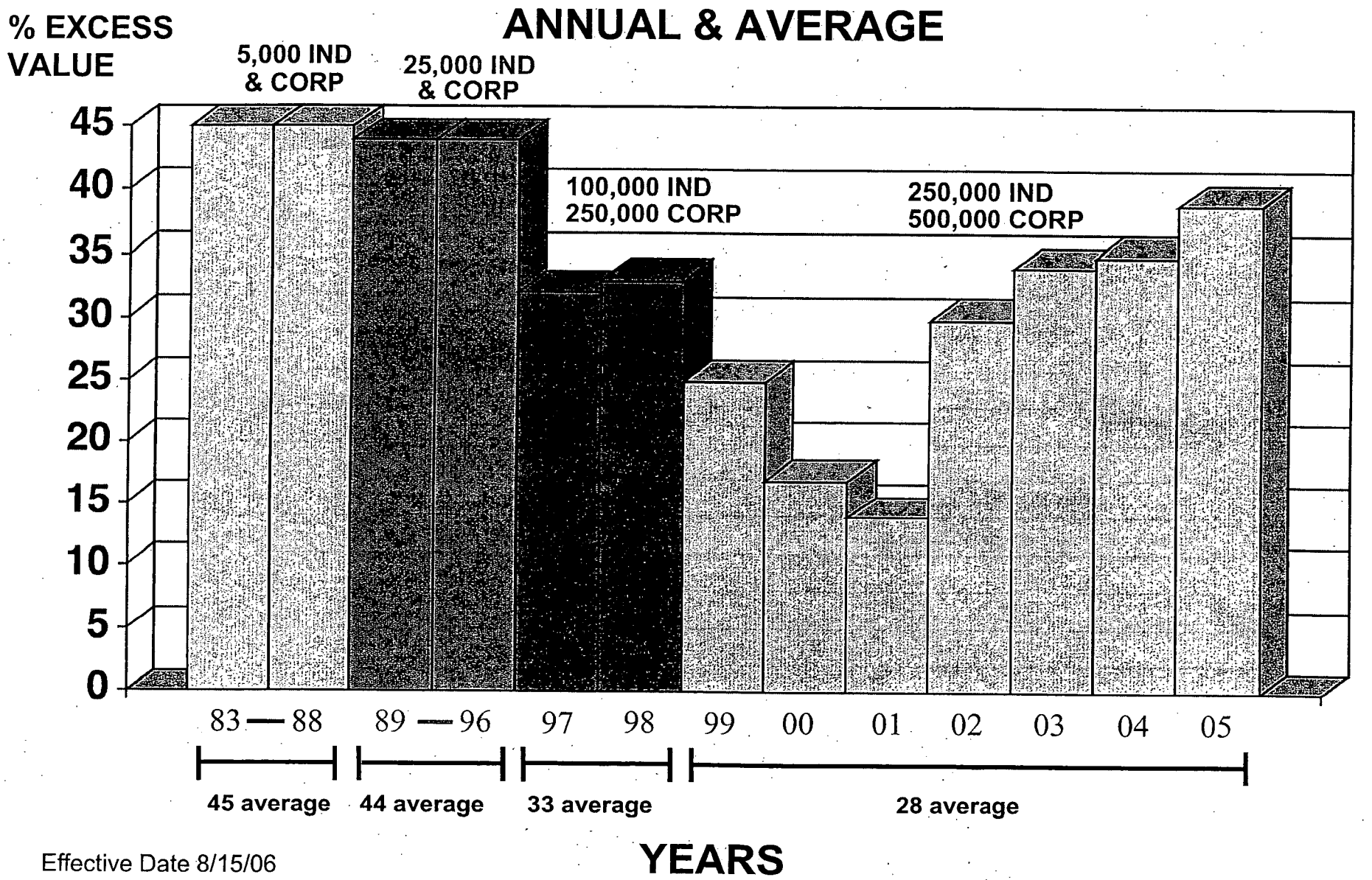
NCCTC PROGRAM STATISTICS



Attachment F

Effective Date 8/15/06

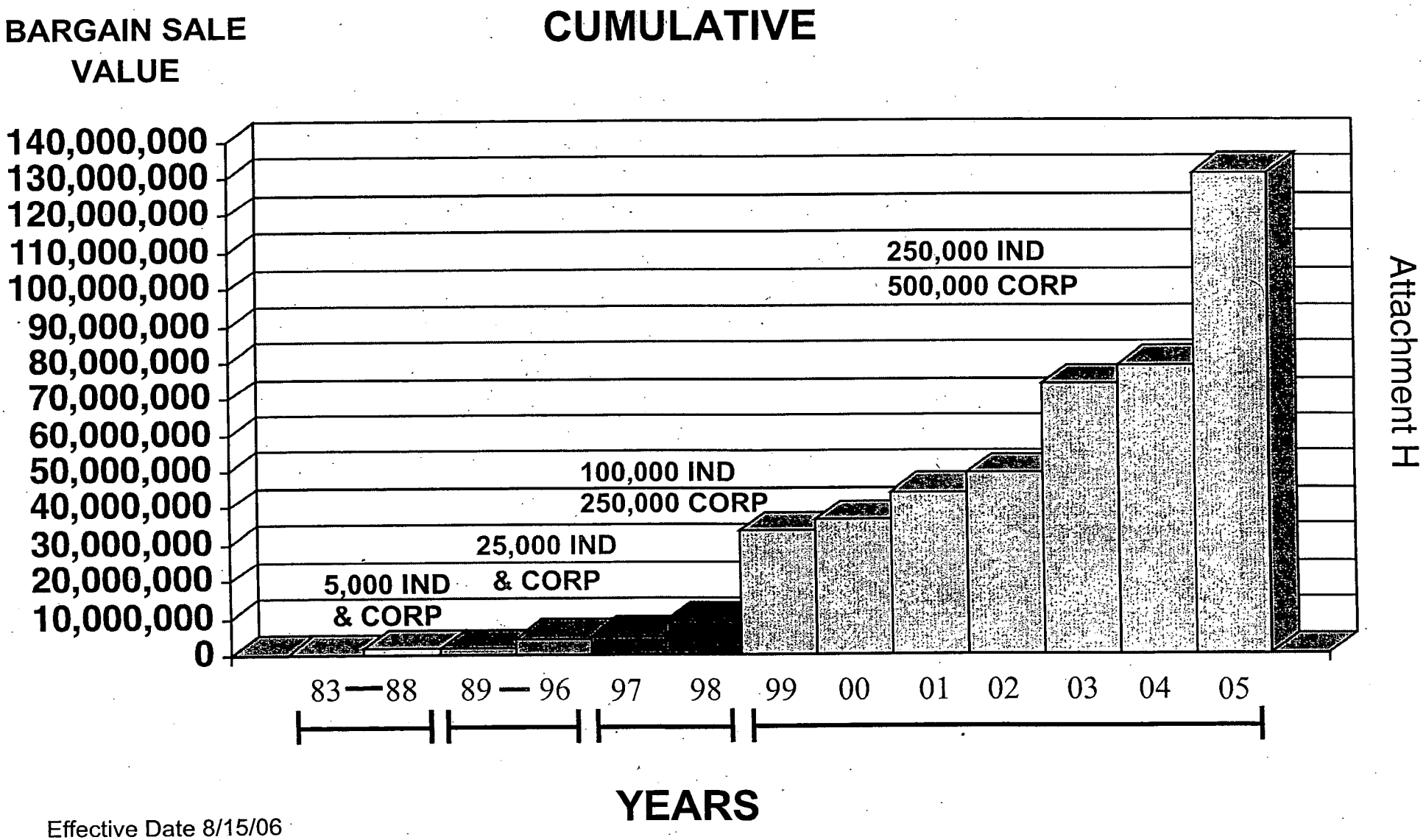
NCCTC PROGRAM STATISTICS



Attachment G

Effective Date 8/15/06

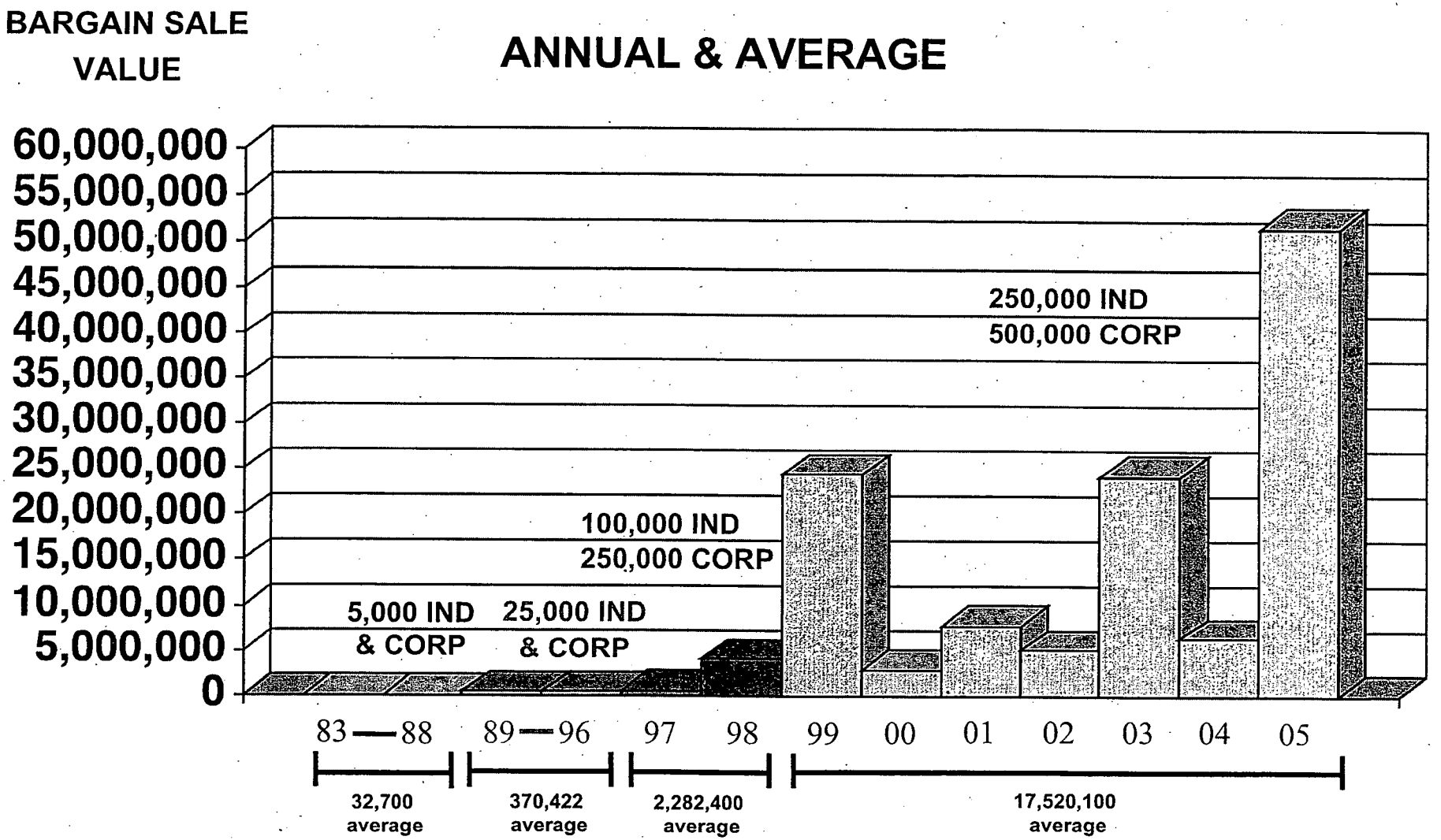
NCCTC PROGRAM STATISTICS



Effective Date 8/15/06

Attachment H

NCCTC PROGRAM STATISTICS



Effective Date 8/15/06

Attachment I

Attachment J

MILITARY SUPPORT ACT PROGRAM

Transaction Cost Reimbursement for Buffering Military Training Areas with Compatible Land Uses

In its 2005 session the NC Legislature ratified the "Soldier, Sailor, Marine, Airmen, and Guardsman Support Act". Within this Act were numerous provisions to address the needs of military personnel stationed in this state, as well as the relationship between critical military training areas and surrounding private/public lands. The one provision that established the foundation for a competitive grants program to buffer military training areas reads as follows.

> **SECTION 1A.2** There is appropriated from the General Fund to the Conservation Grant Fund established under G.S. 113A-232 for the 2006-2007 fiscal year the sum of one million dollars ($1,000,000). Funds distributed to the Conservation Grant Fund under this section must be used for compatible land use and conservation easement type acquisitions of land adjacent to military bases and flyways.
> **SECTION 1A.3** This part becomes effective July 1, 2006.

The Department of Environment and Natural Resources (DENR) is responsible for administration of the Conservation Grant Fund and will be responsible for the conduct of this program. The appropriation has been allocated to the Conservation Grant Fund's transaction costs reimbursement functions [G.S. 113A-233(a) and (b)], and will be expended for that purpose. While this is but one of the functions authorized for the Conservation Grant Fund, it most closely reflects the intent of the Act to acquire land or interest in land adjacent to military bases and beneath flyways.

The funds provided by this Act are a one-time, rather than a continuing appropriation. Thus, once it is expended this program will be dormant until additional funds are appropriated for this purpose. Nevertheless, whether temporal or permanent, this program must be designed, explained, and operated in an appropriate manner.

- It must accomplish its authorized purpose.
- It must optimize available funding.
- It must optimize continued military training.
- It must optimize public conservation opportunity.

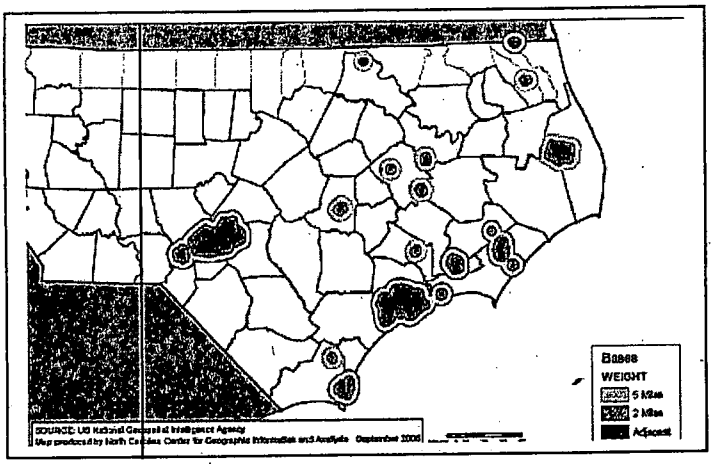
THE PROGRAM

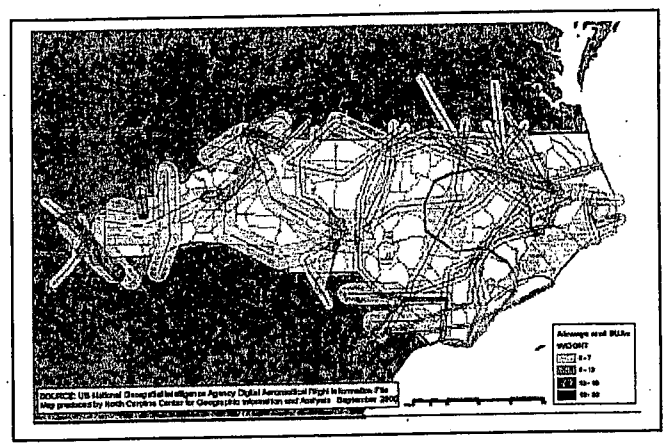
The intent of the operative (above) provision of the Act is to maintain the opportunity for effective military training within the state. The approach for accomplishing this intent is the reimbursement of up to 100% of the transaction cost for acquisition of real property or interests therein to buffer training areas with lands conserved as compatible land uses. [For the purpose of this program the term "compatible land use", as used in the statute and herein, is expected to mean land uses that minimize potential conflicts with military training activities. Since those activities are likely to create noticeable and repetitive noise and vibration and may occasionally cause fires, explosions, or unexpected interaction with trainees; then land uses that minimize human population density would be compatible. Likewise, intensive agricultural husbandry and animal product production is likely to be incompatible, although traditional crops farming and forestry practices are generally compatible. Land conserved for ecological protection or mitigation, and public

recreation use may also be compatible.] To focus this program, the training areas that are eligible for grant funds to accomplish buffering with compatible land uses are as follows.

- Military Bases – includes (Air Force, Army, Coast Guard, Marine Corps, National Guard, and Navy) bases, stations, and installations with resident populations and training areas; as well as outlying landing fields, bombing ranges, and other areas used for training. In specific situations formally used defense sites (FUDS) may be included. (See page 5.)

  Note: Sites identified in **Halifax**, **Pitt**, **Beaufort** and **Pamlico** Counties are military assets that may or may not be active military training facilities. We are currently assessing the status of these sites and will adjust our "weighting tool" accordingly.





- Military Airways – includes Federal Aviation Administration designated and charted restricted areas, military operations areas, alert areas, and military training routes. (See page 6.)

The program requires an application in order to initiate a grant request. The application is in a specified format and provides the information required to differentiate among sites, as well as for optimum distribution of program grants. A weighting system developed for the program will be used along with other available information to assist decision makers in ranking grant approvals.

APPLICANTS

The Military Support Act Program is being administered through the Conservation Grant Fund. Eligibility to apply for a grant is established by its enabling legislation, as follows.

> 113A-232 (c1) Grant Eligibility. – State conservation land management agencies, local government conservation land management agencies, and private nonprofit land trust organizations are eligible to receive grants from the Conservation Grant Fund. Private nonprofit land trust organizations must be qualified pursuant to G.S. 105-130.34 and G.S. 105-151.12 and must be certified under section 501(c)(3) of the Internal Revenue Code.

THE APPLICATION

The first formal step in the process of seeking a grant to assist with transaction costs, related to the buffering of military training areas with compatible land uses, begins with the application. While its format is comprehensive, responses need not be encyclopedic. Maps, tables, and lists should be used instead of text whenever possible. Brevity is appreciated. Its intent is to efficiently collect information that will allow decision makers to distinguish among opportunities. (See pages 7-9.)

There are numerous activities associated with transactions involving interests in real property. Most, but not all activities are eligible for grant reimbursement. (See list) Individually these costs may be deminimus to extreme, depending upon the characteristics of the property and conservation approach involved. The application includes a specific form for documenting projected and actual costs associated with transaction activities. In order to optimize available funding and program purpose, the Department of Environment and Natural Resources will exercise its discretion in determining the level of reimbursement that can be made available for any application.

WEIGHTING PROPOSED SITES

Information provided through the application process will be used to determine where and how available grant funds may be used for transaction costs. Part of application preparation and review includes a site specific weighting process. A GIS driven program has been developed to assist in the application weighting process. It incorporates consideration of a site's proximity to military bases and airways as a mechanism for suggesting its importance as a training area buffer. This weighting tool also accommodates the generation of cumulative weighting values where sites may buffer multiple training areas. (Link http://204.211.135.120/cwland_viewer/viewer.htm) (User Guide link http://204.211.135.120/CWLAND_viewer/ArcIMS_Help/User%20Guide%20for%.)

Applicants should access the weighting tool and the instructions for its use. Familiarity with use of this tool will enable potential applicants to assess the relative importance of various sites. This will, in turn, support the targeting of projects to properties with both high potential for training area buffering and the conservation benefit of compatible land use.

The weighting tool specifically addresses a site's proximity to military training areas as one consideration in the application weighting process. Another part of the process involves the compatibility of the proposed buffer land use, and the significance of the involved property for conservation for ecological and environmental reasons. This information is requested through the application format, and DENR staff will consider the data submitted. Thus, part of the application review is quantifiable through the GIS program, and part is objective. The final decision on grants will reflect a balancing of these two aspects of the application in an effort to accomplish the operative provisions of the Act, set out earlier in this program description.

APPLICATION REVIEW AND RANKING

The DENR will establish a review committee to screen all applications submitted for a grants cycle, and recommend an appropriate ranking based upon the information provided by the applicant and other available sources. The review committee will be comprised of individuals from agencies with expertise in resource conservation. Consideration will be given to: (1) buffering potential resulting from adjacency to training areas, (2) compatibility of the proposed future land uses, (3) existing and/or proposed conservation benefits of the site, and (4) optimizing use of available funds; as grant opportunities are assessed, compared, and contrasted.

The review committee will rank the applications submitted for a grants cycle, and forward the results to the DENR Secretary. In the process, reviewers shall rely upon the purpose and intent of the authorizing statute, information provided in the applications, other publicly available information and their best professional judgements to develop rankings. The Secretary will make the final decision and announce the grant awards.

GRANT CYCLES

This program will observe an open application process and will accept applications for transaction cost grants at any time. Grants will be made on the basis of two cycles per year. The applications deadlines will be October 15 and April 15 with award decisions being made within 45 days of the application deadlines of each year when funds are available.

GRANT AMOUNTS

The DENR will monitor the amount of available funding and the pattern of grants requested in the first and following cycles of applications. Thereafter, grant management conditions will be announced at the beginning of each new cycle. These conditions may involve, but are not limited to: (1) a cap on the maximum allowable grant, and/or (2) the discretion to approve less than the requested transaction cost amounts on a case by case basis. For the purpose of preparing grant applications for the current grant cycle, the maximum allowable grant will be $85,000.

CONTRACTS AND REIMBURSEMENTS

Grants of state funds are made under contract. The DENR will facilitate the grant process between the recipient and State. The maximum grant amount will be set by the contract. Amounts paid for projected costs may vary from the amounts requested in applications, but the maximum grant amount may not change.

Military Support Act Program grants are made on a contract and reimbursement basis. Copies of invoice and payment documents must accompany requests for reimbursement. The grant contract will establish the detailed requirements of the process.

MILITARY BASES

Air Force
- Pope Air Force Base
- Seymour Johnson Air Force Base

Army
- Camp McCall
- Fort Bragg Military Reservation
- Sunny Point Army Terminal

Coast Guard
- US Coast Guard Air Station

Marine Corps
- Camp Lejeune Marine Base
- Cherry Point Marine Corps Air Station
- New River Marine Corps Air Station

National Guard
- Camp Butner

Navy
- Harvey Point
- Northwest Annex - Chesapeake

Outlying Landing Fields
- Atlantic
- Bogue
- Oak Grove

Bombing Ranges
- Dare County
- Brant Island Shoals
- Palmetto/Albemarle
- Piney Island
- Stumpy Point

Non DOD Lands Used by Agreement
(under construction)

Formerly Used Defense Sites
(under construction)

MILITARY AIRWAYS

Restricted Areas

- R-5301, Albemarle Sound
- R-5302, Harvey Point
- R-5303, Camp Lejeune
- R-5304, Camp Lejeune
- R-5306, Cherry Point
- R-5311, Fort Bragg
- R-5313, Long Shoal Point
- R-5314, Dare County

Alert Areas

- A-530, Cherry Point
- A-531, Albemarle, NC

Military Operations Area

- Echo
- Fort Bragg North
- Fort Bragg South
- Gamecock A
- Hatteras F
- Pamlico A & B
- Snowbird
- Stumpy Point

Military Training Routes

- Numerous, consult weighting tool

MILITARY SUPPORT ACT PROGRAM

APPLICATION

FOR GRANT CYCLE ENDING _____

Applicant Individual's Name _____

Organization _____

Address _____

Phone _____ Fax _____

E-mail _____

Training Area to be Buffered Military Base Military Airspace

Name(s) _____

Site Characterization Location/Address _____

County(s) _____

Acres _____

Veg. Cover by % _____

Conservation Use Proposed _____

Interest in Real Property Proposed Conservation Easement Fee Simple Deed

Disposition of Option Executed (include copy) In Negotiation

Acquisition Funds Source _____

Status _____

Proximity to Military Base(s)

Name _____(identify on map) Distance _____

Proximity to Military Airspace(s)

Name _____ Distance _____

Threatened, Endangered, Rare, Watchlist, Species Identified on Site (include survey report)

_____

Proximity to Public Conservation Lands (see list)

Name _____(identify on map) Distance _____

Proximity to Privately Owned/Publicly Designated Conservation Areas (see list)

Name _____(identify on map) Distance _____

ATTACHMENTS

Location Map(s) w/site ID
Site Map(s) w/property line
Ortho Photo Map w/property line
Transaction Costs Budget
Military Base Letter of Support

TRANSACTION COSTS BUDGET

Applicant's Name: _____

County(s): _____

Item	Actual Cost	Projected Cost	Official Use Only
Appraisal			
Environmental Site Assessment			
Option (includes earnest money)			
Legal and Closing			
Biological Documentation Report (CE only)			
Recording Fees			
Boundary Survey			
Title Insurance and Report			
Totals			

Item	Matching Value		Commitment	
	In-kind	Cash	Guaranteed	Proposed
Totals				

APPLICATION REVIEW PROCEDURE

1. Confirm that application is complete. (If every topic has a response, the application review can continue.)

2. Is the conservation use proposed a suitably compatible land use? (If considered compatible, then continue.)

3. Is the property under option? (Separate those under option as first priority, from those that are not.)

4. Confirm proximity with military base(s) and GIS program score. (Rank those with base proximity only.)

5. Confirm proximity with military airspace(s) and GIS program score. (Rank those with airspace proximity only.)

6. Compile applications with both base and airspace proximity and add scores. (Rank those with both base and airspace proximity.)

7. Confirm species on site.

8. Confirm proximity to public conservation lands.

9. Confirm proximity to designated conservation features.

10. Document transaction's cost/benefit ratio.

* Items #1-#6 and #10 will be completed by Program Administrator.
* Items #7-#9 will be confirmed by DENR agencies with expertise.

The application evaluations identified above will be presented to the Review Committee, to be assessed, compared, and contrasted. The relative importance of each category of information to fulfilling the statutory purpose of the grant will be discussed, established, and consistently applied to the final ranking of all applications.

For Questions concerning applications or other program activities please contact:

Bill Flournoy
Military Support Act Program Administrator
1601 MSC
Raleigh, NC 27699-1601

Phone: 919-715-4191

Email: bill.flournoy@ncmail.net

Parks and Recreation Trust Fund

Program Overview and Annual Report 2005-06

Environmental Review Commission
Raleigh, North Carolina
January, 2007

Lewis Ledford, Director,
Division of Parks and Recreation

EXHIBIT K

Parks and Recreation Trust Fund (PARTF) Legislation

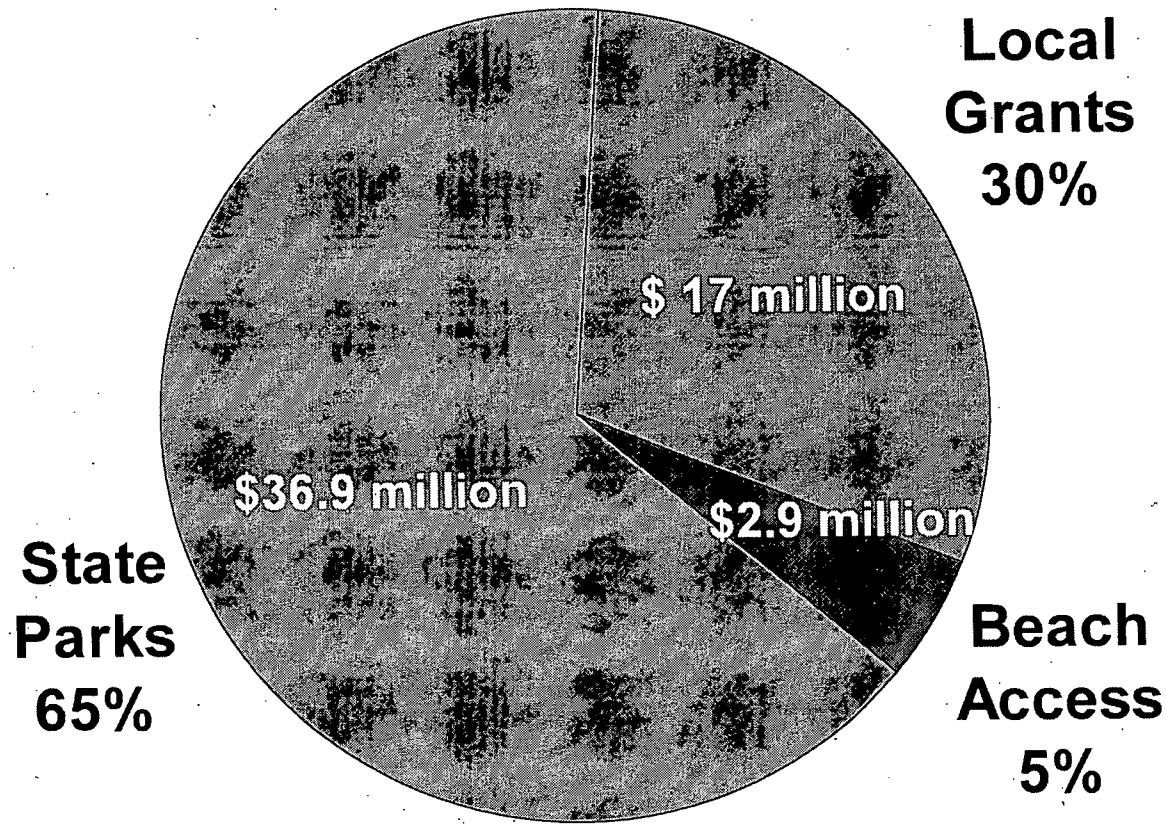
Established in 1994 to provide funding for:

1. State park land acquisition and capital improvement projects

2. Grants to local governments for local park and recreation purposes

3. Coastal and Estuarine Beach Access Program

PARTF Revenue Allocated by Purpose 2005-06



NORTH CAROLINA STATE PARKS
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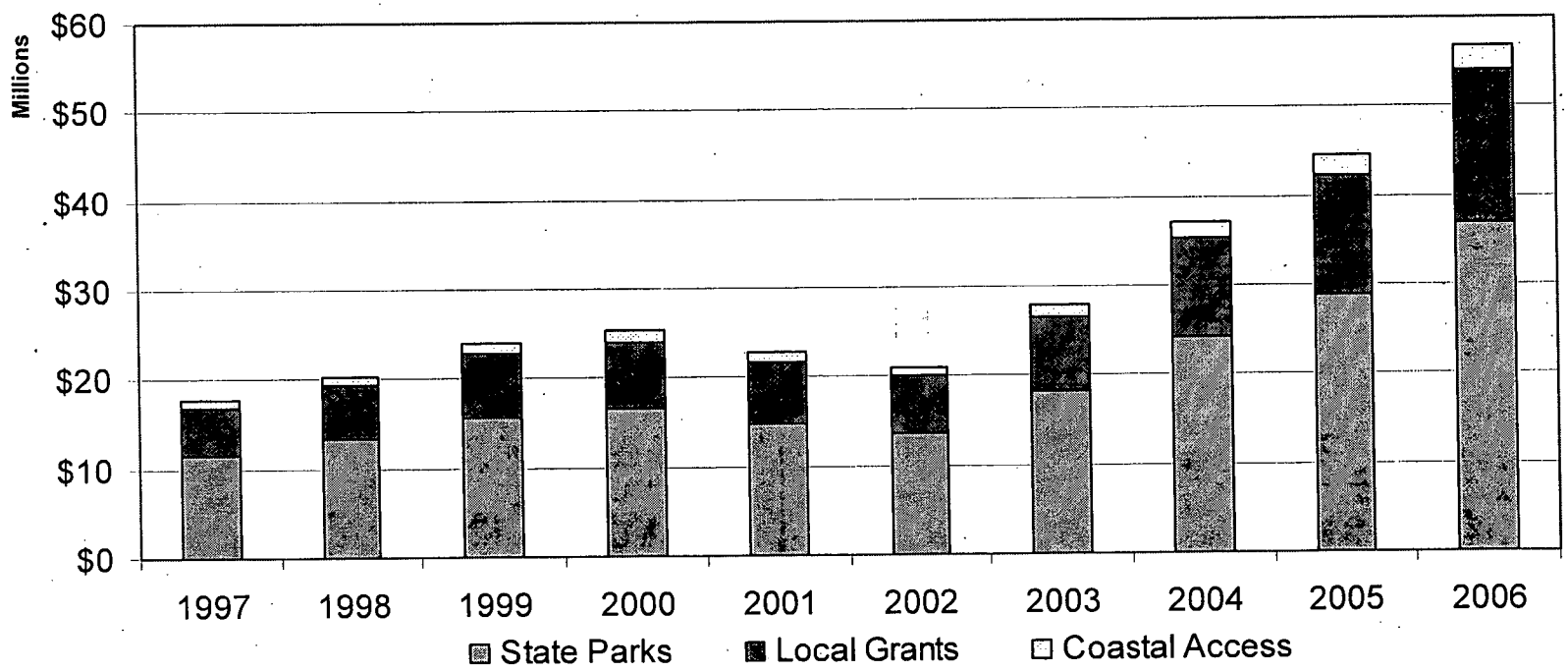
Total Revenue 2005-06

- Primary revenue source: $1.00 tax per $500 in real estate value
- PARTF receives 75 percent of the state's portion of the revenue (FY 05-06 = $56.2 million)
- PARTF receives $5.00 for each personalized license plate (FY 05-06 = $1.3 million)
- Total Revenue in 2005-06: $57.5 million

PARTF Revenue by Purpose Since 1997



NORTH CAROLINA STATE PARKS
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Parks and Recreation Authority

- 11 member board established in 1996
- The Authority allocates all funds to state park projects and local grants
- Appointments to the Authority are by the Governor, Speaker of the House and the President Pro Tem of the Senate

PARTF Grant Program for Local Governments

PARTF Grants for Local Governments Basic Facts

- Applicants – Local governments and public authorities authorized to provide recreation
- Eligible Projects – Buy park land and build recreational facilities

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PARTF Grants for Local Governments Basic Facts

- Maximum Grant Amount - $500,000
- Local governments match the PARTF grant dollar-for-dollar.
- The value of donated property can be used as the local match.

PARTF Grants for Local Governments Important Dates

- Applications are due January 31
- The Parks and Recreation Authority selects grant recipients in May and July

Evaluating Applications - PARTF Scoring System Criteria

- Planning the project
- Involving the public
- Acquiring land
- Applicant's ability to operate and maintain the project
- Quality of the park site
- Number of recreational facilities provided

Selecting Grant Recipients:
Other Factors Considered

- Distributing grant awards across the state
- Population of the applicant
- Administration of previous grants
- The applicant's justification for the project

PARTF Grant Requests and Awards 2006

Applications

- 86 applications received proposing $80 million in land acquisition and recreational facilities
- $27 million in grant requests
- $53 million in local matching funds committed

Grants Awarded

- 55 grants awarded to projects totaling $44 million
- $17.7 million in PARTF funds awarded
- $26.7 million in local matching funds leveraged

PARTF Grants for Local Governments
1997-2006

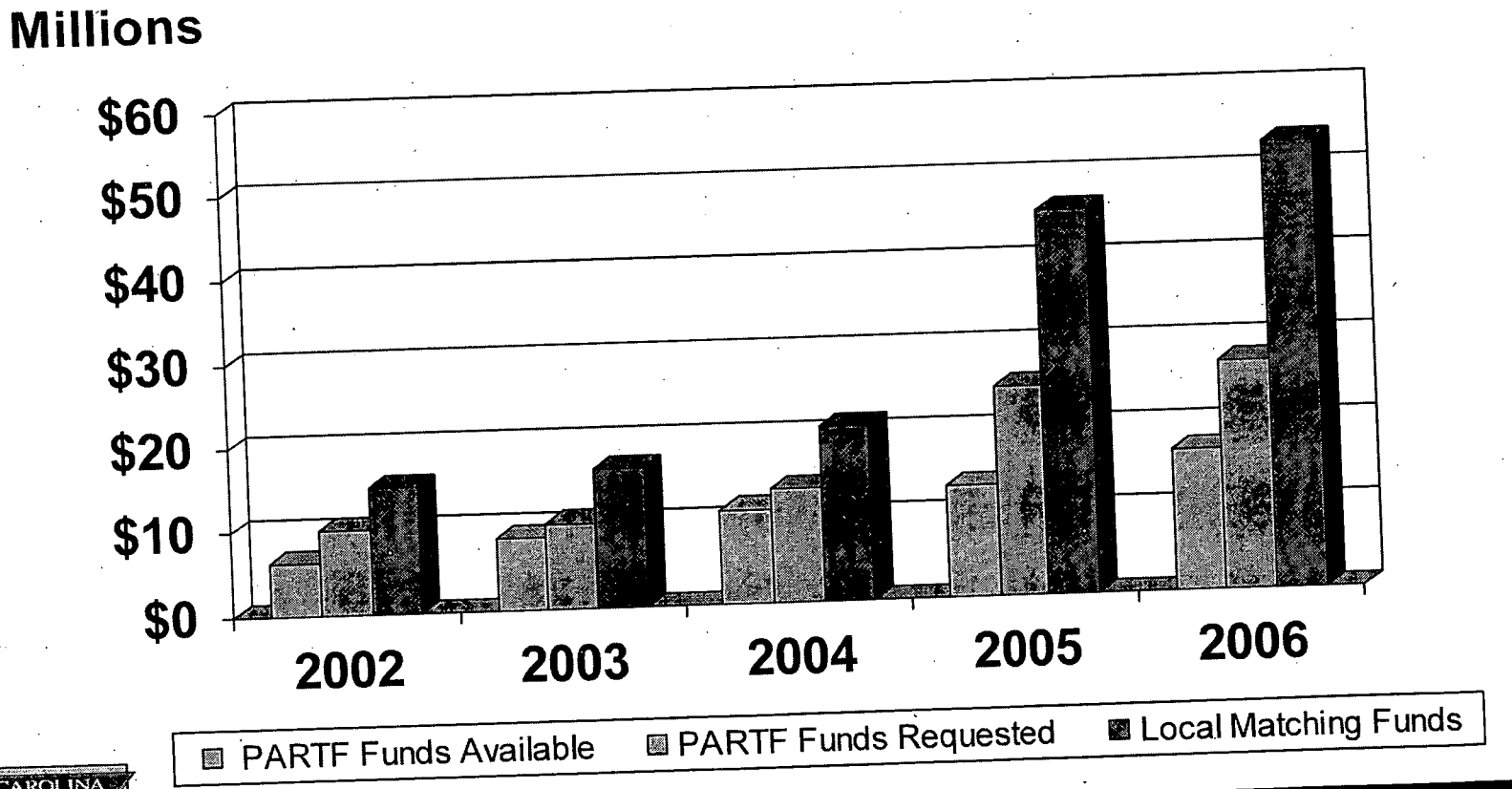
Applications Received

- 874 applications received
- $150 million in grant requests
- $270 million in local funds pledged to match PARTF grant funds

Grants Awarded

- 487 grants awarded
- $92 million in grant awards
- $156 million in local matching funds leveraged by grants ($1.70 in local funds are spent to match each $1.00 in grant funds)

Requests from Local Governments Continue to Increase



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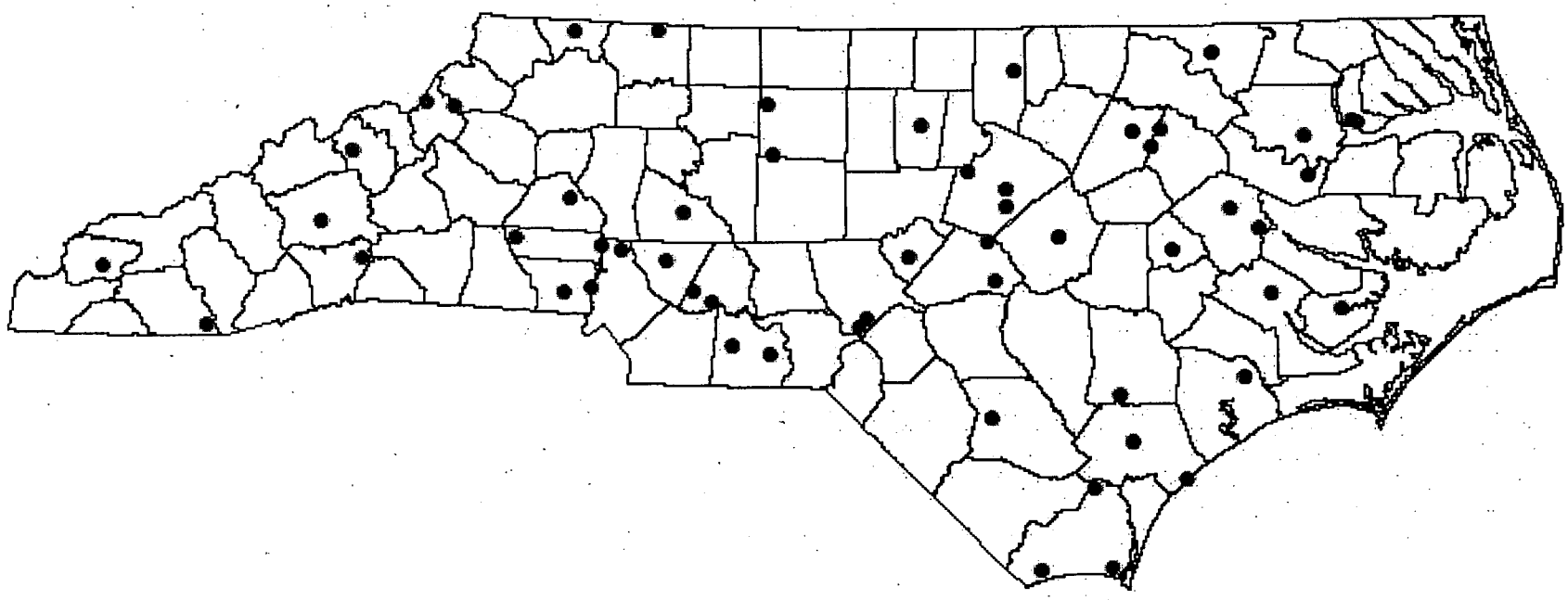
Geographic Distribution of Grants 2006



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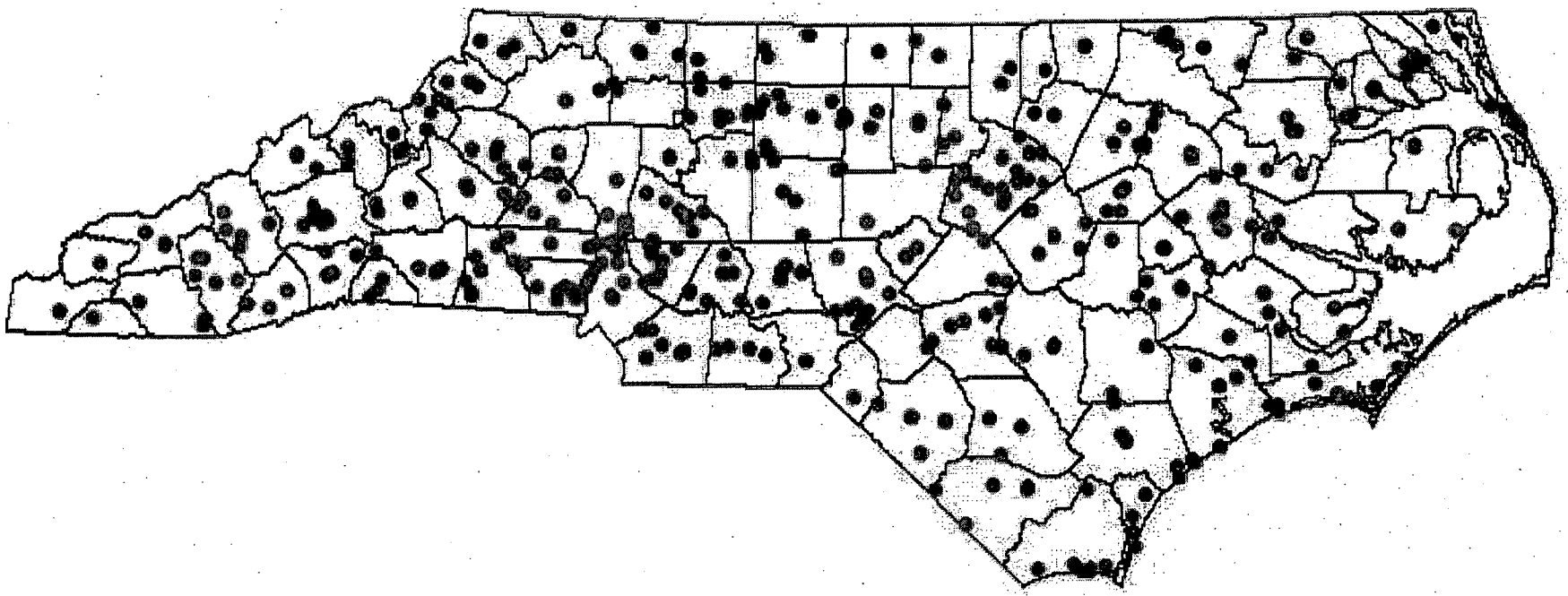
Geographic Distribution of Grants 1995 - 2006



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Examples of PARTF Grant Awards
2006

- Coastal region– Chowan County is building a park facility with athletic fields, a picnic shelter, and trails.

- Triangle region– Morrisville is purchasing 25 acres of open space in a rapidly developing area.

- Mountain region – Asheville is renovating an elementary school into an arts center with a theater, art space, and music room

Examples of PARTF Grant Program Accomplishments since 1996

- 2,800 acres acquired
- picnic shelters
- playgrounds
- ball fields
- soccer fields
- tennis courts
- walking trails
- recreation centers

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Overlook – Catawba River Greenway – City of Morganton

NORTH CAROLINA STATE PARKS
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Little River Regional Park – Durham & Orange Counties

NORTH CAROLINA STATE PARKS
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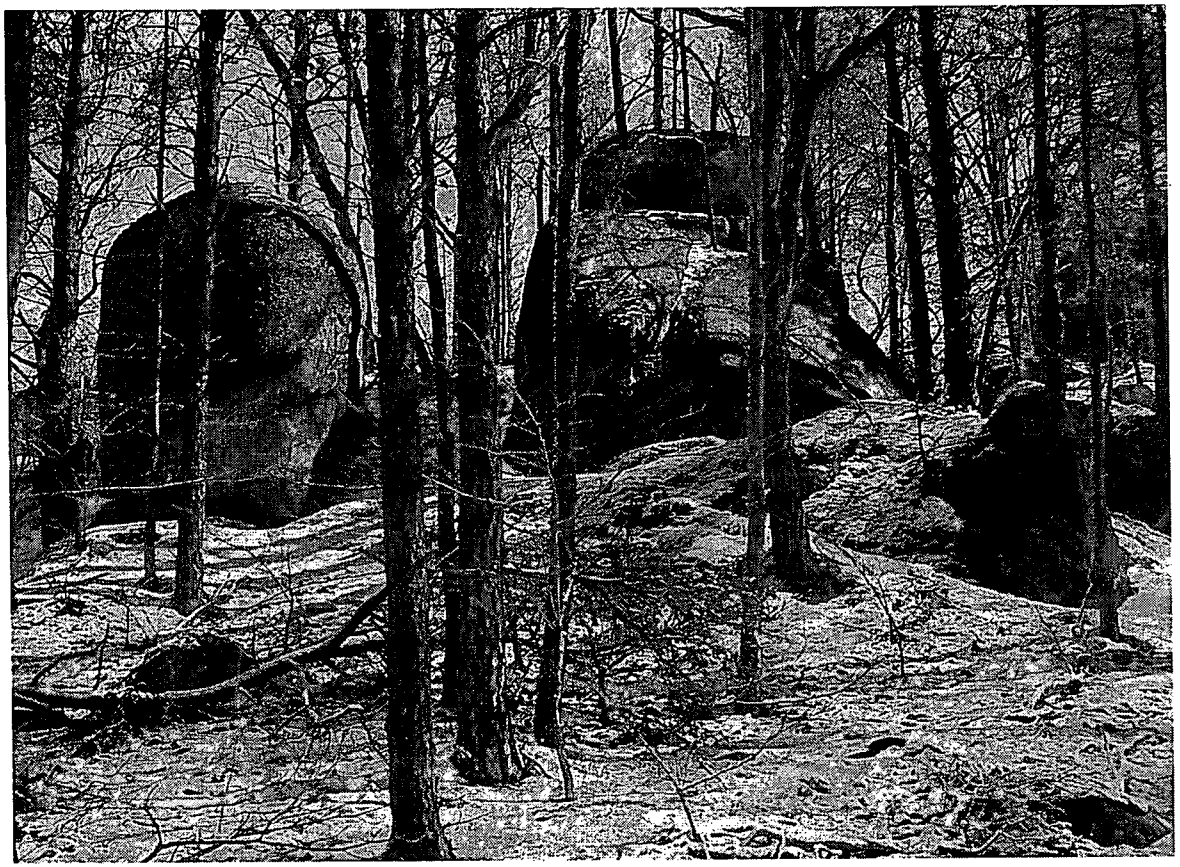
Playground at Harmon Park – Town of Tryon

NORTH CAROLINA STATE PARKS
Naturally Wonderful
1916 2006
Celebrating 90 Years of Stewardship



"Boulder gardens" at Dunn's Mountain Park in Rowan County protects unique plant communities on the granite outcrops.

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PARTF Funding for the State Parks System

PARTF Land Acquisition Projects in the State Parks System 2006

- Acquiring over 2,700 acres at 16 state parks for $20.6 million

Examples

- **Elk Knob State Natural Area** –235 acres to provide resource protection and public access.
- **Hickory Nut Gorge** –over 600 acres to protect the World's Edge area and Round Top Mountain
- **New River State Park** –over 200 acres along the river corridor that continues to be developed with second homes.
- **Lumber River State Park** – 200 acres of river front property near the Town of Fair Bluff.

PARTF Land Acquisition Projects in the State Parks System 1997-2006

Land Acquisition Projects

- Over 28,000 acres acquired totaling $73 million
- Sample Projects:
  - **Lake James State Park**
  - New State Parks:
    - **Gorges**
    - **Mayo River**
    - **Haw River**
    - **Hickory Nut Gorge**

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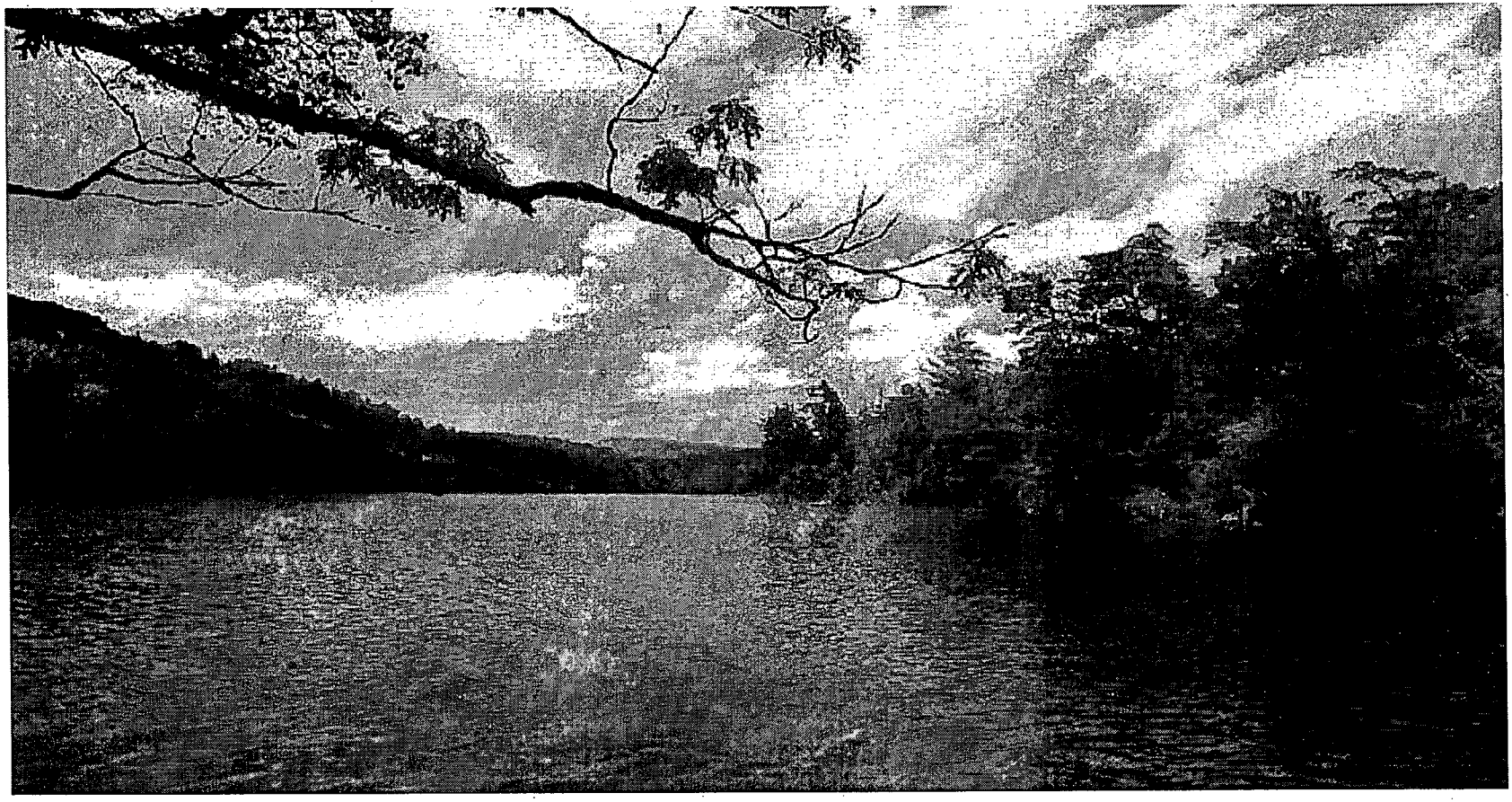

Lake James State Park – 2,915 acres acquired

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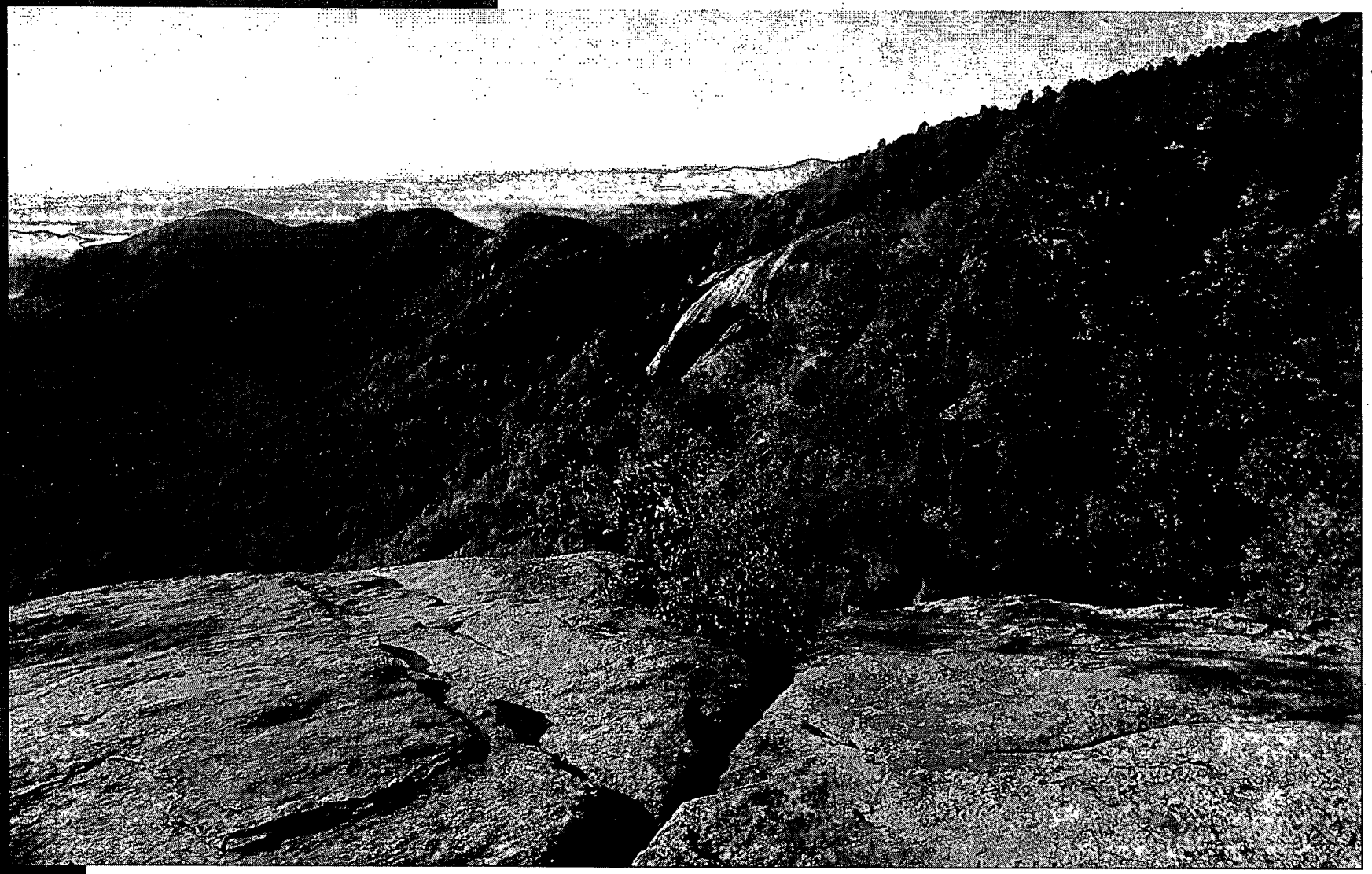

Hickory Nut Gorge State Park (new park established)

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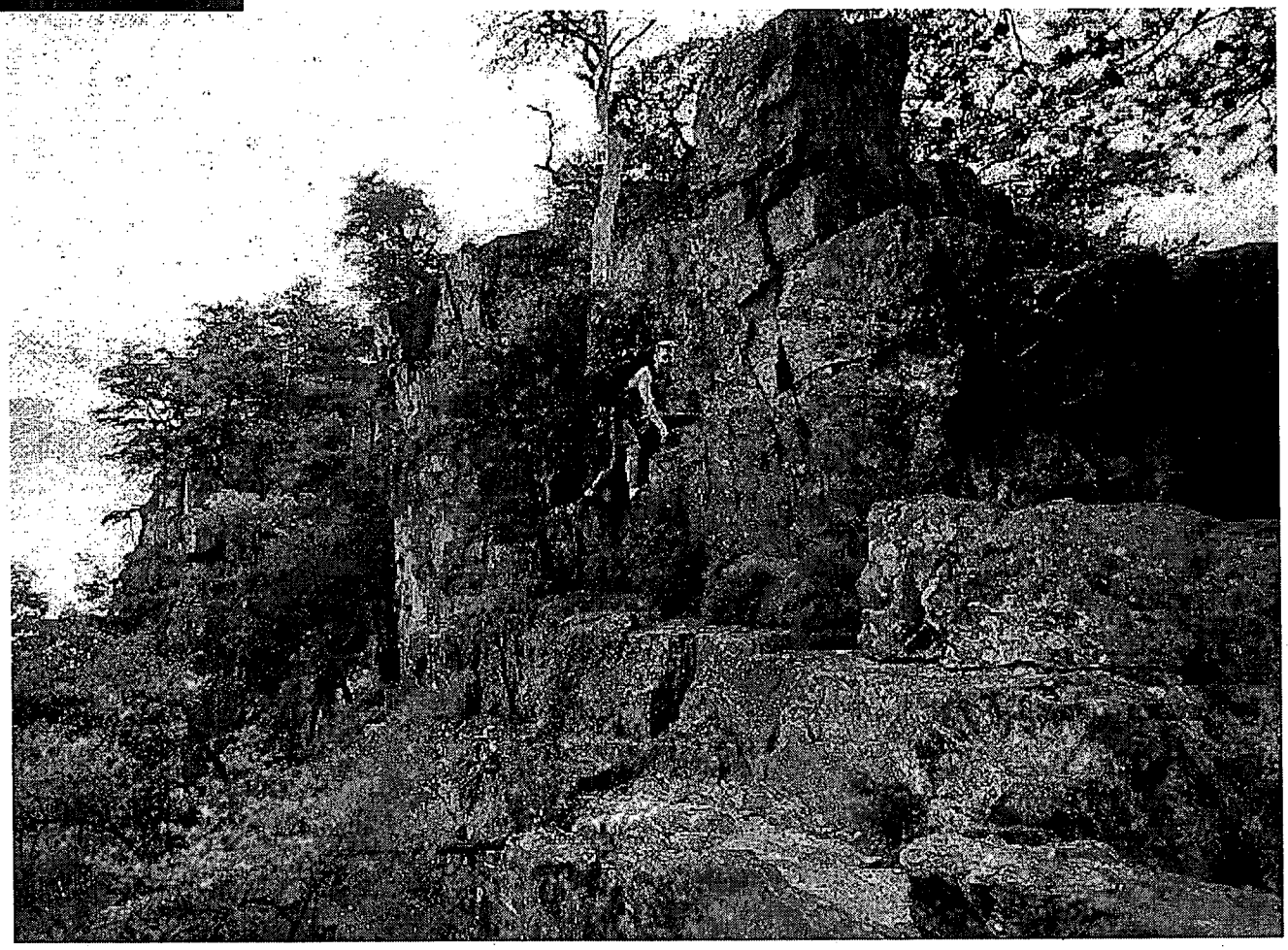

Crowders Mountain State Park -1,200 acres added

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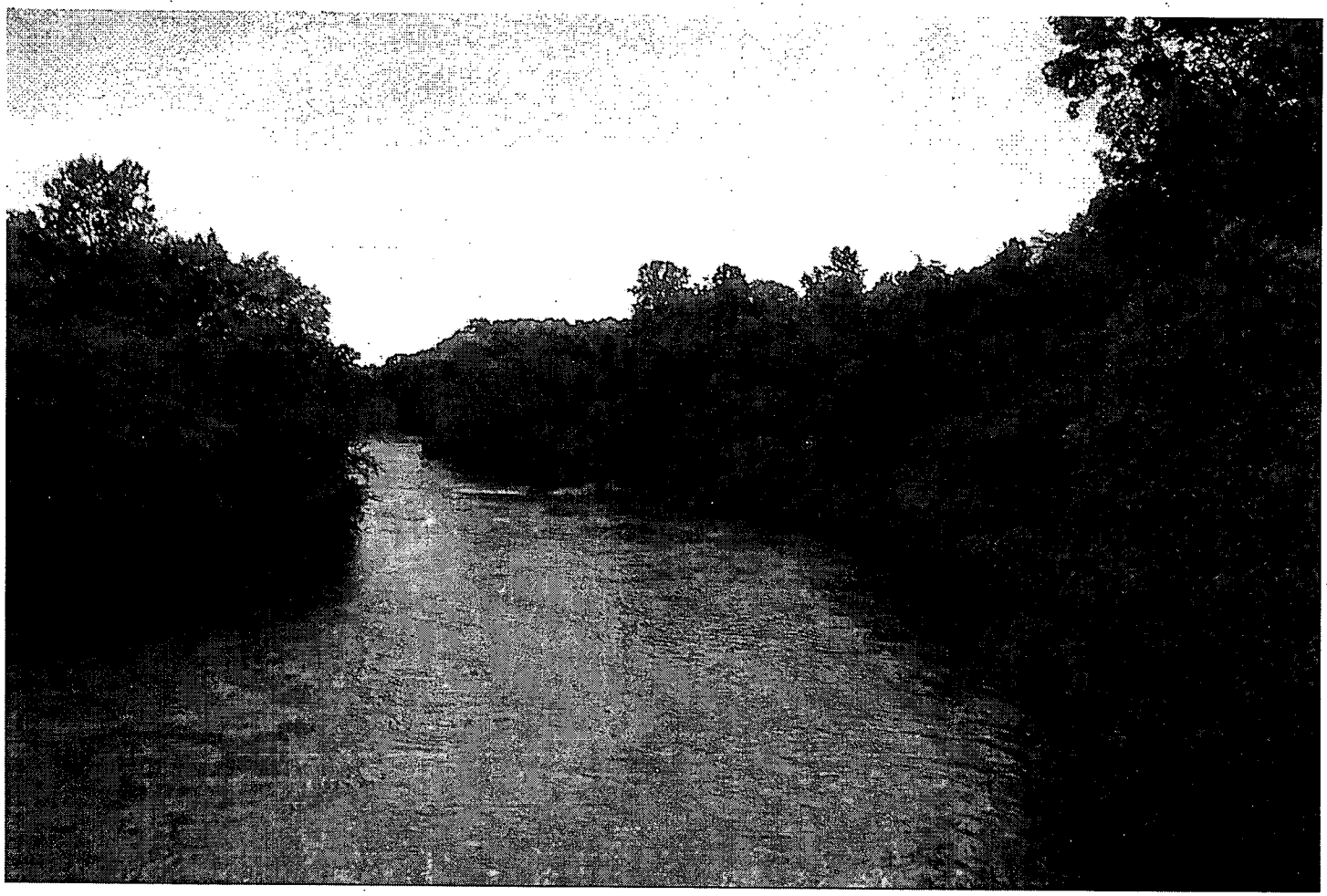

Mayo River State Park – new park established

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Hanging Rock State Park –mountain top views as well as important natural communities protected.

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PARTF Capital Improvement Projects in the State Parks System 2006

- 20 Capital Improvement Projects totaling $16.1 million

Examples

- **Fort Macon State Park** – 1st visitor center to serve a park averaging over a million visitors per year.
- **Kerr Lake State Park** – a boat ramp area with sufficient parking and community building to host popular fishing tournaments.
- **Mayo River State Park** – Initial visitor facilities to open this new state park to the public.
- **Raven Rock State Park** – Provide the 1st visitor center for a state park that has been open since the early 1970's

PARTF Capital Improvement Projects in the State Parks System 1997-2006

- 188 Capital Improvement Projects totaling $121 million

- Sample Projects
  - Visitor centers / Exhibits
  - Campgrounds
  - Picnic Shelters
  - Roads and Utilities
  - Historical Renovation

Hammocks Beach State Park Visitor Center

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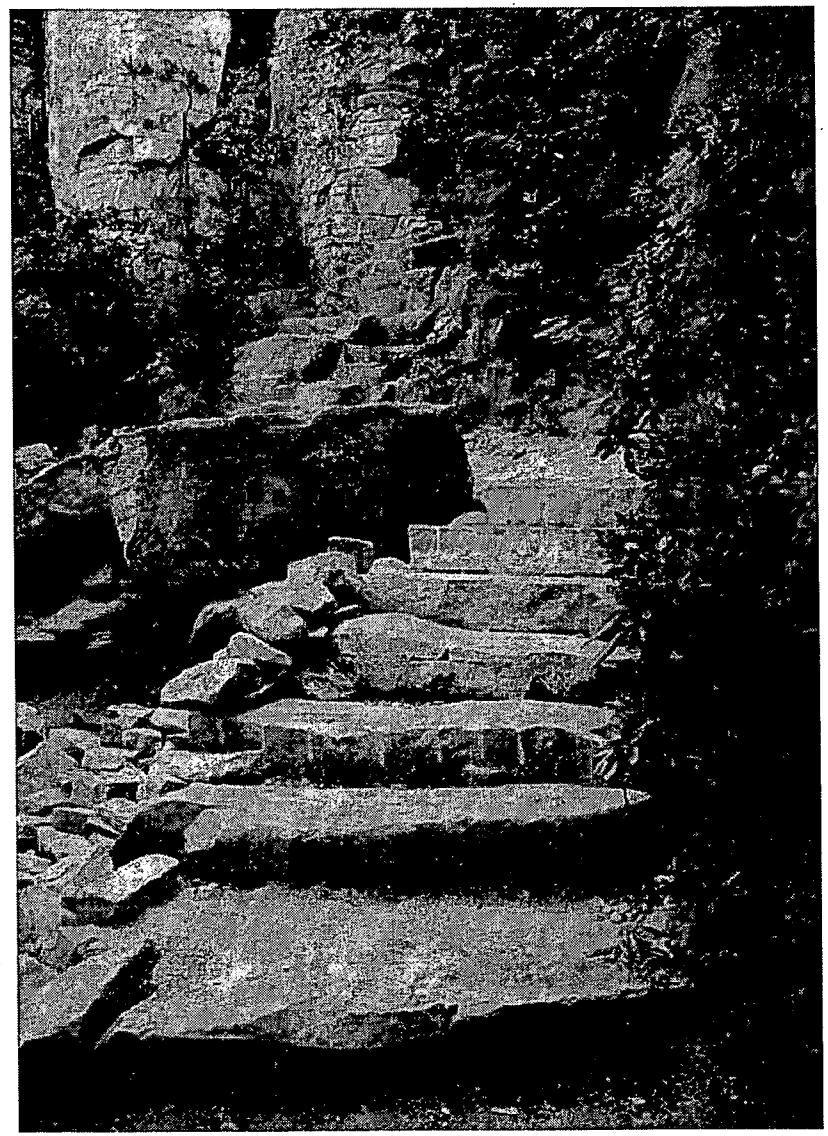
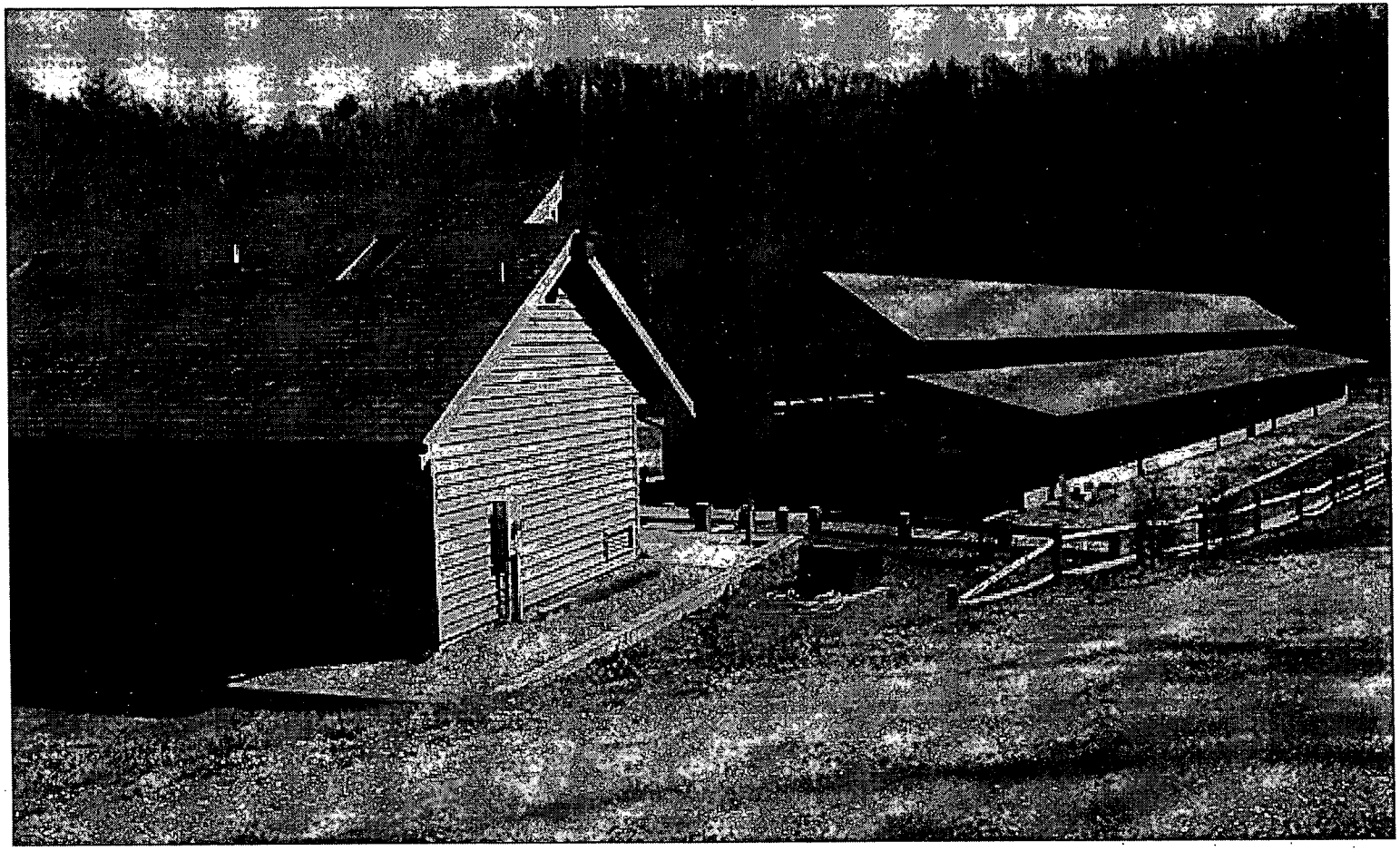
Trail Improvements at Pilot Mountain State Park



NORTH CAROLINA STATE PARKS
Naturally Wonderful
1916 2006
Celebrating 90 Years of Stewardship



Equestrian Campground at South Mountains State Park

NORTH CAROLINA STATE PARKS
Naturally Wonderful
1916 2006
Celebrating 90 Years of Stewardship

Picnic Shelter at Stone Mountain State Park

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1916 2006
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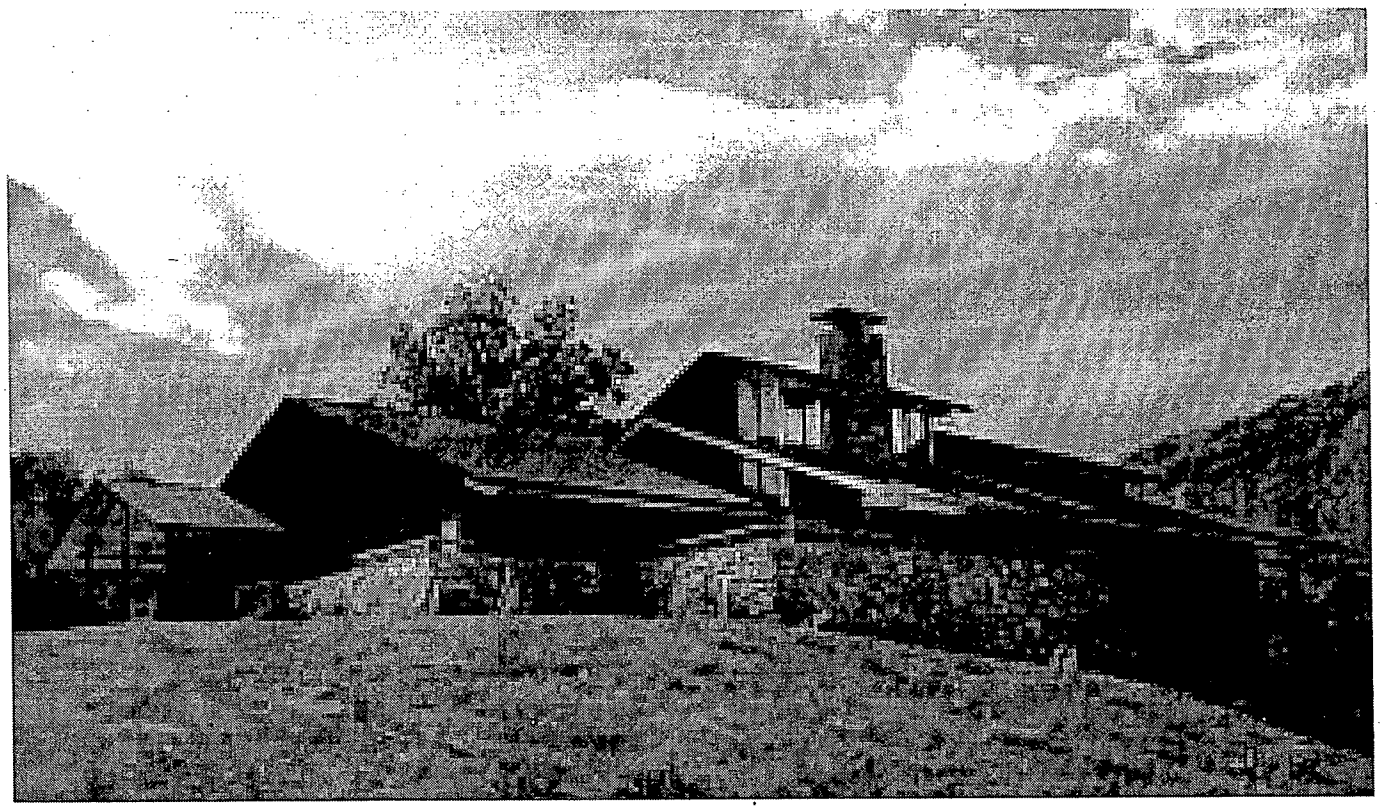
South Mountains Visitor Center

December 2006



NORTH CAROLINA STATE PARKS
Naturally Wonderful
1916 2006
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Cooperation Between PARTF, CWMTF and NHTF

- North Carolina's three conservation trust funds:
  - Parks and Recreation Trust Fund
  - Clean Water Management Trust Fund
  - Natural Heritage Trust Fund

- Have shared in the conservation of many significant areas. Conservation of land within state parks serves multiple goals including:
  - preserving significant natural resources
  - providing recreation in a natural setting, and
  - protecting of water quality.

NORTH CAROLINA STATE PARKS
1916 Naturally Wonderful 2000
Celebrating 90 Years of Stewardship

Cooperation Between PARTF, CWMTF and NHTF

Examples

- Hickory Nut Gorge State Park / World's Edge – about 2,500 acres.
- Lake James State Park / White Creek – about 4,300 acres.
- Elk Knob State Park / Long Hope Valley – about 1,200 acres

Growth of the State Parks System

- The state parks system is experiencing record levels of attendance.
- Additional land and facilities are needed at most state parks; protecting important natural resources.
- Over 40 potential park units have been identified by the New Parks for a New Century initiative.
- On-going repairs and renovations are needed to insure high quality experiences for park visitors.

Size of the State Parks System

- Land Acquisition Opportunities:
  - 43,700 acres at existing state parks for $176 million
  - 113,000 acres at new state parks for $454 million

Capital Needs of the State Parks System

- Capital Improvement Needs:
  - $334 million at existing state parks
  - Estimates for facilities at new parks will be based on park master plans

. . . to protect North Carolina's natural diversity;
. . . to provide and promote outdoor recreation opportunities throughout North Carolina; and
. . . to exemplify and encourage good stewardship of North Carolina's natural resources for all citizens and visitors.

EXHIBIT L

North Carolina

Parks and Recreation Trust Fund

2005–2006

ANNUAL REPORT

Division of Parks and Recreation

Department of Environment and Natural Resources

Michael F. Easley

Governor

William G. Ross Jr.

Secretary Department of Environment and Natural Resources

Parks and Recreation Trust Fund
Annual Report 2005–2006

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Parks and Recreation Trust Fund
Annual Report 2005–2006

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1.0 Introduction

The North Carolina General Assembly established the North Carolina Parks and Recreation Trust Fund (PARTF) on July 16, 1994. The General Assembly made an initial appropriation of $1 million to the PARTF to fund improvements in state parks, to fund grants for local governments and to increase public access to the state's beaches. In 1995, the General Assembly dedicated funds from the excise stamp tax to the trust fund starting in FY 1996-97. The Parks and Recreation Authority, an eleven-member board, was also created to allocate funds from the PARTF to projects in state parks and to grants for local governments.

The excise tax is the primary funding source for the PARTF. The tax is levied on each "deed, instrument, or writing by which interest in real property is conveyed to another person." The tax is levied at the rate of one dollar on each $500 of the interest or property conveyed. Each county remits one-half of the proceeds, less the county's allowance for administrative expenses, to the state. Effective July 1996, the General Assembly (G.S. 105-228.30) stipulated that part of the state's share would be allocated to the PARTF. Of the funds remitted, the Department of Revenue credits 75% to the Parks and Recreation Trust Fund and 25% to the Natural Heritage Trust Fund.

Pursuant to G.S. 113-44.15, the money from the Parks and Recreation Trust Fund is to be allocated as follows:

(1) Sixty-five percent (65%) for the State Parks System for capital projects, repairs and renovations of facilities and to acquire land.

(2) Thirty percent (30%) to provide grants to local governments on a dollar-for-dollar basis to create or improve parks and recreational projects.

(3) Five percent (5%) for the Coastal and Estuarine Water Beach Access Program.

(4) No more than three percent (3%) may be used by the Department of Environment and Natural Resources (DENR) for the operating expenses associated with managing capital improvements projects, acquiring land, and administering the grants program for local governments.

2.0 North Carolina Parks and Recreation Authority

The North Carolina Parks and Recreation Authority, an 11-member board that oversees the Parks and Recreation Trust Fund, was created by the General Assembly with the Authority's powers and duties becoming effective July 1, 1996. The Governor appoints three members, including the chairperson. The General Assembly appoints four members upon the recommendation of the President Pro Tempore of the Senate. The General Assembly appoints four members upon the recommendation of the Speaker of the House.

The Authority is charged with six powers and duties:1) to receive public and private donations and funds for deposit into the trust fund; 2) to allocate funds for land acquisition; 3) to allocate funds for capital projects; 4) to solicit financial and material support; 5) to develop effective support for parks and recreation; 6) and to advise the Secretary of DENR on any matter he may refer to the body.

Members are appointed for three-year terms and may serve no more than two consecutive three-year terms. After serving two consecutive three-year terms, a member is not eligible for appointment to the Authority for at least one year after the expiration of the member's last term. The Parks and Recreation Authority held four meetings during fiscal year 2005-2006.

The 2005-2006 Parks and Recreation Authority members are:

Jonathan Howes
Chapel Hill

Wendell Begley
Black Mountain

Timothy L. Aydlett
Elizabeth City

Lydia Boesch
Pinehurst

Harriet L. Farrior
Wallace

Eddie Holbrook
Shelby

Walt Israel
Belmont

Ron Kincaid
Mount Gilead

Dr. Kenneth M. Sadler
Lewisville

Cynthia Tart
Oak Island

Lisa Weston
Belmont

3.0 Parks and Recreation Trust Fund Summary

The Parks and Recreation Trust Fund (PARTF) is housed within the Division of Parks and Recreation, which operates the North Carolina State Parks System. The Parks and Recreation Authority allocates PARTF revenue to the state parks capital improvement and land acquisition projects. This board also selects the recipients of the grants to local governments to create or improve parks and recreational projects. The Division of Parks and Recreation, under Lewis Ledford, Division Director, develops priorities for the state parks system and recommends projects for the board's approval. Once the board has allocated the PARTF funds, the Division manages the projects for state parks and for the grants program.

The Division of Parks and Recreation transfers 5% of PARTF revenue to the Division of Division of Coastal Management (DCM) for the Coastal and Estuarine Water Beach Access Program. The Division of Coastal Management, under the direction of Charles Jones, administers these funds and offers matching grants to local governments throughout the 20 coastal counties.

Table 3-1 shows the revenues received into the Parks and Recreation Trust Fund and the allocation of revenues by program for fiscal year 2005-2006.

Table 3-1
Parks and Recreation Trust Fund (PARTF)
Distribution of Revenues
Fiscal Year 2005-06

Item	Subtotal	Total
Public Beach and Coastal Waterfront Access Program		$ 2,877,772
Local Governments Matching Grants Program		$ 17,035,688
State Parks System		$ 36,910,656
Land Acquisition	$ 20,053,863	
Capital Improvements	$ 16,151,526	
Repayment of COPs Indebtedness	$ 705,267	
Administrative Expenses		$ 731,323
Contract with NCSU Recreation Resources Service	$ 256,483	
Division of Parks & Recreation staff and Authority members	$ 474,840	
2005-2006 PARTF Revenues		$ 57,555,438

4.0 Grants Program for Local Governments

4.1 *Program Description*

The Parks and Recreation Trust Fund (PARTF) program provides dollar-for-dollar grants to local governments. All counties, incorporated municipalities and public authorities (as defined in N.C.G.S. 159-7) are eligible for funding. Two or more local governments may apply jointly. Recipients can acquire land to use for public recreation or to protect the natural or scenic resources of the property. Recipients can also use a grant to build or renovate recreational and support facilities. All facilities must serve the general public.

In September, the Division of Parks and Recreation (DPR) mails a description of the PARTF program and a schedule to local governmental officials and parks and recreation directors. A local government can request a maximum grant amount of $500,000 in PARTF assistance with its grant application. The approved value of land that is donated to a local governmental unit or public authority may be applied to the 50% matching requirement.

The DPR provides assistance to local governments in several ways. In October, the PARTF staff conducts a workshop where local governments can learn about the program and how to complete an application. The workshop is presented simultaneously at University of North Carolina video conference sites. The DPR has a contract with the Recreation Resources Service (RRS) at North Carolina State University. The staff of RRS can provide technical assistance to local governments who request help in planning projects and preparing grant applications. RRS has six consultants in regional offices across the state.

The members of the Parks and Recreation Authority select which applicants will receive a grant. The factors considered by the Authority as it selects recipients include, but are not limited to, the criteria contained in the PARTF scoring system, the population of the applicant, the geographic distribution of projects across the state, the presence or absence of other funding sources and compliance with prior grant agreements.

Applications are due January 31. The Parks and Recreation Authority meets in May to select recipients from PARTF revenues received for the first three-quarters of the fiscal year. The Authority meets in early July to select grant recipients from PARTF revenues received during the fourth quarter of the fiscal year.

4.2 *Description of Applications and Grants*

The PARTF revenues for grants to local governments for fiscal year 2005-2006 were $17,035,688. Eighty-six units of local government submitted PARTF applications requesting a total of $27.2 million in PARTF assistance. The Authority awarded 55 grants for $17,731,116. The difference between the amount awarded and the fiscal year revenues is $695,428. The additional funds are $43,612 FY2004-05 unspent PARTF administrative allotment, and $651,816 is from various cancelled projects or reductions in the scope of work or projects completed under budget.

Table 4-1 on the following page is a list of the projects approved for fiscal year 2005-2006. The table is organized alphabetically by recipient.

4.3 *Geographic Distribution of Grants*

The members of the Parks and Recreation Authority consider the geographic distribution of funds across the state as one of the factors used in selecting grant recipients. After ten funding cycles, the Authority has awarded over $90 million in PARTF grants to 487 projects in 99 counties across North Carolina. Figure 4-1 (page 7) are maps showing the distribution of PARTF grants by county across North Carolina from 1995-2006.

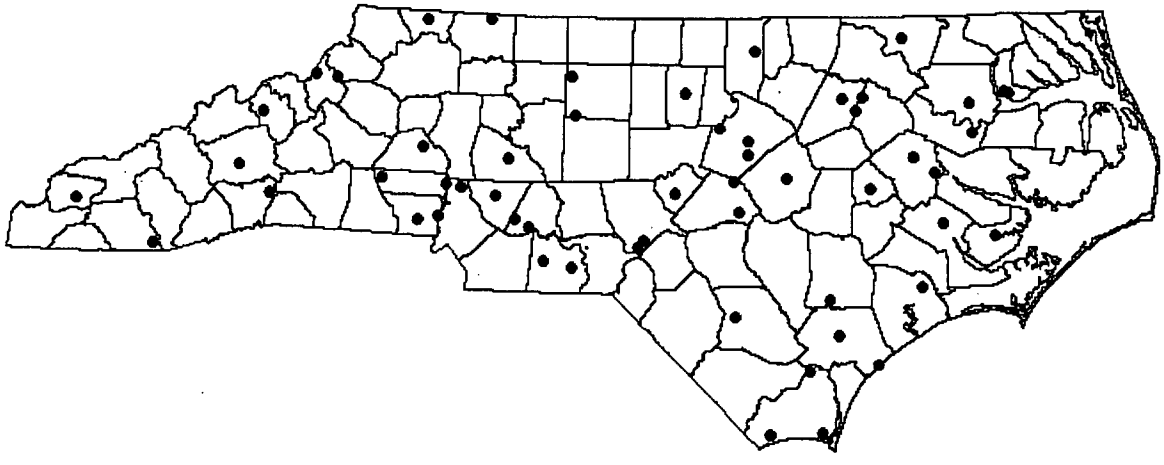
Table 4-1
N.C. Parks and Recreation Trust Fund
Grants Awarded in Fiscal Year 2005-06

Applicant	Project	County	Grant
Town of Aberdeen	Aberdeen Lake Park Recreation Station	Moore	$ 500,000
Alleghany County	Duncan Recreation Center Renovations	Alleghany	$ 64,415
Town of Angier	Jack Marley Park Improvements	Harnett	$ 500,000
City of Asheville	Reid Center Renovation	Buncombe	$ 500,000
Bertie County	Bertie Recreation Complex	Bertie	$ 500,000
Brunswick County	Ocean Isle Beach/Brunswick County Park	Brunswick	$ 500,000
Chowan County	Red Banks Farm Park	Chowan	$ 500,000
City of Claremont	Claremont Park	Catawba	$ 63,557
City of Concord	McEachern Greenway Connector	Cabarrus	$ 487,224
Town of Cornelius	MAC Property Acquisition	Mecklenburg	$ 65,500
Craven County	West Craven Park - Phase I	Craven	$ 500,000
Town of Dublin	Dublin Park	Bladen	$ 50,812
Town of Edenton	Colonial Park Improvements	Chowan	$ 40,000
Town of Elk Park	Lucille Winters Memorial Park Improvements	Avery	$ 6,700
Town of Garner	White Deer Park Phase I	Wake	$ 500,000
City of Gastonia	Lineberger Park Renovation &	Gaston	$ 500,000

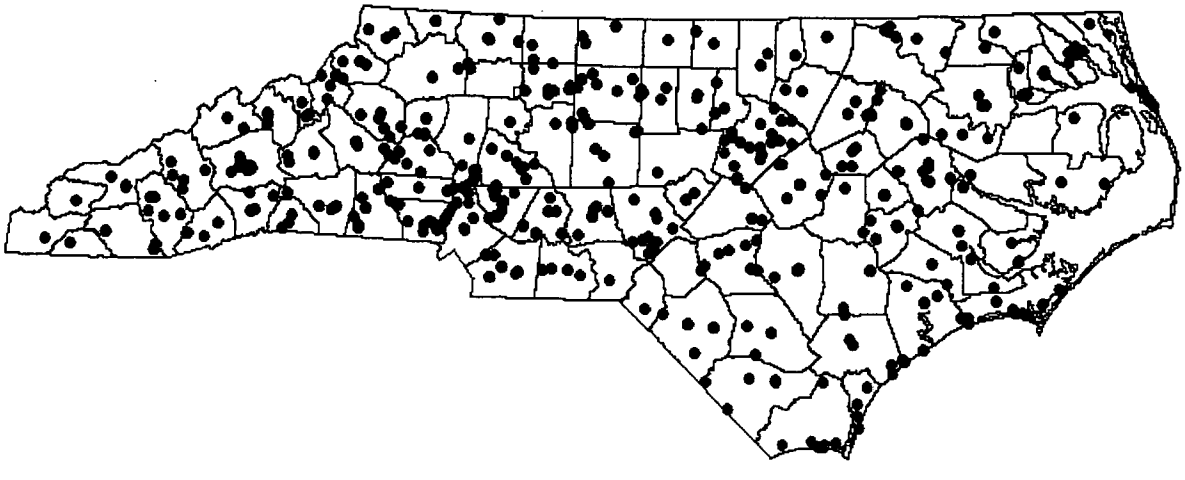
Applicant	Project	County	Grant
	Revitalization		
Graham County	Pool Renovation Project	Graham	$ 500,000
Greene County	Greene County Recreational Complex Phase II	Greene	$ 350,000
City of Greenville	Aquatics and Fitness Center Renovation	Pitt	$ 500,000
Town of Grimesland	Grimesland Park	Pitt	$ 37,500
Harnett County	Cape Fear River Trail Park	Harnett	$ 493,170
Henderson County	Edneyville Community Center	Henderson	$ 500,000
City of High Point	Allen Jay Recreation Center	Guilford	$ 500,000
Town of Highlands	Recreation Park Land Acquisition	Macon	$ 70,000
Town of Hillsborough	Gold Park & Riverwalk Phase 1	Orange	$ 500,000
Town of Jamesville	Jamesville Community Building	Martin	$ 110,000
Lee County	Tramway Road Park Phase II	Lee	$ 500,000
Town of Lilesville	Lilesville Park	Anson	$ 42,000
Lincoln County	Beattys Ford Park	Lincoln	$ 500,000
Lincoln County	West Lincoln Park	Lincoln	$ 500,000
City of Locust	Locust Park	Stanly	$ 494,994
Town of Morrisville	Acquisition of RTP Property	Wake	$ 500,000
City of Mount Airy	Westwood/Tumbling Rock Park	Surry	$ 202,400
City of Mount Holly	Tuckaseegee Park Expansion	Gaston	$ 499,944
Northampton County	Northampton Recreation Complex	Northampton	$ [redacted]
City of Northwest	Northwest Park Improvements	Brunswick	$ 22,382
Town of Oak Island	William S. "Bill" Smith Park	Brunswick	$ 110,000
Town of Oak Ridge	Oak Ridge Town Park	Guilford	$ 500,000
City of Oakboro	Oakboro District Park Phase III	Stanly	$ 350,000
Onslow County	Deppe Park	Onslow	$ 250,000
City of Oxford	Oxford Athletic Park	Granville	$ 500,000
Pamlico County	Raccoon Creek Park	Pamlico	$ 8,000
Pender County	Pender Memorial Park Expansion	Pender	$ 280,000
Town of Pinebluff	Delano Park Baseball Complex	Moore	$ 79,127
Town of Polkton	East Polkton Park	Anson	$ 20,000
City of Raleigh	Walnut Creek Wetland Park Interpretive Center	Wake	$ 500,000
Town of Red Oak	Red Oak Dortches Park	Nash	$ 500,000
City of Rocky Mount	Battleboro Community Park	Edgecombe	$ 150,000
City of Rocky Mount	Soccer Sports Complex	Nash	$ 350,000
City of Salisbury	Sports Complex Renovation	Rowan	$ 250,000
Town of Seven Devils	Otter Falls Park	Watauga	$ 257,620
Town of Smithfield	Smithfield Community & Aquatics Center	Johnston	$ 500,000
Town of Topsail Beach	Topsail Beach Boat Ramp	Pender	$ 290,061
Town of Wallace	Clement Street Park	Duplin	$ [redacted]
Yancey County	Comprehensive Recreational Grounds II	Yancey	$ 182,500
		Total	**$17,731,116**

Figure 4-1- The distribution of PARTF grants by county across North Carolina from 1995-2006.

Parks and Recreation Trust Fund
Grant Awards
2006



Parks and Recreation Trust Fund
Projects 1995 - 2006



5.0 State Parks Program

5.1 *Land Acquisition*

For fiscal year 2005-2006, the Parks and Recreation Authority approved $20,609,956 for land acquisition projects in the state parks system (Table 5-1). These projects will help address the need for additional acreage at 15 state parks. The difference between the amount awarded and the fiscal year revenues is $556,093. The additional funds are $84,270 from projects from fiscal year 2001-02 (Merchants Millpond State Park), $377,823 from fiscal year 2002-03 (Crowders Mountain, Jones Lake, and Raven Rock state parks), and $94,000 from fiscal years 2004-05 (Gorges and Lake Norman state parks) that did not occur because the Division could not reach an agreement with the landowners.

It will cost an estimated $176 million to purchase the 43,752 acres needed to complete all of the current state park units. Additionally, through its "New Parks for a New Century" initiative, the Division of Parks and Recreation has identified over 40 sites across the state that could be added as potential state park units. These areas are some of the most treasured and threatened natural resources in North Carolina and have been identified as high priority acquisitions to the state parks system. Purchasing these new units would require an estimated $454 million to acquire 113,625 acres.

Table 5-1
North Carolina Parks and Recreation Trust Fund
Land Acquisition Projects Approved for FY 2005–06

Unit	Acres	Project Description	Cost
Bullhead Mountain State Natural Area	90	Ridgeline tract and access to the site	$ 500,000
Crowders Mountain State Park	1	Lot and house along Sparrow Springs Road	$ 100,000
Elk Knob State Natural Area	235	Tracts at The Peak for resource protection and access	$ 1,200,000
Eno River State Park	25	River corridor tracts at Cabes Ford	$ 600,000
Hanging Rock State Park	175	Ridgeline tracts at Moore's Wall/Knob and Huckleberry Ridge tract	$ 500,000
Hickory Nut Gorge State Park	570	World's Edge area tracts and Dingle tract	$ 7,800,000

Unit	Acres	Project Description	Cost
Hickory Nut Gorge State Park	48	Tract at Round Top Mountain	$ 1,815,036
Lake Waccamaw State Park	778	Tracts at Big Creek and the Lake Compartment tract	$ 2,000,000
Lower Haw River State Natural Area	132	River corridor tracts upstream of current state ownership	$ 1,000,000
Lumber River State Park	200	River front tracts near Fair Bluff	$ 200,000
Morrow Mountain State Park	80	Mountain Creek tracts	$ 800,000
Mount Jefferson State Natural Area	25	Tracts on the slopes of Mt. Jefferson	$ 200,000
Mount Mitchell State Park	54	Ridgeline tracts	$ 400,000
New River State Park	230	River corridor tracts	$ 2,800,000
Occoneechee Mountain State Natural Area	66	Ridgeline tract containing Panther's Den area	$ 450,000
Pettigrew State Park	1	Tract at existing office - maintenance area with house and workshop	$ 245,000
Total	**2,710**		**$20,609,956**

5.2 *Construction and Renovation*

During fiscal year 2005-2006, the Parks and Recreation Authority approved state park construction and renovation projects totaling $16,151,526 (Table 5-3). With PARTF funds, the Division continues to address a lengthy backlog of construction and renovation projects in the state parks system. However, approximately $335.4 million is required to meet all of the needs for new construction and renovation for state parks.

Table 5-2
North Carolina Parks and Recreation Trust Fund
Capital Improvement Projects for Fiscal Year 2005-06

Park	Project Name	Amount
Fort Macon State Park	Coastal Environmental Education Center	$ 5,998,189
Hammocks Beach State Park	Maintenance Dredging of Cow Channel	$ 400,000
Hammocks Beach State Park	Paving of Bear Island Walkway - Additional Funds	$ 125,000
Haw River State Park	Maintenance Improvements - Brown's Summit Environmental Education Center	$ 636,500
Kerr Lake State Recreation Area	Nutbush Boat Ramp Development	$ 2,067,070
Lumber River State Park	Chalk Banks Water Line Extension	$ 150,000
Mayo River State Park	Interim Facilities	$ 1,035,446
Morrow Mountain State Park	Ranger Residence	$ 300,000
Morrow Mountain State Park	Replacement of Underground Electrical Lines& Transformers - Additional Funds	$ 750,000
Morrow Mountain State Park	Park-wide Building Renovations - Additional Funds	$ 125,000
Mount Mitchell State Park	Viewing Platform - Additional Funds	$ 200,000
Pilot Mountain State Park	Pinnacle Improvements - Additional Funds	$ 500,000
Raven Rock State Park	Visitor Center & Picnic Area Expansion	$ 588,950

Park	Project Name	Amount
South Mountains State Park	Master Plan/Aerial Photography	$ 145,000
South Mountains State Park	Dam Repair at Broughton Lake - Additional Funds	$ 330,000
Stone Mountain State Park	Loop Trail/Big Sandy Trail Improvements and Trailhead	$ 110,100
Park System	Construction Reserve	$ 840,271
Park System	Demolition Fund	$ 150,000
Park System	Major Maintenance Funds	$ 1,200,000
Park System	Trail Maintenance Funds	$ 500,000
	Total	**$ 16,151,526**

5.3 *Special Financing for Projects in State Parks*

The General Assembly passed House Bill 1264 in July 2004. Governor Easley signed the bill on August 5, 2004. The law authorizes the State to use special indebtedness, commonly referred to as "certificates of participation", or COPS, to finance land acquisitions for conservation purposes. The law also authorized the use of COPS to finance health and education projects in the University of North Carolina system and for youth development centers.

Specifically, the law authorizes the State to issue or incur special indebtedness to finance the acquisition of property for three programs:

- The Parks and Recreation Trust Fund - to buy land and build park facilities for the State Parks System;
- The Natural Heritage Trust Fund - to acquire land that represents the ecological diversity of the state and land for state parks, wildlife areas, and similar public purposes;
- The Clean Water Management Trust Fund - to acquire buffers that help to conserve surface water and drinking water supplies as well as to restore wetlands.

The law authorizes the governing body of each fund to allocate a portion of its stream of income for debt service on debt incurred to acquire property. The three trust funds must work together to keep the total debt below the maximum dollar amounts for the authorized projects. The authorization is limited to a total of $45 million as follows:

- $20 million to acquire up to 17,000 acres near North Carolina military bases in order to prevent encroachment by incompatible development.

- $25 million to acquire up to 6,000 acres to expand an existing state park, provide game lands to help protect North Carolina's rivers, provide two new state parks along North Carolina's rivers and to provide capital improvements to an existing state park as part of its expansion.

Repayment of COPs Indebtedness - The Parks and Recreation Authority may allocate up to 50% of the portion of the Parks and Recreation Trust Fund dedicated for projects in state parks to repay the debt. The PARTF revenue designated for grants to local governments cannot be used to repay debt. In FY 2005-06, the Authority members approved $ 705,267 for debt repayment as requested by the State Treasurer.

Table 5-3
Parks and Recreation Trust Fund Projects
Using Certificates of Participation (COPs) Fiscal Year 2005-06

Unit	Acres	Project Description	Amount
Carvers Creek State Park	772	Tract containing extensive Sandhills natural communities within the Fort Bragg buffer area.	$3,600,000
Haw River State Park	250	Multiple tracts along the Haw River. Recently authorized new state park.	$1,250,000
Lake James State Park	na	Capital improvements to provide initial public access.	$2,500,000
Mayo River State Park	250	Multiple tracts along the Mayo River. Recently authorized new state park.	$1,250,000
Lake James State Park	up to 25	In holding tracts	$101,616
Total	**1,297**		**$8,701,616**

6.0 Public Beach and Coastal Waterfront Program

6.1 *Program Description*

North Carolina's Public Beach and Coastal Waterfront Access Program was established by the General Assembly in 1981. In fiscal year 1996-97, the program began receiving 5% of the revenues from the Parks and Recreation Trust Fund. The programs enabling legislation (GS 113A-134.1) states that public purpose would be served by providing increased access to coastal waters, public parking facilities, or other related public uses.

The program provides matching grants to local governments for low-cost capital projects designed to improve pedestrian access to the state's beaches and waterways. The program, administered by the Division of Coastal Management (DCM), offers matching grant funds to local governments throughout the 20 coastal counties. Since 1981, over 300 public access sites have been constructed at a cost of over $27 million ($15 million state/federal and $12 million local funds). Local governments are responsible for construction, operation and long-term maintenance of the facilities. While most of the early projects were located along the oceanfront, more and more projects are now designed to improve access to estuarine shorelines, coastal rivers, and urban waterfronts.

The Division of Coastal Management sends requests for proposals to local governments in the 20 coastal counties in March of each year. The division uses criteria developed by the Coastal Resources Commission to select grant recipients. Local governments are required to match at least 25% of the project costs. Recipients are usually selected in July and contracts are awarded in between September and January. Grant recipients have one year to complete their projects. However, extensions are granted for unforeseen events and delays such as hurricanes.

6.2 *Types of Projects Funded*

Communities can apply for five different types of water access sites: local, neighborhood, regional, multi-regional and urban waterfront redevelopment projects.

- Local access sites include public access points, which offer minimal, or no facilities. Pedestrians who reside within a few hundred yards of the site primarily use them. Generally, these access ways are a minimum of ten feet in width and provide only a dune crossover or pier, if needed, litter receptacles and public access signs. Vehicle parking is generally not available at these access sites. However, bicycle racks may be provided.

- Neighborhood access sites are public access areas offering parking, usually for five to twenty-five vehicles, a dune crossover or pier, litter receptacles and public access signs. Such accesses are typically 40 to 60 feet in width and are primarily used by individuals within the immediate subdivision or vicinity of the site. Restroom facilities may be installed.

- Regional access sites serve the public throughout an island or community including day visitors. These sites normally provide parking for 25 to 80 vehicles, restrooms, a dune crossover, pier, foot showers, litter receptacles and public access signs. Where possible, one-half acre of open space in addition to all required setback areas should be provided for buffering, day use, nature study or similar purposes.

- Multi-regional access sites are generally larger than regional accessways but smaller than state parks. Multi-regional facilities provide parking for 80 to 200 cars, restrooms with indoor showers and changing rooms, and concession.

- Urban waterfront redevelopment projects improve public access to utilized urban waterfronts. Such projects include the establishment or rehabilitation of boardwalk areas, shoreline stabilization measures such as the installation or rehabilitation of bulkheads, and the placement or removal of pilings for the purpose of public safety and/or increased access and use of the urban waterfront.

6.3 *PARTF Revenues and Grant Awards Based On Fiscal Year 2005-2006*

The beach access program grants are funded on a calendar year cycle. Historically, DCM has solicited pre-application proposals from coastal communities in March of every year. Invited final applicants proposals are usually due in June and prioritized requests are awarded contracts to begin sometime between October and the end of January. Annually, DCM pre-determines funds available, by using PARTF revenues from the last quarter of the previous fiscal year (2004-05), and the first three quarters of the more current (2005-06) fiscal year. The actual amount transferred from the PARTF fund to DCM during fiscal year 2005-2006 was $2,878,910 however only the first three quarters of these funds ($2,212,791) are considered available plus the last quarter of previous 2004-2005 fiscal years' deposit ($517,812). Additionally, any monies from the previous year, due to cancelled projects or projects that came in under budget, are also incorporated into the available budget for grant awards. For this fiscal year's report the total funds available were $4,210,784. (see Table 6-1).

DCM has prioritized $3,421,230 for grant contracts to begin in September of 2006 for the local governments listed in Table 6-2. The balance of $779,554 will be reserved for fiscal year 2006-2007.

DCM received 36 pre-applications from 22 local governments requesting $4,230,000. DCM reviewed 29 final applications from 19 local governments with the requests totaling $3,421,230. Table 6-2 is the list of local governments prioritized to receive funding.

Table 6-1 Division of Coastal Management Distribution of PARTF Revenues for Fiscal Year 2005-06	
Item	Amount
PARTF revenues received in first three quarters of fiscal year 2005-2006	$ 2,212,791
Fiscal year 2004-05 (4th quarter PARTF revenues) and a	$ 517,812
Reserve from canceled projects and projects completed under budget as of July 1, 2006	$ 1,480,181
***Total available for fiscal year 2005-2006 grant cycle**	**$ 4,210,784**
Prioritized Awards (May 2006)	**$ 3,421,230**
Budget for New and Replacement Access Signs	(10,000)
Carryover for grants to be awarded in fiscal year 2006- 2007	$ 779,000
PARTF 4th quarter 2005-2006 revenue received and reserved for 2006-07 fiscal year.	$ 664,980
*Balance available for FY 2006-2007 Cycle	$ 1,443,980

* Annual funding cycle is based on PARTF revenues for the first three quarters of fiscal year 2005-2006 and any reserve from the previous fiscal years including the fourth quarter revenues. The balance of $1,443,980 will be added to upcoming PARTF deposits and used to fund projects based on the fiscal year 2006-07 cycle.

Table 6-2 Public Beach and Coastal Waterfront Access Program Communities Selected FY 2005-06 *			
Local Government	Project Description	Projected Grant	**Total Cost w/Match
Town of Atlantic Beach	Henderson Blvd. Acquisition and Parking	$ 400,000	$ 535,000
Brunswick County	Town Creek-NC 133 Regional Access	$ 310,171	$ 413,562
Brunswick County	Town Creek-US 17 Neighborhood Access	$ 53,888	$ 82,618
Town of Caswell Beach	Beach Access Replacements	$ 30,300	$ 40,400
Town of Columbia	Waterfront Boardwalk Improvements	$ 18,750	$ 25,000
Town of Duck	Currituck Sound Access Site-Phase II	$ 368,500	$ 590,500
Town of Holden Beach	Wetland Ecosystem Educational Regional Access	$ 237,525	$ 316,700
Hyde County	Swan Quarter Waterfront Access Park	$ 86,550	$ 115,400
Town of Kure Beach	K Avenue Public Restroom Facility	$ 61,875	$ 82,500
Town of Kure Beach	Beach Access Parking Improvements	$ 46,875	$ 62,500
Town of Kure Beach	Bike Rack Installations-Beach Accesses	$ 6,562	$ 8,750
Town of Kure Beach	Upgrade Handicapped Parking at 7 Access Sites	$ 64,796	$ 86,395
Town of Morehead City	Radio Island/Newport River Access	$ 93,750	$ 125,000
Town of Nags Head	Bittern Street Access	$ 34,925	$ 46,600
Town of Nags Head	June Street Access	$ 54,800	$ 73,100
Town of Nags Head	Town Hall Access	$ 57,425	$ 76,600
Town of Nags Head	Indigo Street Access	$ 49,550	$ 66,100
City of New Bern	Leander Park Walkway and Access Piers	$ 74,660	$ 131,040
***New Hanover County	Ft. Fisher Basin Regional Access Improvements	$ 200,000	$ 264,500
Town of Ocean Isle Beach	Winnabow Street Beach Access Parking	$ 27,267	$ 36,356
Town of Ocean Isle Beach	Chadbourn Street Beach Access Parking	$ 27,267	$ 36,356
Town of Oriental	Lou-Mac Park Fishing Pier	$ 24,300	$ 32,400
Town of Pine Knoll Shores	Pine Knoll Shores Soundside Park .	$ 332,100	$ 442,800
Town of Surf City	Land Acquisition-Parking & Kayak/Canoe Launch and Boardwalk	$ 187,204	$ 249,606

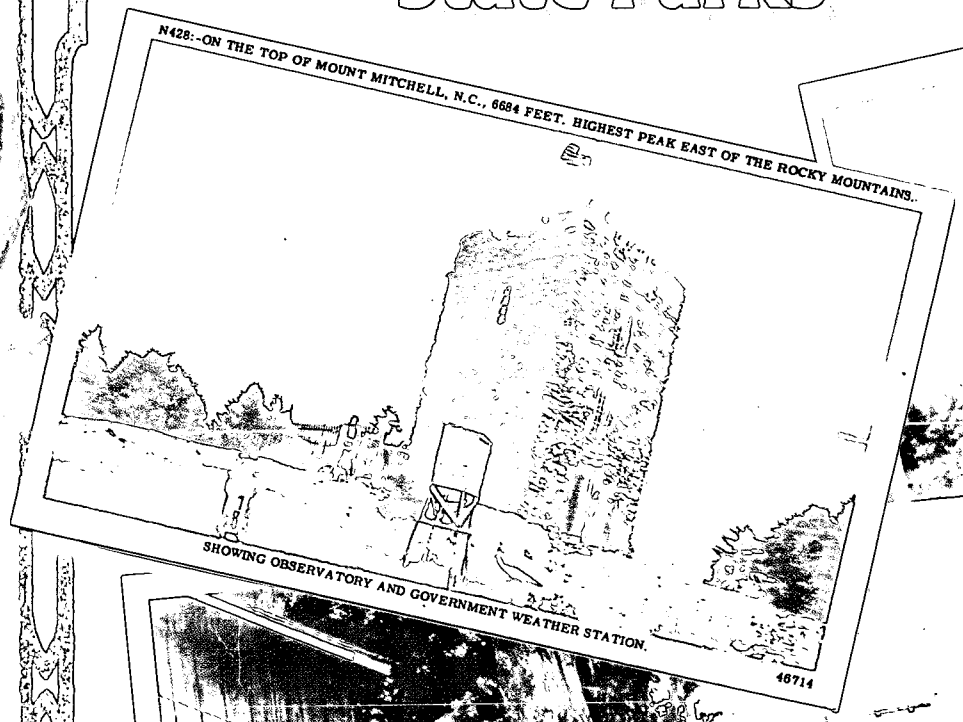
Table 6-2 Public Beach and Coastal Waterfront Access Program Communities Selected FY 2005-06 *			
Local Government	Project Description	Projected Grant	**Total Cost w/Match
Town of Surf City	Soundside Park Phase III Boardwalk	$ 93,225	$ 124,300
Town of Topsail Beach	Smith Avenue Soundside Access	$ 22,000	$ 29,469
Town of Topsail Beach	Nixon Street Beach Access Easement Acquisition	$ 94,369	$ 129,369
City of Washington	Phase II Site Improvements	$ 100,000	$ 133,333
City of Wilmington	Love Grove Regional Access-Burt Mill Creek	$ 262,596	$ 350,131
	Total	**$3,421,230**	**$4,706,385**

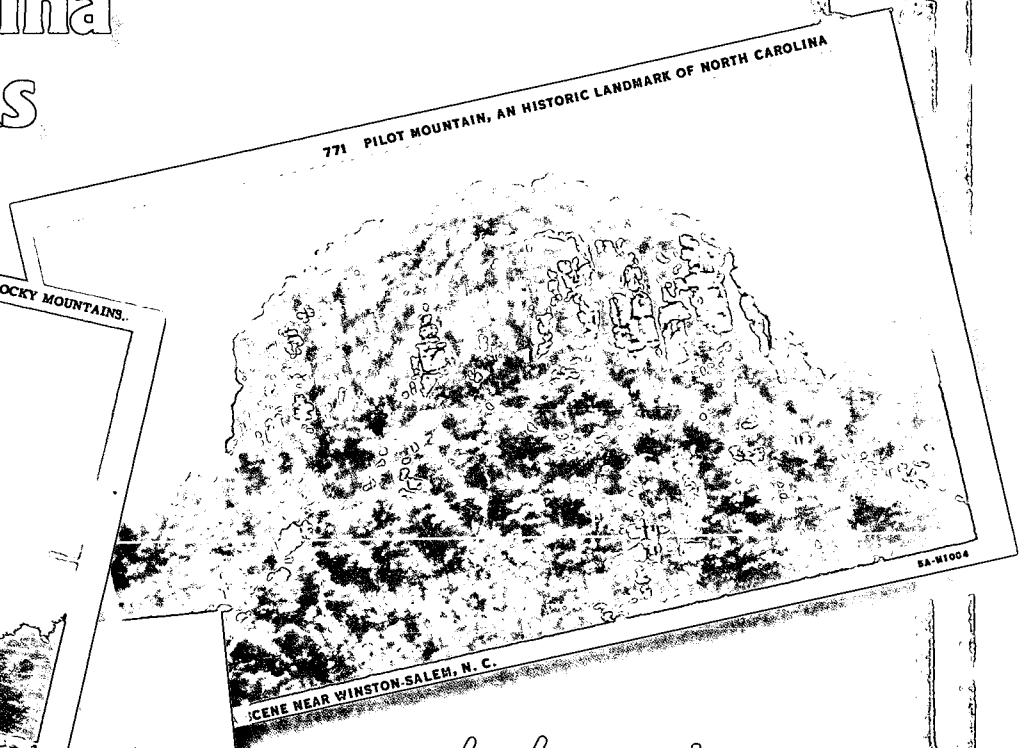
* Projects selected for funding are not expected to be under state contract until September 2006

** Figures are projections due to formal contracts yet to be finalized which may recognize more specific match requirements. Match identified as both cash and non-cash match. Expected cash match total is $1,003,695 and non-cash match $281,460.

*** Project expected to include participation with Wildlife Resources Commission

North Carolina State Parks





Celebrating 90 Years of Stewardship

EXHIBIT M

Post Card.

Over the past 90 years, the people of this great state have demonstrated foresight and wisdom in protecting exceptional natural resources and providing outstanding recreational opportunities through the North Carolina state park system, which attracts 13 million visitors each year. It is with great pride that I share this synopsis of our history and our recent accomplishments. I also commend to you the Friends of North Carolina State Parks organization and its support of our efforts. I hope you will have an opportunity to visit one of our parks in the very near future. I am sure you will find them to be "Naturally Wonderful."

Sincerely,
Lewis R. Ledford
Director, North Carolina State Parks & Recreation

To
Present and Future
Friend of State Parks

Our Mission

The mission of the North Carolina Division of Parks & Recreation is to protect North Carolina's natural diversity; to provide and promote outdoor recreation opportunities throughout North Carolina; and to exemplify and encourage good stewardship of North Carolina's natural resources for all citizens and visitors of North Carolina.

We in North Carolina are blessed with beautiful beaches, majestic mountains and countless rivers and streams in between.

State Parks System History

1891 Geological Survey for North Carolina established to determine the nature and extent of mineral and timber resources.

1905 Geological Survey reorganized into the North Carolina Geological and Economic Survey. The survey examined mineral, forest, fish, and all other material resources of the state.

1916 **Championed by Governor Locke Craig, Mount Mitchell State Park, was authorized through legislation passed in 1916 and established with the initial land acquisition (purchase by the state) of 795 acres.**

1921 Division of Forestry created within the Geological and Economic Survey. Parks administered under the Division of Forestry.

1924 **Fort Macon State Park** established with a gift of land from federal government surplus property.

1925 G.S. 113-22 gave the Department of Conservation and Development control of **Mount Mitchell** and other state parks.

1929 Chapter 165 of General Statutes directed that state-owned lakes of 50 acres or more be administered, as provided for other recreation areas by the Department of Conservation and Development. **White Lake** and the following state lakes were established: Bay Tree, Waccamaw, Phelps, Singletary, Salters and Jones.

Chapter 282 established policy that new park land would not be purchased by the state, but that "public spirited citizens" would purchase or donate land for park purposes.

1934 Civilian Conservation Corps and other federal public works programs began the expenditure of $2.25 million for park development.

1935 **Morrow Mountain State Park** established from gifts of land from private individuals and Stanly County.

1936 The Recreation Area Study formed a list of requirements for establishing areas to be state parks. Requirements included natural beauty, recreation possibilities, statewide historic or scientific values, natural scenery, and locations near population centers.

Hanging Rock State Park established from a gift of land from private individuals.

1939 **Baytree Lake State Park** established from legislative reallocation of administrative authority.
Singletary Lake and **Jones Lake State Park** were established initially as leases and then a land gift from federal government.

1940 Park, Parkway, and Recreation Area Study prepared a comprehensive plan for establishing the administration and operations of the state parks system. However, the study was not funded as World War II directed attention from the parks.

1945 **Cliffs of the Neuse State Park** established from a gift of land from a private individual. The North Carolina Recreation Commission – the country's first – was established.

1947 The General Assembly appropriated $50,000 for the construction of public facilities. Appropriation was marked as the first state park capital improvement appropriation. **Pettigrew State Park** established as first a lease and then a gift of land from the federal government.

1948 State parks elevated to divisional status within the Department of Conservation and Development.

1949 The General Assembly appropriated $1,074,144 to the Division of Parks for the purchase of small tracts of land within park boundaries, and for the construction of roads, parking areas, and other types of facilities.

1951 **Kerr Lake Reservoir** opened under the Kerr Reservoir Development Commission, as a lease from the U.S. Army Corps of Engineers.

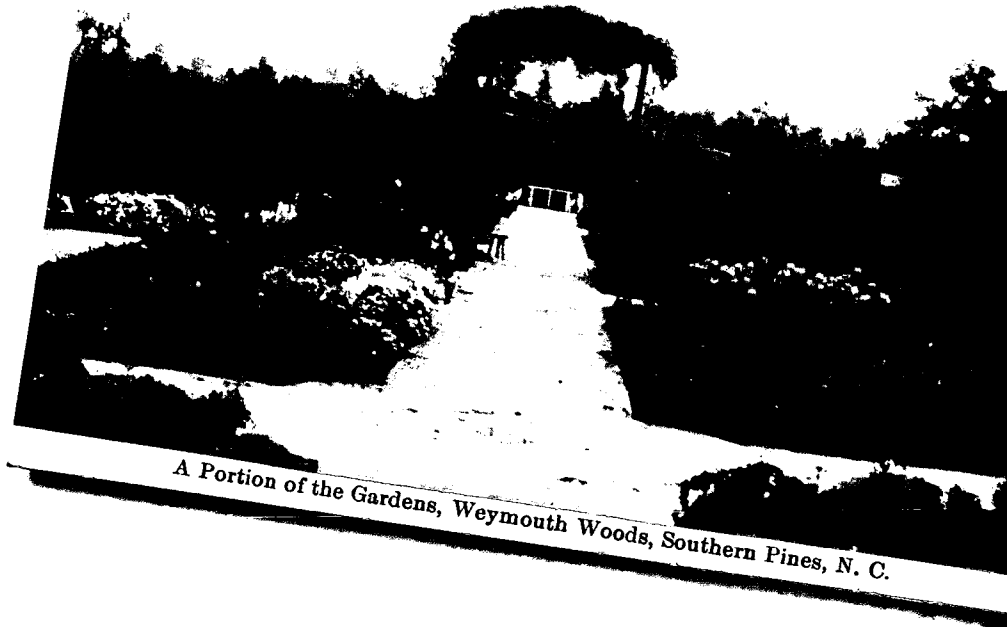
1955 The General Assembly transfered historic sites from the Division of Parks to the newly formed Department of Archives and History to allow the Division of Parks to concentrate on recreational and scenic values.

1956 **Mount Jefferson State Park** (later redesignated as a State Natural Area) established with a gift of land from private individuals and the Town of West Jefferson.

1961 **Hammocks Beach State Park** established with a gift of land from the North Carolina Teachers' Association and the Hammocks Beach Corp.

1962 **Duke Power State Park** established with a gift of land from Duke Power Co. (Later renamed Lake Norman State Park)

1963 The Board of Conservation and Development adopted principles for state natural areas.



A Portion of the Gardens, Weymouth Woods, Southern Pines, N. C.

Weymouth Woods State Nature Preserve established with gift of land from a private individual.

1965 Land and Water Conservation Fund, a federally funded program to provide matching funds for park acquisition and development, was created.

1967 State Parks and State Forest Study Commission created by the General Assembly to examine outdoor recreation. The study recommended purchasing new parks, upgrading existing facilities, and expanding staff.

1968-1971

Pilot Mountain State Park established with purchase of land using funds raised by local support group and Appalachian Regional Commission to match grant from LWCF. **Stone Mountain State Park** established with a gift of land from the N.C. Granite Corporation. Funds from the Appalachian Regional Commission also used to match LWCF grant. **Carolina Beach State Park** established with purchase of land by state. **Raven Rock State Park** established with purchase of land using LWCF grant funds matched with state funds. **Bushy Lake State Natural Area** established by administrative reallocation of authority.

1972 "Now or Never" report identified potential park lands, lost opportunities, and highlighted the need for action. State Parks, Kerr Reservoir, and the Recreation Commission merged under the Department of Natural and Economic Resources as the Office of Recreation Resources. Natural and Scenic Rivers System Act passed. North Carolina Environmental Policy Act passed.

Theodore Roosevelt State Natural Area established with a gift of land from the Roosevelt heirs.

1972 A constitutional amendment to conserve and protect North Carolina's natural resources was passed.

1973 North Carolina Trails System Act passed. The General Assembly appropriated $11.5 million for new park lands and $2.4 million to improve existing facilities. **Crowders Mountain, Eno River, Medoc Mountain, Merchants Millpond state parks** are established.

1974 **Dismal Swamp** and **Chowan Swamp state natural areas** and **Goose Creek State Park** were established.

1975 The General Assembly appropriated $5.5 million for park lands and $3 million for capital improvements. **Jockey's Ridge and South Mountains state parks** were established.

1976 **Linville River** designated as a component of the Natural and Scenic River System.

Hemlock Bluffs, Masonboro Island and **Mitchell's Mill** state natural areas and **Lake Waccamaw State Park** were established.

1977 **New River State Park** established and designated as a component of the Natural and Scenic River System.

1979 ew Directions" report from the second State Park Study Commission (crea 1977) recommended expanding existing parks, increasing recreational activities and staffing, and increasing revenues generated by parks. A five-year plan was outlined.

Baldhead Island State Natural Area established with a gift of land from The Nature Conservancy.

1982 **Jordan Reservoir State Recreation Area** opened with lease from U.S. Army Corps of Engineers.

1983 **Falls Reservoir State Recreation Area** opened with lease from U.S. Army Corps of Engineers.

1984 Third State Parks Study Commission concluded that insufficient funds existed for acquiring critical lands; that 50-year old park buildings needed repairs; and that the system was understaffed and rangers were underpaid.

1985 State Goals and Policy Board made six recommendations for action to reverse deplorable condition of parks. General Assembly appropriated $25 million for land acquisition. Subsequent adjustments in the appropriation diverted some funds to other purposes.

1986 **Fort Fisher State Recreation Area** was established, and **Horsepasture River** was designated as a component of the Natural and Scenic River System.

1987 The 4th State Parks and Recreation Area Study Commission recommended establishing a trust fund to purchase and manage land. At the behest of Gov. James G. Martin, the General Assembly passed the State Parks Act. The act defined the mission and purpose of the State Parks System and called for a system plan to be submitted to the General Assembly. A State Auditor's report made recommendations which included staffing, funding, land acquisition, and capital improvements.

The General Assembly created the North Carolina Natural Heritage Trust Fund to provide supplemental funding for the acquisition and protection of important natural areas, to preserve the state's ecological diversity and cultural heritage, and to inventory the natural heritage resources of the state.

Lake James State Park became the first state park established under the new State Parks Act. Funding was appropriated for land, capital improvements, staff and operating budget.

At the direction of Gov. Martin, State Parks initiated a commitment to bring environmental education and interpretation to the lives of all the state's citizens, particularly school children.

1988 In response to the recommendations of a multi-agency task force, the first group of state park rangers was commissioned as fully trained and certified state law enforcement officers. Commissioning rangers as special peace officers had been restricted by the administration since the mid-1970s due to costs ociated with mandated training.

1989 The General Asse harged the N.C. Department of Transportation with maintaining the state road system. $500,000 per annum is allocated for this purpose.

Fifth State Parks and Recreational Areas Study Commission recommended capital improvements of $20 million over an eight-year period and additional staff to support construction projects, planning, land acquisition and the rivers and trails programs.

Lumber River State Park established and designated as a component of the Natural and Scenic River System.

1993 $35 million bond referendum passed.

1994 The General Assembly established the Park and Recreation Trust Fund with the support of Gov. James B. Hunt.

1995 **Run Hill** and **Occoneechee Mountain state natural areas** were established.

1996 The General Assembly created the Clean Water Management Trust Fund in order to issue grants to local governments, state agencies and conservation non-profits to help finance projects that specifically address water pollution problems.

1997 The **Gorges State Park** was established.

1998 The federal government designated the **New River** as an American Heritage River and designated 81 miles of the **Lumber River** as a Wild and Scenic River.

1999 The General Assembly amended the State Nature and Historic Preserve Act, and dedicated property in the State Parks System into the State Nature and Historic Preserve. The bills provided important recognition and protection for significant natural areas in the State Parks System.

2000 During a ceremony adding 1,300 acres to **Crowders Mountain State Park**, Gov. Jim Hunt announced his plan to preserve an additional million acres of open space in the state by 2010. Later that year, Hunt signed legislation putting the goals of his "Million Acre Initiative" into state law.

2001 2,500 acres were purchased from International Paper Co. and added to **Lumber River State Park**. Significant land purchases were also made in 2001 to expand and protect areas of **Crowders Mountain, Hanging Rock, Morrow Mountain, Stone Mountain, William B. Umstead, Raven Rock** and **South Mountains state parks.**

Lea Island State Natural Area was established. Museums dedicated to environmental education were completed at **Mount Mitchell** and **William B. Umstead state parks** and **Weymouth Woods Sandhills Nature Preserve**. A visitor center at **Hammocks Beach**, a community center at **Lake Norm** and an equestrian cen **South Mountains** were completed.

2002 DENR unveils "One North Carolina Naturally," a new statewide land and water protection initiative established to guide North Carolina's future conservation efforts. The "One North Carolina Naturally" initiative was established to lead the development and implementation of a comprehensive statewide conservation plan involving government agencies, private organizations, landowners and the public.

2003 The division launched its "New Parks for a New Century" initiative in conjunction with DENR's One North Carolina Naturally program. The planning effort identified 47 sites in North Carolina as potential additions to the parks system as state parks, recreation areas or natural areas. Two of the 13 potential state parks identified were authorized by the General Assembly in the **Haw** and **Mayo river corridors**, and natural areas were established at **Elk Knob** and **Beech Creek Bog**.

A new exhibit hall was built at **Hammocks Beach** and exhibits and the restoration at **Fort Macon** were completed. The four-year restoration at **Fort Macon** was the largest single capital project in the division's history at $12.3 million.

2004 Gov. Easley authorized the purchase of 2,915 acres in Burke County for $18.3 million to expand **Lake James State Park** by nearly six times its current size, protecting key natural resources and boosting tourism and recreational opportunities. A 531-acre acquisition on the western side of the **Mayo River** in Rockingham County provided the first property for the new state park.

A bathhouse and picnic complex were completed at **Hammocks Beach** and an exhibit hall was built at **Crowders Mountain**.

2005 The New Parks for a New Century initiative moved forward with the General Assembly's authorization of new state parks at **Carver Creek** in Cumberland County and at **Hickory Nut Gorge** in Rutherford County. The division purchased the former Browns Summit Center in Rockingham County as part of **Haw River State Park** and created the state parks system's second regional environmental education center and the first with overnight accommodations.

A new visitor center with exhibits was completed at **Jones Lake**.

As part of a special agreement, 454 acres, known as the School for the Deaf Watershed, were transferred to **South Mountains State Park**, where an environmental education center designed for people with disabilities will be developed.

2006 Gov. Easley requested and the General Assembly approved $15 million for the expansion of **Hickory Nut Gorge State Park.**

The Mountain Bogs (Sugar Mountain and Pineola) and **Sandy Run Savanna** were authorized as ate natural areas.

State Parks System Accomplishments

2005

1. The division forged ahead on the New Parks for a New Century initiative with the General Assembly's authorization of new state parks at Carver Creek in Cumberland County and at Hickory Nut Gorge in Rutherford County. The division is acquiring key properties for both parks with the help of land conservancies and the state's three conservation trust funds.

   Using grants from the Parks and Recreation Trust Fund, the division added the former Browns Summit Center in Rockingham County into Haw River State Park. The center will be the state parks system's second regional environmental education center. Land acquisition efforts continue at the new Mayo River State Park, also in Rockingham County, with its size doubled in the past year to 1,588 acres.

2. Significant land acquisitions at existing state park units in 2005 included more than 2,500 acres purchased and donated to create a new Scuppernong River Section at Pettigrew State Park in Washington and Tyrell counties. This important conservation effort along one of the state's last undeveloped river corridors protects rare species and habitat. The division also acquired 785 acres at Elk Knob State Natural Area in Watauga and Ashe counties. And, 113 acres (former Eure property) were added at William B. Umstead State Park.

3. A new 6,273 square-foot visitor center and extensive renovations to related visitor facilities at Jones Lake State Park in Bladen County were completed. Also, new visitor centers are being constructed at New River, South Mountains and Merchants Millpond state parks. A new access area providing day-use recreation and overnight camping is now available to the public along the Lumber River in Scotland County. And, overnight camping facilities at Stone Mountain State Park in Wilkes County were significantly expanded.

4. The division launched a major planning effort for 2,914 acres purchased in 2004 from Crescent Resources Inc. and added to Lake James State Park. The acquisition, representing about 30 miles of shoreline, protects critical watershed and viewshed areas in Burke County and provides room for much-needed recreation facilities.

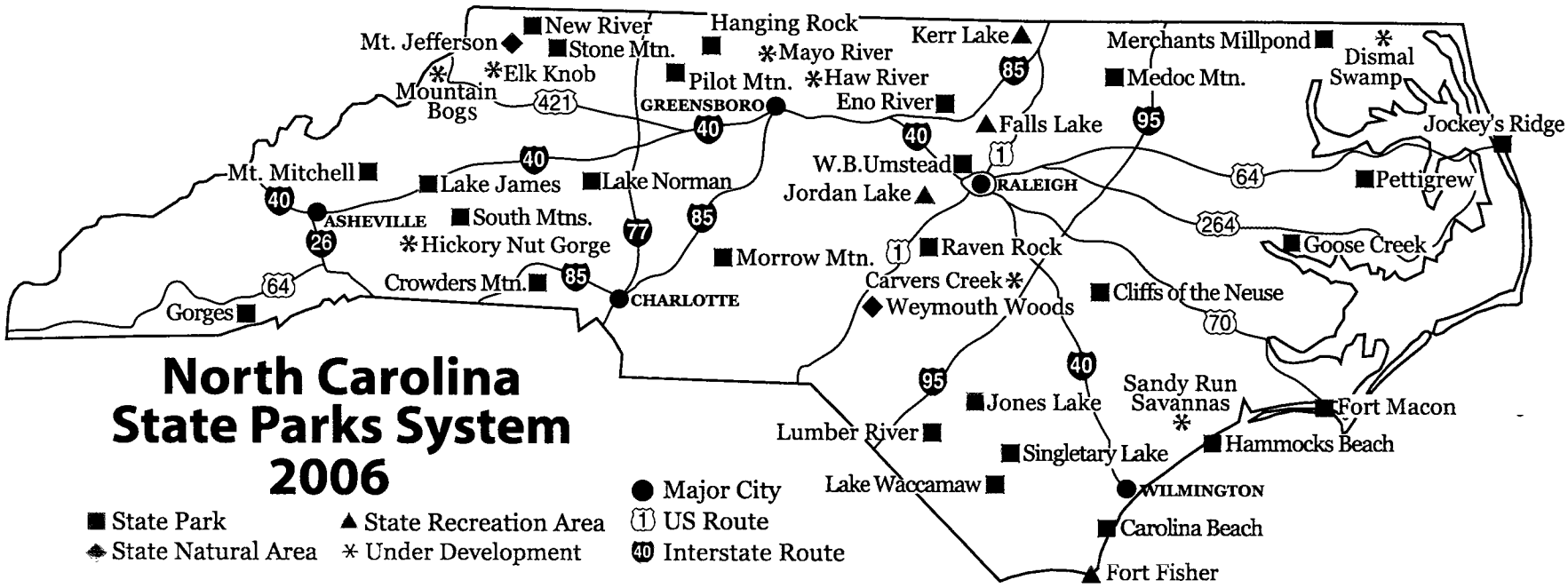
5. A record $13.7 million was channeled into local park acquisition and improvement projects through 50 grants from the Parks and Recreation Trust Fund, administered by the division. In the 11-year history of the fund, more than $74 million has been awarded through 422 matching grants to municipal and county recreation programs in all areas of the state.

6. North Carolina's state parks system was one of four finalists for the 2005 Gold Medal Award for Excellence in Park and Recreation Management presented by the American Academy for Park and Recreation Administration. The Gold Medal Awards are considered the most prestigious in the field of parks and recreation management. The division was judged on 11 criteria including the quality of long-range planning, the response to population and economic trends, the extent of citizen support, the quality of natural resource protection and the types of services to special population groups.

2006 (interim)

1. The General Assembly appropriated $15 million to support land acquisition at Hickory Nut Gorge State Park in Rutherford County.

2. Two rare and highly sensitive types of ecosystems were added to the state parks system during the 2006 General Assembly. Legislators authorized the Mountain Bog State Natural Area in Avery County and Sandy Run Savannas State Natural Area in Pender and Onslow counties. The clusters of mountain bogs and savannas are identified as important additions in the division's New Parks for a New Century initiative, which surveys all known significant sites in the state.


New River
Hanging Rock
Mt. Jefferson
Stone Mtn.
Mayo River
Kerr Lake
Merchants Millpond
Dismal Swamp
Elk Knob
Pilot Mtn.
Haw River
Medoc Mtn.
Mountain Bogs
421
GREENSBORO
Eno River
85
40
95
Falls Lake
Jockey's Ridge
Mt. Mitchell
Lake James
Lake Norman
W.B.Umstead
1
64
Pettigrew
Jordan Lake
RALEIGH
ASHEVILLE
South Mtns.
77
264
Goose Creek
26
Hickory Nut Gorge
Morrow Mtn.
Raven Rock
Crowders Mtn.
Carvers Creek
Cliffs of the Neuse
CHARLOTTE
Weymouth Woods
Gorges
70
Sandy Run Savannas
Jones Lake
Fort Macon
Lumber River
Singletary Lake
Hammocks Beach
Lake Waccamaw
WILMINGTON
Carolina Beach
Fort Fisher
North Carolina
State Parks System
2006
State Park
State Natural Area
State Recreation Area
Under Development
Major City
US Route
Interstate Route

State Parks Contact Information

Carolina Beach 910-458-8206 carolina.beach@ncmail.net
Cliffs of the Neuse 919-778-6234 cliffs.neuse@ncmail.net
Crowders Mountain 704-853-5375 crowders.mountain@ncmail.net
Dismal Swamp 252-771-6593 dismal.swamp@ncmail.net
Elk Knob 828-297-7261 elk.knob@ncmail.net
Eno River 919-383-1686 eno.river@ncmail.net
Falls Lake 919-676-1027 falls.lake@ncmail.net
Fort Fisher 910-458-5798 fort.fisher@ncmail.net
Fort Macon 252-726-3775 fort.macon@ncmail.net
Goose Creek 252-923-2191 goose.creek@ncmail.net
Gorges 828-966-9099 gorges@ncmail.net
Hammocks Beach 910-326-4881 hammocks.beach@ncmail.net
Hanging Rock 336-593-8480 hanging.rock@ncmail.net
Haw River (please contact The Summit) 336-342-6163 summit.center@ncmail.net
Jockey's Ridge 252-441-7132 jockeys.ridge@ncmail.net
Jones Lake 910-588-4550 jones.lake@ncmail.net
Jordan Lake 919-362-0586 jordan.lake@ncmail.net
Kerr Lake 252-438-7791 kerr.lake@ncmail.net
Lake James 828-652-5047 lake.james@ncmail.net
Lake Norman 704-528-6350 lake.norman@ncmail.net
Lake Waccamaw 910-646-4748 lake.waccamaw@ncmail.net
Lumber River 910-628-9844 lumber.river@ncmail.net
Medoc Mountain 252-586-6588 medoc.mountain@ncmail.net
Merchants Millpond 252-357-1191 merchants.millpond@ncmail.net
Morrow Mountain 704-982-4402 morrow.mountain@ncmail.net
Mount Jefferson 336-246-9653 mount.jefferson@ncmail.net
Mount Mitchell 828-675-4611 mount.mitchell@ncmail.net
New River 336-982-2587 new.river@ncmail.net
Pettigrew 252-797-4475 pettigrew@ncmail.net
Pilot Mountain 336-325-2355 pilot.mountain@ncmail.net
Raven Rock 910-893-4888 info.ravenrock@ncmail.net
Singletary Lake 910-669-2928 singletary.lake@ncmail.net
South Mountains 828-433-4772 south.mountains@ncmail.net
Stone Mountain 336-957-8185 stone.mountain@ncmail.net
The Summit at Haw River State Park 336-342-6163 summit.center@ncmail.net
Weymouth Woods 910-692-2167 weymouth.woods@ncmail.net
William B. Umstead 919-571-4170 william.umstead@ncmail.net

State Parks Milestones

Directors of the North Carolina State Parks and Recreation System

July 1945-June 1950
Dr. Harold D. Meyers*

July 1950-June 1955
Ralph J. Andrews*

July 1955-June 1961
Thomas W. Morse

July 1961-February 1974
Thomas C. Ellis

February 1974-May 1977
Ronald D. Johnson

June 1977-January 1985
James S. Stevens Jr.

March 1985-December 1989
Dr. William W. Davis

January 1990-January 2004
Dr. Philip K. McKnelly

February 2004-Present
Lewis R. Ledford

*N.C. Recreation Commission

The threefold mission of the state parks system - to conserve North Carolina's natural resources, to educate citizens about those resources, and to promote quality recreation - is grounded in the State Parks Act of 1987. The act declares it appropriate that a state parks system be established and defines state parks, natural areas and recreation areas as well as state trails, rivers and lakes.

In 1972, North Carolinians took an exceptional step in voting for a constitutional amendment supporting land and water preservation. As a result, language was added to the State Constitution that set out North Carolina's responsibility for protecting natural resources.

The Parks and Recreation Trust Fund was created by the N.C. General Assembly in 1994 and provides dedicated funding to carry out the mandates of the State Constitution and State Parks Act. The trust fund is supported by a portion of the state's tax on real estate deeds transfers. The Parks and Recreation Authority, appointed by the governor and the legislature, makes decisions on how the trust fund is to be distributed under guidelines set out by law. In its 11-year history, more than 25,000 acres of land and water have been protected within the state parks system, and the trust fund has supported more than 400 local park projects.

The Natural Heritage Program, formed in 1976 (formalized in state statute in 1985) through a partnership with The Nature Conservancy and supported by a Land and Water Conservation Fund grant, is a vital link to the state park system. The program inventories, catalogues, and supports conservation of the rarest and the most outstanding elements of the natural diversity of our state. The trust fund is supported by 25 percent of the state's portion of the tax on real estate deed transfers and by a portion of the fees for personalized license plates.

The state trails and natural and scenic river programs are key parts of the state park system. The State Trails Program originated in 1973 with the North Carolina Trails System Act. It is dedicated to helping citizens, organizations and agencies plan, develop and manage all types of trails. Under the Natural and Scenic Rivers Program, rivers or river segments are protected upon designation by restrictions on projects such as dams, reservoirs, and water resource projects that would have direct and adverse effects.

Friends of State Parks

North Carolina's Friends of State Parks is an all-volunteer group dedicated to the understanding, enjoyment, and protection of North Carolina's State Parks.

FSP supports the N.C. Parks System by promoting and raising awareness of the system's mission: "to protect and manage the unique biological, geological, archeological, recreational, and scenic resources of the state."

FSP also fosters and engenders an atmosphere of appreciation and support for the division's 500-member staff who are the stewards of our "Best in the Nation" state parks system. Our state park staff achieve national recognition with the second lowest per capita investment in state parks in the Southeast.

Resources to finance exhibits, publications, division programs such as the Junior Ranger program, milestone recognitions, most notably the 75th and 90th anniversary celebrations, educational opportunities for ranger staff, and legislative advocacy are derived from membership dues, grants, private donations and the sale of FSP sponsored publications.

As the division plans for and addresses the needs of more than 12 million annual visitors to our naturally diverse park system and envisions the changes and challenges facing what will be the seventh most populous state in the nation in the year 2020, FSP stands in partnership to make the efforts more easily achievable.

We need your voices and hands to support all these key efforts and to help make the visions of "New Parks for a New Century" a reality.

Join us today by completing the enclosed membership application along with tax-deductible dues and/or donations.

We are a 501(c)(3) nonprofit, state of North Carolina chartered organization.

We invite you to learn more about Friends of State Parks by visiting our website at www.ncfsp.org.

Sincerely,
John Graham, President
Friends of State Parks

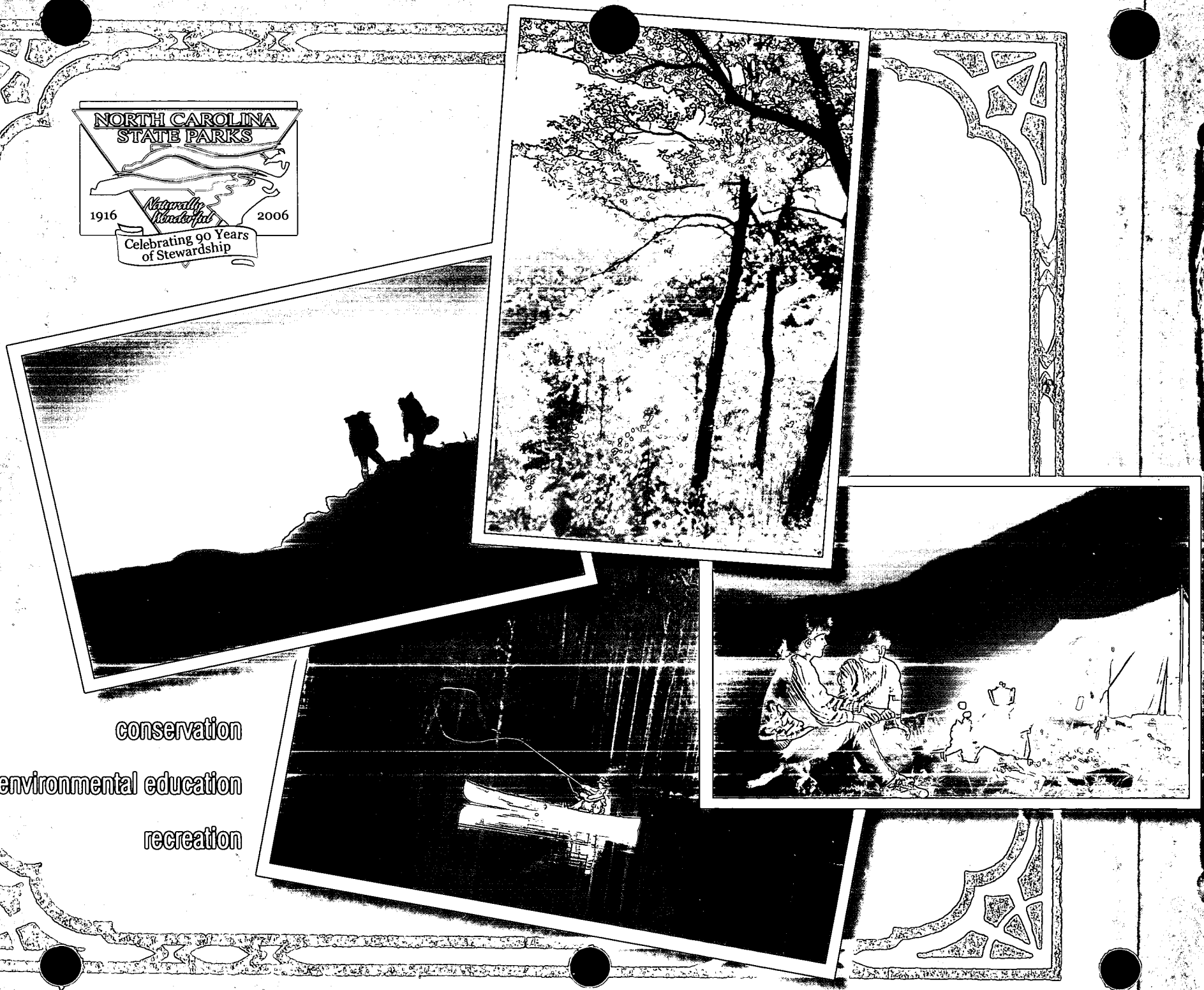
Designed by Denise Smith - Creative Services - DENR

Printed Courtesy of Friends of State Parks - Friends of Fort Macon - Elisha Mitchell Audubon Chapter

NORTH CAROLINA STATE PARKS

1916 *Naturally Wonderful* 2006

Celebrating 90 Years of Stewardship



conservation

environmental education

recreation

NORTH CAROLINA
NATURAL HERITAGE
TRUST FUND

Annual Update for Environmental Review Commission

Lisa Riegel
Executive Director
(919) 715-8014
January 23, 2007

MISSION
protect natural & cultural heritage lands

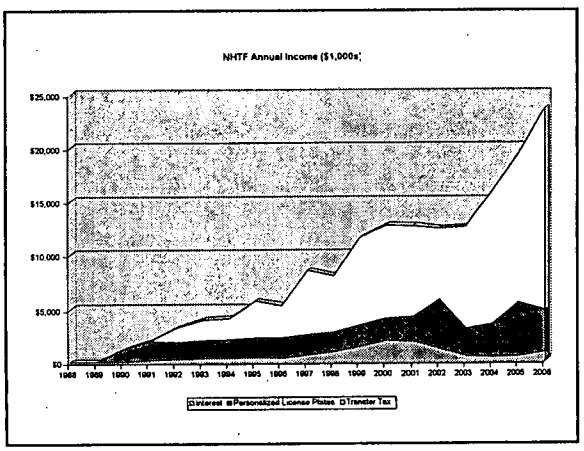
- Recreation, scientific, education, cultural and aesthetic purposes
- Additions to state parks, trails, forests, wildlife areas
- Historic properties program
- Other beneficial use and enjoyment by the public

Natural Heritage Program

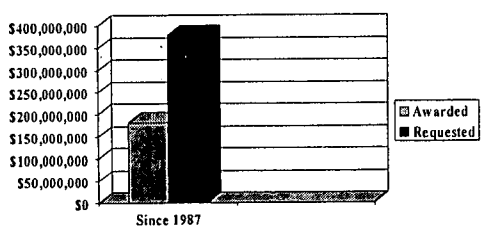
- ID most important natural areas in state
- 76 of 100 Counties complete
- Info used in conservation planning

Program Overview

- Established 1987
- 12 member citizen board
- Accepts applications from 4 state agencies: DENR, DoACS, DCR, WRC
- Awards - twice a year



NHTF Funded/Unfunded Comparison 1987-2006

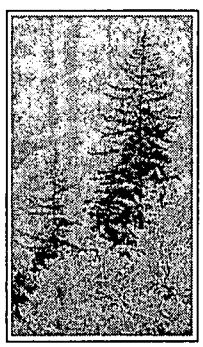


NHTF 2006 Income

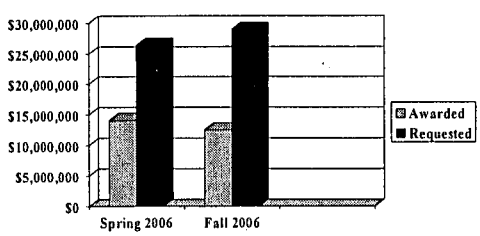
Real Estate Tax	$18,981,304
License Plate Fee	$ 4,166,738
Interest	$ 970,907
Total	**$24,118,949**

2006 Awards

- 33 Projects
- 15,329 Acres
- $26,643,982



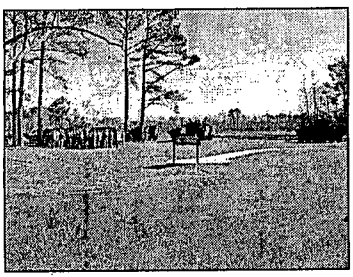
NHTF Funded/Unfunded Comparison 2006



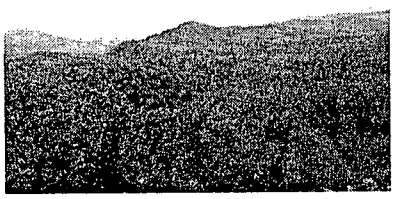
WRC - Game Lands Addition
Johns River Loop

- 1000 acres
- Central Burke County
- Protect water quality
- Improve waterfowl wetlands areas rare in Western NC

DCR – Civil War Sites
Bentonville Battlefield



DCR – Adj. to Blue Ridge Parkway
Overmountain Victory National Historic Trail



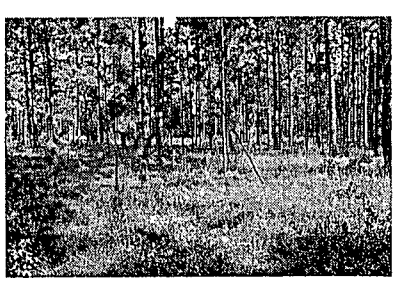
Ag's Plant Conservation Program
NC73 Savanna

- First Preserve in Moore County
- 124 acres
- High quality, scenic longleaf pine forests
- Rare, threatened and endangered species

Ag's Plant Conservation Program

- Penny's Bend/Eno River
- Tater Hill
- Boiling Springs

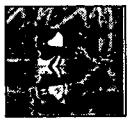
State Park
Carvers Creek Sandhills



DENR-DPR
Sugar Mt. Bog

Partnerships

- Project coordination with Clean Water Management Trust Fund, and Park & Recreation Trust Fund
- Frequent coordination with applicant agencies, private donors and conservation groups
- Most projects have matching funds or landowner gifts



Additional Information

Lisa.riegel@ncmail.net
(919) 715-8014

EXHIBIT O

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

January 19, 2007

MEMORANDUM

TO: Senator Charles Albertson, Senator Daniel Clodfelter, Representative Pryor Gibson, III

FROM: William G. Ross, Secretary, Department of Environment and Natural Resources

SUBJECT: Natural Heritage Trust Fund Annual Report – Calendar Year 2006

As required by G.S. 113-77.9(e), we are pleased to present to the Environmental Review Commission the calendar year 2006 grant award report for the N.C. Natural Heritage Trust Fund. During the calendar year 2006, the Board of Trustees for the Natural Heritage Trust Fund awarded $26,643,982 for 33 projects to help protect 15,329 acres of land with outstanding natural and/or cultural heritage value.

If you have any questions, please contact the Natural Heritage Trust Fund's Executive Director, Lisa Riegel, at (919) 715-8014.

Attachment

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One North Carolina Naturally

NORTH CAROLINA
NATURAL HERITAGE
TRUST FUND

ANNUAL REPORT

CALENDAR YEAR 2006

A Report to the Governor and General Assembly

William G. Ross, Jr., Secretary
N.C. Department of Environment
and Natural Resources

J. Robert Gordon, Chairman
Board of Trustees
NC Natural Heritage Trust Fund

NORTH CAROLINA
NATURAL HERITAGE TRUST FUND
AWARD REPORT
Calendar Year 2006

Origins and Mission

The North Carolina Natural Heritage Trust Fund (NHTF) was established by the 1987 General Assembly (G.S. 113-77, effective July 1, 1987) as a supplemental funding source for state agencies to acquire lands and to pay for the inventory of natural areas by the North Carolina Natural Heritage Program. A twelve-member board of trustees administers the Trust Fund.

Board of Trustees

NHTF is delegated the authority to grant funds to eligible state agencies pursuant to applications which meet statutory criteria and board guidelines. The governing authority for the Trust Fund is a 12 member board of Trustees. This number was increased from nine members during the 2001 legislative session. Four members are appointed by the Governor who also designates the chairman. Eight members are appointed by the General Assembly with four recommended by the President Pro-Tempore of the Senate and four recommended by the Speaker of the House. Appointments are made effective January 1 and are for staggered six year terms. Persons appointed are to be knowledgeable in the acquisition and management of natural areas.

Board of Trustees

Governor Appointees	Senate Appointees	House Appointees
Charles E. Clement Watauga County 2002-2008	J. Robert Gordon, Chairman Scotland County 2002-2007	Alan D. Briggs Wake County 2006-2011
Thomas D. "Bud" Hunter Henderson County 2004-2009	Lois McIver Winstead Person County 2005-2009	William Joslin Wake County 2002-2007
R. Michael Leonard Forsyth County 2006-2011	Portia Hawes Warren County 2006-2011	Henry L. Kitchin Richmond County 2002-2007
Elizabeth D. Taft, Ph.D. Pitt County 2002-2007	Dewey W. Wells Avery County 2002-2007	Thomas W. Reese Catawba County 2004-2010

Natural Heritage Trust Fund Staff

For the past year, beginning September 2005, the Board has been supported by an Executive Director:

Lisa D. Riegel
521 N. Salisbury St., MSC 1601
Raleigh, NC 27699-1601
(919) 715-8014
lisa.riegel@ncmail.net

Funding Sources

Since 1987, and as of December 31, 2006, NHTF has received approximately $176 million dollars including an initial appropriation of $275,000 (Table 1). The primary source of funding for the NHTF is the state excise tax on real estate conveyances. NHTF receives 25% of the state's portion of the $2 per $1,000 value deed stamp tax. The County retains half of this tax while the state receives 50% less allowable administrative costs. The second major source of funding is a portion of the additional fee charged for personalized license plates. The state charges an additional fee of $30 for each personalized license plate; $15 of this additional fee is credited to the NHTF. NHTF also receives a portion for specialty license plates in some cases: $10 for each "First in Forestry" license plate and $15 for each out-of-state college specialty license plate. Monies not expended remain in the interest-accumulating Natural Heritage Trust Fund account and do not revert to the General Fund. The final source of funding is interest from funds in this account.

Grant Criteria and Eligible Agencies

Grants are awarded for the purposes of acquiring lands that represent the state's ecological diversity to ensure their preservation and conservation

- for recreation, scientific, education, cultural and aesthetic purposes;
- for additions to the system of parks, state trails, aesthetic forests, wild and scenic rivers, fish and wildlife management areas;
- to develop a balanced state program of historic properties; and
- for other beneficial use and enjoyment of the public.

Funds are also allocated to the N.C. Natural Heritage Program for natural area inventories and conservation and protection planning of natural areas. State agencies authorized to apply for grant awards are:

- Department of Environment and Natural Resources,
- Wildlife Resources Commission,
- Department of Cultural Resources, and
- Department of Agriculture and Consumer Services.

Priority consideration is given to protection of land having outstanding natural or cultural heritage values. Land with outstanding natural heritage values is land that is identified by the N.C. Natural Heritage Program as having state or national significance. Land with outstanding cultural heritage value is land that is identified, inventoried or evaluated by the Department of Cultural Resources.

Income and Awards

Income by calendar year and award history is shown in Table 2. For the most recent year, 2006, income was $24,118,949. In general, income has increased with time, more markedly since 2003 as a result of the increased activity in the real estate market (Tables 1 and 2).

Since 1987, and as of December 31, 2006, NHTF has contributed to the protection of 244,276 acres through 376 grants totaling over $182 million in funding (Tables 2 and 3). The locations of these projects are shown on Figure 1. Awards are higher in some years than the income due to returned funds. These are funds that are returned to NHTF to be re-granted because the properties were unable to be acquired and/or the final acquisition costs were less than the grant.

During calendar year 2006, NHTF awarded 33 grants totaling $26,643,982 which contributed to the protection of over 15,329 acres (Table 4). In the spring 2006 award cycle, the Trustees also set aside $20,000 for stewardship (monitoring) of the Valle Crucis conservation easement. The NHTF plans to use the Department of Environment and Natural Resources' new Stewardship Program to contract for monitoring of this and possibly any future easements funded by NHTF.

Due to insufficient funds, the NHTF Board was unable to fund an additional $28,866,678 in requests (about 52%) from eligible applicants for high-quality projects. Detailed summaries of the Spring 2006 and Fall 2006 awards are included as Tables 5 and 6 respectively. Project locations are shown in Figure 2 (Spring 2006 projects) and Figure 3 (Fall 2006 projects).

LIST OF TABLES AND FIGURES

NHTF Income by Funding Source .....Table 1

NHTF Income and Award Summary ....Table 2

NHTF Grant Awards Summary .....Table 3

1987 – 2006 Project Locations .....Figure 1

2006 Grant Award Totals by Agency ....Table 4

Spring 2006 Grant Awards Summary .....Table 5

Map of Spring 2006 Project Locations .....Figure 2

Fall 2006 Grant Awards Summary .....Table 6

Map of Fall 2006 Project Locations .....Figure 3

Table 1
Natural Heritage Trust Fund
INCOME BY FUNDING SOURCE
as of December 31, 2006

Fiscal Year	Personalized License Plates	Transfer Tax	Interest	TOTAL INCOME
Original Appropriation				$275,000
1987-88	$0	$0	$15,546	$15,546
1988-89	$0	$0	$24,316	$24,316
1989-90	$1,073,165	$0	$53,766	$1,126,931
1990-91	$1,761,140	$0	$144,662	$1,905,802
1991-92	$1,627,304	$1,326,848	$232,156	$3,186,308
1992-93	$1,661,943	$2,012,107	$309,750	$3,983,800
1993-94	$1,713,091	$2,089,776	$326,920	$4,129,787
1994-95	$1,787,029	$3,579,453	$393,892	$5,760,374
1995-96	$1,856,167	$3,134,801	$335,131	$5,326,099
1996-97	$1,914,104	$6,019,264	$616,282	$8,549,650
1997-98	$1,930,813	$6,949,967	$1,080,042	$9,960,822
1998-99	$2,004,740	$8,148,689	$1,396,073	$11,549,502
1999-2000	$2,189,995	$8,599,107	$1,925,497	$12,714,599
2000-01	$2,386,509	$8,412,962	$1,845,783	$12,645,254
2001-02	$4,622,580	$6,570,386	$1,183,199	$12,376,165
2002-03	$2,550,269	$9,494,785	$508,397	$12,553,451
2003-04	$3,067,375	$12,365,476	$405,251	$15,838,102
2004-05	$5,028,710	$13,810,698	$492,612	$19,332,020
2005-06	$3,978,992	$18,779,600	$880,832	$23,639,424
Total Income	**$41,153,926**	**$111,293,919**	**$12,170,107**	**$164,892,952**
July-Dec 2006	**$2,081,883**	**498443**	**8,482,184**	**$11,062,510**
Total Income				**$175,955,462**

Table 2
Natural Heritage Trust Fund
INCOME and AWARD SUMMARY
as of December 31, 2006

Year	Income	Funds Returned	Funds Requested	Funds Awarded
1987	275,000	$0	$0	$0
1988	31,091	$0	$494,000	$270,000
1989	201,440	$0	$1,383,000	$136,500
1990	1,888,704	$21,892	$2,121,892	$946,792
1991	2,343,142	$221,068	$6,519,385	$2,769,180
1992	3,720,582	$1,157,400	$7,826,700	$4,013,425
1993	4,505,854	$210,084	$7,688,259	$4,569,259
1994	4,252,961	$30,302	$14,260,282	$5,389,291
1995	5,136,146	$48,000	$16,023,050	$6,122,199
1996	6,117,723	$9,670	$18,806,218	$4,639,473
1997	9,073,773	$684,111	$17,058,459	$8,387,003
1998	10,459,692	$2,153,819	$12,702,410	$11,554,810
1999	12,164,733	$1,470,910	$23,856,006	$13,752,006
2000	12,995,540	$1,085,982	$26,282,825	$13,499,293
2001	12,124,484	$516,099	$23,253,591	$11,471,188
2002	12,293,576	$263,337	$24,520,903	$9,688,240
2003	16,906,511	$10,889	$37,542,616	$13,422,487
2004	15,780,325	$1,798,769	$32,582,226	$16,858,150
2005	21,565,235	$2,840,000	$50,596,522	$28,030,103
2006	24,118,949	$1,541,958	$55,510,660	$26,643,982
Total 1987-2006	**175,955,462**	**$14,064,290**	**$379,029,004**	**$182,163,381**

Table 3
Natural Heritage Trust Fund
Grant Awards Summary

Total Awarded to Date (since 1987) (376 awards)	**$182,163,381**
Returned Funds (Applicant unable to acquire land; award money returned to NHTF)	$14,064,290
Total Transferred (spent)	$148,527,819
Total Obligated	$19,571,272
Acres Protected	**244,276 acres**
Requests to Date (533 requests)	$379,029,004
Requests Unable to Fill (52%)	$196,865,623

Figure 1
Natural Heritage Trust Fund
Project Locations
1988-2006

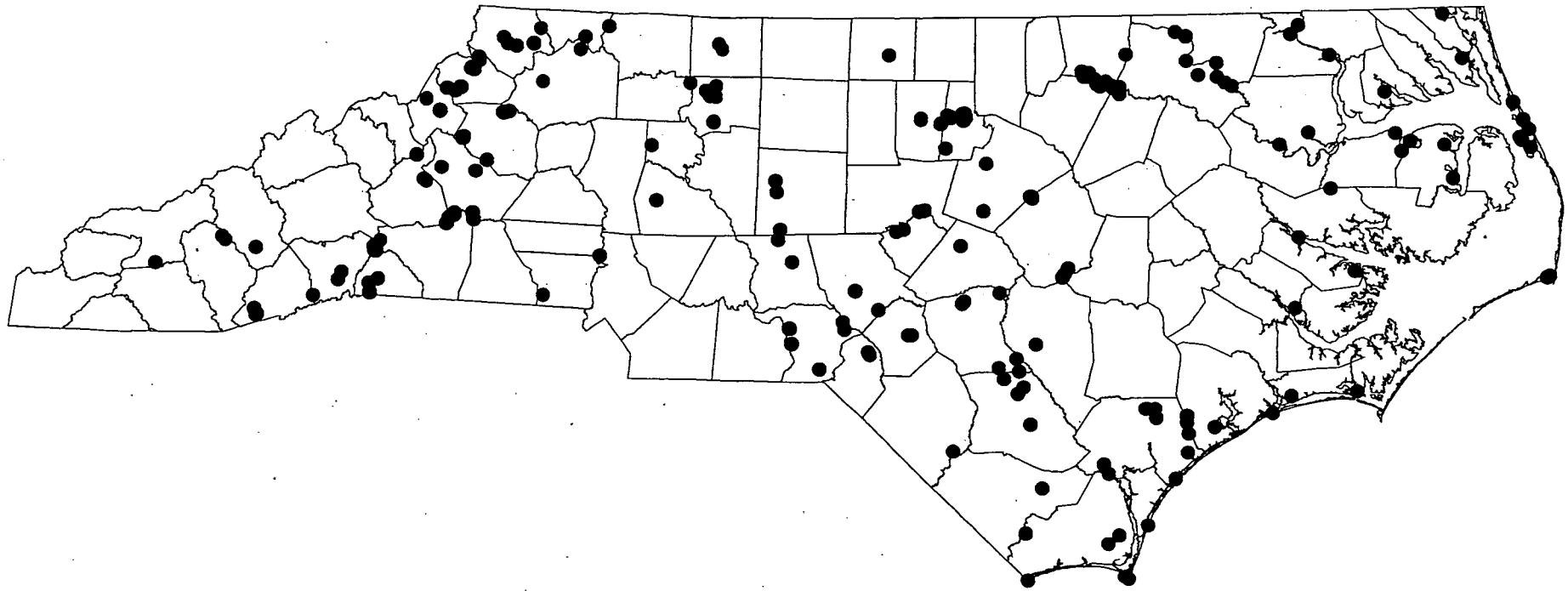


Table 4
Natural Heritage Trust Fund
Grant Award Totals by Agency
Calendar Year 2006

Agency	Acres	Grant Total
Department of Agriculture & Consumer Services *Plant Conservation Program*	526	$4,463,424
Department of Cultural Resources	1,943	$1,976,778
Department of Environment and Natural Resources *Division of Parks and Recreation*	2,821	$9,334,300
Department of Environment and Natural Resources *Natural Heritage Program*	0	$243,000
Department of Environment and Natural Resources *Division of Forest Resources*	140	$109,100
Department of Environment and Natural Resources *Total*	2,961	$9,686,400
Wildlife Resources Commission	9,899	$10,517,380
Total	15,329	$26,643,982

TABLE 5
N. C. NATURAL HERITAGE TRUST FUND
SPRING 2006 AWARDS

No.	AGENCY	PROJECT	SIGNIFICANCE	COUNTY	FUNDING	ACRES	DESCRIPTION
1	DAg	NC 73 Powerline Savanna Plant Conservation Preserve	(B) State	Moore	$1,260,000	124	Purchase will ensure long term survival and protection of rare plant species, especially the Sandhills lily, a globally rare and endangered species.
2	DAg	Tater Hill Plant Conservation Preserve - Miller Tract Addition	(A) National	Watauga	$185,000	20	Increase Tater Hill Conservation Preserve to include the Miller Tract, one of the largest & most significant private inholdings within the Preserve.
3	DAg	Penny's Bend/Eno River Diabase Sill - Penny Tract	(A) National	Durham	$55,000	115	Additional tract has been offered by owner to an already existing NHTF/EEP acquisition; tract would increase Preserve to include a relict rare plant population and extensive wetlands.
4	DAg	Penny's Bend/Eno River Diabase Sill - Stevens Trust Tract	(A) National	Durham	$253,600	20	Increase Preserve to include undeveloped tracts, which will provide large landscape necessary to protect and/or restore habitat of rare plants. This tract is specifically necessary as a buffer for prescribed burns.
5	DAg	Penny's Bend/Eno River Diabase Sill - Arlen Parks Tracts	(A) National	Durham	$17,850	2	Increase Preserve to include undeveloped tracts, which will provide large landscape necessary to protect and/or restore habitat of rare plants. These 2 inholdings support restorable, undeveloped habitat that will provide buffer to facilitate prescribed burning on preserved lands.
6	DAg	Hebron Road Plant Conservation Preserve	(B) State	Durham	$904,650	29	Recent discoveries by the Plant Conservation Program will probably redesignate this land as Nationally Significant; site contains a number of attributes that appear unique to known diabase sill sites in NC. 58 acres in original request.
	DAg			***SUBTOTAL***	**$2,676,100**	**310**	
7	DCR	Bentonville Battlefield Preservation	(N) National Historic	Johnston	$115,000	34	Purchase will protect integrity of Bentonville Battlefield, which has been designated as a Nationally Historic site, from encroaching development. 218 acres in original request.

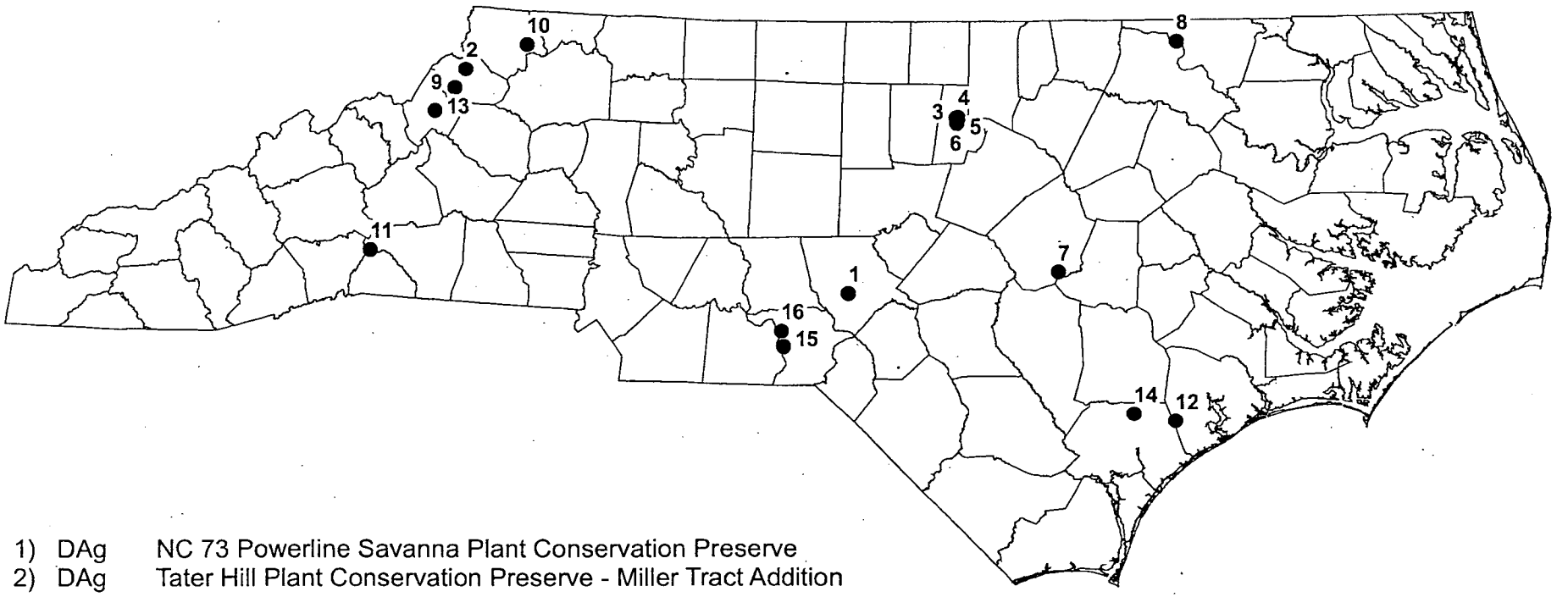
TABLE 5
N. C. NATURAL HERITAGE TRUST FUND
SPRING 2006 AWARDS

No.	AGENCY	PROJECT	SIGNIFICANCE	COUNTY	FUNDING	ACRES	DESCRIPTION
8	DCR	Roanoke Breastworks Land Acquisition	(L) Local & Regional Historic	Northampton	$400,000	200	Preservation of a surviving section of Civil War-era earthworks, built to guard the Wilmington & Weldon Railroad.
9	DCR	Valle Crucis Easement Acquisition	(L) Local Historic	Watauga	$327,828	29	Purchase will protect viewshed of the Valle Crucis Historic District as well as existing easements already acquired by the State.
	DCR			***SUBTOTAL***	**$842,828**	**263**	
10	DENR/ DPR	New River State Park Land Acquisition	(B) State	Ashe	$2,000,000	200	Acquisition will preserve 1.5 miles of undeveloped shoreline along the state significant South Fork New River Aquatic Habitat and the New River Macrosite corridor.
11	DENR/ DPR	Hickory Nut Gorge State Park Land Acquisition	(A) National	Rutherford, Henderson, Polk	$1,300,000	98	Acquisition will preserve much of the nationally important World's Edge/Sugarloaf Mountain SNHA, as well as the regionally significant Round Top Mountain. 300 acres in original request.
12	DENR/ DPR	Sandy Run Conservation Land (TNC Tracts)	(A) National	Pender, Onslow	$1,000,000	2206	Proposed acquisition will protect three significant tracts within the highest priority conservation corridor identified by the Onslow Bight Conservation Forum.
13	DENR/ DPR	Sugar Mountain Bog Land Acquisition	(A) National	Avery	$1,225,000	102	Acquisition will preserve a large portion of the Sugar Mountain SNHA, including all three distinct bog areas present.
	DENR			***SUBTOTAL***	**$5,525,000**	**2606**	
14	WRC	Angola Bay Tract - Final Phase	(B) State	Pender	$3,956,604	5510	Final phase of the Angola Bay Project, which will protect a total of 14,825 acres of pocosin habitat.
15	WRC	Howell Land Acquisition	(C) Regional	Richmond	$666,450	430	This tract, in conjunction with the Chalk property, has been designated as a Regional SNHA and will be enrolled in the Game Lands program for permanent protection as one of the network of ecological preserves along the Pee Dee River corridor.

TABLE 5
N. C. NATURAL HERITAGE TRUST FUND
SPRING 2006 AWARDS

No.	AGENCY	PROJECT	SIGNIFICANCE	COUNTY	FUNDING	ACRES	DESCRIPTION
16	WRC	Mountain Creek Land Acquisition	(C) Regional	Richmond	$398,328	216	These tracts will protect regionally significant natural areas and several rare species, as well as contribute to an interconnected network of ecological preserves along the Pee Dee River corridor.
17	WRC	Wallace-Gray	(B) State	McDowell	$9,000		Acquisition would protect the state signigicant Bear Creek Shortia site and enhance stewardship of the Western North Carolina game lands. Supplemental Funding for Fall 2005 award.
	WRC			***SUBTOTAL***	**$5,030,382**	**6156**	
				ALL AGENCY AWARD TOTALS	**$14,074,310**	**9335**	
	DA g = Department of Agriculture and Consumer Services						
	PCP = Plant Conservation Program						
	DCR = Department of Cultural Resources						
	DENR = Department of Environment and Natural Resources						
	OCCA = Office of Conservation and Community Affairs						
	NHP = Natural Heritage Program						
	SNHA = Significant Natural Area						
	TNC = The Nature Conservancy						

Figure 2
Natural Heritage Trust Fund
Spring 2006 Awards
Project Locations



1) DAg NC 73 Powerline Savanna Plant Conservation Preserve
2) DAg Tater Hill Plant Conservation Preserve - Miller Tract Addition
3) DAg Penny's Bend/Eno River Diabase Sill - Penny Tract
4) DAg Penny's Bend/Eno River Diabase Sill - Stevens Trust Tract
5) DAg Penny's Bend/Eno River Diabase Sill - Arlen Parks Tract
6) DAg Hebron Road Plant Conservation Preserve
7) DCR Bentonville Battlefield Preservation
8) DCR Roanoke River Breastworks Land Acquisition
9) DCR Valle Crucis Easement Acquisition
10) DENR/DPR New River State Park Land Acquisition
11) DENR/DPR Hickory Nut Gorge State Park Land Acquisition
12) DENR/DPR Sandy Run Conservation Land (TNC Tracts)
13) DENR/DPR Sugar Mountain Bog Land Acquisition
14) WRC Angola Bay Tract - Final Phase
15) WRC Howell Land Acquistion
16) WRC Mountain Creek Land Acquisition

Table 6
N. C. Natural Heritage Trust Fund
Fall 2006 Award Summary

Agency	Project Title	Significance	County	Award	Acres	Description
DAg/ PCP	Hebron Road Plant Conservation Preserve (Phase 2)	TBD	Durham	$340,000	10	Half of the funding was previously granted by the NHTF Board, Spring 2006. An option agreement was secured by the Trust for Public Land (TPL) for the Plant Conservation Program. Tract supports endangered Smooth Coneflower and other rare plant species. Will help recover declining species and restore historic ecosystems. Request was for 29 acres for $904,650; acreage reduced because grant was for about 1/3 of request.
DAg/ PCP	Penny's Bend/Eno River Diabase Sill Plant Conservation Preserve-William's Tract	(A) National	Durham	$115,000	9	Expand existing Plant Conservation Preserve. Option agreement negotiated by the Eno River Association for the PCP. Tract supports federally-endangered Smooth Coneflower in NC, the only Piedmont population of tall larkspur, and remnants of fire-adapted glades and woodland's that support 30 rare species.
DAg/ PCP	White Oak Mountain Plant Conservation Preserve - Cecil Tract	(A) National	Polk	$1,325,000	162	This tract is a key piece of the nationally significant White Oak Mountain site. Site supports rare species and community occurences including one of the best known Montane Mafic Cliffs in NC. Site supports the largest known global population of White Irisette. TPL is partner.
DAg/ PCP	Tater Hill Plant Conservation Preserve - Hodges tract addition	(A) National	Watauga	$7,324	35	Additional funds requested because final land survey of the tract revealed approx. 2 additional acres over previous reports. These acres were not included in the financial estimates made in the initial application for this project site.
DAg/ PCP			***SUBTOTAL***	**$1,787,324**	**216**	
DENR/ DPR	Hickory Nut Gorge State Park - Phase III (Rumbling Bald Tracts)	(A) National	Rutherford & Buncombe	$1,775,000	100	Request funds for the acquisition of 172 acres for the recently authorized Hickory Nut Gorge State Park. Acquisition will preserve much of the nationally important Rumbling Bald natural heritage areas. Acreage is part of the Southeastern Escarpment Megasite and the Hickory Nut Gorge Macrosite; project is part of a larger effort including The Nature Conservancy's Bat Cave and Rumbling Bald Preserves. Request was for 172 acres and additional funding.
DENR/ DPR	Hickory Nut Gorge State Park - Chimney Rock Park	(A) National	Rutherford & Buncombe	$1,800,000	85	Request funds for the acquisition of 170 acres at Chimney Rock Park natural heritage area, which will be added to Hickory Nut Gorge State Park. Request was for $3,600,000 for 170 acres.

Table 6
N. C. Natural Heritage Trust Fund
Fall 2006 Award Summary

Agency	Project Title	Significance	County	Award	Acres	Description
DENR / NHP	Conservation Planning at a Landscape Scale	(B) State	N/A	$185,000	N/A	Grant requested to fund the development of a landscape level conservation plan. The plan will integrate Significant Natural Heritage Area conservation priorities with conservation plans being developed by WRC and private conservation organizations.
DENR/ NHP	Inventory of Federally Listed and Candidate Aquatic Species	(B) State	N/A	$58,000	N/A	Inventory of high priority populations of federally listed and candidate species of mussels and fish in historic and potential habitiats. WRC staff will conduct field inventories and provide NHP staff with data. Results of the 1993-2002 aquatic studies indicate the need to continue this work and expand the effort into areas not previously surveyed.
DENR/ DFR	Bladen Lakes State Forest - John Stevens Tract	Not Ranked	Bladen	$109,100	140	To acquire the parcel from the NC Wildlife Habitat Foundation and make it a part of Bladen Lakes State Forest with which it is contiguous.
DENR/ DPR	Deep River Conservation Land	(A) National	Chatham	$234,300	30	Aquisition will aid in preserving an identified SNHA - the Deep River Aquatic Habitat. This tract is adjacent to the Justice and Hanson tracts recently acquired by the state along the Deep River.
DENR			***SUBTOTAL***	**$4,161,400**	**355**	
DCR	Overmountain Victory National Historic Trail Conservation Area	(A) National (B) State & (D) Local SNHA	McDowell	$1,133,950	1680	DCR, CTNC, CWMTF and other donors want to secure a conservation easement on forested land owned by the Holston Land Company (CSX Comp) to provide public access to the Overmountain Victory National Historic Trail (the only National Historic Trail in NC), to protect portions of the Blue Ridge Parkway scenic views and to provide critical habitat connections. CTNC negotiated an easement purchase agreement with Holston for $4,017,900. Funding has been secured through CTNC ($733,900), private donations ($900,000), CWMTF ($936,000) and an additional $400,000 has been requested from DOT.
DCR			***SUBTOTAL***	**$1,133,950**	**1680**	

Table 6
N. C. Natural Heritage Trust Fund
Fall 2006 Award Summary

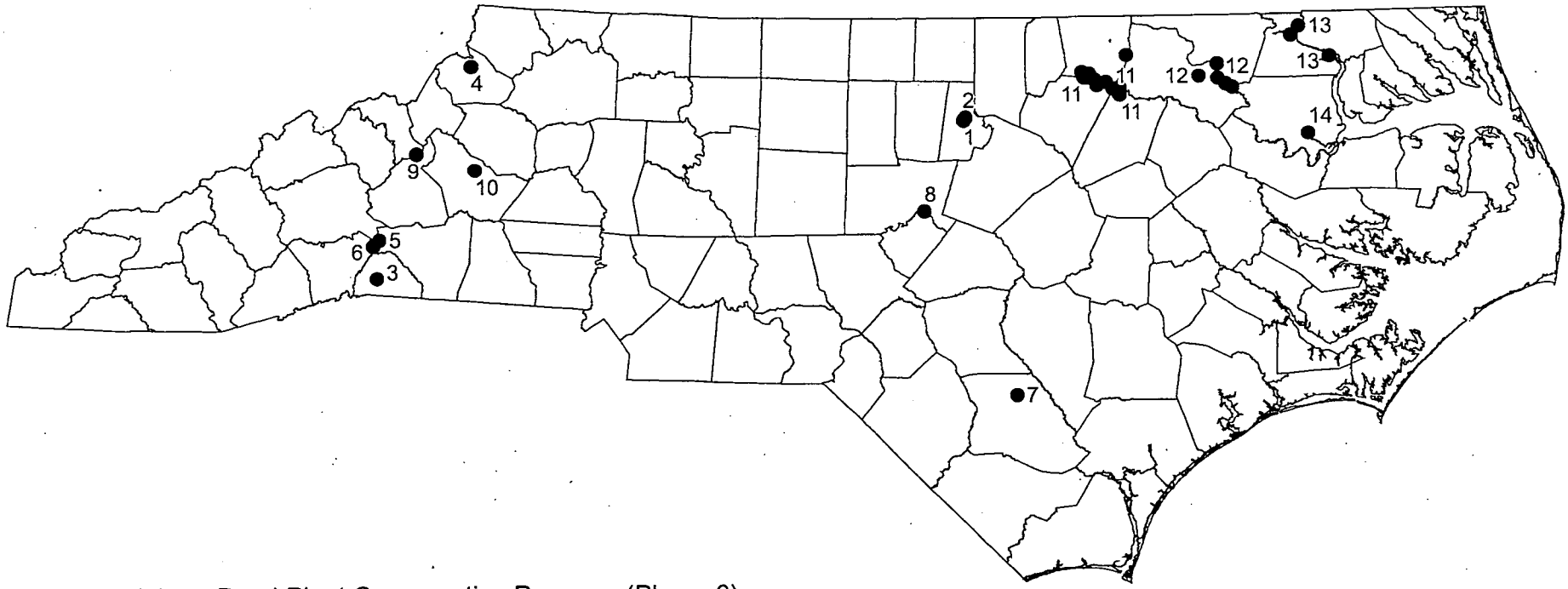
Agency	Project Title	Significance	County	Award	Acres	Description
WRC	Johns River Loop Road Tract	(B) State	Burke	$1,223,300	400	Acquisition is significant as part of the total management project for the lower Johns River area. Tract is part of a phased acquisition of a total 1,000 acres. First land bought in March 2006, using CWMTF funds and will be included in the WRC Game Lands Program. This project will provide unique opprtunities for wildlife viewing and education related to the importance of riparian zones and wetland/waterfowl habitat which are unparalleled in the mountains. CWMTF grant $2,238,000.
WRC	Upper Tar River International Paper Tracts	(A) National (B) State (C)Local	Franklin, Halifax, Nash,Warren	$1,005,130	890	To acquire SNHA land: Fishing Creek Aquatic Habitat, Little Fishing Creek/Odell Hardwood Forest, Shocco Creek Aquatic Habitat, Little Shocco Creek Acquatic Habitat, Shocco Creek/Centerville Floodplain Forest, Shocco Creek/Lickskillet Hardwood Forest and Lower Shoccco Creek Bluffs and Floodplain Forest while expanding protected land holdings in the upper Tar-Pamlico River Basin and SNHA while contributing to the WRC Game Land Program.
WRC	Lower Roanoke River International Paper Tracts - Conoconnara Swamp, Cypress Swamp,Sandy Run, Pollock's Ferry Access, US Hwy 258	(B) State	Halifax & Northampton	$1,971,020	1596	To acquire lands which are part of the SNHA: Cypress Swamp/Sandy Run Floodplain, Middle Roanoke River Aquatic Habitat and Pollock's Ferry Natural Area to allow expansion of protected land holdings along the Roanoke River and SNHA, while enlarging the WRC Roanoke River Wetlands Game Land. (Total 8432 acres).
WRC	Chowan River International Paper Tracts - Lower Meherrin, Uppper Chowan West and Lower Wiccacon	(B) State	Hertford	$1,196,084	789	Expand protected land holdings along the Chowan River and SNHA, while contributing acreage to the WRC Game Land Program; incorporate into a much larger landscape wetland protection project. Acquire SNHA lands: Meherrin River Aquatic Habitat, Chowan Swamp, Chowan River Aquatic Habitat, Wiccacon River Bluffs and Swamp and Wiccacon River Freshwater Marsh.
WRC	Johnson's Landing International Paper Tract	(C) Regional	Bertie	$91,464	68	Acquisition will be incorporated into a larger landscape wetland protection project which is part of the SNHA, Cashie Swamp and Wading Place Creek to allow expansion of protected holdings along the Cashie River and SNHA while enlarging the WRC Game Land Program. CWMTF proposed match.
WRC			***SUB-TOTAL***	**$5,486,998**	**3743**	
ALL APPLIC.			***GRAND TOTAL***	**$12,569,672**	**5993**	

Table 6
N. C. Natural Heritage Trust Fund
Fall 2006 Award Summary

Agency	Project Title	Significance	County	Award	Acres	Description
DENR/ OCCA	Schenck Project - Green River Preserve (GRP)	(B) State	Henderson	deferred	1050	Project will complement a 1,550 acre riparian easement grant from CWMTF by conserving an additional 1,050 acres of upland habitat on the Green River Preserve, resulting in the protection of 2,600 acres of the Green River Preserve. This tract will extend the ecological viability of nearby privately and publicly protected parks and preserves and will create a protected corridor connecting Dupont State Forest with over 30,000 acres of protected land in South Carolina. Funding would be highly leveraged with private donation ($1,300,000), landowner bargain sale ($11,025,000) and CWMTF ($5,141,000) grant. Awaiting details of the conservation easement.
DENR/ OCCA	Ball Project - Green River Preserve	(B) State	Henderson	deferred	550	Ball Tract will complement a 316 acre riparian easement grant from CWMTF ($1,523,00) by conserving an additional 234 acres of upland habitat on the Green River. Funding further leveraged with private donation ($740,135) and landowner bargain sale ($1,611,740). Ball Tract will link a network of conserved lands stretching from the Mountain Bridge Wilderness of SC to DuPont State Forest. Awaiting details of the conservation easement.

DAg/PCP = Department of Agriculture and Consumer Services - Plant Conservation Program
DENR = Department of Environment and Natural Resources
DPR = Division of Park Resources
DFR = Division of Forest Resources
NHP = Natural Heritage Program
OCCA = Office of Conservation & Community Affairs
WRC = Wildlife Resources Commission
SNHA = Significant Natural Heritage Area
CWPT = Civil War Preservation Trust
TNC = The Nature Conservancy
CTNC = Conservation Trust for North Carolina
DOT = Department of Transportation
CWMTF = Clean Water Management Trust Fund

Figure 3
Natural Heritage Trust Fund
Fall 2006 Awards
Project Locations



1) DAg Hebron Road Plant Conservation Preserve (Phase 2)
2) DAg Penny's Bend/Eno River Diabase Sill Plant Conservation Preserve - Williams Tract
3) DAg White Oak Mountain Plant Conservation Preserve - Cecil Tract
4) DAg Tater Hill Plant Conservation Preserve - Hodges Tract
5) DENR/DPR Hickory Nut Gorge State Park - Rumbling Bald
6) DENR/DPR Hickory Nut Gorge State Park - Chimney Rock
7) DENR/DFR Bladen Lakes State Forest - John Stevens Tract
8) DENR/DPR Deep River Conservation Land
9) DCR Overmountain Victory National Historic Trail Conservation Area
10) WRC Johns River Loop Road Tract
11) WRC Upper Tar River International Paper Tracts
12) WRC Lower Roanoke River International Paper Tracts
13) WRC Chowan River International Paper Tracts
14) WRC Johnson's Landing International Paper Tract

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NORTH CAROLINA
NATURAL HERITAGE
TRUST FUND

Land and Water Conservation Study Commission
S.L. 2006-223
Executive Summary

The Land and Water Conservation Study Commission was established to consider funding options for a major initiative for conservation of land, water, and historic resources that was proposed in HB 2827/SB 1907 during the 2006 Regular Session of the 2005 General Assembly.

Commission Charge:

- To identify and evaluate existing State funding sources for historical preservation, for acquiring public lands for various conservation purposes, and for related economic development related to land and water conservation and historic preservation.
- To collect information from other states regarding incentive-based techniques and management tools used to protect land and water resources.
- To recommend a way to address the funding needs of land and water conservation.
- To hold public meetings in three different areas of the State.

Commission Findings:

Land and water conservation, including preservation of the State's cultural heritage, benefits the State in many ways: economic growth and job creation; protection of the public health; enhancement of our citizens' quality of life, and protection of native species of flora and fauna.

A number of factors have converged in recent years to make now a key time in protecting the environment of the State for generations to come: population growth; rapid development of land; and an unusually high percentage of large tracts of land for sale.

The State-established trust funds, coupled with other conservation-oriented entities, have a strong history of serving the conservation needs of North Carolina and of coordinating with one another: Natural Heritage Trust Fund; Parks and Recreation Trust Fund; Clean Water Management Trust Fund; Agriculture Development and Farmland Preservation Trust Fund; the Wildlife Resources Commission; the Ecosystem Enhancement Program; the State Historic Preservation Office and State Historic Sites; the conservation tax credit; and the present-use value property taxation system.

There are at least seven 'best practices' related to land and water conservation and cultural and historic preservation: substantial state investment in these areas; enabling local financing; providing state incentives for projects; allowing for the purchase of development rights; supporting public-private partnerships; conservation tax credits; and partnerships with federal agencies. The State has been active in each of these areas, but the Commission

finds that the State could improve its record on land and water conservation and cultural and historic preservation by adopting some of the strategies used in other states.

Commission Recommendations:

The Commission recommends that the General Assembly provide an additional $1 billion in funding over five years for land and water conservation, cultural and historic preservation, and related economic development needs. The Commission does not have a specific recommendation as to how the additional funds should be allocated. The Commission recommends that the additional funding be allocated among the existing trust funds and used for a variety of different programs.

The Commission recommends that the existing entities involved in land and water conservation and cultural and historic preservation continue to improve the manner in which they coordinate with one another in order to function in a more collaborative, systematic, and integrated manner so as to maximize the use of State investments. As part of this coordination, the Commission encourages the development of statewide priorities for land and water conservation and cultural and historic preservation and enhanced data collection efforts regarding conservation and preservation needs and efforts.

The Commission recommends a balanced financing approach based on debt financing and dedicated sources of tax or fee revenue. The Commission does not have a recommendation as to the specific mix of additional funding sources for conservation efforts. However, it has identified a number of possible revenue sources for consideration: broad-based tax options; development-based tax options; and tourism-based tax options.

The Commission recommends that both chambers of the General Assembly establish a committee at the start of the 2007 Regular Session to address the State's infrastructure needs including conservation, water and sewer, public schools, transportation, university facilities, state facilities, and affordable housing.

The Commission recommends that the General Assembly study further the idea of land mitigation requirements and any authorizing legislation needed to authorize voluntary or mandatory mitigation banking.

The Commission finds that encouraging local government participation in land and water conservation and cultural and historic preservation is a necessary part of any reform to the State's current conservation and preservation efforts. The Commission recommends that the General Assembly consider proposals that would provide additional funding options at the local level for conservation purposes. In addition, the Commission recommends that the General Assembly evaluate the means by which it encourages local participation with projects funded by the four major conservation trust funds with the goal of encouraging greater local participation.

The Commission recommends that the General Assembly consider an enhancement of the tax credits for real property donations for conservation purposes.

The Commission recommends that the General Assembly consider establishing a tax incentive to encourage people to manage lands for conservation. The incentive could take the form of a property tax deferral or an income tax credit.

The Commission recommends that the General Assembly further study the potential effect of time-limited conservation agreements on the State's conservation and preservation efforts.

The Commission recommends that the General Assembly study alternative allocations of State funds to ensure that the State fully leverages available federal funds.

EXHIBIT Q

LAND TOMORROW

Land and Water Conservation Study Commission

Media Coverage Clip Book

Sept. 5, 2006 – Jan. 17, 2007

Smoky Mountain news

Jan. 17, 2007

OUR THOUGHTS

Making the case for using tax money to buy open spaces

Sometimes, change is for the good.
In the not-too-distant past, land wasn't very valuable unless it was developed. Now, open space is gaining popularity as a tax-funded public investment to maintain or improve quality of life and attract conscientious CEOs and entrepreneurs who care about their employees.

Indeed, local governments have always been easily convinced to raise taxes to build roads, sewer projects and spec buildings in hopes that they could do a better job than their neighbors of promoting growth. Times have changed, and now the counties and towns that do the best job of learning how to invest in open spaces will be the successful, prosperous places to live in the coming decades. Those who understand and grasp this model will have a leg up on their neighbors.

In North Carolina, that means putting pressure on state legislators to ensure that the Land For Tomorrow initiative makes it to a statewide referendum this fall. In our individual communities, we can take steps to help already existing land trusts succeed or — as many are now trying to do in Haywood County — create new organizations that work with local government and landowners to preserve farmland and forestland for future generations.

The conservation movement in this county is maturing. When we first started creating national parks, the aim was to save large tracts of wild America. Today, however, as populations surge and urban areas swell with buildings and roads, we have come to a new understanding about the value of working farmland, forestland at the edge of large neighborhoods, small watersheds that feed clean streams, and mountaintops surrounded by roads and development. These smaller holdings have become vital pieces in the patchwork of land uses, and they are worth preserving.

North Carolina's Land For Tomorrow initiative would set aside $1 billion for land conservation over the next five years. The bill had the support of many in the legislature last year, but reportedly Gov.. Mike Easley worried funding it could jeopardize some of his other priorities, so it was shelved for further study.

Hearings around the state have revealed wide-ranging support for the measure. In a public hearing held recently in Asheville, an overwhelming majority supported the initiative, though there was disagreement about how best to come up with the money. Land-transfer taxes, impact fees, statewide room taxes and a host of other funding mechanisms have been discussed. It's likely a combination of revenue sources will be needed so that no one sector of the economy is hit too hard. In Florida a land-transfer tax has successfully helped pay for conserving land without adversely affecting growth.

According to the National Land Trust Alliance, conservation measures have been on the ballot 889 times in the country since 2001, and 74 percent of those passed. A recent poll conducted in Haywood County's Bethel community found that 65 percent of the residents supported some kind of taxpayer-funded conservation program.

This is a plan whose time has come. The state needs to help counties buy conservation rights from farmers and other large landowners who need money to retire but would rather save than develop their land. That's what the Land For Tomorrow initiative would accomplish. The state's citizens need to make sure their lawmakers understand how much they support this effort.

The Daily Reflector

Jan. 14, 2007

Hawks have flown in the face of ever encroaching development

AL CLARK

Not long ago, the neighborhood where I live was all farm and forest, with a creek running through it and plenty of sky overhead. Red-tailed hawks rode the wind, eyeing the foxes that followed the rabbits through the twilight.

As I watched these animals, I have enjoyed thinking how I was sharing a place with creatures who first staked it out in days of prehistory.

Century after century passed and this spot of earth was theirs alone. Their lineage went beyond even the native peoples whose link to the wild was closer and dearer than ours, and who surely admired the birds just as I have.

I liked counting the hawks sitting high on the power poles that lined the railway, and hearing them call to each other as I brought in the groceries. At those moments, it was like I had become part of their world and history, so natural and so old. Their voices were timeless.

There were voices heard, too, at a public forum held in Greenville last week. It was held to draw public response to a state legislative commission's ideas on how to save North Carolina's land and water resources. These voices were talking money.

The commission proposed it will take $1 billion over five years for the state to invest in conservation and preservation efforts just to get the process started.

The group suggested a variety of funding sources to make this happen. Among these were property taxes, sales taxes, real estate fees, water fees and the like.

Farmers at the meeting argued that the proposals' tax implications would put an unfair financial burden on them. Home builders said increasing deed stamp fees would hurt their business, while real estate developers and representatives said home-buyers would suffer, too.

Some folks in the nursery industry said water-related fees were worrisome as were state land purchases, which ultimately would drive up property taxes and hurt everyone in the pocketbook.

But there were voices that said anyone who would share the benefit of land and water resources should also share the expense and maybe not worry so much about the bottom line but about what else we might be losing. The commission shared some facts:

North Carolina loses 277 acres of open land a day; and as our population continues to grow, large tracts of timber and farm land are being sold for development. (Watched any bulldozers clear-cutting lots lately?) The commission reported that the state has substantial investment in conservation and historical preservation, but development is catching up — and getting ahead — one subdivision at a time.

My neighborhood has gradually filled with houses over the last five years. It is very pleasant and comfortable.

Residents enjoy brisk walks and balmy bike rides. Children move from yard to yard, playing their games, walking their dogs. There are songbirds, too, sparrows, wrens and bluebirds.

But I don't see the hawks much now or hear their shrieks. As the houses have come, they have mostly moved on — after all those centuries — to new places, wilder places, to start over, I guess, to find new perches with unobstructed views.

If you go looking there are still such places in eastern North Carolina, where a raptor's voice is the only one you hear on the wind, at least for now. Those ancient peoples would smile at that.

But I'm going to miss the red-tails. Won't we all?

Al Clark is executive editor of The Daily Reflector. Tell him what you think at 252-329-9560 or at aclark@coxnc.com.

The Charlotte Observer

Charlotte.com
The Charlotte Observer

AP Associated Press

Jan. 14, 2007

LESS LAND, MORE COMPETITION FOR FUNDING

Growth builds need, rivals for conservation

N.C. task force to report on protection priorities, what state should spend

MARGARET LILLARD
Associated Press

RALEIGH - With shellfishing grounds shrinking due to pollution and development taking over acres of timberland and farm fields every day, there's little argument that North Carolina needs to act swiftly to protect its natural resources.

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But people with competing interests are preparing their arguments as well. Water and sewer plants and lines , transportation, schools and affordable housing projects also need more money as demand in those areas grows.

"When you look at the state's increase in population and pressures resulting from growth and development, particularly in some of our most outstanding resource areas like the coast and the mountains, there's a great deal of public support for at least putting a balance of resources into conservation," said Edgar Miller, government relations director for the Conservation Trust for North Carolina. "It just becomes a challenge to figure out how to pay for it."

With 8.86 million people, North Carolina is the nation's 10th most-populous state and is expected to rise in rank as the number of residents swells to 12.3 million by 2030.

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Star-News Online

AP Associated Press

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WXII 12 NEWS BIG STORIES

AP Associated Press

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The Daily Reflector

Associated Press

Jan. 14, 2007

Conservation funds needed across state

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By Margaret Lillard
The Associated Press

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See FUNDS, B3

FUNDS

Continued from B1

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WRAL NEWS

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WINSTON-SALEM JOURNAL

AP Associated Press

Jan. 13, 2007

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THE ASSOCIATED PRESS
Sunday, January 14, 2007

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MyrtleBeachOnline.com

Associated Press

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Associated Press

Jan. 13, 2007

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The Fayetteville Observer

Associated Press

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WCNC.com

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The Herald-Sun

AP Associated Press

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Associated Press

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NEWS & RECORD

Jan. 10, 2007

OUR OPINIONS

Room to grow naturally

Local voters have a chance to voice their support for a statewide initiative to preserve the state's forests, farmland and streams. Before it's too late.

Rolling hills, verdant meadows and sweeping forests that cling to misty mountains like vast quilts of green cotton have helped define North Carolina every bit as much as its people and its history. But the state's open spaces aren't forever.

By some estimates, the state loses approximately 400 acres of open space to development per day and it is losing its farmland at a faster clip than every other state except Ohio and Texas. Couple that with one of the fastest-growing populations in the nation and what once had been taken for granted could be lost to future generations.

Without a thoughtful plan and a serious commitment to preserving some of its open spaces, the state will continue to cut, clear and pave over farmland and forests.

This isn't simply some wild-eyed, state-sanctioned attempt to hug trees. For all the benefits of development there are comparable, if not greater, benefits to prudent land use beyond pure aesthetics. Land preservation can enhance the quality of drinking water by protecting streams, rivers and lakes. It bolsters tourism and quality of life, two key ingredients to attracting industries that pay good wages.

That's why a General Assembly-inspired initiative to preserve 1 million acres of open space by 2009 was a welcome, if ambitious, attempt to act before it's too late. But as the News & Record's Jason Hardin recently reported, only slightly more than 400,000 acres thus far have been preserved.

Part of the problem is the rapid pace of population growth and development. North Carolina now is the 10th most-populous state in the Union. Another is the steep price of the land. And still another is the politically delicate dilemma of how to fund such an initiative with so many other needs, such as education and health care, vying for attention.

Where to find that kind of cash? A state commission's report suggests such options as raising the income tax and sales tax or creating new fees for building permits and landfill use. None is likely to be popular.

The least politically radioactive approach clearly would be a general obligation bond on the November ballot. That way the state, and preservation ists, would have the chance to make their case before the voters. And the voters would have the right to approve or veto the expenditure at the ballot box.

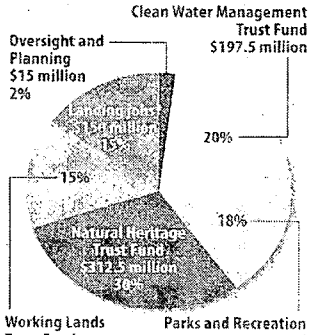
Voters deserve more credit than they sometimes receive in recognizing what's good for them. For instance, in 1988, county voters approved $25 million in bonds to buy land around lakes Brandt, Higgins, Townsend and Mackintosh and to build retention ponds, and protect water quality.

In 2004, Guilford County voters approved $10 million in bonds to buy land for preservation. More recently, in November Greensboro voters approved $5 million in bonds for parks and recreation while saying no to several other high-profile initiatives.

The state commission will hold one of three public hearings about open spaces today at GTCC's Jamestown campus. If you care about preventing some of North Carolina's most precious natural treasures from disappearing, tell the commission tonight. And send a message to Raleigh.

INVESTING IN OPEN SPACES

Land for Tomorrow, a land preservation group, has proposed that the state spend $1 billion over the next five years to protect open spaces, parks, farms and lakes and streams. Here's how that money would be spent.



*Landing Jobs is a proposed initiative that would create jobs and related economic and community development "in ways that promote land conservation, historic preservation, parks and recreation."

Source: Land for Tomorrow

DOUG COX/News & Record

WANT TO GO?

What: Land and Water Conservation Commission public hearing

When: 7 p.m. today

Where: GTCC Jamestown Campus Auditorium, 601 High Point Road

CITIZEN-TIMES.com
ASHEVILLE CITIZEN-TIMES • VOICE OF THE MOUNTAINS

Jan. 10, 2007

Action needed now to preserve our land, water

Louis Bissette

Sue McClinton

GUEST OPINION

When the legislature adjourned this year, time officially ran out for proposed legislation that would have put a $1 billion statewide land and water conservation bond referendum on the ballot this fall. It is disappointing that the bill, authorizing land and water conservation bonds, did not pass during this legislative session; however, the need is still dire and we must move forward to protect our state's land and water.

Each year, North Carolina loses more than 200,000 acres of forests and farmland to the pressures of population growth and 3,000 miles of our streams still don't meet state water quality standards. Action needs to happen now.

The group spearheading this effort, Land for Tomorrow, proposed the bonds as a funding source to help conserve land to safeguard drinking water, protect fish and wildlife habitat, preserve working farms, restore historic landmarks, expand parks and trails and prevent polluted runoff from contaminating streams, rivers and lakes. The organization, a diverse partnership of more than 245 organizations and local governments including representatives of business, farmers, foresters, community groups, health professionals and conservation groups, worked diligently to engage and educate legislators and communities on the urgent conservation needs facing North Carolina.

As a part of this partnership, the Buncombe County Committee made up of numerous entities and individuals is continuing its efforts to make the Land for Tomorrow proposal a reality in North Carolina.

We thank all of our legislative sponsors – more than 70 in the House and more than 20 in the Senate – for their leadership and the ownership they took of the issue. Despite their efforts, however, bill supporters ran into roadblocks because Gov. Easley opposed adding additional general obligation bond debt this year.

Although a bond referendum is not on this year's ballot, legislation was passed to create a study commission charged with recommending alternative funding sources for the plan to the 2007 General Assembly. The study commission will examine all options to help us protect North Carolina's natural and historic beauty, and then make recommendations and report back no later than February 1, 2007. We are optimistic that the study commission will review the plan, strengthen it and find a way to get it done before it is too late.

As citizens of Buncombe

Please see PRESERVE on B2

PRESERVE: Open land vanishing

Continued from B1

County, we must double our efforts and continue to advocate for the protection of our most treasured resources and places. Land for Tomorrow continues to garner advocates statewide and we are confident that when we go to the legislature with this issue next year, support will only be stronger and more focused.

Each day, we lose more of the natural areas that are so important to protecting our children's future. There is a very narrow window of opportunity we have to protect these places that are so important to our quality of life and the economy. We must continue to act — now. By 2030 the U.S. Census Bureau expects North Carolina's population to surpass that of urban states like Michigan, New Jersey and Ohio. But while our population is growing, our supply of land is not. Matters continue to worsen, while land prices continue to skyrocket.

Over the last decade, one million acres of prime farmland, game lands, working forests, unique natural areas, scenic beauty and potential parks and recreation areas have been converted to other uses. Between 1987 and 1997, North Carolina lost more prime farmland than any other state except Ohio and Texas. And for the first time since the 1930s, falling forest acreage contributed to a decline in the volume of the state's timber growing stock.

Thirty-five years ago, a new amendment was adopted to the state constitution that said we must use "every appropriate way to preserve as part of the common heritage of this state its forests, wetlands, estuaries, beaches, historical sites, open lands and places of beauty."

That is exactly what the Land for Tomorrow plan is about, and that's why we look forward to working with the newly formed study commission and implementing conservation efforts that make sense for North Carolina. Learn more and get involved today by visiting www.landfortomorrow.org.

Louis Bissette and Sue McClinton serve as co-chairs of the Buncombe County Land for Tomorrow Committee. Lou Bissette is president of the lawfirm McGuire, Wood & Bissette. He lives in Asheville. McClinton is also on the Board of Trustees of UNCA and lives in Asheville.

The Charlotte Observer

Charlotte.com
The Charlotte Observer

Jan. 10, 2007

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MARGARET LILLARD
Associated Press

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A case could be made for needs in several areas. Moore acknowledged a "massive need" for building public schools, which haven't benefited from a bond issue since 1996 and have $9.7 billion in outstanding capital needs.

"We could use a $20 billion bond referendum to cover our needs but that's not going to happen," Rep. Doug Yongue, D-Scotland, chairman of House Select Committee of Public School Construction Funding, said this week. "So there's going to be a lot of negotiating over who gets what in the final analysis."

At the top of the list would be any bond issue needed to pay for maintenance of state government facilities such as roads or schools, "since the state is the only available payer for those things," said Dan Gerlach, Gov. Mike Easley's chief budget adviser and a member of the conservation commission.

"Everything else can be paid for by another layer of government or philanthropy," Gerlach said.

But Miller said initial public reaction to more spending for conservation appears strong, reflecting a growing understanding that a healthy environment is good for business as well simple quality of life.

"You take agriculture - that's about a $60 million a year contribution to the state's economy. But you can't have that kind of industry if you don't have the land," he said. "In many cases a good environment is the key to having a good economy, whether it's healthy fisheries or healthy forests. ... It's not just about protecting a pretty view."

Smoky Mountain news

Jan. 10, 2007

FREE Smoky Mountain news

Self-preservation

By Becky Johnson • Staff Writer

Land For Tomorrow is a statewide initiative launched last year to set aside $1 billion for land conservation over the next five years. The money would fund private conservation easements for working farmland, paying farmers to protect their land for future generations instead of selling out to developers. It would also buy land outright for new state parks, greenways and wildlife preserves.

The Land for Tomorrow Commission held a public hearing last week in Asheville, one of several held around the state to gather public input prior to the opening of this year's General Assembly.

1: Strike one

Backers of Land for Tomorrow wanted to put the measure on the ballot in November — confident the public would vote yes to a $1 billion bond for land conservation. Despite broad support in the General Assembly to do so, Gov. Mike Easley allegedly nixed the bond idea, fearing where the state would come up with the $1 billion if the people approved it.

2: Another go

Instead, the state legislature created a Land for Tomorrow commission to study the idea. The commission's main job was figuring out how the state could raise the money and the best way to go about preserving land. The commission has 16 members — Sen. John Snow, D-Murphy, and Rep. Phil Haire, D-Sylva, are on the commission.

3: Best way to conserve land

The Land for Tomorrow commission recommended funneling the $1 billion through existing state trusts, namely the Natural and Cultural Heritage Trust Fund, the Parks and Recreation Trust Fund, Clean Water Management Trust Fund, and Farmland Preservation Trust Fund. These agencies can do everything that needs to be done — saving working farms, building greenways or creating new state parks — they simply need more money to do it. Utilizing existing programs would decrease overhead expenses.

4: Finding the money

The commission developed a laundry list of options to pay for Land for Tomorrow.

• Regular old taxes: Take the money out of the state's budget, garnered primarily from income and sales tax.

• Real estate tax: A 0.1 percent tax on all real estate transactions — or $1 per $1,000 of the sale price — would net roughly $60 million a year.

• Impact fees: There were 100,000 homes built in North Carolina in 2005. A $100 building permit fee for every house would raise $10 million per year.

• Tourist taxes: The top reason tourists visit is for natural beauty, so let them pay to preserve it. A 1 percent statewide tax on overnight lodging would generate $28 million annually. A food and beverage tax on 1 percent on meals eaten out at restaurants who generate $100 million.

• Water use fee: Charge for the use of water. People on town water systems currently don't pay sales tax on water, while residential developments that draw water from wells are getting a free ride off the ground water table. A tax of 1 cent per 1,000 gallons of water would generate roughly $8.91 million per year currently.

5: Going to the mat

Many at a Land for Tomorrow public hearing last week liked the idea of the real estate tax to fund land conservation. While the real estate and development lobbyists are already gearing up to fight the idea, such a tax was imposed in Florida in 2000 and is raising $3 billion for conservation over 10 years and hasn't slowed the real estate market there. The method was recommended as a reasonable one by the Land for Tomorrow commission. "The State loses 277 acres of natural or agricultural land a day to development. The Commission believes that a portion of the costs of conservation and preservation should be borne by those responsible for the changing environment," the commission stated in its report.

6: Oops

Farmers overwhelmingly spoke out against the water tax. Farmers need water for irrigation, watering their cattle and trout farming. Taxing farmers to pay for a bill intended to save farming didn't go over too well. It would also impact businesses like Blue Ridge Paper that borrow water from rivers to operate.

7: People want it

North Carolina isn't the first state to talk about funding land conservation from public coffers. Just like paying for schools, roads and prisons, conservation is becoming part of what society wants its government to do. Since 2001, conservation measures have been on the ballot in 883 times in state and local elections — 74 percent of them passed. There have been 26 conservation votes on the ballot in various cities and counties in North Carolina, and 84 percent of them passed.

Speaking out

SMN

More than 300 people attended a public hearing on Land For Tomorrow in Asheville last week, overwhelming the expectations of those conducting the hearing. Some people drove for nearly two hours to come voice their support for the initiative.

The top emphasis from the public — what most at the hearing most wanted to see done with the money — was farmland conservation. Here's a sample of what some had to say.

Don Smart, Haywood County, full-time farmer

"This doesn't go far enough. What's $1 billion going to do? Run the Iraq war for three days? With the price of land in Western North Carolina, that's not going to go far. We want to save the farms but fellers, a man can't make a living on a farm. What you going to do with a farm when you preserve it if a man can't make a living on a farm? The General Assembly should do something to make farming more profitable. Putting more tax on the farmers to try to pay for this Land for Tomorrow, that's not to solve the problems folks."

George Ivey, Bethel Rural Preservation committee

"The state Farmland Preservation Trust Fund has been given a grand total of $50,000 over the past two years. That's not enough to help farms in Bethel much less in all of North Carolina."

Bill Yarborough, Bethel, farmer

"A working land protection program, if properly implemented, will keep land in the county tax base, provide jobs, provide open space and protect the resource base. Some say farming is dead. I don't believe that. In Haywood County, agriculture comprises nearly a third of the economy. The Bethel area of Haywood County has a high concentration of intensive agriculture yet water quality is documented as some of the best. Working lands are important habitat for rare and endangered species. If this land is lost to development, most studies show a decline in resources will be evident."

Paul Carlson, Macon County, director of Land Trust for the Little Tennessee

"There is evidence of 4,000 continuous years of agriculture on some of the lands that we've have been able to preserve as working lands in the last few years — 150 to 200 generations of mountain farmers. On our watch it is fixing to become extinct. The Farmland Preservation Trust has been getting zero. It has got to go up."

Ted Carr, Bethel

"I lived in a state with no coordinated effort for farmland preservation. I saw hundreds and hundreds of farmland acres converted into private streets and cookie-cutter houses. That's why we left. I encourage the legislature to continue this effort. Support farming — make it financially profitable."

TJ Walker, Dillsboro, inn owner

"I want to salute you farmers. A couple words I haven't heard yet today: urban sprawl and impact fees. I think a lot of our challenges and a lot of the profits for the developers need to be addressed with greater and more fair and equitable impact fees because a lot of our problems come from urban sprawl. We know there is going to be constant development and consistent growth. We need a consistent source of revenue."

Becky Smucker, Asheville, hiker with Carolina Mountain Club

"We have to face the fact that we must pay for this now or the opportunities will be gone. We are united in not wanting to explain to our children and grandchildren how we failed at this critical front."

Jim Moore, Macon County, owner of Spring Ridge Dairy, who placed his farm in conservation easement with the Land Trust for the Little Tennessee

"It it had not been for funding we would not have been able to do this. We have a generation of men and women who feel very strongly about what happens to this land. They are willing to give for a few cents on the dollar, but the window is closing very fast. This is a great way to leverage that."

John Ager, manager of Hickory Nut Gap Farm and chair of Buncombe County Farmland Preservation board

"We want to keep it a farm. We are desperate to keep it a farm. But without the kind of funding that you all are talking about, it has a very good shot at being developed. There are six heirs who all have a different idea of what to do with the land. I am really counting on you guys to help us save our farm."

Charlie Owen, board of directors of Nature Conservancy

"If we want future generations to have clean air and clean water, this project becomes all the more important. We have to continue to invest in our own natural resources. You need to consider all sources of revenue to make this a reality for future generations."

Caroline Sutton, Asheville Home Builders Association

"We strongly support land and water conservation. However, funding based on development fees such as land transfer taxes is not appropriate. One industry or one sector of the economy should not be singled out to support this effort."

Rachel Doughty, Asheville, attorney

"I have heard the real estate community up here worrying about homeowners, but I have seen a lot of homeowners come up and talk. If you look at who is making money right now, it is developers. I support taxing these luxury homes. I don't think you can really call them homes because people don't spend that much time in them."

Jack Meckler, Asheville

"You can't fund land conservation with a bake sale."

Matt Ray, Haywood County trout farmer

"It is imperative we not have a water usage fee for farmers. We rank second in the state for trout farms. As farmers, we cannot be taxed to try to help us. You don't tax them on one hand to try to help them on the other hand."

Will Hamilton, Southern Appalachian Highlands Conservancy

"I have become acutely aware of the desperation among the farmers and landowners I talk to every day. I am here to speak for the landowners beating down our doors to help save their farms. The will of the land owners is there, the entity to provide support is there, but the funding to complete the land conservation deals is not there. The Land for Tomorrow bill is a ray of hope in a lot of my conversations with farmers."

The Daily Reflector

Jan. 8, 2007

Hearing focuses on land initiative

■ A state commission has developed funding proposals to purchase property and protect resources from development.

By T. Scott Batchelor
The Daily Reflector

With the state's population rising by 50 percent to about 12 million in the next 25 years, driving development that gobbles up natural resources, the state Legislature has joined forces with a nonprofit conservation group to find ways to save "the goodliest land."

Formed last year by the General Assembly, the Land and Water Conservation Commission has met four times to work out funding options for preserving property, and its draft report will be up for public comment at a hearing at Pitt Community College tonight.

WANT TO GO?

■ The state Land and Water Conservation Commission is seeking public comment on its draft report at 7 tonight in Pitt Community College's Leslie Building, Room 143.

Two other meetings, in Asheville and Greensboro, also are scheduled.

Water quality is key to public health and keeping the state's tourism industry intact, said Kate Dixon, executive director of Land for Tomorrow, a partnership of more than 235 conservation organizations, businesses, preservationists, farmers, health professionals and community groups.

"We also feel like the beauty of the state, its natural habitats, are much of the part of what people love in North Carolina, and one of the major reasons we do so well economically," Dixon said.

The draft report looks at a number of funding opportunities, from sales taxes to general obligation bonds to state purchases of land, she said.

"Some are very broad-based, like income tax and sales tax; some are more related to land development; some are related to tourism," she said.

Another option would see the state purchasing development rights for agricultural lands, which are being snapped up and developed rapidly, she said.

See HEARING, A7

HEARING

Continued From A1

Tonight's meeting is being held "to hear what the public has to say about different funding options," Dixon said

The Legislature has adopted a goal of 3 percent land held out of development, but the state "hasn't been able to meet that goal, because there has not been sufficient funding for it," she said.

Gov. Mike Easley appointed David Womack, owner of an electric-supply business in Greenville, to the land and water conservation commission.

He said land would be purchased by the state and turned over to agencies such as parks and recreation and Wildlife Resources Commission.

Womack said he's a passionate conservationist, which led to his involvement as a board member of Land for Tomorrow and his appointment to the temporary state commission.

"I've been involved in conservation in the state for 25 years ...," he said. That service is driven by "a passion for preserving the last great places in North Carolina."

The commission should have a final report recommending actions and funding avenues to the General Assembly by the first of February, he said.

Debbie Vargas, executive director of the Greenville-Pitt County Convention and Visitors Bureau, said preserving land and water is key to eastern North Carolina's future.

"One of the things we have is a lot of property," Vargas said. "As the state urbanizes, it's not going to stay that way. We have the opportunity to continue to have natural habitats, the recreational areas and natural scenic beauty that has made our state" attractive for tourists.

"... We can preserve those areas of land so that we end up with a balanced mixture, because once they're developed, you can't go backward."

Over the last decade more than 1 million acres of natural and rural areas have been developed, or 100,000 acres were lost per year, according to Land for Tomorrow. Between 1987 and 1997 North Carolina lost more prime farmland than any other state except Ohio and Texas. And for the first time since the 1930s, the state is experiencing falling forest acreage, the group reports.

Land for Tomorrow conducted a statewide public opinion poll. Eighty-two percent say that they would be likely to support increased funding if it would protect family farms and farmland. Of those polled, 59 percent agreed that the state is losing land so fast that a way must be found to preserve natural areas, farmland and water supply areas.

T. Scott Batchelor can be contacted at 329-9567 and sbatchelor@coxnc.com.

NEWS & RECORD

Jan. 9, 2007

Conservation catch: Who pays?

■ **Residents can weigh in on the plan Wednesday when the land and water conservation panel meets.**

By Taft Wireback
Staff Writer

State legislators rallied enthusiastically last session around a $1 billion plan to preserve more of North Carolina's natural resources, badly needed in a state where asphalt, bricks and concrete are breeding at rates far outpacing the wildlife they supplant.

But the General Assembly's bold initiative hit a snag on just one thorny little question: Where on earth to get the money?

Triad residents have an opportunity this week to suggest their own remedies both to reenergize conservation programs and to pay for them.

The General Assembly's land and water conservation commission convenes Wednesday evening at GTCC for one of three hearings being held this month across the state.

WANT TO GO?

What: General Assembly's land and water conservation commission, regional meeting

Where: GTCC auditorium, 601 High Point Road, Jamestown

When: 7 p.m.

"There was overwhelming support for this idea in the House and Senate last session. Initially, I think they were looking at a plan for five years, $200 million a year," said state Rep. Pricey Harrison, a Democrat from Greensboro and a member of the study commission.

The commission was formed after plans for that five-year plan foundered when Gov. Mike Easley and others in the executive branch questioned the state's ability to take on the additional debt.

The initial proposal called for a statewide bond referendum that would have distributed the $1 billion among the state's various environmental and cultural trust funds, dedicated to such purposes as increased park land, forest preservation and clean water

See **Meeting**, Page B2

Meeting

Continued from Page B1

management.

But the General Assembly kept the proposal alive by creating the 16-member commission to suggest other ways of paying for the new initiative.

"We're really happy the legislature didn't kill the concept but is taking the time to study it further," said Charles Brummitt, executive director of the nonprofit Piedmont Land Conservancy that works to preserve undeveloped acreage ranging from farms to parks and wildlife habitat.

There are a variety of alternatives to bonds that could pay for some amount of increased conservation, said Kate Dixon, director of Land for Tomorrow, a nonprofit coalition formed to support improved conservation measures.

But it's hard to imagine a robust plan that would not involve some bond financing for at least part of the additional conservation money, she said.

Bonds are a good way to provide a lump sum enabling state government to make significant purchases "before the prices go up even more," Dixon said.

"If we don't start now, we'll lose what's special about North Carolina," she said.

Brummitt, Dixon and Harrison all said they hope the efforts won't be limited to raw land conservation but will include steps to preserve the state's vanishing farmland, as well.

"We have the seventh largest agricultural industry in the country," Dixon said. "We really don't want to give that up."

Contact Taft Wireback at 373-7100 or twireback @news-record.com

The Daily Reflector

Jan. 9, 2007

Study says land, water need to be protected

By Ginger Livingston
The Daily Reflector

Tuesday, January 09, 2007

Rapid and often uncontrolled development is robbing North Carolinians of the forests, waterways and open farm fields that nourish their souls and pocketbooks, according to leading conservationists.

The concerns prompted the General Assembly to form a commission to study how the state's land and waterways can be protected. The Land and Water Conservation Study Commission has produced a draft report and is currently gathering public comment on its recommendations.

The study concludes land and water can be preserved, but it will take $1 billion over five years to get started and funding sources should be varied.

About 175 people attended a meeting Monday to comment on the proposals, filling the aisles and hall outside a 100-seat classroom in Pitt Community College's Leslie Building. A meeting in Asheville last week drew nearly 300 people, said Rep. Lucy Allen, commission co-chairwoman.

When the commission was formed last year it was charged with evaluating existing conservation funding sources, finding out how other states developed conservation programs and addressing the state's funding needs, said Cindy Avrette, a legislative staff attorney who consulted with the commission.

"Now is the time to invest in land and water conservation," Avrette said. "It's only going to get more expensive if it isn't done now."

North Carolina loses 277 acres of open land a day, she said. With an ever-growing population, rapid development and unusually large tracts of timberland and farmland being sold, the losses will grow. The commission's draft report has found the state has substantial investment in areas of land and water conservation and historic preservation but more is needed, she said.

The state should invest $1 billion over the next five years in conservation and preservation, but the commission hasn't recommended one funding method over another, Avrette said. It should be balanced between broad-based tax options like a sales tax, development-based options like a land-transfer tax and tourism-based options.

"Will agriculture be targeted (to pay) most of the cost?" asked Kelly Vann, president of the Northampton County Farm Bureau. "We are in favor of land and water conservation but don't think farmers should pay most of the cost."

Farmers argued that several funding proposals involving the use of water would be an unfair financial burden.

"We're trying to farm, and urban development is all around us," said James Barbour of Johnston County, a fast-developing area next to Wake County. He said the proposed water fee will hurt farmers who don't want to sell to developers.

Representatives from the real estate and home building community protested the development-based proposals.

The current tax stamp fee charged when new deeds are registered raises $60 million for land conservation, said Connie Corey, a Greenville real estate agent and president of the N.C. Association of Realtors. Increasing the stamp fees would make it harder for first-time home buyers to purchase property, she said.

Vance County nursery owner Sam Franklin Jr. said not only is a water fee worrisome, he fears the purchase of land by the state for conservation will reduce the amount of taxable land in counties like his and drive up property taxes of remaining landowners.

Greenville attorney Tom Taft, who also is a developer, offered a different perspective.

Land conservation is as important as other infrastructure development, like roads and water and sewer systems. He said anyone who would share the benefits of land conservation, whether builders, farmers or the tourism industry, should share the expense.

Former Jacksonville City Manager Ken Hagan said tourism should have to share the funding burden, pointing out recreational areas lure people to spend money in the state.

Phillip Horne, president of the economic development group Foundation of Renewal for Eastern North Carolina, recommended providing incentives to developers who support conservation through environmentally sensitive design. Laura Williams, another Foundation staffer, said there should be development rules that keep waterfront development from harming the values of the land behind it.

Halifax County farmer Ray Garner, whose family land dates to 1867, said the current recommendation only gives 15 percent of the $1 billion funding proposal to aid farmers with land conservation. He said more is needed.

Max Merrill with the state's agriculture department said the commission should finance a trust fund dedicated to protecting working farmland so it can stay on community tax rolls.

Camilla M. Herlevich, N.C. Coastal Land Trust's executive director, supported funding a farmland trust. The trust tries to help working farmers with land preservation but has limited resources, she said.

"Demand is outstripping need," she said. "There are more people who want their land saved that we can handle."

Numerous people voiced support for the project.

Conservation funding has helped the city of Rocky Mount establish recreational areas, said Pete Armstrong, the city's parks and recreation director.

Marion Blackburn of Greenville argued for protecting farmland and developing recreational areas.

"Development has been raging through eastern North Carolina like Sherman's Army," she said.

Heather Jacobs, Riverkeeper for the Pamlico-Tar River Foundation, said the loss of waterfront acreage to development means that most people don't have access to local waters unless they own the property.

WINSTON-SALEM JOURNAL

Jan. 6, 2007

A growing state's growing concerns

Citizens have an opportunity to be heard on vital issue of conserving natural resources

By Charles S. Brummitt
GUEST COLUMNIST
Saturday, January 6, 2007

Occasionally, happenstance seems to logically connect one news story to another in a fitting way. Before Christmas, it was widely reported that the U.S. Census Bureau estimates that North Carolina passed New Jersey last year to become the 10th most populous state. And the General Assembly's Land and Water Conservation Commission will solicit comments on its draft recommendations at 7 p.m. Wednesday, Jan. 10, at the Guilford Technical Community College auditorium in Jamestown. Many of us should attend.

North Carolina's and the Piedmont's rapid growth is more and more evident. More than 180,000 new Tarheels joined us last year, including more than 100,000 who moved here from other states. North Carolina's good economy, spectacular natural resources and great reputation are a perfect storm of attraction for many across the nation and the world. That storm bodes well for North Carolina if we can manage to retain the attractions that will continue to bring people to the state - if we can retain a quality of place to support our quality of life.

Our starting point to prepare for this continuing growth isn't ideal. On average, each month nearly 10,000 acres of farms and forestlands are converted to other uses. Most of our food comes from thousands of miles away, and sources of local food are rare. One out of every four monitored streams and rivers in North Carolina doesn't meet clean-water standards, and we monitor only a fraction of our streams. We live in a special place, but we must be better stewards of our resources if we are to pass them to our children and grandchildren.

An amendment to our state's Constitution requires that we use "every appropriate way to preserve as part of the common heritage of this state its forests, wetlands, estuaries, beaches, historical sites, open land and places of beauty." This wonderful list captures this special place, the place Sir Walter Raleigh's men called "... the goodliest soile under the cope of heaven."

To begin meeting the amendment's challenge, a coalition of more than 240 organizations and local governments, more than half the General Assembly, and thousands of individuals called Land for Tomorrow, believes that an additional $1 billion in state funds is needed over five years. The funds will pay to protect drinking water, streams and game lands; purchase land for state parks and local recreation programs; preserve historical places and scenic vistas; and conserve working forests and farms.

State and federal agencies, private partners and landowners have conserved such important places in our area as the Mitchell River watershed, historic lands in Bethania, Randolph County farmland and the new Haw and Mayo River state parks. However, current methods and funding levels are simply not sufficient to meet the challenge laid out for us in 1971.

Land for Tomorrow's proposal attracted wide support in the General Assembly's last session, but foundered when it came to funding. The legislature then wisely created the Land and Water Conservation Commission. The 16-member commission is charged with evaluating North Carolina's existing methods and sources of funds for conserving land and water, researching how others protect land and water, and evaluating how the best tools and techniques can be applied in North Carolina.

They've identified seven "best practices," ranging from public investment to partnership with federal agencies, as the best ways to conserve land, water and our historical and cultural heritage. The commission has also identified likely funding sources to support those best practices. (The entire draft report and more information on the commission are available at www.landfortomorrow.org/page354.html.)

If North Carolina is to deal with its current problems and a huge influx of new neighbors, we need leadership, innovation and initiative. In the 1950s and later, we were known as the "Good Roads" state because strong and farsighted leaders worked to invest in transportation infrastructure. Later, Research Triangle Park came into existence with Gov. Luther Hodges' foresight and guidance. The Land and Water Commission's work points to a new type of change - change to protect our resources and our economy. Conservation is critical to our future public health, jobs and quality of life.

Now we have a chance to put a personal best practice in place. We can show up on Jan. 10 and voice our opinions on the commission's draft report. By so doing, we will help find ways to support our economy while preserving our land and water, our natural and cultural heritage, and this wonderful state for generations to come.

• Charles S. Brummitt is the executive director of the Piedmont Land Conservancy. Guest columns: The Journal welcomes guest-column submissions. Length should be about 700 words. Guest columnists should have some special authority for writing about their subject. Please provide a recent photograph. Our address is: Letters @wsjournal.com. Fax and regular mail are also accepted. The fax number is (336) 727-7204. Our mail address is: Letters to the Journal, P.O. Box 3159, Winston-Salem, N.C. 27102.

CITIZEN-TIMES.com
ASHEVILLE CITIZEN-TIMES • VOICE OF THE MOUNTAINS

Jan. 5, 2007

Residents: Preserve open land

By John Boyle
JBOYLE@CITIZEN-TIMES.COM

ASHEVILLE — An overflow crowd gave the state Land and Water Conservation Commission an earful Thursday night about its proposal to fund up to $1 billion in land and clean water conservation projects over the next five years.

Overall, the crowd in Asheville-Buncombe Technical Community College's Ferguson Auditorium — with a strong contingent of farmers from several mountain counties — was supportive of the idea but varied in how the funding should be garnered and distributed.

But one overriding theme emerged: North Carolina is losing too much undeveloped land.

"My brothers and I are fourth-generation dairy farmers over in Henderson County, and we're going to be the last," said Billy Johnston, president of the Buncombe County Farm Bureau.

He and his three brothers have been farming more than 3,000 acres, but that land has dwindled by 2,000 acres because the owners they were renting from are selling their land to housing developers.

The commission, which will submit a report to the General Assembly this year, is seeking comment on its ideas at three meetings in the state.

The commission noted the Legislature has been willing to fund preservation through trust funds but "a larger dedicated source of revenue is needed." It has identified several possible revenue sources, "ranging from broad-based taxes to development-based taxes to tourism-based taxes."

Speakers suggested the state ensure farming remains profitable, in part by maintaining the current "present-use tax" system, not taxing water usage and keeping property taxes down. Some residents suggested ending tax breaks for buyers of luxury second homes or charging tourists more in hotel room taxes.

No one seemed opposed to spending $1 billion to preserve open land.

CITIZEN-TIMES.com
ASHEVILLE CITIZEN-TIMES • VOICE OF THE MOUNTAINS

Jan. 5, 2007

As state grows, land preservation becomes crucial

When the Johnston brothers moved their dairy operation to Henderson County in 1975, there were about 33 dairies in the county.

Now there are only five.

"It's all been lost to development," said Bradley Johnston, who operates the 1,300-head Tap Root Dairy with his three brothers.

And Johnston can see the writing on the wall. There's a day coming when the constant temptation from developers waving big money for their land will be too much and they'll sell, ending a business that's been in their family for four generations.

The pressure from developers results from a market for new homes created in large part by people moving in.

An analysis of migration trends by the nation's largest mover, United Van Lines, found that North Carolina had the highest inbound migration of any state in the country, with 64 percent of moves coming into the state.

Such changing population and land use trends underscore the urgency to protect undeveloped land in North Carolina for farming, outdoor recreation, environmental preservation and the natural beauty that's one of our greatest assets.

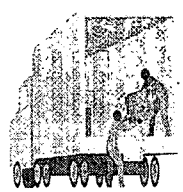
If the two hearings held during the past week by the state Land and Water Conservation Commission are any indication, plenty of North Carolinians want to see the state do something before it's too late. Overflow crowds in Asheville and Greenville have shown support for a proposal to spend $1 billion on land and clean water conservation projects over the next five years, though some speakers were opposed to some methods of raising the money, such as a tax on water usage or an increase in deed transfer taxes

Bond push fell short

The commission was created after the state Legislature failed to put a $1 billion statewide land and water conservation bond referendum on the ballot for last fall's election. Land for Tomorrow, founded by a group of farm preservation, conservation and community development nonprofits, proposed the referendum.

The commission will submit a report to the General Assembly this year. It is seeking comment at three meetings around the state on the proposal to spend a billion dollars and various options for raising the money, including a general obligation bond referendum. So far, that method seems to have garnered the most support, according to Land for Tomorrow's Kate Dixon.

The state already has a mechanism for distributing the money through various trust funds including the Clean Water Management Trust Fund, the Natural Heritage Trust Fund and the Parks and Recreation Trust Fund. It would be available for buying such treasures as Chimney Rock Park, should the state be able to arrange the purchase with the owners.



MOVING IN

United Van Lines has been tracking moving trends since 1977. The study of 227,254 moves handled by the company in 2006 was released Monday. It looked at all moves that involved either going to or leaving a state. North Carolina had the highest inbound migration with 64 percent of moves going into the state.

- THE ASSOCIATED PRESS

The stewardship issue

"There's a tremendous stewardship issue here," state Rep. Lucy Allen, D-Louisburg, said before the meeting in Asheville last Thursday.

The money would be used to protect nine different land types: stream banks and floodplains, farms, forests, parks, game lands, historic places and land visible from scenic highways such as the Blue Ridge Parkway.

The benefits of providing the money for land preservation include maintaining places to hunt, fish, observe wildlife and participate in other outdoor recreation, protecting places of historical, cultural and ecological significance, saving healthy farms and forests, and strengthening the state's economy. The state will also enjoy cleaner water and air and less damage from flooding.

In 2003, the N.C. Public Interest Research Group reported that between 1982 and 2002, North Carolina lost 1.9 million acres of open space to development and by 2022 is projected to lose another 2.4 million acres.

It's time to act.

We urge Western North Carolina lawmakers to support a fair and equitable method of funding the proposal to spend $1 billion to preserve land so that North Carolina's tomorrow is as healthy as its past has

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Jan. 4, 2007

Preservation's future begins here tonight

Anyone who has walked the North Flatwood Loop Trail in DuPont State Forest on a crisp, sunny winter morning when it's nearly deserted, or any of a number of other trails of our state and national forests, won't need convincing of the need to preserve special places in North Carolina from development.

Serenaded by Shoals Creek, splashing and gurgling beside the trail, it's possible to almost feel the stress of hectic holidays melt away. The beauty and serenity of the natural world feed some essential part of the human spirit.

Once, many of us in Western North Carolina only had to walk a few steps outside our back doors to view unobstructed landscapes and find forest trails to meander. But as the population increases, that's no longer true for most people. To satisfy the need for wild places and for outdoor recreation, people increasingly turn to public lands. It's easy for popular trails to be overrun, as has happened in the Shining Rock Wilderness area.

Incredible growth

The U.S. Census Bureau expects North Carolina's population to surpass that of urban states like Michigan and Ohio by 2030. Each year the state is losing 100,000 acres to population pressures. If we hope to retain the interaction with the natural world that has long defined our way of life, steps must be taken to preserve more land from development.

Last year the General Assembly created a Land and Water Conservation Commission to examine options to protect North Carolina's natural and historic beauty. The commission is to make its recommendations no later than Feb. 1, 2007.

Meeting tonight

The first of three statewide public hearings held by the commission will be tonight at 7 p.m. in the Laurel Building on the Asheville Buncombe Technical Community College campus. This is an important meeting for those who care about preserving water quality, land for recreational opportunities and the natural beauty of our region's landscapes. The commission was created after the Legislature failed to put a $1 billion statewide land and water conservation bond referendum on the ballot for last fall's election.

Despite numerous sponsors, the referendum ran into trouble because Gov. Mike Easley opposed adding general obligation bond debt this year.

Land for Tomorrow, founded by a group of farm preservation, conservation and community development nonprofits, proposed the bond referendum.

Land for Tomorrow proposes spending the $1 billion over five years to protect nine different land types: Stream banks and floodplains; working farms; working forests; urban forests; local parks and recreation; state parks; game lands; historic places; land visible from scenic highways such as the Blue Ridge Parkway. Such efforts have a major economic component for a region like ours, so heavily dependent on tourism. They add enormously to the quality of life and that helps attract mobile entrepreneurs, retirees and others who contribute to our economic well being.

Take advantage of this opportunity to help shape our future by going to the meeting tonight and making your voice heard.

Land for Tomorrow call to action

What Are We Waiting For?

- More than 3,000 miles of North Carolina streams and rivers do not meet the state's water quality standards. That's the distance from Asheville to Anchorage.
- Nothing is more important than having clean water to drink. By protecting land around rivers, lakes, estuaries and streams we can prevent polluted runoff from flowing into North Carolina's water supply.
- Each year 100,000 acres of irreplaceable natural areas, family farms, game lands, forests and historic places are developed in North Carolina, which has one of the Nation's fastest growing populations. Our quality of life is being diminished forever.
- Given our population growth, there is a very narrow window of opportunity to make the investments necessary to protect critical natural and economic resources for eternity. The price for the remaining lands will only get higher.

FROM THE LAND FOR TOMORROW FACT SHEET
HTTP://WWW.LANDFORTOMORROW.ORG

The meeting

The first of three statewide public hearings held by the state Land and Water Conservation commission will be tonight at 7 p.m. in the Laurel Building on the Asheville Buncombe Technical Community College campus.

High Point Enterprise

Jan. 3, 2007

Public hearing on conservation options slated

BY PAUL B. JOHNSON
ENTERPRISE STAFF WRITER

TRIAD – State Rep. Pricey Harrison has a succinct reason for wanting to promote conservation of land and water in North Carolina – "They aren't making it anymore."

If state leaders and residents don't come together and fi nd ways to secure and preserve open lands, water sources and historic properties, development and growth may wipe out the chance, said Harrison, D Guilford.

Peoplein theTriad will get their chance next week to offer suggestions on ways to preserve land during a public meeting of the N.C. General Assembly's Land and Water Conservation Commission. The meeting – which is the one for input from the central part of thestate– will beheld Jan. 10 at 7 p.m. in the auditorium at Guilford Technical Community College in Jamestown.

North Carolina "is losing land at the fourth- or fifth-fastest rate in the country," said Harrison, the lone Triad representative on the conservation commission. "We are losing open space, vital agricultural lands and forest areas. We've got to preserve what we can."

The General Assembly last year considered a bill to put a bond referendum before state voters to raise $1 billion for conservation trust funds. But the bill didn't pass, in part because of concerns about the state taking on further debt loads.

Gov. Mike Easley and legislators will face up to a $1 billion budget shortfall this year, meaning that funding through the general state budget might be hard to come by for conservation efforts. Harrison said legislators can consider policies that would promote the preservation of land and water resources. The General Assembly created the conservation commission last year to come up with recommendations for the 2007 legislative session.

"What we'd like to see is an opportunity for the voters to voice their opinions about conservation in the state," said Charles Brummitt, executive director of the Piedmont Land Conservancy.

Many legislators want to find a way to apply more money for conservation, but fiscal challenges have hamstrung them so far, Brummitt said.

Even if the state can't raise $1 billion for conservation,a smaller amount might get the effort started, he said. Harrison said the longer action is delayed, the more land and water is lost.

"There's an opportunity here to protect some valuable resources for future generations of North Carolinians," Harrison said. "Some big money now will pay off in major dividends down the road.

pjohnson@hpe.com |888-3528

ELKIN TRIBUNE

Dec. 29, 2006

Citizens needed to speak out for conservation at meeting

To the editor:

The North Carolina Land and Water Conservation Commission, created and appointed by the 2006 General Assembly and the Governor, will hold three public meetings in early January. These meetings are the perfect time for citizens to tell legislators that conservation of our state's open spaces, rivers and streams, farmland and historic places is a critical issue for the state's future.

The Piedmont-area meeting will be held at 7 p.m. on Jan.10, in the Auditorium of Guilford County Technical College's Jamestown Campus. The commission was created to study and recommend alternative funding sources to the upcoming legislative session after the 2006 session failed to approve proposed legislation for a $1 billion, statewide land and water conservation bond referendum. The bond legislation was originally proposed by Land for Tomorrow www.landfortomorrow.org), a partnership of more than 235 conservation organizations, businesses, preservationists, farmers, health professionals and community groups.

For those able to attend, I'd like to encourage you to speak "from the heart" about why more funding for conservation matters to you, personally and/or professionally. Our presence at this meeting will make a difference; after hearing from the public, the Commission will refine their recommendations and present them to the 2007 General Assembly. In preparing my own comments for the meeting, I called to mind the life lessons offered up as "family outings" by my grandfather — Sundays at the trout hatchery at Shatley Springs, feeding the geese at Gaddy's Goose Refuge, and raising bob-white chicks for release into the woods "just so we can hear them calling." Or simply sitting with him atop Grandfather Mountain, so lovingly and unselfishly preserved for the people of the state by the Morton family. My Paw-Paw planted the seeds of my deeply-felt affection for the natural world.

The issue here is NOT "conservation vs. development." It is only fair to expect a healthy balance of each, done with careful thought and concern for the future. We're woefully off balance here in our region, where the quick buck gets all the attention. It's time for the rest of us to have a voice in our future.

Our God-given, beautiful vistas, quiet places, and historic sites are at risk, as are our relatively clean air and water (and therefore, our health). If these assets, which are readily at hand, are preserved, they will support our growing viticulture industry and assure our successful (read: prosperous) long-term participation in regional heritage tourism projects such as the Blue Ridge National Heritage Area. We must be wise enough to acknowledge these assets, and unselfish enough to save them.

Marti Spillman Utter
Yadkinville

In Yadkinville, N.C.
the Yadkin Ripple ONLINE

Dec. 27, 2006

Several tourism-related events scheduled

On Jan. 3 there will be a Yadkin River Heritage Corridor Meeting at the Kerr Scott Reservoir Visitor Center on Jan. 3 at 1 p.m. The YRHC is an initiative by Caldwell, Wilkes, Yadkin and Surry counties to establish a heritage and recreational corridor along the Yadkin River, beginning in Happy Valley at Hwy. 268 and Hwy. 321, continuing through N. Wilkesboro, Ronda, and Elkin, ending at Huntsville and the historic Shallow Ford.

"Planning Today for a Better Tomorrow," a seminar on the many facets of Rural Tourism in the Yadkin Valley, will be held from 9 a.m.-3 p.m. on January 12, 2007, at the Village Inn Golf & Conference Center, Clemmons. Participants will have the chance to network with other individuals and tourism-related businesses and organizations. Learn tips to starting and/or improving your business, how to network with other owners of tourism-based businesses, the benefits of working together, and about your own regional "backyard." Cost: $35. Deadline for registration is January 2. For more information see surry.ces.ncsu.edu or call 401-8025.

The North Carolina Land and Water Conservation Commission will hold a public meeting at 7 p.m. on Wednesday, January 10, 2007, in the auditorium of Guilford County Technical College's Jamestown Campus, 601 High Point Road. The public is encouraged to attend and contribute their opinions about the future funding of conservation efforts in the state. Visit www.landfortomorrow.org for more information.

NEWS-RECORD &
Sentinel
Fort Stanton • Mountain • Mars Hill • Weaverville

Dec. 20, 2006

Letter from reader

Push for something positive

The Land and Water Conservation Commission, created and appointed by the 2006 General Assembly and the Governor, will hold a public meeting on Thursday, Jan. 4, 2007 at Asheville-Buncombe Technical College, Laurel Building, Ferguson Auditorium, 340 Victoria Road in Asheville at 7 p.m.

In partnership with Land for Tomorrow, they are asking the North Carolina General Assembly to provide $1 billion over five years to preserve and protect its special places before it's too late. Land for Tomorrow will help the state reach its goal of conserving a million acres -- ensuring that working farms and forests; sanctuaries for wildlife; land bordering streams, parks and greenways; land that helps strengthen communities and promotes job growth; historic downtowns and neighborhoods; and more, will be there to enhance the quality of life for generations to come.

These public meetings are the perfect time to show legislators that we North Carolinians think that conservation is a critical issue for the state's future.

For more information about the program, visit www.landfortomorrow.org. If you plan to go, it is not required, but you can sign up on their website at www.landfortomorrow.org/page354.html.

What a great opportunity! Let's all get behind this one and push for something positive rather than pushing against something detrimental. It's so much easier this way. Please pass this far and wide so that the state government knows how passionate we about preserving the beauty we have been entrusted with. Please mark your calendars today. Talk to your friends and neighbors, and come with something to say. It's not hard to express what you hold dear.

Krys Crimi
Madison County, NC

Krys Crimi submitted this event announcement, written by Mignon Durham. Crimi is a member of Laurel Valley Watch. -- Editor

THE MOUNTAINEER

Nov. 29, 2006

Preserving county's rural charm is vital to the future

Commissioners were right to fund effort

Haywood County has many charms, but perhaps the most appealing are the divergent and breathtaking landscapes that surround us.

In our county, we basically have all the qualities that lure people to the great outdoors — the rugged mountainsides, babbling brooks and rushing waterways, pastoral scenes where cattle or goats graze and horses run with the wind. All these are mixed in with plenty of agricultural production, ranging from small vegetables to tobacco and hay.

The scenes vary with the season and are so familiar they are easy to take for granted. But experience and forward thinking tell us our rural landscapes are quickly disappearing. Top-dollar offers from developers to families struggling to make ends meet in the farming business are hard to resist.

But there is another way. Haywood County is forming a committee to foster land preservation and eventually purchase property or development rights to property as a way to retain the rural charm of the area.

The effort is in the early stages, but county commissioners have made an important first step in granting $50,000 to be used as seed money in attracting some of the matching grants available for land preservation.

There are plenty of organizations dedicated to advancing land preservation, including the Southern Appalachian Highlands Conservancy, the N.C. Conservation Trust and Land for Tomorrow, all of which have done some work within the county.

There are also plenty of landowners with a deep desire to see agricultural traditions continued on their family land. If economic incentives can be made available, many would willingly consider options besides selling land for housing development or commercial use.

The Haywood County land trust effort is a way to make that happen.

The idea of a piece of property having several values is not a new one. In some cases, those owning the land and the mineral rights are different entities. Landowners routinely grant or sell easements across their property for utilities or transportation.

Separating a property's development right is the latest in a long stream of land ownership possibilities. With the development right sale, future use can either be restricted to present use or allowed to branch out in only select ways.

The county governing board is to be commended for recognizing the importance of moving forward. We encourage the new board members being sworn in next month to keep the momentum going.

The issue at hand affects every part of the county, from Fines Creek to Cruso, Balsam to Beaverdam. Our landscape is a large part of what makes Haywood County a special place to live. We must preserve what we can before it is too late.

THE NEWS&OBSERVER
newsobserver.com

Nov. 15, 2006

Land for water

Regarding your Oct. 30 editorial "Safe water," the General Assembly and the Land and Water Conservation Commission may have the largest impact on the success of the public-private efforts to protect water quality in the Neuse River Basin.

The General Assembly has charged the commission with making recommendations to the 2007 session on how to significantly increase funding for protecting critical water resources, natural areas and historic places through land acquisition. The legislature was responding to numerous reports showing an alarming rate of land conversion, with no letup in sight.

A portion of any increase in land and water conservation funds will reach the Triangle region, one of the fastest-growing in the country. But similar challenges are being faced throughout our state. From along coastal waterways to mountain streamsides, the thirst for land in close proximity to water is growing by the day.

Consequently, we have a narrow window of opportunity to acquire the lands that can make a real difference for the long-term health of our water supplies and our quality of life.

I look forward to following the commission to its final recommendations and fully support its efforts in making North Carolina a better place for us all. The next meeting of the commission will be in Raleigh on Thursday. More information can be found at www.landfortomorrow.org

Sig Hutchinson
Raleigh

NEWS & RECORD

Sept. 17, 2006

Land for Tomorrow funding is vital

CAROLYN ALLEN

As a person long involved with efforts to protect the environment, I was distressed that the N.C. General Assembly did not take action on the Land and Water Conservation Bond Act in its last session.

Land for Tomorrow, the program to be funded by these bonds, is a plan to carry out an amendment to our state constitution which voters approved 35 years ago. This amendment says we must use "every appropriate way to preserve as part of the common heritage of this state its forests, wetlands, estuaries, beaches, historical sites, open lands and places of beauty." We had hoped to put a bond referendum statewide on the November ballot that, if approved, would have provided $200 million annually for five years for conservation and preservation.

Guilford County is fortunate to have organizations that understand the importance of preserving our natural and historic heritage. More importantly, we have individuals who work daily with dedication and skill to carry these activities forward.

But new industry and business and our colleges and universities continually bring new residents to the area. This is a "desirable destination." Development grows all across the county. Thus we must expand efforts to protect those places that distinguish our history and quality of life.

Our splendid park and trail system provides exercise and pleasure for more people every year. The new state park along the Haw River must purchase additional land to meet the recreational needs of area residents. Historic buildings must be made accessible to the disabled. Farmers who wish to continue production on their lands need access to conservation easements. Drinking water that comes from surface reservoirs must be adequately protected. Storm water must be controlled and erosion of stream banks stopped if we are to secure the future of our water supplies. Without water, no future for this region is possible.

Instead of putting the bond referendum on the ballot, state legislators put in place a study commission that seeks alternative ways to fund the Land for Tomorrow program. It is to report back to the legislature in the new session. The environmental and historic future of North Carolina depends on the success of the commission's review. Our children and grandchildren lose their heritage if Land for Tomrrow does not become the gift our generation bequeaths to the future.

Carolyn Allen is a former mayor of Greensboro and chairs, with Davy Davidson, Guilford County's Land for Tomorrow chapter.

THE NEWS&OBSERVER
newsobserver.com

Sept. 16, 2006

Protect more land

Thanks to the Council of State for its support for the acquisition of more than 10,000 acres to protect water quality and unique natural areas, and enhance park and recreation opportunities across North Carolina (news story, Sept. 12).

While this is the right thing for North Carolina, during the next year the state will see 100,000 acres of its farms, forests and natural areas converted to more urbanized uses. According to the federal Census, by 2030 our state will need to make room for a population larger than that of Michigan, Ohio and New Jersey.

That's why the General Assembly and governor have appointed a Land and Water Conservation Study Commission to determine how the state can significantly increase its investment to protect our great natural assets in the face of such growth.

Land for Tomorrow is a coalition of more than 230 diverse organizations, communities and individuals, including farmers, foresters, business executives, conservationists, health professionals and many others, all supporting the efforts of the commission.

They share one thing: They believe we owe it to ourselves, our families and our grandchildren to find a way to significantly increase land and water conservation. Otherwise, the North Carolina we love will disappear forever.

For additional information, go to www.landfortomorrow.org.

Kate Dixon
Director
Land for Tomorrow
Durham

THE BUSINESS JOURNAL
SERVING THE GREATER TRIAD AREA

Sept. 7, 2006

State's future growth depends on conservancy's success

GUEST COLUMN
CHARLES BRUMMITT

North Carolina's needs are as diverse and urgent today as ever. Balancing those needs must seem a thankless job to our legislators, especially when critical needs go unmet.

Our legislature adjourned this year without giving the voters an opportunity to vote on two of those critical needs — land and water conservation.

A coalition of more than 230 organizations and local governments called Land for Tomorrow built a strong case that North Carolina's future economic well-being will be greatly affected by today's investment in clean water, working lands, parks and greenways.

Even in tight times, we cannot afford the loss of our state's land and water along with the quality of life they support. The threats are daunting.

Each year, North Carolina loses more than 100,000 acres of forests and farmland to the pressures of population growth and 3,000 miles of our streams already don't meet state water quality standards.

By 2030, the U.S. Census Bureau expects North Carolina's population to surpass Michigan, New Jersey and Ohio. Between 1987 and 1997, North Carolina lost more prime farmland than any other state except Ohio and Texas. And for the first time since the 1930s, falling forest acreage contributed to a decline in the volume of the state's timber growing stock.

Close to home, Alamance, Forsyth, Guilford, Randolph and Rockingham counties lost 167,000 acres of farmland between 1974 and 1997. Between 1990 and 2000, Greensboro's area grew by 24 percent while its population grew by 22 percent. Similarly, Winston-Salem's area grew by 35 percent while its population grew by 30 percent.

Still, growth does not have to result in a degraded quality of life if we invest wisely. The proposed billion dollars of land and water conservation bonds over five years would help protect more of our farmland and support local foods.

It would help protect more streams to give us a safer, less expensive water supply. It would help protect the quality of life we all want to pass to future generations.

The legislative sponsors of the land and water conservation bonds deserve our thanks for their leadership on this issue. They were numerous — more than 70 in the House and more than 20 in the Senate.

Despite their efforts and those of many citizens, fulfilling our need to protect more land and water has been postponed at least a year.

The legislature did, however, create a study commission charged with recommending alternative funding sources for land and water conservation to the 2007 General Assembly. The study commission is required to examine all options to help protect North Carolina's natural and historic beauty, and then report to the Legislature and Governor by Feb. 1, 2007.

It is vital that the Commission enjoy the support of Gov. Easley, legislators and the public. If it gets that support, I am optimistic the commission will strengthen Land for Tomorrow's original proposal and recommend decisive action to support both our economy and our natural resources.

Julian & Ethel Clay Price Park in Greensboro

The northern Piedmont's development will almost certainly continue to accelerate. We have a rapidly disappearing opportunity to support development and protect our farming heritage, green space and water.

But, we will not do so without additional investment. We are confident that with good work by the Commission and continued focus, citizens of North Carolina will have an opportunity to support land and water conservation bonds in 2007.

Thirty five years ago, our state constitution was amended to say we must use "every appropriate way to preserve as part of the common heritage of this state its forests, wetlands, estuaries, beaches, historical sites, open lands and places of beauty."

Each day, we lose more of the natural areas that are so important to protecting our children's future. We have a narrow window of opportunity to protect places that are so important to our quality of life and the economy. We must continue to act — now.

That is exactly what the Land for Tomorrow and the proposed land and water conservation bonds aim to do — and that's why we look forward to working with the newly formed study commission and implementing conservation efforts that make sense for North Carolina.

CHARLES BRUMMITT *is executive director of the Piedmont Land Conservancy. For more information, visit: www.landfortomorrow.org.*

THE MOUNTAINEER
Publishing Company

Sept. 6, 2006

Help protect rivers, land, parks

To the editor:

I hope that most of you have heard of and read about Land For Tomorrow, the partnership asking the N.C. General Assembly for $ 1 billion over five years to protect river, farms, lands, parks and historic places.

This is a status report. We asked the N.C. Legislature to provide funding through general obligation bonds, and, thanks to superb volunteer efforts the bill was co-sponsored by 75 of the 120 House members and 22 of the 50 Senators. The group was diverse: Republicans, Democrats, rural and urban, mountain, coastal, Piedmont, African American and Caucasian.

We thought that the bill would pass and get on the November ballot but Gov. Easley came out strongly against additional debt and Senate leaders became unwilling to act.

The House then, not having support from the Senate or the Governor, did not bring the bill to the floor.

So we are building towards next year. The legislature was encouraged to establish a study commission to investigate financing options and to recommend how to meet the funding needs. The commission's final report is due in February of 2007, time enough to get the legislation introduced next session.

Now we need the help of anyone interested in contacting the representatives in Raleigh. They need the push from us to keep working on this important legislation.

They aren't making land anymore, or rivers or mountains. We must try to save what we have, especially in Haywood County, one of the most sought after areas in the Southeast.

Judy Coker
Maggie Valley

The Herald-Sun

Sept. 5, 2006

'Wait 'til next year'

Many leaders from the business, local government and the environmental community are disappointed that the legislation to allow North Carolinas voters to vote on the Land for Tomorrow Bond Issue was not brought up for a vote in the General Assembly this year. The bills that were submitted had overwhelming support. In the House, the legislation was co-sponsored by 75 of 120 members. In the Senate, 25 of 50 Senators took the same position of leadership on the issue.

Land for Tomorrow will be a five-year, $1 billion bond issue to strengthen existing mechanisms to protect open spaces, farmlands, forests and other important parts of North Carolina "natural infrastructure." This added investment is vital at this time of North Carolina's exploding growth and development.

The U.S. Census Bureau estimates that by 2030 North Carolina will be the fifth most populous state, exceeding New Jersey, Michigan and Ohio. As a consequence, North Carolina loses more than 100,000 acres of forests and farmland each year. More than 3,000 miles of our streams still don't meet state water quality standards. These things will only become more critical if prompt action is not taken.

While the bill authorizing the land and water conservation bonds did not pass this legislative session, at the end the Legislature took a farsighted position. They established a study commission to report back to the Legislature in February 2007 and determine the most appropriate way of meeting the increasingly dire needs to protect our state's water and open spaces.

So "wait 'til next year" sounds good. Not in the sense of the Chicago Cubs, but with the energy of the Carolina Hurricanes. A committed group of people from Durham and from around North Carolina will continue to work hard to protect those values that make our state such a special place for future generations.

THOMAS KRAKAUER

The writer is co-chairman of Durham County Land for Tomorrow Committee.

Ecosystem Enhancement Program

2006 Report to:

Environmental Review Commission

Presentation Overview:

- History and Overview
- Trends
- 2005 – 2006 Financials
- Status

The Ecosystem Enhancement Program

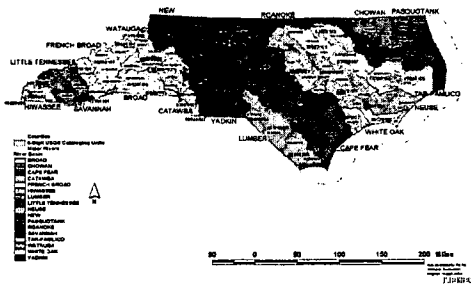
- 1977 Clean Water Act
- Wetlands Restoration Program est. NCGA in 1996
- Established in 2003 to assist NCDOT
- No projects delayed.
- Innovative state-federal partnership with many national awards

EEP contracts with the private sector, and partners Government Agencies, NGO's and Universities to:

- Plan
- Design and construct
- Acquire
- Inspect

EEP provides compensatory mitigation within watersheds

USGS 8-DIGIT CATALOGING UNITS- NORTH CAROLINA



EEP oversight/coordination:

- State and Federal Agencies
- Program Assessment and Consistency Group (PACG)
- Partnerships and Councils
- NCDOT- BOT
- Policy and Oversight Committee
- Environmental Review Commission

EEP maximizes efficiencies programmatically to:

- Restore and protect natural resources
- Reduce redundancy
- Reduce number of contracts
- Provide economies of scale (larger more effective projects)
- Provide efficient and effective use of resources

EEP Process:

1. Receives and develops needs
   - from Customers:
   - from LWP's (Environmental/Watershed needs)
2. Develops strategies to meet statewide needs
3. Secures funds
4. Contracts work

Demand Trends FY 05/06

NCDOT (MOA)	30% reduction
In-lieu Stream and Wetland (MOU)	12 to 20% reduction
Buffer	16% increase
Nutrient Offset	31% increase

Costs

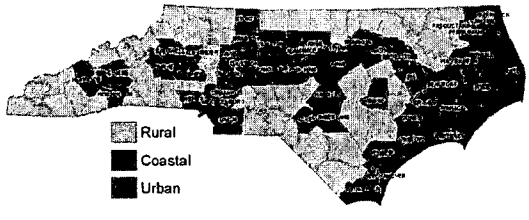
Proposed Fee Revision

- Last fee revision occurred in 2003
  - Increased stream fee
  - Added annual adjustment for inflation
- EEP has most data ever related to restoration costs
  - DBB projects in monitoring phase
  - FD contracts awarded
- Latest data analyses reveal need for revision

Proposed Fee Revisions

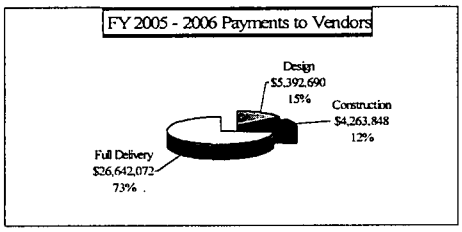
Mitigation Type	Existing Fee	Proposed Fee		
		Urban	Rural	Coastal
Stream	$232	$332	$232	$232
Riparian WL	$27,847	$56,000	$32,000	$38,000
Non-Rip WL	$13,924	$21,000	$21,000	$24,000

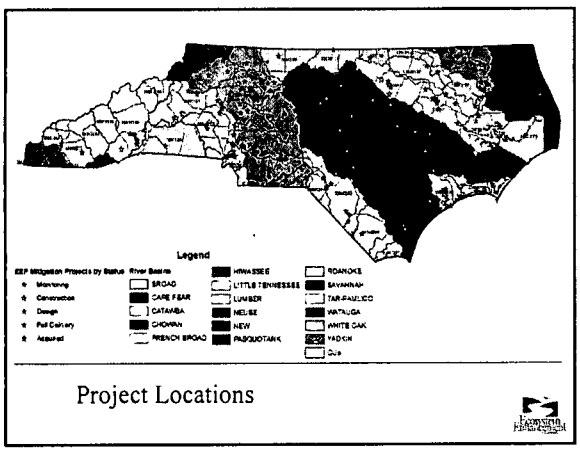
Proposed Category Locations



Production contracts FY 2005-2006

Full Delivery:	35
DBB- Design and Construction:	50





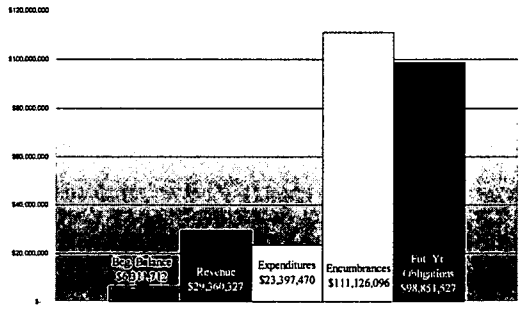
Project Locations

EEP funds are managed under four programs:

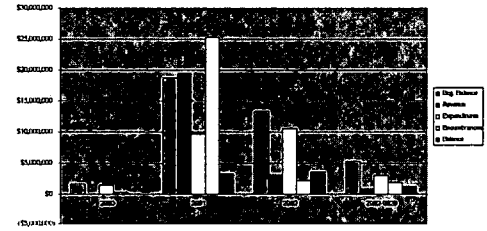
NCDOT
- MOA program

Developers, Local Governments, Citizens (voluntary)
- MOU in-lieu program
- Buffer program
- Nutrient Offset program

MOA Fund – current (NCDOT)



Fund Status (In-lieu, Buffer, N.O.) current



	General	MOU Wetland and Stream	Buffers	Nutrient Offset
Beg. Balance	$1,697,493	$18,753,441	$13,309,732	$5,305,207
Revenue	$20,168	$19,516,426	$3,177,602	$898,042
Expenditures	$1,435,002	$9,592,097	$10,599,926	$3,038,466
Encumbrances	$287,808	$25,309,671	$2,229,764	$1,841,864
Balance	(55,149)	$3,368,099	$3,657,644	$1,322,919

Statewide Stream Status (July 22, 2006 in credits):

Credit requirements (July 22, 2006):	508,323
Projected needs (2008):	871,230
Total requirements (through 2008)	1,379,553
Statewide (EEP Managed Assets*):	1,471,107

*EEP Managed (DOT, WRP and self generated)

Stream Permit Compliance

98.43%

Statewide Wetland Assets (July 22, 2006 in credits):

Credit requirements (July 22, 2006):	902
Projected needs (2008):	2,200
Total production requirements:	3,102
Statewide EEP Managed Assets*:	13,087

*EEP Managed assets come from transferred DOT and WRP projects, along with EEP produced projects

Wetland Permit Compliance

95.60%

Buffer Program (acres)

	Cape Fear	Neuse	Tar-Pamlico	TOTAL
Accepted	61.56	303.69	21.45	386.71
Provided	61.66	410.95	103.90	599.91

Nutrient Offset ILF Program Status FY 05—06 (Mitigation Nitrogen Pounds)

	Neuse
Mitigation Due	526,373.04
Mitigation Instituted	527,339.68

And for the past 42 months:

Has supplied mitigation to permitees with no project delays.

Helped NCDOT toward awards totaling $2.2 billion in transportation construction.

Restored, Enhanced or Protected

Streams	500 miles
Restoration lands	13,800 acres
HQP lands	35,700 acres
Total Acreage	49,500 acres

Future Actions

- Meet customer needs
- Quality mitigation
  - for the environment
  - cost effective
- With regulatory partners, continue to seek new means and methods to advance our environmental mission

Data Sources

- Annual Report for FY 2005-2006
- Quarterly reports to USACE

www.nceep.net – follow links to News/EEP Publications

EXHIBIT S

ECOSYSTEM ENHANCEMENT PROGRAM

2005-2006 ANNUAL REPORT

Restoring... Enhancing... Protecting Our State

Ecosystem Enhancement PROGRAM

State of North Carolina
Michael F. Easley, Governor

A Partnership of:

North Carolina Department of Transportation

U.S. Army Corps of Engineers, Wilmington District

North Carolina Department of Environment and Natural Resources

MISSION

The mission of the Ecosystem Enhancement Program (EEP) is to restore, enhance, preserve and protect the functions associated with wetlands, streams and riparian areas, including but not limited to those necessary for the restoration, maintenance and protection of water quality and riparian habitats throughout North Carolina.

Ecosystem Enhancement PROGRAM

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Executive Summary

As the N.C. Ecosystem Enhancement Program completes its third year of service to the State of North Carolina in providing environmental mitigation to offset regulatory permit requirements of State and Federal governments, the initiative continues to accomplish its overriding purpose: facilitating improvements to the state's transportation infrastructure and fostering responsible economic development.

Since July 2003, EEP has succeeded in streamlining North Carolina's transportation-project delivery without fail. More than $2 billion in approved and pending transportation infrastructure is moving forward in the state without a single delay because of a lack of compensatory mitigation.

During the 2005-06 fiscal year, EEP has continued to maximize the environmental benefits of mitigation resources through high quality restoration and protection efforts across the state. As the program continues to mature, data validates accelerated levels of restoration activity, advancement of mitigation ahead of permitted impacts, significant compliance with regulatory protocols and adherence to the program's watershed approach to restoration-project implementation.

State fiscal year 2005-06 was an active period for EEP as evidenced by requests for compensatory mitigation and the production of restoration assets. Requests for mitigation have trended differently for each of the four primary programs managed by EEP. These four program include the Transportation Stream and Wetland mitigation program (under EEP's tri-party Memorandum of Agreement), the Statewide Stream and Wetland In-Lieu Fee mitigation program (under EEP's two-party Memorandum of Understanding), the Riparian Buffer mitigation program, and the Nutrient Offset mitigation program. Trends are summarized in this section but additional details of the funds are provided later in this report.

Compensatory mitigation provided for the N.C. Department of Transportation (NCDOT) is based on forecasted impacts related to the seven- year Transportation Improvement Program. Impact projections submitted to EEP from NCDOT have shown a marked decrease from data provided in previous years. As compared to projections associated with FY 2004-2005, projected needs for FY 2005-06 were reduced by approximately 30 percent. Even though the forecasted needs have declined, program requirements have increased due to the accelerated timelines contained within the tri-party MOA between the Department of Environment and Natural Resources (NCDENR), NCDOT and the U.S. Army Corps of Engineers (USACE). This agreement is structured to move production of compensatory mitigation in advance of permitted impacts, and achieves this objective by requiring multiple years worth of mitigation within more narrow time frames.

Requests for mitigation from applicants to the EEP In-Lieu Fee Program have varied. Stream mitigation requests decreased by almost 20 percent from the previous fiscal year, while wetland mitigation requests increased by 12 percent. Monetary payments into the program grew six percent as compared to payments during the past fiscal year, which is likely a reflection of the annual fee adjustment made to account for increasing project costs associated with inflation.

The Riparian Buffer and Nutrient Offset programs both experienced increased use from the previous fiscal year. Participation in the buffer program went up by 16 percent, while participation in the nutrient offset program increased by 31 percent.

In FY 2004-05 , the program recorded 210 new contracts and amendments totaling $72 million. In contrast, EEP recorded 258 contracts valued at $130 million in FY 2005-06. This represents a 23-percent increase in total new contracts and an 80-percent increase in dollar volume—an indicator of increased production rates. Other indicators of increased production include the fact that EEP brought on line approximately 310,000 feet of stream and 589 acres of wetland-mitigation projects during FY 2005-06. Restoration construction activities have increased and EEP expects to experience a peak in this activity in 2008 and 2009 as restoration projects move through the design phase and into construction.

The development of restoration assets has outpaced mitigation demand as intended. EEP currently has over 600,000 feet of stream and 7,000 acres of advance mitigation available for pending road projects. Overall program compliance with regulatory protocols for stream and wetland mitigation is in excess of 95 percent.

The significant increases in restoration production and program compliance have been facilitated by a unique public-private sector partnership. The vast majority of EEP's work is outsourced to environmental consultants, mitigation bankers and construction contractors. The program presently engages over 40 unique firms and companies in the planning, design, construction, monitoring and maintenance of its projects. Thirty-five Full Delivery mitigation contracts were awarded for $67 million in FY 2005-06 to produce 217,336 feet of stream and 389 acres of wetland mitigation. Twenty-six engineering and planning firms and nine construction firms have been awarded 50 contracts for the design and construction of projects that will produce an additional 70,000 feet of stream and 180 acres of wetlands.

EEP has conducted an analysis of project costs statewide and determined that an adjustment of the program's fee schedule is necessary. EEP is in the process of proposing rule revisions to raise fees for streams and wetlands and is participating in a legislative study to address fees associated with Nutrient Offset requirements. In the coming fiscal year, the program will focus on continuing to maximize the environmental benefits of its restoration projects while providing cost-effective mitigation to its customers.

This report is intended to satisfy all annual reporting requirements as defined in G.S. 143-214.13 and the MOU with USACE, and to provide a programmatic accounting of both the MOA and MOU programs.

William D. Gilmore

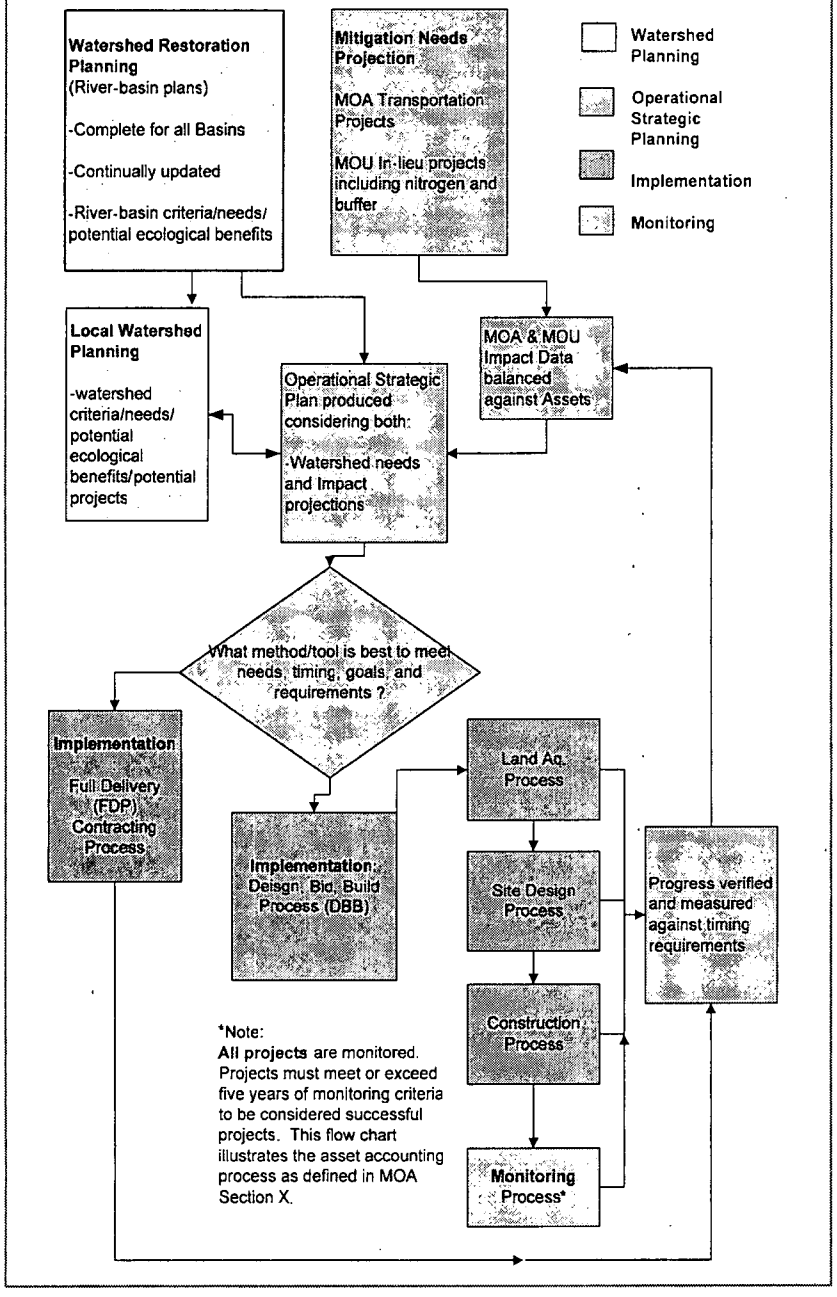
William D. Gilmore, PE, Director

11-29-2006

Date

I: EEP Mitigation Production Process

Figure 1: Mitigation Production



The N.C. Ecosystem Enhancement Program (EEP) is producing stream and wetland mitigation at unprecedented rates in North Carolina. **Figure 1: Mitigation Production** (at left) illustrates the process that EEP uses in order to meet environmental goals, regulations, and develop strategies for meeting mitigation commitments. Updated statistics for mitigation needs and restoration assets are reviewed on a regular basis. Strategic action plans are adjusted as necessary to keep the program on target for compliance. Each EEP section, described below, plays a vital role in this process.

Operational Strategic Planning sets the framework for the acquisition, planning, design, and construction of all ecosystem projects undertaken by EEP. Based on projections of unavoidable wetland, buffer and stream impacts of future transportation projects submitted annually by NCDOT, and historic in-lieu fee customer requests, EEP develops strategies to achieve watershed-based compensatory mitigation in each of North Carolina's 54 hydrologic cataloging units.

The projected needs are examined in concert with watershed planning.

EEP identifies Targeted Local Watersheds in each of the state's 17 river basins based on resource value, restoration need and opportunities for partnering with local agencies and communities. **River Basin Restoration Priorities** for each river basin rely heavily on information contained in the Division of Water Quality (DWQ) Basinwide Water Quality Plans and are generated on the same five-year planning timeline.

In collaboration with local stakeholders and resource professionals, EEP works to identify projects and management strategies to restore, enhance and protect local watershed resources. Through its **Local Watershed Planning** initiative, EEP focuses resources in specific 14-digit hydrologic units -- local watersheds -- in order to address critical watershed issues.

Local Watershed Plans include three key components:

1) An inventory of the specific causes of watershed degradation identified through a detailed assessment;
2) A plan that links watershed problems with specific restoration strategies that are supported by the local community; and
3) A strategy for implementing restoration projects and other watershed initiatives identified in the plan.

In carrying out EEP's stated mission "to restore, enhance, preserve and protect the functions associated with wetlands, streams and riparian areas," the initiative's **Watershed Planning and Project Implementation** section works to produce ecologically effective mitigation in advance of permitted impacts from transportation-infrastructure improvements and other economic development.

EEP watershed planners establish restoration priorities in each of the state's 17 river basins to target local watersheds for EEP projects. EEP project-implementation managers work with interested public and private landowners and private-sector contractors to oversee design and construction of restoration and enhancement projects across the state.

The **Project Control and Research** Section (PCR) is responsible for the technical review and oversight of the EEP Design-Bid-Build programs, and administering the EEP Full-Delivery Program, monitoring restoration projects for success, and developing functional measures for restoration projects and watersheds. PCR is establishing data for:

- Short-term ecological effectiveness of current restoration practices;
- Long-term restoration site studies to quantify wetland and stream functional measures;
- Catchment studies to demonstrate the watershed benefit of restoration practices in association with various best management practices; and
- Maintenance costs and methods for wetland, stream and riparian restoration projects.

Technical reviews include restoration plans, construction plans and monitoring reports.

PRC also acquires project permits and permit modifications, and identifies and directs research related to stream and wetland restoration, water-quality improvement, and wetland and riparian-habitat enhancement.

Together with partnering interests from the public and private sectors, EEP has contributed to the preservation of natural areas across North Carolina. EEP's **High Quality Preservation** (HQP) activities support mitigation for unavoidable environmental impacts from transportation-infrastructure improvements. Assets from this initiative supplement restoration that is provided for all permitted impacts.

The program's alliance with local and regional land trusts across the state, believed to be unprecedented in the nation on its scale, harnesses the expertise, innovation and local knowledge of 23 separate trusts to promote land acquisition and open-space protection. The partnership's aim is to provide fair economic return to landowners while achieving open-space protection for the state.

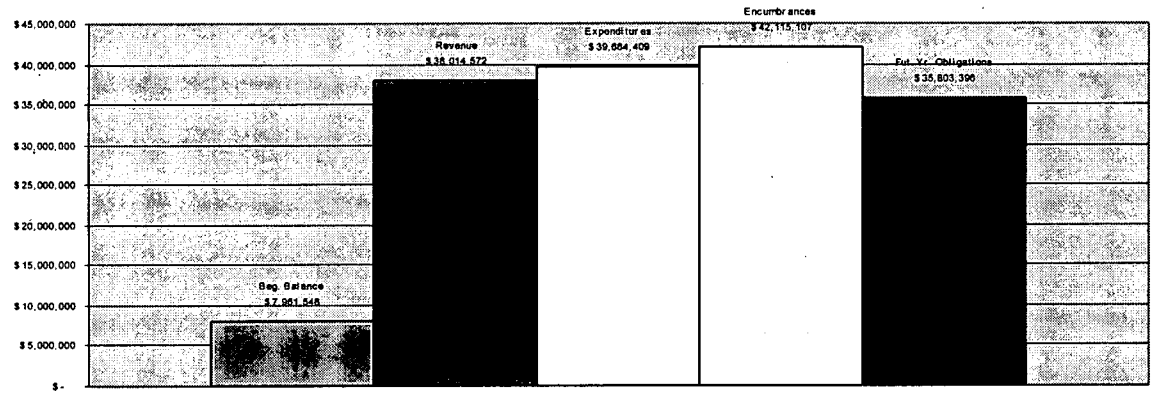
II: Financial Accounting, Cost Data and Property Acquisition

Revenues, Expenditures and Encumbrances

The figures and tables below depict expenditures and end of year balances for the MOA and MOU Stream and Wetland mitigation programs, as well as the buffer and nutrient offset programs, the data shows beginning balances, revenues, expenditures, cash balances, encumbrances and unencumbered balances.

Figure 2 below, is a report on the status of the Transportation, MOA Stream and Wetland mitigation program (fund 2984). Mitigation production and payments are programmed on a cash-flow basis and as a result reflect only the amount paid into the account versus future year obligations.

Figure 2: MOA Fund 2984 Fiscal Year 2005-2006

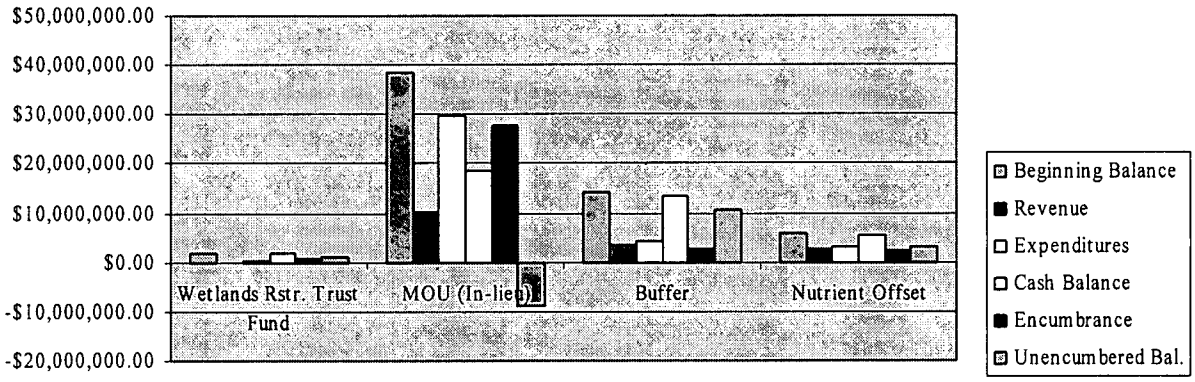


Fund	2984
	MOA
Beginning Balance	$7,961,548.74
Revenue	$38,014,572.44
Expenditures	$39,664,408.78
Cash Balance	$6,311,712.40
Encumbrance	$42,115,107.10
Future Yr. Obligations	$35,803,394.70

This accounting method is in place at the request of NCDOT and is consistent with their method of managing Transportation Improvement Program project costs. EEP invoices NCDOT on a quarterly basis and secures only those funds required to pay operating costs for the upcoming quarter. Future year obligations are guaranteed by NCDOT to be paid in accordance with a Memorandum of Agreement between NCDOT and NCDENR. Revenue accounting is reported to NCDOT by EEP quarterly during routine invoicing processes.

The MOU Stream and Wetland (in-lieu fee) program (fund 2981), the Nutrient Offset mitigation program, and Riparian Buffer mitigation programs (fund 2982) are depicted in Figure 3. Fund 2980 is also shown. Fund 2980 (Wetlands Trust Fund) was established by the legislature when the Wetland Restoration Program (WRP) was initiated. This account is a repository for General Assembly appropriations to EEP and has been historically used to provide non-mitigation restoration projects.

Figure 3: Trust Fund, In-Lieu, Buffer, and Nutrient Offset Fund Status
Fiscal Year 2005-2006



Fund	2980	2981*	2982	2982-9829
	Wetlands Trust Fund	MOU (In-lieu)	Buffer	Nutrient Offset
Beginning Balance	$1,815,888.60	$38,588,673.30	$14,124,786.44	$5,710,563.95
Revenue	$61,763.60	$10,062,353.28	$3,508,262.91	$2,706,419.18
Expenditures	$180,159.16	$29,897,585.22	$4,323,316.95	$3,111,775.74
Cash Balance	$1,697,493.04	$18,753,441.36	$13,309,732.40	$5,305,207.39
Encumbrance	$679,926.06	$27,799,177.95	$2,570,646.70	$2,351,471.08
Unencumbered Bal.	$1,017,566.98	-$9,045,736.59	$10,739,085.70	$2,953,736.31

** As of November 7, 2006 the unencumbered balance for fund 2981 is $3,060,857.79*

Fund 2981 is a statewide, receipt based in-lieu fee account that provides for wetland and stream compensatory mitigation. The fee schedule associated with this fund is currently proposed for revision through rulemaking. EEP has significantly increased production within the MOU program, resulting in a substantial decrease in the fund's cash balance and an increase in the amount of encumbered contracts. As a result, the fund was showing a negative balance at the close of FY 2005-06. At the time of this publication, the unencumbered balance was positive (see footnote to Figure 3) as a result of program revenues and adjustments made to encumbered, yet inactive contracts. The significant restoration activity paid for through this fund has also resulted in the development of mitigation assets of close to $20,000,000 (see Table 7 in Section IV). These assets are a byproduct of the fact that restoration project sizes tend to be greater than the mitigation requirements accepted into the program, and represent a moderate level of advancement for what is fundamentally a program where restoration occurs subsequent to permit issuance.

Fund 2982 is the repository for monies related to the state's buffer-mitigation program that applies to the Neuse and Tar-Pamlico River basins, and parts of the Catawba River basin. Within the buffer mitigation program, EEP was running an unencumbered balance of $10,739,085.70 at the end of the fiscal year.

Fund 2982-9829 is the repository for funds of the nutrient offset program. This program has been in place for Neuse River basin since 1998. Payments to offset exports of nitrogen and phosphorus in the Tar-Pamlico River Basin began in mid-2006. Thus far, nitrogen reductions in the Neuse River basin have been achieved primarily through buffer restoration, which is the most cost-effective manner of meeting reduction requirements. Recognizing that the fee associated with reduction requirements was insufficient to implement appropriate projects, DWQ increased the fees for nitrogen payments in the Neuse and established fees for phosphorus and nitrogen in the Tar-Pamlico. These fee revisions became effective in March of 2006. The N.C. General Assembly subsequently retracted the new fees and called for a study to determine what they should be (see Senate Bill 1862 and Senate Bill 927). EEP will participate in the study of the fees.

EEP Project Costs for FY 05- 06

EEP utilizes two different delivery methods for project implementation: Design-Bid-Build and Full Delivery. Costs of project implementation were evaluated by examining contracts associated with these two components of the program.

In FY 05 –06, EEP obtained:

- 249,255 Stream Mitigation Units at an average of $289.49 per unit
- 305.67 Riparian Wetlands Mitigation Units at an average of $40,934.72 per unit
- 143.60 Non-riparian Wetlands Mitigation Units at an average of $20,982.51 per unit
- 24.54 Buffer Mitigation Units at an average of $17,037.29 per unit

Cost Analysis of Private Mitigation Banks

Reporting requirements of G.S. 143 require EEP to compare the cost of wetlands restoration on a per-acre basis between the State's Wetlands Restoration Program and private mitigation banks. To obtain the data necessary to accomplish this task, an electronic web-based survey requesting restoration cost information was sent to the sponsor of each approved bank in North Carolina. Appendix A includes a listing of banks who were requested to respond, and a copy of the survey with responses.

There were two responses from mitigation banks for fiscal year 2005-2006, the Barra Farms/ Cape Fear Regional Mitigation Bank and the Neu-Con Umbrella Wetland and Stream Mitigation Bank. Based on the survey responses the average costs are as follows:

- Riparian Wetlands Mitigation Units: average reported = $37,500.00 per unit
- Non-Riparian Wetlands Mitigation Units: average reported = $27,500.00 per unit

No data were reported for stream mitigation.

Stream and Wetlands Projects Cost Study

EEP has secured the services of UNC-Wilmington to conduct a stream- and wetland-project cost analysis that incorporates both biophysical and economic variables. The study will ultimately result in a methodology to compare project costs with the fee schedule. This tool will be used to develop regional project cost estimates and aid in calculating yearly program budgets. The study will also look at how variables, such as length, width, location and construction technique, affect total project cost. Initial findings were presented at the N.C. Stream Restoration Institute Stream Conference in October 2006 and the study will be completed in December 2006. Data derived from the analysis have been used to develop proposed revisions to the schedule of fees applied to the MOU program.

Full Delivery Program

The Full Delivery Program (FDP) procures compensatory mitigation by issuing Requests for Proposals (RFPs) through the N.C. Department of Administration. Each RFP specifies the river basin and cataloging unit within which mitigation is being sought, and the amount and type of mitigation needed (i.e. buffer, stream and/or wetland). Offerors are required to submit both a Technical Proposal and a Cost Proposal for each prospective submittal. The Technical Proposal details: 1) the experience, qualifications and financial stability of the firm submitting the proposal; 2) the geomorphologic features of the site that make it suitable for restoration; and 3) the conceptual plan for restoring the site to a more natural, stable condition, both physically and biologically. The Cost Proposal provides a Unit Cost (i.e. per BMU, SMU or WMU) for the submittal. Qualifying proposals are evaluated based on the technical merits of the restoration and the overall per-unit cost. Firms associated with selected proposals enter into a contract with EEP to convey a conservation easement on the project area to the State, develop and implement a restoration plan, and monitor the project for five years to verify that the restoration meets established success criteria. In FY 2005-06, EEP entered into 35 FDP contracts for 217,336 Stream Mitigation units, 283.6 Riparian Wetland Mitigation units, and 105.5 Nonriparian Wetland units at a cost of $67,571,074.

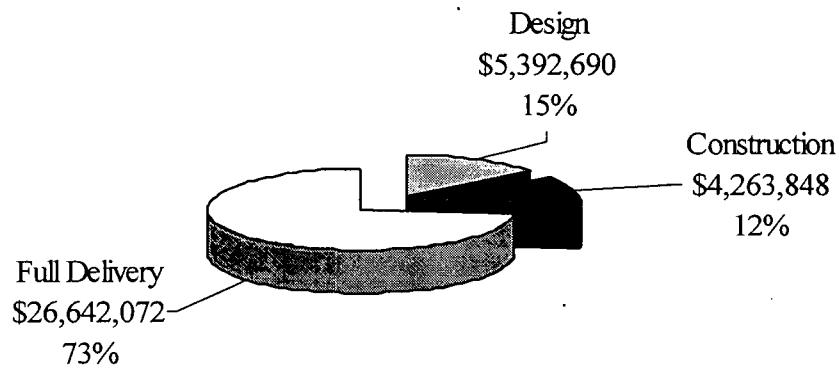
Design-Bid-Build

The Design-Bid-Build Program operates by contracting for specific services for various stages of project development. In FY 2005-06, EEP entered into 50 new contracts (design and construction) as part of this program.

Fiscal Year 2005-06 Payments to Vendors

Payments to vendors totaled $36,298,611 for FY 2005-06. Figure 4 (below) illustrates Full Delivery and Design-Bid-Build payments (shown in the figure as design and construction), but does not include any costs for property acquisition. Appendix B provides a listing of payments by contract type and vendor.

Figure 4 - FY 2005 - 2006 Payments to Vendors



III. Restoration, Enhancement, and High Quality Preservation

Gross Assets

At the end of FY 05-06, EEP had gross assets of 1,399,938 linear feet of stream and 18,932 acres of wetlands in addition to HQP assets. The table below is a summary of gross restoration assets by river basin and mitigation type.

Table 1: EEP Gross Assets FY 05 –06

River Basin	Stream Restoration	Stream Enhancment I	Stream Enhancement II	Stream Preservatioion	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Nonriparian Restoration	Nonriparian Creation	Nonriparian Enhancement	Nonriparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Broad	54,258	6,410	10,076	9,279	11.4	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cape Fear	316,042	28,793	15,540	16,203	708.6	21.0	169.3	938.2	877.8	0.0	144.9	480.7	37.3	0.0	79.9	0.0
Catawba	137,129	11,026	13,951	4,286	32.3	32.8	14.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chowan	11,128	1,700	0	6,086	97.3	0.0	0.0	15.0	5.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0
French Broad	59,167	8,235	880	715	30.0	0.0	15.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hiwassee	3,900	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Little Tennessee	13,683	0	0	0	50.8	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lumber	25,352	0	0	1,750	30.0	0.3	30.4	35.8	777.4	0.0	0.0	301.5	0.0	0.0	0.0	0.0
Neuse	113,520	11,665	2,276	5,193	592.3	52.0	267.9	764.9	1,675.7	77.2	997.4	1.7	5.6	0.0	0.2	4.9
New	11,097	15,851	1,750	14,300	13.0	6.3	9.0	18.3	11.9	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Pasquotank	13,700	2,300	0	0	396.6	0.0	21.7	68.7	1,161.6	0.0	0.0	139.3	0.0	40.3	0.0	180.9
Roanoke	46,845	1,232	8,499	14,263	154.0	0.0	0.0	576.4	236.0	0.0	0.0	3,431.0	0.0	0.0	0.0	0.0
Savannah	3,310	1,600	0	3,115	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0
Tar-Pamlico	35,651	12,933	5,983	0	365.4	6.9	35.1	442.8	345.8	80.0	2.5	542.1	3.3	0.0	0.0	19.0
Watauga	2,800	1,000	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
White Oak	26,922	400	400	1,280	52.0	0.0	1.8	2.0	368.5	0.0	0.0	274.1	6.2	0.0	0.0	0.0
Yadkin	192,944	22,806	19,902	50,812	175.7	117.0	38.7	89.0	27.6	39.5	18.0	18.4	0.0	0.0	0.0	0.0
Grand Total	1,067,448	125,951	79,257	127,282	2,709.3	236.3	603.7	2,953.4	5,492.2	196.7	1,162.8	5,200.6	52.4	40.3	80.1	204.9

Note: EEP's mitigation assets and requirements are accounted for on a cataloging unit basis. This table, along with table 2, is intended as a summary. A complete listing of these tables by river basin *and cataloging unit* can be found in the EEP's Fourth Quarterly Report, located on the EEP website at: http://www.nceep.net/news/eeppublications.htm.

Net Remaining Asset Credits

Table 2 lists net asset credits by river basin for FY 05-06. These are the remaining credit assets after application of credits to compensatory-mitigation requirements. Remaining asset credits are also summarized by credit amounts in the MOA and MOU programs. Assets in this table have been simplified and converted to restoration and restoration equivalents. HQP remaining assets are summarized at the bottom of Table 2.

At the end of FY 05 –06 EEP had remaining unused assets of both restoration and restoration equivalents of:

- Stream: 887,970 credits
- Riparian: 4,609 credits
- Nonriparian: 6,742 credits
- Coastal Marsh: 144 credits

Net remaining assets represent progress that EEP, and its partners have achieved to produce mitigation in advance of impacts and permits. Each of these mitigation assets will be used to offset future permit requirements. Net remaining assets in the MOA program have been developed based on impact projections submitted to EEP by NCDOT. Figure 5, Stream Status, and Figure 6, Wetland Status, show the existing net assets, outstanding requirements, and projected future mitigation needs for all programs.

Table 2: EEP Net Remaining Asset Credits by River Basin, FY 05-06

River Basin	Stream Restoration	Stream Restoration Equivalent	Riparian Restoration	Riparian Restoration Equivalent	Nonriparian Restoration	Nonriparian Restoration Equivalent	Coastal Marsh Restoration	Coastal Marsh Restoration Equivalent
Broad	60,453	1,713	11.4	0.0	5.0	0.0	0.0	0.0
Cape Fear	206,429	2,564	599.5	223.0	861.0	155.9	37.3	40.0
Catawba	34,166	362	12.5	0.5	0.0	0.0	0.0	0.0
Chowan	12,261	1,217	96.9	3.0	5.0	2.0	0.0	0.0
French Broad	53,249	143	26.4	7.8	0.0	0.0	0.0	0.0
Hiwassee	0	0	0.0	0.0	0.0	0.0	0.0	0.0
Little Tennessee	13,683	0	50.8	0.4	0.0	0.0	0.0	0.0
Lumber	16,034	350	20.0	18.9	710.6	60.3	0.0	0.0
Neuse	34,648	0	555.6	262.0	1,667.2	494.6	5.6	1.1
New	20,587	2,860	13.4	8.1	11.9	0.1	0.0	0.0
Pasquotank	14,094	0	394.9	22.9	1,150.6	27.8	13.2	36.0
Roanoke	44,291	2,653	144.3	106.1	112.5	675.8	0.0	0.0
Savannah	4,377	623	0.0	0.0	0.0	0.3	0.0	0.0
Tar-Pamlico	43,796	0	356.8	105.1	332.6	107.3	3.2	3.8
Watauga	3,300	0	0.0	0.0	0.0	0.0	0.0	0.0
White Oak	20,641	256	37.0	1.3	73.0	30.4	3.7	0.0
Yadkin	148,335	9,687	201.5	30.7	36.6	11.3	0.0	0.0
Grand Total	730,344	157,626	2,520.8	2,087.9	4,966.0	1,776.4	63.1	80.8
MOU	59,261	370	135.5	57.1	57.6	56.8	3.5	0.0
MOA	671,083	22,057	2,385.3	732.7	4,908.4	1,509.0	59.6	80.8
MOA HQP	0	135,199	0	1,298.2	0	210.7	0	0

In-Lieu Fee Compensatory Mitigation Programs and Status

EEP currently manages four separate In-Lieu Fee programs: 1) Stream and Wetland In-Lieu Fee Program (as governed by the 1998 MOU), 2) Riparian Buffer In-Lieu Fee Program, 3) Nutrient Offset In-Lieu Fee Program, and 4) Stream and Wetland In-Lieu Fee Program for NCDOT (as governed by the 2003 MOA). Eligibility to participate in EEP's In-Lieu Fee Programs is a joint decision made by the applicants, EEP and the regulatory agencies. In each of these programs, applicants make payments to EEP in lieu of providing mitigation themselves or by other means. Upon successful payment, EEP assumes responsibility for planning, developing and implementing the required types and amounts of mitigation. After successful payment, applicants are no longer liable for the mitigation associated with their payment.

The Stream and Wetland In-Lieu Fee Program provides applicants of Section 404 permits, Section 401 Water Quality certifications, and/or Coastal Area Management Act permits the option to satisfy compensatory mitigation requirements for wetland and stream impacts in all 17 N.C. river basins through payment into EEP's In-Lieu Fee program. Payments made into the Stream and Wetland In-Lieu Fee Program are deposited into Fund 2984 and 2981.

The Nutrient Offset In-Lieu Fee Program is an option to meet compensatory mitigation requirements associated with nutrient offset requirements in the Neuse River Basin. Payments made into the Nutrient Offset In-Lieu Fee Program are deposited into Fund 2982-9829.

Table 3a: Payments (in credits) into MOU Stream and Wetland, Buffer, and Nutrient Offset ILF Programs

Stream:	22,971 credits
Riparian Wetland:	43.6 credits
Nonriparian Wetland:	29.2 credits
Coastal Marsh:	0.2 credits
Buffer:	3,183,304.8 square feet
Nutrient Offset	213,567.9 pounds

The Riparian Buffer In-Lieu Fee Program is an option to meet compensatory mitigation requirements associated with riparian buffer impacts in the Neuse, Tar-Pamlico, and Catawba river basins, and the Randleman Reservoir watershed in the Upper Cape Fear River basin. Payments are made to the Riparian Buffer Restoration Fund (Fund 2982) according to the fee schedules for buffers.

The 2003 Memorandum of Agreement among NCDENR, NCDOT, and USACE outlines the procedures for the NCDOT to utilize the Ecosystem Enhancement Program as an In-Lieu Fee program for NCDOT's offsite stream and wetland mitigation needs and specifies performance metrics for EEP.

In FY 05-06, 152 customers made payments into the Stream and Wetland (MOU) In-Lieu Fee Program. Stream and Wetland In-Lieu Fee payments totaled $5,803,852.50. Of this total,76 customers had requirements from both USACE (404) and DWQ (401), 70 customers had requirements from USACE only and six customers had requirements from DWQ only. Appendix C (Compensatory Mitigation Payments and Requirements) lists the individual payments and requirements, payment date, payment amount, USACE identification and DWQ permit numbers.

During Fiscal Year 05-06, Nutrient Offset payments were made by 302 customers located in the counties of Craven, Durham, Johnston, Pitt, Wake, Wayne and Wilson, and the municipalities of Cary, Durham, Garner, Goldsboro, Greenville, Havelock, New Bern, Raleigh, Smithfield and Wilson. During Fiscal Year 05-06, EEP received $2,349,247 in payments for 213,567.9 pounds of nutrient reduction.

In Fiscal Year 05-06, the EEP received $3,056,867 in payments for 3,183,304.8 square feet or 73.1 acres of buffer mitigation. At the close of the fiscal year, EEP had accepted responsibility for 471.6 buffer acre requirements cumulatively (cumulative payments equaling $19,271,181) since the program's inception from the Cape Fear, Catawba, Neuse and Tar-Pamlico river basins.

Total of all Programs (MOU and MOA) Statewide Status

Figures 5 and 6, below and on the next page, provide a total statewide summary status as of July 22, 2006. The figures depict EEP current gross assets, the mitigation requirements as of July 22, 2006, outstanding mitigation requirements as of July 22, 2006, and the projected future mitigation needs that EEP expects over the next two years. Please note that the EEP tracks credits and credit requirements by program (MOU or MOA), by impact type, and by watershed cataloging unit. All mitigation credits are applied within mitigation type, within CU of impact, and within program unless the regulatory agencies have approved otherwise. In previous reports, the Wetlands Restoration Program listed statewide losses and gains using DWQ's permit information. These graphs reflect the statewide picture of EEP's programmatic gains (credits) and estimated losses (requirements). *(Note: Since mitigation requirements are typically twice as large as actual permitted impacts, the actual losses are approximately one-half the magnitude of requirements shown.)*

Figure 5: Total of all Programs (MOU & MOA) Stream Status

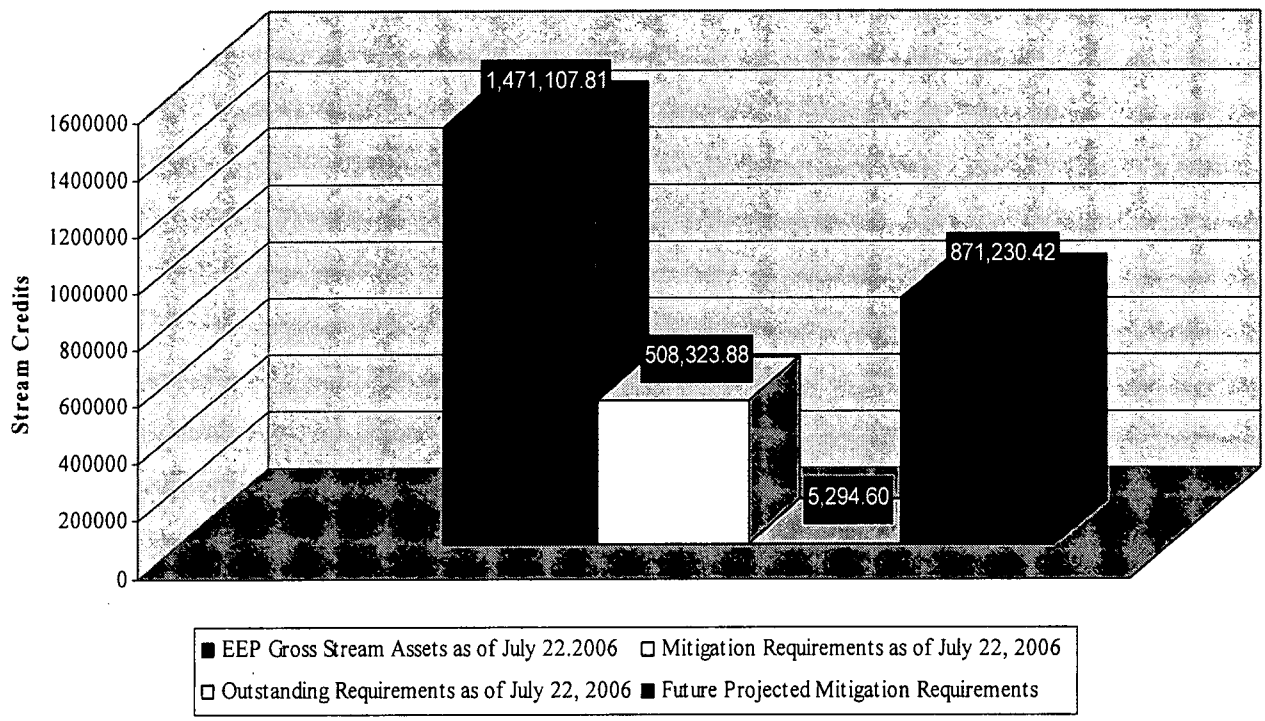
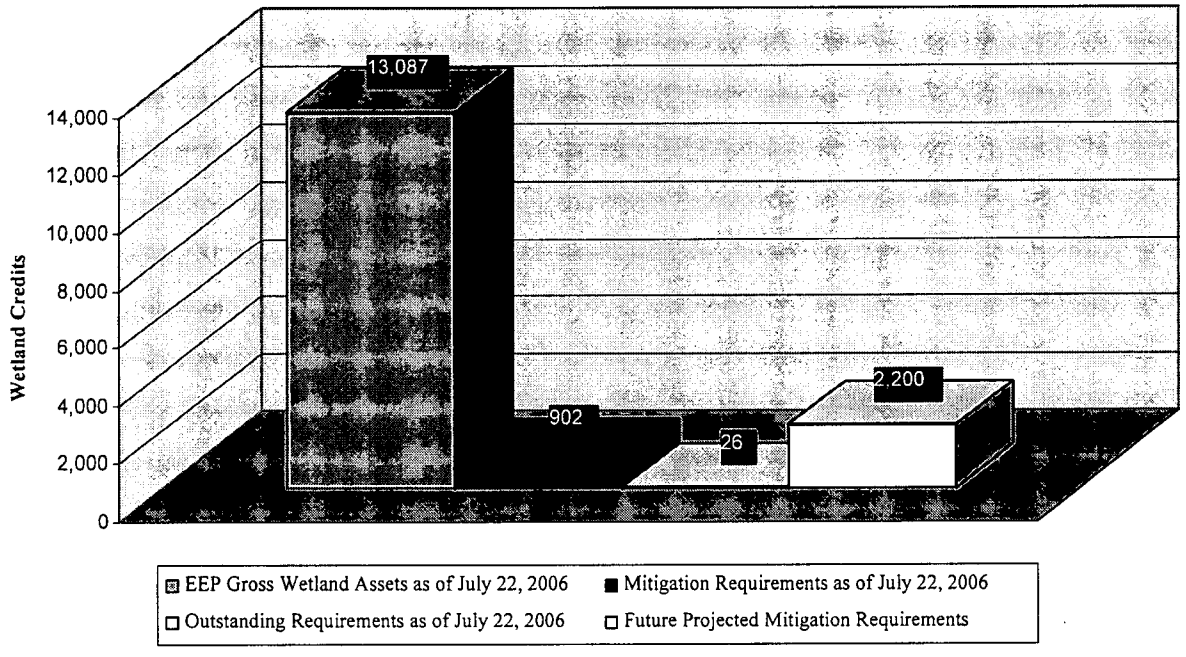


Figure 5 displays the status of the Stream In-Lieu Fee Programs (MOU and MOA). Currently, EEP has instituted 1,471,108 credits of stream mitigation and accepted mitigation requirements of 508,324 credits. Excess mitigation is planned to be allocated to future needs as per agreements. Outstanding requirements equal 5,295 credits.

The outstanding requirements represent mitigation needs that are in a different type or cataloging unit location than the assets instituted thus far. EEP is currently working on providing this mitigation. (For more information on EEP's strategies to provide mitigation, see EEP's quarterly reports at www.nceep.net.) In-Lieu Fee Stream and Wetland Compliance is also summarized in Section IV. The generation of mitigation credits in advance of mitigation requirements is a founding principle of the MOA In-Lieu Fee Program for NCDOT. The surplus mitigation currently available in the program is evidence that EEP is succeeding on this front. However, future mitigation demand is expected to be significant over the next three years. As shown in the graph, NCDOT and EEP are projecting mitigation needs of 871,230 stream credits over the next two years. The vast majority of this mitigation need is due to the NCDOT's mitigation advancement schedule outlined in the MOA.

Figure 6 displays the status of the Wetland In-Lieu Fee Programs (MOU and MOA). Currently, EEP is managing instituted assets of 13,087 wetland credits with current requirements equaling 902 credits. Most of these wetland assets (over 7,000 credits) originated from the NCDOT mitigation program that existed prior to EEP's formation. These unused assets were transferred to EEP to be managed within the EEP MOA mitigation program for NCDOT's future mitigation needs. Currently, outstanding requirements equal 26 wetland credits. As shown in the graph, NCDOT and EEP are projecting additional mitigation needs of 2,200 credits over the next two years. On a statewide level, NCDOT and EEP have achieved success for advanced mitigation. However, much of the current advanced mitigation is located in particular cataloging units, whereas the mitigation needs are spread more evenly across the state. Thus, while some cataloging units have already achieved advanced mitigation, others will require additional wetland credit development over the coming years.

Figure 6: Total of all Programs (MOU and MOA) Wetland



The status of the Riparian Buffer In-Lieu Fee Program is illustrated in table 3b on the right. The Riparian Buffer ILF Program has provided all currently required buffer mitigation except for 0.15 credits in Tar Pamlico 03020105. EEP has 82.58 credits of advanced buffer credits upstream in the Tar Pamlico basin (these upstream credits are not allowed to be used to offset the 0.15 deficit) and 213.36 advanced buffer credits statewide.

Table 3b: Riparian Buffer ILF Program Status FY 05—06

	Cape Fear	Neuse	Tar-Pamlico	TOTAL
Mitigation Due	61.56	303.69	21.45	386.71
Mitigation Instituted	61.66	410.95	103.90	599.91

The status of the Nutrient Offset In-Lieu Fee Program is shown in table 3c below. EEP has accepted 526,373.04 total pounds of nitrogen removal in the Neuse River Basin since the program's inception. EEP has instituted projects that will reduce 527,339.68 total pounds of nitrogen. Nutrient Offset projects are currently a combination of traditional Nutrient Offset projects and instituted Riparian Buffer Restoration projects in the Neuse River basin.

Table 3c: Nutrient Offset ILF Cumulative Program Status (Mitigation Nitrogen Pounds)

	Neuse
Mitigation Due	526,373.04
Mitigation Instituted	527,339.68

During the last year, EEP began accepting mitigation payments to reduce nitrogen and phosphorus in the Tar-Pamlico River Basin. The mitigation for these payments are not yet due.

Currently, the cost of reducing nitrogen and phosphorus exceeds the fee schedule. In 2006, DWQ raised fees through rulemaking, but these rules were postponed by the General Assembly so that a cost study could be implemented.

High-Quality Preservation

Working in partnership with local land trusts and other conservation organizations, EEP funded more than 3,000 acres of high-quality preservation (HQP) sites during the current reporting period. Sites were identified by local land trusts, or state conservation agencies as being the best sites available for conservation purchase within each of the eight ecoregions. To qualify as HQP sites, each parcel was approved for acquisition by an interagency committee comprised of conservation and regulatory agency staff. These stream and wetland credits will offset impacts within the ecoregions. In addition, EEP funded restoration of streams and wetlands within the same watersheds as the impacts to assure no-net-loss requirements within those watersheds.

During the current reporting period, the EEP continued to assist in the purchase of parcels to be added to the new Mayo River State Park and an addition to the Caswell game lands. Rare mussel populations were protected by the acquisition of conservation easements on twenty-six new properties in the Upper Tar River basin. Lands along the Uwharrie, Little, Yadkin and Eno rivers enlarged conservation areas targeted through protection plans of land trusts in those areas. Endangered and rare plant habitats were protected in the Pacolet River and New Hope Creek watershed areas.

Forty-six HQP sites were purchased or placed in conservation easements during the current reporting period, and 34.6 miles of streams and 337 acres of wetlands were protected on these sites. Landown-

ers have entered into formal agreements to place 19 additional tracts under permanent conservation easement by signing option agreements with EEP.

EEP Gross HQP Assets:
Since the inception of the program, EEP has protected 232 miles of stream, along with 7,076 acres of riverine wetland and 1,338 acres of non-riverine wetland through HQP acquisitions on 102 parcels of land. More than 35,000 acres of conservation land across the state has been protected through outright purchase or purchase of permanent conservation easements. Table 4 (next page) summarizes gross assets by ecoregion.

EEP Net HQP Assets:
Table 5 (next page) lists the net remaining HQP assets available for future debits by ecoregion. All HQP assets are MOA assets. Gross stream footage and wetland acreages associated with each site are subject to correction as additional survey work is completed on sites.

Fishing Creek Hall, Edgecombe County

Acres: 231.4 acres

Acquisition date: 5/19/06

Nearly 3.5 miles of nationally significant aquatic habitat of Fishing Creek were protected by this conservation easement. High quality coastal plain bottomland forests grow along the creek on this site.

Photo: Tar River Land Conservancy

Across the state, EEP has net HQP assets of 675,994 feet (127 miles) of stream, 6,490 acres of riverine wetlands and 1,053 acres of non-riverine wetland. These assets include properties secured with recorded option agreements, permanent conservation easements and fee simple purchases.

North Pacolet Childers, Polk County

Acres: 39.8 acres

Acquisition date: 10/25/05

This land lies between two other permanently protected conservation lands. Carolina silverbells and sweet shrub, along with foam flower, ferns and trilliums bloom in spring in these rich cove forests.

Photo: Pacolet Area Conservancy

EEP is working through the Conservation Trust of North Carolina and local land trusts to complete acquisition of all HQP sites that have been approved for purchase. In addition, EEP is partnering with The Nature Conservancy, private donors and organizations, and other state agencies to protect streams and wetlands on several large tracts that are currently owned by International Paper Company. Many of these tracts will be open to the public.

Intact riparian corridors and wetland areas perform many functions that are vital to maintenance of water quality and riparian and aquatic species diversity. EEP and the Natural Heritage Program are developing methods to identify core habitat areas throughout the state to aid in establishing focus areas for future protection efforts.

Table 4	HQP Gross Asset Summary by Ecoregion		
Eco-region	**Stream (feet)**	**Riverine Wetland (acres)**	**Non-Riverine Wetland (acres)**
Central Piedmont	432,957.50	488.790	32.450
Northern Inner Coastal Plain	53,620.00	651.200	0.000
Northern Mountains	130,530.00	0.000	0.000
Northern Outer Coastal Plain	13,919.00	395.000	250.000
Southern Inner Coastal Plain	163,660.00	4,020.000	21.900
Southern Mountains	213,376.00	30.000	0.000
Southern Outer Coastal Plain	9,775.00	116.000	1,034.000
Southern Piedmont	211,137.00	1,375.300	0.000
TOTAL Gross HQP Assets	**1,228,974.50**	**7,076.29**	**1,338.35**

Table 5	HQP Net (Remaining) Asset Summary by Ecoregion		
Eco-region	**Stream (feet)**	**Riverine Wetland (acres)**	**Non-Riverine Wetland (acres)**
Central Piedmont	159,502.00	455.300	10.152
Northern Inner Coastal Plain	15,000.00	572.035	0.000
Northern Mountains	104,618.50	0.000	0.000
Northern Outer Coastal Plain	8,149.00	392.870	250.000
Southern Inner Coastal Plain	74,781.50	3,640.735	21.900
Southern Mountains	167,389.50	17.675	0.000
Southern Outer Coastal Plain	5,644.00	94.535	771.520
Southern Piedmont	140,909.50	1,317.600	0.000
TOTAL Net HQP Assets	**675,994.00**	**6,490.750**	**1,053.57**

IV. Stream and Wetland Compliance

MOA Stream and Wetland Compliance

At the close of FY 05-06, the MOA Stream and Wetland program had achieved tremendous success in establishing advanced mitigation as prescribed by the tri-party MOA . The programs compliance and amount of advanced mitigation credits established within the program are summarized in the table below.

Since the MOA program operates within each of the 54 eight-digit Cataloging Unit (CU) watersheds, a small percentage of requirements were not completely fulfilled by the end of FY 05-06. The MOA Stream compliance was 98.43%, Riparian Wetland compliance was 95.60%, Nonriparian Wetland compliance was 99.29% and Coastal Marsh wetland compliance was 100%. The magnitude of outstanding Stream mitigation was 2,523.6 stream credits. The magnitude of outstanding Riparian Wetland mitigation was 4.6 credits. The magnitude of outstanding Nonriparian Wetland mitigation was 2.5 credits. Nine permits needed additional mitigation . The tri-party MOA also specifies that assets utilized for permits achieve a specified completion or phase status. For FY 05-06 permits, assets were required to meet "begin construction" status. The table below summarizes the mitigation compliance, phase compliance, the percentage of assets utilized that exceeded phase, and amount of advanced mitigation.

A complete listing of the MOA permits and requirements not in full compliance and the corresponding EEP CU Action Strategies can be found in the EEP's Fourth Quarterly Report located on the EEP website at: http://www.nceep.net/news/eeppublications.htm.

Table 6 **MOA Program Compliance**	**Stream (credits)**	**Riparian Wetlands (credits)**	**Nonriparian Wetlands (credits)**	**Coastal Marsh Wetlands (credits)**	**Total Wetlands (credits)**
Mitigation Due	161,031.2	103.8	358.6	1.4	463.8
Mitigation Met	158,507.6	99.2	356.0	1.4	456.7
Mitigation Not Met	2,523.6	4.6	2.5	0.0	7.1
Compliance	98.43%	95.60%	99.29%	100.00%	98.47%
Compliance considering Phase	96.23%	87.93%	97.34%	95.71%	95.23%
Percentage of Mitigation Used Meeting Phase	97.79%	95.20%	97.65%	95.71%	96.77%
Percentage of Mitigation Used Exceeding Phase (Monitoring+)	59.95%	87.22%	97.64%	95.71%	93.92%
Total Advanced Mitigation (Undebited)	842,313.7	4,383.3	7,074.5	140.4	11,598.2

MOU ILF Stream and Wetland Compliance

The MOU Stream and Wetland In-Lieu Fee program experienced a similar degree of success during FY 05-06. As of July 22, 2006, the MOU program had 592 total requirements. Of these, 583 are in

full compliance, four have partial compliance and five are in non-compliance. Therefore EEP has 98.48% of all MOU requirements in compliance, 0.68% in partial compliance and 0.84% in non-compliance. Of these nine non-compliant requirements, seven were related to wetland requirements, and two were related to stream requirements.

Table 7 below summarizes the MOU ILF Stream and Wetland program's mitigation due, mitigation met, mitigation not met, compliance, and advanced mitigation amounts:

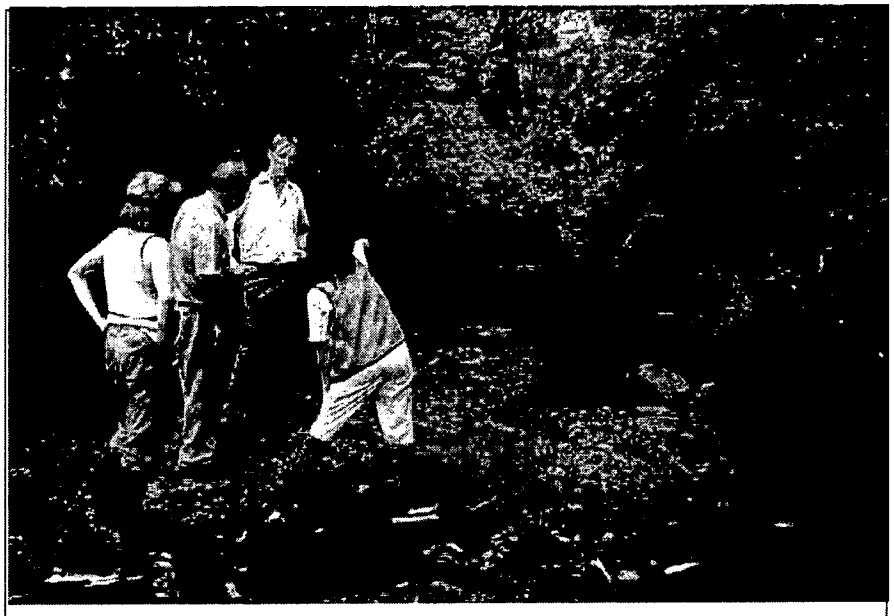
Table 7 MOU Program Compliance	**Stream (credits)**	**Riparian Wetlands (credits)**	**Nonriparian Wetlands (credits)**	**Coastal Marsh Wetlands (credits)**	**Total Wetlands (credits)**
Mitigation Due	347,292.7	299.0	139.1	0.2	438.3
Mitigation Met	344,521.7	287.4	132.1	0.0	419.4
Mitigation Not Met	2,771.0	11.6	7.0	0.2	18.8
Compliance	99.20%	96.11%	94.97%	0.00%	95.70%
Advanced Mitigation (Undebited)	62,871.2	186.7	114.3	3.5	304.6

A complete listing of the program's permits and requirements not in full compliance and the corresponding EEP CU Action Strategies can be found in the EEP's Fourth Quarterly Report, located on the EEP website at: http://www.nceep.net/news/eeppublications.htm.

V: Property Acquisition

During FY 2005-06, the State Property Office closed on 98 parcels associated with preservation and restoration projects, totaling 4,673 acres. Twelve of the acquisitions were outright acquisitions and 86 were acquisitions of conservation easements. Restoration and preservation properties that closed between July 1, 2005 and July 22, 2006 are shown in **Appendix C: Properties Closed**. Acreages are included for sites that have been surveyed to date. Landowners have formally agreed to give EEP the right to acquire an easement or property for all sites listed in **Appendix E: Properties Optioned**.

Appendix F: Cumulative Properties is a cumulative inventory of all properties acquired since the inception of the Wetlands Restoration Program, which was absorbed into EEP in 2003. More than 42,100 acres have been purchased or donated.



EEP Project Managers Julie Vann and Andrea Leslie talk about potential stream restoration with interested landowners in Caldwell County.

VI: Planning and Project Implementation

EEP's Targeted Local Watersheds and Local Watershed Planning areas are priorities for project implementation because they are selected based on analysis of the watersheds' needs for restoration and protection. EEP has identified 26.4 percent of the state as Targeted Local Watersheds and Local Watershed Plans (LWPs) have been conducted in 6.5 percent of the state's geographic area.

Figures 9 through 12 (below and next page) show the distribution of EEP Tier 1 projects as mitigation credits (i.e., restoration, enhancement or preservation projects that are past the acquisition phase, converted into credits). These data are presented separately for the program's two main restoration project delivery systems: Design-Bid-Build and Full Delivery. The figures exclude projects that were transferred from NCDOT or are High Quality Preservation because these projects were identified outside of the watershed planning process. Figures 9 and 10 represent the distribution of Design-Bid-Build stream and wetland projects throughout the state and show that 72.8 percent of stream projects and 71.8 percent of wetland projects have been implemented in EEP Planning areas.

Figures 11 and 12 represent the distribution of Full Delivery stream and wetland projects. These figures indicate that 31.7 percent of stream and 43.6 percent of wetland Full Delivery projects have been implemented in EEP planning areas. EEP is working to increase the congruence of the program's Full Delivery projects with watershed targets. Toward that end, additional weight was recently added to the environmental-justification component of the review criteria for these types of projects.

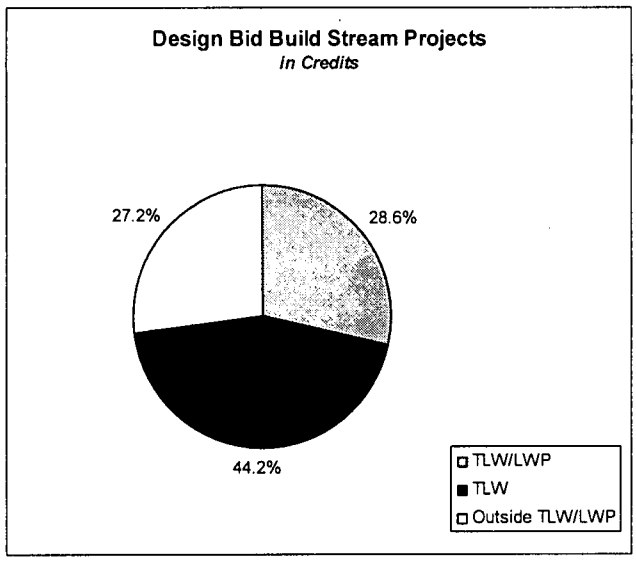


Figure 9. Distribution of Design-Bid-Build Stream Projects within EEP Targeted Local Watersheds Watershed Planning Areas

The data show that for Design-Bid-Build projects, 28.6 percent of stream credits and 10.7 percent of wetland credits are located in LWPs. Due to the large mitigation needs in a short period of time, LWP opportunities have not yet been fully realized. As more LWPs are completed and move into implementation, EEP expects more projects to come from the Local Watershed Planning areas.

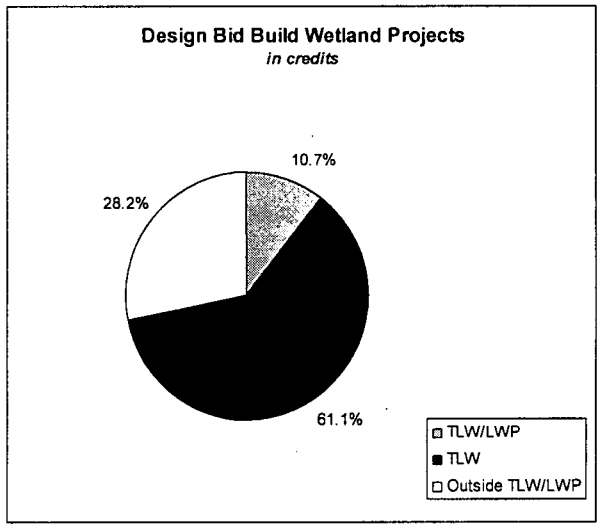


Figure 10. Distribution of Design-Bid-Build Wetland Projects within EEP Targeted Local Watersheds and Local Watershed Planning Areas

Watersheds and Local Watershed Planning Areas.

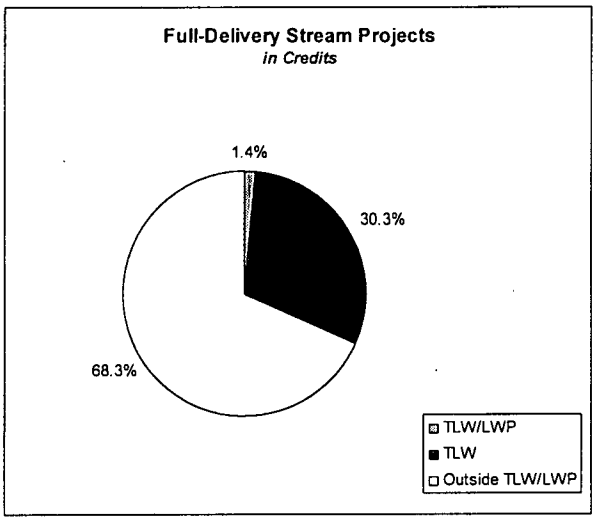


Figure 11. Distribution of Full Delivery Stream Projects within EEP TLWs and LWPs.

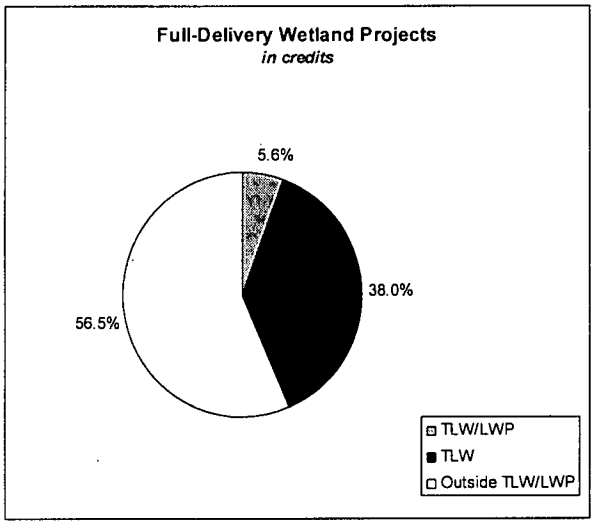


Figure 12. Distribution of Full Delivery Wetland Projects within TLWs and LWPs.

During the past year, EEP has conducted further evaluation of all of its LWPs. Staff has carefully reviewed each completed or ongoing LWP and its supporting documents and data, and the results demonstrate the far-reaching benefits of the planning process.

To cater LWPs to EEP's compensatory mitigation needs, atlases of potential projects are now included as a product of the watershed assessment and management report. These atlases detail opportunities for restoration, preservation and enhancement of streams, wetlands and riparian areas and relate them to watershed benefits. Statewide, LWP atlases have detailed over 320 miles of potential stream restoration, 7,300 acres of wetland restoration, and 625 acres of riparian reforestation opportunity.

Additionally, plans identify potential stormwater and agricultural best-management practices (BMPs). These practices can be particularly relevant to watersheds with degradation related to sedimentation or nutrient enrichment. In existing atlases, projects have been identified to treat nearly 50,000 acres of stormwater runoff, while potential BMP's on agricultural land have been identified to treat 65,000 acres of runoff.

Local Stakeholder Efforts/Leveraging Resources

Many LWPs have been used by local stakeholders to leverage additional support for watershed restoration efforts beyond that which EEP can do for mitigation credit. For example, the Mud Creek LWP is part of an integrated effort by the Mud Creek Watershed Restoration Council to restore the Mud Creek watershed. After the watershed plan was developed in 2003, the Council obtained U.S. Environmental Protection Agency (EPA) funds to hire a watershed coordinator. This coordinator has been the central advocate for stormwater education, stream and riparian restoration, and agricultural and residential BMPs in the watershed. They have successfully applied for Section 319 grant funds to continue education efforts, plant riparian buffers, and fund apple pesticide-reduction BMPs.

While EEP is currently implementing projects identified in the New Hanover County LWP, including stream restoration on Mineral Springs Branch and Burnt Mill Creek, the Watershed Education for Communities and Officials (WECO) at N.C. State University has received Section 319 grant funds ($600,000) to continue work in the Burnt Mill Creek Watershed. Building on the efforts of the participants in the New Hanover LWP, WECO continues to meet with stakeholders in the Wilmington, N.C. area to develop stormwater management projects and facilitate education and outreach.

Mud Creek and the partners in the Morgan and Little Creeks Local Watershed Plan have been targeted by EPA and the NCDENR Non-point Source Program for participation in an aspect of the Section 319 grant that will support local "champions" to implement their watershed restoration plans. With a focus on the Bolin Creek portion of the LWP, members of the original Morgan and Little Creeks stakeholder group continue to meet and are preparing a proposal to the Clean Water Management Trust Fund to continue efforts to restore their watershed, including implementation of some of the stormwater BMP retrofits identified in the LWP. Ongoing EEP implementation of projects identified in the LWP, such as projects on Morgan Creek and Chapel Creek, can potentially be used by this group as matching funds toward such grants.

Watershed Monitoring

LWPs have produced original data on stream conditions statewide. Twenty LWPs used channel assessment methods, such as the Natural Resources Conservation Service's Stream Visual Assessment Protocol, to examine and evaluate

SPECIES OF CONCERN IN LWP AREAS: FISHING CREEK CASE STUDY

- Earlier plans addressed Species of Concern (SCs) in the screening phase only as a GIS coverage of heritage point occurrences
- Project recommendations tended to avoid stream and wetland projects that might impact SCs in any way, negatively or positively
- The current direction of LWP 's is toward addressing issues related to SCs wherever improvement goals overlap with mitigation goals
- The Fishing Creek LWP is one of the first plans attempting to incorporate rare species protection and improvement with EEP's general goals of providing watershed functional uplift via mitigation projects
- The projects that EEP will recommend for the LWP will be prioritized to encourage instream habitat improvements in heavily sedimented reaches and highly erodible areas: the object is to reestablish good instream habitat and connect it to population sources for rare native bivalve species
- Part of the initial biological monitoring for Fishing Creek and its tributaries included fish sampling
- Particular fish species play a role in the life cycle of many of these bivalves; they carry the mussel juveniles or glochidia in their gills until the mussels are ready to "fall out" to develop into adults in appropriate benthic areas of high quality streams
- Discreet segments of streams were identified during preliminary watershed characterization as suitable for SCs
- LWP recommendations will address projects within prioritized catchments
- Modeling will be done using collected WQ and biological data to determine which catchments should receive priority
- Within these catchments, projects will be evaluated to determine relative importance to habitat and water quality improvement
- High priority projects within high priority catchments will be the focus of the first round of project implementation.

individual reaches of streams during the Detailed Assessment phase of the planning process, compiling records on the conditions of the channel for a total of 192 miles of stream. Approximately 4,630 water samples have been taken by DWQ at 82 stations, generating original data on 103 water quality parameters in LWP areas. Table 8 (below) reports the total number of samples and stations for the parameters, which have been grouped into 14 categories. This effort has provided a record of conditions in streams and supported the process of characterizing watershed conditions and setting priorities for restoration used by planners and stakeholders. Intensive assessment efforts during early phases of planning contributed to removal of two streams from the 303(d) list of impaired streams, an important example of cooperative use of data generated through LWPs.

Table 8. Water Quality Assessment in Support of Local Watershed Plans

PARAMETER	TOTAL # OF SAMPLES	TOTAL # OF STATIONS
Water Temperature (°C)	365	81
Dissolved Oxygen (mg/L)	365	81
pH	350	78
Specific Conductance (µS/cm)	367	76
Turbidity (NTU)	181	57
Salinity (PPT)	47	21
Total Residual Chlorine (µg/L)	12	3
Fecal Coliform (colonies/400 mL)	135	31
Nutrients	539	31
Metals	2007	31
Organic Compounds (pesticides, herbicides, etc.)	108	12
Organic Carbon	8	2
Suspended Residue	134	31
Miscellaneous	12	10
TOTAL	4630	82

Methods Development

Some LWPs have a secondary goal of producing methodologies where none exist, or where current methods are inadequate to support restoration recommendations. One such case is the development of a coastal plain stream assessment methodology. In recent years as the science and art of stream restoration has matured, mainstream stream assessment has become a combination of Rosgen-based classification and rapid assessment protocols. Due to differences in topography and the general nature of coastal streams, these methods often failed to yield useful results that clearly differentiated types and habitat conditions of streams in coastal North Carolina. East Carolina University researchers proposed a different, reference-based methodology that utilized more subtle indicators to determine habitat condition than did the prior methods. Working with consultants and DWQ and EEP staff, the methodology was tested in three LWP areas. The collaboration yielded the basis for future stream assessment in coastal plain LWP areas.

The coastal plain stream assessment methodology makes use of traditional indicators found in established protocols as well as innovative new ones. One-hundred-meter sampling sites are categorized based on land use and stream order; sampling sites fall into one of four categories: (1) urban, low order; (2) urban, high order; (3) agricultural, low order; and (4) agricultural, high order. Streams larger than fourth order are too large to be assessed with this method. Using traditional restoration practices, EEP typically does not attempt full restoration projects in streams larger than fourth order; the risk of failure and costs of construction are significantly greater in very large streams. Each category is assessed differently using eight or nine indicators of stream and riparian habitat integrity; indicators represent the major functions of a watershed, hydrology, water quality, and habitat, both in-stream and ri-

parian. In the three test LWP areas, 277 sites were categorized then scored in the field. The 277 sites provided enough data to adequately calibrate the method for agricultural areas, but the urban method required more data. Preliminary results indicate that this method performs better in the inner coastal plain. Currently, additional efforts to refine the urban indicators and to develop new estuarine indicators for the outer coastal plain are underway in a new LWP area.

GIS Dataset Development

The Tennessee Valley Authority performed an Integrated Pollutant Source Identification for the 143-square-mile Peachtree-Martins Creek LWP extended area in Western North Carolina. They conducted low-altitude color infraed photography in winter 2005 and developed an extensive GIS dataset, including land cover, impervious surface, road network, and stream and buffer datasets. This GIS dataset will complement IPSI datasets already developed for adjacent areas in the Hiwassee basin, bringing the total area covered to 355 square miles. These data are essential for the work performed by local resource professionals, the Hiwassee River Watershed Coalition, local governments and EEP.

Local Conditions: Ordinance Evaluation and Predicting Change

Several Local Watershed Plans have incorporated evaluations of the local ordinances and development regulations and produced recommendations that would either remove barriers to, or enhance protection of water quality and habitat. The Morgan and Little Creeks and the Middle Cape Fear LWPs used the Better Site Design Questionnaire from the Center for Watershed Protection to identify specific actions local government agencies could take to reduce requirements for unnecessary impervious surfaces, enhance protection of existing natural areas, and reduce the impacts of stormwater in their communities. Participants from the local planning departments compared their scores on the questionnaire and examined changes in rules and practices that could lead to increased scores and consequently improved watershed management in their local communities.

LWPs often incorporate the use of models to predict impacts on water quality and quantity of changes in the watershed. Sometimes this is as simple as the projection of development and impervious surfaces when the current zoning in completely built out. In addition, plans sometimes examine how the built out watershed might affect parameters such as nutrients and sediment loads, with and without the recommended restoration projects and BMPs. Plans sometimes combine these projected impacts with estimates of the costs of the potential projects to provide an analysis of cost-effectiveness and a ranking of the projects.

Of the 22 completed Local Watershed Plans, the following summary statistics apply:

Total area covered = 2,347 square miles

Number of counties = 32

Predominant land use type: 2 planning areas primarily rural; 14 with mixed land use; 6 primarily urban

Geographic regions: 11 in the eastern region; 6 in the central region; 5 in the western region

Number of plans producing Project Atlases = 20

Number of plans in which public meetings have been held (in addition to stakeholder meetings) = 11

Summary of Local Watershed Plans, 1999-2006
As of July 1, 2006, EEP has engaged in a total of 34 LWP initiatives, comprising a total area of approximately 3,100 square miles and portions of 46 counties (of 100 total counties) across the state. The average area covered by an individual LWP effort is 94 square miles. Of the 34 total LWP initiatives, 22 are complete as of July 1, 2006. The completed plans comprise an area of approximately 2,347 square miles. Of the 22 completed LWP efforts, 11 have had Phase IV tasks initiated; these are areas in which a focused effort to implement LWP projects has begun, often using outside consultants or groups. All 22 areas for which final plans have been produced have some level of effort currently being applied towards implementing projects identified in the LWP.

Ongoing Local Watershed Plans
Appendix G presents a summary of ongoing Local Watershed Plans; these are efforts that haven't yet produced a final *Watershed Management Plan* or *Project Atlas*, but which should be doing so within the next six to 18 months. There are 12 plans in various stages of development and expected to be completed later in 2006 or in 2007. These plans encompass approximately 784 square miles (excluding the White Oak planning area, for which specific component HUs have yet to be determined).

Completed Local Watershed Plans
During the 05-06 fiscal year, Local Watershed Plan Phases I through III were completed for the following five local watersheds (8-digit CU in parentheses): in the Eastern region – Bear Swamp and Lumber River (Lumber 03040203) and Stoney Creek (Neuse 03020202); in the Western region – Bald Creek (French Broad 06010108), South Hominy Creek (French Broad 06010105), and Cathey's Creek (Broad 03050105). Appendix H presents a summary of completed plans.

In order to support the Tri-Party MOA goal of achieving mitigation in advance of permitted impacts, in certain areas EEP employs an abbreviated (or "Fast Track") approach for the development and implementation of Local Watershed Plans. The Fast Track strategy can accelerate the procurement of restoration, enhancement and high-quality preservation projects within targeted local watersheds with urgent needs for compensatory mitigation, typically over a nine- to 12-month period.

Local Watershed Plans and their associated documents can be reached through a clickable map on the EEP website (http://www.nceep.net/services/lwps/localplans.htm). This map links to fact sheets on individual plans, and within the fact sheets are links to documents such as the Plan Summary and supporting reports, which can be downloaded in their entirety. Examples are the Stoney Creek Local Watershed Plan in the Eastern Region (http://www.nceep.net/services/lwps/Stoney%20Creek/Stoney_Creek.pdf), the Morgan and Little Creeks Local Watershed Plan in the Central Region (http://www.nceep.net/services/lwps/Morgan_Creek/Morgan.pdf), and the Little River and Brush Creek Local Watershed Plan in the Western Region (http://www.nceep.net/services/lwps/Little_River/Little_River.pdf). The latter plan illustrates the new Fast Track approach, the former two plans are more traditional..

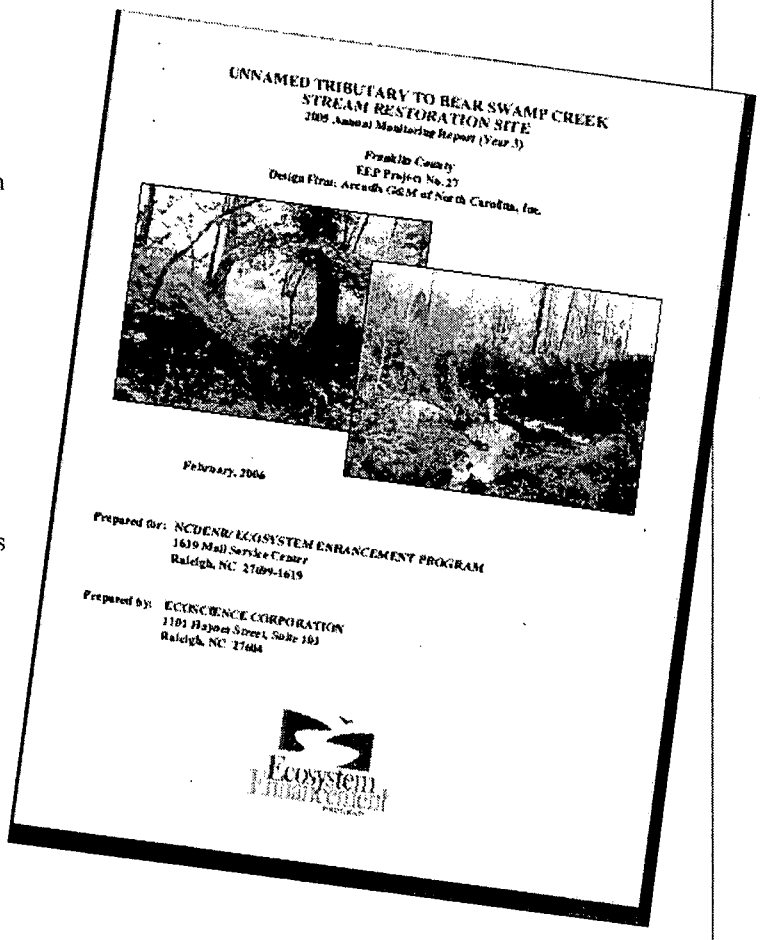
VIII: Monitoring Reports

For FY 2005-06, EEP monitored 77 restoration and enhancement projects. Appendix I lists the reports. Monitored this year are 19 wetland restoration projects, 47 stream restoration projects, and 11 projects with both wetland and stream components. These projects totaled 7,983 acres of wetland restoration, enhancement and preservation and 257,612 linear feet of stream restoration, enhancement and preservation.

Monitoring reports are available for review on the EEP Web site at http://www.nceep.net/business/monitoring/Monitoring_report_web/Projects_By_Basin.htm

Monitoring Report Example:
Excerpts from Bear Swamp Creek Executive Summary

The Unnamed Tributary to Bear Swamp Creek Stream Mitigation Site (hereafter referred to as the "Site") was constructed for the North Carolina Ecosystem Enhancement Program (EEP) to provide compensatory stream mitigation in the Tar/Pamlico River Basin. This stream restoration project is located on an unnamed tributary to Bear Swamp Creek at the Murphy Hay Farm just north of the Town of Louisburg.


UNNAMED TRIBUTARY TO BEAR SWAMP CREEK
STREAM RESTORATION SITE
2005 Annual Monitoring Report (Year 5)
Franklin County
EEP Project No. 27
Design Firm: Arcadis G&M of North Carolina, Inc.
February, 2006
Prepared for: NCDENR/ ECOSYSTEM ENHANCEMENT PROGRAM
1619 Mail Service Center
Raleigh, NC 27699-1619
Prepared by: ECOSCIENCE CORPORATION
1101 Haynes Street, Suite 103
Raleigh, NC 27604

This project involves the permanent exclusion of cattle from the stream, stabilization of eroding stream banks, installation of cross-vane structures for habitat, and the planting of a forested riparian buffer.

Vegetation Monitoring
Vegetation success criteria for the forested riparian restoration areas is based on a minimum survival of 320 stems per acre of planted species at the end of Year 5. Volunteer woody vegetation will also be included in the survivability calculations. Based on the third year surveys, the average count of the surviving planted species is 620 stems per acre. If volunteer species are included, the total number of stems increases to 8,120 stems per acre.

The Site is meeting the established success criteria for vegetation based on the survival of the planted species.

Stream Enhancement Monitoring
Success criteria for the restored stream reach has been established to confirm no significant changes have occurred to the dimension, pattern, profile, and bed material over the 5-year monitoring period. Location surveys of the constructed features were conducted to verify the performance of the stream. A total station survey was used to describe the stream longitudinal profile and five permanent stream crosssection (3 riffles and 2 pools). A modified Wolman pebble count and assessment of the constructed features was also undertaken. Overall, the stream channel bed form is stable.

Based on the cross-sections and visual observations, the channel dimensions have not changed significantly. However, observed features and surveyed cross-section indicate that the channel has narrowed slightly and is developing a bankfull bench at many locations. The stream was designed as a B5c (step-pool) stream (Rosgen 1996), which provides a sand bed channel with moderate entrenchment and a moderate width-depth ratio. The current classification measurements are split, with the current channel exhibiting the moderate entrenchment characteristic of a B-channel, yet exhibiting a very low width-depth ratio of an E-channel.

IX: Organizational Support Activities

This section of the annual report focuses on activities and actions that the EEP has taken over the past year to support mitigation production, improve processes, communication, projects, and efficiencies, and to promote a better understanding of the EEP.

EEP Organizational Improvement

When EEP was established in 2003, there were two distinct divisions, Planning and Implementation, each working toward the same goal but following slightly different paths. As EEP grew, these divisions were further broken into Eastern and Western Planning, as well as Eastern and Western Implementation, still working somewhat independently. In an effort to improve efficiency and more closely align itself with the MOA, EEP reorganized in January 2006. A major part of this reorganization was establishment of the Watershed Planning and Project Implementation (WPPI) section. WPPI combined the Planning and Implementation functions into three groups, East, Central and West. These groups consist of Planners and Project Managers working in concert to develop Local Watershed Plans (LWPs) and implement restoration projects that are identified and prioritized in the LWPs.

This alignment of Planners and Project Managers is producing increased interaction and cooperation between the two program functions, and will better serve to improve both the LWPs and the projects they provide. Project Managers are becoming more involved in the development of the LWPs in their assigned work areas by assisting the Planners in assessing the planning areas and providing technical knowledge regarding availability of restoration activities. In addition, Project Managers are gaining a more thorough understanding of the reasons for undertaking a planning effort in those areas and the goals and objectives of the plans. At the same time, Planners are being called upon to help in the site assessment and design phases to ensure that the project sites being pursued are those that will: (1) provide greater ecological improvement within the watersheds by addressing the critical issues that were identified during the planning process; and (2) meet the goals and objectives laid out in the LWPs. Even though this reorganization is fairly recent, it has already improved the functions and capabilities of each group within WPPI.

EEP Staff inspect a rock vane structure at the King Creek stream restoration project site in Brevard.

"Groundtruthing" Potential Projects Identified by Local Watershed Plans

WPPI regional sections have begun an exercise called "groundtruthing," It involves identifying priority Cataloging Units consistent with the Operational Strategic Plan; and sending teams of Planners and Implementers to each of the Local Watershed Planning Areas in these CUs to visit each potential project identified and evaluated in the Project Atlases associated with the Plans. Staff conduct field evaluations of the feasibility and potential assets associated with each of the potential projects, and enter these into the Project Tracking System database. WPPI staff then follow-up on the best projects by contacting the landowners to learn of their interest in participating in restoration activities with EEP and willingness to agree to conservation easements, construction and long-term stewardship on their land. In this way, the connection was immediately strengthened between the formerly separate units of Planning and Project Implementation, and potential projects that had been evaluated in Local Watershed Plans were fully integrated into the EEP mitigation credit accounting system. This turned out to be invaluable during the Strategic Planning process, as participants could view the assets associated with potential projects coming from Lo-

cal Watershed Plans directly in the context of their deliberations over how to meet EEP's future need for mitigation credit.

WPPI Staff Training and Development:
Since its inception, EEP has hired a number of new technical staff. The new staff come from a variety of backgrounds including research, regulatory, planning, and consultant, with varying degrees of expertise in varying environmental and watershed restoration science, engineering and planning fields. Watershed planning and restoration requires a core knowledge of all these fields. In the past, on-the-job training combined with limited additional courses or workshops was adequate to fulfill the staff training and development requirements for EEP's predecessor, the Wetlands Restoration Program. However, considering the amount of mitigation required to be implemented and the amount of new staff hired since the inception of EEP, it was determined that a more deliberate approach to staff training and development was needed.

EEP established a base training requirement for each of its watershed planning and implementation staff positions in addition to its on-the-job training activities. The base training includes assessment and restoration principles, watershed planning, policy and procedures, ecosystem science, best management practices, electronic tools and skills training, and contract management. As of June 30, 2006, the majority of WPPI staff had completed base requirements.

Contractor Training
EEP recognizes that adequately trained contractors are required to achieve successful project implementation. EEP also recognizes the need for more qualified stream and wetland construction contractors in North Carolina. In response to this need, EEP teamed with the N.C. State University Stream Restoration Institute (SRI) to develop a workshop for contractors interested in the construction of stream-restoration projects. The SRI Contractors Training has been offered on three occasions since December 2005. Each workshop has consisted of classroom presentations and field demonstrations, with a focus on three important topics: contracts, construction techniques, and sediment- and erosion-control measures.

In coordination with the N.C. State Construction Office and other partners, EEP recently standardized construction contract documents and payment schedules. Workshop attendees were educated on the following:

- Design development, review, and permitting
- Project advertisement, bid document, and schedule of unit prices
- Project bidding and contract execution
- Construction milestones and construction issues (e.g., rain delays, liquidated damages)
- Minority Business Enterprise (MBE) requirements.

In addition to a sound design, successful project implementation also requires proper project installation. Attendees were given field demonstrations of:

1. Channel excavation
2. Structure installation
3. Proper ground preparation, soil amendments, mulch selection, matting installation, and vegetative seeding methods
4. Woody stem selection and installation

EEP has worked with the NCDENR Division of Land Quality to develop a comprehensive sedimentation- and erosion-control program for stream- and wetland-restoration projects. Workshop attendees were provided classroom and field instruction on:

1. The basic tenants of the Sedimentation Pollution Control Act of 1973 and the importance of S&EC Plan compliance.
2. Proper installation and maintenance of sediment and erosion control devices.
3. How to interact with Land Quality Division inspectors, what an inspector looks for, and how to answer an inspector's questions.
4. Land Quality Division inspection reports, enforcement mechanisms, and contractor liability to EEP.

As a result of the positive feedback and comments received from the contractor community, efforts are now underway by to establish a contractor pre-qualification process for EEP construction projects. The next SRI Contractors Training will be offered in December 2006, and contractor pre-qualification will be an additional topic.

FEMA Process Streamlining

The Federal Emergency Management Administration (FEMA) is responsible for the management of the National Flood Insurance Program (NFIP) and the enforcement of federal floodplain regulations. FEMA regulations restrict modifications to properties within floodways and minimize changes in the elevation of the 100-year floodplain. FEMA compliance can impact project-implementation schedules and costs due to additional hydraulic modeling requirements, permit review process and permit fees.

During the 2005-2006 timeframe, FEMA was in the process of delegating regulatory responsibility to the state, and at the same time revising the boundaries of the state's regulated floodplains. These efforts would affect the number of waterways under FEMA jurisdiction and how these waterways would be managed. As a result, many EEP stream-restoration projects were destined to become subject to federal floodplain regulations and would be reviewed by officials unfamiliar with stream-restoration practices.

EEP recognized the potential for project delays and chose to engage the regulatory community in an effort to streamline FEMA processes. EEP met with NFIP and the N.C. Floodplain Mapping Unit (NCFPMU), the agencies responsible for floodplain management in the state. The following objectives were met as a result of this coordination:

1. EEP and NFIP gave a joint presentation on stream-restoration project scenarios and floodplain regulation compliance at the April 2005 N.C. Association of Floodplain Managers Conference.
2. In July 2006, the EEP floodplain compliance procedure was approved. All layers of compliance were streamlined including notification, certificate of compliance, no-rise certificate, Conditional Letter of Map Revision (CLOMR), and Letter of Map Revision (LOMR).
3. A Floodplain Requirement Checklist was developed for use on all EEP-funded projects

Over the next year, EEP plans to meet regularly with NFIP and NCFPMU to ensure programmatic compliance with floodplain regulations and improve the efficiency of regulatory review. EEP will work towards a Memorandum of Understanding between EEP, NFIP and NCFPMU that further streamlines FEMA compliance and coordinates information exchange.

Contractor Vegetation Training

In addition to on-site review involving project managers and designers, a three-day workshop focused on establishing vegetation and vegetation monitoring was presented in June 2006. The schedule for the first day included presentations and activities focused on improving planting plans, planting plan format, species lists, exotic invasive control, and how to handle various problems related to success of vegetation. The schedule for the second and third days focused on the CVS-EEP Protocol for Recording Vegetation to representatives from all the On-Call design firms, currently engaged in monitoring contracts. Attendees were given hands on experience with the tasks of setting up sample plots, recording vegetation, and entering data using a recently developed MS Access data entry tool.

Application of a New Vegetation Monitoring Protocol

After evaluating the vegetation data status of all the projects currently being monitored, 15 (or one to three per On-Call Design Firm) were selected to be monitored according to the newly developed CVS-EEP Protocol for Recording Vegetation. The selected projects will serve as a pilot test for a developing a process involving data exchange between the On-Call designers, EEP and CVS. Additionally, the new monitoring protocol is being incorporated into all new EEP projects, and will likely be applied to a greater number of existing projects in the future.

Research

During the fiscal year 2005-06, EEP has begun to develop and formalize a research program. The purpose of the research program is to improve EEP effectiveness by helping increase project success and reduce costs. The program encompasses three broad focus areas: functional assessment, catchment studies and restoration methods. Primary goals include:

- Improving project success, reduce maintenance requirements and overall costs by increasing understanding of the limitations and applicability of specific restoration methods;
- Improving the ability to measure and demonstrate success both at individual project scale and larger watershed scales;
- Improving monitoring methods and reducing monitoring costs;
- Providing quantitative measures of effectiveness of alternative mitigation strategies at watershed scales; and
- Contributing to the advancement of restoration ecology and the technical practice of wetland and stream restoration.

Current projects underway in support of EEP's research program include:

- N.C. vegetation survey (with N.C. State University and UNC-Chapel Hill);
- Urban stream nitrogen uptake study (with Duke University);
- Urban stream reference and outer coastal plain assessment (with East Carolina University);
- North River farms (with N.C. State University; and
- Sand bed streams sediment study (with Buck Engineering, part of a cooperative agreement with EPA Region IV).

In fiscal year 2005-06, several projects were completed or final reports were received. These include:

- Brinson, M. M.; Miller, K.H.; Rheinhardt, R.D.; Christian, R.R.; Meyer, G.F.R.; and

O'Neal, J. April 2006. Developing reference data to identify and calibrate indicators of riparian ecosystem condition in rural coastal plain landscapes in North Carolina. Report to the Ecosystem Enhancement Program, N.C. Department of Environment and Natural Resources, Raleigh, N.C

- Rheinhardt, R.D.; Miller, K.H.; Christian, R.R.; Meyer, G.F.R.; Bason, C.W.; Hardison, E.C.; and Brinson, M.M. (August 2005). Applying Ecological Assessments to Planning Stream Restorations in Coastal Plain North Carolina. Report to the Ecosystem Enhancement Program, N.C. Department of Environment and Natural Resources, Raleigh, N.C

Copies of these two final reports are available on the EEP "resources" web site (http://www.nceep.net/pages/resources.htm) under "Papers."

Construction Related Document Format and Review

New standards for the format of construction-related documents are being developed to ensure the information derived from EEP's experience and monitoring data is incorporated into future projects. Additionally, the processes for distribution and review of construction-related documents are being revamped. By involving the Vegetation Specialist in the formal review process, a more thorough documentation and review of what is being proposed and approved with regard to vegetation will be possible.

Information Management

EEP has signed a contract for programming of an information/data management system. The system will automate reporting, accounting of impact projections, permit requirements and due dates, asset and project tracking and credit management. Beta testing is expected to begin in summer 2007.

Policy, Process, and Procedures

EEP continues to improve and develop operating procedures. The EEP Policy, Process and Procedures Manual is located on the EEP web-site at: http://www.nceep.net/abouteep/analysis_procedures.htm.

Establishment of the Western EEP Regional Field Office

Because of a high volume of projects in the west, EEP established offices for its Western Regional Office in Swannanoa. Benefits include increased productivity; decreased travel time and expenses; fostering improved local relationships; fulfilling the goals of mitigation on a watershed level; and increasing safety.

For more information about the EEP and to access documents referenced in this text, please visit our Website:

www.nceep.net

N.C. Ecosystem Enhancement Program

Restoring... Enhancing... Protecting Our State

Appendix A : Private Mitigation Banking Survey

Survey sent to:

Mitigation Bank Name:	Sponsor: Contact Information	County	River basin	Catalog-ing Unit	Restoration Type
Fisher River Mitigation Bank	American Wetlands 11876 Sunrise Valley Dr. Suite 200 Reston, VA 20191 Lamar Beasley amwlands@erols.com	Surry	Yadkin	3040101	Riparian
Deep Creek	American Wetlands and Natural Resources Exchange Corporation 11350 Random Hills Road Suite 800 J. Lamar Beasley (703) 934 6130 amwlands@erols.com	Yadkin	Yadkin	3040101	Riparian Stream
Barra Farms Cape Fear Regional Mitigation Bank	EcoBank, LLC EcoBank, 1555 Howell Branch Rd, Winter Park FL 32789 (407) 629-7774 Alan Fickett ecobank@worldnet.att.net	Cumberland	Cape Fear	3030005	Non-riparian Stream
NEU-CON Mitigation Bank	Environmental Banc & Exchange LLC 1119-M Whisperwood Court Greensboro, NC 27104 (336) 851-5902 George Kelly www.ebxusa.com susan@ebxusa.com <susan@ebxusa.com>	Lenior Jones Greene	Neuse	03020202 03020203 03020204	Non-riparian Stream
Great Dismal Swamp Restoration Bank	Great Dismal Mitigation Bank, LLC. Winthrop, Stimson, Putnam & Roberts 1133 Connecticut Ave. NW Washington, DC (202) 775-9877 Don Carr dcarr@pillsburywinthrop.com	Pasquotank & Perquimans	Pasquo-tank	3010205	Non-riparian
Scuppernong River Corridor Mitigation Bank	Green Vest, LLC 1001 Capability Dr., Suite 312 Raleigh, NC 27606 (919) 831-1234 Dr. Douglas Frederick dfrederick@trigrp.com	Tyrrell	Pasquo-tank	3010205	Non-riparian
Hidden Lake Mitigation Bank	Green Vest, LLC 1001 Capability Dr., Suite 312 Raleigh, NC 27606 (919) 831-1234 Dr. Douglas Frederick dfrederick@trigrp.com	Tyrrell	Pasquo-tank	3010205	Non-riparian
Flat Swamp Wetland Mitigation and Stream Restoration Bank	Green Vest, LLC 1001 Capability Dr., Suite 312 Raleigh, NC 27606 (919) 515-7788 Dr. Douglas Frederick dfrederick@trigrp.com	Craven	Neuse	3020202	Non-Riparian
Bear Creek-Mill Branch	Restoration Systems, LLC 1101 Haynes St. Suite 203 Raleigh, NC 27604 (919) 755-9490 George Howard george@restorationsystems.com	Wayne	Neuse	3020202	Riparian

Appendix A : Private Mitigation Banking Survey

Questions and Results	Respondent #1	Respondent #2
Private Mitigation Banking Survey Questions	**Barra Farms / Cape Fear Regional Mitigation Bank**	**Neu-Com Unbrella Wetland and Stream Mitigation Bank**
List of HU's in which credits can be utilized:	03030004 03030005 03030006	Neuse 01, 02, 03, 04
This Bank produces: (select all that apply)	Wetland Credits	Wetland Credits & Stream Credits
What is the total cost per acre?	$8,675	$5,639
What is the cost/acre of Land purchase?	$3,296	$2,143
What is the cost/acre of Pre-Monitoring?	$93	$113
What is the cost/acre of Design?	$661	$1,015
What is the cost/acre of Construction?	$3,179	$1,297
What is the cost/acre of Hydrological Modifications (includes cost of structures)?	$89	included in Item 8
What is the cost/acre of Planting?	$409	included in Item 8
What is the cost/acre of Post Monitoring?	$507	$846
What is the cost/acre of Long-Term Management?	$441	$226
What is the total cost per linear foot?		$180
What is the cost/linear foot of Land purchase?		$59
What is the cost/linear foot of Pre-Monitoring?		$4
What is the cost/linear foot of Design?		$40
What is the cost/linear foot of Construction?		$50
What is the cost/linear foot of Hydrological Modifications (includes cost of structures)?		included in Item 8
What is the cost/linear foot of Planting?		included in Item 8
What is the cost/linear foot of Post-Monitoring?		$20
What is the cost/linear foot of Long-Term Management?		$7
How many acres of RESTORATION?	425	277 WMU and 277 acres
How many acres of ENHANCEMENT?	172	5 WMU and 10 acres
How many acres of CREATION?	0	0
How many acres of PRESERVATION?	26	233 WMU and 1165 acres
Please list the total number of credits (that the bank started with) by credit type. For example: 20 non-riparian restoration credits 10 non-riparian enhancement credits etc.	240 non-riparian credits	515 WMU 22, 645 SMU
How many credits of each type have been sold?	240 non-riparian credits	465 WMU 22,500 SMU
How many credits of each type are remaining?	0	50 WMU no SMU
What is the cost of one Salt-water wetland credit in your bank? (What you charge to sell 1 credit)	n/a	N/A
What is the cost of one Riparian wetland credit in your bank? (What you charge to sell 1 credit)	n/a	$35,000-$40,000
What is the cost of one non-riparian wetland credit in your bank? (What you charge to sell 1 credit)	$25,000	$25,000-$30,000
What is the cost of one Stream credit in your bank? (What you charge to sell 1 credit)	n/a	N/A

Appendix B: Payments to Vendors

Fiscal Year 2005-2006 Vendor Payments			
VENDOR NAME	**DESIGN**	**CONSTRUCTION**	**FULL DELIVERY**
ARCADIS G & M OF NORTH CAROLINA	$142,023.56		
AXIOM ENVIRONMENTAL, DIV. OF OSBORNE	$28,680.15		
BAKER ENGINEERING OF NY, INC.	$385,135.29		$1,777,460.71
BIOHABITATS INC.	$109,383.00		
BLUE LAND WATER INFRASTRUCTURE	$126,512.92		
CH2MHILL	$16,400.00		$109,758.28
DEWBERRY & DAVIS. INC	$104,634.43		
EARTH TECH INC.	$445,800.16		
EBX NEUSE I LLC			$8,988,794.90
ECOLOGIC ASSOCIATES PC	$241,983.78		
ECOSCIENCE CORPORATION	$311,388.80		
ESTES	$0.00		
ENVIROCON INC.		$636,411.76	
FLUVIAL SOLUTIONS INC.		$421,370.67	
HAYES SEAY MATTERN & MATTERN	$151,872.72		
HDR ENGINEERING INC.	$78,868.90		
HUSKY CONSTRUCTION		$134,273.13	
INTERNATIONAL PAPER			$820,393.20
JORDAN JONES AND GOULDING INC.	$36,365.15		
KCI ASSOCIATES OF NC	$496,633.54		$1,498,033.50
KIMLEY-HORN AND ASSOCIATES INC.	$294,110.61		
KO AND ASSOCIATES, PC	$351,469.05		
L J INC		$835,060.93	
LOUIS BERGER GROUP INC	$206,882.92		$502,500.00
MCQUEEN CONSTRUCTION INC.		$370,639.51	
MID-ATLANTIC MITIGATION. LLC			$834,287.50
MULKEY, INC.	$193,038.86		
NATURAL SYSTEMS ENGINEERING		$50,522.00	
NORTH STATE ENVIRONMENTAL, INC.		$599,466.79	
RESTORATION SYSTEMS LLC			$10,623,682.90
RUMMEL KLEPPER AND KAHL	$293,337.92		
SHAMROCK ENVIRONMENTAL CORP.		$1,216,103.62	
SOIL AND ENVIRONMENTAL	$345,856.20		
SPAULDING AND NORRIS, PA			$411,480.00
STANTEC CONSULTING SER	$352,896.65		
SUNGATE DESIGN GROUP P	$5,188.57		
URS CORPORATION	$143,055.76		
VAUGHN CONTRACTING INC.	$175,746.22		
W K DICKSON & CO INC.	$192,829.79		$24,659.00
WARD CONSULTING ENGINEERS	$162,595.50		
WETLANDS RESOURCE CENTER			$1,051,022.15
TOTAL SERVICES PER CATEGORY	**$5,392,690.45**	**$4,263,848.41**	**$26,642,072.14**
TOTAL ALL SERVICES	**$36,298,611.00**		

Appendix C Compensatory Payments and Requirements

PROJECT NAME	DWQ Cert. No.	USACE Action ID	PAYMENT DATE	STREAM (ft)	WETLANDS			PAYMENT
					Riparian (ac)	Non-Riparian (ac)	Coastal (ac)	
Aragona Village VI		2005-00823	7 /6 /2005	0	0.000	0.280	0.000	$6,138.00
Carolina Beach Village, Lot 17		2005-00175	7 /6 /2005	0	0.000	0.060	0.000	$3,069.00
Carolina Beach Village, Lot 15	2005-1028	2005-00174	7 /6 /2005	0	0.000	0.200	0.000	$3,069.00
Linda Foster Subdivision, Lot 1	2005-0068	2005-11011	7 /6 /2005	0	0.000	0.000	0.200	$30,690.00
Masonboro Village		2005-00298	7 /6 /2005	0	0.000	0.210	0.000	$3,069.00
Bedford At Falls River, Phase 37, 38 and 39	2004-1223	2004-20767	7 /18/2005	148	0.000	0.000	0.000	$30,340.00
Homestead - Holts Chapel Road	2002-1474	2002-20916	7 /20/2005	0	0.000	0.500	0.000	$6,000.00
Elmore's of Dunn, Inc.		2002-01062	7 /20/2005	0	0.000	0.490	0.000	$6,138.00
Southview Subdivision, Section VI & VII	2004-0239	2004-00169	7 /20/2005	0	0.600	0.000	0.000	$19,684.50
Lowe's	2005-0023	2004-01045	7 /22/2005	0	0.000	0.450	0.000	$6,561.50
Brightleaf at the Park	2004-1111	2004-20594	7 /25/2005	0	0.500	0.000	0.000	$12,276.00
Simon G. Atkins Academic & Technology High School	2004-0297	2004-20441	8 /2 /2005	217	0.000	0.000	0.000	$47,523.00
Swan Lake, Lot M3	2004-2061	2005-10324	8 /3 /2005	0	0.000	0.070	0.000	$3,069.00
Ardrey Woods		2005-31861	8 /19/2005	0	1.000	0.000	0.000	$26,246.00
Rowan County Airport Hanger Project	2005-0371	2005-31324	8 /19/2005	0	1.180	0.000	0.000	$30,690.00
Eastside Green Apartments	2005-0155	2005-00248	8 /19/2005	144	0.000	0.000	0.000	$29,520.00
Lake Forest Preserve	2004-0417	2005-31406	8 /19/2005	219	0.000	0.000	0.000	$44,895.00
Greylock - Knotts Development	2005-0886	2005-31887	8 /19/2005	264	0.000	0.000	0.000	$57,816.00
Twin Lakes	2005-0054	2005-20722	8 /19/2005	0	0.500	0.000	0.000	$12,276.00
BSH Logistics Center	2005-1071	2005-11129	8 /23/2005	0	0.000	0.900	0.000	$13,123.00
Skycrest/Dogwood (City of Raleigh)	2005-0855	2005-20210	8 /26/2005	0	0.190	0.000	0.000	$6,561.50
Bradford Downs, Phases 8 & 9	2005-0931	2005-21024	8 /31/2005	0	0.000	0.190	0.000	$3,280.75
Roxboro Gypsum Storage Area	2005-0792	2005-20383	9 /2 /2005	0	0.000	0.210	0.000	$3,280.75
Brier Creek Corporate Center	2005-0913	2005-20324	9 /12/2005	0	0.500	0.000	0.000	$12,276.00
Swan Beach, Lot 17	2005-1279	2005-11829	9 /14/2005	0	0.000	0.020	0.000	$3,280.75
Sumerlyn Subdivision	2005-1377	2005-21058	9 /20/2005	265	0.000	0.000	0.000	$58,035.00
Slades Creek, Lots 4, 5 and 6		2005-11835	9 /21/2005	0	0.000	0.500	0.000	$6,561.50
Rowan Beach, Lot 73		2005-11252	9 /22/2005	0	0.000	0.200	0.000	$3,280.75
Prairie Packaging Site	2005-1180	2005-31394	9 /22/2005	800	0.000	0.000	0.000	$175,200.00
Halls Creek North, Section I		2004-00371	9 /23/2005	0	0.330	0.000	0.000	$12,276.00
Jordon Ridge Area Wastewater Facility	2005-1054	2005-20987	9 /23/2005	0	0.000	0.200	0.000	$3,280.75
Crisco Road Industrial Park	2005-1068	2004-31226	9 /26/2005	1,047	1.000	0.000	0.000	$255,539.00
Ruritania Street Extension	2005-0300	2005-20621	9 /29/2005	460	0.000	0.000	0.000	$100,740.00
116 Bells Island Road	2005-1282	2005-11920	10/5 /2005	0	0.000	0.200	0.000	$3,280.75
112 Carotauk Drive		2005-11923	10/5 /2005	0	0.000	0.160	0.000	$3,280.75
Jackson Station II	2005-0945	2005-31913	10/5 /2005	188	0.100	0.000	0.000	$47,733.50
Harris Place	2003-1571	2004-20930	10/13/2005	137	0.000	0.000	0.000	$27,400.00
125 Williams Road		2005-11826	10/14/2005	0	0.200	0.000	0.000	$6,561.50

Appendix C Compensatory Payments and Requirements

PROJECT NAME	DWQ Cert. No.	USACE Action ID	PAYMENT DATE	STREAM (ft)	WETLANDS			PAYMENT
					Riparian (ac)	Non-Riparian (ac)	Coastal (ac)	
NCEMC Richmond County Generation Project Access	2005-1730	2005-01089	10/14/2005	210	0.960	0.000	0.000	$72,236.00
Edwards Mill Road Extension	2004-0092	2005-20178	10/18/2005	176	0.000	0.000	0.000	$36,080.00
Williams Pond Subdivision	2004-1672	2004-21124	10/25/2005	194	0.000	0.000	0.000	$39,770.00
NC 345 Tract		2005-12077	10/25/2005	0	0.000	0.200	0.000	$3,280.75
Ford's Colony at Rocky Mount	2004-1801	2004-21182	10/27/2005	0	2.190	2.180	0.000	$88,580.25
Air Park West	2001-0817	2005-32783	10/27/2005	239	0.000	0.000	0.000	$52,341.00
1123 Bonito Lane		2005-00632	10/28/2005	0	0.000	0.030	0.000	$3,069.00
South Creek Acres, Phase I, Lot 42		2006-10027	10/28/2005	0	0.000	0.100	0.000	$3,280.75
Timberlodge Subdivision		2004-00678	10/28/2005	0	0.000	0.498	0.000	$6,561.50
Hearthwood Subdivision	2004-0643	2004-30735	10/31/2005	300	0.000	0.000	0.000	$60,000.00
Ballentine Street Extension	2005-0150	2003-20080	11/2 /2005	214	0.000	0.000	0.000	$43,870.00
Belmar Place	2003-0925	2003-30684	11/3 /2005	300	0.000	0.000	0.000	$60,000.00
City of Albemarle Landfill Expansion		2004-30314	11/4 /2005	0	0.000	0.720	0.000	$9,842.25
Indigo Corners	2005-1078	2005-20395	11/7 /2005	299	0.000	0.000	0.000	$65,481.00
Tryon Village	2005-1837	2004-21664	11/8 /2005	0	0.460	0.000	0.000	$13,123.00
Peachtree Beach, Lots 2, 3, & 4	2005-1724	2005-11830	11/8 /2005	0	0.048	0.000	0.000	$6,561.50
River Bend Business Park	2005-0263	2005-31109	11/9 /2005	0	1.400	0.000	0.000	$39,369.00
JTC Investments - Fisher Road		2005-10384	11/15/2005	0	0.000	0.200	0.000	$3,280.75
Pike Crossing		2004-00615	11/18/2005	170	0.520	0.000	0.000	$53,264.00
Town of Wendell - Buffalo Creek Sewer		2005-20832	11/18/2005	0	0.850	0.000	0.000	$26,246.00
Woodland Retreat Subdivision, Lot A		2006-10001	11/21/2005	0	0.000	0.200	0.000	$3,280.75
180 Swan View Drive		2005-11925	11/21/2005	0	0.000	0.200	0.000	$3,280.75
Foster Boats	2004-0563	2004-11427	11/23/2005	0	0.000	0.200	0.000	$3,000.00
Cole Property - Eagle Pass Road	2005-1797	2006-10062	11/30/2005	0	0.000	0.120	0.000	$3,280.75
Rutledge Subdivision		2004-01252	11/30/2005	0	0.500	0.000	0.000	$13,123.00
Gold Hill Quarry Project	2005-0886		11/30/2005	0	0.000	1.590	0.000	$22,965.25
The Center at College & Market	2004-1593	2004-01258	11/30/2005	0	0.000	1.500	0.000	$19,684.50
Fort Bragg - Brigade Combat Team Complex		2005-01095	12/2 /2005	368	0.040	0.000	0.000	$87,153.50
Fort Bragg SOF Weapons Storage & Maintenance Facil		2005-00417	12/7 /2005	0	0.000	0.480	0.000	$6,138.00
Regency Parkway Extension	2005-1131	2005-21042	12/13/2005	442	0.000	0.000	0.000	$96,798.00
Hampton Park Estates	2005-1853	2005-21217	12/13/2005	0	0.190	0.000	0.000	$6,561.50
The Landings		200520974	12/15/2005	0	0.000	0.680	0.000	$9,842.25
Sunset Oaks, Phase 5B & 5C	2005-0716	200520835	12/15/2005	0	0.380	0.000	0.000	$12,276.00
Charles T. Smith		200610115	12/19/2005	0	0.000	0.040	0.000	$3,280.75
Chessington Subdivision		200320495	12/19/2005	0	0.450	0.000	0.000	$13,123.00
Winding Creek Landing, Phase I		200401047	12/20/2005	0	0.000	0.620	0.000	$9,842.25
Chastain II (Second Invoice)	2002-1049	200221320	12/20/2005	287	0.000	0.000	0.000	$35,875.00
Vernon Farms, Phase II		200620057	12/20/2005	0	0.219	0.000	0.000	$6,561.50

Ballantyne Country Club Golf Course		200530193	12/29/2005	0	2.000	0.000	0.000	$52,492.00

Appendix C Compensatory Payments and Requirements

PROJECT NAME	DWQ Cert. No.	USACE Action ID	PAYMENT DATE	STREAM (ft)	WETLANDS			PAYMENT
					Riparian (ac)	Non-Riparian (ac)	Coastal (ac)	
Beachside Extension, Lot 81	2005-1835	200610117	12/29/2005	0	0.000	0.120	0.000	$3,280.75
Beachside Extension, Lot 83	2005-1834	200610118	12/29/2005	0	0.000	0.140	0.000	$3,280.75
Maryfield Retirement Center	2005-0578	200120668	1 /6 /2006	759	0.090	0.000	0.000	$172,782.50
Sterling Ridge		200521367	1 /9 /2006	0	0.050	0.000	0.000	$6,561.50
Lowe's of North Concord	2005-1948	200531833	1 /9 /2006	0	0.240	0.000	0.000	$6,561.50
Beacon Townes @ Carolina Shores		200501275	1 /11/2006	0	0.140	0.000	0.000	$6,561.50
Brighton Forest	2005-1701	200520292	1 /11/2006	0	0.660	0.000	0.000	$19,684.50
Fantone	2004-0329	200411328	1 /12/2006	0	0.000	0.200	0.000	$3,280.75
Seascape, Section 2, Lot 9	2005-2068	200610228	1 /18/2006	0	0.000	0.200	0.000	$3,280.75
David Midgett		200610377	1 /18/2006	0	0.000	0.200	0.000	$3,280.75
Tyler Cove (Mallory Creek Subdivision)		200600194	1 /23/2006	0	0.000	0.200	0.000	$3,280.75
Lake Lure	2005-2000	200630112	1 /23/2006	110	0.000	0.000	0.000	$24,090.00
John Dixon/Colington Cut, LLC		200610063	1 /24/2006	0	0.000	0.170	0.000	$3,280.75
Jeff Soden	2005-1623	200512061	1 /24/2006	0	0.000	0.200	0.000	$3,280.75
Covil Crossing	2004-1161	200200323	1 /26/2006	0	0.000	0.504	0.000	$9,842.25
323 Chadwick Shores Drive		200500955	2 /7 /2006	0	0.000	0.082	0.000	$3,280.75
National Gypsum Services Company	2005-2188	200630209	2 /8 /2006	600	0.000	0.000	0.000	$131,400.00
Glenwood Station	2005-0205	200421396	2 /13/2006	0	0.480	0.000	0.000	$13,123.00
Rourk Woods Subdivision		200500915	2 /13/2006	0	0.000	0.424	0.000	$6,561.50
Cedar Grove Subdivision, Phase 5	2005-1890	200620019	2 /13/2006	298	0.000	0.000	0.000	$65,262.00
1704 Patsy Lane		200500957	2 /14/2006	0	0.154	0.000	0.000	$6,561.50
Cape Hatteras Secondary School	2005-0221		2 /17/2006	0	0.180	0.000	0.000	$6,561.50
Bella Casa Subdivision		200620123	2 /17/2006	0	0.640	0.000	0.000	$19,684.50
Cardinal Lake Subdivision	2005-1849	200620237	2 /20/2006	0	0.120	0.000	0.000	$6,561.50
Starita Road Truck Storage Site	2003-1638	200430317	2 /21/2006	0	0.500	0.000	0.000	$12,000.00
Leonard Street Site	2004-1240	200401100	2 /23/2006	0	0.000	0.250	0.000	$3,069.00
TNT Concrete		200610018	2 /23/2006	0	0.000	0.080	0.000	$3,280.75
Uwharrie Environmental Landfill Expansion	2004-1138	200201607	2 /23/2006	984	12.400	0.000	0.000	$543,571.00
Water Distribution System, Phase 1 (Boiling Springs)		200600329	2 /27/2006	0	0.000	0.118	0.000	$3,280.75
Gates of Ethan's Glen			2 /28/2006	164	0.000	0.000	0.000	$35,916.00
Forest Oaks Subdivision	2005-1876	200620050	2 /28/2006	0	0.450	0.000	0.000	$13,123.00
Mayes Road Subdivision	2006-0091		3 /1 /2006	120	0.000	0.000	0.000	$26,280.00
Otter Point	2004-2052	200610483	3 /6 /2006	0	0.000	0.220	0.000	$3,280.75
Riegel Ridge	2001-1680	200100853	3 /8 /2006	0	0.000	1.380	0.000	$19,684.50
Wynbrooke Subdivision	2005-2178	200520442	3 /14/2006	466	0.000	0.000	0.000	$102,054.00
Old Carpenter Property		200620186	3 /14/2006	0	0.000	0.400	0.000	$6,561.50
Tod Gaskill		200510753	3 /17/2006	0	0.200	0.000	0.000	$6,138.00
Windsor Tract	2005-0467	200520380	3 /20/2006	0	0.250	0.000	0.000	$6,561.50

Appendix C Compensatory Payments and Requirements

PROJECT NAME	DWQ Cert. No.	USACE Action ID	PAYMENT DATE	STREAM (ft)	WETLANDS			PAYMENT
					Riparian (ac)	Non-Riparian (ac)	Coastal (ac)	
The Summit at Lake Norman, Phase IV	2005-0638	200533137	3 /29/2006	299	0.000	0.000	0.000	$65,481.00
Selma Railroad Siding	2006-0221	200620297	4 /5 /2006	0	0.320	0.000	0.000	$13,123.00
Winstead Park Wetlands	2005-1772	200420210	4 /13/2006	0	0.680	0.000	0.000	$19,684.50
Forest Springs Subdivision		2005-20471	4 /13/2006	348	0.380	0.000	0.000	$89,335.00
Martin's Point, Lot 4 (Franco Mineo)	2006-0295	2006-10552	4 /13/2006	0	0.000	0.130	0.000	$3,280.75
Copperleaf Subdivision		2005-21357	4 /13/2006	0	0.400	0.000	0.000	$13,123.00
Silver Hammer Pond		2005-33132	4 /13/2006	0	0.490	0.000	0.000	$13,123.00
Beau Rivage		2005-00952	4 /19/2006	0	0.000	0.198	0.000	$3,280.75
404 Tennessee Avenue		2005-00634	4 /20/2006	0	0.000	0.080	0.000	$3,069.00
Village at Mott's Landing	2004-0047	2001-01165	4 /20/2006	0	0.000	3.050	0.000	$42,649.75
Seymour Johnson AFB expansion of support facility	2005-1744	2006-10015	5 /4 /2006	6,070	0.000	0.000	0.000	$1,329,330.00
Forest Brooks Subdivision		2002-00910	5 /5 /2006	136	0.600	0.000	0.000	$49,468.50
Beaver Creek Parkway		2006-20374	5 /5 /2006	454	0.230	0.000	0.000	$105,987.50
Sanford Retail Investments	2005-2062	2006-20291	5 /9 /2006	0	0.490	2.360	0.000	$45,930.50
Lindsey Oaks	2005-2031	2006-00250	5 /11/2006	18	0.742	0.000	0.000	$23,626.50
Bonito Avenue, 1210, 1212, 1214		2003-00477	5 /11/2006	0	0.000	0.020	0.000	$3,280.75
River Run Subdivision	2000-1312	2006-10242	5 /11/2006	0	0.500	0.000	0.000	$13,123.00
Freese Cama Major Bulkhead		2005-11749	5 /11/2006	0	0.020	0.000	0.000	$6,561.50
Wind Swept Subdivision	2005-1926	2004-00402	5 /11/2006	0	0.000	0.500	0.000	$6,561.50
The Oaks at Windwood		2005-01231	5 /12/2006	164	0.000	0.000	0.000	$35,916.00
Allen Steam Station	2006-0403	2006-30711	5 /15/2006	228	0.000	0.000	0.000	$49,932.00
Green Level to Durham Road Improvements	2003-0330	2006-20620	5 /17/2006	0	0.240	0.000	0.000	$6,561.50
Sunset Ridge			5 /19/2006	0	0.400	0.000	0.000	$13,123.00
100 Lovers Lane	2006-0177	2006-10770	5 /24/2006	0	0.000	0.560	0.000	$9,842.25
Cary Creek Commons		2006-20481	6 /2 /2006	0	0.000	0.165	0.000	$3,280.75
Kinnakeet Shores Resort, Phase 14	2004-1180	1999-11078	6 /5 /2006	0	0.000	0.160	0.000	$3,280.75
Atwell Residence		2006-32036-172	6 /6 /2006	0	0.000	0.158	0.000	$3,280.75
Jefferson Village	2005-2221		6 /9 /2006	172	0.040	0.000	0.000	$44,229.50
Fazekas Property		2006-10751	6 /9 /2006	0	0.000	0.098	0.000	$3,280.75
Weaver's Pond		2005-20460	6 /9 /2006	0	0.460	0.000	0.000	$13,123.00
Daniels Lot	2006-0133	2006-00240	6 /12/2006	173	0.110	0.000	0.000	$44,448.50
Whittaker Harbor Subdivision		2005-12090	6 /12/2006	0	0.000	1.000	0.000	$13,123.00
Indiantown Shores, Lot 20, Sec 6		2006-10568	6 /22/2006	0	0.000	0.140	0.000	$3,280.75
Wal-Mart Store Havelock	2006-0042	2006-10376	6 /23/2006	0	4.440	0.000	0.000	$118,107.00
Bragg Blvd Mini-Storage		2004-01232	6 /26/2006	76	0.000	0.000	0.000	$16,644.00
St. James	2005-1799	2005-01279	6 /26/2006	51	0.000	0.470	0.000	$17,730.50
Sunny Point		2005-01298	6 /27/2006	0	0.168	0.784	0.000	$19,684.50
TOTAL								$5,803,852.50

Appendix D Properties Closed 2005 - 2006

2005 - 2006 Properties Closed Project	County	Protection Type[1]	Final Acreage	Acquisition Closed Date	Project Type[2]
West Haven Apartment Stream	Wayne	CE	2.203	7/10/2005	R
McDonald's Pond	Richmond	CE	127.860	7/14/2005	R
New Light Creek	Wake	Fee	34.938	8/1/2005	R
Haw River-Bouchard Tract	Rockingham	CE	30.865	8/4/2005	P
Great Dismal Swamp Restoration Bank	Tyrrell	CE	455.000	8/17/2005	R
Brogden Road Buffer Site	Johnston	CE	15.000	8/24/2005	R
Grogan Tract-Mayo River	Rockingham	Fee	81.312	8/25/2005	HQP
West Haven Apartment Stream	Wayne	CE	2.469	8/31/2005	R
Brushy Fork Creek	Forsyth	CE		9/10/2005	R
Whitley Site	Johnston	CE	27.500	9/13/2005	R
Green Tract-Fishing Creek	Warren	CE	15.553	9/13/2005	HQP
Averett Tract-Tar River	Granville	CE	11.360	9/20/2005	HQP
Indian Run-Coddle Creek	Cabbarus	CE	1.106	9/21/2005	R
Big Bull Buffer Site	Johnston	CE	36.760	9/21/2005	R
UT Buffalo Shoals Creek-Gray Farm	Iredell	CE	21.500	9/22/2005	R
Edwards Tract-Fishing Creek	Nash	CE	87.320	9/23/2005	HQP
Faulkner Tract-Sandy Creek	Franklin	CE	20.294	9/28/2005	HQP
A&P Timber Tract-Sandy Creek	Franklin	CE	18.490	9/28/2005	HQP
Smitherman Tract-Tar River	Granville	CE	20.270	9/28/2005	HQP
Charles Creek	Pasquotank	CE	2.000	10/5/2005	R
MacNair Tract (Turpentine, LLC)-Aycock Creek	Granville	CE	211.070	10/7/2005	HQP
D. Davis Tract-Shocco Creek	Warren	CE	12.060	10/7/2005	HQP
Beaverdam Creek	Mecklenburg	CE	0.165	10/12/2005	R
Beaverdam Creek	Mecklenburg	CE	2.520	10/12/2005	R
Crowther North-South Yadkin River	Rowan	CE	39.117	10/14/2005	HQP
Baker Tract, Little River	Randolph	CE	10.148	10/17/2005	HQP
Dutch Second Creek-Hill Tract	Rowan	CE	16.984	10/18/2005	HQP
Ellerbee Creek	Durham	CE	17.406	10/20/2005	R
Moccasin Creek, Kornegay Farms	Johnston	CE	20.510	10/21/2005	R
Childers Tract North Pacolet	Polk	Fee	39.880	10/25/2005	HQP
Contentnea Creek, Stokes Farm	Greene	CE	55.650	10/28/2005	R
Reeds Creek	Iredell	CE	14.660	10/31/2005	R
Reeds Creek	Cumberland	CE	18.210	11/1/2005	R
Mackovic Tract-Countyline Creek-Prodev LLC	Caswell	Fee	90.130	11/3/2005	HQP
Reeds Creek	Iredell	CE	23.650	11/9/2005	R
Conetoe Creek Buffer Site	Pitt	CE	10.020	11/9/2005	R
Tomlinson Tract-Little Shocco Creek	Franklin	CE	77.950	11/22/2005	HQP
Tobey Tract-Melrose Mountain	Polk	Fee	318.360	11/23/2005	HQP
Walbourn Tract, Little River	Randolph	CE	38.021	11/23/2005	HQP
Alston Tracts 1, 2 & 3-Shocco Creek	Franklin	CE	359.550	12/1/2005	HQP
Cane Creek	Alamance	CE	22.580	12/5/2005	R
Terrible Creek	Wake	Fee	48.000	12/7/2005	R
IP/Alston Tract-Fishing Creek	Warren	CE	179.380	12/9/2005	HQP
Beaverdam Creek	Mecklenburg	CE	43.850	12/13/2005	R
Harris Tract-Tar River	Granville	CE	38.820	12/13/2005	HQP
Bruchon Tract-Roan Massif	Mitchell	Fee	145.652	12/20/2005	HQP
Camp Chestnut Ridge-Sevenmile Creek	Orange	CE	59.740	12/22/2005	HQP
Winslow Tract-North Fork Upper Tar River	Granville	CE	36.891	12/28/2005	HQP
Bessemer Tract-Hyco Lake	Caswell	CE	167.046	12/29/2005	HQP
Hodges Tract-Tar River	Franklin	CE	41.700	12/29/2005	HQP
Wheless Tract-Little Shocco Creek	Franklin	CE	14.630	12/29/2005	HQP

Appendix D Properties Closed 2005 - 2006

Tucker-Daniel 1 Tract-Shelton Creek	Granville	CE	18.149	1/4/2006	HQP
Cooper Swamp-Modlin Site	Martin	CE	41.241	1/20/2006	R
Brushy Fork Creek	Forsyth	CE	0.410	1/24/2006	R
Freedom Park-Little Sugar Creek	Mecklenburg	CE	13.115	1/26/2006	R
Manning Farm Site	Edgecombe	CE	10.000	01/26/06	R
Middle Swamp Creek	Pitt	Fee	10.600	1/26/2006	R
New Hope Creek-Brown Farm	Orange	CE	46.125	1/26/2006	R
Tarlton-Country Club Hills-Reeds Creek	Cumberland	CE	17.750	1/27/2006	R
Howard Farm Site	Greene	CE	26.760	2/1/2006	R
Daniels & Daniels Farms	Franklin	CE	33.764	2/6/2006	R
Beaverdam Creek	Mecklenburg	CE	0.580	2/7/2006	R
Beaverdam Creek	Mecklenburg	CE	1.530	2/8/2006	R
M. Speed Tract-Little Shocco Creek	Warren	CE	44.550	2/10/2006	HQP
Sandy Creek	Durham	CE	10.390	02/14/06	R
Beaverdam Creek	Mecklenburg	CE	22.530	2/15/2006	R
Beaverdam Creek	Mecklenburg	CE	2.530	2/16/2006	R
McIntyre Creek	Mecklenburg	Const E	n/a	2/16/2006	R
Beaverdam Creek	Mecklenburg	CE	15.910	2/17/2006	R
McIntyre Creek	Mecklenburg	CE	0.730	2/24/2006	R
Double Thumb Road-Bost Tract	Rowan	Fee	3.716	2/28/2006	R
Double Thumb Road-Madden Tract	Rowan	Fee	6.688	2/28/2006	R
East Tarboro Canal	Edgecombe	CE	3.050	3/3/2006	R
Wickliff Tract-Dutch Buffalo Creek	Cabarrus	CE	2.734	3/3/2006	HQP
WalkerTract-Dutch Buffalo Creek	Cabarrus	CE	33.671	3/3/2006	HQP
Parker Tract, Little River	Randolph	CE	34.000	3/3/2006	HQP
East Tarboro Canal	Edgecombe	CE	8.890	3/6/2006	R
East Tarboro Canal Phase 1	Edgecombe	CE	0.830	3/6/2006	R
Black Gum Creek	Robeson	CE	146.470	3/17/2006	R
East Tarboro Canal	Edgecombe	CE	5.810	3/22/2006	R
Glen Raven Wetland, KCI Full Delivery	Alamance	CE	9.473	3/27/2006	R
Conoconnara Site	Halifax	CE	186.570	4/6/2006	R
McIntyre Creek	Mecklenburg	Const E	n/a	4/28/2006	R
Betty Crews Tract-Tar River	Granville	CE	31.580	5/3/2006	HQP
Coddle Creek	Cabbarus	Fee	1.380	5/19/2006	R
Hall Tract-Fishing Creek	Edgecombe	CE	231.445	5/19/2006	HQP
Whatley Tract-Uwharrie River	Randolph	CE	24.800	5/23/2006	HQP
Parrish Tract-Sandy Creek	Franklin	CE	33.390	5/30/2006	HQP
Crews Farm-Roy Crews Tract-Tar River	Granville	CE	10.070	5/31/2006	HQP
Ward Tract-Green River	Polk	CE	15.390	6/2/2006	HQP
Third Fork Creek	Durham	CE	8.890	06/06/06	R
Wells Tract, Cape Fear River	Pender	Fee	99.760	6/6/2006	HQP
Thorp Tracts-Shelton Creek	Granville	CE	52.200	6/7/2006	HQP
Pitts Tracts-Tar River	Granville	CE	27.310	6/9/2006	HQP
Morton Tracts-Shelton Creek	Granville	CE	5.890	6/9/2006	HQP
Sherman Tract No. 1-Tar River	Granville	CE	15.970	6/19/2006	HQP
Sherman Tract 2-Tar River	Granville	CE	28.110	6/19/2006	HQP
Penny Tract-New Hope Creek	Orange	CE	20.140	6/22/2006	HQP
Grissom Tract-Barnes Creek	Montgomery	CE	55.874	6/30/2006	HQP
Dean Tract-Tar River	Granville	CE	63.510	7/18/2006	HQP
HQP total for reporting period			**4,670.425**		

[1]Protection Type: Conservation Easement (CE), Fee Simple (Fee), Construction Easement (Const E), combination (Fee/CE)

[2]Project Type Restoration or Restoration /Enhancement (R), Preservation (P), High Quality Preservation (HQP)

Please note that some projects have multiple parcels. These parcels are listed separately. Table is sorted by closing date.

Appendix E Properties Optioned 2005 - 2006

2005 - 2006 Properties Optioned Project Name	County	Protection Type[1]	Option Date Signed	Project Type[2]
East Tarboro	Edgecombe	CE	7/1/2005	R
Cochran Tract-Little River	Montgomery	CE	7/7/2005	HQP
Harrell Tract-Chowan River	Chowan	CE	7/25/2005	HQP
Pories Tract-Tar River	Pitt	CE	8/3/2005	HQP
McKean Tract-Deep Creek-Sandy Creek	Moore	CE	8/5/2005	HQP
East Tarboro Canal Phase 2	Edgecombe	Fee	9/1/2005	R
UT Pembroke Creek	Chowan	CE	9/2/2005	R
Johnston Tract-Reedy Creek	Warren	CE	9/10/2005	HQP
Luthi Tract-Skyuka Creek	Polk	CE	9/14/2005	HQP
Brushy Fork Creek	Forsyth	CE	9/29/2005	R
Steele Tract-Mill Creek	Surry	Fee	10/12/2005	HQP
UT to Zack's Fork Creek	Caldwell	CE	10/25/2005	R
Sharpe Riverine Wetland	Rockingham	CE	10/25/2005	P
Ellerbee Creek	Durham	CE	11/8/2005	R
Ellerbee Creek at North Gate Park	Durham	CE	11/8/2005	R
Greenbriar Creek	Chatham	CE	11/22/2005	R
Big Harris Creek	Cleveland	CE	12/1/2005	R
Big Harris Creek	Cleveland	CE	12/1/2005	R
Shearin Tract-Fishing Creek	Warren	CE	12/2/2005	HQP
South Fork Hopper's Creek-Melton	McDowell	CE	12/8/2005	R
Big Harris Creek	Cleveland	CE	12/9/2005	R
Little Troublesome Creek	Rockingham	CE	12/9/2005	R
Little Troublesome Creek	Rockingham	CE	12/9/2005	R
Brushy Fork Creek	Forsyth	CE	12/12/2005	R
Bingham Tract-Uwharrie River	Montgomery	CE	1/3/2006	HQP
Lewis Creek-Ingle Tract	Henderson	CE	1/10/2006	R
Paschal Tract-Glendon Slate Creek	Moore	CE	1/31/2006	HQP
M. Paschal Tract-Deep River	Moore	CE	1/31/2006	HQP
P. Paschal Tract-Deep River	Moore	CE	1/31/2006	HQP
Gupton Tract-Shocco Creek	Franklin	Fee	2/2/2006	HQP
Greenbriar Creek	Alamance	CE	2/7/2006	R
Greenbriar Creek	Chatham	CE	2/7/2006	R
Millstone Creek	Randolph	CE	2/17/2006	R
Jenny's Cut-Edward Nixon Tract	Perquimins	CE	3/2/2006	R
UT Uwharrie	Randolph	CE	3/3/2006	R
Gardner Tract-Big Pond Bay	Cumberland	Fee	3/11/2006	HQP
Mill Creek	Randolph	CE	3/20/2006	R
Greenbriar Creek	Alamance	CE	3/31/2006	R
Capps Farms Inc.-Fishing Creek	Warren	CE	3/31/2006	HQP
Capps Forestry Enterprises-Fishing Creek	Warren	CE	3/31/2006	HQP
South Muddy Creek-Randolph Tract	McDowell	CE	4/5/2006	R
Jenny's Cut-William P. Nixon Tract	Perquimins	CE	4/15/2006	R
Oakley Tract-Tar River	Granville	CE	4/24/2006	HQP
Hendricks Creek-Tarboro High School	Edgecombe	CE	4/26/2006	R
Lewis Creek-CMLC Tract	Henderson	CE	5/1/2006	R
Brushy Fork Creek	Forsyth	CE	5/9/2006	R
UT Crab Creek	Alleghany	CE	5/10/2006	R

Appendix E Properties Optioned 2005 - 2006

Boyer Tract-Green River	Polk	CE	5/12/2006	HQP
South Muddy Creek-Duncan Tract	McDowell	CE	5/16/2006	R
Little Lick Creek-The Crossings	Durham	CE	5/17/2006	R
Glade Creek	Alleghany	CE	6/2/2006	R
Meadowbranch Swamp	Robeson	CE	6/2/2006	R
Newfound Creek	Buncombe	CE	6/6/2006	R
Big Harris Creek II	Cleveland	CE	6/16/2006	R
Mullen Tract-Sandy Creek	Franklin	CE	7/5/2006	HQP

[1]Protection Type: Conservation Easement (CE), Fee Simple (Fee), Construction Easement (Const E), combination (Fee/CE)

[2]Project Type Restoration or Restoration /Enhancement (R), Preservation (P), High Quality Preservation (HQP)

Please note that some projects have multiple parcels. These parcels are listed separately. Table is sorted by closing date.

Appendix F Cumulatuve Property 1997 - 2006

Project	County	Protection Type	Acquisition Closed Date	Final Acreage	Project Type
Basket Creek-Wesleyan Blvd.	Nash	CE	05/14/97	41.500	R
Holloman Wetland	Greene	CE	10/31/97	27.500	R
Buckhead Subdivision	Cumberland	CE	12/01/98	4.560	R
Barra Farms	Cumberland	CE	03/19/99	622.940	R
Carteret-Craven EMC Wetland	Carteret	CE	11/19/99	4.140	R
Payne Dairy	Alexander	CE	12/30/99	40.220	R
Hoffman Forest Preservation Site	Onslow	fee	04/06/00	100.000	R
Nucor Steel Mill Site	Hertford	fee	04/18/00	150.270	R
Brush Creek	Alleghany	CE	05/09/00	7.780	R
Brush Creek	Alleghany	CE	05/09/00	2.890	R
Contentnea Creek, Neuse River	Greene	CE	08/18/00	80.000	R
Providence Road	Mecklenburg	CE	09/27/00	8.809	R
Providence Flat Swamp Forest	Mecklenburg	CE	09/27/00	17.900	R
Wilson Bay-Sturgeon City	Onslow	CE	12/18/00	3.060	R
Hobbs Road	Guilford	CE	03/27/01	3.310	R
Hominy Swamp Creek	Wilson	CE	06/06/01	3.900	R
Reed Creek	Buncombe	CE	06/25/01	1.320	R
Smith-Austin Creek	Wake	fee	09/08/01	33.420	R
Smith-Austin Creek	Wake	fee	09/08/01	3.300	R
Clear Creek	Henderson	CE	10/16/01	6.397	R
Sandy Creek	Durham	CE	10/23/01	10.390	R
Scott-Lamb Wetland	Pasquotank	fee	12/31/01	22.640	R
Howell Woods	Johnston	CE	02/08/02	139.860	R
Little Beaver Creek	Wake	CE	03/15/02	40.924	R
Wike Stream	Catawba	CE	04/19/02	12.420	R
Haw River-Bouchard Preservation Site	Rockingham	CE	05/09/02	95.431	P
Mud Creek (Brevard Church Property)	Henderson	CE	05/15/02	14.000	R
Mine Site	Chatham	CE	05/30/02	38.400	P
Moncure Site	Lee	CE	05/30/02	13.5 ac.	R
County Line Stream	Buncombe	CE	06/29/02	0.077	R
County Line Stream	Henderson	CE	06/29/02	6.543	R
Murphy Farm	Franklin	CE	07/01/02	4.170	R
Boiling Springs	Brunswick	CE	08/08/02	7.360	R
Maritime Museum	Carteret	CE	09/30/02	0.890	R
Little Beaver Creek	Wake	CE	10/02/02	7.5 ac	R
Little Bugaboo Creek	Wilkes	CE	12/10/02	1.330	R
Little Bugaboo Creek	Wilkes	CE	12/10/02	0.010	R
Louisburg Creek	Franklin	CE	12/13/02	1.939	R
East Group Buffer	Pitt	CE	12/27/02	2.280	R
Cato Stream	Mecklenburg	CE	01/08/03	6.322	R
Louisburg Creek	Franklin	CE	01/14/03	1.081	R
Little Bugaboo Creek	Wilkes	CE	01/31/03	3.820	R
Bushy Branch, (Kentwood Park)	Wake	CE	02/10/03	2.906	R
Chavis Branch, (Chavis Park)	Wake	CE	02/10/03	4.630	R
Little Bugaboo Creek	Wilkes	CE	02/12/03	4.150	R
Little Bugaboo Creek	Wilkes	CE	03/12/03	1.720	R
Carper-Harris Wetland	Pasqoutank	CE	03/14/03	67.810	R
Suck Creek	Moore	CE	03/17/03	9.220	R
UT to South Fork Creek	Alamance	CE	03/27/03	10.200	R
Kiser Stream and Flood Plain	Alamance	CE	03/27/03	15.530	R

Appendix F Cumulatuve Property 1997 - 2006

Little River Wetland	Moore	CE	03/28/03	125.770	R
Big Warrior Creek	Wilkes	CE	05/08/03	0.477	R
Big Warrior Creek	Wilkes	CE	05/12/03	2.586	R
UT to South Fork Creek	Alamance	CE	05/16/03	16.300	R
Brushy Fork Creek	Forsyth	CE	06/17/03	7.880	R
Knox Property	Mecklenburg	CE	07/02/03	11.880	R
Wells Creek	Alamance	CE	07/15/03	18.050	R
Brushy Fork Creek	Forsyth	CE	07/17/03	9.650	R
Big Warrior Creek	Wilkes	CE	07/30/03	2.003	R
DuPont Forest-Waterfall	Transylvania	Fee	8/8/2003	2,223.000	HQP
Big Warrior Creek	Wilkes	CE	08/13/03	9.108	R
Well's Creek	Alamance	CE	08/15/03	2.520	R
Hall Branch	Richmond	CE	08/22/03	5.980	R
Big Warrior Creek	Wilkes	CE	08/25/03	0.837	R
UT to South Fork Creek	Alamance	CE	09/02/03	2.520	R
Big Warrior Creek	Wilkes	CE	09/02/03	2.707	R
Purlear Creek	Wilkes	CE	10/02/03	18.720	R
Haw River-Cone Swamp-Phillips	Guilford	CE	10/22/2003	75.820	HQP
Purlear Creek	Wilkes	CE	11/10/03	1.377	R
Four Mile Creek	Mecklenburg	CE	11/14/03	48.350	R
Biltmore Technology Center	Buncombe	CE	11/24/03	11.480	R
Big Warrior/Little Warrior	Wilkes	CE	12/01/03	14.800	R
Silas CreekShaffner Park Property	Forsyth	CE	12/03/03	15.290	R
Lost Bridge	Macon	Fee	12/9/2003	140.000	HQP
Mingo Tract	Caldwell	Fee	12/12/2003	5,648.000	HQP
Eno River-Poplar Ridge (Bunting)	Orange	Fee	12/16/2003	134.450	HQP
Haw River-Duke Forest	Chatham	Fee	12/19/2003	892.980	HQP
Eno River Wilderness	Orange	Fee	12/31/2003	814.870	HQP
Big Warrior Creek	Wilkes	CE	01/05/04	2.507	R
Rankin Tract	Gaston	CE	1/5/2004	506.136	HQP
Snow Creek	Stokes	CE	01/07/04	1.640	R
Snow Creek	Stokes	CE	01/07/04	7.290	R
Snow Creek	Stokes	CE	01/07/04	0.200	R
Snow Creek	Stokes	CE	01/07/04	3.880	R
Needmore Tract	Swain	Fee	1/15/2004	4,467.000	HQP
Horse Creek	Wake	CE	01/21/04	7.980	R
Len's Knob & Little Mountain	Surry	Fee	1/23/2004	2,151.940	HQP
Snow Creek	Stokes	CE	02/17/04	1.900	R
North Buffalo Creek, Brown Bark Park	Guilford	CE	02/23/04	8.933	R
South Buffalo Creek, Hillsdale Park	Guilford	CE	02/23/04	16.698	R
South Buffalo Creek, Benbow Park	Guilford	CE	02/26/04	4.320	R
Mile Run Creek, Gillespie Park	Guilford	CE	02/26/04	16.075	R
Cane Creek	Alamance	CE	03/16/04	3.331	R
Cane Creek	Alamance	CE	03/16/04	3.729	R
Mary's Creek	Alamance	CE	03/17/04	6.810	R
Allen Tract	Franklin	CE	3/18/2004	146.770	HQP
Mocassin Creek	Wake	fee	05/05/04	82.540	R
Moccasin Creek	Wake	Fee	5/5/2004	82.540	HQP
Drowning Creek	Moore	CE/Fee	5/20/2004	786.000	HQP
Snow Creek	Stokes	CE	05/26/04	0.630	R
Snow Creek	Stokes	CE	05/26/04	0.510	R
Little Table Rock	Mitchell	CE	6/11/2004	544.300	HQP

Appendix F Cumulatuve Property 1997 - 2006

Newton Tract-White Pines	Chatham	CE	6/23/2004	16.330	HQP
Davis Tract-Yadkin River	Davie	CE	7/19/2004	80.646	HQP
Cross Creek	Cumberland	CE	7/21/2004	0.050	R
Cross Creek	Cumberland	CE	7/21/2004	0.510	R
Cross Creek	Cumberland	CE	7/21/2004	4.060	R
Cross Creek	Cumberland	CE	7/30/2004	0.040	R
Third Fork Creek, Forest Hills	Durham	CE	08/04/04	9.640	R
New River Heights Tract-New River	Ashe	Fee	8/27/2004	109.913	HQP
Little River	Perquimans	fee	9/14/2004	48.090	R
Lone Mountain-Phase One and Two	Rutherford	Fee	9/27/2004	1,245.160	HQP
Adams Landing	Pasquotank	CE	10/5/2004	23.120	R
Panther Creek-Cary Park	Wake	CE	10/13/2004	7.910	R
Cashie River-IP-Thunderbolt-Baltimore	Bertie	CE/Fee	10/28/2004	748.760	HQP
Pickler's Bluff	Rowan	CE	12/15/2004	10.531	HQP
Hog Branch Ponds	Brunswick	fee	12/17/2004	516.730	R
Great Coharie-TNC	Sampson	Fee	12/17/2004	4,858.000	HQP
Shartree Subdivision	Franklin	CE	12/20/2004	35.610	R
Langley Site-Cypress Creek	Franklin	CE	12/23/2004	40.380	HQP
Sandymush-Progress Energy	Buncombe	Fee	12/28/2004	2,655.000	HQP
Harper Tract-Swift Creek	Franklin	CE	12/29/2004	27.590	HQP
William O'Neal Tract-Swift Creek	Franklin	CE	12/29/2004	18.500	HQP
Guthrie Tract-Shelton Creek	Granville	CE	12/29/2004	110.540	HQP
TESC-Mark's Creek	Wake	Fee	1/4/2005	31.540	HQP
Billy's Creek	Franklin	CE	1/7/2005	5.028	R
Beaver Dam-Drowning Creek II (Rankin Tract)	Moore	CE	1/7/2005	1,214.000	HQP
Wallace Deer Club (Blanchard Tract)	Pender	CE	1/20/2005	1,238.990	HQP
Coddle Creek	Cabbarus	fee	1/26/2005	7.922	R
Linville River-White Creek	Burke	Fee	1/27/2005	1,425.300	HQP
Stevens Tract-Eno River	Durham	Fee	2/1/2005	70.700	HQP
RFP-Contentnea Buffer Phase II	Greene	CE	2/4/2005	50.080	R
Hillcrest Bay	Hoke	CE	2/11/2005	46.660	R
Hillcrest Bay	Hoke	CE	2/11/2005	46.660	HQP
McGowan Creek	Orange	CE	2/22/2005	30.800	R
Kings Creek	Transylvania	CE	3/10/2005	6.110	R
Wimberley Tract-Nat's Creek	Moore	CE	3/21/2005	34.110	HQP
Lester Capps Tract-Shocco Creek	Franklin	CE	3/28/2005	19.375	HQP
Lynn Capps Tract-Fishing Creek	Warren	CE	3/28/2005	36.783	HQP
Troublesome Creek	Rockingham	CE	4/8/2005	52.744	R
Pickard Farms Stream	Alamance	CE	4/13/2005	18.310	R
Pickard Farms Stream	Alamance	CE	4/13/2005	18.180	R
Pickard Farms Stream	Alamance	CE	4/13/2005	14.560	R
Bishop Tract-Canal Branch	Anson	CE	4/13/2005	78.890	HQP
Elk-Shoals-Methodist Camp	Ashe	CE	4/15/2005	95.908	HQP
Wallace Deer Club (Swinson Tract)	Pender	CE	4/19/2005	109.920	HQP
Old Cove Tract-Green River-Burdett Property	Polk	CE	4/21/2005	23.980	HQP
Lewis Tract, Little River	Randolph	CE	4/29/2005	43.564	HQP
Shocco Creek LLC-Little Shocco Creek	Franklin	CE	5/3/2005	40.427	HQP
Swift Creek Wetlands	Wake	CE	5/3/2005	41.690	HQP
Eno River-Cabe's Ford-Scarlett Tract	Orange	Fee	5/19/2005	11.000	HQP
Eno River-Cabe's Ford-McFayden Tract	Orange	Fee	5/21/2005	26.870	HQP
Tucker-Daniel 2 Tract-Shelton Creek	Granville	CE	5/24/2005	3.442	HQP

Peterson Tract-Shelton Creek	Granville	CE	5/24/2005	40.552	HQP
Whitelace Creek	Lenoir	CE	5/31/2005	35.810	R
O'Neal Tract-Little Shocco Creek	Franklin	CE	5/31/2005	26.010	HQP
Lambert Tract-Uwharrie River Bluff	Montgomery	CE	6/9/2005	18.260	HQP
Seagate Woods	Carteret	CE	6/10/2005	122.960	HQP
Four Mile Creek-Coffey Creek	Mecklenburg	CE	6/16/2005	0.781	R
Norwood Gainey Wetland	Wayne	fee	6/16/2005	58.384	R
Flat River-Horton Grove	Durham	CE	6/17/2005	307.277	HQP
Sturges Tract-Fishing Creek	Franklin/Nash	CE	6/21/2005	13.494	HQP
Roanoke River-IP-Blue Sky Timber Tract 42-1	Halifax	CE	6/27/2005	329.000	HQP
Roanoke River-IP-Blue Sky Timber Tract 42-1	Halifax	CE	6/27/2005	263.760	HQP
West Haven Apartment Stream	Wayne	CE	7/10/2005	2.203	R
McDonald's Pond	Richmond	CE	7/14/2005	127.860	R
New Light Creek	Wake	fee	8/1/2005	34.938	R
Haw River-Bouchard Tract	Rockingham	CE	8/4/2005	30.865	P
Great Dismal Swamp Restoration Bank	Tyrrell	CE	8/17/2005	455.000	R
Brogden Road Buffer Site	Johnston	CE	8/24/2005	15.000	R
Grogan Tract-Mayo River	Rockingham	Fee	8/25/2005	81.312	HQP
West Haven Apartment Stream	Wayne	CE	8/31/2005	2.469	R
Brushy Fork Creek	Forsyth	CE	9/10/2005		R
Whitley Site	Johnston	CE	9/13/2005	27.500	R
Green Tract-Fishing Creek	Warren	CE	9/13/2005	15.553	HQP
Averett Tract-Tar River	Granville	CE	9/20/2005	11.360	HQP
Indian Run-Coddle Creek	Cabbarus	CE	9/21/2005	1.106	R
Big Bull Buffer Site	Johnston	CE	9/21/2005	36.760	R
UT Buffalo Shoals Creek-Gray Farm	Iredell	CE	9/22/2005	21.500	R
Edwards Tract-Fishing Creek	Nash	CE	9/23/2005	87.320	HQP
Faulkner Tract-Sandy Creek	Franklin	CE	9/28/2005	20.294	HQP
A&P Timber Tract-Sandy Creek	Franklin	CE	9/28/2005	18.490	HQP
Smitherman Tract-Tar River	Granville	CE	9/28/2005	20.270	HQP
Charles Creek	Pasquotank	CE	10/5/2005	2.000	R
MacNair Tract (Turpentine, LLC)-Aycock Cre	Granville	CE	10/7/2005	211.070	HQP
D. Davis Tract-Shocco Creek	Warren	CE	10/7/2005	12.060	HQP
Beaverdam Creek	Mecklenburg	CE	10/12/2005	0.165	R
Beaverdam Creek	Mecklenburg	CE	10/12/2005	2.520	R
Crowther North-South Yadkin River	Rowan	CE	10/14/2005	39.117	HQP
Baker Tract, Little River	Randolph	CE	10/17/2005	10.148	HQP
Dutch Second Creek-Hill Tract	Rowan	CE	10/18/2005	16.984	HQP
Ellerbee Creek	Durham	CE	10/20/2005	17.406	R
Moccasin Creek, Kornegay Farms	Johnston	CE	10/21/2005	20.510	R
Childers Tract North Pacolet	Polk	Fee	10/25/2005	39.880	HQP
Contentnea Creek, Stokes Farm	Greene	CE	10/28/2005	55.650	R
Reeds Creek	Iredell	CE	10/31/2005	14.660	R
Reeds Creek	Cumberland	CE	11/1/2005	18.210	R
Mackovic Tract-Countyline Creek-Prodev LLC	Caswell	Fee	11/3/2005	90.130	HQP
Reeds Creek	Iredell	CE	11/9/2005	23.650	R
Conetoe Creek Buffer Site	Pitt	CE	11/9/2005	10.020	R
Tomlinson Tract-Little Shocco Creek	Franklin	CE	11/22/2005	77.950	HQP
Tobey Tract-Melrose Mountain	Polk	Fee	11/23/2005	318.360	HQP
Walbourn Tract, Little River	Randolph	CE	11/23/2005	38.021	HQP
Alston Tracts 1, 2 & 3-Shocco Creek	Franklin	CE	12/1/2005	359.550	HQP
Cane Creek	Alamance	CE	12/5/2005	22.580	R

Terrible Creek	Wake	fee	12/7/2005	48.000	R
IP/Alston Tract-Fishing Creek	Warren	CE	12/9/2005	179.380	HQP
Beaverdam Creek	Mecklenburg	CE	12/13/2005	43.850	R
Bruchon Tract-Roan Massif	Mitchell	Fee	12/20/2005	145.652	HQP
Camp Chestnut Ridge-Sevenmile Creek	Orange	CE	12/22/2005	59.740	HQP
Winslow Tract-North Fork Upper Tar River	Granville	CE	12/28/2005	36.891	HQP
Bessemer Tract-Hyco Lake	Caswell	CE	12/29/2005	167.046	HQP
Hodges Tract-Tar River	Franklin	CE	12/29/2005	41.700	HQP
Wheless Tract-Little Shocco Creek	Franklin	CE	12/29/2005	14.630	HQP
Tucker-Daniel 1 Tract-Shelton Creek	Granville	CE	1/4/2006	18.149	HQP
Cooper Swamp-Modlin Site	Martin	CE	1/20/2006	41.241	R
Brushy Fork Creek	Forsyth	CE	1/24/2006	0.410	R
Freedom Park-Little Sugar Creek	Mecklenburg	CE	1/26/2006	13.115	R
Manning Farm Site	Edgecombe	CE	01/26/06	10.000	R
Middle Swamp Creek	Pitt	Fee	1/26/2006	10.600	R
New Hope Creek-Brown Farm	Orange	CE	1/26/2006	46.125	R
Tarlton-Country Club Hills-Reeds Creek	Cumberland	CE	1/27/2006	17.750	R
Howard Farm Site	Greene	CE	2/1/2006	26.760	R
Daniels & Daniels Farms	Franklin	CE	2/6/2006	33.764	R
Beaverdam Creek	Mecklenburg	CE	2/7/2006	0.580	R
Beaverdam Creek	Mecklenburg	CE	2/8/2006	1.530	R
M. Speed Tract-Little Shocco Creek	Warren	CE	2/10/2006	44.550	HQP
Sandy Creek	Durham	CE	02/14/06	10.390	R
Beaverdam Creek	Mecklenburg	CE	2/15/2006	22.530	R
Beaverdam Creek	Mecklenburg	CE	2/16/2006	2.530	R
McIntyre Creek	Mecklenburg	Const. E	2/16/2006	n/a	R
Beaverdam Creek	Mecklenburg	CE	2/17/2006	15.910	R
McIntyre Creek	Mecklenburg	CE	2/24/2006	0.730	R
Double Thumb Road-Bost Tract	Rowan	Fee	2/28/2006	3.716	R
Double Thumb Road-Madden Tract	Rowan	Fee	2/28/2006	6.688	R
East Tarboro Canal	Edgecombe	CE	3/3/2006	3.050	R
Wickliff Tract-Dutch Buffalo Creek	Cabarrus	CE	3/3/2006	2.734	HQP
WalkerTract-Dutch Buffalo Creek	Cabarrus	CE	3/3/2006	33.671	HQP
Parker Tract, Little River	Randolph	CE	3/3/2006	34.000	HQP
East Tarboro Canal	Edgecombe	CE	3/6/2006	8.890	R
East Tarboro Canal Phase 1	Edgecombe	CE	3/6/2006	0.830	R
Black Gum Creek	Robeson	CE	3/17/2006	146.470	R
East Tarboro Canal	Edgecombe	CE	3/22/2006	5.810	R
Glen Raven Wetland, KCI Full Delivery	Alamance	CE	3/27/2006	9.473	R
Conoconnara Site	Halifax	CE	4/6/2006	186.570	R
McIntyre Creek	Mecklenburg	Const. E	4/28/2006	n/a	R
Betty Crews Tract-Tar River	Granville	CE	5/3/2006	31.580	HQP
Coddle Creek	Cabbarus	Fee	5/19/2006	1.380	R
Hall Tract-Fishing Creek	Edgecombe	CE	5/19/2006	231.445	HQP
Whatley Tract-Uwharrie River	Randolph	CE	5/23/2006	24.800	HQP
Parrish Tract-Sandy Creek	Franklin	CE	5/30/2006	33.390	HQP
Crews Farm-Roy Crews Tract-Tar River	Granville	CE	5/31/2006	10.070	HQP

Appendix F Cumulatuve Property 1997 - 2006

Ward Tract-Green River	Polk	CE	6/2/2006	15.390	HQP
Third Fork Creek	Durham	CE	06/06/06	8.890	R
Wells Tract, Cape Fear River	Pender	Fee	6/6/2006	99.760	HQP
Thorp Tracts-Shelton Creek	Granville	CE	6/7/2006	52.200	HQP
Pitts Tracts-Tar River	Granville	CE	6/9/2006	27.310	HQP
Morton Tracts-Shelton Creek	Granville	CE	6/9/2006	5.890	HQP
Sherman Tract No. 1-Tar River	Granville	CE	6/19/2006	15.970	HQP
Sherman Tract 2-Tar River	Granville	CE	6/19/2006	28.110	HQP
Penny Tract-New Hope Creek	Orange	CE	6/22/2006	20.140	HQP
Grissom Tract-Barnes Creek	Montgomery	CE	6/30/2006	55.874	HQP
Dean Tract-Tar River	Granville	CE	7/18/2006	63.510	HQP
Slaughter Tract-Shelton Creek	Granville	CE	7/24/2006	35.250	HQP
Perry Tract-Cedar Creek	Franklin	CE	7/27/2006	162.441	HQP
Harris Tract-Tar River	Granville	CE	12/13/2006	38.820	HQP

Appendix G Local Watershed Plans (Phase III) Completed as of July 1, 2006

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]	Phase IV Completion Date and Comments (if applicable)
Lower Cape Fear [East]	03030007	140010	Northeast Cape Fear tributaries [80 sq. mi.]	Sept. 2000	- 100% complete - Many projects identified, including stormwater BMPs; several funded (and/or funding being sought)	Completed December 2002 [KCI]	WECO pursuing stormwater BMPs through Section 319 Grant Funding
Upper Neuse [East]	03020201	060010	Lake Rogers sub-watershed [17 sq. mi.]	Jan. 2002	- 100% complete - Limited opportunities for stream restoration	Dec. 2003 [No assessment consultant, but used Tetra Tech data]	
Upper Neuse [East]	03020201	050010	Ellerbe Creek [37 sq. mi.]	Jan. 2002	- 100% complete - Several restoration projects both initiated and completed	Jan. 2004 [used UNRBA data for this CU]	
Upper Neuse [East]	03020201	110010 and 110020	Upper Swift Creek [66 sq. mi.]	Fall 2003	- Phases I - III 100% complete - Phase IV underway - 4 EEP projects underway	June 2005 [Amec/Tetra Tech]	
Lower Catawba [Central]	03050101 and 03050103	03050101 – 170010 and 170020; 03050103-020020 to 020050	Charlotte-area Local Watersheds [6 HUs totaling 257 sq. mi.]	Feb. 2002	- Phases I - III 100% complete July 2003 - ID'd many stormwater BMPs/retrofits and ~50,000' stream restoration in 6 "focus areas" - 4 EEP projects underway	July 2003 [CH2M Hill]	July 2006 [Tetra Tech]- assessment of stormwater BMPs for non-traditional mitigation; may extend contract to evaluate preservation in CAT03
Lower Yadkin [Central]	03040105	010010 and 010020	Upper Rocky River – Dye Branch & Clarke Creek [77 sq. mi.]	Dec. 2001	100% complete Many potential projects & BMPs id'd, including ~ 80,000' stream restoration. Several projects in acquisition.	Feb. 2004 [CDM]	

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]	Phase IV Completion Date and Comments (if applicable)
Lower Yadkin [Central]	03040105	03040105 – 010030 to 010050 and 020010	Upper Rocky River part 2 [4 HUs; 200 sq. mi.]	Dec. 2002	Phases I through III are 100% complete. - NCSU/WECO has modified "Phase IV" contract to do education/outreach to landowners & local gov'ts in this LWP area [ongoing; contract ended 2/06]	Spring 2005 [Mactec]	Feb. 2006 [WECO and EEP field staff presentations to general public, landowners, town councils, and county commissions]
French Broad [West]	06010105	030020 to 030040	Mud Creek [3 HUs; 113 sq. mi.]	Sept. 2000	- 100% complete - Documented many non-point sources of impairment, degradation - Two EEP projects underway - 319 grant received for Ag BMPs	Jan. 2003 [No assessment consultant; relied in part on TVA IPSI work]	Received EPA funding for local *Watershed Coordinator* to implement plan
Pasquotank [East]	03010205	050010, 00020 and 040010	Pasquotank River [3 HUs; 370 sq. mi.]	Dec. 2001	- Final Plan development 100% complete - Some potential restoration, enhancement & preservation sites id'd; also, BMP opportunities	Feb. 2004 [DS Pro]	Resolving issue of mitigation needs associated with U.S. 64 before pursuing projects
Middle Neuse [East]	03020203	020040	EPA *Contentnea Grant* – Hominy Swamp Creek [16 sq. mi.]	1999	- Final plan development 100% complete - Several restoration projects & BMP site identified.	May 2004 [No assessment consultant; some support from NCSU & ECU]	
Middle Cape Fear [East]	03030004	020010, 030010 and 040010	Harris Lake tributaries; Kenneth & Parkers Creeks [180 sq. mi.]	Spring 2003	- Final plan development 100% complete - Several restoration projects & BMP sites identified	Sept. 2004 [Buck Engineering]	

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]	Phase IV Completion Date and Comments (if applicable)
Middle Cape Fear [East]	03030004	070010 & 070020	Cranes Creek [2 HUs; 101 sq. mi.]	Dec. 2001	- Assessment tasks completed May 2005 [Blue] - Several potential projects delivered to EEP Implementation staff - Final stakeholder summary & preliminary plan completed (WECO, 2005)	WECO report completed June 2005; additional planning efforts on indefinite hold pending annual updates to Op Strategic Plan	
Upper Cape Fear [Central]	03030002	060100, 060070, 060080	Morgan and Little Creeks [3 HUs; 75 sq. mi.]	Nov. 2002	- Final plan development 100% complete - Many restoration projects & BMP site identified and evaluated. - Phase IV contract underway to pursue Plan identified sites	Dec. 2004 [TetraTech]	Winter 2007 [Stantec]
Upper Cape Fear [Central]	03030002	010010 and 010030	Troublesome & Little Troublesome Creeks [69 sq. mi.]	Nov. 2001	- 100% complete - Many potential preservation, restoration, and BMP sites id'd - Phase IV contract underway to pursue Plan identified sites	February 2004 [TetraTech]	Winter 2007 [Stantec] (combined with Phase IV for Morgan and Little Creeks)
Upper Yadkin [West]	03040101	010080 to 010110 and 020010	K. Scott Lake – Lewis Fork & Warrior Ck. [5 HUs; 137 sq. mi.]	Nov. 2001	- 100% complete - ~ 60,000' of stream restoration id'd; negligible wetland opportunities - Ag BMPs targeted for CWMTF grant	June 2004 [TetraTech]	Landowner outreach by EEP staff planned for fall 2006 to spring 2007

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]	Phase IV Completion Date and Comments (if applicable)
French Broad [West]	06010108	080020	Bald Creek [18 sq. mi.] + additional HUs added for Phase IV [59 sq. mi.]	Fall 2003	- Phase III (Plan & Atlas) completed - Habitat degradation and straight-piping issues	Feb. 2006 [Equinox]	Spring 2007 [Equinox]
French Broad [West]	06010105	060020	South Hominy Creek [38 sq. mi.]	Fall 2003	- Phase III completed - Sediment, nutrients are key stressors - Phase IV in progress	Nov. 2005 [Buck Engineering]	Dec. 2006 [Buck Engineering]
Broad [West]	03050105	070020	Catheys Ck. [45 sq. mi.]	June 2003	- Phases I - III are 100% complete - Contract amendment to perform fast track LWP in Cove Ck.	Sept. 2005 [Earth Tech]	Landowner outreach performed by EEP staff
Middle Tar-Pamlico [East]	03020103	15 sq. mi. subwatersheds with HUs: 010020, 060020, 050030, and 080010	Conetoe to Chicod Cks. + Tar River [133 sq. mi. total]	Fall 2003	- Phases I – III 100% complete - Phase IV effort on hold indefinitely	Phases I – III completed Mar. 2005	Phase IV June 2005 [Blue]
Middle to Lower Neuse [East]	03020202	010010, 010020 and 010021	Initial: Core Ck. Now: Stoney Ck. [4 HUs, 29.8 sq. mi. total]	Fall 2003	- Phase I on Core Ck. 100% complete [KCI] - Decision made to move LWP to Stoney Ck. HUs beginning 2004 - Stoney Ck. Phases I & II 100% complete - Phase III near completion - Phase IV effort in progress	Phases I through III Dec. 2005	Phase IV scheduled for completion Fall 2006 [KCI]

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]	Phase IV Completion Date and Comments (if applicable)
Lumber [East]	03040203	030010 and 050010	Bear Swamp & Lumber River [52 sq. mi.]	Fall 2003	- Phase I 100% complete [Earth Tech] - Phase II detailed assessment 100% complete - Phase III 100% complete	Dec. 2005 [Earth Tech]	
Upper Cape Fear [Central]	03030003	070010, 070020 and 070050	Initial: Hasketts Ck. Now: Upper Rocky River & tribs [3 HUs; 177 sq. mi.]	Fall 2003	- Moved LWP from Hasketts Ck. (Asheboro area) to Upper Rocky River (3 HUs) in Siler City area due to great restoration opportunities and more favorable stakeholders - Phases I – III are 100% complete	June 2005 [TetraTech]	

Appendix H Local Watershed Plans Ongoing (Phases 1 – III) as of July 1, 2006.

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]
New [West]	05050001	030020 and 030030	Little River [77 sq. mi.] + Brush Ck. [34 sq. mi.] = 111 mi^2 total	Fall 2003	- Phase I completed Mar. 2004; only addressed Little River HU - Amended contract has re-initiated efforts; Phases II & III began Jan. 2006, to end spring 2007 - Preliminary project atlas by Fall 2006; Bledsoe Ck. Plan by Spring '07	Spring 2007 [WKDickson]
Hiwassee [West]	06020002	090020, 100040, 100050, and 170010	Hiwassee River [39 sq. mi.]	June 2005	- Phase II in progress - Working with Hiwassee River Watershed Coalition	Summer 2007 [Equinox]
Broad [West]	03050105	040040, 040060, and 040050	Cove Ck. [80 sq. mi.]	May 2006	- Fast track LWP in order to identify and acquire cold/cool stream mitigation needs will be pursued - Planning and assessment in progress - Landowner outreach in progress	May 2007 [EarthTech]
Upper Catawba [West]	03050101	080010 and 080020	Lower Ck. [98 sq. mi.]	Fall 2003	- Phase III almost complete - WPCOG to assist with stakeholder involvement and landowner recruitment - Caldwell Co. Pathways to host ad hoc committee to investigate grant funding opportunities	July 2006 [Mactec}
Upper Neuse [East]	03020201	050020	Little Lick Ck. [22 sq. mi.]	Fall 2004	- Phases I & II complete - Phase III ongoing - Demonstration projects underway	Dec. 2006 [Upper Neuse River Basin Assn.]
Upper Cape Fear [Central]	03030002	030010, and 040110	Travis, Tickle, & Little Alamance [51 sq. mi.]	Summer 2006	- Phase I underway - Stakeholder group being formed - Demonstration projects identified	Dec. 2007 [Piedmont Triad Council of Government]
Lower Yadkin [Central]	03040104	010010 and 010020	Mountain & Jacobs Cks. [68 sq. mi.]	Fall 2003	- Phase I tasks 100% complete - Final Phase I report from HDR delivered spring 2004	On hold; will re-evaluate. Possible re-start in 2007

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]
Middle Yadkin [Central]	03040103	050010, 050020, and 050040	Upper Uwharrie [3 HUs; ~ 135 sq. mi.]	Apr. 2005	- Phase I 100% complete - LWP effort on hold per 2005 Op Strategic Plan	Phase I completed Aug. 2005 [Buck Engineering] Further planning on hold
Lumber [East]	03040207	020010, 020030, 020040, and 020050	Lockwoods Folly [~ 50 sq. mi.]	June 2005	- Phase I was 100% complete by Dec. 2005 - Phase II more than 50% complete	Fall 2006 [Stantec]
Neuse [East]	03020204	Subwatersheds within 030020, 030050, 040010, and 050020 to 050040	Havelock [~ 60 sq. mi.]	June 2005	- Phase I activities ended Jan. 2006	On Hold [EcoScience]
Tar-Pamlico [East]	03020101	020010, 030010, and 030020	Fishing Ck. [69.7 sq. mi.]	May 2005	- Phase I completed Feb. 2006 - Phase II being scoped	Fall 2007 [WKDickson]
White Oak [East]	03020106 & 03030001	Currently undetermined	White Oak	Apr. 2006	- Phase I in progress - Secondary focus is to develop coastal watershed-specific mitigation strategy	Summer 2008 [ECU & NCED]

Apendix I 2005 - 2006 Monitoring Table

Project Name	Project Type	Basin	8 Digit Cataloging Unit	County Name	Stream (linear feet)	Wetland (acres)	Project status*
Cleghorn Creek	Stream	BROAD	03050105	RUTHERFORD	5167	0	Monitoring Year 1
Mary's Creek	Stream	CAPE FEAR	03030002	ALAMANCE	2096	0	Monitoring Year 1
UT to South Fork Creek	Stream	CAPE FEAR	03030002	ALAMANCE	6000	0	Monitoring Year 1
Cane Creek	Stream	CAPE FEAR	03030002	ALAMANCE	2277	0	Monitoring Year 1
Reedy Branch	Stream	CAPE FEAR	03030002	ALAMANCE	2400	0	Monitoring Year 2
Wells Creek	Stream	CAPE FEAR	03030002	ALAMANCE	6000	0	Monitoring Year 2
Dowd Dairy	Wetland	CAPE FEAR	03030005	BLADEN	0	658	Monitoring Year 8
Grove Creek	Wetland	CAPE FEAR	03030007	DUPLIN	0	549	Monitoring Year 1
Forest Hills	Stream	CAPE FEAR	03030002	DURHAM	3200	0	Monitoring Year 2
Sandy Creek	Stream/Wetland	CAPE FEAR	03030002	DURHAM	3000	3.2	Monitoring Year 3
Spring Valley Park	Stream	CAPE FEAR	03030002	GUILFORD	1409	0	Monitoring Year 3
Brown Bark Park	Stream	CAPE FEAR	03030002	GUILFORD	2748	0	Monitoring Year 2
Benbow Park	Stream	CAPE FEAR	03030002	GUILFORD	1752	0	Monitoring Year 2
Gillespie Golf Course	Stream	CAPE FEAR	03030002	GUILFORD	4627	0	Monitoring Year 3
Hillsdale Park	Stream	CAPE FEAR	03030002	GUILFORD	5963	0	Monitoring Year 3
Price Park	Stream	CAPE FEAR	03030002	GUILFORD	1776	0	Monitoring Year 5
Jumping Run Creek	Stream/Wetland	CAPE FEAR	03030004	HARNETT	4000	67	Monitoring Year 1
Hillcrest Bay	Wetland	CAPE FEAR	03030004	HOKE	0	15	Monitoring Year 1
Suck Creek	Stream	CAPE FEAR	03030003	MOORE	3000	0	Monitoring Year 3
Haw Branch	Stream/Wetland	CAPE FEAR	03030007	ONSLOW	10000	25	Monitoring Year 1
Caviness	Stream	CAPE FEAR	03030003	RANDOLPH	3065	0	Monitoring Year 3
Deaton	Stream	CAPE FEAR	03030003	RANDOLPH	5050	0	Monitoring Year 4
Sandy Creek	Wetland	CAPE FEAR	03030003	RANDOLPH	0	13	Monitoring Year 6
Flintrock Farm	Stream/Wetland	CAPE FEAR	03030002	ROCKINGHAM	3000	30	Monitoring Year 2
Haw River Swamp I	Wetland	CAPE FEAR	03030002	ROCKINGHAM	0	12	Monitoring Year 1
Haw River Swamp II	Wetland	CAPE FEAR	03030002	ROCKINGHAM	0	35.2	Monitoring Year 1
Payne Dairy	Stream	CATAWBA	03050101	ALEXANDER	6997	0	Monitoring Year 6
Zack's Fork Ck	Stream/Wetland/ Buffer/BMP	CATAWBA	03050101	AVERY	3900	0	Monitoring Year 1
Brown Branch	Stream	CATAWBA	03050101	CALDWELL	5400	0	Monitoring Year 4
Lyle Creek	Stream	CATAWBA	03050101	CATAWBA	3200	0	Monitoring Year 4
Freedom Park	Stream	CATAWBA	03050103	MECKLENBURG	4200	0	Monitoring Year 2
High Vista	Stream	FRENCH BROAD	06010105	BUNCOMBE	3500	0	Monitoring Year 4
Clear Creek	Stream	FRENCH BROAD	06010105	HENDERSON	1500	0	Monitoring Year 3
Kings Creek	Stream	FRENCH BROAD	06010105	TRANSYLVANIA	2300	0	Monitoring Year 1
Trout Cove Branch	Stream	HIWASSEE	06020002	CLAY	3900	0	Monitoring Year 1
Tulula Bog	Stream/Wetland	LITTLE TENNESSI	06010204	GRAHAM	9887	102	Monitoring Year 4
Juniper Bay	Wetland	LUMBER	03040203	ROBESON	0	697	Monitoring Year 1
Croatan Mitigation Bank	Wetland	NEUSE	03020204	CRAVEN	0	4035	Monitoring Year 4
Ellerbee Creek	Stream	NEUSE	03020201	DURHAM	6279	0	Monitoring Year 2
Benson Grove	Wetland	NEUSE	03020201	JOHNSTON	0	82	Monitoring Year 5
Howell Woods	Wetland	NEUSE	03020201	JOHNSTON	0	139	Monitoring Year 5
Whitelace Ck	Wetland/Buffer	NEUSE	03020202	LENOIR	0	22	Monitoring Year 1
Stillhouse Creek	Stream	NEUSE	03020201	ORANGE	1200	0	Monitoring Year 1
Wake Forest C.C.	Stream	NEUSE	03020201	WAKE	3400	0	Monitoring Year 1
Kentwood Park	Stream	NEUSE	03020201	WAKE	1400	0	Monitoring Year 2
Richland Creek	Stream	NEUSE	03020201	WAKE	300	0	Monitoring Year 2
Prestonwood G.C.	Stream/Buffer	NEUSE	03020201	WAKE	4100	0	Monitoring Year 2
Chavis Park	Stream	NEUSE	03020201	WAKE	2200	0	Monitoring Year 3
Smith/Austin Creek	Stream	NEUSE	03020201	WAKE	10000	0	Monitoring Year 3
Mocassin Creek	Stream/Wetland/ Buffer/BMP	NEUSE	03020203	WAKE	311	48.52	Monitoring Year 1

Apendix I 2005 - 2006 Monitoring Table

Hominy Swamp Creek	Stream	NEUSE	03020203	WILSON	2232	0	Monitoring Year 5
Brush Creek	Stream	NEW	05050001	ALLEGHANY	3590	0	Monitoring Year 5
Gatlin Swamp	Wetland	ROANOKE	03010107	MARTIN	0	125	Monitoring Year 1
Snow Creek	Stream	ROANOKE	03010103	STOKES	3000	0	Monitoring Year 1
ABC	Wetland	TAR-PAMLICO	03020104	BEAUFORT	4107	187	Monitoring Year 6
Louisburg (UT to Tar River)	Stream	TAR-PAMLICO	03020101	FRANKLIN	1970	0	Monitoring Year 1
Billy's Creek	Stream	TAR-PAMLICO	03020101	FRANKLIN	2101	0	Monitoring Year 1
Bear Swamp Creek	Stream	TAR-PAMLICO	03020101	FRANKLIN	1500	0	Monitoring Year 4
Daniels Farm	Wetland	TAR-PAMLICO	03020101	FRANKLIN	0	31.7	Monitoring Year 3
Grimesland Site	Wetland	TAR-PAMLICO	03020103	PITT	0	550	Monitoring Year 5
Hanging Rock Creek	Stream	WATAUGA	06010103	AVERY	3687	0	Monitoring Year 3
Jumping Run Creek	Wetland	WHITE OAK	03020106	CARTERET	0	4.4	Monitoring Year 5
Clayhill Farm	Stream/Wetland	WHITE OAK	03020106	JONES	9612	254	Monitoring Year 1
Camp Lejeurne USMC	Wetland	WHITE OAK	03030001	ONSLOW	0	3.5	Monitoring Year 8
Sturgeon City (Phase II)	Wetland	WHITE OAK	03030001	ONSLOW	0	2.5	Monitoring Year 3
Sturgeon City (Phase I)	Wetland	WHITE OAK	03030001	ONSLOW	0	3.5	Monitoring Year 6
Silas Creek	Stream	YADKIN	03040101	FORSYTH	4500	0	Monitoring Year 3
Shepherd's Tree	Stream/Wetland	YADKIN	03040102	IREDELL	14688	160	Monitoring Year 2
Back Creek	Stream/Wetland	YADKIN	03040105	MECKLENBURG	4117	3.3	Monitoring Year 1
Cato	Stream	YADKIN	03040105	MECKLENBURG	2200	0	Monitoring Year 2
Key Branch	Stream/Wetland	YADKIN	03040104	PASQUOTANK	4314	119	Monitoring Year 3
Beaver Creek	Stream	YADKIN	03040101	SURRY	4300	0	Monitoring Year 3
Purlear Creek II	Stream	YADKIN	03040101	WILKES	2800	3	Monitoring Year 1
Warrior Creek	Stream	YADKIN	03040101	WILKES	9200	0	Monitoring Year 2
Bugaboo Creek	Stream	YADKIN	03040101	WILKES	6600	0	Monitoring Year 2
Purlear Creek	Stream	YADKIN	03040101	WILKES	13000	4	Monitoring Year 3
Stone Mountain	Stream	YADKIN	03040101	WILKES	9590	0	Monitoring Year 6
*Monitoring year as of July 1, 2006					**257612**	**7983.82**	

EXHIBIT T

Annual Report to the North Carolina General Assembly

The NC Brownfields Program

October 2006

NCDENR

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

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Brownfields Property Reuse Act - Annual Report to the General Assembly October 2006

Executive Summary

This report to the General Assembly, required by the Brownfields Property Reuse Act (BPRA) of 1997 (G.S. 130-310.30 *et seq.*), describes the activities and status of the N.C. Brownfields Program for Federal Fiscal Year (FFY) 2006. The Department of Environment and Natural Resources (DENR) is pleased to report continued success and growth in the state's efforts to revitalize and safely reuse brownfields properties through the N.C. Brownfields Program and its partnership with the U.S. Environmental Protection Agency (EPA). The program continues to be a model of high return on public investment in the way relatively small sums of public funds spent leverage large sums of private investment in brownfields redevelopment. DENR receives no state-appropriated funds for the program. To date, all of the public dollars spent are federal funds from a cooperative agreement with the U.S. EPA. With these funds, the program has facilitated over $1.8 billion in committed private investment in brownfields redevelopment.

The history of the program is one of steady expansion over time to accommodate the needs of brownfields developers. Through an examination of historical increases in demand for the program, DENR recognized that the program must continue to add capacity to meet this demand. However, the available U.S. EPA funds for state brownfields programs are at their likely maximum and indeed may be cut in the future, depending on the federal budget. Therefore, this year DENR has proposed three additional positions for the program to be paid by initiation of the existing fee provisions to cover cost incurred by DENR and the Department of Justice. The positions were recently approved through the Government Operations committee of the legislature and are in the process of being created. However, as shown in details provided below, despite reaching a plateau for federal resources, the program managed to finalize more brownfields agreements than ever before as the program continues to streamline its processes and staff become further experienced.

Program progress for the one-year period from October 1, 2005 through September 30, 2006 can be summarized with the following statistics:

- Program applications received: 72 (a 24 percent increase over previous year)
- Brownfields agreements finalized: 23 (more than any previous year and a 43 percent increase over FFY 2005)

The total number of completed agreements since the inception of the program stands at 87. More important than the numbers themselves is what they represent: that the state brownfields agreement is a sought-after mechanism for breaking down barriers prospective developers encounter in obtaining financing on environmentally-impacted brownfields properties.

Background

Redeveloping brownfields properties has become increasingly popular as developers and local governments realize that these properties offer viable opportunities to bring economic growth, public health protection, jobs, and quality of life benefits to cities and rural areas. Brownfields are abandoned, idled or underutilized properties where environmental contamination hinders

redevelopment due to concerns about environmental liability. The BPRA gives DENR the authority to enter into brownfields agreements with prospective developers who did not cause or contribute to site contamination. The BPRA modifies the environmental liability barrier for prospective developers and motivates them to bring these properties and their hindrances to DENR's attention. DENR partners with the prospective developer to evaluate the possible risks associated with site contamination, and then negotiates a brownfields agreement that stipulates the steps necessary to make the site safe for a specific intended reuse. The result is a redevelopment project that works economically and also protects public health and the environment.

Because brownfields agreements afford prospective developers liability protection for as long as they make and maintain the site safely for its intended reuse, the specter of open-ended financial uncertainty is lifted. This economic shield allows prospective developers to obtain financing previously unavailable for these properties.

Thus, the BPRA allows DENR to distinguish between prospective developers of brownfields properties and the properties' polluters. Instead of mandating that the site be cleaned to current standards, the BPRA requires developers who did not cause or contribute to the contamination to make the site safe for reuse. The program must examine the risks to public health or environment posed by the site. Then, DENR determines what the prospective developer must do to ensure safe redevelopment. These actions can range from land-use restrictions to cleanup, or a mixture of both. In addition to holding prospective developers accountable to their agreements, DENR reserves the right to enforce against those parties responsible for the original contamination. The process is summarized in Table 1 below.

Table 1. Summary of the Brownfield Process

Step 1 – A prospective developer with a brownfields site that needs liability protection submits a letter of intent with basic site facts. DENR determines if the prospective developer and the property proposed for reuse are eligible under the BPRA statute.
Step 2 - DENR reviews existing site data to determine the risk posed by contamination at the site. If the data are insufficient to evaluate such risk, DENR advises the prospective developer on further site assessment to gather the necessary data.
Step 3 - DENR determines what actions are necessary to make the site safe for reuse and includes these actions in a draft brownfields agreement. The prospective developer pays statutory fee and negotiates/concurs with DENR on provisions in brownfields agreement.
Step 4 - The brownfields agreement is published with a 60-day public comment period.
Step 5 - The brownfields agreement is finalized after any public comments are considered and incorporated. The prospective developer uses the final brownfields agreement, which provides liability protection, to obtain financing for the project. Liability protection is contingent upon the completion of the actions required by the brownfields agreement. The brownfields agreement makes the site eligible for the brownfields property tax incentive.

The ancillary brownfields property tax incentive for prospective developers allows them to recoup funds spent on assessment and cleanup. The program motivates the market to recycle these sites to productive reuse, while preserving or reducing the use of pristine or undeveloped "greenfields" property. While the environmental benefits are obvious, most redevelopments also

create a significant number of jobs and put properties back on the tax rolls. This dual economic-environmental gain benefits the state, local government, and the brownfields developer. As these benefits have become better known, the program's popularity and demand for its services have increased significantly. In 2006, the program saw its sixth consecutive year of record-setting growth, represented at the end of FFY 2006 by 87 completed brownfields agreements and 107 others in the pipeline. More than $1.8 billion in private investment dollars have been committed to redevelop abandoned properties that blight urban and rural landscapes.

The overall result is a winning scenario for both the environment and economic development. Risk reductions and cleanups are achieved at sites that could have harmed the public or the environment, and prospective developers redevelop abandoned properties that once had little hope for productive reuse. The public benefits of job creation, improved quality of life in the surrounding neighborhoods, local tax base expansion and contribution to the general fund are other positive impacts.

The program also supports smart growth, sustainability and the One North Carolina Naturally agenda. Every project that reuses property, whether it is in an urban center or a rural area, preserves green space. Often it also reduces suburban sprawl and supports sustainable urban development. In a very real sense, for each brownfield redeveloped, a greenspace is saved. The properties that have received the 87 completed agreements are estimated to represent approximately 2,000 acres, and the other 108 in the pipeline represent another 2,500 acres. This is, in effect, acreage that is being recycled into reuse rather than greenspace that is being developed.

Program Status

The program is preparing to receive its third year of funding from the U.S. EPA under its State Response Program Cooperative Agreement authorized under the federal brownfields act. The program has hired a full complement of staff under its planned cooperative agreement budget. This amounts to 5.5 brownfields project managers, an environmental toxicologist, and an IT database professional. These staff members are all fully engaged in processing and tracking of brownfields agreements. However, federal funds are leveling, and additional capacity must come from other funding sources in the future.

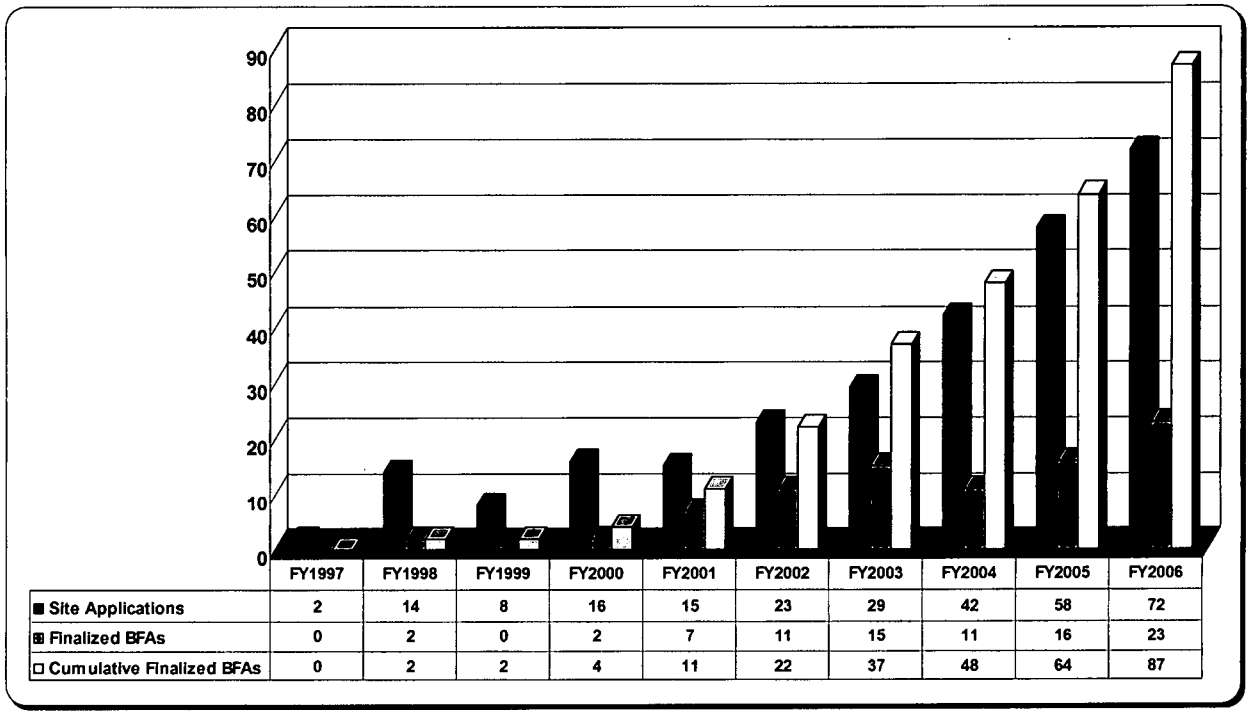
The program experienced its first occurrence of staff turnover since inception, as one project manager left state employment in July. However, a replacement project manager was hired and was working the following month. While the program did not lose much in time it did lose valuable experience. Despite this turnover and other resources challenges that decrease available staff hours, the program managed to *increase* its output of brownfields agreements. Gains in this regard are from continuing program efforts to add efficiencies in internal communication and agreement processing procedures. The program has thus made strides in productivity.

During FFY 2006, the program received a record 72 applications for projects seeking entry into the program and a brownfields agreement for a specific brownfields redevelopment project. This demand for program services compares to 58 applications received during FFY 2005, and represents 24 percent growth over last year's applications.

During FFY 2006, the program completed a record 23 brownfields agreements. This is an increase of 43 percent over last year's 16 agreement completions.

Table 2 below shows the progress during the program's history since the BPRA became effective in 1997. One can see the steady upturn in demand for the program in the number of brownfields applications and the number of cumulative brownfields agreements. There was a noticeable growth in completed agreements in 2000 when the program received sufficient EPA funds to hire its first full time staff person. Successive hires in years 2002 onward have lead to greater brownfields agreement processing capacity and outreach ability. Hence, there is clear growth in

Table 2. Program Progress Summary



	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006
■ Site Applications	2	14	8	16	15	23	29	42	58	72
▣ Finalized BFAs	0	2	0	2	7	11	15	11	16	23
□ Cumulative Finalized BFAs	0	2	2	4	11	22	37	48	64	87

applications into the program and completed agreements. At the same time, the number of finalized brownfields agreements annually is tending towards leveling off at the number that can be produced by the current staff resources. This year, that number is 23 agreements, which is an increase over last year. However, if that number is to increase along with the number of sites in the program, the staff capacity must expand as well. Although federal brownfields act resources have allowed an increase in the number of staff and a corresponding increase in the number of agreements completed, the demand for more agreements continues to grow. This demand threatens to outstrip the ability of the existing staff to provide services to brownfields developers to obtain a brownfields agreement in a timely manner. Hence, increased resources commensurate with the demand are key to the continued success of the program. Proposals for accomplishing this are discussed in greater detail in the Improving Effectiveness section. We anticipate continued increases in demand as the program's expansion serves to better educate

both the public and the development community about the benefits of brownfields redevelopment.

Local interest in brownfields continues to grow and local governments in this state continue to have great success in competing for EPA brownfields grant funds. The federal grants for brownfields assessment and cleanup totaling $1.45 million were awarded by the U.S. EPA to North Carolina local governments in 2006 (increased from $787,500 in 2005), including Durham, Forest City Land-of-Sky Regional Council, Navassa, Pembroke, Piedmont Triad Council of Governments, and Sparta.

More local governments received EPA brownfields grants than in any other state in EPA Region 4, and for the third year in a row these represent more federal grant funds than any other southeastern state. These local brownfields activities will serve to strengthen local interest in brownfields redevelopment and will certainly further increase interest in developers seeking brownfields agreements from DENR as these communities begin their local brownfields redevelopment efforts. Moreover, these grant funds dovetail with DENR's efforts to support brownfields redevelopment because the U.S. EPA continues to advise these grantees to gain entry into DENR's Brownfields Program in order to best utilize their grant funds. In this way, DENR's efforts are truly in concert with those of EPA and local government.

Outreach and Education

The program is largely market-driven in that prospective developers bring their sites to the program in order to break liability barriers for financing. One of the clear goals of the program is to educate the development community and local governments as to the program's existence and usefulness as a tool for both private and public redevelopment stakeholders. We have again done so this year and efforts to increase awareness of the program have clearly worked well with an ever increasing number of applicants and a strong award rate for them.

Through our staff person in Asheville, the program participated heavily in the Western North Carolina Brownfields Workshop sponsored by the Land-of-Sky Regional Council. Brownfields staff continue to conduct outreach at conferences and programmatic information booths and attend meetings held by EPA for local governments in order to meet and serve their interest in brownfields redevelopment. The program also has made concerted efforts to continually improve information offering on its web site (**www.ncbrownfields.org**) and receives consistent positive feedback on the informative nature of this important outreach component.

Cooperation with Local Government

The Brownfields Program has long held the strategy that brownfields redevelopment is largely a local issue, and therefore has made strong efforts to coordinate with local governments. The success of its cooperative agreement with the City of Charlotte that placed a DENR employee in city offices in May of 2002 was the culmination of much work with local governments. This provides direct face-to-face cooperation with the developers, lenders, and economic developers in that locality. This formula has enabled the completion of 32 brownfields agreements in the Charlotte area.

Seeking to duplicate this success in western North Carolina, in 2005 the program placed a project manager in the offices of the Land-of-Sky Regional Council in Asheville to work in much the same way. Several projects came into the program as a result of this placement, and it has continued to yield very positive results. The project manager has improved the program's local effectiveness there and developers have brought numerous projects to the program as a result. The manager is a participating member of the Land-of-Sky's Regional Brownfields Team and coordinates efforts with Land-of-Sky to encourage brownfields redevelopment in partnership with them. As part of the mutual benefits of such a relationship, the Land-of-Sky Regional Council continues to grow its federal brownfields grants such that to date they have received more federal grant funding than any other local government in the state.

Site Summaries

For brief descriptions of all brownfields projects in the program as of September 30, 2006, please see the Appendix. The table there is divided into three sections: active eligible projects, projects pending eligibility, and projects with finalized brownfields agreements.

Active eligible projects have been deemed eligible for a brownfields agreement under BPRA statutory criteria. These developers are working with DENR in some stage of data gathering, analysis or agreement negotiation. As of September 30, 2006 there were 107 active projects. Projects at this stage receive guidance from DENR as the developers gather the additional data needed to ensure protection of public health and the environment. Once research is complete, DENR analyzes the data, then drafts and negotiates the terms of the brownfields agreement with the prospective developer. At most of these sites, DENR is waiting for additional data requested by the program.

Projects pending eligibility are in the initial stage of the brownfields process as they apply for entry into the program. Sites in this category have yet to meet the requirements under the statute for eligibility for a brownfields agreement. For the sites in this category, the program has requested clarification or additional information from prospective developers regarding a site. Normally developers respond to these requests for clarification, the sites are usually deemed eligible and are then quickly moved into the active eligible category. As of September 30, 2006, 27 sites were in this category.

Projects with finalized brownfields agreements have completed the public notice phase of the brownfields process and either have a signed brownfields agreement or are waiting for the agreement to be executed. As of September 30, 2006, 87 projects were in this category, 23 of which were completed in the one year period from October 1, 2005 to September 30, 2006.

Improving Effectiveness

Throughout its existence, the Brownfields Program has provided a high economic development value for the federal funds it uses. The program's 87 brownfields agreements and 108 other projects in the pipeline represent in excess of $1.8 billion in committed private redevelopment investment. The high ratio to which the federal funds have been successfully leveraged into

private development dollars for brownfields redevelopment is just one measure of the effectiveness and efficiency of the BPRA.

While DENR continues to report that the program is highly effective, this year the program is also at a crossroads regarding resources and must address this issue for continued success in supporting the brownfields redevelopment economy of the state. By continuing to add needed staff over the last several years, the program has significantly increased its volume capacity for brownfields agreements during that time. The program has always recognized that encouraging brownfields redevelopment means that it must maintain the capability to respond quickly and provide brownfields agreements within timeframes that help developers make time critical business decisions. However, the trend lines discussed above clearly show that demand for brownfields agreements continues to grow, while future federal resources are anticipated to be level or slightly decreased. The program cannot serve the increasing numbers of applicants with the same effectiveness it traditionally has. Unless further resources are found, the program will develop a large waiting list, developer's transactions will be threatened, and applicants will hesitate to seek the program's services. Redevelopment opportunities will be lost.

The Brownfields Property Reuse Act requires that the program collect a $2,000 initial fee plus an additional fee equivalent to all costs to the Department. However, since inception, the brownfields program has defrayed the expenses of the program by using purely federal funds without cost to the Department. These funds have grown from $100,000 in 1999 to nearly $1,000,000 in recent years. Therefore, in the past the program could grow in capacity through these federal funds and not have to pass on any fees to the prospective developer other than the statutory $2,000 initial fee. The program purposefully maintained these fees as low as possible in order to encourage developers to come into the program. However, as federal funds have leveled off, the Brownfields Program continues to see growth in demand for its services. The program will employ the statutory authority for imposing fees to meet this challenge. Prospective developers will be bearing more of the resource burden for the program as a result.

The program believes strongly that increased cooperation between DENR and local governments has yielded significant benefits and is a trend it wants to continue to strengthen. DENR has recognized the effectiveness of placing a staff person in the City of Charlotte offices and has duplicated that effort by placing a staffer in the offices of the Land-of-Sky Regional Council. It will continue to look to similar cooperative efforts across the state as it grows in capacity.

Internally, as the program has more and more projects, its data management needs have increased commensurately. The program has been developing business automation application along with a project inventory tracking database. This system is being developed as a completely web-based tool consistent with DENR's initiative to share program information across programs and with the public via the Internet. The first module of this application has been developed, implemented and is being actively used by program staff, and is available to other DENR programs as well. The database has enhanced program efficiency and is assisting the program in tracking project status, as well as tracking land use restrictions placed on the properties.

Fund Status

The Brownfields Property Reuse Act Implementation Account authorized under the statute receives the $2,000 fee charged to prospective developers who enter the program and is to be used by DENR to defray the cost of the program. For the reporting year from October 1, 2005 through September 30 2006, the Brownfields Property Reuse Act Implementation Account had a beginning balance of $148,997, receipts from fees and interest of $46,247 and expenditures of $7,854. This yields an ending balance in the fund of $187,390. In previous years, this fund has not been large enough to be used for hiring staff. It is now large enough to be used for such purposes and will fit into DENR's plans for fee-funded positions for the program in the future in addition to additional outreach, software, database development needs.

Further Information

For additional information on the Brownfields Program and how it works, please visit our Web site at **www.ncbrownfields.org.**

APPENDIX

Status Summary of Brownfield Projects as of September 30, 2006

Appendix

Status Summary of Brownfield Projects as of September 30, 2006

Project Inventory is divided into three segments as follows:

Active eligible projects have been deemed eligible for a brownfields agreement under BPRA statutory criteria. These developers are working with DENR in some stage of data gathering, analysis or agreement negotiation.

Projects pending eligibility are in the initial stage of entering the program. Sites in this category have yet to meet the requirements under the statute for eligibility for a brownfields agreement.

Projects with finalized brownfields agreements have completed the public notice phase of the brownfields process and either have a signed brownfields agreement or are waiting for the agreement to be executed.

ACTIVE ELIGIBLE PROJECTS (107)

301 FAYETTEVILLE STREET
301 Fayetteville Street
Raleigh, Wake Co.
PD: Highwoods Properties

ABBOTT LABORATORIES
16900 Aberdeen Road
Laurinburg, Scotland Co.
PD: Marketta, LLC and QualPak, LLC

AIRPORT EXXON
3305 North Liberty St.
Winston-Salem, Forsyth Co.
PD: Mrs. Becky Flowers

ALLISON MANUFACTURING
930 Old Charlotte Road
Albemarle, Stanly County
PD: NCSC Properties, LLC

ALMONT SHIPPING – NEW
Hanover & Cowan Streets
Wilmington, New Hanover Co.
PD: Riverfront Holdings, LLC

AMERICAN CYANAMID
2200 Donald Ross Road
Charlotte, Mecklenburg Co.
PD: DRR of the Carolinas, LLC

AMERICAN TOBACCO HISTORIC DISTRICT
Blackwell & Pettigrew Streets
Durham, Durham County
PD: SBER Development Holdings, LLC

AMP FACILITY
1126 Church Street
Greensboro, Guilford Co.
PD: Church Street Medical, LLC

ARROW LAUNDRY & CLEANERS
4735 Monroe Road
Charlotte, Mecklenburg County
PD: Lake City Tractor Supply

ASHEVILLE ICE PLANT
90 Riverside Drive
Asheville, Buncombe County
PD: Ice Plant of Asheville, LLP

ASHEVILLE INDUSTRIES
1829 Hendersonville Road
Arden, Buncombe County
PD: Monarch Main LLC

ASHEVILLE MICA
75 Thompson Street
Asheville, Buncombe County
PD: T. R. Enterprises

ASHEVILLE WASTE PAPER
304 Lyman Street
Asheville, Buncombe County
PD: Daniel B. Sellers

ATHERTON MILL PROPERTY
2000-2140 South Boulevard
Charlotte, Mecklenburg Co.
PD: Edens & Avant Investments LP

AVONDALE MILLS
700 West Main Street
Burnsville, Yancey Co.
PD: Tyner Construction Co.

BAXTER OIL
619 Spartanburg Hwy
Hendersonville, Henderson Co.
PD: Jones Commercial Properties, Inc.

BENDIX HEAVY VEHICLE FACILITY
727 Bendix Drive
Salisbury, Rowan Co.
PD: DDSM Properties, LLC

BROMMA PROPERTY II
2285 Durham Road
Roxboro, Person Co.
PD: Daniel Talbert, Sr.

BURLINGTON TEXTILE MANUFACTURING
700 Quality Road
Fayetteville, Cumberland Co.
PD: CC of Fayetteville

BUSS COATING
PD: SALT Investments, LLC and S&S Holdings of Lenoir, LLC
511 Creekside Drive
Lenoir, Caldwell County

C.C. MANGUM
6105 Chapel Hill Road
Raleigh, NC
PD: CCM 54, LLC

CAL-TONE PAINTS FACILITY
5115 New Bern Avenue
Raleigh, Wake Co.
PD: Arbor New Bern Avenue, LLC

CAMPBELL-EVERHART SITE
Thurmond Road
New Bern, Craven county
PD: Brice's Creek Bible Church

CANAC KITCHENS
401, 403, 603, 607 Meacham Rd; and 2001 Speedball Rd., Statesville, Iredell Co.
PD: Canac Kitchens U.S. Limited

CANNON VILLAGE
1 Lake Circle Drive
Kannapolis, Cabarrus Co.
PD: Castle & Cooke Kannapolis, LLC

CAROLINA CREOSOTING CORP
Eastbrook Drive
Leland, Brunswick County
PD: E.G. Dale Enterprises

CEDAR CREEK
3468 Cedar Creek Road
Fayetteville, Cumberland Co.
PD: DAK Resins, LLC

CELANESE DRP
2300 Archdale Avenue
Charlotte, Mecklenburg County
PD: Easlan Capital of Charlotte

CHARLOTTE TANK TRUCK
Border Drive
Charlotte, Mecklenburg Co.
PD: WR Deal Holdings LLC

CHATHAM PARK
NC Hwy. 268
Elkin, Surry Co.
PD: Town of Elkin

CHOWAN VENEER COMPANY
259 Coke Avenue
Edenton, Chowan Co.
PD: Southern Bank & Southern BancShares

CLIFFSIDE MILLS PROPERTY
272 Main Street
Cliffside, Rutherford County
PD: Cliffside Mills LLC

COLOR-TEX INTERNATIONAL
2555 Hwy 29 North,
Salisbury, Rowan County
PD: North Carolina Warehouse LLC

CONITRON FACILITY
3761 Old Glenola Road
Trinity, Randolph Co.
PD: United Furniture Industries NC, LLC

CULTURAL ARTS CENTER
205 McDonald Street, and
Old Braswell Library
344 Falls Road
Rocky Mount, Nash County, NC
PD: Imperial Centre Partners, LP

DAYCO FACILITY
Location: 2150 South Main Street
Waynesville, Haywood County
PD: Haywood Advancement Foundation

DIXIE TRUCKING
3606 N. Graham Street
Charlotte, Mecklenburg Co.
PD: M.H.O.C., LLC

DOBLIN MASTERCRAFT
2128 S. Sterling Street
Morganton, Burke Co.
PD: Burke County

EASTWAY CROSSING PHASE I
3014 Eastway Drive
Charlotte, Mecklenburg Co.
PD: Blaine Lake, LLC

EASTWAY CROSSING PHASE II
3124 Eastway Drive
Charlotte, Mecklenburg Co.
PD: Blaine Lake, LLC

EDMUNDS MANUFACTURING
1016 Battleground Avenue
Greensboro, Guilford County
PD: Carroll Investment Properties, LLC

ELK MOUNTAIN LANDFILL
Elk Mountain Road
Woodfin, Buncombe Co.
PD: Town of Woodfin

ELLIS ROAD PROPERTY
603 Ellis Road
Durham, Durham Co.
PD: Carolina Biodiesel, LLC

FABRICTEX
376 Clarks Creek Road
Lincolnton, Lincoln County
PD: CCR Real Estate Holdings, LLC

FERGUSON ENTERPRISES
101 W. Tremont Avenue
Charlotte, Mecklenburg Co.
PD: Tremont Partners, LP

FIELDCREST BLANKET MILL
206 Warehouse Street
Eden, Rockingham County
PD: Riverwalk Development, LLC

GLEN RAVEN MILLS
114 Raven Circle
Kings Mountain, Cleveland Co.
PD: Consortium for Progress

GLENCOE MILL
2362 River Road
Burlington, Alamance Co.
PD: Historic Preservation Foundation of NC

GOLDTEX PLANT FACILITY
401 Patetown Road
Goldsboro, Wayne Co.
PD: Scouts, LLC

GREY HOSIERY MILL
Fourth & Laurel Streets
Hendersonville, Henderson Co.
PD: Old Mill Arts Committee

GUILFORD MILLS – HORNADAY
5644 Hornaday Road
Greensboro, Guilford Co.
PD: Tower Investments, LLC

HOLMES PROPERTY
450 & 498 Carolina Pines Avenue, and
500 Granite Road
Raleigh, Wake County
PD: South Saunders Redevelopment LLC

HOME INNOVATIONS SITE
Hwy 52 S & Ratliff Gin Road
Morven, Anson Co.
PD: Dan River Inc.

HUNT MANUFACTURING
2301 Speedball Road
Statesville, Iredell County
PD: Speedball Road LLC

INDUSTRIAL PLASTICS
Location: 4810 Clover Road, Greensboro,
Guilford County
PD: Standard Tools & Equipment

J & C DYE & FINISHING CO.
101 W. Grover Street
Shelby, Cleveland Co.
PD: Cornerstone Investment Group, LLC

JDS UNIPHASE (CREE)
3026 Cornwallis Road
Research Triangle Park, Wake County
PD: Cree, Inc.

LAROCHE SITE
500 Broome Road
Greensboro, Guilford County
PD: TBREC, LLC

LEARY BROTHERS STORAGE CO.
101 Virginia Road
Edenton, Chowan Co.
PD: Virginia Road, LLC

LOWES OF NORTH HICKORY
1430 2nd Street NE
Hickory, Catawba Co.
PD: Lowe's Home Centers, Inc.

MERCHANDISE MART
2500 E. Independence Boulevard
Charlotte, Mecklenburg Co.
PD: University Park Baptist Church

MIDTOWN MALL
401 S. Independence Road
Charlotte, Mecklenburg Co.
PD: Midtown Redevelopment Partners, LLC

MILLENNIUM FUND
923, 955, 967 Brookstown Avenue
Winston-Salem, Forsyth County
PD: The Millennium Fund

MITCHELLS FORMAL WEAR
115-145 Scaleybark Road
Charlotte, Mecklenburg County
PD: Crosland Centre Associates

NACCO MATERIALS
2040 Morganton Boulevard SW
Lenoir, Caldwell Co.
PD: SV Lim Holdings, LLC

NATIONAL TEXTILES
100 Reep Drive
Morganton, Burke Co.
PD: National Textiles, LLC

NEWCO FIBER PROPERTY
430 E. 36th Street
Charlotte, Mecklenburg Co.
PD: RM 36th Street Investors

NORTH COLLEGE STREET PROPERTY
900 N. College Street
Charlotte, Mecklenburg Co.
PD: SilverGirls, LLC

NORTH HILLS MALL
4217 Six Forks Road
Raleigh, Wake Co.
PD: North Hills Mall Ownership Org., LLC

NORTH TERMINAL
River Road
Wilmington, New Hanover County
PD: State Ports Authority

NU-TREAD TIRE CO.
545 Foster Street
Durham, Durham Co.
PD: Durham CREDO-1, LLC

OLD WNC FAIRGROUNDS
Location: Intersection of James Street and Mill Street
East Flat Rock, Henderson County
PD: Henderson County Public Schools

OMC/BOMBARDIER
185 Altec Drive
Burnsville, Yancey Co.
PD: Jemsite Development, LLC

PADGETTE LANE PROPERTY
105 Padgette Lane
Carrboro, Orange County
PD: Downtown Urban Ventures, LLC

PARK BOAT COMPANY
Intersection of W. Third and Van Norden Streets
Washington, Beaufort County
PD: Washington Center LLC

PELTON & CRANE PLANT
200 Clanton Road
Charlotte, Mecklenburg County
PD: Clanton Partners I, LLC

PTRP – CAMEL CITY CLEANERS/MGP
401 East Third Street
Winston-Salem, Forsyth Co.
PD: PTRP Holdings, LLC

PIEDMONT TRIAD RESEARCH PARK
Various properties east and south of downtown Winston-Salem
Winston-Salem, Forsythe County
PD: PTRP Holdings, LLC

POND ROAD LANDFILL
PD: Sonia Gribble
79 Pond Road
Asheville, Buncombe County

PRAIRIE PLASTICS
Location: 5210 Zmax Road
Harrisburg, Cabarrus County
PD: Speedway Motorsports, Inc

R.W. McCOLLUM SITE
107 West Meadowbrook Road
Greensboro, Guilford County
PD: Mr. David Cooke

REA ASPHALT PLANT
2701 Youngblood Street
Charlotte, Mecklenburg Co.
PD: South End Silos, LLC

REXNORD INDUSTRIES
1000 Chain Road
Morganton, Burke County
PD: ForSite Development

ROWE BOULIGNY
Mint Street & Morehead Street
Charlotte, Mecklenburg Co.
PD: NC DOT

SCHULER PROPERTY
US 23/74 & Hyatt Creek Road
Waynesville, Haywood Co.
PD: Waynesville Commons Retail Assoc, LLC

SCOTLAND MEMORIAL HOSPITAL
PD: City of Laurinburg
5.3 Acres
600 McLean Street
Laurinburg, Scotland County

SCOTT AVIATION
309/310 W. Crowell Street
Monroe, Union County
PD: City of Monroe

SHARON CLEANERS SITE
1504 E. 4th Street
Charlotte, Mecklenburg Co.
PD: Torrence Street Partners, LLC

SONOCO FLEXIBLE PACKAGING FACILITY
2203 Hawkins Street
Charlotte, Mecklenburg Co.
PD: Harris Murr & Vermillion, LLC

SOUTH ELM STREET
44 properties along South Elm St.
Greensboro, Guilford County
PD: City of Greensboro, Dept. of Housing and Urban Development

SOUTH END TRANSIT ORIENTED DISTRICT
2316 South Boulevard
Charlotte, Mecklenburg Co.
PD: Cherokee Investment Partners IV, LLC

SOUTH TERMINAL
3334 River Road
Wilmington, New Hanover County
PD: NC State Ports Authority

SOUTHSIDE PROPERTIES
2208 South Boulevard #2222
Charlotte, Mecklenburg Co.
PD: Atlantic Realty Partners, Inc.

SPARTA TEAPOT MUSEUM
48, 90, 114 West Whitehead St; and 111 West Doughton Street
Sparta, Alleghany County
PD: New River Community Partners

STRATFORD METAL FINISHING
807 S. Marshall Street
Winston-Salem, Forsyth County
PD: City of Winston-Salem

TALLEY LAUNDRY MACHINE CO.
1708 Fairfax Road
Greensboro, Guilford Co.
PD: SEF Group, LLC

TEXFI-NEW BERN
Bosch Boulevard
New Bern, Craven County
PD: MGR, LLC

TFI FINISHING BUILDING WEST
1200 Patterson Avenue
Winston-Salem, Forsyth Co.
PD: City of Winston-Salem

TOWN & COUNTRY RENT-A-CAR
5324 East Independence Boulevard
Charlotte, Mecklenburg Co.
PD: SRE North Carolina-2, LLC

TOWN OF ELIZABETHTOWN
415 Peanut Road
Elizabethtown, Bladen Co.
PD: Mayor Kenneth R. Kornegay

UNIVERSAL STAINLESS
10801 Nations Ford Road
Charlotte, Mecklenburg Co.
PD: ADH Properties, LLC

VIRGINIA MILLS PLANT
2703 Swepsonville-Saxapahaw Rd.
Swepsonville, Alamance Co.
PD: Virginia Mills Associates, LLC

WATER'S OIL
Highway 17 South
Washington, Beaufort Co.
PD: Bridge Harbor, LLC

WEST END VILLAGE
Properties on N. Broad, W. Fourth, W. Fifth, North Green, N. Spring Streets and Brookstown Avenue, Winston-Salem, Forsyth County
PD: Boulevard Centro, LLC

WILLARD LEAD FACILITY
101 New Bern Street
Charlotte, Mecklenburg Co.
PD: Harris Murr & Vermillion, LLC

WILMINGTON CONVENTION CENTER
525 Nutt Street
Wilmington, New Hanover Co.
PD: River Ventures, LLC

WILMINGTON SCRAP IRON & METAL
710 S. 6th Street
Wilmington, New Hanover Co.
PD: Indie Ice Company, LLC

PROJECTS PENDING ELIGIBILITY (27)

Almont-Old Wilmington Harbor
Blevins Oil – Andrews
Blevins Oil - Spruce Pines
Broyhill Furniture
Burlington Distribution Center
Carolina Counters
Cone Mills Granite
Cone Mills Plant
Felkél Oil
Golden Belt Mfg
Heatcraft Facility
Hughes Supply Property
Kilgore Oil
Knitcraft Manufacturing Facility
Knob Creek Property
Lexington Furniture -1
Lexington Furniture -2
Lexington Home Brands Plant
NC Equipment Company
MidCal Aluminum
Proctor Property
Raleigh Dialysis Center
Rankin Patterson
Smathers Oil
Solectron
Veach-Wilson Oil
Yorkshire Americas Plant

FINALIZED BROWNFIELDS AGREEMENTS (87)

(either in force or pending signature)

PD = Prospective Developer; RP = Responsible Party

A GREAT ESCAPE
1806 Funtime Blvd.
Winston-Salem, Forsyth County
PD: A Great Escape LLC

Prospective developer wants to purchase this approximately 5-acre abandoned amusement park (miniature golf and go cart track), which is located on edge of a former municipal landfill, refurbish it, and re-open it with in same use.

ABC ENGRAVERS
724 Montana Drive
Charlotte, Mecklenburg Co.
PD: Holden Business Park, LLC

Former engraving and plating facility with known chromium and chlorinated solvent contamination in soil and groundwater. PD intends to redevelop the site as an office complex.

ALAMAC AMERICAN
1885 Alamac Road
Lumberton, Robeson Co.
PD: Alamac American Knits, LLC

The former knit textile manufacturing facility has perchloroethylene contamination associated with former drycleaning operations. The PD is using the facility to also manufacture knit textiles but does not use perchloroethylene on the premises.

ALAMAC KNIT FABRIC
NC Hwy 125
Hamilton, Martin Co.
PD: Penco Products, Inc.

106-acre former textile manufacturing facility with known soil and groundwater contamination involving chlorinated solvents. Site is undergoing active remediation under NC DWQ. Intended reuse is as a non-polluting school locker-manufacturing facility that will employ some 350 workers.

ALCAN PACKAGING FOOD
1600 Westinghouse Blvd.
Charlotte, Mecklenburg County
PD: Alcan Packaging Food & Tobacco

Approximately 9-acre parcel in a industrial portion of Charlotte. The soil and groundwater are impacted from historic operations with n-propyl acetate and n-propyl alcohol. The PD intends to sell the property for redevelopment of industrial and commercial uses.

ALPHA MILLS
312 E. 12th Street
Charlotte, Mecklenburg Co.
PD: Crosland, Inc.

A 5.77-acre parcel that was historically a textile mill. Most recently the site was the former Consolidated Group Incorporated engraving facility. The site has known soil, groundwater, surface water, and sediment impacts from historical site operations. PD intends to redevelop the property for residential apartments with compatible commercial and retail development.

ANCHOR MILL
404 Church Street
Huntersville, Mecklenburg Co.
PD: Town of Huntersville

Abandoned textile manufacturing facility with known metals contamination in soil, and lead, chlorinated solvent, and petroleum hydrocarbon contamination in groundwater. PD intends to redevelop the 32-acre site as a mixed-use transit village that reuses the old mill building and adds new office, retail, and residential components.

ANDREX INDUSTRIES
180 Deaverview Road
Asheville, Buncombe Co.
PD: Milkco, Inc.

A 9-acre light manufacturing site formerly used as a textile production facility that operated a knitting, weaving and cutting business along with dry cleaning, shrinking and packaging of fabrics. Tetrachloroethylene groundwater contamination from drycleaning operations being remediated by RP with pump-and-treat system. PD is adjacent property owner, a milk processing and distributing plant. Initial plan is to use part of property for truck and trailer parking. Within 3 years they plan to demolish Andrex

	buildings and expand the Milkco Plant to double capacity within 8 years.
ARCHDALE MARKETPLACE 5801 South Boulevard Charlotte, Mecklenburg Co. PD: Eastbourne Investments, Ltd.	Approximately 13-acre parcel known as Archdale Marketplace Shopping Center. Groundwater is contaminated at the Property due to historical site operations by an A&P grocery store, Sno-White Cleaners, and K-mart auto service center. PD intends to redevelop the property for commercial and retail.
BALDOR ELECTRIC 3821 Barringer Drive Charlotte, Mecklenburg Co. PD: K. Brown Trust	Former electric motor and motor component assembly and manufacturing facility with solvent impacted soil and groundwater. PD intends to redevelop the property for use as industrial condominiums.
BOULIGNY SITE 2320 N. Davidson Street Charlotte, Mecklenburg Co. PD: NODA Properties, LLC	Approximately 3.5-acre parcel that was the former R.H Boulingy facility. The site has known groundwater impacts from chlorinated solvents. PD intends to redevelop the property for mixed-use development with commercial, retail, industrial and residential.
BROWN'S SOLVENT CO. 2935 Griffith Street Charlotte, Mecklenburg Co. PD: Estate of K. C. Bell	Former paint and solvent formulation facility with known solvent-impacted soil and groundwater. PD intends to initially renovate & reuse the existing structure for office/warehouse use, and ultimately raze the building and redevelop the site as a mixed office/retail complex in keeping with other redevelopment taking place in Charlotte's South End.
BURKHART CAROLINA 1703 Dabney Drive Henderson, Vance Co. PD: MPP Properties, Inc.	Former pickle processing and packing facility with chloride impacted soil and groundwater and minor solvent contamination in groundwater. PD intends to redevelop the property for commercial retail use. Simultaneously, the responsible party will implement groundwater remediation at the site under separate action. The PD's development will provide an impervious cap on the site, further assisting remedial efforts.
BURLINGTON – JAMESTOWN 6008 High Point Road Jamestown, Guilford Co. PD: Alberdingk Boley, Inc.	A 22-acre site containing a abandoned chemical formulation facility operated in support of Burlington Industries textile manufacturing operations. Known chlorinated and petroleum hydrocarbon contamination exists in site soil and groundwater and is being addressed under a consent order with DENR. PD intends to redevelop the property as polyurethane and polyacrylate emulsions manufacturing facility.
BURLINGTON MILLS 476 S. Main Street Mooresville, Iredell Co. PD: Cherokee Investment Partners, LLC	Abandoned textile manufacturing facility with known petroleum hydrocarbon contamination in soil and groundwater, and chlorinated solvent contamination in groundwater. PD intends to redevelop the site as an auto racing industry complex with office, flex, shop, and R&D space.
C. C. DICKSON 1520 South Boulevard Charlotte, Mecklenburg Co. PD: C. K. Land Development	A large mixed use development on a former industrial services firm adjacent to a manufactured gas plant. Ground floor retail and studio with Office and residential units above. Project is in vicinity of Camden Square and provides redevelopment to economically depressed area. Capping and land use restrictions regarding PAHs in soil and chlorinated solvents in soil and groundwater.

CAMDEN ROAD
1600 Camden Road
Charlotte, Mecklenburg Co.
PD: Harris Murr & Vermillion, LLC

Approximately 0.25-acre parcel in Historic SouthEnd of Charlotte. The site has known groundwater impacts from historical site operations as a gas station, tire repair, plumbing repair, and other uses. PD intends to redevelop the property for commercial and retail purposes

CAMDEN SQUARE
127 W. Worthington Avenue
Charlotte, Mecklenburg Co.
PD: Camden Square Associates

Abandoned Knitting and Printing Operations rebuilt into the "Design Center of the Carolinas". Development supported by the Wilmore Community as a vital redevelopment in an economically depressed area. Land Use restrictions for chlorinated solvents in groundwater.

CAMDEN SQUARE ADDITION
307 W. Worthington Avenue
Charlotte, Mecklenburg Co.
PD: Camden Square Associates

This project will add, by amendment, 4.5 acres to the first brownfields agreement completed in North Carolina, Camden Square, in Charlotte's South End redevelopment corridor. Contamination includes VOC- and SVOC-impacted soil and groundwater. Intended reuse is for mixed office and retail.

CAMDEN SQUARE AMENDMENT
W. Worthington Avenue
Charlotte, Mecklenburg Co.
PD: Camden Square Associates

By amending the Brownfields Agreement, this project served to add residential to the uses approved under the Agreement for a portion of the Property. Prospective Developer conducted additional environmental assessment to evaluate the potential for vapor intrusion in the area of planned residential use, and will install a vapor barrier beneath the slab-on-grade construction.

CAROLINA LOG BUILDINGS
Howard Gap Road
Fletcher, Henderson Co.
PD: Town of Fletcher

Former wood treating facility with known pentachlorophenol contamination in soil and groundwater. PD intends to redevelop the 30-acre site as the new heart of the Town of Fletcher to include various office and retail uses.

CAROLINA PRODUCTION FINISHING
105 Fairview Road
Asheville, Buncombe Co.
PD: Western Investments Co.

Former textile finishing facility with metals contamination in both soil and groundwater. PD intends to redevelop the site for warehousing and as a sewing operation. PD is in the process of reviewing DENR's draft brownfields agreement for this site.

CENTRAL PARK LANDFILL
Salem and Main Streets
Winston-Salem, Forsyth Co.
PD: Salem Recreational Fields

Former municipal landfill for the City of Winston-Salem. Site is 7.23 acres in size, and has been used as a city park since the 1950s. Low levels of chlorinated solvents, with no surficial soil contamination. PD intends to redevelop the site for soccer and a softball field for the adjoining Salem Academy and College so their current fields can be used for additional building space. A passive methane collection system will be installed prior to installation of the recreational fields.

CHEROKEE OIL
925 S. Summit Avenue
Charlotte, Mecklenburg Co.
PD: M & J Equities, LLC

Approximately 2-acre site was formerly a non-permitted hazardous waste storage facility and the site of an EPA removal action. Known arsenic, oil & grease, and solvent contamination exists in site soil and groundwater. PD intends to redevelop the property as a nightclub and parking facility.

CHESTER STREET PROPERTY
N. Chester Street
Gastonia, Gaston County
PD: City of Gastonia

Site contained former Carson Dry Cleaner located in the center city area of Gastonia. Property has known chlorinated solvents contamination in the soil and groundwater. PD intends to redevelop the site in commercial retail uses.

CITY WEST COMMONS
1506 West Boulevard
Charlotte, Mecklenburg Co.
PD: CMDC Westover No. 1, LLC

Dilapidated shopping center seized in a drug raid by the U.S. Dept. of Justice that has been approved for transfer to the city of Charlotte. Site had VOC and chlorinated solvent contamination in soil and groundwater. The City intends to transfer the property to a not-for-profit development corporation to redevelop the site as commercial retail shopping facility.

CONBRACO FACILITY
701 Matthews-Mint Hill Rd
Matthews, Mecklenburg County
PD: Carlton Development

The site is the former sediment and runoff basin for the former Conbraco Facility. The site was remediated in the EPA Superfund Program and given a "No Further Remedial Action Planned (NFRAP)" status. PD intends to redevelop the site as a medical office with other commercial uses.

COSTCO
PD: Costco Wholesale Corporation
14.8 acres
2838 Wake Forest Road
Raleigh, Wake County

The former Pepsi manufacturing and bottling company was located on this site until it relocated in 2002. The southeastern portion of the property covers about 2.6 acres of a former City of Raleigh 44-acre municipal landfill. The former Alcatel site is upgradient and a potential source of chlorinated solvents found in the groundwater. Prospective Developer plans to build a 149,000 SF Costco membership warehouse and a membership gasoline station outparcel on the property.

COTTON MILL SQUARE
801 Merritt Drive
Greensboro, Guilford Co.
PD: Carl Johnson

Former cotton mill and manufacturing facility with chlorinated solvent contamination in soil and groundwater. PD intends to redevelop the site in mixed commercial retail/office and residential.

CUMBERLAND SHOPPING CENTER
709 E. Market Street
Greensboro, Guilford Co.
PD: Project Homestead

Site of former shopping center and dry cleaners with chlorinated solvent impacted soil and groundwater. PD is a not-for-profit community development corporation. The PD has performed soil remediation activities and intends to redevelop the site with affordable residential housing.

DON CHRISTIAN PROPERTY
Main Street
Carrboro, Orange County
PD: Main Street Properties

This approximately 0.5-acre underused site had been in use as a bulk oil facility and gas station since the 1920s and is currently in use as an auto repair shop. The site contains petroleum hydrocarbon impacts in soil and groundwater. PD intends to reuse the property in commercial/retail use as part of the renovation and expansion of the existing, adjoining shopping center.

DYNATECH INDUSTRIES
2213 Toomey Avenue
Charlotte, Mecklenburg Co.
PD: R. G. Automation, Inc.

Former plating facility with metals-impacted soil and groundwater. EPA conducted soil removal activities at the site and has classified it as NFRAP. PD intends to redevelop the property for use as mixed office/retail complex.

EAST GANNON PROPERTY
102 East Gannon Avenue
Zebulon, Wake Co.
PD: Berkshire-Hudson Capital XI, LLC

This property consists of four parcels of land totaling 1.75 acres with four existing structures (former restaurant, current auto sales, auto service garage and hair salon). Site planned to be redeveloped into a stand-alone Eckerd Drug Store, with other surrounding complimentary retail tenants. Soil and groundwater are contaminated with petroleum constituents from above ground storage tanks used by previous gas station.

EAST PARK – BOYER
1607 E. 4th Street
Charlotte, Mecklenburg Co.
PD: Torrence Street Partners, LLC

Approximately 0.39-acre parcel that is a portion of the East Park Development Project, with known chlorinated solvent and gasoline contamination. PD intends to redevelop the site as a pedestrian urban infill multiple use development with commercial, residential, recreational and common open space. The site is part of the City of Charlotte's East Park re-development zone.

EAST PARK – CRAVER
1609 Elizabeth Avenue
Charlotte, Mecklenburg Co.
PD: Providence Road Land Partners, LLC

Approximately 0.65-acre parcel that is a portion of the East Park Development Project, with known chlorinated solvent and gasoline contamination. PD intends to redevelop the site as a pedestrian urban infill multiple use development with commercial, residential, recreational and common open space. The site is part of the City of Charlotte's East Park re-development zone.

EAST PARK – DOROTHY HALL
1423 E. 4th Street
Charlotte, Mecklenburg Co.
PD: 1427 East Fourth Street, LLC

Approximately 0.8-acre parcel that is a portion of the East Park Development Project, with known chlorinated solvent and gasoline contamination. PD intends to redevelop the site as a pedestrian urban infill multiple use development with commercial, residential, recreational and common open space. The site is part of the City of Charlotte's East Park re-development zone.

EAST PARK – JOAL REALTY
1534 Elizabeth Avenue
Charlotte, Mecklenburg Co.
PD: Joal Realty

Part of the 24-acre site encompassing a six-block area with known chlorinated solvent contamination. PD intends to redevelop the site as a model for urban infill mixed use development with an emphasis on the needs of pedestrians in an urban setting. The site is part of the City of Charlotte's East Park re-development zone located between the CBD and the historic residential neighborhoods of Elizabeth and Myers Park.

EAST PARK – KOSSOVE
1515 E. 4th Street
Charlotte, Mecklenburg Co.
PD: David Kossove

Part of the 24-acre site encompassing a six-block area with known chlorinated solvent contamination. PD intends to redevelop the site as a model for urban infill mixed use development with an emphasis on the needs of pedestrians in an urban setting. The site is part of the City of Charlotte's East Park re-development zone located between the CBD and the historic residential neighborhoods of Elizabeth and Myers Park.

ECUSTA
1 Ecusta Road
Pisgah Forest, Transylvania Co.
PD: Ecusta Business Development Centers, LLC

In its prime, this 540-acre site was the world's largest non-wood pulp and specialty paper manufacturing facility. Closed since late 2002, the site has known metals, caustic and solvent contamination. PD intends to re-start flax pulping operations and to market the pulp to paper manufacturers. PD may also undertake other uses of site buildings and facilities, including office space and possible use of excess wastewater treatment capacity by local municipalities.

ELECTRONICS COMPONENTS CORP.
513 S. Dudley Street
Burgaw, Pender County
PD: MoJo Properties, LLC

The approximately 5-acre site was first developed in 1966 as a facility for manufacturing small transformers. The property was idled in 1999. Site groundwater is contaminated with chlorinated solvents. Prospective Developer intends to reuse the site to manufacture sound equipment and other music related equipment.

ERWIN SQUARE
2211 Hillsborough Road
Durham, Durham Co.
PD: WP East Acquisitions, LLC

This approximately 6-acre property is a portion of a decommissioned former Burlington Industries site, other portions of which have already been redeveloped. There is known chlorinated solvent contamination in groundwater, and these impacts are being addressed under an approved Division of Water Quality corrective action plan. PD intends to redevelop the site in high-density residential use.

FISHBURNE EQUIPMENT
Airport Road
Arden, Buncombe Co.
PD: R. & P. Van Praag

Former metal fabrication and tobacco press manufacturing facility with suspected VOC contamination in soil and groundwater, based on detection of these compounds on adjoining, downgradient property, the former Buncombe County landfill. PD intends to redevelop the site for light manufacturing/assembly, warehousing, and public storage uses.

FLEMINGTON LANDFILL
US Hwy 421 North
Wilmington, New Hanover Co.
PD: Cape Fear Soccer Association

Site of a closed (1979), privately operated domestic and industrial solid waste landfill with VOC-impacted soil and groundwater. Intended reuse is for a soccer complex. This is the first former landfill property proposed for redevelopment under the NC brownfields statute, and the project's feasibility and technical challenges are being carefully evaluated.

FLORENCE MILL
186 Mill Street
Forest City, Rutherford County
PD: Florence Mill Redevelopment

Consisting of approximately 8.2 acres, the Florence (Cone) Mill is a former industrial mill that went out of business in 2001. The property also has a number of former mill warehouses that are vacant, as well as dry cleaner properties that are separate from the Cone Mill but included in Prospective Developer's submittal. Site impacts include petroleum contaminated soil and PCE impacts to site soil and groundwater. The PD intends to redevelop the property into a town hall, residences, restaurant, cinema, and pavilion with open space.

FLYNT FABRICS MILL PROPERTY
202 S. Nash Street
Hillsborough, Orange County
PD: Falk Companies

Former Flynt Fabrics, a textile dyeing and finishing operation, closed in late 2000. Potential, but not confirmed, contamination at the site includes asbestos, lead, peroxide, acetic acid, #5 fuel oil, dyes, salts, bleaches, cleaners, and oils. Prospective Developer desires to purchase the old mill and parking portion of the Property and redevelop it in residential use.

FONTAINE 5th WHEEL
3883 South Church Street
Rocky Mount, Nash County
PD: New Standard Corporation

This former metals fabrication/manufacturing facility has been vacant since 2001 and the property contains chlorinated solvent and petroleum contamination in soil and groundwater. Prospective Developer intends to reuse the three site buildings for metal stamping, fabrication and assembly operations.

FOOD LION
Waughtown & Sprague Streets
Winston-Salem, Forsyth Co.
PD: Food Lion, Inc.

A new large supermarket placed on the site of an abandoned grocery store in urban Winston-Salem. Project had strong community support as a quality of life issue as the community had no supermarket. Land use restrictions for chlorinated solvent contamination in groundwater. Brownfield Assessment determined

	the source to be nearby drycleaner.
FULFLEX, INC. PROPERTY 500 E. 7th Street Scotland Neck, Halifax County PD: Town of Scotland Neck	Approximately 20-acres property contains a vacant 100,000 SF building, the site of rubber product manufacturing until 2002. Fulflex is the responsible party and is currently working with the Aquifer Protection program to remediate a petroleum and chlorinated solvent plume. The town plans to make site improvements to attract a new manufacturing tenant, who will purchase the site at a reduced rate if they bring enough jobs to the area.
GATEWAY AT OLD SALEM 1198 S. Broad Street Winston-Salem, Forsyth County PD: Southeast Gateway Ventures	Project size is approximately 51 acres. The property is planned for mixed-use redevelopment including offices, commercial/retail space, residences, a YWCA , a private school and parking. Contamination is from a former Duke Power Plant substation (PCBs, PAHs in soil) and groundwater contamination from a number of sources, mainly petroleum but with a few chlorinated solvents. Cleanup of contamination at the Duke Power facility under the Inactive Hazardous Sites Program is almost complete. The Duke Power site comprises only a portion of this large brownfields redevelopment project.
GENERAL WOOD 1901 Wood Treatment Road Leland, Brunswick County PD: Leland Land, LLC	A 120-acre pole treatment facility (creosote, chromated copper arsenate (CCA) and pentachlorophenol (PCP)) under Chapter 11 bankruptcy that is currently under RCRA jurisdiction. PD's intent is to be able to distinguish old from new contamination and then continue with pole treatment (CCA and PCP only). Groundwater contamination mainly associated with creosote and petroleum. Metal and PCP contamination in soil.
GRIFFITH STREET PROPERTY 565 Griffith St. & 536 Jetton St. Davidson, Mecklenburg Co. PD: Five Six Five, LLC	Prior industrial operations resulted in soil and groundwater contamination by petroleum and VOCs. The PD plans to redevelop the facility as a charter school and as retail and commercial space.
GUILFORD MILLS W. Wendover Avenue Greensboro, Guilford Co. PD: Wendover Crossing, LLC	A 55-acre site containing former textile manufacturing facility with known VOC contamination in soil and groundwater. PD intends to redevelop the property in mixed retail uses. Public benefits include the creation of an estimated 500 jobs and substantial tax roles increases.
GUILFORD MILLS - W. MARKET STREET 4925 W. Market Street Greensboro, Guilford County PD: Kim's Greensboro Real Estate, LLC	A 19.8-acre vacant textile facility with ancillary buildings. Minor groundwater contamination associated with former underground storage tanks. Other non-UST contamination has been documented but information has not yet been sent to us. PD plans to use the site for general commercial property.
HAMILTON PROPERTY 216 Dunavant Street Charlotte, Mecklenburg Co. PD: Rush Family, LLC	As small, dilapidated property bought for the expansion of Cost Effective Maintenance Inc., a small business in the South End area of Charlotte. Expansion into this property allowed CEM to stay in Charlotte instead of move to suburbs. Land use restrictions for chlorinated solvent contamination in groundwater.

HILLSBOROUGH VENTURES
3011 Hillsborough Street
Raleigh, Wake Co.
PD: Hillsborough Ventures, LLC

Project involves redeveloping an area of parking lots and dilapidated, underused retail structures. Land use restrictions are in place for the petroleum hydrocarbon and chlorinated solvent contamination in soil and groundwater. PD intends to redevelop the property as mixed residential (private student dormitory for N.C. State University) and retail complex.

HILLSBOROUGH VENTURES ADDITION
3 Concord St, 24 McKnight Ave,
3101 Stanhope Dr
Raleigh, Wake Co.
PD: Hillsborough Ventures, LLC

Prospective developer added acreage to the footprint of original Hillsborough Ventures project, which involves redeveloping an area of parking lots and dilapidated, underused retail structures adjacent to N.C. State University for mixed residential (private student dormitory) and retail uses.

HISTORIC COTTON MILL
191 Riverside Drive
Asheville, Buncombe Co.
PD: RiverLink, Inc.

A 2.63-acre site formerly occupied by a cotton mill that operated from the 1900s but has been abandoned for many years. PD will conduct environmental assessment to determine if the site has any contamination. PD intends to redevelop the site in mixed commercial/retail and residential uses. This project is part of the Asheville French Broad Riverfront Plan.

HOME DEPOT – SOUTH BOULEVARD
4750 South Boulevard
Charlotte, Mecklenburg County
PD: CNR Properties, RLLLP

A 12-acre site currently occupied by a produce grocer and office rental store (1 acre), parking (7 acres), abandoned plant nursery (1 acre); the rest is undeveloped. Operations at adjacent Academy Steel Drum (ASD) from 1947-69 included the disposal of wastes and sludge from drums into pits/lagoons. The location of the lagoons and overflow drainage is suspected to have been partially on subject property. After ASD burned in 1969 the property was thoroughly re-graded with contaminated soil moved around. Elevated concentrations of lead, chromium, and PCBs in soil along with lead, 2-chlorophenol, and trichloroethene. PD plans to lease property to Home Depot for construction of a new Home Depot home improvement retail store.

KIDD LANE BATTERY DISPOSAL
3607 Kidd Lane
Charlotte, Mecklenburg Co.
PD: Joshua's Farm

Abandoned dairy farm with historical lead battery disposal operations. The approximately 1-acre parcel is adjacent to a 22-acre horse & animal farm area for the Joshua's Farm Operations. The site has a limited area with lead contamination in the surficial soils. PD intends to redevelop the area as a parking lot for the horse and animal farm operations.

LEWITH TEXTILE
3539 Wilkinson Boulevard
Charlotte, Mecklenburg Co.
PD: CMDC Wilkinson No. 1, LLC

Project involves the redevelopment of 50+ acres of abandoned and underused commercial and industrial property, including the former Lewith Textile facility. Contaminants include Petroleum hydrocarbon and chlorinated solvents in soil and groundwater. PD intends to redevelop the site as an industrial park for light manufacturing and warehousing/distribution.

MALLARD CREEK
3021 Driwood Court
Charlotte, Mecklenburg Co.
PD: Colonial Realty, Ltd.

A 21-acre site adjacent to former auto service station and chainsaw service center operations. Petroleum hydrocarbon and chlorinated solvent contamination in groundwater, sourced from underground and aboveground storage tanks releases on the adjacent site, has migrated onto the subject property. PD intends to redevelop the property as an apartment complex.

MODEL LINEN
PD: QUB Studios
120 West Lewis Street
Greensboro, Guilford Co.

The site was used to manufacture wood stoves and has low levels of chlorinated solvents in the groundwater. The site will be redeveloped as a photographic studio and other commercial space.

MTE HYDRAULICS
105 Chickasaw Road
(intersection of Chickasaw Rd. & Pearson's Turnpike (state Hwy 2663)
Gastonia, Gaston County
PD: Liberty Land, LLC

A 9.76-acre parcel in Gastonia. The site has known soil and groundwater impacts from historical site operations which included the manufacturing of hydraulic components and brake pads and other uses. Prospective Developer intends to upgrade the property for manufacturing purposes and additional commercial use.

OXFORD PRINTING
8 Industry Drive
Oxford, Granville Co.
PD: FHO Partners, LLC

Former textile printing and finishing facility with VOC contamination in groundwater. PD has conducted remediation of floor drain contents. PD intends to redevelop the site for industrial/distribution use.

PARKER HANNIFIN
12415 Capital Boulevard
Wake Forest, Wake Co.
PD: St. Ives 220 Commercial, LLC

A 33-acre former air control devices manufacturing facility with known Trichloroethene contamination in soil and groundwater resulting from former wastewater treatment operations. PD intends to redevelop the site in mixed commercial, retail, and office space uses. Responsible party is currently undertaking assessment and remediation within RCRA and N.C. Hazardous Waste Section oversight.

PILOT MILLS
1121 Haynes Street
Raleigh, Wake Co.
PD: Capital Way, Inc, & Hedgehog Holdings, LLC

Abandoned, condemned turn-of-the-century textile mill in Downtown Raleigh redeveloped into office space and preserved on the National Register of Historic Places. Land use restrictions for chlorinated solvent in groundwater and capping of mercury in soils.

PPD HEADQUARTERS
SW corner of Harnett and Front Streets
Wilmington, New Hanover County
PD: River Ventures, LLC

Approximately 8-acre site is a small portion of the ~ 40-acre Almont Shipping site that will all eventually be redeveloped once Almont moves to the Wilmington Port Authority. Almont has been a dealer in bulk commodities (saltcake, urea, potash, phosphate, etc.). The site as a whole has been in business for almost a hundred years, with warehouses currently on this property being built in the late 1970s. Prior to that time it was operated as a fuel depot with large ASTs located on the site. Contamination from the adjacent CSX property spill of 2.2 million gallons of diesel in 1982 is suspected, although a Phase II assessment is currently underway. PD intends to demolish the buildings on site in order to construct a 400,000 SF office building.

QUALITY METAL PRODUCTS
1111 Oates Road
Gastonia, Gaston Co.
PD: Wede Corporation, LLC

This 11- acre site contains an abandoned facility of 48,000 square feet formerly used as for metal fabrication. Parts cleaning activities resulted in solvent impacts to site soil and groundwater. PD intends to refurbish the facility for metal fabrication utilizing high-tech, non-contaminating methods.

REDMAN HOMES
Redman Road
Mebane, Orange Co.
PD: Barber & Ross Co.

Former mobile home manufacturing facility with metals and solvent contamination in soil and groundwater. PD has performed drum removal and soil remediation activities. PD intends to redevelop the site as a manufacturing facility to produce windows and doors.

REEVES SITE
8900 Research Drive
Charlotte, Mecklenburg County
PD: Linda Wolfe, Paul Ferrigan

Approximately 20-acres parcel that was historically the former Reeves Brother Facility that operated as a textile research and development laboratory. The site has known groundwater impacts from chlorinated solvents. PD intends to redevelop the property for commercial and light industrial uses.

RUSAK PROPERTY
3331 Griffith Street
Charlotte, Mecklenburg Co.
PD: CharMeck Board of Education

A 1.21-acre parcel that is adjacent to the Marie G. Davis Middle School. The site is contaminated from historical operations as a metal plating facility. The PD intends to incorporate the adjacent parcels into the new middle school construction. The brownfields parcel will be the plaza entrance.

SALEM UNIFORM
4015 N. Cherry Street
Winston-Salem, Forsyth County
PD: Winston Weaver Co. Inc.

2.53-acre site that has been vacant for many years. Was leased out from 1967-83 to Salem Uniform and from 1983-86 to Cintus Corporation who purchased the assets for Salem Uniform. During a Limited Site Assessment for petroleum USTs, high levels of PCE were discovered, probably from dry cleaning solvents. PD is currently leasing space, but would like to improve it for use for fertilizer storage and other commercial usage.

SANFORD WWTP
1351 Douglas Drive
Sanford, Lee Co.
PD: S. Wornnom & G. Perkins

Former municipal wastewater treatment plant site with petroleum impacted sewer sludge and metals impacts in site soils and low concentrations of volatile and semi-volatile compounds in groundwater. PD intends to redevelop the property in commercial use, including restaurant, retail space and a multi-screen movie theater.

SCHLAGE LOCK FACILITY
3551 North Wesleyan Blvd.
Rocky Mount, Nash County
PD: Community Resource Exchange

49.15 acre/196,000 square foot former manufacturing facility for lock/doorknob plating and assembly that used PCE as a degreasing solvent. Working with the Hazardous Waste Section as site is a RCRA TSD post-closure facility with active voluntary GW remediation system (Ingersoll-Rand is RP). Chlorinated solvents (PCE, TCE, 1,2-DCE, toluene and acetone are main constituents of concern in both soil and groundwater. PD is non-profit organization who needs loan in order to make improvements to former manufacturing facility in order to provide tenant space for non-profit organizations and possible outparcels for commercial retail businesses.

SINGER COMPANY
357 Amilite Way
Chocowinity, Beaufort Co.
PD: DMB NC 2, LLC

Abandoned rural manufacturing facility with lead and phthalate contamination in soil and groundwater. The brownfields agreement provides for partial site remediation. PD intends to redevelop the site with mixed retail and light industrial uses.

SMITH METAL & IRON
725 W. 4th Street
Charlotte, Mecklenburg Co.
PD: City of Charlotte

Former site of a scrap metal yard and of a waste cell created for the temporary disposal of impacted soil removed during the construction of the adjoining Carolina Panther's practice field. The waste in the cell has been removed, and minor chlorinated solvent impacts remain in site groundwater. PD intends to redevelop the site in high density residential with additional office, entertainment, and retail potential.

SMITH PROPERTY
309 Campbell Street
Shelby, Cleveland Co.
PD: Cleveland County

Project involves the redevelopment of an area occupied by seven underused and dilapidated residential homes with petroleum hydrocarbon and chlorinated solvent contamination in groundwater. PD has the support of local residents to reuse the site as a parking

	lot serving the Cleveland County Offices.
SOUTH TRYON STREET 2036 S. Tryon Street Charlotte, Mecklenburg Co. PD: Citiline, LLC	A 2.88-acre parcel near historic SouthEnd. PD intends to redevelop the property for commercial purposes such as office and showroom condominiums. Groundwater is contaminated at the Property due to historical site operations as industrial/warehouse storage.
SOUTHERN MANUFACTURING 1000 Seaboard Street Charlotte, Mecklenburg Co. PD: Fiber Mills, LLC	This 9-acre site located in inner Charlotte was a former asbestos tile manufacturing facility. Asbestos was discontinued in 1986, and the facility was closed in 1999. The site has asbestos contamination in soils. Intended reuse of the site includes an outdoor amphitheater, a technical business park, or a mixed-use development with industrial, commercial, and residential uses.
STATE FARM ROAD 660 State Farm Road Boone, Watauga Co. PD: Glen Wilde, LLC	Project involves the redevelopment of property occupied by a rural residence with chlorinated solvent contamination in groundwater and in a spring from an off-site source. PD intends to redevelop the site as a medical office complex.
STONEVILLE FURNITURE CO. 525 S. Henry Street Stoneville, Rockingham County PD: Community Resource Exchange	The site is a 22.5 acre historic furniture manufacturer that was idled in 2003. PD plans to redevelop the facility for light industrial, warehousing and flex space, thereby creating at least 200 jobs and greatly improving the tax base. The site has chlorinated solvent impacts to soil and groundwater.
TARTAN MARINE S. NC Hwy 177 Hamlet, Richmond Co. PD: Chair Specialist Co.	Former boat manufacturing facility with lead contamination in soil. Additional site sampling conducted by the PD has shown previous soil removal actions have left no health-based lead problems. PD intends to redevelop the site as a chair and table base manufacturing facility.
TERRELL MACHINE 3030 South Boulevard Charlotte, Mecklenburg Co. PD: SESCO Group-Carolina Bldg., LLC	Site of former textile manufacturing and gear box machining operations, property in Charlotte's South End district is being redeveloped with ground floor retail and office/residential above. Remedial actions to eliminate hot spot contamination included soil removal and groundwater pump and treat. Land use restrictions are in place to address chlorinated solvent contamination remaining in groundwater.
V F Site 2831 Wilson Park Road Statesville, Iredell Co. PD: Statesville Partnership LLC	This former textile plant has chlorinated solvent contamination as a result of on site drycleaning operations. The PD plans to upgrade the property for light manufacturing or distribution facility.
VANIER GRAPHICS 655 E. Meadow Road Eden, Rockingham Co. PD: A. C. Furniture Co.	Former printing facility with petroleum and chlorinated hydrocarbon contamination in the soil and solvent contamination in the groundwater. Developer intends to redevelop the site as a furniture assembly and upholstering facility.
WEST MOREHEAD 1310 W. Morehead Street Charlotte, Mecklenburg Co. PD: Addison Investments, LLC	Former automobile repair and maintenance facility with chlorinated solvent contamination in soil and groundwater. Developer intends to redevelop the site, to include both facility renovation and new construction for use as commercial office/retail.
WILSON LANDFILL US Hwy 301 South	This underused 14-acre site was formerly occupied by a wastewater treatment facility owned and operated by the City of

Wilson, Wilson Co. PD: Dillon Properties, LLC	Wilson. The site has known metals contamination in groundwater. Developer intends to redevelop in mixed commercial, warehousing, and residential uses.

EXHIBIT U

Report

to

the Honorable Michael F. Easley, Governor of the State of North Carolina

from the

Governor's Hazardous Materials Task Force

H. Douglas Hoell, Jr., Co-Chair Dempsey E. Benton, Co-Chair

December 14, 2006

December 14, 2006

The Honorable Michael F. Easley
Governor, State of North Carolina
The State Capitol
Raleigh, North Carolina

RE: Hazardous Materials Task Force

Dear Governor Easley,

Pursuant to your directive, the Hazardous Materials Task Force has undertaken an examination of the current regulations for hazardous waste storage facilities in North Carolina. On behalf of the task force, a report is hereby presented with recommendations to address the State's oversight of these facilities.

We believe the adoption of these proposals will improve public awareness, contingency planning, emergency response and overall on site management by the operators. It is noted that the investigation of the cause of the EQ fire in Apex is still underway, and therefore, the task force has not received a final report on this incident.

During the task force's review of hazardous waste facilities, a speaker urged the State to review the handling of chemicals and hazardous materials in the public schools. It is respectfully suggested that this concern be transmitted to the Department of Public Instruction for their review.

The task force appreciates the opportunity to work on this assignment, and are available for follow-up review of our report or further directions.

Respectfully submitted,

Dempsey E. Benton, Co-Chair

H. Douglas Hoell, Jr., Co-Chair

Task Force Members:
Dr. Leah Devlin
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(govhaz)

Report to the Honorable Michael F. Easley, Governor of the State of North Carolina, from the Governor's Hazardous Materials Task Force

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RECOMMENDATIONS OF THE GOVERNOR'S HAZARDOUS MATERIALS TASK FORCE

REGULATORY RECOMMENDATIONS

Regulatory Recommendation 1: Require commercial treatment, storage, and disposal facilities (TSDs) to provide financial assurance for cleanup and for off-site screening for potential contaminant migration in the case of a release of hazardous waste or hazardous waste constituents to the environment.

Explanation: The TSD would be required to provide financial assurance sufficient to cover the cost of cleanup after an event resulting in a release of hazardous waste or hazardous waste constituents to the environment. Funds available through the financial assurance mechanism (such as an insurance policy or bond) would be used by the State if the facility owner/operator failed to complete necessary cleanup and removal actions, or failed to pay legally assessed state or local costs. Financial assurance should also be immediately accessible to fund State actions to assess off-site contamination that could pose a threat to public health, safety or the environment.

Existing Requirements: Current regulations require financial assurance for closure and third party claims for damages from releases from commercial TSDs, but do not require financial assurance for cleanup costs or offsite screening following a release or hazardous waste or contaminants associated with hazardous waste from the facility.

Parties Affected or Costs: Commercial treatment, storage, and disposal facilities would be required to purchase insurance or provide letters of credit or other financial assurance mechanisms acceptable to the State that would ensure availability of funds.

Actions: Amend solid waste management statutes and authorize hazardous waste rules as needed.

Regulatory Recommendation 2: Require all TSD permit applicants to seek local government input on the contingency plan for response to emergencies at the proposed facility.

Explanation: Applicants for both commercial and noncommercial TSD permits should be required to provide the following information to the local government that has planning jurisdiction over the site of proposed TSD facility and to emergency response agencies (including the fire department, police department and Division of Public Health) that may be called on to respond to an emergency at the facility: 1. information on the nature and type of operations proposed at the TSD facility; 2. the properties of the hazardous waste that will be managed there; and 3. a copy of the TSD facility's draft contingency plan.

The TSD applicant should request comments from the local government and the emergency response agencies on the adequacy of the contingency plan and the availability of resources and equipment to respond to an emergency at the facility. The TSD applicant should be required to submit documentation from the local government and the emergency response agencies that they have received the facility information and contingency plan, their comments on the plan and each agency's verification of the role that it will play in responding to an incident at the facility. This documentation shall be submitted to DENR with the permit application. Renewal of the verification of roles should occur every two years and with permit modifications.

Existing Requirements: Permit applicants for TSDs are required to send a copy of the their contingency plan to local police departments, fire departments, hospitals, and state and local emergency response teams that may be called upon to provide emergency services.

Parties Affected or Costs: The requirement will call for more active engagement between TSD facility personnel and local emergency responders.

Actions to Accomplish: Amend solid waste management statutes and authorize hazardous waste rules as needed.

Regulatory Recommendation 3: Require that the commercial TSD facility operator make information on the types of waste on site at a commercial TSD accessible to DENR, to local government and to emergency response agencies from off-site in a form and manner to be approved by DENR.

Existing Requirements: Commercial TSDs are required to maintain waste profiles of hazardous waste managed at the facility and manifests of waste received and transported off site. These documents are maintained at the facility.

Parties Affected or Costs: Commercial TSDs would be required to maintain hazardous waste information off site and to ensure availability of the information to emergency response agencies in a form approved by DENR. Emergency response agencies will be affected to a degree determined by final requirements for disclosure and needed maintenance of data.

Actions: Amend solid waste management law and authorize hazardous waste rules as needed.

Regulatory Recommendation 4: Require applicants for a commercial TSD permit (both new permits and significant modifications of existing permits) to send notice of the permit application to every property owner within a ¼ mile radius of the proposed TSD facility boundary and provide documentation to DENR. The operator of a commercial TSD facility should also be required to provide information about the facility's contingency plan to property owners within a ¼

mile radius of the facility boundary by first class mail notice at the mid-point of each permit term.

Existing Requirements: Current rules require that an applicant for a commercial TSD permit provide notice to the public, provide a public comment period, and hold a public meeting on the permit as part of the application process. DENR also publishes a public notice regarding a draft permit, provides a public comment period, and holds a public hearing on a draft permit before a final permit decision is issued.

Parties Affected or Costs: Applicants for commercial TSDs will bear the costs of postage for letters sent to property owners.

Action: Amend solid waste management statutes and authorize hazardous waste rules as needed.

Regulatory Recommendation 5: Include changes in surrounding land use and population density as criteria in determining the frequency of inspections of commercial TSDs.

Existing Requirements: Commercial TSDs are required to be inspected a minimum of two times per month to a maximum of a full-time resident inspector. Factors used in determining the frequency of inspection include: volume and type of waste managed, type of treatment performed, uniformity or variety of waste types, and compliance history.

Parties Affected or Costs: Any additional inspections will result in an increase in costs to commercial TSDs in the form of fees paid to the Division of Waste Management.

Action: Amend solid waste management statutes and authorize hazardous waste rules as needed.

Regulatory Recommendation 6: Require commercial TSDs to have twenty-four hour, seven day a week site security by personnel meeting minimum hazardous waste and hazmat training or, alternatively, install an electronic security system meeting State standards.

Explanation: Full time security would allow earlier detection of hazardous or potentially hazardous conditions such as a fire. Early detection increases the likelihood that the situation can be contained and off-site damage avoided. The same benefits could also be achieved by use of an electronic security system that meets certain standards.

Existing Requirements: Current security regulations focus on preventing unauthorized entry onto a site rather than monitoring site conditions.

Parties Affected or Costs: Commercial TSDs will bear the expense of 24 hour, seven day a week site security or the electronic security system.

Action: Amend solid waste management statutes and authorize hazardous waste rules as needed.

Regulatory Recommendation 7: Revise the permitting cycle for commercial TSDs to five years.

Existing Requirement: Current federal regulations, adopted by the State, allow hazardous waste permits to be issued for a term not to exceed ten years.

Parties Affected or Costs: Costs to prepare renewal applications will be paid by applicants. Fees paid to the Division of Waste Management are $10,000 for storage and $15,000 for treatment.

Action: Amend solid waste management statutes.

Regulatory Recommendation 8: Direct DENR to conduct an evaluation of siting, design and operating requirements for commercial TSDs.

Explanation: A more in depth evaluation of the siting, design and operating requirements for TSDs is needed to identify other steps that would make operation of these facilities safer. The evaluation should include consideration of mandatory fire wall separation that could prevent or slow the spread of fire; the adequacy of off-set distances from property lines; and use of automatic fire suppression systems.

Existing Requirements: Before a commercial facility treats or stores any hazardous waste, it must obtain a detailed chemical and physical analysis of a representative sample of the waste. That information must be updated if the process that generated the waste changes, or if the commercial facility identifies a concern that waste specified on the accompanying manifest or shipping paper received does not match the waste profile or record at the facility.

Facilities managing reactive or incompatible wastes must take special precautions to prevent accidental ignition or reaction of the wastes. Separation distances and protection from sources of ignition such as sparks and heating sources are mandated. They are required to take precautions to prevent reactions that will generate extreme heat or pressure, fire/explosions or violent reactions, and those that would produce uncontrolled toxic mists, fumes, dusts, or gases that would threaten human health or the environment.

Current storage requirements state that containers holding waste that is incompatible with any waste or other materials stored nearby must be separated or protected by means of a dike, berm, wall or other device. Containers of ignitable or reactive waste must be located at least 50 feet from the facility's property lines.

Parties Affected or Costs: Any resulting enhancements to facility design will increase costs to TSD facilities.

Action: The Division of Waste Management, Department of Environment and Natural Resources, with assistance from the Office of the Fire Marshall, Department of Insurance, Division of Emergency Management, Department of Crime Control and Public Safety, and other stakeholders, conducts the evaluation to determine any needed regulatory changes.

Regulatory Recommendation 9: Develop and adopt operational requirements for 10-day transfer sites.

Explanation: There is a need to adopt minimum standards for sites where hazardous waste is temporarily stored. Most of the standards that apply to storage of hazardous waste do not apply to shipments of hazardous waste stored for no more than 10 days. Even though there are potential hazards (spills, releases, fires and explosions) associated with such shipments, an unlimited number of containers with multiple waste streams can be stored without any inspections, contingency plans or closure plans.

Existing Requirements: Transporters of hazardous waste may temporarily store manifested shipments at a location, including a commercial TSD, for no longer than 10 days without meeting any requirement other than having the manifest available.

Parties Affected or Costs: Costs of any new requirements and any permit fees will be paid by those operating 10-day transfer sites.

Action: Amend solid waste management statutes and authorize hazardous waste rules as needed.

Regulatory Recommendation 10: Provide Division of Waste Management inspection reports and compliance orders for hazardous waste facilities to local first response agencies and invite the local fire marshal to accompany DWM inspectors on at least one facility inspection each year.

Explanation: Local fire and police officials would benefit from a better understanding of these facilities and access to information on problems.

Existing Requirements: Although there are no specific requirements for sending copies of compliance actions, with respect to commercial hazardous waste facilities, to local government, DENR sends copies of compliance orders to county health directors. Penalties are also posted on the Division of Waste Management's web site. Many minor problems identified in a facility inspection are corrected at the time of inspection and never lead to a compliance action.

Parties Affected or Costs: Minor cost associated with providing notice to additional agencies.

Action: The Division of Waste Management can provide notice of compliance actions; share routine inspection information with first response agencies; and invite the local fire marshal to accompany DWM's inspector under existing authority.

Regulatory Recommendation 11: Clarify NC Fire Code provisions concerning hazardous waste, hazardous chemicals and hazardous material.

Explanation: Fire inspectors do not always have sufficient information to classify hazardous waste based on specific hazard. Existing hazardous waste rules require an initial analysis of the waste (prepared by the waste generator). If the waste is not a listed hazardous waste, it is characterized based on ignitability, corrosivity, reactivity or toxicity. Hazardous waste rules also address how waste is stored with respect to type of storage container and required separation of incompatible waste. It may not be possible, however, for a fire inspector to determine the characteristics of a particular waste from simple visual inspection of the container; it would be necessary to look at a waste manifest or waste profile to find the waste characteristics.

Parties Affected or Costs: Amendment of the Fire Code may result in new labeling requirements affecting hazardous waste generators; operators of hazardous waste TSD facilities and other facilities that use large quantities of hazardous materials.

Action: A) Request the Building Code Council to amend the Fire Code to include more specific provisions concerning identification and classification of hazardous waste, hazardous chemicals and hazardous materials in a way that will allow fire inspectors to identify risk. B) A committee, as referred in Appendix IV should be established to make recommendations to the Building Code Council.

Regulatory Recommendation 12: Authorize State Emergency Assets (State Medical Assistance Teams, Division of Public Health and others) to seek reimbursement for deployment costs, when activated and/or authorized through the State EOC for deployment.

Explanation: There are eight regional State Medical Assistance Teams (SMAT II teams) based at a Level 1 or Level II Trauma Center in each of the eight Regional Advisory Committees. These teams are comprised of physicians, nurses, EMS personnel, pharmacists and other healthcare personnel and are capable of operating a mobile hospital in addition to patient decontamination capabilities. There are also twenty-nine county SMAT III teams strategically placed throughout the state. These teams, comprised primarily by emergency response personnel, are associated with counties and Cherokee Tribal EMS. The SMAT III teams are capable of providing pre-hospital emergency care and patient decontamination capabilities. Type III teams generally respond to more local events that do not require significant medical surge capabilities. There is no mechanism for the SMAT teams to recover the cost of deploying in response to an emergency at a hazardous waste facility.

The Division of Public health, Epidemiology Section is staffed with medical epidemiologists, toxicologists, industrial hygienists, public health nurses, and public

health veterinarians. These professionals are often called on during emergencies and during follow-up to emergencies to assess potential exposures to toxic or hazardous substances, review sampling data from an emergency event, conduct surveillance for health symptoms or syndromes associated with emergency events, and to communicate with citizens and health and environmental agencies regarding health risks associated with emergency events.

Parties Affected or Cost: The owner/operator of the hazardous waste TSD would be required to cover the cost of mobilizing State emergency response medical teams in response to an incident at their facility. The provision would offset costs otherwise falling on state and local agencies.

Action: Enact statute that allows State, local and regional emergency response teams to bill the hazardous waste facilities for the cost associated with deployment of these resources.

Regulatory Recommendation 13: Require commercial hazardous waste TSDs to install wind monitors on site.

Explanation: Wind monitors would allow emergency personnel to more accurately determine wind direction for purposes of assessing risk to first responders and to nearby residents. Information on wind direction during the event could also be used to determine the likely direction of any off-site contamination by air-borne contaminants.

Existing Requirements: There is no requirement that hazardous waste facilities have on-site wind monitors.

Parties Affected or Costs: The operators of commercial hazardous waste TSDs would bear the cost of installing a wind monitor.

Action: Enact legislation and adopt rules as necessary to implement the requirement.

Regulatory Recommendation 14: Amend G.S. 132-1.5 to clarify that the data contained in a municipal 911 system is confidential and not a public record.

Explanation: The existing statutes classify data contained in a county 911 system as confidential and not a public record. Several municipalities own and operate 911 systems separate from the county system. Information in municipal systems should receive the same protection.

Existing Requirements: G.S. 132-1.5 already classifies this information as confidential for a county system. This change would simply give municipal systems the same classification.

Parties Affected or Costs: None.

Action: Amend G.S. 132-1.5

Regulatory Recommendation 15: Amend G.S. 132-1.5 to clarify that data contained in a county or municipal telephonic or electronic emergency notification system (or reverse 911) is confidential and not a public record.

Explanation: Local governments, such as the town of Apex, are in the process of establishing enhanced reverse 911 systems to alert citizens in the case of an emergency. There is concern about the growing number of unlisted telephone numbers (cell phone, Voice Over Internet Protocol telephone service, etc.). Citizens should be given an opportunity to register phone numbers and email addresses for use only for emergency notification purposes. Data entered into this database should be protected and not subject to the public records statutes, otherwise many citizens may be reluctant to register this contact information.

Existing requirements: The existing statute, G.S. 132-1.5 does not cover reverse 911 systems.

Parties Affected or Costs: None.

Action: Legislation to amend G.S. 132-1.5.

Regulatory Recommendation 16: G.S. 130A-293 should be amended to state that all land use requirements that are generally applicable are presumed to be valid and enforceable unless the Secretary makes findings of fact otherwise. These land use requirements would include all generally applicable provisions, such as setbacks, buffers, and stormwater requirements. We also recommend clarifying G.S. 130A-293 to protect local government's authority to adopt ordinances related to the siting of hazardous waste facilities to the extent those ordinances are based on public health, safety, or the environment. We recommend that the Governor's office seek the advice of local governments to determine whether additional or amended criteria are necessary to protect public health, safety and the environment.

Explanation: G. S. 130A-293 gives the Secretary of the Department of Environment and Natural Resources the authority to preempt any local ordinance that prohibits or has the effect of prohibiting the establishment or operation of a hazardous waste facility. Federal regulations allow local governments to regulate the siting of hazardous waste facilities to protect public health and the environment. We recommend amending the statute to include additional criteria regarding the surrounding land uses, population density, or other criteria associated with the health and public safety adjacent to proposed facilities.

Existing requirements: Local governments have the authority to zone property in order to protect the health, safety and public welfare of its citizens. G.S. 130A-293 allows the Secretary to override these ordinances relating to the siting of hazardous waste facilities.

Parties Affected or Costs: Commercial treatment, storage or disposal facilities required to comply with the local ordinances.

Action: Legislation to amend solid waste management statutes.

FUNDING RECOMMENDATIONS

Funding Recommendation 1: Develop a digital information exchange system for facilities that handle hazardous materials and toxic chemicals.

Explanation: The Committee proposes to replace the current paper-driven reporting systems for hazardous materials and toxic chemicals with a single digital information exchange system. The system would be able to digitally exchange facility reporting data for both the Tier II (hazardous materials) facilities and the Toxic Release Inventory (TRI) sites regulated by EPCRA. Another component of the system would be the DENR Facilities Registry System (FRS), which is a database of facilities regulated by DENR (such as permitted water and wastewater systems; facilities that have air quality permits; landfills and permitted hazardous waste facilities). The data exchange will provide a one-stop, real-time information source for all regulated hazardous material and toxic release sites and all sites where NCDENR has environmental permit authority. Through DENR's Facilities Registry System, information will be available on all permitted hazardous waste facilities. If new reporting requirements are imposed on hazardous waste TSDs, the system will become repository for that information.

Existing Requirements: Federal reporting requirements currently apply only to facilities that handle large quantities of hazardous materials and to facilities that release toxic chemicals to the environment in excess of threshold amounts. The required reports are generally submitted on paper. Existing reporting requirements do not apply to most hazardous waste TSD facilities because they generally fall under the reporting thresholds.

Parties Affected or Costs: The cost of $ 650,000 is detailed in the grant application budget and supporting paperwork for a U.S. Environmental Protection Agency (EPA) Data Exchange Challenge Grant which was submitted by NCDENR in November 2006. A copy of the budget is attached as Appendix VI. It is unclear whether EPA will approve the grant application. If approved federal grant funds would not be available until September of 2007 at the earliest.

Action: Seek state funding in the amount of $650,000 to accelerate the proposed exchange node grant so that it can be accomplished as soon as possible.

Funding Recommendation 2: Increase annual state appropriation in support of the State of North Carolina's seven (7) Regional Response Teams for Hazardous Materials Response.

Explanation: The legislature originally created six Regional Response Teams for Hazardous Materials Response. In FY 2000-2001, a seventh Regional Response Team

(RRT) was created without a corresponding increase in funding. An increase in continuing appropriations in the amount of $372,744.00 is required to account for the following: the operational costs of the seventh team; a 10% inflationary increase since the program's inception in 1996; a time phased replacement of vehicles and equipment; and increased cost of repairs and maintenance. Additionally, there are ongoing requirements for training and certification as well as participation in local and regional exercises to ensure quality response capability.

Currently, the North Carolina Regional Response Teams for Hazardous Materials Response receive $864,168.00 in annual state appropriations. The funding supports maintenance and operational costs for the seven RRTs. It also provides salary and benefits for two Emergency Management Officers who work in the Division of Emergency Management's 24-hour Communications Center. Additionally, a portion of the salary of the Division's designated attorney is paid from these funds. When the program was designed and implemented ten (10) years ago, no plan was developed or funded for the eventual replacement of necessary equipment.

Parties affected: The State of North Carolina has developed a necessary regional capability for hazardous materials response. The purpose was to provide a critically needed service that could not be afforded by every local government that might be affected by a hazardous materials incident. The State has built a quality program that must be maintained, or service to the regions and local governments will have to be reduced.

Action: Request an additional annual appropriation of $372,744.00 to adequately support North Carolina's seven Regional Response Teams for Hazardous Materials Response.

Funding Recommendation 3: Fund development of a plan for public health response to events with a potential for chemical, biological or radiological contamination, and related training for First Responders.

Explanation: The events of the recent Apex hazardous materials fire demonstrated that public health concerns were not sufficiently integrated into local and state agency response during and after the event. State and local agencies need to develop better protocols for addressing public health issues associated with any event that creates a potential for off-site chemical, biological or radiological contamination, such as a large hazardous waste spill or a chemical or radiological terrorist attack. It is important that a knowledge base and response recommendations be developed, taught to appropriate emergency personnel, and then overseen in case of a hazardous materials event.

To address these concerns, the Task Force recommends that the Division of Public Health implement the following 3-point plan:

- The Occupational and Environmental Epidemiology Branch develop a planning and training project entitled: "Model Plan for Responding to Environmental

Emergencies". The plan would include opportunities for training in all counties. To accomplish this, an 18 month contract for an industrial hygienist is recommended.

- The contractor will develop a statement of need for integration of existing environmental data around the 11 hazardous waste sites in NC. Following analysis, additional testing will be recommended including the establishment of background levels of selected hazardous materials. This will allow the state to assess the human health risks and vulnerabilities of these sites, and to focus future planning and training efforts.
- The contractor will initiate and facilitate a staff level workgroup of federal, state and local response partners for continuity, and to further develop "best practice" response protocols.

Action: Obtain funding in the amount of $144,155.00 for implementation of an 18-month project to develop baseline information; response protocols; and training program. (A more detailed project description and proposed budget is attached as Appendix VII.)

Funding Recommendation 4: Seek funding for the North Carolina Institute for Disaster Studies (NCIDS).

Explanation: The goal of the NCIDS is to establish a multidisciplinary, inter-institutional, basic and applied research program, applying state-of-the-art concepts and technologies to address urgent and important disaster research questions, and to assist the campuses within the UNC system to develop crisis management and crisis communications systems that will help individual campuses to better prepare in the event of a disaster. (A more detailed description of the proposed Institute is attached as Appendix VIII.)

Action: Seek funding in the amount of $300,000 for the start-up of the Institute.

Funding Recommendation 5: Fund research to study the emission and transport of pollutants from fires similar to the fire at the EQ facility in Apex and assess the human health and economic impacts of the fire.

Explanation: There are gaps in knowledge about transport of air-borne pollutants from events like the Apex fire. Additional information about emission and transport of pollutants from this type of fire would support better decision-making by emergency personnel and more effective environmental and public health response.

Action: Provide $75,000 for study of the fate and transport of air-borne pollutants from the fire and $50,000 for a study of the ecological impact of the fire.

Funding Recommendation 6: Provide State funding for the sustainability of the local and regional medical assistance teams (SMAT).

Explanation: To date, the SMAT teams have been funded primarily through federal grants. Federal funds have come through the NC Emergency Management funding for the

State Domestic Preparedness Equipment Program and the North Carolina Hospital Bioterrorism Preparedness grant. Federal funds have not been sufficient to fully fund the SMAT program, however, and hospitals and county governments have provided additional local funding to support the teams. There is no guarantee for future federal funding for this program. North Carolina needs to identify a means of supporting the teams in the future, since local monies will not be sufficient to sustain the program. A program summary is attached as Appendix V.

Action: Identify a source of State funding to support the State Medical Assistance Teams.

2007

ENVIRONMENTAL REVIEW COMMISSION

MARCH 13, 2007
APRIL 3, 2007

MINUTES

For Membership List and Statutory Authority,

See ERC minutes of October 9, 2006

MINUTES
ENVIRONMENTAL REVIEW COMMISSION
13 March 2007

The Environmental Review Commission (ERC) met on Tuesday 13 March 2007 at 11:00 a.m. in Room 544 of the Legislative Office Building. Representative Gibson presided.

The following members were present: Senators Albertson, Clodfelter, Kinnaird and Weinstein; and Representatives Gibson, Harrison, Justice, McComas and Warren. Also present was Representative Lucy Allen, Chair of the House Committee on Environment and Natural Resources. Mr. George Givens, Commission Counsel; Jeffrey Hudson, Assistant Commission Counsel; Jennifer McGinnis, Assistant Commission Counsel; Jennifer Mundt, Commission Analyst; Mariah Matheson, Research Assistant; Mary Watson, Substitute Commission Clerk: and Dot Waugaman, Commission Clerk; were also present.

On 7 March 2007, notice was sent to members and interested parties via e-mail and regular mail. A copy of the notice is included in the attachments to these minutes as **Exhibit A**. Copies of the agenda for the meeting and visitor registration sheets are included in the attachments as **Exhibits B** and **C**.

Representative Gibson called the meeting to order. He then asked Mr. George Givens to present his report and explain the agenda items. Mr. Givens announced that there would be two presentations of the analysis of a renewal energy portfolio standard for North Carolina by LaCapra Associates, the primary consultants on the recently completed study. The study was requested by the ERC in January of 2006 and presented to the ERC in December of 2007. The presentations will be made on Thursday, 15 March, at the Senate Agriculture and Environment Committee meeting at 11:00 a.m. in Room 544 of the Legislative Office Building, and at a joint meeting of the House Energy and Energy Efficiency Committee and the House Public Utilities Committee at 1:00 p.m., also in Room 544 of the Legislative Office Building.

Mr. Givens drew members' attention to a memorandum from Ms. Jennifer Mundt dated 13 March 2007 attaching two reports that have been received since the previous ERC meeting that had been placed on their desks (see **Exhibit D** for a copy of the memorandum). Both the reports have been designated "Read Only" reports. One report is on MTBE (see **Exhibit D-1**) and the other is on the Agricultural Cost-Share Program (see **Exhibit D-2**).

Mr. Givens next explained the other packet of information at members' desks. The first three items refer to the study of the costs associated with providing nutrient controls to offset point source and nonpoint source discharges of nitrogen and other nutrients (see **Exhibit E** for a copy of the contract without attachments, **Exhibit F** for a copy of the study methodology received at the end of February 2007, and **Exhibit G** for a copy of a bill draft, **2007 SBz-11 [v.7] (02/27), Extend Nutrient Offset Payment Sunset**.) One stakeholder meeting was held after the receipt of the study methodology on Friday 2 March 2007 to give interested parties an opportunity to comment on the methodology. The final report is not due to the ERC until May. The existing law will sunset on 1 September 2007; the proposed bill would extend the law for one year to 2008. Mr. Givens commented that he hopes the report will be available in time to make a recommendation in the 2007 session so the temporary situation will not have to exist for another year. Senator Weinstein moved to prepare the draft for introduction. The motion carried.

The next bill draft, **2007-RTz-4 [v.3] (02/06), Clarify Animal Waste Tech. Specialist Req.**, addresses a dispute between the Professional Engineer Board and Soil and Water Conservation District employees (see **Exhibit H**). All parties have agreed to the legislation, which will add to the list of exemptions from the definition of the practice of engineering services to include county employees or employees of the Soil and Water Conservation Districts. Representative Warren moved to prepare the draft for introduction. The motion carried.

Mr. Givens asked the Commission to approve the concept of a draft submitted by the Department of Environmental and Natural Resources (DENR) on the Mercury Switch Removal Program (see **Exhibit I**). The original legislation to require the removal of mercury from cars before they are shredded was passed in

2005. He commented that the proposal will address several changes to the program that were found to be necessary as the Division of Waste Management (DWM) carried out the legislation. Mr. Givens said the proposal is basically a rewrite of the 2005 legislation for technical more than for substantive reasons. The legislation does not consider any new or changed fees. He added that he has been advised by DENR that all the interested parties have accepted the legislation. Representative Gibson recognized Ms. Linda Culpepper, Deputy Director, Division of Waste Management, to comment on the proposal. Ms. Culpepper said DWM has worked with an agency stakeholders work group and the draft is a consensus product with one exception. That exception concerns marking vehicles that have had the mercury switch removed. For enforcement reasons and ease of observation, the Division feels strongly that the vehicles need to be marked. The processors do not want to have to physically mark each vehicle when the mercury switch is removed. Senator Clodfelter asked to be recused from voting on the issue. Representative Warren moved to prepare the proposal for introduction. The motion carried.

Mr. Givens next brought up the issue of the landfill moratorium for the Commission's consideration. He referred to the 31 January 2007 letter to the Secretary of DENR that requested the Department to forward their recommendations as a result of the study they have conducted over the past months as soon as possible (see **Exhibit J**), the 12 February 2007 letter in response from the Secretary (see **Exhibit K**), a letter dated 19 February 2007 also from the Secretary, enclosing a summary of the Department's specific recommendations for improved management of sanitary landfills in North Carolina (see **Exhibit L**), and a proposed draft bill (see **Exhibit M**). Mr. Givens asked the Commission to receive the documents for information. Staff is in the process of drafting a bill to reflect the Department's recommendations. Because of the timing, the bills will be introduced as public bills in both the House and the Senate, not as Study Commission bills. He asked Mr. Dexter Matthews, Director, Division of Solid Waste Management, to speak on the recommendations (see attachment to **Exhibit L**, Summary of Landfill Recommendations).

Representative Harrison asked if the prior proposed mega landfills would be impacted by the changes. Mr. Matthews said they would. He added that one of the issues they are considering is setting various implementation dates and how to phase the various requirements in. The new design requirements would affect any new facility that has not been permitted, but not those that are currently operating across the state. Representative Harrison asked if there would be an opportunity for agencies to comment in regard to repealing the State Environmental Protection Act exemptions for landfills. The language would follow the SEPA process, but it would apply to both public and private facilities.

Mr. Givens told Commission members that staff is still working on the franchise issue. There is a franchise procedure at the local government level. Extensive amendments were made to the statutes during 2006. Consideration is being given to enhanced review at the state level for landfills that have impacts over more than just a few counties or a single county in the state. The public lawyers (Attorney General, Institute of Government, and legislative staff) have been trying to figure out what to do about that situation. A decision about whether the fee structure should be part of the bill or a separate bill needs to be drafted.

Mr. Givens told Commission members that a letter from Mr. Peter Anderson, Executive Director of the Center for a Competitive Waste Industry, received today had been distributed to them (see **Exhibit N**). It relates to the recommendation for $3 million financial assurance.

Senator Clodfelter said the Commission on Health Services and the government lawyers are looking at whether the function of the enhanced state review over large landfills should be performed by an entity other than the Commission of Health Services.

Mr. Givens told the members of the ERC that his goal for the meeting was to cover the five items the Commission was directed specifically to report on: (1) nutrient offset, (2) animal waste technical specialist conundrum, (3) mercury switch, (4) solid waste management, and (5) cleanup of abandoned mobile homes.

In regard to the cleanup of abandoned mobile homes, there are two drafts that differ in the funding mechanism (see **Exhibit O** for a copy of **2007-RIxz-4 [v.8] (01/30)**, and **Exhibit P** for a copy of **2007-RIxz-12 [v.2] (02/16)**). Ms. Jennifer McGinnis stated that both bills would impose a tax on the retail sale of new and used manufactured homes. The tax would be $300 on a single wide manufactured home, and $300 per

section for multiple section homes. In both versions the revenue would be credited to a newly established manufactured home management account, which would provide grants to counties for cleanup of abandoned manufactured homes and technical assistance. The primary difference is that in Section 4 of the version designated as bill draft **2007-RIxz-4 [v.8] (01/30)**, page 8, line 19, there is a provision that would require proof of payment from the owner to the county in order for the county to issue a permit for a manufactured home. If they had no proof of payment, payment would need to be made to the county tax assessor before any permit could be issued for occupancy. The other version of the bill **2007 RIxz-12 [v.2] (02/16)** does not have the second tier collection system at the county level. Mr. Givens commented that the environmental policy is consistent in both of the versions. He added that he believes the financing part will be resolved in a Finance Committee meeting.

Mr. Givens drew attention to the four bills used for environmental technical corrections (see **Exhibit Q** for a copy of **2007-TAz-6 [v.3] (02/01), Amend Environmental Laws 2007**; **Exhibit R** for a copy of **2007-TAz-4 [v.4] (03/06), Amend Natural Resource Laws 2007**, **Exhibit S** for a copy of **2007-TAz-5 [v.3] (03/06), Amend Environmental Report Reqs. 2007**, and **Exhibit T** for a copy of **2007-TAz-3 [v.8] (02/05), Environmental Technical Corrections 2007**.) The bills are considered "works in progress" as staff finds corrections that need to be made throughout the session. At the present time, there are no substantive changes in the bills. Representative Harrison moved to prepare the four drafts for introduction. The motion carried.

Mr. Givens announced the staff would consolidate all the actions into a report and with the approval of the co-chairs, will submit the report on the members' behalf.

The meeting adjourned at 11: 55 p.m.

Representative Pryor Gibson, Co-Chair, Presiding

Senator Charlie Albertson, Co-Chair

Dot Waugaman, Commission Assistant

Senator Daniel Clodfelter, Co-Chair

LIST OF EXHIBITS

Exhibit A Notice of Meeting dated 7 March 2007

Exhibit B Agenda of Meeting

Exhibit C List of Attendees

Exhibit D Package of Reports with memorandum from Jennifer Mundt dated 13 March 2007

D-1 Final Report on Session Law 2006-93 (MBTE ban) dated 1 March 2007

D-2 Report entitled Report to the Environmental Review Commission and Fiscal Research Division on Water Quality Accountability for the Agricultu4re Cost Share Program with a transmittal letter dates 9 February 2007

Exhibit E Contract for a Study of the Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Dischargers of Nitrogen and Other Nutrients, dated 8 February 2007

Exhibit F Study Methodology for A Study of the Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients, dated February 200,7 from Research Triangle Institute

Exhibit G Draft Bill, 2007-SBz-11 [v.7] (02/27), Extend Nutrient Offset Payment Sunset

Exhibit H Draft Bill, 2007-RTz-4 [v.3] (02/02), Clarify Animal Waste Tech. Specialist Req.

Exhibit I Draft Recommendations from the Department of Environment and Natural Resources to the Environmental Review Commission on Amendments to the Mercury Switch Removal Program, dated 9 March 2007

Exhibit J Letter to the Secretary of DENR from the Co-Chairs of the Environmental Review Commission requesting recommendations as a result of the study conducted over the past months, dated 31 January 2007

Exhibit K Letter to Co-Chairs of the Environmental Review Commission from the Secretary of DENR in response to the 31 January letter dated 12 February 2007

Exhibit L Letter to Co- Chairs of the Environmental Review Commission from the Secretary of DENR enclosing a summary of DENR's specific recommendations for improved management of sanitary landfills in North Carooina dated 19 February 2007

Exhibit M Proposed Draft Bill, A Bill to be Entitled the Solid Waste Management Act of 2007

Exhibit N Letter to Senator Clodfelter and Representative Gibson from Mr. Peter Anderson concerning the recommendation for a $3 million of financial assurance, dated 13 March 2007

Exhibit O Draft Bill 2007-RIxz-4 [v.8] (01/30), Cleanup of Abandoned Manufactured Homes

Exhibit P Draft Bill 2007-RIxz-12 [v.2] (02/16), Cleanup of Abandoned Manufactured Homes

Exhibit Q Draft Bill 2007 TAz-6 [v.3] (02/01), Amend Environmental Laws 2007

Exhibit R Draft Bill 2007 TAz-4 [v.4] (03/06), Amend Natural Resource Laws 2007

Exhibit S Draft Bill 2007 TAz-5 [v.3] (03/06), Amend Environmental Reporting Reqs. 2007

Exhibit T Draft Bill 2007-TAz-3 [v.8] (02/05), Environmental Technical Corrections 2007

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

EXHIBIT A

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7 March 2007

TO: Members of the Environmental Review Commission
Interested Parties

FROM: George F. Givens, Commission Counsel
Dot Waugaman, Commission Clerk

RE: **Notice of Commission Meeting**
Additional Information

COMMISSION MEETING:

The Environmental Review Commission (Commission) will meet at 11:00 a.m. Tuesday 13 March 2007 in Room 544 of the Legislative Office Building in Raleigh. At this meeting the Commission will hear reports and recommendations from state agencies, consider recommendations to the 2007 Regular Session of the General Assembly related to studies for which the Commission is responsible, and attend to other matters.

This meeting is expected to last one hour and to adjourn at 12:00 p.m. No public staff planning meeting will be held in connection with this meeting. A draft agenda will be available on Monday 12 March 2007.

ADDITIONAL INFORMATION:
If you have questions related to the Commission, you may contact the Commission Counsel or other Commission staff at (919) 733-2578.

EXHIBIT B

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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AGENDA
11:00 a.m. Tuesday 13 March 2007
Room 544 Legislative Office Building
Raleigh, North Carolina

1. Call to order
   Representative Pryor A. Gibson, Presiding

2. Introductory remarks by Cochairs
   Representative Pryor A. Gibson
   Senator Charles W. Albertson
   Senator Daniel G. Clodfelter

3. Report to the Commission and explanation of agenda items
   George F. Givens, Commission Counsel

4. Consideration of legislative proposals

5. Commission discussion and announcements

ADDITIONAL INFORMATION:

Persons having questions about the Commission meeting or other matters related to the Commission may contact Commission Counsel or other Commission staff at (919) 733-2578 or may visit the Commission's website at http://www.ncleg.net/gascripts/DocumentSites/browseDocSite.asp?nID=12

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — March 13, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Dexter Matthews	NC DENR- Waste Management
Butch Gunnells	NC Beverage Ass
Steve Wall	DENR
ED Mussler	DENR- DWM
Emily Atkinson	Capstat
Mike Abraczinskas	NCDAQ
Elizabeth Self	NC DENR
Vernon Cox	DENR-DSWC
Cindy Taylor-Lisenby	ACPC
Lynn Armstrong	ACPC
Shana Peale	ACPC

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — March 13, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Kim Wilson	ACPC
Charlotte Jesnack	NC DENR
Cathy Akroyd	NCDENR - DN. of Wast Mgmt.
MIKE BRAILSFORD	DENR - DWM - HWS - MSRP
Linda Culpepper	DENR - DWM
DAVID MICKEY	BREDL
Susan Jane	CITIZEN
Ellen Lorscheider	DENR - DWM
Jennifer Willis	Wake Co Govt
KATIE HALL	president Pro Tem's office
TOM BEAN	NRDC - Environmental Defense NC Sustainable Energy Assoc.

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — March 13, 2007
Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Jennifer Bumgarner	Governor's Office
Jon Carr	Jordan Price Law firm
Mark Wilder	DSWC - DENR
Paul Meyer	NCACC
Gary Harris	NC Petroleum Marketers Assoc.
Doug Howay	"
KIRSTIN PETERSEN	
Alice B. Underhill	NC House Rep - Dist 3
Joe McClea	McClea Consulting
Larry Shirley	State Energy Office
Lori Ann Harris	CATA

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — March 13, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Chris Wagner	NC Sierra Club
Dr. Holman	Nicholas Institute / Duke Univ
Wendy Kelly	HMW
BRUCE THOMPSON	PARKER POE
SCOTT GARONER	DUKE ENERGY
George Everett	Duke Energy Carolinas
Kathy Hawkins	PE
Steve Metcalf	NCPC
ANTHONY ALLEN	NCACC
Tim KENT	NC Assn of Realtors
Rick Zechini	*

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — March 13, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Thomas Moore	Edwisten & Wells
Bill Hopper	Granville Cnty
Seth Wells	Rep. McComas
Nicc Tosco	Sen. Cladfelter
Chris Roof	MRR Southern
DAVID BARNES	Poyner Spruill
Alastair Macaulay	NCMSA
Mike Brincher	CDM
Fred Allen	NC Aggregates Assn.
Bill Schrum	Republic Services
Chris Anderson	
Phil Carter	Waste Industries
	NCPC

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — March 13, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
	P.O. Box 97 Greenville, N.C.
Jimmy D. Woodie	Municipal Engineering
Wayne Sullivan	MESCO
Lu-Ann [illegible]	MCIC
Bob Steelman	NCFA
Tommy Stevens	NCPC
Kim Hibbard	NCLM
Anita Watkins	NCLM
Lisa Martin	NC Home Builders Assoc.
[illegible]	Progress Energy
Cam Cover	BPM PL
[illegible]	UNC-CH

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — March 13, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
S Phillips	Rep Samuelson's office
Norbert Hector Jr	MRR Southern
Dan Moore	"

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — March 13, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Sharon Stroud	State Energy Office

EXHIBIT D

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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13 March 2007

MEMORANDUM

To: Members of the Environmental Review Commission
From: Jennifer Mundt, Commission Analyst
Re: Reports to the Commission

The following reports have been submitted by the Department of Environment and Natural Resources (DENR) to the Environmental Review Commission (Commission) since the last reports distribution on 23 January 2007. These reports are designated as a read only and are attached to this memorandum:

1. Study of the feasibility and advantages of a coordinated regional approach for the phaseout of methyl tertiary butyl ether (MTBE) as an additive to motor fuel in the southeast region of the United States. 1 March 2007. Authority: S.L. 2005-93, Sec. 4.

2. Annual report of the Agriculture Cost-Share Program for Nonpoint Source Pollution Control. 31 January 2007. Statutory Authority: G.S. 143-215.74(e).

Please contact George Givens, Jeff Hudson, Jennifer McGinnis, Jennifer Mundt, or Mariah Matheson at (919) 733-2578 if you have any questions or comments.

EXHIBIT D-1

Final Report to the
Environmental Review Commission

A Regional Approach to the Phaseout of MTBE in the Southeast

March 1, 2007

North Carolina Department of Agriculture and Consumer Services

North Carolina Department of Environment and Natural Resources

Executive Summary

In 2005 the North Carolina General Assembly passed legislation banning MTBE in gasoline beginning on January 1, 2008. The legislation also required DENR and DACS to study the feasibility of this ban and prepare an interim report in 2006 and a final report in 2007. The 2007 final report contains much of the information included in the interim report, in addition to providing new information related to recent events.

Subsequent to North Carolina's enactment of its legislation banning MTBE, several other states in the Southeast have had similar legislation introduced and considered. However, ultimately no other state in the Southeast followed North Carolina's lead by enacting legislation to establish a ban on MTBE.

Despite the lack of action by other states and the fact that North Carolina's ban does not take effect until January 1, 2008, the amount of gasoline containing MTBE being sold in North Carolina is minimal. Testing and sampling done by the Department of Agriculture demonstrates that a negligible amount of gasoline containing MTBE is being used in North Carolina. As the table on page 4 indicates, almost all samples of the gasoline supply tested in recent months indicate that the gasoline contains less than .05 percent MTBE. Although the ban on MTBE in North Carolina does not take effect until January 1, 2008, it appears that to a large degree MTBE has already been phased out of the state's gasoline supply.

Much of the reason for the decline in gasoline containing MTBE can be traced to a market decision rather than state or federal regulatory action. In early 2006, Colonial Pipeline, informed gasoline shippers that it intended to remove MTBE from its systems. Colonial pipeline runs from Texas to New Jersey and is a major supplier for North Carolina. It is important to note that the Colonial pipeline is not the sole source for gasoline sold in North Carolina. Some of the supply enters the state through the ports in Wilmington and Norfolk, VA or by rail and will not have the same quality control as those products coming in via the pipeline.

Since informing shippers of its new policy, Colonial has since eased the restrictions on MTBE by allowing the shipment of gasoline that contains MTBE on a "case by case" basis.

The decision by Colonial and other petroleum companies to move away from MTBE was called into question by the Energy Information Administration (EIA) in a 2006 report. The report raised concerns about supply disruptions and price spikes in some regions because of the move away from MTBE. The report was the subject of a Congressional hearing by the Senate Environment and Public Works Committee on March 29, 2006.

As noted above, the critical piece of information that policymakers need to be aware of is that despite the ban not beginning until Jan. 1, 2008 the amount of MTBE in gasoline being sold in North Carolina is minimal.

Background

MTBE (methyl tertiary-butyl ether) is used as a fuel additive in gasoline and is designed to raise the content of oxygen is gasoline. MTBE has been used in U.S. gasoline at low levels since 1979 to replace lead as an octane enhancer or anti-knocking agent. Oxygen helps gasoline burn more completely, reducing tailpipe emissions from cars and trucks..

Air Quality Benefits

In 1990 Congress passed the Clean Air Act Amendments which set oxygenate requirements for areas with high levels of pollution. Although, the Clean Air Act doesn't require MTBE, many refiners have chosen to use MTBE over other oxygenates because of its blending characteristics and for financial reasons. The oil industry relied heavily on MTBE to meet the oxygenate requirements, rather than invest in the other primary alternative at the time, ethanol. Unlike ethanol, MTBE can be shipped through existing pipelines. Ethanol is not shipped in pipelines, in part, because ethanol absorbs water and impurities found in pipelines.

MTBE and ethanol are used in certain areas of the country as an oxygenate in either a winter oxyfuel program or a year-round Federal reformulated gasoline (RFG) program. North Carolina does not require either of these programs.

Counties in North Carolina designated as non-attainment for the 8-hour ozone standard are required to use lower Reid vapor pressure (RVP) gasoline in the summer months. This program is intended to reduce emissions of volatile organic compounds during the ozone season. However, this program does not specifically require MTBE.

Groundwater Concerns

In recent years MTBE has been detected in groundwater throughout the country. Some of these incidents of MTBE contamination have impacted drinking water supplies. These incidents of contamination have caused concerns because MTBE can make water undrinkable due to its offensive taste and odor. While health-related research on MTBE has been conducted results have not been definitive. According to EPA, independent expert review groups have not made a determination as to whether MTBE poses an imminent threat to public health. EPA's Office of Water has concluded that available data are not adequate to estimate the potential health risks of MTBE at low level exposure levels in drinking water. However, EPA does conclude that the data does demonstrate that MTBE is a potential human carcinogen at high doses.

Growing health concerns, in addition to a large number of lawsuits related to MTBE contamination have focused attention on MTBE. A number of states have had water systems contaminated by MTBE. In some instances, these incidents have resulted in lawsuits. For example, in 2003 eighteen petroleum companies settled a suit brought by

Santa Monica, California, agreeing to spend at least $200 million on a filtration system to remove MTBE from the city's water supply.

In North Carolina, MTBE contamination of groundwater is a growing concern. According to the Underground Storage Tank (UST) Section there are approximately 8955 active Underground Storage Tank incidents. The UST Section reports that over 2000 of the releases have had MTBE impacts to groundwater. It should be noted that the UST Section only recently started specifically documenting MTBE contamination from UST releases. Consequently, it is safe to assume that the actual number of UST releases with MTBE impacts to groundwater is higher than 2000.

The Aquifer Protection Section in the Division of Water Quality has overseen approximately 721 gasoline contamination incidents, most of which were either caused by surface spills or above ground storage tanks. Of these incidents, over 400 involved groundwater contamination and seventy-nine private drinking water wells and eight public wells have been impacted from this contamination. Many of these gasoline contamination incidents from surface spills and above ground storage tanks include MTBE contamination.

In many instances, it is difficult to identify whether a petroleum spill contains MTBE. MTBE will move farthest and fastest and it requires significant monitoring to find out how it actually gets dispersed. The current groundwater standard in North Carolina for MTBE is 200 parts per billion.

Much like the incident mentioned above in which the city of Santa Monica's water supply was impacted, North Carolina citizens have also had to deal with the serious consequences of MTBE contamination. In Wrightsboro, a small town outside of Wilmington in New Hanover County, an apparent gas leak from a gas station located near a couple of trailer parks contaminated the drinking water for approximately 180 people. The gas station had leaked gasoline containing MTBE. In court, a toxicologist testified that the persons exposed to the contaminated drinking water had compromised immune systems due to the contamination. A settlement between the parties was reached for a reported $36 million.

North Carolina Petroleum Information

In 2004, there were 4,467,442,000 gallons of gasoline sold at retail in North Carolina according to the North Carolina Petroleum Marketers Association (NCPMA). Data from the U.S. Energy Information Administration (EIA) shows a decline in the use of premium and midgrade over the last 5-10 years while there has been an increase in the use of regular unleaded over the same period.

In 2005, sales by grade were approximately 85% Regular Unleaded, 10% Premium and 5% midgrade based on EIA data.

Gasoline samples were tested by the N.C. Motor Fuels Lab for MTBE in April, May and September of 2005 and again in December 2006 and January 2007:

MTBE Content in N.C. Gasoline

2005 Testing Results

Grade	Range	Average
Premium Unleaded	2--10%	5%
Regular Unleaded	0--2%	0.5%
Midgrade Unleaded	0.7%--4.6%	2%

2006-2007 Testing Results

Grade	Range	Average
Premium Unleaded	0.0--1.5%*	0.17%
Regular Unleaded	0.0--0.5%	0.17%

* There was one premium sample at 1.5%. All other premium samples were between 0.0—0.5%.

As illustrated by the results from the 2006-07 testing the MTBE content in N.C. gasoline, excepting for one sample, is already below the 0.5% limit established by the ban. As noted earlier in the report this reduction in MTBE content is attributable to market forces rather than regulatory action.

MTBE bans

As a result of concerns raised about its public health impact, twenty-six states have banned MTBE, including seven states that passed MTBE bans in 2005. Some of these bans are characterized by EPA as partial bans, such as North Carolina's law which allows up to .5% by volume, while other states have passed complete bans.

Most recently at the federal level, Congress has discussed and debated banning MTBE. In early versions of H.R. 6, the Energy Policy Act of 2005, the legislation would have banned MTBE beginning in 2014. The final version of H.R. 6 that was approved by Congress and signed by the President did not ban MTBE.

Activity in other Southeastern States

As required by Session Law 2005-93, staff from the Department of Environment and Natural Resources and the Department of Agriculture consulted with our colleagues in other southeastern states. The session law identified the following states to be contacted: Alabama, Georgia, Kentucky, Mississippi, South Carolina, Tennessee, and Virginia. Of these states identified in the legislation, all but Kentucky rely largely on the pipelines for the transport and supply of gasoline.

Alabama

2006 Status: State officials with the Alabama Department of Environmental Management indicates that there has been no legislative discussion about banning MTBE.

2007 Status: No change

Georgia

2006 Status: In the 2006 legislative session, a bill was introduced in the Georgia House of Representatives that would ban MTBE. House Bill 983 is similar to North Carolina's ban in that it makes it unlawful to distribute or sell any gasoline containing more than one-half of one percent MTBE by volume. The bill does not prohibit the transport of gasoline containing MTBE through Georgia. The bill does not contain a date that the ban would begin, but rather the ban would be effective upon ratification.

On February 14, 2006 the House Committee on Agriculture and Consumer Affairs approved a substitute version of this bill. The substitute bill would ban MTBE and other gasoline additives by January 1, 2008. On February 21, 2006 the full Georgia House unanimously approved this legislation. The bill has been referred to the Senate.

2007 Status: The MTBE legislation passed by the House was never considered by the full Senate. However, the Georgia legislature passed a bill, SB 636, that was signed by the Governor in April of 2006. This bill authorized the Georgia Department of Environmental Protection to conduct a study on gasoline additives and to coordinate with other adjacent states on an MTBE ban. The Department of Environmental Protection has not conducted such a study.

Kentucky

2006 Status: In 2002 Kentucky passed legislation that banned MTBE beginning on

January 1, 2006. The bill did allow for trace amounts of MTBE, not to exceed one-half of one percent by volume. The bill cited the state's reliance on groundwater for drinking water and for industrial and agricultural purposes, to conclude that "the continued use of MTBE poses an unacceptable threat to public health." As noted above, Kentucky does not rely on the pipelines for its gasoline supply as other Southeastern states do. Consequently, the experiences of Kentucky's transition to an MTBE ban would not be the best indicator of the potential impacts of transition in North Carolina.

2007 Status: No change

Mississippi

2006 Status: Staff with the Underground Storage Tank Section of the Mississippi Department of Environmental Quality does report seeing MTBE in some releases from USTs. The Mississippi Department of Health has been conducting some testing in public water supply wells for MTBE and at this point has not found any contamination.

There has been no legislation introduced related to an MTBE ban.

2007 Status: Legislation, HB 42, was introduced in Mississippi in 2006 that would have banned MTBE. There was no action taken on this bill.

South Carolina

2006 Status: Staff with the South Carolina Department of Health and Environmental Control indicated that there have been discussions about banning MTBE. On February 23, 2006 a bill to ban MTBE was introduced in the South Carolina House. This bill, H 4713, would ban MTBE and certain other oxygenates. The bill has been referred to Committee on Agriculture, Natural Resources and Environmental Affairs. H 4713 is very similar to the legislation in Georgia and would ban MTBE beginning in 2008. The state's Underground Storage Tank Section continues to see incidents of MTBE contamination from UST spills and they continue to monitor the issue.

2007 Status: The bill that was introduced in 2006 never made it out of committee.

Tennessee

2006 Status: Tennessee does not currently have a ban on MTBE. State officials with the Tennessee Department of Environment and Conservation cite the recent testing of gasoline content as one factor in the state's decision not to ban MTBE. Testing demonstrates very low concentrations of MTBE in the gasoline, often below two or three percent. Another factor cited by state officials is that Tennessee has not had any municipal drinking water systems impacted by MTBE contamination.

Although there are no current plans to ban MTBE, this issue has been considered by the Tennessee legislature in recent years. In the 2001 session several legislative proposals were introduced related to MTBE. These bills ranged from developing a timetable to phase out MTBE, studying a ban of MTBE and using funds from the underground storage tank fund to help offset the costs of implementing an MTBE ban. None of these bills were approved by the legislature. However, the Tennessee legislature in 2001 did approve House Joint Resolution 228, a resolution urging Congress to ban MTBE as a fuel additive. The resolution noted that MTBE had been detected in 47 water supplies within the state. The resolution cited the impact of MTBE on drinking water supplies in other parts of the country and its threat to the groundwater and drinking water supply of Tennessee. The resolution also addressed the gasoline supply issue by stating that MTBE would not significantly affect the supply of gasoline. Copies of the resolution were sent to the Tennessee congressional delegation.

2007 Status: In the 2006 legislative session, two companion bills, HB 3955 and SB 3467 were introduced that would have banned MTBE beginning in 2008. Neither bill was acted upon before the session adjourned.

Virginia

2006 Status: According to officials with the Virginia Department of Environmental Quality the state legislature has not taken action to ban MTBE and action is not likely in the next couple of years.

While no ban has been enacted in Virginia, the state did pass legislation in 2000 which requires every public water supply operator to test public water supplies at least quarterly for the presence of MTBE. The locality must maintain a record of the testing and, if the results of any test indicate the presence of MTBE in excess of 15 parts per billion (ppb), the locality must immediately notify the Departments of Environmental Quality and Health. During 2004 there were two notifications of where public water supplies detected MTBE at levels greater than 15 ppb.

2007 Status: Virginia did have some discussions with other Mid-Atlantic states about a regional MTBE ban, but no action has been taken.

Other Considerations

The session law required consultation with representatives of the petroleum industry, such as refiners, suppliers, distributors, transporters, retailers of motor fuel and liquid pipeline operators. In addition, the law required consultation with consumer, environmental and other public interest groups. On January 18, 2006 DENR and the Department of Agriculture held a meeting to discuss the legislation and gather information. Representatives from state agencies, manufacturers of MTBE, petroleum marketers, and environmental organizations attended the meeting. In some cases, interested parties provided information and data that was incorporated into the Interim Report. Since the Interim Report was completed in March of 2006, DENR and the Department of Agriculture have continued a dialogue with interested parties on this issue. We continued to accept comments from the various interested parties and in some cases have included some of that information in the Final Report.

Conclusion

To date, other states in the Southeast have not followed the lead of North Carolina in banning MTBE. However, market activity has had the effect of minimizing the amount of gasoline containing MTBE sold in North Carolina. Although it is unlikely that other states in the Southeast will take action to ban MTBE, because of market decisions they have also indicated that negligible amounts of MTBE gasoline are being sold in their jurisdictions. As the amount of MTBE gasoline has declined, it should be noted that there are no foreseeable regulatory actions or market changes that are likely to change the status quo. However, should there be a sudden interruption in the supply chain, such as a hurricane or terrorism, it is possible that MTBE could be blended with gasoline in an effort to meet demand. The ban does not allow any flexibility in such cases and the production and shipment of MTBE free gasoline just for North Carolina may not be a realistic option for refiners.

North Carolina Department of Environment and Natural Resources
Soil and Water Conservation Commission

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Jeff Turlington, Chairman

EXHIBIT D-2

February 9, 2007

The Honorable Charles Albertson, Co-chairman
Environmental Review Commission
North Carolina General Assembly
525 Legislative Office Building
Raleigh, NC 27603-5925

Dear Senator Albertson:

This letter transmits the 2006 Annual Report on the Agriculture Cost Share Program for Nonpoint Source Pollution Control as required by General Statute 143-215.74. The statute requires the Soil and Water Conservation Commission to provide annual reports to the Environmental Review Commission and the Fiscal Research Division that include a list of projects that received State funding pursuant to the program, the results of the water quality evaluations conducted pursuant to subdivision (7) of subsection (b), findings regarding the effectiveness of each of these projects to accomplish its primary purpose, and any recommendations to assure that State funding is used in the most cost-effective manner and accomplishes the greatest improvement in water quality.

If you have any questions or need additional information, please contact Manly Wilder, Director of the Division of Soil and Water Conservation at 715-6097 or by email at Manly.Wilder@ncmail.net.

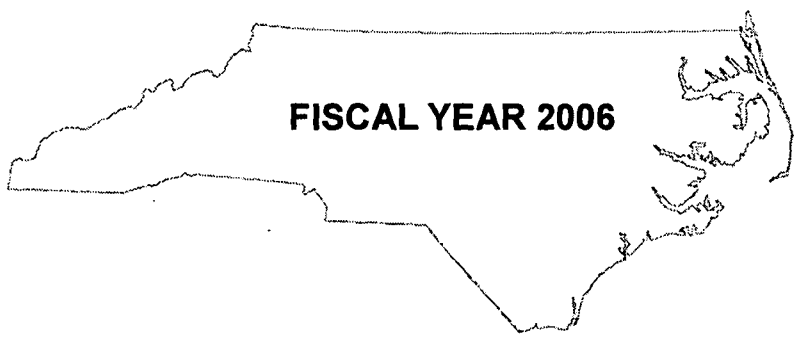
Sincerely,

Jeff Turlington,
Chairman

Enclosure

cc: Manly Wilder
George Givens
Elizabeth Self

REPORT TO THE ENVIRONMENTAL REVIEW COMMISSION AND FISCAL RESEARCH DIVISION OF THE N.C. GENERAL ASSEMBLY ON WATER QUALITY ACCOUNTABILITY FOR THE AGRICULTURE COST SHARE PROGRAM



Submitted by

The N.C. Dept. of Environment and Natural Resources,
N.C. Soil and Water Conservation Commission
Division of Soil and Water Conservation

NORTH CAROLINA SOIL & WATER CONSERVATION

NCDENR

REPORT TO THE ENVIRONMENTAL REVIEW COMMISSION AND FISCAL RESEARCH DIVISION OF THE N.C. GENERAL ASSEMBLY ON WATER QUALITY ACCOUNTABILITY FOR THE AGRICULTURE COST SHARE PROGRAM FISCAL YEAR 2006

INTRODUCTION

In 1983 the North Carolina Agriculture Cost Share Program (ACSP) was authorized by the General Assembly to improve water quality associated with agriculture in three nutrient sensitive areas of the state covering 16 counties. It was expanded in 1990 to include all 96 Soil and Water Conservation Districts covering all 100 counties.

While the Soil and Water Conservation Commission (Commission) has the statutory responsibility to create, implement and supervise the Cost Share program, it is delivered at the local level by 492 elected and appointed soil and water conservation district (SWCD) supervisors who are assisted by their staff and partners in natural resource conservation. These partners include technical and professional employees of the SWCD or county, the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), the Division of Soil and Water Conservation (Division), the Cooperative Extension Service, and the North Carolina Department of Agriculture and Consumer Services.

The Commission continues to adapt the program to respond to changing needs and technology. For Program Year 2006, there were 51 approved BMPs in the ACSP. BMPs include both short-term and long-term practices. The definitions of approved BMPs for the Cost Share program are provided in the Detailed Implementation Plan (Attachment A).

For a BMP to be approved by the Commission for the ACSP, there must be 1) an NRCS technical standard addressing that BMP, and 2) sufficient cost information to determine the appropriate cost share amount. Occasionally, BMPs are approved on a limited scale for evaluation purposes (District BMPs).

For most practices, the amount provided in cost share is based on 75% of a predetermined average cost for the practice up to a maximum of $75,000 per cooperating farmer per year. However, some practices are cost shared on 75% of actual cost due to the variable nature of the practice. (In the 2003-04 Budget Bill, the General Assembly approved a special budget provision that modified N.C.G.S 143-215.74(b) to allow beginning farmers and limited resource farmers to receive up to 90% cost share up to $100,000 per year beginning in the 2004 program year.) The Commission conducts a wholesale review of its cost share rates every three years, but it can make necessary corrections when presented with information that one of its predetermined costs is inaccurate.

Districts spot check a minimum of 5% of randomly selected active contracts each year to ensure that practices are being maintained properly. The Division and NRCS also spot check contracts as part of regular reviews of district office implementation of the ACSP. As shown in Table 1 below, spot checks for 2006 showed excellent compliance with maintenance requirements by participating farmers with only 2.3% of contracts spot checked being out of compliance. When practices are discovered to need additional maintenance, the district is usually able to assist the cooperator to restore the practice to its intended function.

TABLE 1

DISTRICTS	CPO'S	VISITS	% VISITED	COMPLIANT	NEED REPAIR	NON-COMPLIANT	SUPERVISORS PARTICIPATING
ALAMANCE	375	23	6.1%	20	3	0	4
ALEXANDER	59	14	23.7%	13	0	1	1
ALLEGHANY	126	9	7.1%	9	0	0	5
ANSON (BROWN CREEK)	65	18	27.7%	28	0	2	3
ASHE (NEW RIVER)	171	11	6.4%	9	0	2	3
AVERY	67	4	6.0%	4	0	0	5
BEAUFORT	68	5	7.4%	5	0	0	5
BERTIE	210	11	5.2%	8	3	0	1
BLADEN	139	17	12.2%	16	1	0	1
BRUNSWICK	104	7	6.7%	7	0	0	2
BUNCOMBE	117	6	5.1%	5	0	1	1
BURKE	41	8	19.5%	2	5	1	3
CABARRUS	37	8	21.6%	7	1	0	2
CALDWELL	56	6	10.7%	4	2	0	3
CAMDEN (ALBEMARLE)	26	3	11.5%	3	0	0	3

CARTERET	7	7	100.0%	7	0	0	3
CASWELL	408	21	5.1%	21	0	0	2
CATAWBA	38	3	7.9%	3	0	0	5
CHATHAM	120	50	41.7%	48	1	1	5
CHEROKEE	104	9	8.7%	8	0	1	3
CHOWAN (ALBEMARLE)	59	5	8.5%	5	0	0	3
CLAY	118	6	5.1%	4	2	0	3
CLEVELAND	47	6	12.8%	6	0	0	4
COLUMBUS	162	10	6.2%	10	0	0	2
CRAVEN	125	7	5.6%	5	1	1	3
CUMBERLAND	82	15	18.3%	15	0	0	1
CURRITUCK (ALBEMARLE)	7	2	28.6%	2	0	0	3
DAVIDSON	93	31	33.3%	31	0	0	3
DAVIE	43	11	25.6%	11	0	0	3
DUPLIN	259	14	5.4%	13	1	0	1
DURHAM	55	3	5.5%	2	1	0	1
EDGECOMBE	297	15	5.1%	14	1	0	3
FORSYTH	73	5	6.8%	5	0	0	5
FRANKLIN	196	12	6.1%	11	0	1	3
GASTON	89	8	9.0%	8	0	0	3
GATES	157	17	10.8%	11	1	0	3
GRAHAM	15	3	20.0%	3	0	0	1
GRANVILLE	302	15	5.0%	15	0	0	3
GREENE	239	23	9.6%	22	1	0	1
GUILFORD	257	25	9.7%	20	5	0	5
HALIFAX (FISHING CREEK)	229	12	5.2%	11	1	0	1
HARNETT	530	36	6.8%	32	3	1	4
HAYWOOD	215	17	7.9%	17	0	0	1
HENDERSON	126	18	14.3%	17	1	0	2
HERTFORD	175	14	8.0%	14	0	0	2
HOKE	75	13	17.3%	10	2	1	2
HYDE	239	12	5.0%	5	0	0	5
IREDELL	62	4	6.5%	3	1	0	1
JACKSON	22	3	13.6%	3	0	0	2
JOHNSTON	382	27	7.1%	24	0	3	4
JONES	64	21	32.8%	21	0	0	3
LEE	111	16	14.4%	16	0	0	3
LENOIR	305	16	5.2%	16	0	0	2
LINCOLN	79	5	6.3%	4	1	0	4
MACON	50	4	8.0%	4	0	0	1

MADISON	136	7	5.1%	7	0	0	3
MARTIN	344	18	5.2%	17	1	0	2
MCDOWELL	42	9	21.4%	9	0	0	1
MECKLENBURG	7	1	14.3%	1	0	0	2
MITCHELL	119	19	16.0%	16	1	2	2
MONTGOMERY	40	22	55.0%	22	0	0	2
MOORE	145	47	32.4%	46	1	0	1
NASH	178	20	11.2%	20	0	0	4
NEW HANOVER	3	1	33.3%	1	0	0	1
NORTHAMPTON	390	19	4.9%	16	3	0	1
ONSLOW	107	6	5.6%	6	0	0	2
ORANGE	255	25	9.8%	25	0	0	4
PAMLICO (BAY RIVER)	101	5	5.0%	2	3	0	1
PASQUOTANK (ALBEMARLE)	33	6	18.2%	6	0	0	3
PENDER	107	17	15.9%	16	0	1	4
PERQUIMANS (ALBEMARLE)	61	5	8.2%	5	0	0	3
PERSON	211	10	4.7%	10	0	0	4
PITT	279	19	6.8%	15	3	1	4
POLK	28	2	7.1%	1	1	0	2
RANDOPLH	77	26	33.8%	22	1	3	5
RICHMOND	68	28	41.2%	27	0	1	1
ROBESON	120	5	4.2%	5	0	0	3
ROCKINGHAM	245	14	5.7%	13	0	1	4
ROWAN	102	7	6.9%	7	0	0	3
RUTHERFORD	155	8	5.2%	7	1	0	3
SAMPSON	152	15	9.9%	14	1	0	2
SCOTLAND	107	6	5.6%	5	1	0	1
STANLY	123	16	13.0%	15	0	1	1
STOKES	180	13	7.2%	12	0	1	3
SURRY	274	21	7.7%	19	1	1	5
SWAIN	35	2	5.7%	2	0	0	2
TRANSYLVANIA	49	10	20.4%	10	0	0	3
TYRRELL	23	2	8.7%	2	0	0	2
UNION	80	7	8.8%	6	0	1	1
VANCE	203	10	4.9%	8	2	0	4
WAKE	109	9	8.3%	9	0	0	3
WARREN	231	21	9.1%	14	6	1	2
WASHINGTON	74	4	5.4%	3	1	0	1
WATAUGA	41	3	7.3%	3	0	0	1
WAYNE	151	10	6.6%	10	0	0	2

WILKES	112	41	36.6%	34	7	0	5
WILSON	172	13	7.6%	12	1	0	2
YADKIN	142	17	12.0%	17	0	0	5
YANCEY	135	11	8.1%	11	0	0	2
TOTALS	**13,423**	**1,268**	**9.4%**	**1165**	**73**	**30**	**263**
PERCENTAGES				**91.88%**	**5.76%**	**2.37%**	

PROGRAM ACCOMPLISHMENTS

Since the first Cost Share contracts were issued in 1984, there have been 46,820 contracts for installing BMPs (through the end of program year 2006, which ended on June 30, 2006). Most BMPs have a life expectancy of ten years, which is how long participating farmers must agree to maintain the practices.

Early in the program, the major factor used for determining success was tons of soil saved because the program funded predominantly sediment and erosion control practices. It is estimated that an average of 7.38 million tons of soil have been saved annually during the life of the program. Since the mid-1990s, while continuing its attention on minimizing soil loss and erosion, the program has increased its attention on reducing and managing nutrients from cropland and livestock production. Part of the impetus for this new attention was the promulgation of the 15A NCAC 2H.0200 animal waste management rules and the nutrient sensitive waters strategies for the Neuse and Tar-Pamlico River Basins.

Highlights of additional accomplishments include the following:

- Nearly 123,352 acres of marginal or environmentally sensitive cropland have been converted to trees, grass, or wildlife habitat
- 3,559 waste management structures have been constructed to properly store and manage dry and wet animal waste
- 815 mortality management systems have been installed to properly manage livestock mortalities to minimize water quality impacts.
- 3,846 water control structures have been installed improving water management on and reducing nutrient loss from approximately 295,652 acres
- Over 950 miles of fencing have been erected, in combination with other practices (e.g., watering sources) to exclude livestock from streams
- Over 610,716 acres of cropland acres have been converted to no-till or conservation tillage to reduce sediment loss associated with traditional practices

- Over 209 miles of forested riparian buffer have been established to reduce nutrient loss from approximately 16,362 acres of cropland

A complete list of program accomplishments is included as Attachment B.

REPORTING REQUIREMENTS

Projects Receiving State Funds

Participating farmers have up to three years to complete the work included in ACSP contracts. Therefore, cost share payments made each year may be for contracts written in the current fiscal year or in the two previous fiscal years. For this reason the fund balance for the program will always exceed the amount appropriated in a given year.

Each contract is considered a "project." Each project may include only one BMP or a system of practices that include several BMPs. Cost share payments are made only when installation of the BMP is completed and certified to be in accordance with current NRCS or Commission standards.

Cost Share payments were applied to 1,535 projects statewide between July 1, 2005 and June 30, 2006. These contracts received total payments of $6,956,071.00. A list of individual contracts to which Cost Share funds were applied in Program Year 2006 is available upon request.

New Contracts for Fiscal Year 2006

The General Assembly appropriated $5,244,897 in recurring general funds for BMP installation. For Fiscal Year 2006 soil and water conservation districts requested $22,039,704 to address identified water quality needs. Current appropriations do not enable districts to meet demand for financial assistance for installing BMPs to protect water quality in North Carolina.

For Fiscal Year 2006, the Commission allocated $8,968,935 to districts. In addition to the 2006 appropriation, the Commission also had available for allocation: 1) funds allocated to districts in 2005 which districts were unable to execute contracts with farmers prior to the end of the fiscal year, and 2) funds recovered from completed and expired contracts from Program Years 2003 through 2005. Despite the Commission's actions to improve efficiency of the cost share program (discussed on pp. 7-8), districts still must turn away three out of every five farmers requesting cost share assistance.

In Fiscal Year 2006 districts obligated $8,854,934 to 1,498 new contracts with farmers. Table 2 presents the number and value of 2006 contracts by soil and water conservation district and each district's allocation of cost share funds for 2006.

Table 2: Agriculture Cost Share Program 2006 Contracts and Allocation by County							
County	Number of 2006 Contracts	Amount Contracted	2006 Allocation	County	Number of 2006 Contracts	Amount Contracted	2006 Allocation
Alamance	24	$ 87,722	$ 88,512	Johnston	40	$ 119,815	$ 124,939
Alexander	10	$ 62,327	$ 62,327	Jones	16	$ 68,108	$ 85,409
Alleghany	14	$ 119,638	$ 119,638	Lee	12	$ 58,162	$ 59,420
Anson	7	$ 66,728	$ 87,286	Lenoir	36	$ 97,472	$ 120,493
Ashe	11	$ 133,315	$ 133,315	Lincoln	9	$ 69,597	$ 70,688
Avery	21	$ 80,824	$ 80,962	Macon	7	$ 56,218	$ 60,011
Beaufort	19	$ 124,536	$ 126,276	Madison	20	$ 74,186	$ 75,000
Bertie	14	$ 83,677	$ 83,680	Martin	16	$ 82,241	$ 85,884
Bladen	15	$ 97,897	$ 97,897	McDowell	4	$ 35,184	$ 40,000
Brunswick	7	$ 59,115	$ 64,491	Mecklenburg	1	$ 2,166	$ 22,000
Buncombe	11	$ 82,751	$ 116,621	Mitchell	10	$ 99,534	$ 99,535
Burke	8	$ 72,606	$ 75,000	Montgomery	9	$ 134,565	$ 134,694
Cabarrus	13	$ 61,707	$ 66,707	Moore	12	$ 144,792	$ 144,860
Caldwell	11	$ 90,264	$ 90,264	Nash	12	$ 97,687	$ 101,809
Camden	5	$ 50,215	$ 52,750	New Hanover	1	$ 4,096	$ 41,707
Carteret	1	$ 33,000	$ 33,000	Northampton	36	$ 78,982	$ 84,586
Caswell	34	$ 88,105	$ 88,946	Onslow	16	$ 54,573	$ 76,641
Catawba	5	$ 68,281	$ 68,283	Orange	35	$ 101,733	$ 101,733
Chatham	16	$ 114,264	$ 115,258	Pamlico	8	$ 99,750	$ 102,492
Cherokee	18	$ 88,819	$ 88,819	Pasquotank	12	$ 64,050	$ 64,214
Chowan	15	$ 61,736	$ 69,500	Pender	11	$ 72,198	$ 75,532
Clay	6	$ 95,478	$ 103,014	Perquimans	10	$ 80,619	$ 87,510
Cleveland	5	$ 18,471	$ 64,697	Person	26	$ 82,480	$ 82,486
Columbus	24	$ 86,086	$ 88,906	Pitt	18	$ 134,963	$ 142,850
Craven	7	$ 31,161	$ 59,814	Polk	4	$ 24,315	$ 50,000
Cumberland	12	$ 63,888	$ 68,783	Randolph	8	$ 145,699	$ 145,699
Currituck	2	$ 14,940	$ 15,000	Richmond	9	$ 77,298	$ 77,298
Davidson	6	$ 72,395	$ 72,395	Robeson	38	$ 124,579	$ 135,526
Davie	5	$ 71,613	$ 71,613	Rockingham	24	$ 89,021	$ 94,845
Duplin	35	$ 200,821	$ 200,821	Rowan	7	$ 107,756	$ 107,756
Durham	17	$ 98,592	$ 99,206	Rutherford	20	$ 66,916	$ 70,083
Edgecombe	20	$ 101,896	$ 124,500	Sampson	22	$ 123,070	$ 123,070
Forsyth	12	$ 65,286	$ 65,286	Scotland	15	$ 52,009	$ 65,839
Franklin	17	$ 86,527	$ 86,527	Stanly	15	$ 98,339	$ 98,423
Gaston	5	$ 52,000	$ 52,000	Stokes	13	$ 77,225	$ 77,254
Gates	14	$ 59,288	$ 65,990	Surry	8	$ 135,288	$ 135,288
Graham	5	$ 37,386	$ 50,000	Swain	2	$ 14,553	$ 38,188
Granville	36	$ 83,054	$ 85,000	Transylvania	7	$ 65,399	$ 65,399
Greene	21	$ 64,032	$ 136,736	Tyrrell	9	$ 58,641	$ 58,835
Guilford	29	$ 156,405	$ 168,803	Union	12	$ 158,861	$ 166,775
Halifax	42	$ 162,504	$ 162,804	Vance	25	$ 54,020	$ 55,606
Harnett	26	$ 82,321	$ 83,779	Wake	17	$ 84,842	$ 89,969

Table 2: Agriculture Cost Share Program 2006 Contracts and Allocation by County							
County	Number of 2006 Contracts	Amount Contracted	2006 Allocation	County	Number of 2006 Contracts	Amount Contracted	2006 Allocation
Haywood	22	$ 138,362	$ 142,413	Warren	34	$ 112,696	$ 112,696
Henderson	19	$ 113,386	$ 115,716	Washington	11	$ 67,067	$ 67,800
Hertford	15	$ 71,984	$ 89,510	Watauga	2	$ 89,177	$ 92,325
Hoke	6	$ 50,349	$ 53,226	Wayne	29	$ 135,182	$ 139,288
Hyde	17	$ 56,823	$ 92,884	Wilkes	10	$ 144,301	$ 144,301
Iredell	9	$ 89,699	$ 92,822	Wilson	35	$ 109,519	$ 111,535
Jackson	9	$ 43,674	$ 56,000	Yadkin	10	$ 104,822	$ 105,342
				Yancey	13	$ $95,249	$ 95,249

Figure 2 shows locations for each ACSP contract by river basin, and Figure 3 shows project locations within county boundaries.

Figure 2

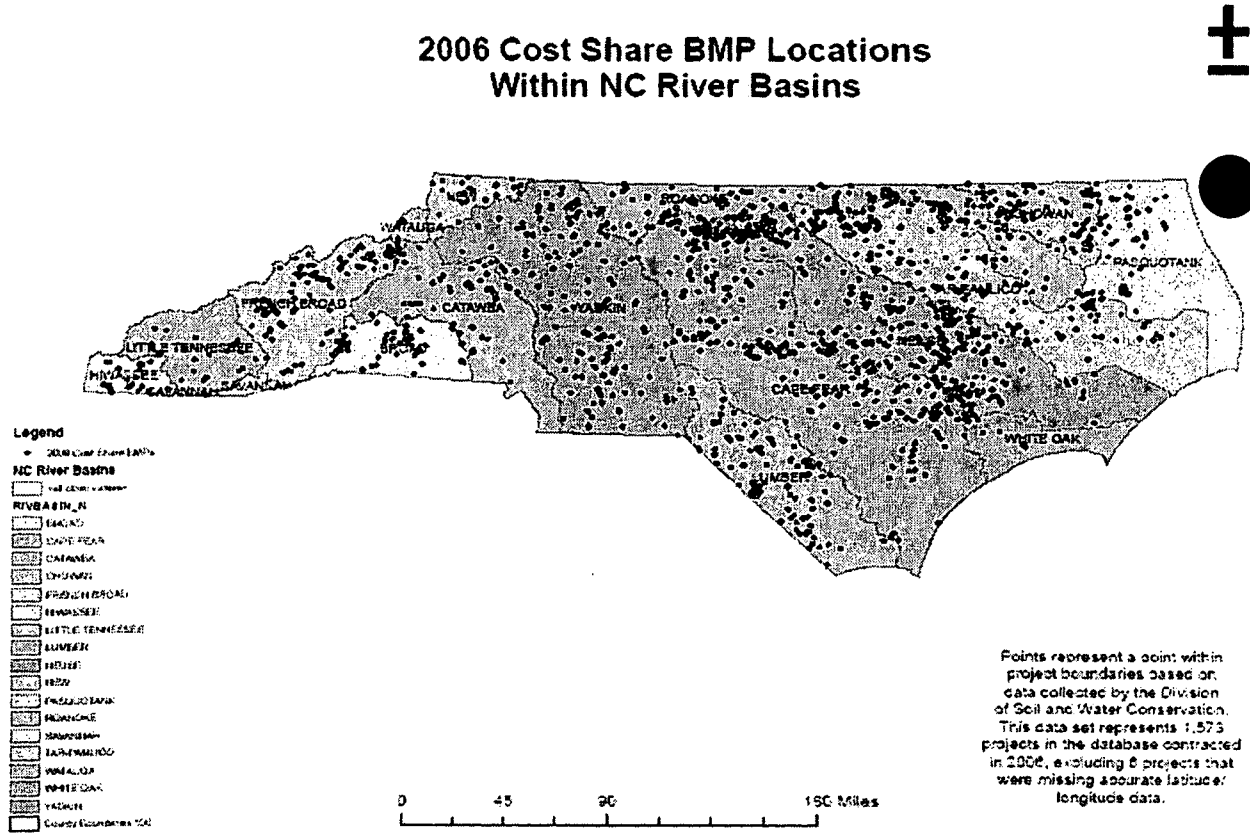
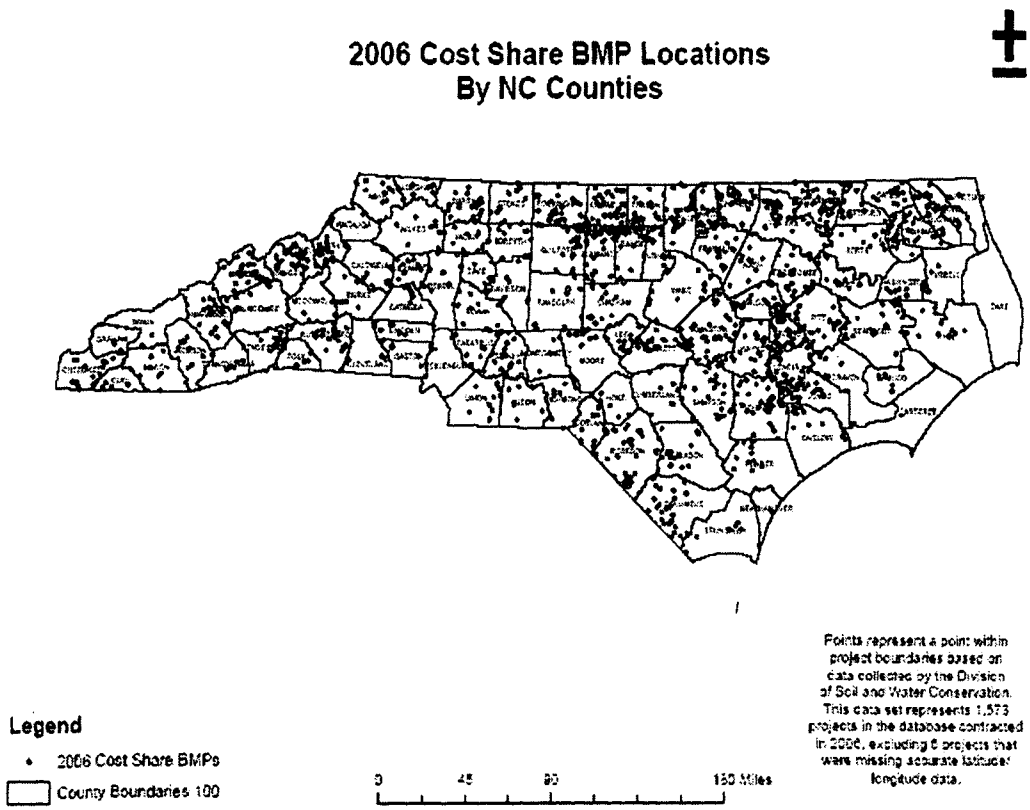


Figure 3



Estimated Water Quality Benefits of ACSP Contracts Initiated in 2006

N.C.G.S 143-215.74(b)(7) requires that each project's benefits to water quality be estimated before funding is awarded. To meet this requirement, the Commission chose three indicators of water quality benefits: tons of soil saved, pounds of nitrogen saved or managed, and pounds of phosphorus saved or managed. Soil savings estimates have been required on all Cost Share contracts since the beginning of the program. Beginning with the 1997 program year, estimates of nitrogen and phosphorus savings were required to be reported. The Division continues to work with the Division of Water Quality, NRCS, and North Carolina State University to improve and refine our method to estimate and account for nutrient reductions.

These estimates have been very useful to help track progress by agriculture relative to the nutrient reduction requirements in the Neuse and Tar-Pamlico

Nutrient Reduction Rules for agriculture. The ACSP is playing a key role in helping farmers achieve the 30% nutrient reduction required by these rules.

Local soil and water conservation districts determine which projects are eligible for funding in their districts according to a required priority ranking process, tailored to each district's water quality concerns. The water quality evaluations on each project are carried out at the district level, and the water quality benefit estimates are provided to the Division on each contract form. The data are entered from the contract form into the Division's cost share database and tracked by Division staff. The estimated sediment and nutrient reduction benefits for program years 2004-2006 are summarized in Table 1.

Some BMPs standing alone will not directly result in sediment or erosion reductions or nitrogen or phosphorus savings, but are used in conjunction with other practices. These BMPs are called "facilitating practices" and are necessary to facilitate and ensure that other practices in the BMP system are effective at reducing nutrient or sediment loading to a water resource. Therefore, their reduction credit is linked to the facilitated practice. An example of a facilitating practice is a water tank, which must be installed for livestock drinking water purposes before fencing can be put up to keep livestock out of a stream.

Table 1: Sediment and Nutrient Reduction Benefits for Program Years 2004 through 2006.

	2004	2005	2006
Number of Contracts	2,053	1,532	1,498
Acres Affected	76,255 acres	67,621 acres	78,085 acres
Soil Saved	277,556 tons	172,378 tons	171,633 tons
Nitrogen Saved	1,717,092 pounds	1,392,754 pounds	926,743 pounds
Phosphorus Saved	626,600 pounds	262,404 pounds	156,766 pounds
Waste Nitrogen Managed	24,923,721 pounds	3,709,391 pounds	4,004,181 pounds
Waste Phosphorus Managed	5,219,734 pounds	3,483,287 pounds	4,483,211 pounds

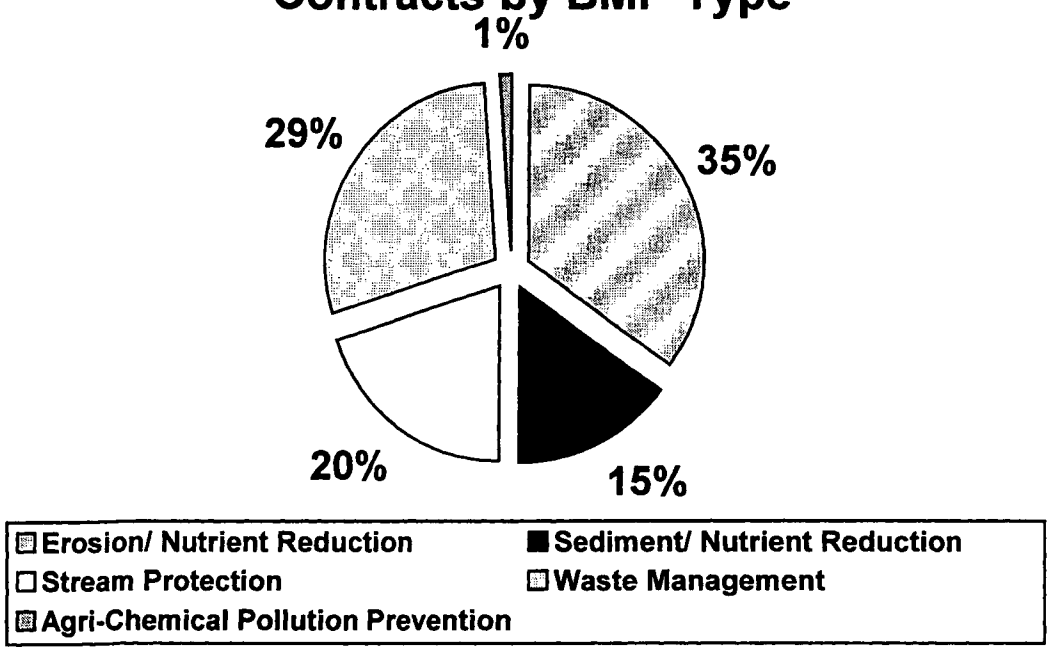
Effectiveness of Each Project to Accomplish Its Primary Purpose

The statutory purpose of the program and each project is to improve water quality by reducing the input of agricultural non-point source pollution into the water courses of the state. Each BMP approved for the Cost Share program is designed for at least one of five major purposes to protect the water resources of the state:

1) sediment/nutrient delivery reduction through reduction of applied nutrients, reduction of soil loss, or interception of nutrients from fields;
2) erosion reduction/nutrient loss reduction in fields through reduction of applied nutrients or prevention of soil detachment;
3) prevention of agricultural chemical pollution of ground or surface water from improper handling or accidents;
4) reduction of nutrient loading through proper management of animal waste; and
5) stream protection measures to reduce the delivery of sediment and nutrients by animals and stabilize streambanks to minimize further erosion and sediment contribution.

As shown in Figure 4, 35% of the 2006 funds were directed toward erosion and nutrient-reducing BMPs (e.g., conservation tillage, cropland conversion to grass or trees), 20% were directed toward stream protection systems (e.g., livestock exclusion from streams), 15% were directed toward sediment and nutrient-reducing BMPs (e.g., riparian buffers, field borders, grassed waterways), 29% were directed toward animal operations for waste management BMPs (e.g., poultry litter storage structures, closure of inactive lagoons, livestock feeding/waste storage structures), and 1% were directed toward agri-chemical pollution prevention measures (e.g. agri-chemical handling facilities).

Figure 4: Breakdown of 2006 ACSP Contracts by BMP Type



Attachment C is a chart showing the approved BMPs in these categories and their relationship to water quality improvement.

Staff of the Division, soil and water conservation districts, and NRCS has verified every project for which program funds have been expended to have been installed in accordance with program standards and to be accomplishing its primary purpose.

TARGETING ACSP FUNDS TO WATERSHEDS OF IMPAIRED WATERS

The Commission continues to exercise leadership in allocating ACSP resources to local districts containing impaired waters and in encouraging district supervisors to use ACSP funds to address impaired waters. This is best illustrated by the fact that the Commission targeted $182,170 of funds available in 2006 for the specific purpose of installing erosion and sediment-reducing best management practices into watersheds of waters listed on the State's 303(d) list of waters as impaired due to sediment from sources including agriculture in 10 counties.

In 2006, about 11% of ACSP funds were used to implement BMPs in watersheds of impaired waters. Considering that only 2.4% of North Carolina's stream miles are attributed to being impaired by agricultural sources, this demonstrates that the ACSP funds are being significantly targeted toward improving streams that do not fully meet their uses.

Approximately 25% of funds contracted in Program Year 2006 were contracted with farmers in the Neuse and Tar-Pamlico River Basins to help them achieve the required 30 percent reduction in agricultural nitrogen losses. Districts in the Neuse and Tar-Pamlico Basins will continue to use ACSP to sustain the reductions already achieved and to attain further voluntary reductions in these nutrient sensitive watersheds. ACSP funds are also being used to reduce phosphorus losses from agriculture to help achieve the goal of no net increase in phosphorus loading to the Tar-Pamlico Basin. Participating farmers continue to assess phosphorus losses using the Phosphorus Loss Assessment Tool (PLAT).

The Commission also targeted $204,346 of Program Year 2006 funds to 16 districts to assist with implementation of riparian buffers in nutrient sensitive watersheds under the Conservation Reserve Enhancement Program.

NEW PROGRAM ENHANCEMENTS TO IMPROVE EFFICIENCY AND PROGRAM DELIVERY

Because of the need to continually improve the program's cost effectiveness, and because of recurring budget reductions in the program's appropriation, the Commission is moving forward on several enhancements for the 2006-2007 program year. These enhancements were designed to improve the efficiency by which program funds are used by agricultural cooperators to install best management practices and to improve the responsiveness of the program to state and local water quality priorities.

One efficiency improvement was to initiate an Programmatic Review of the North Carolina Agriculture Cost Share Program. The purpose of the review will be to evaluate the effectiveness of the NCACSP with special emphasis on ensuring the program and cost shared BMPs are meeting the conservation needs on the private working agricultural lands of North Carolina.

Leadership for the program assessment shall reside with the Technical Review Committee. The Committee will establish a subcommittee to complete an assessment of the NCACSP. TRC representatives from the Division, NRCS, NCDA, Farm Bureau, the Grange, Wildlife Resources Commission, the District Employees Association have agreed to participate in the process along with others so named by the TRC.

The objectives of the program review will be to assess 1) the efficiency and effectiveness of program implementation at the state and local level, 2) the degree to which the program is meeting the needs of working lands conservation and water quality protection, and 3) the relationship of dollars expended to resource problems addressed.

To address objective one, the subcommittee will review feedback received from local SWCDs through the Division's cost share training sessions and program reviews. The subcommittee will also solicit additional feedback from districts to assess opportunities to improve program delivery.

To address objective two, the subcommittee will develop and distribute a survey of program participants to a random number of participants statewide. The objective is to receive feedback from our customers on their experiences with our program and how we can improve the program to better serve the private working lands of North Carolina. The subcommittee will also review the current set of approved practices to determine if additional practices are necessary or if modification are needed to improve practice effectiveness.

Objective 3 will be addressed by on-site farm visits to assess the extent to which the installed practices address the resource problems and the cost effectiveness of the installed BMP as compared to other alternatives.

The Subcommittee will compile the results of the assessment and will present the findings to the TRC and to the Commission at a future meeting in the Summer of 2007.

Another efficiency improvement was to initiate an upgrade to the existing ACSP database. The Division has worked with the DENR Information Technology Services Division to upgrade the current ACSP database. Funding for the new database is being provided by Clean Water Act Section 319 grant funds administered by the Division of Water Quality (DWQ). The proposed upgraded system will utilize the DENR-Integrated Build Environment for Application Management (IBEAM) approach to permit more efficient on-line contracting and contract approval to eliminate duplicative data entry and to shorten contract review and approval time. The proposed system will also include mechanisms to attach GPS and GIS information and digital photographs to better present the benefits and outcomes associated with BMP implementation. The proposed system will also better coordinate with the federal Pro-Tracks system to permit a more complete accounting for agricultural BMP implementation and progress reporting in North Carolina.

This database will provide real-time 24 hours a day, seven days a week ACSP information that can easily be updated by the Division, DENR Regional Office and local Soil & Water Conservation District staff, with minimal errors, and be used to generate standard reports on program use and water quality benefits. Non-sensitive information will be accessible for public view on the internet (read-only format).

The Division has nearly completed the process for hiring a computer programmer to assist with the ACSP database upgrade project. When completed, this new web-based database will enable districts to develop and submit cost share contracts over the internet, and Division staff will be able to review and approve contracts electronically. The project is expected to be ready for evaluation by districts by the Summer of 2007.

The Commission also established a policy in 2005 relating District Strategy Plans to the DWQ's Basinwide Water Quality Plans. The Commission is now requiring that all district strategy plans for ACSP include a section describing waters listed as impaired or with notable water quality problems and concerns as documented in the most recent applicable basinwide water quality plan(s), and for which agriculture is a potential source or stressor. The District should also list any waters of local concern that has been identified by the district, and for which agriculture is a potential source or stressor. The section of the strategy plan shall

also describe how the district intends to address agricultural nonpoint source problems impacting these waters. This policy became effective for the Program Year 2007. All 96 Districts completed this new section of the strategy plan and did an exceptional job with documenting the impaired waters in their county and the actions the District plans to take to address the problems impacting these waters.

At its May 2006 meeting the Commission added to the cost share program a practice for removing suspended solids from tank-based aquaculture production operations. The central component of the system, which is based on a system being demonstrated at the NCSU Fish Barn on Lake Wheeler Road in Raleigh, is a permeable plastic geotube which collects the flocculated solids and allows the treated water to percolate out to be reused or land applied. The Division received a $150,000 Conservation Innovation Grant from NRCS in August 2006 . These funds will supplement the ACSP to assist aquaculture producers to install best management practices on farms in North Carolina.

During the 2006 Program Year the Soil & Water Conservation Commission also expanded its delegated approval program (formerly pilot project) to an additional 14 districts. This brings the total to 30 districts to whom the Commission has delegated contract approval, including Alamance, Beaufort, Bertie, Buncombe, Camden, Catawba, Chatham, Columbus, Craven, Currituck, Davidson, Forsyth, Guilford, Henderson, Iredell, Johnston, Lee, Madison, Moore, Onslow, Orange, Pasquotank, Pender, Pitt, Surry, Wake, Warren, Wayne, Wilkes and Yancey SWCDs. These Soil & Water District Boards have the authority to approve their own NCACSP contracts. Districts are selected for this program based on the following criteria: 1) results from the most recent program review (within the last 2 years), 2) percentage of contracts that have been approved by the District Board and submitted that end up being pended for more information by the Division, 3) experience and longevity of the District staff. The delegated approval program has been very successful at allowing cost share staff to devote more time to technical assistance and field training, and it has decreased the time delay in permitting the cooperators to begin work for BMP implementation since it began in the 2003 Program Year.

COST-EFFECTIVENESS CONSIDERATIONS

The ACSP is a cost-effective program from both a state expenditure perspective and the farmer's perspective. This program has been credited with helping the state to achieve considerable success in protecting and improving water quality. Many farmers could not afford to implement BMPs (many of which are required by regulations) without cost share assistance. Because a farmer must invest at least 25% of the cost for BMPs, the farmer has ownership in the practice and is more likely to maintain it. The educational value of local farmers participating the program is substantial in helping to change local practices.

Use of ACSP to Leverage Additional BMP Implementation Funds From Other Sources

The Commission's 2006 allocation to districts included $182,170 for the intended purpose of installing BMPs in watersheds of streams on the state list of impaired waters due to sediment from agricultural sources. Because of this targeted allocation the Division of Soil and Water Conservation and districts were able to obtain $1,000,000 in grant funds from the Clean Water Management Trust Fund and $700,497 from the US Environmental Protection Agency 319 (EPA-319) program to implement sediment reducing BMPs in these watersheds. The Division has also entered into a cooperative agreement with the United States Geological Survey who will provide an additional $150,000 of water quality monitoring services to document reduction in sediment loading. Please see Attachment E, for a detailed map of project locations for the Agricultural Sediment Initiative grant funds that have been implemented in the 2006 Program Year.

ACSP funds are an essential part of the state match for the Conservation Reserve Enhancement Program (CREP), a federal/state partnership. ACSP and other state programs (CWMTF) are providing a total of $54 million over eight years to match $221 million in federal payments to North Carolina landowners participating in CREP.

ACSP funds for BMP implementation and technical assistance also provide the required state match for three EPA-319 grants for accelerating BMP implementation in the Neuse and Tar-Pamlico river basins. The total of the three grants is $1,419,180.

Whenever possible, the districts use the ACSP in conjunction with other programs, such as the federal Environmental Quality Incentive Program and the Conservation Reserve Enhancement Program, to stretch scarce resources as far as possible. Districts also partner to meet the needs of cooperating producers and landowners.

Leveraging of Local and Federal Resources for Technical Assistance and Local Delivery

This program is delivered locally by 492 elected and appointed volunteer Soil and Water Conservation District Supervisors and by over 400 local staff of districts and NRCS. District supervisors receive no state salary, yet are responsible for seeing that state funds are spent where they are most needed to improve water quality. District supervisors are required to develop a prioritization ranking system for administering the ACSP in their respective district to maximize the water quality benefits of the program. Applications to each district are evaluated and prioritized according to this system. District supervisors also must inspect at

least five percent of all cost share contracts in their district every year to ensure the BMPs are properly maintained.

The ACSP is heavily dependent on the technical resources of the local soil and water conservation districts and the NRCS. District and federal employees develop conservation plans, design BMPs, and provide engineering assistance for water quality improvements at no cost to the farmers whose applications are accepted for cost share assistance. These staff also assist farmers and other landowners in implementing water quality projects using other funding sources such as the USDA's Environmental Quality Incentives Program and Conservation Reserve Enhancement Program, the U.S. Environmental Protection Agency's Section 319 Non-Point Source Program, and North Carolina's Clean Water Management Trust Fund.

A critical portion of the General Assembly's appropriation for ACSP provides a state match for salaries for many of these district technical employees and for their operating expenses to carry out the cost share program. For 2006, the General Assembly appropriated $1,875,000 in recurring funds for cost sharing technical assistance positions in local districts and directed DENR to continue to transfer $240,000 from BMP assistance to support technical assistance. County commissions provide more than 50% match for salaries and operating expenses, including office space and administrative support for these technical assistance positions. In program year 2006 the cost share technical assistance program cost shared on 116 technical positions in 90 counties to assist farmers in designing and installing BMPs. These state technical assistance cost share funds maintain a local conservation infrastructure and are critical to sustain local county support and funding for local delivery of the program.

NRCS engineers and conservation specialists are also available to each district. These federal employees carry out a portion of the cost share work support without cost to the state, and they provide additional technical resources and expertise to ensure that cost-shared practices are properly installed and maintained for the expected life of the practice.

In addition, NRCS allows district staff in some districts to use federal vehicles for use on state cost share work. NRCS also provides computers and sophisticated natural resources materials and computer software in all 100 county field offices, and develops the technical standards for most of the BMPs used in the cost share program. This state program leverages a much greater amount of federal funding for water quality improvements in North Carolina.

PROGRAM MANAGEMENT

Attachment D is an overview of the funding and compliance process used for implementing the Agriculture Cost Share Program.

A Division program staff of four FTEs reviews approximately 1,600 contracts annually and processes about 2,500 requests for payment each year. The Division also maintains the ACSP Manual, trains local personnel, provides daily technical assistance to the districts, and conducts oversight through district program reviews to ensure proper record keeping and BMP maintenance for continued water quality protection.

Because the state specifies that the purpose of the program is to assist agricultural operations in addressing an existing water quality problem, the program does not assist new operations to go into business. It is the policy of the Commission that new producers or companies constructing new agricultural operations should be aware of the existing environmental requirements and technical standards and should be prepared to meet them without state funding assistance. This is especially important when existing operations are struggling to comply with new requirements that were not in place when they began operating. Therefore, the Commission has restricted eligibility for Cost Share funds to those operations, which have been in existence for three years prior to the date of cost share application. Operations that were not in existence for three years prior to application date may still be eligible for cost-share if changes in environmental statutes or regulations create new requirements that could, without assistance, make the facility out of compliance. These exceptions require Commission approval.

IMPACT OF INCREASED COSTS TO THE NCACSP

The NCACSP has experienced many challenges due to the increased costs of fuel, labor, and materials over the past few years. Since the NCACSP is based on 75% of a predetermined average cost for each practice it has been almost impossible to keep up with the cost changes in areas such as gravel, pipe, fencing, lumber, and the cost of operating heavy machinery to install a lot of the BMPs in the program. In Program Year 2004 the NCACSP was able to contract with 2,053 projects statewide encumbering $6,827,880 compared to only 1,498 projects statewide in the 2006 Program Year encumbering $8,854,934. Because of the price increase the Soil & Water Conservation Districts are not able to help as many farmers install conservation practices on the ground. The NCACSP continues to monitor the established average costs list for the program and receives feedback from the local Soil & Water Conservation Districts on any adjustments that are needed. Division cost share staff plan on completing a total review of the current average cost manual in the Spring of 2007 and making the correct adjustments to be effective for the 2008 Program Year.

CONCLUSIONS AND RECOMMENDATIONS

Based on the above considerations, the Commission believes the ACSP is being administered very cost-effectively and that considerable water quality benefits are being realized for the investment made with state funds. The program aids agricultural operations in making essential water quality improvements, the cost of which cannot be passed on to the consumer in the price of the food or fiber product, and thereby contributes both to water quality and to sustaining a strong state agricultural economy. The Commission continues to emphasize prioritizing, targeting, accountability, leveraging, and adaptability in managing these public funds to further improve the water quality benefits intended by the General Assembly.

Increased costs of fuel, labor, and materials have significantly impacted the amount of conservation the program can effect and the number of cooperating farmers who can be assisted. The Commission has taken actions to improve program efficiencies that have helped to partly offset these impacts in the short-term. The ACSP continues to play a vital role in assisting farmers and ranchers with voluntary water quality protection and with compliance with state and federal regulatory requirements. The program is our state's cornerstone in efforts to support private working lands stewardship for the benefit of water quality and all the citizens of North Carolina.

Attachment A
DETAILED IMPLEMENTATION PLAN – PROGRAM YEAR 2006

Definition of Practices

(1) An agrichemical handling facility means a permanent structure that provides an environmentally safe means of mixing agrichemicals and filling tanks with agrichemicals for application and storage to improve water quality. Benefits may include prevention of accidental degradation of surface and ground water. Cost share for this practice is limited to $25,000 per facility.

(2) Agricultural road repair/stabilization means repair or stabilization of existing access roads utilized for agricultural operations, including roads to existing crop fields, pastures, and barns.

(3) A fertigation or chemigation backflow prevention system means a system for preventing backflow of fertilizers or chemicals from contaminating water sources in fertigation and or chemigation applications. It can include retrofitting or installing injection equipment, check valves, gauges, drains, and vacuum breakers. It does not include items unrelated to backflow prevention (e.g., tanks, mixers, or filters). Cost share for this practice is limited to $1,500 per system.

(4) A Christmas Tree Conservation Cover practice means to establish and maintain a conservation cover of grass, legumes, or other approved plantings on fields previously with no groundcover established, to reduce soil erosion and improve water quality. Other benefits may include reduced offsite sedimentation and pollution from dissolved and sediment-attached substances.

(5) A three-year conservation tillage system means any tillage and planting system in which at least (60) sixty percent of the soil surface is covered by plant residue for the same fields for three consecutive years to improve water quality. Benefits may include reduction of soil erosion, sedimentation and pollution from dissolved and sediment-attached substances. The three-year conservation tillage incentive is broken down into two categories depending on the crop(s) to be grown:

a. Grain crops and cotton
b. Vegetables, tobacco, peanuts, and sweet corn

Cost share for each category of this practice is limited to $15,000 per cooperator in a lifetime.

(6) A critical area planting means an area of highly erodible land that cannot be stabilized by ordinary conservation treatment on which permanent perennial vegetative cover is established and protected to improve water quality. Benefits may include reduced soil erosion and sedimentation.

(7) A cropland conversion practice means to establish and maintain a conservation cover of grasses, trees, or wildlife plantings on fields previously used for crop production to improve water quality. Benefits may include reduced soil erosion, sedimentation and pollution from dissolved and sediment-attached substances.

(8) A diversion means a channel constructed across a slope with a supporting ridge on the lower side to control drainage by diverting excess water from an area to improve water quality. Benefits may include reduced soil erosion, sedimentation and pollution from dissolved and sediment-attached substances

(9) A field border means a strip of perennial vegetation established at the edge of the field that provides a stabilized outlet for row water to improve water quality. Benefits may include reduced soil erosion, sedimentation and pollution from dissolved and sediment-attached substances.

(10) A filter strip means an area of permanent perennial vegetation for removing sediment, organic matter, and other pollutants from runoff and waste water to improve water quality. Benefits may include reduced soil erosion, sedimentation, pathogen contamination and pollution from dissolved, particulate, and sediment-attached substances.

(11) A grade stabilization structure means a structure (earth embankment, mechanical spillway, detention-type, etc.) used to control the grade and head cutting in natural or artificial channels to improve water quality. Benefits may include reduced soil erosion and sedimentation.

(12) A grassed waterway means a natural or constructed channel that is shaped or graded to required dimensions and established in suitable vegetation for the stable conveyance of runoff to improve water quality. Benefits may include reduced soil erosion, sedimentation and pollution from dissolved and sediment-attached substances.

(13) A heavy use area protection means an area used frequently and intensively by animals, which must be stabilized by surfacing with suitable materials to improve water quality. Benefits may include reduced soil erosion, sedimentation and pollution from dissolved, particulate, and sediment-attached substances.

(14) A land smoothing practice means reshaping the surface of agricultural land to planned grades for the purpose of improving water quality.

(15) A livestock feeding area is a sized concrete pad where feeders are located, surrounded by a Heavy Use Area. The Livestock Feeding Area is designed for the purpose of improving the lifespan of the heavy use area and to reduce the runoff of nutrients and fecal coliform to adjacent water bodies. The practice is to be used to address water quality concerns where livestock feeding areas are in close proximity to streams and where relocation or rotation of feeding areas is infeasible due to physical limitations (e.g., slope) and where other stream protection measures are insufficient to protect water quality. Cost share for the concrete pad for this practice is limited to $3,000.

(16) A livestock exclusion system means a system of permanent fencing (board or barbed, high tensile or electric wire) installed to exclude livestock from streams and critical areas not intended for grazing to improve water quality. Benefits may include reduced soil erosion, sedimentation, pathogen contamination and pollution from dissolved, particulate, and sediment-attached substances.

(17) A long term no-till practice means planting all crops for five consecutive years with at least 80 percent plant residue from preceding crops to improve water quality. Benefits may include reduced soil erosion, sedimentation and pollution from dissolved and sediment-attached substances. Cost share for this incentive or this incentive combined with 3-year conservation tillage for grain and cotton is limited to $25,000 per cooperator in a lifetime.

(18) A nutrient management practice means a definitive plan to manage the amount, form, placement, and timing of applications of nutrients to minimize entry of nutrients to surface and groundwater and improve water quality.

(19) A nutrient scavenger cover crop means a crop of small grain grown primarily as a seasonal nutrient scavenger. The purpose is to scavenge and cycle plant nutrients, add organic matter to the soil, improve infiltration, aeration and tilth, improve soil quality, reduce soil crusting, provide residue for conservation tillage and sequester carbon. Benefits may include reduction of soil erosion, sedimentation and pollution from dissolved and sediment-attached substances. Cost share for this incentive practice is limited to $25,000 per cooperator in a lifetime. (DIP)

(20) A pastureland conversion practice means establishing trees or perennial wildlife plantings on excessively eroding land with a visible sediment delivery problem to the waters of the state used for pasture that is too steep to mow or maintain with conventional equipment to improve water quality. Benefits may include reduced soil erosion and sedimentation.

(21) A rock-lined outlet means a waterway having an erosion-resistant lining of concrete, stone or other permanent material where an unlined or grassed waterway would be inadequate to improve water quality. Benefits may include safe disposal of runoff, reduced erosion and sedimentation.

(22) A sediment control basin means a basin constructed to trap and store waterborne sediment where physical conditions or land ownership preclude treatment of a sediment source by the installation of other erosion control measures to improve water quality.

(23) A sod-based rotation practice means an adapted sequence of crops, grasses and legumes or a mixture thereof established and maintained for a definite number of years as part of a conservation cropping system which is designed to provide adequate organic residue for maintenance or improvement of soil tilth to improve water quality. Benefits may include reduced soil erosion, sedimentation and pollution from dissolved and sediment-attached substances. Cost share for this incentive practice is limited to $25,000 per cooperator in a lifetime.

(24) A stock trail or walkway means to provide a stable area used frequently and intensively for livestock movement by surfacing with suitable material to improve water quality. Benefits may include reduced soil erosion, sedimentation and pollution from dissolved, particulate, and sediment-attached substances.

(25) A stream protection system means a planned system for protecting streams and stream banks that eliminates the need for livestock to be in streams by providing an alternative-watering source for livestock to improve water quality. Benefits may include reduced soil erosion, sedimentation, pathogen contamination, and pollution from dissolved, particulate and sediment-attached substances. System components may include:

(A) A spring development means improving springs and seeps by excavating, cleaning, capping or providing collection and storage facilities.

(B) A stream crossing means a trail constructed across a stream to allow livestock to cross without disturbing the bottom or causing soil erosion on the banks.

(C) A trough or tank means devices installed to provide drinking water for livestock at a stabilized location.

(D) A well means constructing a drilled, driven or dug well to supply water from an underground source.

(E) A windmill means erecting or constructing a mill operated by the wind's rotation of large vanes and is used as a source of power for pumping water.

(26) A Streambank Stabilization system means the use of bioengineering practices, native material revetments, channel stability structures, and/or the restoration or management of riparian corridors in order to protect upland BMPs, restore the natural function of the stream corridor and improve water quality by reducing sedimentation to streams from streambank erosion and decreasing the delivery of nitrogen, phosphorus and other pollutants to the stream from adjacent pasture or cropland. Cost share for this practice is limited to $25,000 per cooperator per year.

(27) A stripcropping practice means to grow crops and sod in a systematic arrangement of alternating strips or bands on the contour to improve water quality. Benefits may include reduced soil erosion, sedimentation, and pollution from dissolved and sediment-attached substances. The crops are arranged so that a strip of grass or close-growing crop is alternated with a strip of clean-tilled crop, fallow, or no-till crop, or a strip of grass is alternated with a close-growing crop.

(28) A riparian buffer means an area adjacent to solid blue line streams as shown on 7.5 minute USGS maps where a permanent, long-lived vegetative cover (sod, shrubs, trees, or a combination of vegetation types) is established to improve water quality. Benefits may include reduced soil erosion, sedimentation, pathogen contamination and pollution from dissolved, particulate and sediment-attached substances.

(29) A terrace means an earth embankment, a channel, or a combination ridge and channel constructed across the slope to improve water quality. Benefits may include reduced soil erosion, sedimentation and pollution from dissolved and sediment-attached substances.

(30) A waste management system means a planned system in which all necessary components are installed for managing liquid and solid waste to prevent or minimize degradation of soil and ground and surface water resources. System components may include:

(A) A Closure of Abandoned Waste Impoundment means the safe removal of existing waste and waste water and the application of this waste on land in an environmentally safe manner. Cost share for this practice is limited to $75,000 per cooperator.

(B) A constructed wetland for land application practice means an artificial wetland area into which liquid animal waste from a waste storage pond or lagoon is dispersed over time to lower the nutrient content of the liquid animal waste.

(C) A controlled livestock lounging area means a planned, stabilized and vegetated area in which livestock are kept for a short duration.

(D) A drystack means a fabricated structure for temporary storage of animal waste. Cost share for drystacks for poultry and non-.0200 animal operations are limited to $30,000 per structure.

(E) A feeding/waste storage structure means a fabricated structure for the combined purpose of animal feeding and temporary storage of animal waste. Cost share for this practice is limited to $25,000 per structure.

(F) An insect control system means a practice or combination of practices (planting windbreaks, pre-charging structures, incorporation of waste into soil, etc.) which manages or controls insects from confined animal operations, waste treatment and storage structures, and waste applied to agricultural land.

(G) A livestock mortality management system is a facility for managing livestock mortalities such as to minimize water quality impacts or to produce a material that can be recycled as a soil amendment and fertilizer substitute. Cost shareable mortality management system components include: composter, rotary drum composter, forced aeration static pile composter, mortality freezer, mortality incinerator, and mortality gasification system.

(H) An odor control management system means a practice or combination of practices (planting windbreaks, pre-charging structures, incorporation of waste into soil, etc.) which manages or controls odors from confined animal operations, waste treatment and storage structures and waste applied to agricultural land.

(I) An offsite or an alternative poultry dry litter waste utilization means applying, processing and/or transporting poultry dry litter such that it is properly utilized to reduce nutrient impacts. Payments for this incentive shall be limited to $15,000 per farm per year for no more than 3 years.

(J) A Retrofit of On-Going Animal Operations means modification of structures to increase storage or to correct design flaws to meet current standards. This practice may also be used to close waste impoundments on on-going operations, including the safe removal of existing waste and waste water and the application of this waste on land in an environmentally safe manner. .

(K) A storm water management system means a system of collection and diversion practices (guttering, collection boxes, diversions, etc.) to prevent unpolluted storm water from flowing across concentrated waste areas on animal operations.

(L) A waste application system means an environmentally safe system (such as solid set, dry hydrant, mobile irrigation equipment, etc.) for the conveyance and distribution of animal wastes from waste treatment and storage structures to agricultural fields as part of an irrigation and waste utilization plan. Cost share for this practice is limited to $25,000 per cooperator in a lifetime.

(M) A waste storage pond means an impoundment made by excavation or earthfill for temporary storage of animal waste, waste water and polluted runoff.

(N) A waste treatment lagoon means an impoundment made by excavation or earthfill for biological treatment and storage of animal waste.

(31) A water control structure means a permanent structure placed in farm canals and ditches, which

provides control of surface and subsurface drainage to improve water quality. The primary benefit is to reduce nutrient pollution. Other benefits may include reduced pollution from other dissolved and sediment-attached substances, reduced sedimentation and reduced stormwater surges of fresh water into estuarine areas.

(32) A wetland restoration system means a system of practices designed to restore the natural hydrology of an area that had been drained and cropped.

*To be used in conjunction with the most recent version of the APA Rules for the North Carolina Agriculture Cost Share Program for Nonpoint Source Pollution Control and the NC-ACSP Manual.

Attachment B

NC Agriculture Cost Share Program
Practice Log Summary

Year : **2006**
Program : **CS, SE, CE**

Best Management	Planned Units	Msr.	Cost	Implemented Units	Msr.	Cost
Erosion/Nutrient Reduction						
Conservation Tillage (3 Yr.)	7,167.31	Acre	$571,436	5,654.32	Acre	$445,495
Long Term No-Till	2,944.60	Acre	$356,287	2,076.34	Acre	$259,700
Sod-Based Rotation	2,089.70	Acre	$314,291	1,538.08	Acre	$233,569
Cropland Conversion - Grass	4,981.36	Acre	$1,059,244	3,955.68	Acre	$841,642
Cropland Conversion - Trees	1,755.15	Acre	$162,903	1,145.28	Acre	$103,679
Cropland Conversion - Wildlife	1.60	Acre	$360	0.00	Acre	$0
Christmas Tree Conservation Cover	211.00	Acre	$23,565	33.00	Acre	$3,592
Critical Area Planting	58.59	Acre	$120,525	23.33	Acre	$55,612
Diversion	6,051.00	Feet	$9,598	3,179.00	Feet	$2,774
Land Smoothing	1,484.47	Acre	$178,386	531.47	Acre	$69,132
Terraces	11,188.00	Feet	$14,390	10,239.00	Feet	$13,189
Pastureland Conversion To Trees	27.70	Acre	$5,373	0.00	Acre	$0
Stripcropping	26.00	Acre	$3,510	0.00	Acre	$0
Nutrient Scavenger Crop	1,285.70	Acre	$28,012	448.40	Acre	$8,072
Ag Road Repair-Stabilization	20,914.64	Feet	$138,766	2,470.84	Feet	$49,204
Sediment/Nutrient Reduction						
Grassed Waterway	115.73	Acre	$277,539	68.69	Acre	$162,107
Field Border	212.06	Acre	$385,946	127.19	Acre	$240,599
Filter Strip	3.50	Acre	$7,131	3.90	Acre	$7,561
Riparian Buffer	1,046.24	Acre	$91,412	985.66	Acre	$74,582
Water Control Structure	70.00	Units	$182,941	15.00	Units	$48,573
Nutrient Management	8,230.30	Acre	$129,843	6,331.30	Acre	$81,556
Rock-Lined Outlet	3.00	Units	$17,733	1.00	Units	$636
Streambank Stabilization	5,786.00	Feet	$78,571	1,414.00	Feet	$31,261
Grade Stabilization Structure	14.00	Units	$39,867	6.00	Units	$11,583
Wetlands Restoration System	4.00	Units	$28,814	0.00	Units	$1,427
Sediment Control Basin	1.00	Units	$2,338	1.00	Units	$2,338
Stream Protection						
Trough Or Tank	369.00	Units	$587,569	114.00	Units	$161,275
Livestock Exclusion	258,279.60	Feet	$365,036	51,220.00	Feet	$63,486
Heavy Use Area Protection	94.00	Units	$232,991	43.00	Units	$93,546
Stream Crossing	33.00	Units	$54,350	8.00	Units	$10,702
Stock Trail	40.00	Units	$126,507	18.00	Units	$42,999
Spring Development	48.00	Units	$74,216	18.00	Units	$26,397
Well	65.00	Units	$261,813	22.00	Units	$78,838
Livestock Feeding Area	6.00	Units	$13,137	0.00	Units	$0
Waste Management						
Dry Stack	49.00	Units	$869,833	21.00	Units	$419,761
Incinerator	71.00	Units	$514,299	23.00	Units	$133,061
Feed/Waste Storage	19.00	Units	$303,188	7.00	Units	$71,978
Gasifier	2.00	Units	$8,404	0.00	Units	$0
Closure - Waste Impoundments	16.00	Units	$269,352	11.00	Units	$167,357
Waste Application Equip	44.00	Units	$368,694	28.00	Units	$269,270
Retrofit	1.00	Units	$19,882	0.00	Units	$0
Waste Storage Pond	1.00	Units	$7,641	1.00	Units	$7,641
Composter	10.00	Units	$63,332	5.00	Units	$16,559
Odor Control	4.00	Units	$76	0.00	Units	$0
Storm Water Management	9.00	Units	$13,062	2.00	Units	$3,362

NC Agriculture Cost Share Program
Practice Log Summary

Year : **2006**
Program : **CS, SE, CE**

Best Management	Units	Planned Msr.	Cost	Units	Implemented Msr.	Cost
Agri-Chemical Pollution Prevention						
Agri-Chemical Handling Facility	7.00	Units	$85,160	2.00	Units	$18,274
Fertigation Backflow Prevention	2.00	Units	$3,000	0.00	Units	$0
Contracts: 1,498	0200 0	Total:	$8,470,323		Total:	$4,332,389

	Value	Expended
Contract $:	$8,403,977	$4,332,389
Non-ACSP	$34,606	$0
Total $:	$8,438,583	$4,332,389

Dairy	1,986
Beef	9,150
Fish	100,693
Hogs	145,070
Horses	380
Broilers	5,893,900
Layers	110,800
Turkeys	386,200
Poultry	1,862,064
Sheep	150
Goats	368

Acres Affected	Acre	78,085.16
Soil Saved	Tons	171,633.11
Nitrogen Saved	Pound	926,743.07
Phosphorus Saved	Pound	156,765.66
Waste-N Managed	Pound	4,004,180.65
Waste-P Managed	Pound	4,483,211.40

ATTACHMENT C

NC AGRICULTURE COST SHARE PROGRAM
WATER QUALITY IMPROVEMENT PURPOSES OF APPROVED BMPs

Purpose: Sediment/Nutrient Delivery Reduction From Fields

BMP	Reduction of applied nutrient	Reduction of soil loss	Nutrient interception	Facilitating BMP	Life of BMP (yrs)
Field Border	-	√	√	-	10
Filter Strip	-	√	√	-	10
Grade Stabiliz. Structure	-	-	-	√	10
Grassed Waterway	-	√	√	-	10
Nutrient Mgmt.	√	-	-	-	3
Riparian Buffer	-	√	√	-	10
Rock-lined Outlet	-	-	-	√	10
Sediment Control Basin	-	-	√	-	10
Water Control Structure	-	√	√	-	10
Streambank Stabilization	-	√	√	-	10
Agricultural Road Repair/Stabilization	-	√	-	-	10

Purpose: Erosion Reduction/Nutrient Loss Reduction in Fields

BMP	Reduction of applied nutrient	Reduction of soil loss	Life of BMP (yrs.)
Conservation Tillage 3-yr	-	√	3
Critical Area Planting	-	√	10
Cropland Conversion	√	√	10
Water Diversion	-	√	10
Land Smoothing			10
Long Term No-till	-	√	5
Pastureland Conversion	√	√	10
Sod-based Rotation	√	√	4 or 5
Stripcropping	√	√	5
Terraces	-	√	10
Wetlands Restoration			10
Christmas Tree Conservation Cover	√	√	6
Nutrient Scavenger Cover Crop	√	√	10

Purpose: Agricultural Chemical Pollution Prevention

BMP	Interception of chemicals	Life of BMP (yrs.)
Agri-chemical Handling Facility	√	10
Chemigation Back Flow Prevention	√	10
Fertigation Back Flow Prevention	√	10

Purpose: Proper Animal Waste Management

BMP	Proper mgmt. of nutrients	Reduction of soil loss	Nutrient interception	Facilitating BMP	Life of BMP (yrs.)
Animal Waste Lagoon Closure	√	-	-	-	5
Constructed wetlands	√	-	√	-	10
Controlled Livestock Lounging Area	-	√	-	√	10
Dry Manure Stack	√	-	-	-	10
Feeding/Waste Storage					10
Heavy Use Area Protection	-	√	-	-	10
Insect Control	-	-	-	-	5
Odor Control	-	-	-	-	1-10
Storm Water Management	√	-	-	-	10
Waste Treatment Lagoon/Storage Pond	√	-	-	-	10
Mortality Management Systems Incinerators	√ √	- -	- -	- -	10 5
Waste Application System	√	-	-	√	10
Offsite/Alternative Dry Litter Incentive	√	-	-	-	1

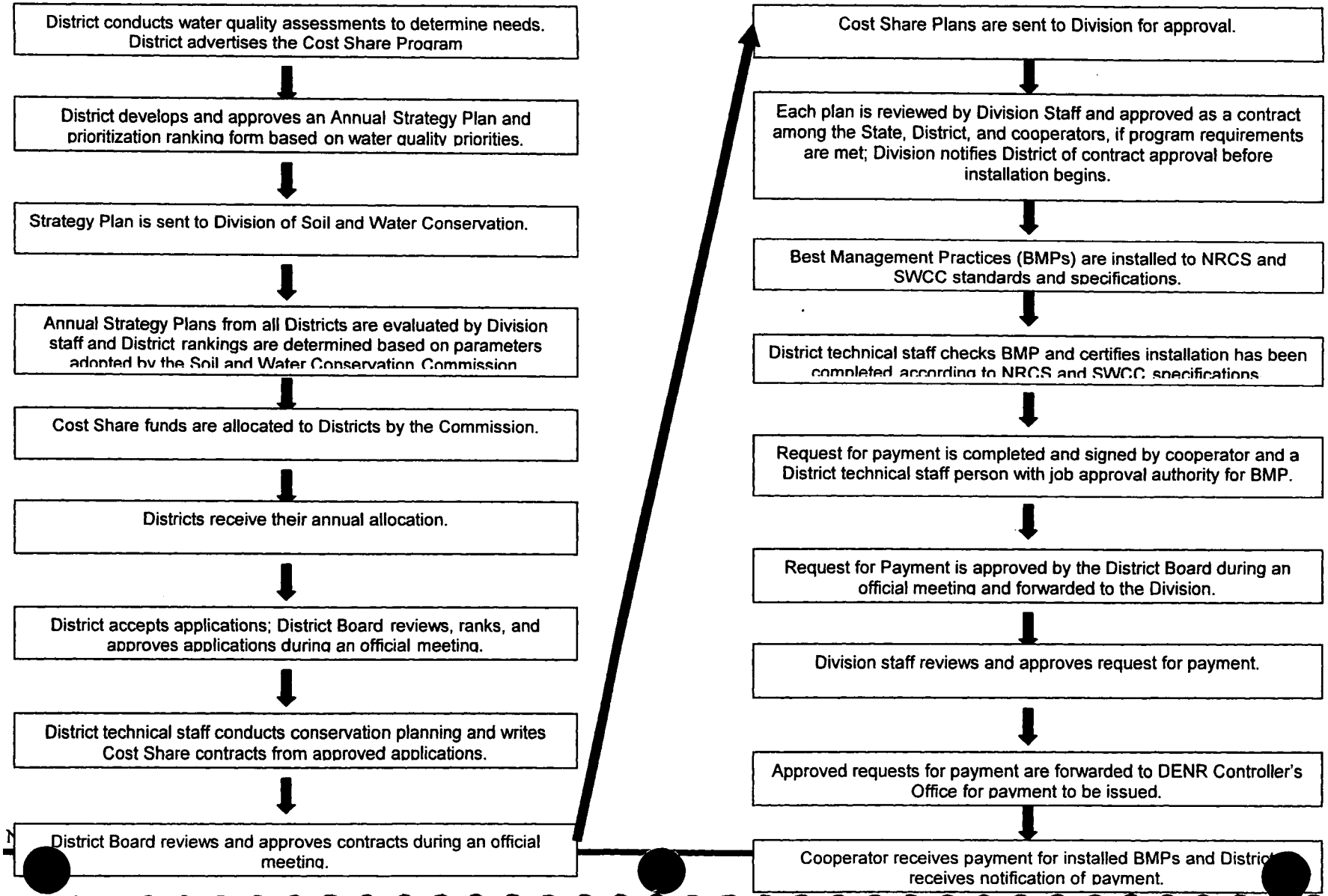
Purpose: Stream Protection from Animals

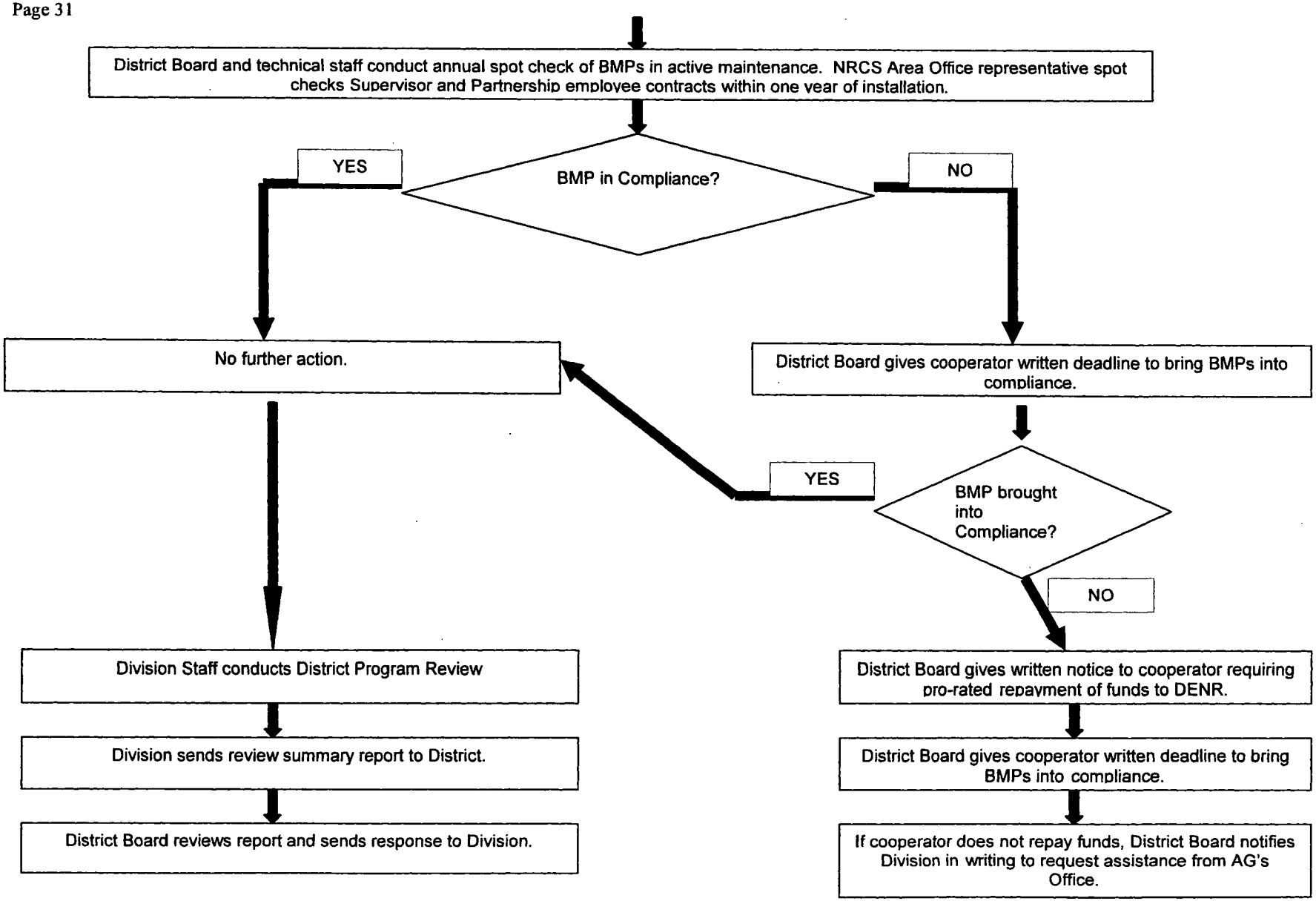
BMP	Reduction of applied nutrient	Reduction of soil loss	Facilitating BMP	Life of BMP (yrs.)
Heavy Use Area Protection	-	√	-	10
Livestock Exclusion System	√	√	-	10
Spring Development	-	-		10
Stock Trail	-	√	-	10
Stream Crossing		√	-	10
Trough or Tank	-	-	√	10
Well	-	-	√	10
Windmill	-	-	√	10
Livestock Feeding Area	-	-	√	10

Attachment D

NC Agriculture Cost Share Program

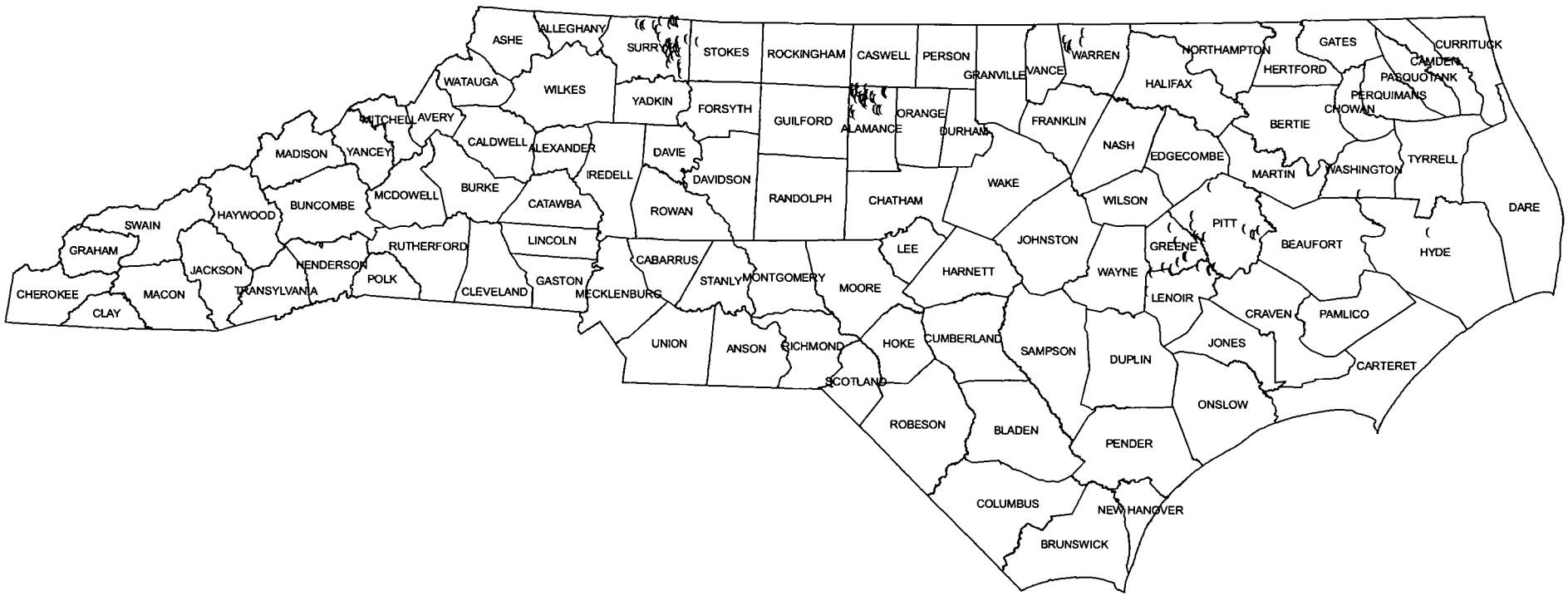
Funding and Compliance Process




District Board and technical staff conduct annual spot check of BMPs in active maintenance. NRCS Area Office representative spot checks Supervisor and Partnership employee contracts within one year of installation.
BMP in Compliance?
YES
NO
No further action.
District Board gives cooperator written deadline to bring BMPs into compliance.
YES
BMP brought into Compliance?
NO
Division Staff conducts District Program Review
Division sends review summary report to District.
District Board reviews report and sends response to Division.
District Board gives written notice to cooperator requiring pro-rated repayment of funds to DENR.
District Board gives cooperator written deadline to bring BMPs into compliance.
If cooperator does not repay funds, District Board notifies Division in writing to request assistance from AG's Office.

Attachment E

2006 Agriculture Sediment Initiative Grant BMP Locations



Legend

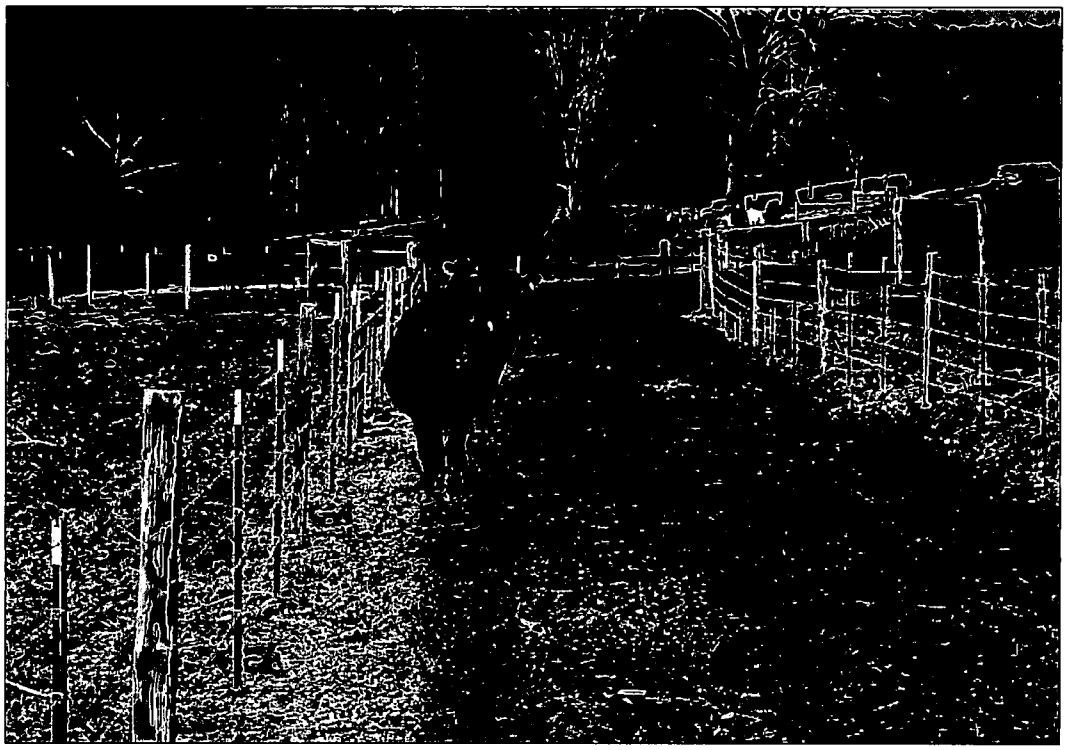
- 319 Tar-Pam Grant 2006 BMP
- Half Million Tar-Pam Grant 2006 BMPs
- Alamance & Surry Grant 2006 BMPs
- Smith Creek Grant 2006 BMPs
- Contentnea Creek Grant 2006 BMPs
- County Boundaries 100

0 45 90 180 Miles

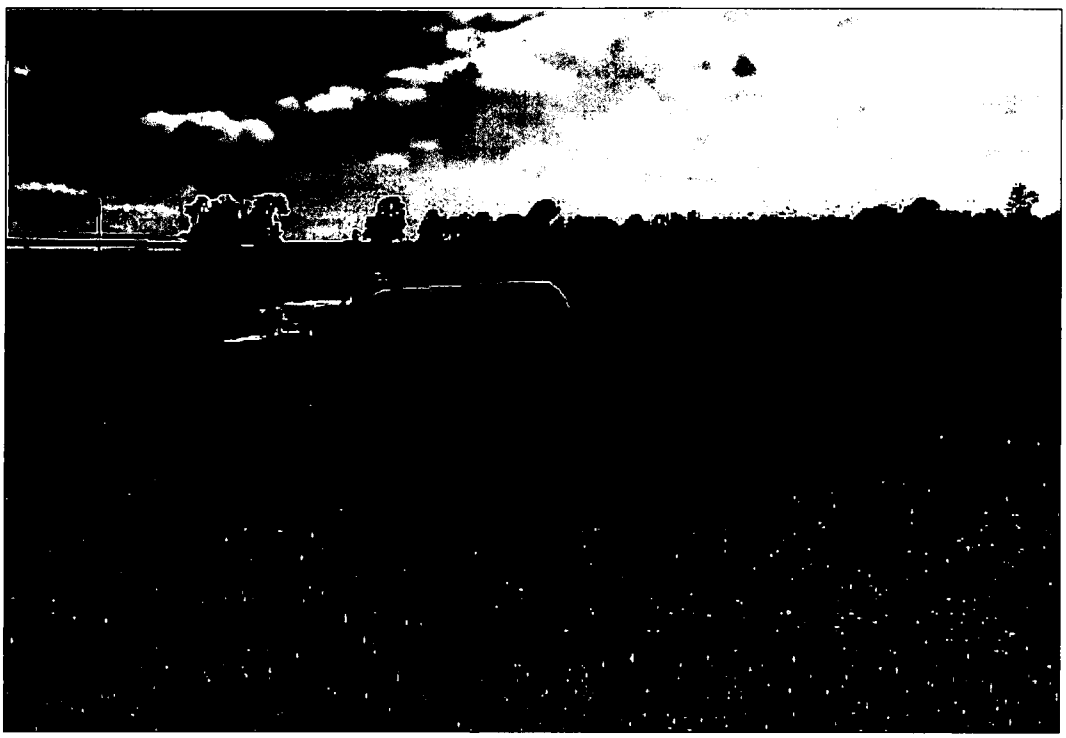
Points represent a point within project boundaries based on data collected by the Division of Soil and Water Conservation. This data set represents 30 projects in the database contracted in 2006.

ATTACHMENT F

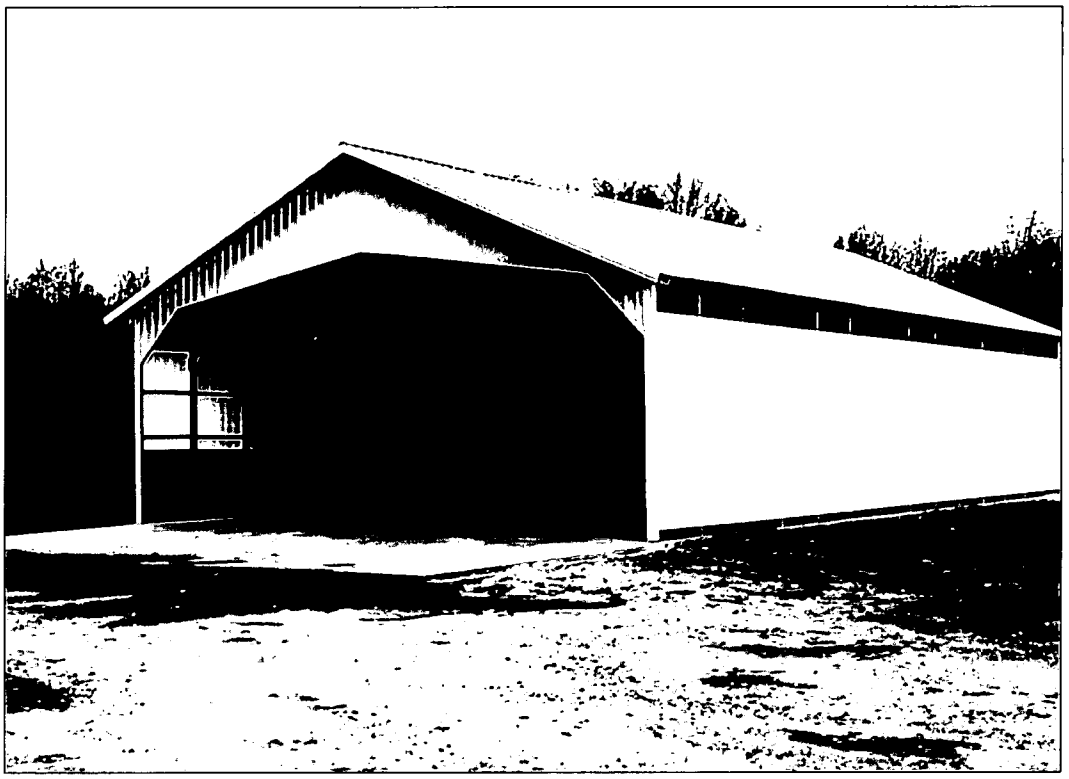
EXAMPLES OF SEVERAL COMMONLY USED ACSP BEST MANAGEMENT PRACTICES



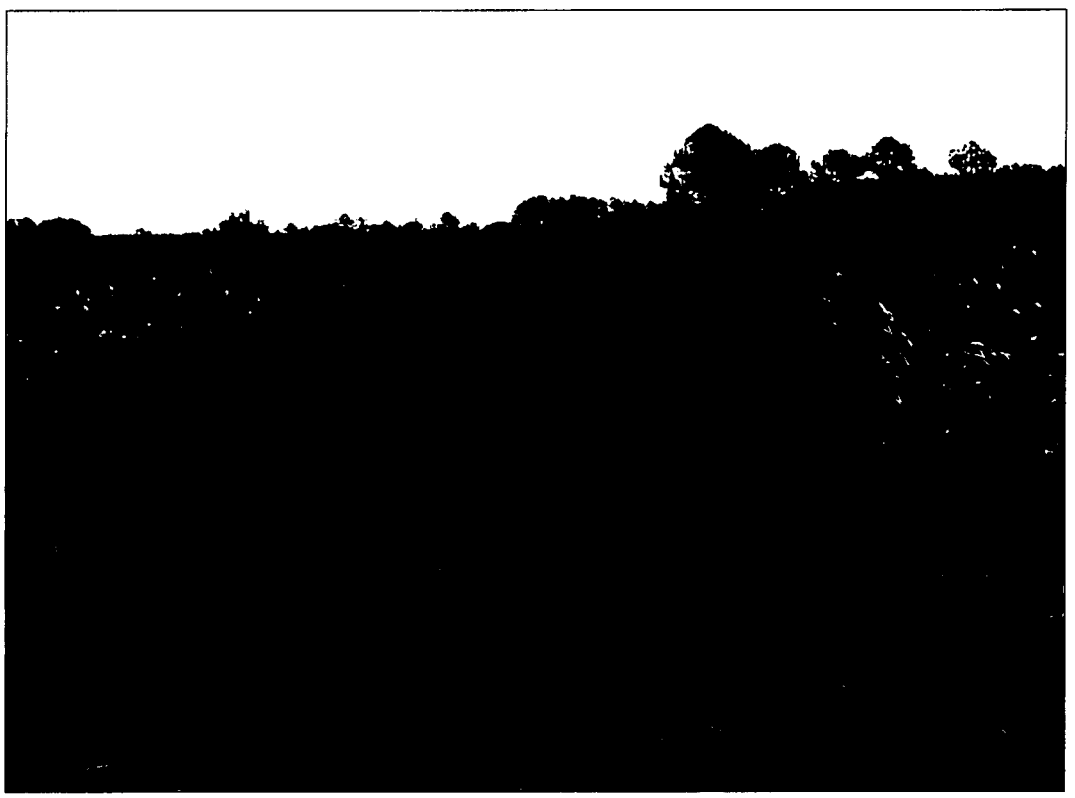
STOCK TRAIL: A stock trail or walkway stabilizes an area used frequently and intensively by livestock. The practice involves surfacing with material that helps improve water quality by reducing soil erosion, sedimentation and nutrient pollution, and sediment-attached substances.



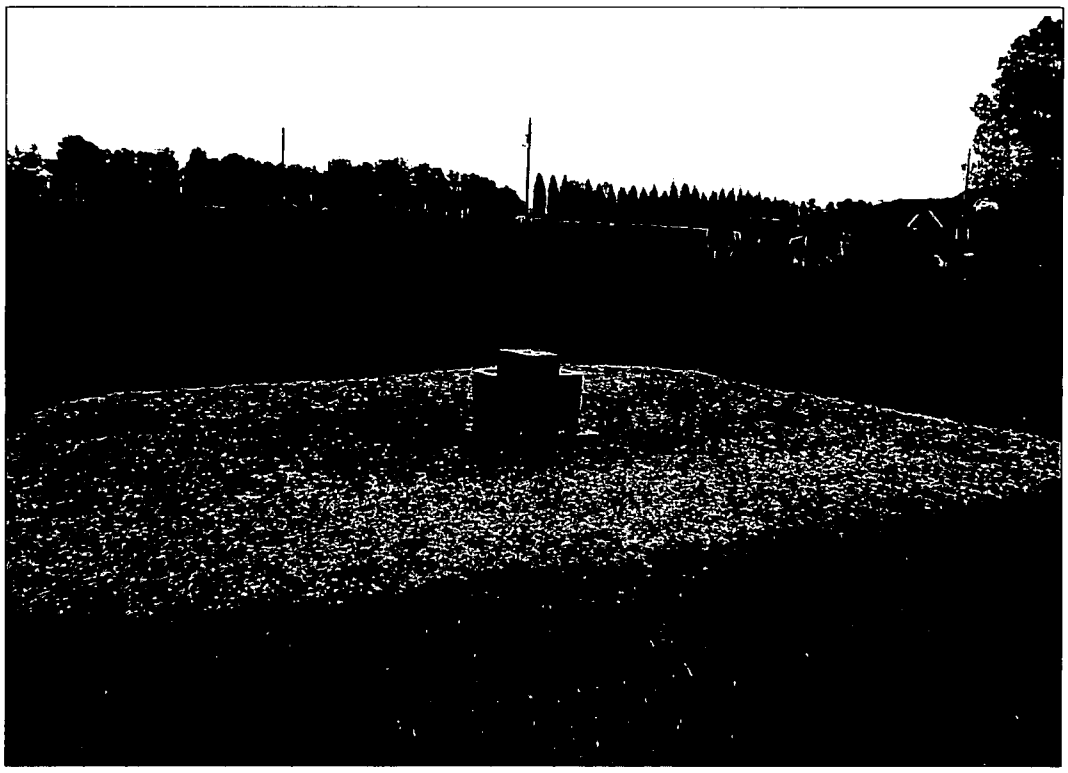
SLURRY SPREADER: This is a mobile irrigation device that conveys and distributes animal waste from treatment and storage structures to fields as part of an overall irrigation and waste utilization plan.



DRYSTACK: A drystack is a fabricated structure designed for temporary storage of animal waste.

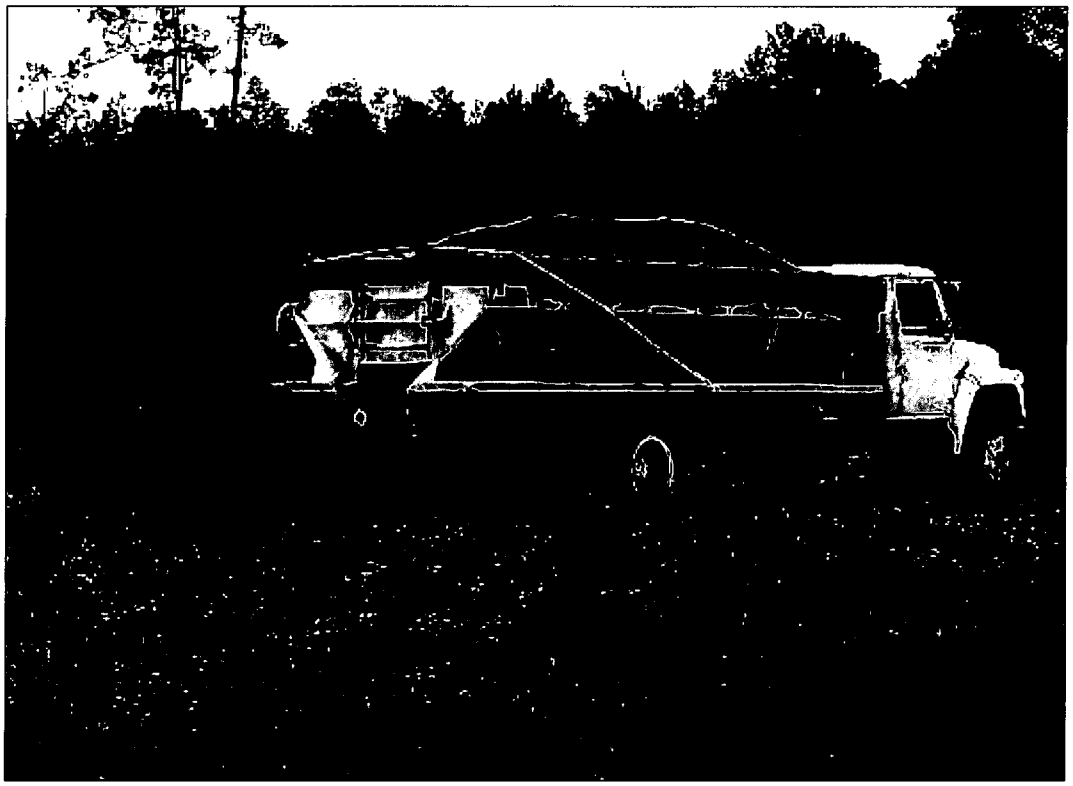


GRASSED WATERWAY: A grassed waterway is a natural or constructed channel that is shaped or graded to required dimensions and established with suitable vegetation for the stable conveyance of runoff to improve water quality.

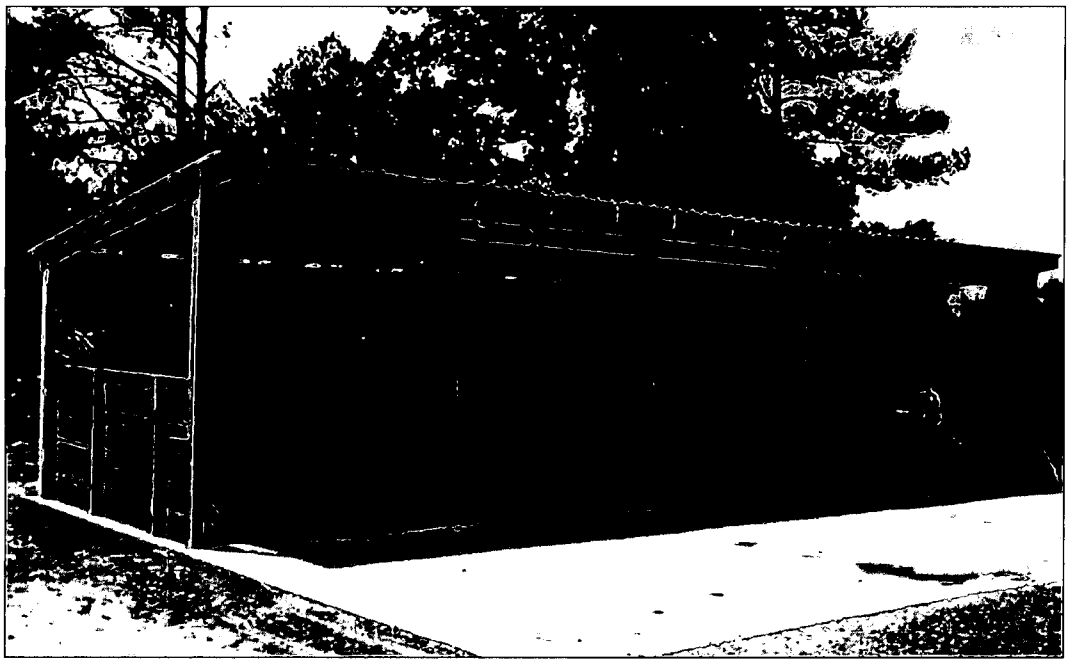


TANK: A tank or trough is a device installed to provide drinking water for livestock at a stabilized location.

STREAM CROSSING: A stream crossing is a trail constructed across a stream to allow livestock to cross without disturbing the bottom or causing soil erosion on the banks.



POULTRY LITTER SPREADER: A poultry litter spreader is a truck mounted device utilized for applying, processing and/or transporting poultry dry litter to reduce nutrient impacts.



COMPOSTER: A composter is used as part of an overall animal mortality management system. In addition to the type shown above, there are rotary drum composters, forced aeration static pile composters, mortality freezers, mortality incinerators, and mortality gasification systems.

EXHIBIT E

State of North Carolina

County of Wake

CONTRACT FOR A STUDY OF THE COSTS ASSOCIATED WITH PROVIDING NUTRIENT CONTROLS THAT ARE ADEQUATE TO OFFSET POINT SOURCE AND NONPOINT SOURCE DISCHARGES OF NITROGEN AND OTHER NUTRIENTS.

THIS AGREEMENT, made and entered into this the 8th day of February, 2007, by and between RTI International, hereinafter referred to as the "RTI", and the Environmental Review Commission, hereinafter referred to as the "ERC", with the approval of the Legislative Services Commission established pursuant to Article 7 of Chapter 120 of the General Statutes, hereinafter referred to as the "Commission.

WITNESSETH:

Whereas, S.L. 2006-215 became law on 8 August 2006.

Whereas, Section 2 of S.L. 2006-215 directs the ERC, with the assistance of the Division of Water Quality of the Department of Environment and Natural Resources, to study issues related to the nutrient offset payment program and to specifically study the costs associated with providing nutrient controls that are adequate to offset point source and nonpoint source discharges of nitrogen; whether nutrient offset payments should be authorized for additional nutrients, including phosphorus; and whether the nutrient offset program should be expanded to other areas of the State.

Whereas, Section 2 of S.L. 2006-215 directs the ERC to report its findings, together with any recommended legislation, to the 2007 General Assembly.

Whereas, the ERC issued a Request for Proposal on 15 December 2006, seeking a consultant to:

1. Estimate the length of time that the existing North Carolina Nutrient Offset Fee Payments Program (NOFPP) will be able to continue as a

completely self-sustaining program capable of providing adequate mitigation for the additional nitrogen loading purchased at the current cost of $11 per pound of nitrogen.

2. Study the costs associated with providing nutrient controls that are adequate to offset point source and nonpoint source discharges of nitrogen in the Neuse River Basin.
3. Study how a total nutrient offset payment fee should be determined.
4. Provide information and outline options, including the advantages and disadvantages of each option, to assist the ERC in deciding whether nutrient offset payments should be authorized for additional nutrients, including phosphorus, and whether the NOFPP should be expanded to other river basins, including the Tar-Pamlico River Basin.
5. Evaluate the ability of public entities other than the Environmental Enhancement Program (EEP) and private entities to provide nutrient offsets.
6. Prepare a comprehensive review and discussion of the types of potential nutrient mitigation efforts available.

Whereas, RTI's response has been accepted by the ERC.

Whereas, the parties to this agreement desire to reduce the terms of their agreement to writing.

NOW THEREFORE, for and in consideration of the mutual promises made to each other, as hereinafter set forth, the parties do hereto mutually agree as follows:

1. Performance of Study

RTI shall perform services in a manner consistent with the degree of care and skill ordinarily exercised by members of the same profession and consistent with this agreement to accomplish the study described in the Request for Proposal, Appendix B. RTI agrees to perform the study as provided in RTI's response, Appendix C. In the event of a conflict of terms between this agreement, the Request for Proposal, and RTI's response, the provisions of the designated documents shall control in the following order: First, this agreement; second, the Request for Proposal; and third, RTI's response.

2. Contract Period and Schedule

RTI agrees that time is of the essence in the completion of this agreement and agrees that services under this agreement are to commence on the execution date of this agreement and shall terminate on 15 May 2007, or upon the filing of the final report, whichever occurs first, unless extended or terminated as provided herein.

RTI agrees to the following reporting schedule:

First Phase Report:	26 February 2007
Presentation of draft final results:	30 April 2007
Final Report:	15 May 2007

3. Contract Administrator

George F. Givens, Commission Counsel, ERC, is designated as the Contract Administrator for the ERC. The contract administrator shall be responsible for ensuring that RTI complies with the terms, conditions, and performance specifications set forth in this contract, and an evaluation of RTI's performance. The ERC has complete discretion in replacing the contract administrator with another person of its own choosing. The ERC shall notify RTI of any replacement of the contract administrator.

4. Availability of Funds

The payment of compensation specified in this agreement, its continuation, or any renewal or extension thereof, is dependent upon and subject to the allocation or appropriation of funds to the ERC for the purposes set forth in this agreement.

5. Payments

ERC shall make payments to RTI for its services as provided below:

a. An invoice for the first payment of thirty percent (30%) of the contract amount twenty-seven thousand nine hundred and forty dollars ($27,940) may be submitted by RTI upon signing of the contract. Payment shall be made within thirty (30) days of approval of the invoice by the Contract Administrator.

b. An invoice for the second payment of thirty percent (30%) of the contract amount twenty-seven thousand nine hundred and forty dollars ($27,940) may be submitted by RTI upon submittal of a progress report five weeks after the contract signing date. Payment shall be made within thirty (30) days of approval of the invoice by the Contract Administrator.

c. An invoice for the third and final payment of forty percent (40%) of the contract amount thirty-seven thousand two hundred fifty-three dollars ($37,253) may be submitted by RTI upon delivery of the final report. Payment shall be made within thirty (30) days of approval of the invoice by the Contract Administrator.

Notwithstanding any other provision of this contract, total payment under this contract, including expenses, shall not exceed ninety-three thousand one hundred and thirty-three dollars ($93,133) for services described in this agreement.

6. Additional Contract Expenses

The contract for the project is not a time and materials agreement. Any expenses of RTI in addition to those contracted for are the sole responsibility of RTI.

7. Independent Contractor

RTI shall be considered to be an independent contractor and shall be wholly responsible for the work to be performed and for the supervision of its employees. RTI shall hold and save the ERC harmless from any and all claims, demands, or causes of action that may be asserted due to the production activity of RTI under this contract. RTI represents that it has, or will secure at its own expense, all personnel required in performing the services under this agreement. These employees shall not be employees of, or have any individual contractual relationship with the ERC or the Legislative Services Commission.

8. Key Personnel

RTI shall not substitute key personnel designated in the RTI's response and assigned to the performance of this contract without prior written approval by the ERC. The individuals designated as key personnel for purposes of this contract are Michael Gallaher and Kathy Heller.

9. Subcontracting

Work proposed to be performed under this contract by RTI or its employees shall not be subcontracted without prior written approval of the ERC.

10. Confidentiality

RTI agrees to protect the confidentiality of any files, data, or other materials provided by the ERC and to restrict their use to the purpose of performing the contract. RTI shall comply with the provisions of Article 17 of Chapter 120 of the General Statutes of North Carolina regarding confidentiality between the RTI and members of the General Assembly. For purposes of this paragraph only, employees of RTI shall be considered "legislative employees" as defined in General Statute 120-129.

11. Care of Property

RTI agrees to be responsible for the proper custody and care of any files or other property furnished by the ERC. RTI shall take all steps necessary to safeguard any property, including data, files, reports, or other information from loss, destruction, or erasure. Any costs or replacement expenses, or damages resulting from the loss shall be borne by RTI when the loss occurred through its negligence.

12. Copyright

No deliverable items produced in whole or in part under this agreement shall be the subject of an application for copyright by or on behalf of RTI or any employee of RTI.

13. Advertising

RTI agrees not to use the existence or results of the contract, or the products produced pursuant to the contract as a part of any news release or commercial advertising without the prior written approval of the ERC.

14. Access to Persons and Records; Public Records

The State Auditor shall have access to persons and records as a result of all contracts or grants entered into by State agencies or political subdivisions in accordance with General Statute 147-64.7. RTI shall retain all records for a period of three years following completion of the contract.

To the extent that RTI acts on behalf of the ERC pursuant to this contract, RTI shall comply with and take any action necessary to facilitate compliance by the ERC with the provisions of Chapter 132 of the General Statutes.

15. Transfer or Assignment

This contract shall not be transferred or assigned to a third party.

16. Termination and Default

(a) Mutual Termination. -- Upon mutual written agreement of the ERC and RTI, the contract may be terminated at any time.

(b) ERC Termination. – The ERC has the right to terminate the contract at its discretion with 10 days written notice. In the event of termination under this subparagraph, RTI will be paid or reimbursed an amount commensurate with work completed or expenses incurred. In the event that RTI has received funds in excess of the amount commensurate with work completed or expenses incurred, RTI shall repay the excess funds to the ERC.

(c) RTI failure to perform. -- If, for any reason, RTI shall fail to fulfill in timely and proper manner the obligations under this agreement, the ERC shall thereupon have the right to terminate this contract by giving written notice to RTI and specifying the effective date thereof. In that event, all finished or unfinished deliverable items under this contract prepared by RTI shall, at the option of the ERC, become its property, and RTI shall be entitled to receive just and equitable compensation for any satisfactory work completed on these items. RTI shall not be relieved of liability to the ERC for damages sustained by the ERC by virtue of any breach of this agreement, and the ERC may withhold any payment due RTI for the purpose of setoff until a time that the exact amount of damages due the ERC from the breach can be determined. In case of default by RTI, the ERC may procure the services to which it is entitled under this contract from other sources and hold RTI responsible for any cost occasioned thereby.

(d) Liability of RTI. -- In the case of termination or default, the total liability of RTI shall not exceed the total contract amount.

(e) Acts of God, etc. -- No party to this agreement shall be deemed to be in default of any obligation hereunder if and so long as it is prevented from performing the obligation by any act of war, hostile foreign

action, nuclear explosion, riot, strikes, civil insurrection, earthquake, hurricane, tornado or other catastrophic natural event or act of God.

17. General Indemnity

RTI shall hold and save the State of North Carolina, its officers, agents, and employees harmless from liability of any kind, including liability from all claims and losses accruing to any other person, firm, or corporation furnishing or supplying work, services, materials, or supplies in connection with the performance of this contract, and from any and all claims and losses accruing to any person, firm, or corporation that may be injured or damaged by RTI in the performance of this contract and that are attributable to the negligence or intentionally tortious acts of RTI if RTI is notified in writing that the State has knowledge of a claim within 30 days after the State acquires actual knowledge of the claim. RTI represents and warrants that it shall make no claim of any kind or nature against the State's agents who are involved in the delivery or processing of RTI's goods to the State. The representation and warranty in the preceding sentence shall survive the termination or expiration of this contract.

18. Bankruptcy

Upon the filing for bankruptcy or insolvency by or against RTI, the ERC may terminate the contract, and the provisions of the paragraph entitled "Termination and Default" shall apply.

19. Compliance with Laws

RTI shall comply with all laws, ordinances, codes, rules, regulations and licensing requirements that are applicable to the conduct of its business, including those of federal, state, and local agencies having jurisdiction or authority.

20. Applicability of State Ethics Laws

RTI is subject to all applicable provisions of Chapter 138A of the General Statutes, including but not limited to the prohibition on the acceptance of specified gifts from lobbyists and lobbyist's principals, the required reporting of authorized gifts from lobbyists and lobbyist's principals, identification and reporting of names of assigned personnel, and required ethics training.

21. Equal Opportunity Statement

The nondiscrimination clause contained in Section 202 of Executive Order 11246, as amended by Executive Order 11375, relative to equal employment opportunity for all persons without regard to race, color, religion, sex, age or national origin, and the rules and regulations prescribed by the United States Secretary of Labor, are incorporated herein by reference. The program for Employment of the Handicapped (Affirmative Action) Regulations issued by the Secretary of Labor of the United States in Title 20, Part 741, Chapter VI, Subchapter "C" of the Code of Federal Regulations, pursuant to the provisions of Executive Order 11758 and Section 503 of the Federal Rehabilitation Act of 1973, are incorporated herein by reference.

22. Workers Compensation Insurance

RTI shall obtain, pay for, and keep in force, for the duration of the contract, worker's compensation insurance, as required by the laws of North Carolina, covering all employees of RTI engaged in any work pursuant to this contract performed in the State.

23. Amendment

This contract may be amended only by written agreement duly executed by the ERC and RTI and approved by the Commission.

24. Incorporations by reference

S.L. 2006-215, is attached to this contract as Appendix A and incorporated herein by reference. The Request for Proposal issued by the ERC, entitled "Report on Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients", is attached to this contract as Appendix B and incorporated herein by reference. RTI's response is attached to this contract as Appendix C and incorporated herein by reference.

25. Entire agreement

This contract, including any documents or exhibits specifically incorporated by reference, represents the entire agreement between the parties and supersedes all prior oral or written statements or agreements.

26. Notice

Any notice under this contract to the ERC shall be sufficient if mailed to the Legislative Services Office as indicated below:

George F. Givens, Commission Counsel
Environmental Review Commission
General Assembly of North Carolina
300 North Salisbury Street
545 Legislative Office Building
Raleigh, NC 27603

Any notice under this contract to RTI shall be sufficient if mailed to RTI as indicated below:

Sherri Spinks
Office of Research Contracts
RTI International
3040 Cornwallis Road
Research Triangle Park, NC 27709-2194

27. Governing Law

This contract is made under and shall be governed and construed in accordance with the laws of the State of North Carolina.

28. Situs

The place of this contract, its situs and forum, shall be Wake County, North Carolina, where all matters, whether sounding in contract or tort, relating to is validity, construction, interpretation, or enforcement, shall be determined.

29. Applicability of terms

All promises, requirements, terms, conditions, provisions, representations, guarantees, and warranties contained herein shall survive the contract expiration or termination date unless specifically provided otherwise herein, or unless superseded by applicable Federal or State statutes of limitations.

IN WITNESS THEREOF, the parties have executed this agreement in duplicate originals, one of which is retained by each of the parties effective this the day and year first written above.

FOR THE ENVIRONMENTAL REVIEW COMMISSION

WITNESS: _____ BY: _____
Sen. Daniel G. Clodfelter, Cochair

WITNESS: _____ BY: _____
Sen. Charles W. Albertson, Cochair

WITNESS: _____ BY: _____
Rep. Pryor A. Gibson III, Cochair

FOR RTI INTERNATIONAL

WITNESS: _____ BY: _____
Don Enichen
Office of Research Contracts
RTI International
3040 Cornwallis Road
Research Triangle Park, NC 27709-2194

APPROVED BY THE LEGISLATIVE SERVICES COMMISSION

WITNESS: _____ BY: _____
Marc Basnight, President Pro Tempore

WITNESS: _____ BY: _____
Joe Hackney, Speaker of the House

EXHIBIT F

February 2007

A Study of the Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients

First Deliverable: Study Methodology

Prepared for

Environmental Review Commission

Prepared by

Michael P. Gallaher (RTI)
Randy Dodd (RTI)
Kimberly Matthews (RTI)
Dallas Wood (RTI)
Tom Scheuler (CWP)
Anne Kitchell (CWP)
Bill Hunt (NCSU)

RTI Project Number 0210565.000.001

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RTI International is a trade name of Research Triangle Institute.

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1. INTRODUCTION AND BACKGROUND

The Neuse River Basin has experienced significant environmental harm as a result of high levels of nutrients being emitted into its water. These nutrients are directly emitted into the water at "point sources" (such as wastewater treatment facilities) and indirectly emitted at "nonpoint sources" (such as agricultural and developed lands where rain runoff carries the nutrients into the river). To address this problem, the North Carolina General Assembly set limits for the amount of nutrients these sources could emit into the river system (NCDOWQ, 2006).

In lieu of meeting this limit, dischargers and developers can either construct more stringent nutrient controls on site or they can pay a specified fee to the Riparian Buffer Restoration fund as part of the Nutrient Offset Fee Payment Program (NOFPP). The NOFPP is administered by the Ecosystem Enhancement Program (EEP), which can use the funds paid by excess emitters to construct nutrient controls within the river basin that offset the excess nutrients they emit (NCDOWQ, 2006).

During fiscal year 2005–06, payments were made by 302 customers located in the counties of Craven, Durham, Johnston, Pitt, Wake, Wayne, and Wilson and the municipalities of Cary, Durham, Garner, Goldsboro, Greenville, Havelock, New Bern, Raleigh, Smithfield, and Wilson. During fiscal year 2005–06, EEP received $2,349,247 in payments for 213,567.9 pounds of nutrient reduction.

EEP has accepted 526,373.04 total pounds of nitrogen removal in the Neuse River Basin since the program's inception. EEP has instituted projects that will reduce 527,339.68 total pounds of nitrogen. NOFPP projects are currently a combination of traditional NOFPP projects and instituted Riparian Buffer Restoration projects in the Neuse River Basin. During the last year, EEP began accepting mitigation payments to reduce nitrogen and phosphorus in the Tar-Pamlico River Basin. The mitigation for these payments is not yet due.

Currently, the cost of reducing nitrogen and phosphorus exceeds the fee schedule. In 2006, the Department of Water Quality (DWQ) raised fees through rulemaking, but the General Assembly postponed these rules so that a cost study could be implemented.

The original offset fee NOFPP charged for excess nitrogen emissions was set in 1998 at $11 per pound of nitrogen per year for the Neuse River Basin. However, this fee was estimated without the benefit of historical data for what offset mitigation projects would cost (NCDOWQ, 2006). Thus, in 2006, several changes to the original 1998 payment rules were proposed to better reflect the true costs of mitigation and to expand the program to new river systems. These changes included the following:

- raising the nitrogen offset fee from $11 to $57 per pound per year,
- expanding the NOFPP to the Tar-Pamlico River Basin, and
- creating a nutrient offset program for phosphorous in the Tar-Pamlico River Basin.

These changes became effective on March 1, 2006, during the 2005 session of the North Carolina General Assembly (NCDOWQ, 2006). However, later in the 2005 General Assembly session, some of these changes were temporarily rescinded by Senate Bill 1862. This bill required that nitrogen offset fees be temporarily returned to their previous levels of $11 per pound per year and that there be no nutrient offset program for phosphorous. The bill also called for the General Assembly's Environmental Review Commission to conduct a study of the NOFPP. The objectives of this study include the following:

- Objective 1: Evaluate the sustainability of the program at the current fee of $11 per pound of nitrogen
- Objective 2: Develop a proposed fee based on the cost-effectiveness analysis
- Objective 3: Develop a formula for the calculation of the offset payment fee
- Objective 4: Assess the advantages and disadvantages of expanding the nutrient offset payments to other nutrients and additional areas of the state
- Objective 5: Evaluate the ability of public (other than the EEP) and private entities to provide nutrient offsets
- Objective 6: Develop a comprehensive review of potential nutrient mitigation efforts available

This study was contracted to RTI International in 2007. RTI's approach to meeting each of the seven study objectives is

based on the formula for emission payments that was introduced by the 2006 amendments to the 1998 Nutrient Offset Payments Rule. This formula is described in Section 2. Sections 3 through 6 discuss how the parameters of this formula will be estimated. Section 7 concludes with a discussion of the timeline for completing the study.

2. OVERVIEW OF NITROGEN AND PHOSPHOROUS PAYMENT FORMULAS

Among the changes presented in the 2006 amendments to the original Nutrient Offset Payments Rules were new formulas for calculating the total dollar amount that a new development or wastewater discharger would be required to pay in lieu of meeting the nutrient loading limits. The formula for calculating the nitrogen offset payment is:

Nitrogen Payment = [(*$ / lb*)(*# of lbs / year*)(*30 years*) + (*Land Cost $ / Ac*)(*1 Ac / 35 Ac*)(*Devel. In Ac*)] × (*1.1 Ad Costs*)

where,

$/lb =	the cost of mitigation in dollars per pound of nitrogen mitigation. As discussed in the previous section, this cost is currently set to $11 per pound.
# of lbs/year =	the number of pounds of nitrogen discharged each year for which mitigation is being requested.
Land Cost $/Ac =	the current property value of the property being developed as measured in dollars per acre. This value is based on the most recent county tax assessment.
1 Ac / 35 Ac =	an adjustment factor, indicating that 1 acre of mitigation is required for every 35 acres of development.
Devel. in Ac =	the overall size of the development, as measured in acres, for which mitigation is being requested.
1.1 Ad Costs =	an adjustment factor used to reflect the administrative costs associated with the requested mitigation.

The formula for calculating payments for phosphorus is similar (NCDENR, 2005). These formulas will serve as the backbone of

how RTI will address the seven study objectives discussed in the introduction. The remainder of this document explains how RTI will evaluate the formulas and their specific components.

3. COST ESTIMATION "$/LB"

At the core of this study will be the identification, integration, and analysis of project costs. RTI's team has a significant amount of information in-house that we can leverage. In 1997 and more recently in 2006, the Center for Watershed Protection (CWP) compiled and analyzed actual cost data for constructing ponds, wetlands, bioretention, filtering systems, and retrofits around the country. This effort generated average costs for design, engineering, and permitting of these projects; maintenance costs have not been well estimated. In addition, Dr. Bill Hunt, at North Carolina State University (NCSU), has access to expenses accrued by NCSU for constructing bioretention cells and storm water wetlands, including maintenance costs (annual labor hours to maintain, maintenance equipment costs, and materials).

RTI will augment this information through interviews and literature reviews described below. Because construction costs will vary regionally depending on differences in labor and materials costs, we recommend as much as possible acquiring and analyzing cost data specifically from North Carolina to either support or adjust the national retrofit cost estimates discussed in Section 7.

3.1 Recommended Protocol to Acquire and Analyze New North Carolina Retrofit Cost Data

This task involves three components: identifying projects to analyze, interviewing project managers, and analyzing the data. We recommend starting with EEP offset program records to identify appropriate retrofit projects, then following up with other state agencies or the Natural Resources Conservation Services (NRCS) offices, municipal staff from progressive jurisdictions with retrofit programs, and NCSU and other university researchers.

Table 3-1 summarizes the type of data that will need to be collected on each project based on our previous efforts to determine retrofit costs. This table includes the minimum amount of information needed, as well as a list of desirable information.

Table 3-1. North Carolina Retrofit Cost Data to Collect

Minimum Data Required	Desirable Data
▪ Retrofit identifier and contact person ▪ Primary best management practice (BMP) type ▪ Secondary BMP type(s) ▪ Physiographic region ▪ Geographic location ▪ Urban/suburban/rural ▪ Drainage area ▪ % impervious or impervious area ▪ Drainage area land use ▪ Design storm and/or volume treated ▪ Year built (to account for inflation) ▪ Design cost ▪ Construction cost ▪ Land acquisition cost (if applicable)	▪ Surface area or volume (depends on practice) ▪ Funding source ▪ Costs broken down by actual expenses versus in-kind costs (e.g., staff time) ▪ Costs broken down by BMP, if multiple BMPs part of same retrofit site ▪ Design cost broken down by – Permitting – Landscape – Engineering ▪ Project management costs separated from design/construction, as – Planning and misc. project management – Project management during construction ▪ Construction costs broken down by at least – Landscaping – Erosion and sedimentation control – Educational signage or brochures And, if possible – Filter media – Stone – Earthwork – Drainage structures – Labor (if reported separately)

In addition to these data, a narrative of factors that contributed to the cost being especially high or low (e.g., site owner did design and project management, project had to be rebuilt after first storm) would also be helpful. If maintenance or land acquisition costs are available, then they should be collected as well.

Once this information is collected, it should be analyzed by retrofit type and a cost/area treated/practice type can be developed. These data will be compared with the national study conducted by CWP and used to develop standard retrofit costs for developing the dollar-per-pound portion of the offset fee.

3.2 Protocol for Estimating Retrofit Program Delivery Costs

The offset fee should adequately cover not only the cost of constructing a retrofit or pushing paper, but should also be used to cover the costs to administer a retrofit offset program. This cost relates to the local government cost to find, prioritize and choose best retrofit sites in a subwatershed and to deliver those projects.

We have fairly good data on staff effort (hours) to perform all basic subwatershed retrofit assessment methods presented in the forthcoming *Manual on Stormwater Retrofit Practices*. Given a decent labor rate for consultants/local government, it would be possible to estimate these costs as well. To estimate this associated cost, the following subtasks should be completed:

- Gain an understanding of what the current 10% administrative portion of the Neuse offset fee covers. This may involve interviewing EEP program staff to obtain actual or anecdotal information regarding program administration effort.
- Identify staff costs and appropriate labor rates for agency staff, consultants, and watershed group volunteers.
- Establish average staff effort involved (using CWP manuals) for various administrative tasks for the program including, at a minimum, the following components:
  - Project management costs: to include budgeting, scoping, data management, and developing subcontracts
  - Direct costs: travel, printing, reproduction, phone, field supplies, and GIS equipment
  - Identifying appropriate retrofit opportunities in the watersheds: compilation of appropriate GIS mapping data to prepare for watershed assessment, conducting a retrofit inventory, postprocessing data (e.g., determining drainage areas, impervious cover)
  - Developing retrofit concept designs (30% and final)
  - Ranking and prioritizing projects: based on cost, area treated, watershed benefit, feasibility, synergy with other restoration projects, and visibility, for example

- Soliciting support for the project: community involvement/stakeholder meetings to include direct outreach costs
- Modeling to show benefits associated with the project (e.g., water quality and flooding)
- Developing a monitoring and maintenance plan
- Establishing and maintaining a project tracking database

3.3 Discuss Nitrogen/Phosphorus Reduction Issues Associated with Stream Repair/Riparian Reforestation

The majority of the dollars per pound is based on stormwater retrofits in urban settings. This is based on the assumption that most projects under the offset fee program are retrofits. A secondary offset option is to include other restoration alternatives such as stream restoration and rural/agricultural practices. Currently, we have limited cost data on urban stream repair, riparian reforestation practices, impervious cover removal, and on-site retrofits, but we lack much quantifiable removal data. We also lack good data on rural/agricultural practices.

What We Know about Stream Restoration Costs

CWP compiled stream restoration costs in Manual 4 of the Urban Watershed Restoration Manual for Stream Restoration. Table 3-2 summarizes unit costs for various repair practices. These costs were derived in 2004; however, the cost data came from projects dated even earlier.

What We Know about Nitrogen/Phosphorous Pollutant Removal from Stream Restoration or Riparian Reforestation

Stream restoration projects are primarily used to improve aquatic habitat and physical channel conditions in degraded streams, with little attention to their nutrient removal capabilities. Consequently, little research is available for setting an accurate removal efficiency number for total nitrogen (TN) or total phosphorous (TP). Table 3-3 provides some guidance on estimated TN and TP removal efficiency for stream restoration based on the stream restoration efficiency numbers used by the Maryland DNR. Recent research has begun to examine the issue of the removal efficiencies of stream restoration projects for nitrogen and phosphorus. The work of a number of researchers suggests that urban stream restoration

Table 3-2. Comparative Cost of Stream Repair Practices

Repair Practice	Unit Cost	Feasibility Notes
Boulder revetments	$20 to 40 per linear foot (lf)	Noncohesive soils
Rootwad revetments	$10 to 100 per lf	recreational use
Imbricated rip-rap	$60 to 90 per lf	Nondeformable
A-jacks	$65 to 85 per lf	Toe protection only
Live cribwalls	$250 to 300 per lf	Slope failure
Streambank shaping	varies	Need toe protection
Coir fiber logs	$8 to 30 per lf	2 to 5 year lifespan
Erosion control fabrics	$1 to 5 per sy	Woven/non-woven
Soil lifts	$12 to 30 per lf- f	Need toe protection
Live stakes	$1 to 3 per stake	Reach water table
Live fascines	$ 5 to 22 per lf	Sunlight
Brush mattresses	$ 30 to 50 per lf	Toe protection
Vegetation establish.	varies	Invasive species
Wing deflectors	$400 to 800 each	Rock size
Rock or log vanes	$ 400 to 1400 each	Outflanking
Rock vortex weirs	$1200 to $2100 each	High failure rate
Rock cross vanes	$1200 to $1700 each	Outflanking
Step pools	$2000 to $6000 each	Head drop
V-log drops	$800 to $2600 each	Armoring
Lunkers	$45 to 60 per lf	Bedload transport
LWD placement	$20 to 40 per lf	Orientation
Boulder clusters	$60 to 250 each	Rock size
Baseflow enhancement	varies	Bedload transport
Parallel pipes	$50 to 300 per lf	Available head
Stream daylighting	$100 to 300 per lf	Overburden depth
Culvert modification	Varies	
Culvert replacement	Varies	Needs of target fish species
Devices to pass fish	Varies	
Combinations	Varies	Varies
Channel redesign	Varies	Incision
Dechannelization	Varies	Utilities

Note: These cost estimates were derived in 2004 and are based on numbers from earlier studies.

projects may increase the ability of streams to act as nitrogen "sinks" and remove additional levels of nitrogen from urban streams (Groffman et al., 2005; Mayer et al., 2003). Mayer suggests that restoration may enhance denitrification by reestablishing flood plain hydrology and increasing carbon availability, and that structures installed in the stream channel to reduce erosion also may trap organic matter that increase opportunities for nitrogen assimilation. The restoration projects should theoretically also function to reduce phosphorus, because much of the phosphorus will be bound to sediment loads that will be controlled by stream repair practices.

Although the research on pollutant removal appears promising, currently the documented research is not to the point that a reasonable pollutant removal efficiency number could be derived. There is also the issue of high-volume urban stream scenarios, which may result in stream restoration not providing nitrogen removal during storm events because of the rapid movement of water.

Nitrogen and phosphorus removal efficiencies for riparian reforestation are more easily derived. Numerous literature reviews on riparian buffers have been conducted that document their effectiveness (Mayer et al., 2003; Wenger, 1999; Castelle, 1994). Table 3-3 provides some pollutant removal efficiencies for riparian forest planting.

To support this analysis, we recommend completing the following tasks:

1. Determine percentage of current projects funded by offset fees that are nonurban, retrofit projects.
2. Conduct similar investigation specifically in North Carolina for stream repair and buffer restoration project costs as described in Task 1 with retrofits.
3. Investigate additional pollutant removal data for stream restoration and potentially riparian buffer restoration from other sources such as North Carolina Stream Restoration Institute, University of Maryland Center for Environmental Science (http://www.al.umces.edu/), Institute of Ecosystem Studies (http://www.ecostudies.org/), USGS Baltimore Ecosystem Study (http://www.beslter.org/frame4-page_3f_02.html).

Table 3-3. Pollutant Reduction Efficiencies and Reporting Units for Stream Restoration and Riparian Reforestation Practices

Practice	Total Nitrogen (TN) Efficiency (%)	Total Phosphorus (TP) Efficiency (%)	Total Suspended Solids (TSS) Efficiency (%)	Reporting Units
Stream restoration	0.02 lbs/ft	0.0035 lbs/ft	2.55 lbs/ft	Linear feet
Riparian forest buffer planting (urban)	25	50	50	Acres
Upland reforestation (from turf)[a]	90	90	0	Acres
Upland reforestation (from Impervious Cover)[a]	95	95	50	Acres
Riparian forest buffers (rural)[a]	60	70	75	Per acre treated
Riparian grass buffers (rural)	17–57	50–75	50–75	

[a]Provisional estimate

Sources: Removal efficiencies derived from CBP (2005), MD DNR (2002), Cappiella et al. (2005), and land cover loading analysis.

4. METHODS FOR ESTIMATING "# OF LBS/YEAR"

As part of evaluating the formula for payments, we will investigate methods used for calculating both the incremental pounds of nuturients generated from development as well as the number of pounds offset through restoration. It is essential that pounds "in" (generated) equal pounds "out" (offset) by the offset program. To this end, as part of this project, we will investigate how the number of pounds per acre purchased is calculated by design engineers/contractors, as well as how the pounds per acre from site restoration are calculated by the program. Below is our current understanding of how these calculations are developed.

4.1 Nutrient Loads Resulting from Development

An important component of the offset fee formula is establishing the dollar per pound of nitrogen or phosphorus. The basic approach involves the following steps:

Step 1: Calculate Predevelopment Pollutant Load (Estimate acceptable background unit area nutrient load [e.g., forest]). The simple method is used to calculate the pollutant load per acre of impervious cover based on rainfall, impervious cover, mean pollutant concentration, and site area. Impervious cover

is any surface in the urban landscape that cannot effectively infiltrate or absorb rainwater, including roofs; buildings; paved streets; parking areas; and any concrete, asphalt, compacted dirt, or compacted gravel surface.

Step 2: Calculate Postdevelopment Pollutant Load (Estimate unit nitrogen and phosphorus loading rate per acre of impervious cover for new or existing development). The simple method is also used with estimated postdevelopment event-mean-concentrations (EMCs) to obtain the postdevelopment pollutant load.

Step 3: Calculate Pollutant Removal Requirement. The pollutant removal requirement (RR) is calculated by subtracting the predevelopment pollutant loads from the postdevelopment loads.

$$\%RR = [(Load_{post} - Load_{pre})/Load_{post}]*100.$$

The engineer designing the stormwater management plan for the new development site determines the nitrogen and phosphorus loading for the site based on NCDENR's *Manual of Stormwater Best Management Practices* (draft 2005), *Neuse River Basin:* (1999) and *Tar-Pamlico River Basin:* (2004). The calculation for total nutrient export from a proposed site is slightly different for each river basin but is based on the total area and nutrient export coefficients for impervious surfaces and open spaces on the developed site. The Tar-Pamlico River Basin has different calculations for the Piedmont and Coastal regions. If the overall nitrogen and/or phosphorus export is greater than specified in the regulations (15A NCAC 02B.0235 for the Neuse River Basin and 15A NCAC 02B.0258 for the Tar-Pamlico River Basin), then the three nitrogen export reduction options described in Table 4-1 are available.

4.2 Nutrient Loads Offset Through Restoration

The removal efficiencies listed in Table 4-2 are used as listed in NCDENR's *Manual of Stormwater Best Management Practices* (draft 2005).

Table 4-1. Nitrogen Export Reduction Options for the Neuse and Tar-Pamlico River Basins

Residential	Commercial/Industrial
If the computed export is less than 6.0 lbs/ac/yr, then the owner may either 1. Install BMPs to remove enough nitrogen to bring the development down to 3.6 (4.0) lbs/ac/yr. 2. Pay a one-time offset payment of $330/lb to bring the nitrogen down to the 3.6 (4.0) lbs/ac/yr. 3. Do a combination of BMPs and offset payment to achieve a 3.6(4.0) lbs/ac/yr export.	If the computed export is less than 10.0 lbs/ac/yr, then the owner may either 1. Install BMPs to remove enough nitrogen to bring the development down to 3.6 (4.0) lbs/ac/yr. 2. Pay a one-time offset payment of $330/lb to bring the nitrogen down to the 3.6 (4.0) lbs/ac/yr. 3. Do a combination of BMPs and offset payment to achieve a 3.6 (4.0) lbs/ac/yr export.
If the computed export is greater than 6.0 lbs/ac/yr, then the owner must use on-site BMPs to bring the development's export down to 6.0 lbs/ac/yr. Then, the owner may use one of the three options above to achieve the reduction between 6.0 and 3.6 (4.0) lbs/ac/yr.	If the computed export is greater than 10.0 lbs/ac/yr, then the owner must use on-site BMPs to bring the development's export down to 10.0 lbs/ac/yr. Then, the owner may use one of the three options above to achieve the reduction between 10.0 and 3.6 (4.0) lbs/ac/yr.

Note: Values in parentheses apply to Tar-Pamlico Basin.

These data are based on available research data and were updated in 2004. Actual reductions of some BMPs are determined by DWQ based on site-specific design, and others require identification of soil characteristics to determine actual removal efficiencies. BMP pollutant removal efficiencies from the National Pollutant Removal Performance Database (NPRPD) can be examined for the Piedmont and Coastal Plain physiographic regions to determine the magnitude of any differences.

Some factors affecting selection of BMPs include depth to the water table, shallow depth to bedrock, high sediment input, poorly drained soils, slope, and on-site space limitations. These factors will vary between river basins and will even vary between individual regions inside a single river basin. Therefore, the selection of BMP will differ based on the characteristics of the proposed location. For example, Table 4-3 indicates the most acceptable BMPs for each part of the Neuse River basin, as based on decisions of the Neuse River Basin Oversight Committee.

Table 4-2. Assumed Removal Efficiencies (NCDENR, 2005 Draft)

BMP	Nitrogen Removal Efficiency	Phosphorous Removal Efficiency
Stormwater wetlands	40%	35%
Bioretention	35%[a]	45%[b]
Wet detention basin	25%	40%
Extended dry detention basin	10%[c,d]	10%
Grassed swale	20%[c,d]	20%
Filter strip with level spreader	20%	35%
Infiltration device	40-70%[c,d]	
Manufactured BMP system	Varies[e]	Varies[e]
Buffer (50-ft restored buffer with level spreader)	30%	30%
Rooftop runoff management	Varies[c]	Varies[c]
Open sand filter	35%	45%
Closed sand filter	35%	45%

[a]To achieve the nutrient removal efficiency listed requires the use of fill soils with an infiltration rate of between 1 and 3 inches per hour, and the use of mulch on the surface.

[b]To achieve the nutrient removal efficiency listed requires the testing of soils to meet a phosphorus index value of less than 50. Visit http://www.agr.state.nc.us/agronomi/sthome.htm for soil testing information.

[c]Actual reduction will be determined based on site-specific design and installation and DWQ approval.

[d]EPA (2002).

[e]Per manufacturer subject to DWQ approval.

Historically, the BMP most commonly used by the EEP has been riparian buffers—strips of land covered in vegetation (such as trees, shrubs, or grass) and located between a potential pollutant source (such as an agricultural field) and a body of surface water. These buffers are designed to trap nonpoint source pollution, such as runoff from agricultural fields, and to prevent it from entering the body of water. Riparian buffers can be used to mitigate the discharge of a variety of sediments and pollutants, including nutrients like nitrogen and phosphorous (Osmond et al., 2002).

Nitrogen typically reaches surface water from agricultural fields by being dissolved into the groundwater that moves below the surface of the soil and traveling as nitrate. The plant-root system created by the riparian buffer can prevent this nitrate

Table 4-3. BMPs by Region in the Neuse River Basin

Design	Region		
	Piedmont	Upper and Middle Coastal Plain	Lower Coastal Plain
Buffer: trees 30 ft + grass 20 ft[a]	x	x	
Tree buffer ≥ 20 ft	x	x	
Shrub buffer ≥ 20 ft		x	
Grass buffer ≥ 30 ft	x	x	
Filter strip ≥ 20 ft[b]	x	x	
Nutrient management	x	x	x
Controlled drainage[c]		x	x
Cover crops	x	x	x

[a]The forested area near the stream and the grass area away from the stream. Notice that given the width of 20 feet, the grass area is a filter strip according to NRCS definitions.

[b]Only effective if the drainage area above the filter strip has a greater than 1% but less than 10% slope. Filter strips have to be planted with permanent herbaceous vegetation consisting of grass, legumes, and/or other forbs.

[c]Only effective if slope in channel is less than 1% and water table can be kept within 36 inches of surface soil for 50% of field area.

Source: Wossink, Ada. 2000. "The Economics of BMPs to Control Nitrogen in the Neuse River Basin." NCSU CALS Publ. AGW-2. Available at http://www2.ncsu.edu/unity/lockers/users/g/gawossin/Papers/bmpecon.pdf. As obtained on February 22, 2007.

from reaching the surface water by either absorbing it as food or by creating an environment that supports bacteria that convert nitrate into a gas that escapes into the atmosphere (Osmond et al., 2002).

In contrast, phosphorous reaches a body of water almost exclusively as surface runoff. Therefore, to mitigate phosphorous discharge, runoff water must be intercepted before it reaches the relevant body of water. This interception is performed by the vegetation that comprises a riparian buffer, which slows down the runoff water, allowing phosphorous to settle to the ground before reaching the surface water (Osmond et al., 2002).

The most important site characteristic determining the effectiveness of riparian buffers is how the water moves through or over the buffer itself (hydrology). In the example of phosphorus mitigation, the surface runoff must be slowed so the phosphorous can settle to the ground. If water does not spread evenly over the buffer, it may move through the buffer

in "channels." These "channels" allow the water to flow through the buffer more quickly, making it less effective at mitigation (Osmond et al., 2002).

However, the hydrology of a site is not a characteristic of the buffer itself and it is not easily changed. The most important *buffer* characteristic in determining mitigation effectiveness is buffer width. The wider the buffer, the more vegetation can grow, and the more effectively sediments and pollutants can be mitigated. Buffers that are too narrow may not be effective at protecting surface water. On average, the recommended size of an effective buffer is approximately 100 ft in width. Other characteristics that determine the effectiveness of riparian buffers include the types of vegetation used and their location within the buffer (Osmond et al., 2002).

In addition to the removal effectiveness measures reported by NCDENR, other studies have attempted to estimate the effectiveness and appropriateness of various BMPs, including riparian buffers, in the Neuse River Basin. These studies include Osmond et al. (2002) and Wossinick (2000). As part of this study, the RTI team will review these literature estimates and compare them to the efficiency estimates reported in NCDENR's *Manual of Stormwater Best Management Practices*.

The RTI team will also work with DWQ and EEP staff to determine if new data (available in the last 2 years), data not originally considered, or data evaluation approaches indicate a need to change either the export coefficients or removal efficiencies reported in NCDENR's *Manual of Stormwater Best Management Practices*. RTI will additionally investigate the rationale for differing export values in the two basins (3.6 versus 4.0 lbs/ac/yr) and generally compare the methods of the Neuse and Tar-Pamlico River Basins and provide recommendations as appropriate.

5. EVALUATE "1 AC/35 AC PER YEAR" FACTOR

According to Tom Reeder, chief of the Wetland and Storm Water Branch (NCDWQ), a factor of 1 acre mitigation per 35 acres of development was recommended by Dr. Bill Hunt as the average area of mitigation needed for area of site developed. This factor was added to equation to help EEP recoop the cost for mitigation. This factor is roughly based on the average number of acres draining into 1 acre of wetland. This factor

varies as a result of a variety of factors such as slope and soil composition and hence will vary by river basin and within river basin.

RTI will investigate whether the "1 ac/35 ac" factor is appropriate for the projected portfolio of future restoration sites. We will talk with buffer experts such as Deanna Osmond and Robert Evans at NCSU to determine if this factor is relevant for both rural and urban restoration projects and how/if it should be interpreted/modified.

In addition, the RTI team will work with EEP and DWQ and look at available data from other states, and work with private entities within North Carolina to review this adjustment factor in order for the administering agencies to be compensated for the actual cost of the mitigation effort. Upon determining the need for the adjustment factor, RTI will determine the degree of the adjustment factor needed and will determine if there are any differences based on river basin (Neuse vs. Tar-Pamlico) or physiographic location (Coastal Plain vs. Piedmont).

6. ASSESSING FUTURE LAND COSTS PER ACRE

To date, nutrient offset payments have been used for the most part to fund riparian buffer restoration. This approach is in general perceived as a cost-effective approach for pursuing nutrient offsets. Factors that influence the selection—and eventual cost—of buffer restoration include available land, current use of land, land cost, slope of land, depth to water table, in-situ soil type, contributing upslope drainage area, and pollutant removal credit/nutrient removal efficiency. In general, the program requires that offset locations are selected within the river basin upstream of the estuary. At the same time, the EEP has mechanisms in place (e.g., through local watershed planning) to prioritize watersheds. Additionally, as mentioned in the public hearing comments and responses, the intent of the offset procedures is

> to create a spatial relationship between the payment and mitigation.....Furthermore, limiting off site mitigation to a more specific spatial relationship, such as a 14-digit hydrologic unit code (HUC), is not considered practical....The EEP must be allowed the flexibility to allow the nutrient payments to be targeted to areas where they can be most beneficially utilized....in keeping

with the original goal of mitigation of nutrient loading into the respective estuaries.

Including a land cost term in the calculation was viewed by staff as a means for encouraging proximity in the relationship between developing and mitigation lands.

These considerations suggest that an important factor in looking at potential future costs of mitigation is projecting the availability of lands for riparian restoration given the 30-year planning horizon for the program and the likely geographic disparity in land available for riparian restoration. With this in mind, RTI will first work with EEP staff to determine where nutrient offset mitigation has been pursued historically and is currently prioritized within the basins, and we will also pursue GIS-based analyses to provide a robust basin-scale estimate of land available for mitigation. These analyses will not involve any field scale truthing or have site-level validity. The analyses will be based on these assumptions and constraints:

- Given resource and time constraints, RTI will rely on data readily available for the entire study area (i.e., including both river basins). RTI will pursue data acquisition for data not currently housed in RTI's geodatabase first from state-level sources (e.g., CGIA, EEP, DWQ) and then from local sources to the degree that project resources allow.
- RTI will use the Neuse and Tar-Pamlico buffer rules (15NCAC 02B.0233 and 15NCAC 02B.0260) as the basis for operationally pursuing an analysis of lands available for riparian restoration. It is important to note that some provisions of these rules require field data or data that are not generally available for a basin-scale analysis (e.g., higher resolution data), and which RTI will not be able to obtain and use in these planning-level estimates for this large area.

RTI will work with EEP to determine how EEP estimates the cost of riparian restoration. For example, is grading for hydrologic control upslope part of cost (e.g., level spreader)? What buffer nutrient reduction efficiency does EEP assume?

Depending on the findings, RTI may provide recommendations to adjust the approach for calculating the offset fee. As a part of the larger assessment, RTI may attempt to complete spatial analyses looking at the spatial variability in land value across the basins based on county tax assessment data. RTI will

initially investigate the availability and resource requirements to compile these data before pursuing this analysis.

7. COMPARISON OF NORTH CAROLINA OFFSET FEE AND SITE RESORATION COSTS WITH OTHER STATES

Given that actual nitrogen and phosphorus costs are expected to be higher than the current offset fee, it might be useful to provide some comparative documentation from other municipalities and states with offset fee rules (e.g., Maryland 10%; Austin, TX; Maine; Henrico and Fairfax counties, VA).

7.1 Provide a Brief Summary of Other Offset Fee Programs in Other States

This task will involve the following:

- A survey of other communities' offset fees (broad sweep of other communities with offset fees). Specifically, we want to know from this quick search what the dollars per pound are and when they were established. For example, the Austin, TX, Offset Fee Program appears to be fairly robust and would be a good case study for comparison (http://stormwaterfinance.urbancenter.iupui.edu/PDFs/AustinStrmwtrPrgrm.pdf).
- Interview program managers for some of the communities' offset fee programs identified that appear to have reasonable and updated offset fees. Information to collect on each program should include at a minimum what the offset fee covers (e.g., design, engineering, permitting, construction, program administration, project delivery, maintenance), how the fees were set, whether current fees are covering costs to do equivalent water quality improvements elsewhere, and lessons learned (anything they would do differently).
- Write-up communities' offset fee programs as case studies (1 page per community) or summarize in a comparative table (preferred). This table could be used to quickly establish a valid range for effective offset fees and provide examples/models of other programs.

7.2 Review of Key National Cost Data Sources and How They Compare within North Carolina

Much of the data available to establish runoff EMCs, retrofit costs, and removal efficiencies are based on national data sources. Regional variations may result in average EMCs and

BMP removal efficiencies for North Carolina that differ from national averages. In addition, the national cost data are probably higher than North Carolina costs (more complex design requirements, union labor, and expensive metropolitan labor markets). We will conduct a quick analysis to isolate North Carolina-specific data from these databases to compare against national averages.

Table 7-1 summarizes the national databases to be mined for North Carolina-specific analysis.

As part of this task, we will need to determine which databases to mine for North Carolina studies and decide which parameters to run comparative statistics on. Final data can be shown to compare North Carolina with national data to determine if national averages are appropriate to use for the offset fee.

8. NEXT STEPS

The RTI team will present our proposed methodology for the study at a stakeholder meeting to be held March 2, 2007. At this meeting, we will solicit feedback from stakeholders on how the approach could be enhanced. In particular, we will request data that organizations might have on engineering design costs and implementation costs for restoration projects.

Based on comments received during the stakeholder meeting, RTI will revise this methodology document and resubmit it to the Environmental Review Commission for final approval. In general, RTI will make every effort to accommodate stakeholders' concerns and suggestions in light of the constraints of the existing budget.

Table 7-1. North Carolina vs. National Databases

Database	National	North Carolina	Comments
2005 National Stormwater Quality Database (NSQD)	3,770 separate storm events from 66 agencies and municipalities from 17 states.	Data are available for 114 individual storm events, and a total of 318 observations. The jurisdictions where data were collected include the City of Charlotte, City of Fayetteville, City of Greensboro, and City of Raleigh. Data were collected from a total of 30 different monitoring stations.	Can run stats on EMCs per land use for North Carolina, national, national – North Carolina http://www.eng.ua.edu/~rpitt/Research/ms4/mainms4.shtml http://www.stormwatercenter.net/
2000 National Pollutant Removal Performance Database (NPRP)	139 studies of removal efficiencies for variety of practice types, minimum storm sample criteria of 5. 76 studies include concentration and other data where available.	Five studies, all pond performance (Greenville, Davis, Regional, Runaway Bay, Lakeside)	May need to supplement with removal efficiencies of other types of BMPs
1997 BMP study	73 studies on BMP cost	One from North Carolina	Updated with 2006 study
2006 CWP Retrofit Cost Study	Looked at over 120 projects to estimate costs; combined with CalTrans Study. Also supplemented costs with Wossink and Hunt 2003 study from North Carolina.	Wossink and Hunt had approximately 40 studies	Projects from Maryland, Virginia, Delaware, Oregon, Texas, California, and North Carolina. Most final cost information from Chesapeake Bay area, supplemented with North Carolina data.
1983 NURP	Studied 81 outfalls in 28 communities throughout the U.S. included monitoring of approximately 2,300 storm events.	Currently unknown	Old; can access data at http://www.eng.ua.edu/~awra/download.htm.
USGS	More than 1,100 storms from 98 monitoring sites in 20 metropolitan areas.		Old
Federal Highway Administration (FHWA)	Analyzed stormwater runoff from 31 highways in 11 states during the 1970s and 1980s.		Strecker (personal communication) is also collecting information from highway monitoring as part of a current NCHRP-funded project.

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EXHIBIT G

GENERAL ASSEMBLY OF NORTH CAROLINA

SESSION 2007

U D

BILL DRAFT 2007-SBz-11 [v.7] (02/27)

(THIS IS A DRAFT AND IS NOT READY FOR INTRODUCTION)
3/12/2007 6:39:40 PM

Short Title: Extend Nutrient Offset Payment Sunset. (Public)

Sponsors: .

Referred to:

DRAFT FOR REVIEW ONLY

A BILL TO BE ENTITLED

AN ACT TO EXTEND THE SUNSET FOR THE LAW THAT SETS THE PER POUND FACTOR USED BY THE ENVIRONMENTAL MANAGEMENT COMMISSION TO CALCULATE NUTRIENT OFFSET PAYMENTS AND REQUIRES THAT THE NUTRIENT OFFSET PAYMENT FOR NITROGEN BE CALCULATED AS IT WAS PRIOR TO CERTAIN RULE AMENDMENTS, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION.

Whereas, the General Assembly established the Riparian Buffer Protection Program (G.S. 143-214.20) to provide alternatives for persons who would otherwise be required to maintain riparian buffers, and;

Whereas, the General Assembly directed the Environmental Management Commission to establish a compensatory mitigation fee to be paid into the Riparian Buffer Restoration Fund, and;

Whereas, the Environmental Management Commission adopted a revised schedule of compensatory mitigation fees for nutrient loading offsets on 12 January 2006 in accordance with the Administrative Procedure Act, and;

Whereas, the General Assembly enacted S.L. 2006-215, as amended by S.L. 2006-218 and S.L. 2006-255, which established a temporary per pound factor and method of calculation for nutrient offset fees in lieu of the fee schedule adopted by the Environmental Management Commission and directed the Environmental Review Commission to study issues related to the nutrient offset payment program, and;

Whereas, the Environmental Review Commission has entered into a contract with Research Triangle Institute, International (RTI), to provide consultant services for a study of the costs associated with providing nutrient controls that are adequate to offset point source and nonpoint source discharges of nitrogen and other nutrients, and;

Whereas, the contract between the Environmental Review Commission and RTI provides that RTI will make a final report to the Environmental Review Commission on 15 May 2007, and;

Whereas, once the Environmental Review Commission has received the final consultant's report from RTI, additional time may be required for the Environmental Review Commission to complete its study and make findings and recommendations; Now, therefore,

The General Assembly of North Carolina enacts:

SECTION 1. Section 5 of S.L. 2006-215, as amended by S.L. 2006-218 and S.L. 2006-255, reads as rewritten:

"**SECTION 5.** This act becomes effective 1 August 2006, and applies to all nutrient offset payments, including those set out in 15A NCAC 2B.0240, as adopted by the Environmental Management Commission on 12 January 2006. This act expires 1 September ~~2007.~~2008."

SECTION 2. This act is effective when it becomes law.

DRAFT
FOR REVIEW ONLY

EXHIBIT H

GENERAL ASSEMBLY OF NORTH CAROLINA

SESSION 2007

U D

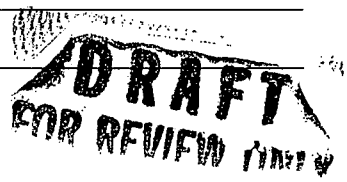
BILL DRAFT 2007-RTz-4 [v.3] (02/06)

(THIS IS A DRAFT AND IS NOT READY FOR INTRODUCTION)
3/12/2007 5:49:18 PM

Short Title: Clarify Animal Waste Tech. Specialist Req. (Public)

Sponsors: Unknown.

Referred to:



A BILL TO BE ENTITLED

AN ACT TO CLARIFY THE TRAINING AND QUALIFICATION REQUIREMENTS APPLICABLE TO ANIMAL WASTE MANAGEMENT TECHNICAL SPECIALISTS IN THE PROVISION OF SERVICES RELATED TO THE DEVELOPMENT, IMPLEMENTATION, OR OPERATION OF AN ANIMAL WASTE MANAGEMENT PLAN OR ANIMAL WASTE MANAGEMENT SYSTEM, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION.

The General Assembly of North Carolina enacts:

SECTION 1. G.S. 89C-25 reads as rewritten:

"**§ 89C-25. Limitations on application of Chapter.**

This Chapter shall not be construed to prevent or affect:

...

(6) Practice by members of the armed ~~forces or~~ forces; employees of the government of the United States while engaged in the practice of engineering or land surveying solely for the government on government-owned works and projects; or practice by those employees of the Natural Resources Conservation ~~Service having~~ Service, county employees, or employees of the Soil and Water Conservation Districts who have federal engineering job approval authority that involves the planning, designing, or implementation of best management practices on agricultural lands.

..."

SECTION 2. This act is effective when it becomes law.

~~metal~~specification grade commodities including facilities where a shredder or fragmentizer is utilized for ~~sale~~processing and ~~whose primary product is~~manufacturing scrap ~~automobiles~~ vehicles into shredded scrap ~~iron, scrap steel, or nonferrous metallic scrap~~and facilities where end-of-life vehicles may be prepared for shredding.

(~~7~~5) "Vehicle" means any passenger automobile or passenger car, station wagon, truck, van, or sport utility vehicle with a gross vehicle weight rating of less than 12,000 pounds.

(6) "Vehicle crusher" means a person, who engages in the business of flattening, crushing, or otherwise processing end-of-life vehicles for recycling. Vehicle crushers include, but are not limited to, persons who use fixed or mobile equipment to flatten or crush end-of-life vehicles for a vehicle recycler or a scrap ~~automobile~~ vehicle processing facility.

(7) "Vehicle manufacturer" means a person, firm, association, partnership, corporation, governmental entity, organization, combination, or joint venture that is the last person in the production or assembly process of a motor vehicle that used one or more mercury switches or, in the case of an imported vehicle, the importer or domestic distributor of the vehicle. "Vehicle manufacturer" does not include any person engaged in the business of selling new motor vehicles at retail or converting or modifying new motor vehicles after the production or assembly process.

(8) "Vehicle recycler" or "vehicle dismantler" means an individual or entity engaged in the business of acquiring, dismantling, or destroying six or more end-of-life vehicles in a calendar year for the primary purpose of resale of parts of the vehicle, including scrap metal.

"§ 130A-310.51. Purpose.

The purpose of this Part is to reduce the quantity of mercury that is released into the environment by removing mercury switches from end-of-life vehicles and by creating a removal, collection, and recovery program for mercury switches that are removed from end-of-life vehicles in this State.

"§ 130A-310.52. ~~Mercury minimization plan~~ Plan for the removal of mercury switches from end-of-life vehicles.

~~(a) The Department shall develop and administer a mercury minimization plan to achieve the goal of having a capture rate of at least ninety percent (90%). In preparing the plan, the Department shall consult with manufacturers of vehicles, who shall participate in the development of the plan on an advisory basis. To the extent practicable, the mercury minimization plan shall utilize the currently available end-of-life vehicle recycling infrastructure. To the extent adequate, affordable, and environmentally sound~~

~~end-of-life vehicle recycling infrastructure is unavailable, the plan shall provide for the development of this infrastructure.~~

~~(b) A plan developed under subsection (a) of this section shall include the following:~~

~~(1) A compilation of the make, model, and year of any vehicle that was sold or offered for sale by the vehicle manufacturer and contains one or more mercury switches and a description and the location of each mercury switch in the vehicle. A vehicle manufacturer shall report to the Department the information needed to make the compilation.~~

~~(2) A description of all safe and environmentally sound methods for removal of mercury switches from end-of-life vehicles. A vehicle manufacturer shall report to the Department the information needed to make the description.~~

~~(3) A presumption that if the manufacturer does not know or is uncertain as to whether or not a switch contains mercury, the switch does contain mercury.~~

~~(4) A system to mark end-of-life vehicles that are to be shredded or crushed to indicate the presence or absence of a mercury switch.~~

~~(5) Educational materials to assist a vehicle recycler or a scrap metal recycling facility in undertaking a safe and environmentally sound method for the removal of the mercury switches from end-of-life vehicles. The materials shall include information on hazards related to mercury and on the proper handling of mercury.~~

~~(6) A method for storage and disposal of the mercury switches, including packaging and shipping of mercury switches to permitted recycling, storage, or disposal facilities. To the extent adequate, affordable, and environmentally sound mercury switch disposal technology is unavailable, a method for the temporary storage of mercury switches.~~

~~"§ 130A-310.53. Removal of mercury switches from end-of-life vehicles.~~

~~(a) A vehicle recycler that conveys ownership of an end-of-life vehicle to a scrap metal recycling facility shall remove all mercury switches identified in the mercury minimization plan prior to delivery of the vehicle to the scrap metal recycling facility.~~ (a) A vehicle recycler that conveys ownership of an end-of-life vehicle to a scrap ~~automobile~~ vehicle processing facility, vehicle crusher or other vehicle recycler shall remove all accessible mercury switches, and mark the vehicle indicating the all mercury switches removed, prior to delivery of the vehicle to the scrap ~~automobile~~ vehicle processing facility, vehicle crusher, or other vehicle recycler, provided however, a scrap ~~automobile~~ vehicle processing facility, vehicle crusher, or other vehicle recycler may agree to accept an end-of-life motor vehicle that has not been flattened, crushed or baled containing mercury switches. If accepted, the scrap ~~automobile~~ vehicle processing facility, vehicle crusher, or other vehicle recycler is responsible for proper removal of

those mercury switches. If a mercury switch is inaccessible, the fact that the mercury switch remains in the vehicle shall be noted on the vehicle recycler's invoice and the vehicle marked indicating that the mercury switch(es) is inaccessible.

(b) A vehicle recycler or vehicle crusher that conveys ownership of an end-of-life vehicle to a scrap ~~automobile~~ vehicle processing facility, or other vehicle crusher or recycler shall remove all accessible mercury switches prior to delivery of the vehicle to the scrap ~~automobile~~ vehicle processing facility, or other vehicle crusher or recycler, provided however, a scrap ~~automobile~~ vehicle processing facility, or other vehicle crusher or recycler, may agree to accept an end-of-life motor vehicle that has not been flattened, crushed or baled containing mercury switches. If accepted, the scrap ~~automobile~~ vehicle processing facility, or other vehicle crusher or recycler is responsible for proper removal of those mercury switches. If a mercury switch is inaccessible, the fact that the mercury switch remains in the vehicle shall be noted on the vehicle recycler's invoice and the vehicle marked indicating that the mercury switch(es) is inaccessible.

(~~b~~c) A scrap ~~metal recycling automobile~~ vehicle processing facility that accepts an end-of-life vehicle that has not been flattened, crushed, baled, or shredded and that contains mercury switches shall remove ~~the~~all accessible mercury switches before the end-of-life vehicle is flattened, crushed, baled, or shredded unless the mercury switch is inaccessible.

(~~e~~d) A mercury switch is inaccessible if, due to the condition of the vehicle, the switch cannot be removed in accordance with the mercury switch removal ~~minimization~~ plan and removal of the switch would significantly increase the risk of a release of mercury into the environment.

~~(d) A vehicle recycler or scrap metal recycling facility that removes mercury switches pursuant to subsection (a) or (b) of this section shall make quarterly reports to the Department on the following:~~

~~(1) The number of vehicles that it processed for recycling.~~

~~(2) The number of vehicles from which it removed a mercury switch by make.~~

~~(3) The number of vehicles for which it could not remove the mercury switch because the switch was inaccessible.~~

(e) Mercury switches that are removed from end-of-life vehicles are considered ~~'universal waste' as defined in 40 Code of Federal Regulations § 273.9 (1 July 2004 Edition).~~ universal waste. Mercury switches that are removed from end-of-life vehicles shall be collected, transported, treated, stored, disposed of, and otherwise handled in accordance with rules adopted by the Commission governing universal waste.

"(f) Vehicle manufacturers shall develop and bear the costs of operating, in cooperation with the Department, a mercury switch collection system in accordance with the National Vehicle Mercury Switch Recovery Program (NVMSRP) Memorandum of Understanding (MOU). This program must advance environmental efforts in the areas of vehicle recyclability, education and outreach, and the proper collection and disposal of mercury switches from end-of-life vehicles.

§ 130A-310.~~54~~53. Funds to implement plan.

(a) The Mercury Pollution Prevention Account is established in the Department. Revenue is credited to the Account from the certificate of title fee under G.S. 20-85.

(b) Revenue in the Mercury Pollution Prevention Account shall be used to reimburse the Department and others for costs incurred in implementing the mercury minimization plan. The reimbursable costs are:

(1) Five dollars ($5.00) for each mercury switch removed by a vehicle recycler, vehicle crusher, or scrap ~~metal recycling automobile~~ vehicle processing facility pursuant to this Article and sent to destination facilities in accordance with the National Vehicle Mercury Switch Recovery Program for recycling or disposal.

(2) Costs incurred by the Department in administering the plan.

(c) The Department shall reimburse vehicle recyclers, vehicle crushers and scrap ~~metal recycling~~ vehicle processing facilities based on a reimbursement request attesting to the ~~quarterly reports submitted under G.S. 130A-310.53. The Department may request any information needed to determine the accuracy of~~ number of switches sent to destination facilities [in accordance with the National Vehicle Mercury Switch Recovery Program] for recycling or disposal, and shall be verified against information posted on the ~~reports~~web site provided by Vehicle Manufacturers in accordance with the National Vehicle Mercury Switch Recovery Program. The ~~Department may request from a~~ vehicle recycler, vehicle crusher, or scrap ~~automobile~~ vehicle processing facility shall provide to the Department any information, as needed, to determine the accuracy of a reimbursement request. Vehicle recylers, vehicle crushers, and scrap vehicle processing facilities shall keep records supporting their reimbursement requests for three years. ~~and may specify the length of time supporting documentation must be kept.~~

"§ 130A-310.~~55~~54. Violations of Article; enforcement.

(a) It is unlawful for a person to do any of the following:

(1) Knowingly flatten, crush, bale, shred, or otherwise alter the condition of a vehicle from which accessible mercury switches have not been removed, in any manner that would prevent or significantly hinder the removal of a mercury switch.

(2) Willfully fail to remove a mercury switch when the person is required to do so.

(3) Knowingly make a false report that a mercury switch has been removed from an end-of-life vehicle.

(4) Obtain a mercury switch from another source and falsely report that it was removed from a vehicle processed for recycling.

~~(b) This Part may be enforced as provided in Part 2 of Article 1 of this Chapter.~~

(b) Any person who violates subsection (a)(1)&(2) of this section shall be guilty of a Class 1 misdemeanor and upon conviction shall be punished as provided in G.S. 14-3.

(c) Any person who violates subsection (a)(3)&(4) of this section shall be guilty of a Class 2 misdemeanor and upon conviction shall be punished as provided in G.S. 130A-26.2.

(d) A violation of any provision of this Part, ~~including subsections (a) and (c) of this section~~ and any rules adopted by the Commission governing universal wastes, may be enforced by an administrative or civil action as provided in Part 2 of Article 1 of this Chapter.

§ 130A-310.~~56. Evaluation of vehicle design changes that affect mercury recyclability; reporting requirements~~

~~(a) Each vehicle manufacturer shall, either individually or as part of a group, submit an annual report to the Department that describes in detail the status of vehicle design changes that are intended to facilitate recycling of vehicle components that contain mercury. The report is due on or before 1 July. At a minimum, the report shall include all of the following:~~

~~(1) For each make and model for the upcoming model year, a list of all vehicle components that contain mercury.~~

~~(2) A description of all design changes that each manufacturer has implemented for the upcoming model year or plans to implement in future model years to reduce or eliminate vehicle components that contain mercury, the achieved or anticipated amount of each reduction.~~

~~(3) A summary of all policies that each manufacturer has implemented or will implement to ensure that the manufacturers' vehicles are designed to be recycled in a safe, cost-effective, and environmentally sound manner.~~

~~(4) A summary of any recommendations, complaints, or reports that the manufacturer has received within the previous calendar year from vehicle recyclers, scrap metal~~

~~recycling facilities, government entities, or other persons, as well as any other information available to the manufacturer, regarding vehicle design features that adversely affect the recyclability of vehicle components that contain mercury.~~

~~(b) A vehicle manufacturer or group of vehicle manufacturers that submits the report required by subsection (a) of this section may designate any information in the report that constitutes a trade secret, as defined in G.S. 66-152, as confidential information in accordance with G.S. 132-1.2. Information so designated shall be protected as provided in G.S. 130A-304.~~

~~(c) The Department may evaluate the extent to which vehicle design promotes or impedes recycling of vehicle components that contain mercury. The Department may conduct hearings from time to time to receive public comment regarding vehicle design changes that affect recycling of vehicle components that contain mercury. The Department may develop recommendations as to changes in vehicle design that would further promote the recyclability of these components. If the Department develops recommendations pursuant to this subsection, it shall report these recommendations, together with its findings and any legislative proposals, to the Environmental Review Commission.~~

"§ 130A-310.5~~7~~5. Report on the plan for the removal of mercury switches.

The Department shall publish an annual report, on ~~the mercury minimization plan on~~ or before November 1, based on its evaluation of information provided by an approved manufacturer-sponsored collection program in accordance with the National Vehicle Mercury Switch Recovery Program or provided by any association of government officials. The report shall include, at a minimum, all of the following:

(1) A detailed description and documentation of the ~~capture~~ mercury switch removal performance rate achieved.

(2) In the event that a ~~capture~~ mercury switch removal performance rate of at least ninety percent (90%) is not achieved, a description of additional or alternative actions that may be implemented to improve the mercury ~~minimization~~ switch removal plan and its implementation.

(3) The number of mercury switches collected, ~~the number of end-of-life vehicles containing mercury switches, the number of end-of-life vehicles processed for recycling,~~ the pounds of mercury collected from mercury switches collected in the State, the pounds of mercury estimated to be available from mercury switches in end-of-life vehicles expected to be scrapped in the State, the total pounds of mercury recovered by the National Vehicle Mercury Switch Recovery Program, the pounds of mercury estimated to be available from mercury switches in end-of-life vehicles expected to be scrapped nationally, -and a description of how the mercury switches were managed.

(4) A statement that details the costs required to implement the mercury minimization plan.

"**§ 130A-310.~~58.~~56. Adoption of rules; administrative procedure.**

(a) The Department may adopt temporary and permanent rules to implement this Part.

(b) Chapter 150B of the General Statutes governs implementation of this Part."

SECTION 2. If Senate Bill 622, 2005 General Assembly, becomes law, then G.S. 20-85, as amended by Section 44.1 of that act, reads as rewritten:

"§ 20-85. Schedule of fees.

(a) The following fees are imposed concerning a certificate of title, a registration card, or a registration plate for a motor vehicle. These fees are payable to the Division and are in addition to the tax imposed by Article 5A of Chapter 105 of the General Statutes.

(1) Each application for certificate of title ..... ~~$39.00~~$40.00

(2) Each application for duplicate or corrected certificate of title..... ~~14.00~~15.00

(3) Each application of repossessor for certificate of title..... ~~14.00~~15.00

(4) Each transfer of registration..... 15.00

(5) Each set of replacement registration plates..... 15.00

(6) Each application for duplicate registration card..... 15.00

(7) Each application for recording supplementary lien..... ~~14.00~~15.00

(8) Each application for removing a lien from a certificate of title..... ~~14.00~~15.00

(9) Each application for certificate of title for a motor vehicle transferred to a manufacturer, as defined in G.S. 20-286, or a motor vehicle retailer for the purpose of resale..... ~~14.00~~15.00

(10) Each application for a salvage certificate of title made by an insurer 15.00

(11) Each set of replacement Stock Car Racing Theme plates issued under G.S. 20-79.4 ..... 25.00.

(a1) ~~An additional one~~One dollar ($1.00) of the fee ~~shall be~~ imposed for any transaction assessed a fee under subdivision (a)(1), (a)(2), (a)(3), (a)(7), (a)(8), or (a)(9) of this ~~section. The fees collected pursuant to this~~ section shall be credited to the North Carolina Highway Fund. The Division shall use the fees derived from transactions with the Division for technology improvements. The Division shall use the fees derived from transactions with commission contract agents for the payment of compensation to commission contract agents. An additional one dollar ($1.00) of the fee imposed for any transaction assessed a fee under subdivision (a)(1) of this section shall be credited to the Mercury Pollution Prevention Account in the Department of Environment and Natural Resources.

(b) The fees collected under subdivisions (a)(1) through (a)(9) of this section shall be credited to the North Carolina Highway Trust Fund. The fees collected under subdivision (a)(10) of this section shall be credited to the Highway Fund. Fifteen dollars ($15.00) of each title fee credited to the Trust Fund under subdivision (a)(1) shall be added to the amount allocated for secondary roads under G.S. 136-176 and used in accordance with G.S. 136-44.5.

(c) The Division shall not collect a fee for a certificate of title for a motor vehicle entitled to a permanent registration plate under G.S. 20-84."

SECTION 3. The Commission for Health Services shall amend 15A NCAC 13A .0119 to adopt rules governing the management of waste mercury-containing devices, as defined in the Notice of Proposed Rulemaking published on 12 June 2002 in the Federal Register, Volume 67, Number 113, Pages 40507 through 40528, as universal waste. The Commission is authorized to adopt temporary rules pursuant to the provisions of G.S. 150B-

"**SECTION 4.** Sections 1, 2, 3, and 4 of this act are effective when this act becomes law, except that G.S. 130A-310.~~53~~52, 130A-310.~~54~~53(c), and 130A-310.~~55~~54 become effective 1 July ~~2006.~~2007. Section 2 of this act becomes effective 1 October 2005. ~~Each vehicle manufacturer that is subject to the requirements of this act shall provide the information required by G.S. 130A-310.52(b), either individually or as a group of manufacturers, on or before 1 January 2006.~~The first annual report required by G.S. 130A-310.55 is due 1 November 2008. This act expires on ~~1 July 2026.~~31 December 2017.

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

EXHIBIT J

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31 January 2007

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2007
RESEARCH DIVISION

The Honorable William G. Ross, Jr.
Secretary of Environment and Natural Resources
1601 Mail Service Center
Raleigh, North Carolina 27699-1601

By Hand Delivery and Electronic Mail

Dear Secretary Ross:

As you are aware, the 2006 General Assembly imposed a 12-month moratorium on the issuance of permits by your Department for new landfills in the State. The legislation that imposed this moratorium, S.L. 2006-244 directed the Environmental Review Commission (ERC), "*with the assistance of the Division of Waste Management of the Department of Environment and Natural Resources*," (emphasis added) to study issues related to solid waste and report its findings and recommendations to the 2007 Regular Session of the General Assembly.

The ERC has devoted a great deal of time and attention to the study of solid waste and, consistent with the legislative directive, has sought and received the assistance of the Division of Waste Management and the Department. This assistance has been generously provided and has been quite valuable to the ERC but is, regrettably, incomplete for the following reason. At the 17 January 2007 meeting of the ERC, we expected to hear specific legislative proposals from the Division and the Department that would address many of the outstanding concerns over landfills and other solid waste management issues that have been considered by the ERC at earlier meetings. Our expectation was that the presentation of these proposals would provide the ERC with the opportunity to evaluate them for possible inclusion in the report of the ERC to the General Assembly.

Instead, the ERC was presented with general recommendations that, although helpful, lack the detail and specificity required of legislative proposals. This was particularly frustrating because we believe that the general recommendations aim in the right direction and would, if presented as specific legislative proposals, address many of the solid waste management problems that led to the moratorium. In other words, in our opinion many, if not all, of the general recommendations, if presented as specific legislative proposals, would be adopted as recommendations by the ERC and ultimately would be enacted by the General Assembly.

Accordingly, pursuant to S.L. 2006-244, G.S. 120-19 and G.S. 120-70.44 we ask that you immediately provide the ERC with specific legislative proposals that, if enacted, would implement the general recommendations presented to the ERC by Assistant Secretary Smith on 17 January 2007.

We understand that specific legislative proposals are being withheld while the Administration determines its position on the issues involved. We welcome the Administration's interest in these issues and we understand and respect the right of the Administration to develop its own policy recommendations at its own pace. We do not wish to interfere with that process. Our request is not for policy recommendations or for the Administration's position, but rather is for specific legislative proposals that would implement each of the general recommendations that have already been presented publicly to the ERC. Our understanding is that these proposals either have already been drafted or are in the process of being drafted and could be made available to the ERC more or less immediately.

In this same vein, we note that G.S. 130A-309.06(c) directs the Department of Environment and Natural Resources to report to the ERC on or before 15 January of each year on the status of solid waste management efforts in the State. This annual report is to include, among other information, "[r]ecommendations to the Governor and the Environmental Review Commission to improve the management and recycling of solid waste in the state, including any proposed legislation to implement the recommendations." (G.S. 130A-309.06(c)(7)). The ERC has not received the report due 15 January 2007. We request that you provide this report, including proposed legislation, without further delay.

As you are aware, the 2007 Session of the General Assembly in now underway. The ERC needs to complete its work. Our legislative leadership has asked us to move swiftly on the landfill issue. We in turn have directed our staff to begin working with legislators and interested parties to develop a comprehensive solid waste management bill. We urgently need the best thinking that your Department can provide to us on this issue now, and we welcome the continued involvement of your Department as we all move forward on this issue in the coming weeks and months.

Your prompt attention to this matter will be most appreciated.

Respectfully yours,

Charles W. Albertson, Cochair

Pryor A. Gibson, Cochair

Daniel G. Clodfelter, Cochair

c: Marc Basnight, President Pro Tempore of the Senate
Joe Hackney, Speaker of the House of Representatives
Robin W. Smith, Assistant Secretary for Environment
Dexter R. Matthews, Director, Division of Waste Management
George F. Givens, Commission Counsel
Dorothy M. Waugman, Commission Clerk

EXHIBIT K

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

February 12, 2007

The Honorable Charles A. Albertson
625 Legislative Office Building

The Honorable Daniel G. Clodfelter
408 Legislative Office Building

The Honorable Pryor Gibson
419-A Legislative Office Building

BY HAND DELIVERY

RECEIVED

FEB 12 2007

RESEARCH DIVISION

6:30 pm

Gentlemen:

Thank you for your letter of January 31, 2007 requesting specific proposals to improve the permitting and management of solid waste landfills. The Division of Waste Management is developing specific recommendations, but has not yet completed work on those proposals.

As you may recall, the Division reported to the Environmental Review Commission in January on its survey of solid waste management practices in sixteen eastern seaboard states. Since that meeting, the Division has been evaluating standards and practices identified in the survey for possible use in North Carolina. The Division also needed to do more work to fully develop some of the ideas for improvement in landfill permitting and management previously presented to the ERC. A few issues required additional legal research.

Work on the recommendations is nearing completion and the Department should be ready to provide specific proposals for the Environmental Review Commission's consideration by February 16, 2007.

I appreciate the ERC's strong interest in the environmental and public health

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implications of landfill construction and management. I look forward to working with you on this important issue.

Sincerely,

William G. Ross, Jr.
Secretary

Cc: Senator Marc Basnight
Rep. Joe Hackney
Dexter R. Matthews, Division of Waste Management
George Givens, ERC Counsel
Dorothy M. Waugman, Commission Clerk

EXHIBIT L

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

February 19, 2007

The Honorable Charles A. Albertson
625 Legislative Office Building

The Honorable Daniel G. Clodfelter
408 Legislative Office Building

BY HAND DELIVERY

The Honorable Pryor Gibson
419-A Legislative Office Building

Gentlemen:

Enclosed is a summary of the Department's specific recommendations for improved management of sanitary landfills in North Carolina. These recommendations provide additional detail, but closely follow the general outline of landfill recommendations previously presented to the Environmental Review Commission. The Department has also provided draft language for these recommendations to the Environmental Review Commission's counsel, George Givens.

In both the summary and the bill draft, there is a placeholder for recommendations related to the landfill franchise statute. The Department is continuing to work on the franchise recommendation in consultation with Mr. Richard Whisnant at UNC's School of Government. The Department wants to be sure that any proposal for amendment of the franchise statute maintains an appropriate role for both local government and the State with respect to landfill siting decisions.

I look forward to working with you to improve the landfill permitting process. If you have questions about the specific recommendations, I would encourage you to contact either Assistant Secretary Robin Smith at 715-4141 or the Director of the Division of

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Waste Management, Dexter Matthews, at 508-8414.

Sincerely,

William G. Ross, Jr.
Secretary

Cc: Senator Marc Basnight
Rep. Joe Hackney
Dexter R. Matthews, Division of Waste Management
George Givens, ERC Counsel
Dorothy M. Waugaman, Commission Clerk

February 19, 2007
DENR

SUMMARY OF LANDFILL RECOMMENDATIONS

1. Specify how a landfill applicant must demonstrate financial qualifications to construct and operate the landfill.

The applicant should provide cost estimates for: performing environmental studies; acquiring the site; designing the landfill; constructing and operating the landfill; and financial assurance required for corrective action and closure of the landfill. To show financial qualification, the applicant should submit an audited, certified, financial statement and identify sufficient assets to cover the estimated costs. Where assets of a parent, subsidiary, affiliate or joint venturer are offered in support of the financial qualifications of the applicant, then that party must be listed as an owner/operator on the facility permit.

2. Expand financial assurance requirements.

Require that the landfill operator provide financial assurance to cover possible corrective action (in the event of a leak from the landfill, for example). This would be in addition to the financial assurance currently required for the cost of closing the landfill and providing post-closure case. The minimum amount of financial assurance for corrective action should be $3 million. Financial assurance for corrective action should apply to both new and existing facilities. For new facilities, the financial assurance would be required before permit issuance.

3. Strengthen environmental compliance review of potential landfill operators.

Expand the scope of the existing environmental compliance review to include any past environmental violation (not just those related to solid waste) and a larger group of people associated with the permit applicant. For example, the environmental compliance review would be broadened to cover a person who holds a minority interest in the entity applying for a landfill permit (except for minority shareholders in publicly traded corporations who do have any involvement in management or control of the corporation.)

4. Broaden the definition of "owner or operator".

Include in the definition of "owner or operator" any person who has a financial or equitable interest in the entity that has applied for the landfill permit (except for minority shareholders in publicly traded corporations who do have any involvement in management or control of the corporation.)

5. Clarify solid waste enforcement provisions.

Amend the statute sections that authorize injunctive relief and civil penalties for solid waste violations to expressly allow the use of those enforcement remedies in response to a violation of a permit issued by the Department or an order issued by the Commission for Health Services. Increase the maximum civil penalty allowed for a solid waste or hazardous waste violation. Authorize the Department to recover the costs of investigating a violation.

6. Require notice to the Department of any significant change in the structure or assets of the business entity that holds a landfill permit.

The Department should be notified within 30 days of any significant change in the structure of the business entity that owns or operates the landfill facility; the identity of any person or business entity previously identified as an owner or operator of the facility pursuant to G.S. 130A-309.27(a)(1); or in the financial assets identified in the financial qualification of the owner or operator. A change is significant if it could effect the financial qualifications of the permit holder or result in a change in the identity of the owners or operators for purposes of either financial qualification or environmental compliance review. When the Department receives notice of a change, it can require a new environmental compliance or financial qualification review.

7. Set standards for safe transportation of solid waste by railway or barge.

Containers used to transport solid waste should be leak-tested and covered. Records of leak testing should be retained at the permitted solid waste facility for 3 years. It would be a violation to allow liquid to enter a container of solid waste or to allow solid waste, liquids or odors to escape from a container.

8. Require a traffic study for larger solid waste facilities.

Require that applications for solid waste management facilities proposed to handle more than 100,000 tons of waste per year include a study of the traffic impacts of the facility. The results of the study would be considered in the permit decision.

9. Authorize local landfill liaisons.

Authorize a local government with planning authority over a sanitary landfill that has a service area of greater than a 100-mile radius to designate a landfill liaison. The liaison would be a certified landfill manager, but would not direct the operation of the landfill. The landfill liaison would have authority to enter the landfill facility at reasonable times and inspect the landfill operation for purposes of: ensuring that the facility meets all local requirements; identifying and notifying the Department of potential violations; and identifying and notifying the Department of potentially hazardous conditions.

10. Require the permittee to employ an independent quality assurance engineer to oversee construction of the landfill.

The permittee should employ a licensed engineer who is independent of both the landfill owner and any person engaged in the design or construction of the landfill to inspect during construction. The project engineer would be responsible for certifying that construction of the solid waste management facility units, leachate handling facilities and landfill appurtenances conforms to the plan approved by the Department, the permit to construct, and the rules adopted by the Commission.

11. Establish minimum standards for new landfills and for landfill expansions onto previously unpermitted property.

Minimum standards for new landfills and for landfill expansion onto property that was not included within the scope of a previous permit would include:

a. double liners and a leachate collection system for municipal solid waste landfills;
b. composite liners for construction and demolition landfills;
c. a minimum separation of 5 feet between the bottom elevation of the waste (or the liner system, if the landfill has a liner) and seasonal high groundwater and bedrock;
d. a 200-foot buffer between the waste boundary and streams or wetlands (unless no feasible alternative location is available that would comply with the buffer requirement); and
e. a prohibition against siting landfill units in the 100-year floodplain or in area reclaimed from the floodplain.

12. Establish new standards for construction of lined sanitary landfill units permitted on or after the effective date of the bill

Specific standards for leachate collection systems and liners would include:

a. leachate collections systems should be designed to maintain a head of less than one foot during leachate recirculation.
b. the leachate collection system should be designed to return the head to one foot or less within 72 hours based on a 25 year-24 hour design storm falling on an empty cell.
c. geomembrane base liner systems must be tested for leaks and damage.
d. leachate collection lines should be designed and constructed to allow for remote camera inspection and cleaning. Lines should be cleaned and remotely inspected annually.
e. all pipes used to carry leachate should be constructed with dual containment outside of the lined disposal unit.
f. new units and lateral expansions should be constructed without pipe penetrations of the bottom liner, whether for leachate, stormwater or gas.

13. Direct the Commission for Health Services to review landfill rules and adopt new rules necessary to protect public health and the environment.

Rules adopted by the Commission should:

a. establish standards for the collection, control and utilization or destruction of landfill gasses at municipal solid waste landfills;
b. establish standards for the construction, operation, and maintenance of bioreactor landfills;
c. establish criteria for development of bird and wildlife management plans; and
d. incorporate measures necessary to minimize impacts to natural, historic and cultural resources, including but not limited to wetlands, critical fisheries habitat, parks, recreation areas, cultural and historic sites, and potential water supplies.

14 Require that all sanitary landfills have a waste screening plan to ensure that the facility is in compliance with waste bans.

15 Require an environmental study of very large landfills and landfills with an extended service area.

The existing exemption from the N.C. Environmental Policy Act for landfills owned and operated by local governments should be removed for facilities that receive more than 300,000 tons of waste per year; have a total disposal capacity of more than 15 million cubic yards of solid waste; or have a service area of more than 100 miles in radius. An environmental study should also be required for privately-constructed landfills that will exceed one of more of those thresholds. The environmental document would need to meet the standards for an environmental impact statement under the N.C. Environmental Policy Act and rules adopted by the Department of Administration to implement the act. The documents would also be subject to the same public notice and a public hearing would be required.

16. Change landfill franchise authority to differentiate between landfills that provide local service and those that have large regional or multi-state service areas.

The Department is still working on the specific recommendation to alter local government franchise authority.

17. Add a new statute section setting out the grounds for denial of a landfill permit.

The statute should authorize the Department to deny a landfill permit if it finds one of the following:

(a) Construction or operation of the landfill would violate water quality standards for groundwater or surface waters;

(b) The landfill would jeopardize a renewable resource of more than local concern, such as watersheds or aquifers that are sources of public water supply.
(c) Construction or operation of the landfill would damage fragile or historic areas or areas containing environmental or natural resources of more than local significance. Examples of these areas would include national or State parks or forests; wilderness areas; historic sites; recreation areas; segments of the natural and scenic rivers system; wildlife refuges, preserves and management areas; areas that provide habitat for threatened or endangered species; primary nursery areas and critical fisheries habitat designated by the Marine Fisheries Commission; and Outstanding Resource Waters designated by the Environmental Management Commission.
(d) Construction or operation of the facility would jeopardize public rights to access or use public trust waters.
(e) The facility will be located in a natural hazard area, such as an area subject to excessive seismic activity, that would increase the risk to public health or safety.
(f) The proposed facility would be inconsistent with statutory standards or rules adopted by the Commission for Health Services.
(g) The proposed facility would be inconsistent with ordinances adopted by the local government that has planning jurisdiction over the site of the proposed facility.
(h) There is a practicable alternative to be proposed landfill that would have less adverse impact on public resources.
(i) Construction of the landfill would contribute to cumulative effects that would damage a natural, historic, or cultural resource protected under the statute.

18. Establish permit fees for solid waste facilities. A copy of the proposed fee schedule is attached. Fee revenue would be used to support the solid waste regulatory program.

19. Establish a state-wide surcharge on disposal of solid waste at $2 per ton. The surcharge would apply to municipal solid waste and to construction and demolition waste that is either disposed of at a permitted solid waste facility or moves through a permitted transfer station en route to a disposal facility outside the State. The surcharge would be used to pay for cleanup of orphan landfills and other orphan inactive hazardous waste sites; provide state matching funds for remediation, monitoring and maintenance of Superfund sites in North Carolina; provide funds to local government for redevelopment of contaminated sites; and provide funds for administration of contracts to cleanup orphan landfills and inactive hazardous waste sites.

DRAFT
DENR
Feb. 19 2007

PROPOSED PERMIT FEES FOR SOLID WASTE MANAGEMENT FACILITIES

"**§ 130A-293.1. Fees applicable to permits for solid waste management facilities.**

(a) It is the intent of the General Assembly that the fees collected pursuant to this section shall be used to support the Department's solid waste management program.

(b) The Solid Waste Management Account is established as a non-reverting account within the Department. All fees collected under this section shall be credited to the Account and shall be used for personnel and other resources necessary to do any one or more of the following:

(1) Provide a high level of professional review of permit applications for solid waste landfills and other solid waste management facilities;

(2) Provide timely review of permit applications;

(3) Improve monitoring of solid waste management facilities;

(4) Increase compliance activities related to solid waste management facilities; and

(5) Review and update rules governing the construction and operation of solid waste landfills to recognizing advances in technology and research to better protect public health and the environment.

(c) Applicants for permits shall pay an application fee according to the following schedule:

(1) Municipal Solid Waste Landfill accepting less than 100,000 tons/year of solid waste-New Permit-$25,000

(2) Municipal Solid Waste Landfill accepting less than 100,000 tons/year of solid waste-Amendment -$15,000

(3) Municipal Solid Waste Landfill accepting less than 100,000 tons/year of solid waste – Modification - $1,500

(4) Municipal Solid Waste Landfill accepting 100,000 tons/year or more of solid waste - New Permit - $50,000

(5) Municipal Solid Waste Landfill accepting 100,000 tons/year or more of solid waste – Amendment - $30,000

(6) Municipal Solid Waste Landfill accepting 100,000 tons/year or more of solid waste – Modification - $3,000

(7) Construction and Demolition Landfill accepting less than 100,000 tons/year of solid wasteNew Permit-$15,000

(8) CONSTRUCTION AND DEMOLITION Landfill accepting less than 100,000 tons/year of solid waste-Amendment -$9,000

(9) CONSTRUCTION AND DEMOLITION Landfill accepting less than 100,000 tons/year of solid waste – Modification - $1,500

(10) Construction and Demolition Landfill accepting 100,000 tons/year or more of solid waste - New Permit - $30,000

(11) Construction and Demolition Landfill accepting 100,000 tons/year or more of solid waste – Amendment - $18,500

(12) Construction and Demolition Landfill accepting 100,000 tons/year or more of solid waste – Modification - $2,500

(13) Industrial Landfill accepting less than 100,000 tons/year of solid waste-New Permit-$15,000

(14) Industrial Landfill accepting less than 100,000 tons/year of solid waste-Amendment -$9,000

(15) Industrial Landfill accepting less than 100,000 tons/year of solid waste Modification - $1,500

(16) Industrial Landfill accepting 100,000 tons/year or more of solid waste New Permit - $30,000

(17) Industrial Landfill accepting 100,000 tons/year or more of solid waste Amendment - $18,500

(18) Industrial Landfill accepting 100,000 tons/year or more of solid waste Modification - $2,500

(19) Tire Monofill New Permit - $1,750

(20) Tire Monofill Amendment - $1,250

(21) Tire Monofill Modification - $500

(22) Treatment and Processing New Permit - $1,750

(23) Treatment and Processing Amendment $1,250

(24) Treatment and Processing Modification $500

(25) Transfer Stations New Permit - $5,000

(26) Transfer Stations Amendment - $3,000

(27) Transfer Station Modification - $500

(28) Incinerator New Permit - $1,750

(29) Incinerator Amendment - $1,250

(30) Incinerator Modification - $500

(31) Large Compost Facility New Permit - $1,750

(32) Large Compost Facility Amendment - $1,250

(33) Large Compost Facility Modification - $500

(34) Land Clearing and Inert New Permit - $1,000

(35) Land Clearing and Inert Amendment - $500

(36) Land Clearing and Inert Modification -$250

(d) The application permit fee under this section shall be paid upon submission of the permit application.

(e) A permitted solid waste management facility shall pay an annual permit fee on or before August 1 of each year according to the following schedule:

1. Municipal Solid Waste Landfill $3,500
2. Post Closure Municipal Solid Waste Landfill $1,000
3. Construction and Demolition Landfill $2,750
4. Post Closure Construction and Demolition Landfill $500
5. Industrial Landfill $2750
6.. Post Closure Industrial Landfill $500
7. Transfer Station $750
8. Treatment and Processing Facility $500
9. Tire Monofill $500
10. Incinerators $500

11. Large Compost Facility $500
12. Land Clearing and Inert Debris Landfill $500

(f) As used in this section, the following definitions apply:

(1) 'New permit' means all of the following:

a. An application for a new solid waste management facility not previously permitted by the Department. It includes one site suitability review, the initial permit to construct and one permit to operate the constructed portion of a phase included in the permit to construct.

b. An application that proposes to expand the boundary of a permitted waste management facility for the purpose of expanding the permitted activity.

c. Any application that includes a proposed expansion to the boundary of a waste disposal unit within an existing permitted solid waste management facility.

d. An application for a substantial amendment to a solid waste permit, as defined in G.S. 130A 294(b1).

(2) 'Permit amendment' means all of the following:

a. An application for a permit to construct and one permit to operate for the second and subsequent phases of landfill development depicted in the approved facility plan for an existing solid waste management permit.

b. An application for a renewal or a permit review every five years after issuance of the existing solid waste management facility permit, as required by rule.

c. Any application that proposes a change in ownership or corporate structure of a permitted solid waste management facility

(3) 'Permit modification' means all of the following:

a. an application for any change to the plans approved in the existing permit for a solid waste management facility that does not constitute a 'permit amendment' or a 'new permit'."

b. a second or subsequent permit to operate for a constructed portion of a phase included in the permit to construct.

EXHIBIT M

RECOMMENDATIONS FROM THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES TO THE ENVIRONMENTAL REVIEW COMMISSION ON SOLID WASTE MANAGEMENT

16 February 2007

A BILL TO BE ENTITLED
THE SOLID WASTE MANAGEMENT ACT OF 2007

Whereas, it is the declared public policy of the state to protect and enhance the water quality of the State's rivers and coastal estuaries; and

Whereas, it is the policy of the State to ensure the continued public enjoyment of the natural attractions of the State; and

Whereas, the ownership of solid waste facilities has taken new form in recent years; and

Whereas, the potential exists for the state of North Carolina and local government to incur costs from an environmental release from a landfill; and

Whereas, there have been substantial and beneficial changes in technology, materials, processes, and engineering practices in the field of solid waste management; and

Whereas, North Carolina should set a high standard in solid waste management practices and there is a desire to immediately improve solid waste management in North Carolina by implementing changes that account for the substantial and beneficial changes in technology, materials, processes and engineering practices in the field of solid waste management.

Now therefore the General Assembly of North Carolina enacts:

SECTION 1.(a). Financial qualifications for solid waste facility owners.

G.S. 130A-290 is amended by adding a new definition:

"(1aa) "Business entity" has the same meaning as in G.S. 55-1-40 (2a)."

SECTION 1.(b).

G.S. 130A-294(b2) is amended as follows:

"(b2) The Department may require an applicant for a permit under this Article to satisfy the Department that the applicant, and any parent, subsidiary, or other affiliate of the applicant or parent, and including any joint venturer with a direct or indirect financial or equity interest in the applicant:

(1) Is financially qualified to carry out the activity for which the permit is required.

The applicant shall demonstrate financial qualifications adequate to ensure proper design, construction, operation, maintenance, and closure of the facility. The applicant shall also demonstrate financial qualifications sufficient to obtain the financial assurance required under subpart (b) of this section. The initial demonstration of financial qualification for the design, construction, and closure of the facility may be limited to the first five-year phase of construction for which a permit to construct is sought. The applicant may be required to demonstrate financial qualification for each successive five-year phase of design, construction and operation of the facility when applying for a permit to construct each successive phase of the facility. The applicant shall provide cost estimates for site investigation; land acquisition, including financing terms and land ownership; design of the facility; construction of the first five-year phase of the facility, operation of the facility; closure of the facility; and the cost of providing financial assurance required under subpart (b) of this section.

The applicant shall provide an audited, certified, financial statement and a combination of cash deposits, insurance policies, and binding letters of loan commitments from a triple A or higher rated rated financial institution licensed to do business in North Carolina sufficient to cover the anticipated costs. Where assets of a parent, subsidiary or other affiliate of the applicant or a joint venturer with a

direct or indirect financial or equity interest in the applicant is proposed to be used to determine the financial qualifications of the applicant, then that party must be listed on the permit of the facility. The applicant must show the ability to obtain financial assurance required under this Chapter and rules adopted by the Commission. A letter of intent to provide financial assurance provided by a North Carolina registered provider of at least triple A credit rating shall suffice for adequate demonstration

SECTION 2. Financial assurance for assessment and corrective actions.

G.S. 130A-294(b) is amended as follows:

" (b) The Commission shall adopt and the Department shall enforce rules to implement a comprehensive statewide solid waste management program. The rules shall be consistent with applicable State and federal law; and shall be designed to protect the public health, safety, and welfare; preserve the environment; and provide for the greatest possible conservation of cultural and natural resources. Rules for the establishment, location, operation, maintenance, use, discontinuance, recordation, post-closure care of solid waste management facilities also shall be based upon recognized public health practices and procedures, including applicable epidemiological research and studies; hydrogeological research and studies; sanitary engineering research and studies; and current technological development in equipment and methods. The rules shall not apply to the management of solid waste that is generated by an individual or individual family or household unit on the individual's property and is disposed of on the individual's property.

The Commission shall adopt rules for financial responsibility to ensure the availability of sufficient funds for closure and post-closure maintenance and monitoring at solid waste management facilities and for any corrective action the Department may require during the active life of a facility or during the closure and post-closure periods. To meet the financial responsibility requirements of this section for potential assessment and corrective action, the owner or operator of a sanitary landfill shall provide financial assurance sufficient to cover a minimum of $3,000,000.00 in costs. The Department may require financial assurance in a higher amount and may adjust the amount of financial assurance required upward after initial permit issuance, based upon the types of waste disposed in the landfill, the projected amount of waste to be disposed in the landfill, the location of the landfill, potential receptors of releases from the landfill, and inflationary factors. This amount is in addition to any financial assurance required for closure of the facility and for routine post-closure care. The rules may permit demonstration of financial responsibility through the use of a letter of credit, insurance, surety, trust agreement, financial test, or guarantee by corporate parents or third parties who can pass the financial test. The rules shall require that an owner or operator of a privately owned solid waste management facility demonstrate financial responsibility by a method or combinations of methods that will ensure that sufficient funds for closure, post-closure maintenance and monitoring, and any corrective action that the Department may require will be available during the active life of the facility, at closure, and for a period of not less than 30 years after closure even if the owner or operator becomes insolvent or ceases to reside, be incorporated, do business, or maintain assets in the State. The financial assurance shall be in a form that allows the Department to access the financial assurance for the purposes enumerated in this section and may not be accessed by the permit holder except as approved by the Department. Financial assurance for potential releases of contaminants shall be demonstrated prior to issuance of new permits and within six months of the effective date of this section for existing permits.

SECTION 3 HISTORY OF ENVIRONMENTAL COMPLIANCE

SECTION 3a.

G.S. 130A-309.06(b) is amended as follows:

(b) The Department may refuse to issue a permit to an applicant who by past conduct ~~in this State~~ has repeatedly violated ~~related~~ statutes, rules, orders, or permit terms or conditions relating to ~~any solid waste management facility~~ environmental protection and who is deemed by the Department to be responsible for the violations. For the purpose of this subdivision, an applicant includes the owner or operator of the facility, or, if the owner or operator is a business entity, the parent, subsidiary or other affiliate of the applicant, ~~the parent of the subsidiary corporation,~~ a partner, ~~a corporate~~ officer, ~~or~~ director, ~~or a stockholder holding more than fifty percent (50%) of the stock of the corporation.~~ member, manager, and any person with a direct or indirect financial or equity interest in the applicant, other than a minority shareholder of a publicly traded corporation who has no involvement in management or control of the corporation or any of its subsidiaries or affiliates.

SECTION 3b.

G.S. 130A-294(b2)(2) is amended as follows:

(2) Has substantially complied with the requirements applicable to any ~~solid waste~~ activity in which the ~~applicant~~ applicant, or a parent, subsidiary or other affiliate of the applicant or parent, or a joint venturer with a direct or indirect financial or equity interest in the applicant, has previously engaged and has been in substantial compliance with federal and state laws, regulations, and rules for the protection of the environment. In determining whether the applicant and its affiliates have substantially complied with environmental laws in previous activities, the Department may consider the environmental compliance history of:

a. Officers, directors, managers, members, and partners in the applicant business entity;
b. All persons with a direct or indirect financial or equity interest in the applicant;
c. Officers, directors, managers, members, and partners in any business entity which has a direct or indirect financial or equity interest in the applicant;
d. Officers, directors, managers, members and partners in any business entity which is a parent, subsidiary or other affiliate of the applicant.

The applicant shall provide environmental compliance history information for each facility, business, business entity, joint venture or other undertaking in which any of the persons listed above is or has been an owner, operator, officer, director, manager, member, or partner, or in which any of the persons listed above has had a direct or indirect financial or equity interest, as requested by the Department."

SECTION 4. Sanitary landfill owner defined.

G.S. 130A-309.27(a)(1) is amended as follows:

"(1) "Owner or operator" means, in addition to the usual meanings of the term, any owner of record of any interest in land on which a landfill is or has been sited, and any person or ~~corporation~~ business entity which owns, directly or indirectly, a ~~majority~~ financial or equity interest in any other ~~corporation~~ business entity which is the owner or operator of a landfill, except that a minority shareholder of a publicly traded corporation who has no involvement in management or control of the corporation or any of its subsidiaries or affiliates shall not be considered an owner or operator solely on the basis of his stock holdings."

SECTION 5. Violation of permits

G.S. 130A-18 (a) is amended as follows:

" (a) If a person shall violate any provision of this Chapter; ~~or~~ the rules adopted by the Commission or rules adopted by a local board of health; or a condition or term of a permit or order issued under this Chapter, the Secretary or a local health director may institute an action for injunctive relief, irrespective of all other remedies at law, in the superior court of the county where the violation occurred or where a defendant resides.

(b) The Secretary of Environment and Natural Resources and a local health director shall have the same rights enumerated in subsection (a) of this section to enforce the provisions of Part 4 of Article 5 and Articles 8, 9, 10, 11, and 12 of this Chapter. (1983, c. 891, s. 2; 1997-443, s. 11A.61; 2001-474, s. 20; 2006-255, s. 13.4.)

.G.S. 130A-22(a) is amended as follows:

"(a) The Secretary of Environment and Natural Resources may impose an administrative penalty on a person who violates Article 9 of this Chapter, rules adopted by the Commission pursuant to Article 9, or any term or condition of a permit or order issued under Article 9. Each day of a continuing violation shall constitute a separate violation. The penalty shall not exceed ten thousand dollars ($10,000) per day in the case of a violation involving nonhazardous waste. The penalty shall not exceed thirty-two thousand five hundred dollars ($32,500) per day in the case of a first violation involving hazardous waste as defined in G.S. 130A-290 or involving the disposal of medical waste as defined in G.S. 130A-290 in or upon water in a manner that results in medical waste entering waters or lands of the State; and shall not exceed fifty thousand dollars ($50,000) per day for a second or further violation involving the disposal of medical waste as defined in G.S. 130A-290 in or upon water in a manner that results in medical waste entering waters or lands of the State. The penalty shall not exceed thirty-two thousand five hundred dollars ($32,500) per day for a violation involving a voluntary remedial action implemented pursuant to G.S. 130A-310.9(c) or a violation of the rules adopted pursuant to G.S. 130A-310.12(b). If a person fails to pay a civil penalty within 60 days after the final agency decision or court order has been served on the violator, the Secretary of Environment and Natural Resources shall request the Attorney General to institute a civil action in the superior court of any county in which the violator resides or has his or its principal place of business to recover the amount of the assessment. Such civil actions must be filed within three years of the date the final agency decision or court order was served on the violator.

G.S. 130A-22 is amended by the addition of a new paragraph (j) which reads as follows:

"(j) The Secretary of Environment and Natural Resources may also assess a person who is assessed a civil penalty under this section the reasonable costs of any investigation, inspection, or monitoring that results in the assessment of the civil penalty."

SECTION 6. Notice of change of ownership.

G.S. 130A-294 is amended by adding a new subsection to read:

"( ) Solid waste management permits are not transferable. The person holding a permit for a solid waste management facility shall notify the Department of any significant change in the structure of the business entity that owns or operates the facility; the identity of any person or business entity previously identified as an owner or operator of the facility pursuant to G.S. 130A-309.27(a)(1); or in the financial assets identified in the financial qualification of the owner or operator. Notice to the Department shall be provided within 30 days. A change shall be considered significant if it has the potential to effect the financial qualifications of the permit holder or if it would result in a change in the identity of the owners or operators for purposes of either financial qualification or environmental compliance review. The Department may require new

financial qualification and environmental compliance reviews based those changes and may modify, revoke or require issuance of a new permit based on the outcome of the reviews."

SECTION 7. Transportation of nonhazardous solid waste.

G.S. 130a-294(a) is amended by adding a new subdivision to read:

"( ) Waste containers used for transport of solid waste by railway or barge, including the barge or railcar if the waste is not containerized, shall:

(1) be designed, constructed, loaded, operated, secured and maintained so as to prevent the escape of wastes, liquids, and odors and to prevent the loss or spillage of wastes in the event of an accident.

(2) be stacked safely and be secured to prevent accidents during transportation, loading and unloading.

(3) be completely enclosed or covered.

(4) be certified as having passed the following test to show that it is watertight, when it is placed in service and at least once every six months thereafter while it remains in service:

(i) have a minimum internal head of 24 inches of water applied to the container in an upright position for at least 15 minutes during which the container shall remain free from the escape of water.

(ii) be visually inspected for damage on all sides, plus the top and bottom and must have no visible holes, gaps or structural damage affecting its integrity or performance.

Owners of all containers shall keep a record of testing of each container for three years and provide copies of those records to persons who lease or handle the container. Such records shall be available to the Department for inspection at any receiving facility permitted by the Department.

The entry of liquids into a container; escape, loss or spillage of wastes or liquids from a container; or escape of odors from a container during transportation, holding and storage operations or in the event of an accident, shall be a violation of this subsection."

SECTION 8. Traffic study required.

G.S. 130A-294(a) is amended by adding a new subsection to read:

"( ) No application for a permit for a new solid waste management facility that is proposed to accept greater than 100,000 tons of waste per year shall be considered until a traffic study is completed. The study shall at a minimum include the following:

a. Identification of routes from the nearest limited access highway used to access the proposed facility and daily and hourly traffic volumes that will result along each approach route;

b. A map identifying land uses located along the identified approach routes, including but not limited to residential, commercial, and industrial development; agricultural operations; and identification of residences, schools, hospitals, nursing homes and other significant buildings fronting the roadways. Describe potential adverse impacts of increased facility traffic volumes and describe mitigation measures.

c. Identification of locations on approach routes where road conditions are inadequate to handle the increased traffic associated with the proposed facility. Describe potential mitigation measures.

The Department shall condition any permit issued for a solid waste management facility to provide mitigation of adverse impacts identified from the traffic study. The Commission may adopt rules to implement this section."

SECTION 9. Local government landfill liaison

G.S. 153A/160A (for counties/municipalities) is amended by adding a new subsection to read:

"( ) A local government that has planning jurisdiction over the site of a solid waste management facility with a service area greater than or equal to a 100 mile radius may employ a local government landfill liaison. The landfill liaison shall be a certified landfill manager in accordance with G.S. 130A-309.06. The landfill liaison may enter the landfill facility at reasonable times and inspect the landfill operation for purposes of :

a. ensuring that the facility meets all local requirements

b. identifying and notifying the Department of potential violations of landfill requirements; and

c. identifying and notifying the Department of potentially hazardous conditions.

The landfill liaison may not direct the operation of the facility."

SECTION 10. Independent engineer perform construction quality assurance

G.S. 130A-294 is amended by adding a new subsection as follows:

" ( ) The owner of a sanitary landfill shall employ a project engineer to inspect the construction of sanitary landfill units, landfill leachate handling facilities and landfill appurtenances. The project engineer shall be licensed to practice engineering in the State of North Carolina and must be independent of both the landfill owner and any person engaged in the design or construction of the landfill. The project engineer is responsible for observing, documenting and certifying that construction of the solid waste management facility units, leachate handling facilities and landfill appurtenances conforms to the plan approved by the Department, the permit to construct, and the rules adopted by the Commission. The project engineer or the engineer's representative shall be at the site at all times during the initial construction phase of the containment and leachate collection systems, shall observe and perform all required systems audits of the quality control inspections and shall ensure proper implementation of the design and permit requirements. All certifications must bear the seal and signature of the professional engineer and the date of certification."

SECTION 11(a) Minimum standards for new landfills and for landfill expansions onto previously unpermitted property .

G.S. 130A-294 is amended by adding a new subsection as follows:

"( ) The following standards shall apply to landfill facilities permitted after the effective date of this section and lateral expansions of landfill facilities onto property that was not included in a landfill permit issued prior to the effective date of this section:

(1) Municipal Solid Waste landfill units shall be constructed with double liners and must include a leak detection system between the liners and a low permeability layer under the secondary liner.

(2) Construction and Demolition landfill units shall be constructed with a composite liner system consisting of two components. The upper component shall consist of a flexible membrane liner and the lower component shall consist of a minimum of two feet of compacted soil with a maximum permeability of 1×10^{-7} centimeters per second. The liner shall be a minimum of 30 mil in thickness, except that a liner composed of high density polyethylene shall be a minimum of 60 mil in thickness. The liner shall be installed in direct and uniform contact with the compacted soil layer. The Department may approve an alternate liner system if the Department finds, based on modeling, that the alternate liner system will provide equivalent or greater impermeability.

(3) Sanitary landfill units shall be constructed so that the post-settlement bottom elevation of the liner system, or the post-settlement bottom elevation of the waste if no liner system is required, is a minimum of five feet above the seasonal high groundwater table and the bedrock datum plane contours established during the hydrogeologic investigation phase of the permit process.

(4) Sanitary landfill units and lateral expansions of existing units shall establish a minimum buffer distance between the waste boundary and streams or wetlands of 200 feet. The Department may approve a buffer that is less than 200 feet, but in no case less than 100 feet, upon finding that both of the following apply:

a. The proposed landfill or landfill expansion will serve a critical need in the community.
b. No feasible location exists that would allow for siting or expansion of the landfill in compliance with the requirement for 200 foot buffers.

(5) Sanitary landfill units shall not be placed in the 100-year flood plain or in lands reclaimed from previously designated 100-year flood plains.

[We need to harmonize (5) with the floodplain statutes – G.S. 143-215.54 and 143-215.54A. G.S. 143-215.54(c) prohibits solid waste disposal facilities, hazardous waste management facilities, salvage yards and chemical storage facilities in the 100-year floodplain, but 143-215.54A(b) allows the local government to issue a variance from that prohibition. We have not yet decided whether to keep the variance option and if so whether it should be at the state or local level.]

Section 11(b) Standards for landfill units that received a permit to construct after effective date

G.S. 130A-294 is amended by adding a new subsection to read:

"( ) The following criteria shall apply to all lined sanitary landfill units permitted on or after the effective date of this section.

(1) Any required leachate collection system shall be designed to return the head on the liner to one foot (30 cm) or less, within 72 hours, from a design storm of 25 year-24 hour falling on an empty cell. The leachate collection system shall maintain a head of less than one foot (30 cm) at all times during leachate recirculation. The operator may be required to monitor head on the liner to demonstrate that the head is being maintained in accordance with the rules and this section.
(2) All geomembrane base liner systems used in sanitary landfill units shall be tested for leaks and damage, by methods approved by the Department, to ensure that the liner is 100% evaluated.
(3) All leachate collection lines shall be designed and constructed to permanently allow remote camera inspection and cleaning. All leachate lines shall be cleaned and shall be remotely inspected by camera on an annual basis. The documentation of the camera inspection and the annual cleaning shall be placed in the facility operating record and provided to the Department upon request.
(4) All pipes used to transmit leachate shall provide dual containment outside of the lined disposal unit. New units and lateral expansions shall be constructed without pipe penetrations of the bottom liner, whether for leachate, stormwater or gas.

The Commission may adopt rules as needed to implement this section."

SECTION 11(c) Improve landfill standards.

The Commission shall review rules relating to the siting, construction and design of solid waste facilities to determine whether changes are required to protect the public health and environment; to improve the performance of solid waste management facilities; to take advantage of technological advances in landfill construction, maintenance and design; and to provide additional protection to environmentally sensitive areas of the state. The Commission shall enact rules necessary to minimize impacts to the environment and protect public health. These rules shall:

(1) Establish standards for the collection, control and utilization or destruction of landfill gasses at municipal solid waste landfills;
(2) Establish standards for the construction, operation, and maintenance of bioreactor landfills;
(3) Establish criteria for development of bird and wildlife management plans; and
(4) Incorporate measures necessary to minimize impacts to natural, historic and cultural resources, including but not limited to wetlands, critical fisheries habitat, parks, recreation areas, cultural and historic sites, and potential water supplies.

SECTION 11(d) Waste screening.

G.S. 130A-294 is amended by adding a new subsection to read:

"( ) Solid waste management facilities [permitted after the effective date of this section] shall have a waste screening plan approved by the Department. The plan shall identify measures adequate to ensure compliance with state laws, rules and applicable local ordinances that ban specific types of waste from disposal in solid waste landfills. The plan shall address all sources of waste generation."

SECTION 12a.

G.S. 130A-294 (4)(b) is amended as follows:

"The issuance of permits for sanitary landfills operated by local governments is exempt from the environmental impact statements required by Article 1 of Chapter 113A of the General Statutes, entitled the North Carolina Environmental Policy Act of 1971 unless the sanitary landfill will exceed any of the following thresholds:

1.The landfill will receive more than 300,000 tons of solid waste per year.
2. The landfill will have the capacity to dispose of more than 15,000,000 cubic yards of solid waste.
3. The landfill has a proposed service area equal to or greater than a 100 mile radius.

All sanitary landfill permits issued to local governments prior to July 1, 1984, are hereby validated notwithstanding any failure to provide environmental impact statements pursuant to the North Carolina Environmental Policy Act of 1971;"

Section 12b Note: should apply to pending applications.

G.S. 130A-294 is amended by adding a new subsection to read:

" ( ) An applicant for a permit to construct a sanitary landfill shall conduct a study of environmental impacts if the landfill will exceed any of the following thresholds:

1. The landfill will receive more than 300,000 tons of solid waste per year.
2. The landfill will have the capacity to dispose of more than 15,000,000 cubic yards of solid waste.
3. The landfill will have a proposed service area equal to or greater than a 100 mile radius.

The study of environmental impacts shall meet all of the requirements for an environmental impact statement under G.S. 113A-4 and rules adopted by the Department of Administration to implement the statute. In addition to information required for an adequate environmental impact statement under G.S. 113A-4 , the study shall address: the need for additional waste disposal capacity; consistency with North Carolina's solid waste management plan; the applicant's ability to ensure compliance with state law affecting

olid waste disposal (including bans on disposal of certain types of waste in landfills); and an alternative sites nalysis. The Department shall publish notice of the draft environmental impact statement and shall hold a public hearing in the county where the landfill will be located no sooner than 30 days following the public notice. The Department shall consider the study of environmental impacts and mitigation measures proposed by the applicant in making the decision to issue or deny a permit."

SECTION 13. Amendments to Franchise Authority
Hold for language

SECTION 14 Denial of Permits for Solid Waste Facilities
G.S. 130A-294 is amended by addition of a new subsection to read:
"( ) The Department shall deny an application for a permit for a solid waste facility upon finding:
(1) That construction or operation of the facility will violate water quality standards for groundwater or surface waters, including wetlands, adopted by the Environmental Management Commission.
(2) That construction or operation of the facility will result in loss or significant reduction of continued long-range productivity that would jeopardize a renewable resource of more than local concern, including but not limited to watersheds or aquifers that are sources of public water supply.
(3) That construction or operation of the facility will result in significant damage to fragile or historic areas and other areas containing environmental or natural resources of more than local significance. These areas include, but are not limited to national or State parks or forests; wilderness areas; historic sites; recreation areas; segments of the natural and scenic rivers system; wildlife refuges, preserves and management areas; reas that provide habitat for threatened or endangered species; primary nursery areas and critical fisheries abitat designated by the Marine Fisheries Commission; and Outstanding Resource Waters designated by the Environmental Management Commission.
(4) That construction or operation of the facility will jeopardize public rights to access or use public trust waters.
(5) That the facility will be located in a natural hazard area, such as a floodplain or an area subject to excessive seismic activity, such that the facility will present a risk to public health or safety.
(6) In any case, that the proposed facility is inconsistent with rules adopted by the Commission for Health Services.
(7) In any case, that the proposed facility is inconsistent with ordinances adopted by the local government that has planning jurisdiction over the site of the proposed facility.
(8) In any case, that considering engineering requirements and all economic costs there is a practicable alternative that would accomplish the overall project purposes with less adverse impact on public resources.
(9) In any case, that the proposed development would contribute to cumulative effects that would be inconsistent with the guidelines set forth in subdivisions (1) through (5) of this subsection. Cumulative effects are impacts attributable to the collective effects of a number of projects and include the effects of additional projects similar to the
requested permit in areas available for development in the vicinity."

SECTION 15 Permit fees.
Article 9 of Chapter 130A of the General Statutes is amended by adding a new section to read:
"**§ 130A-293.1. Fees applicable to permits for solid waste management facilities.**
(a) It is the intent of the General Assembly that the fees collected pursuant to this section shall be used to support the Department's solid waste management program.

(b) The Solid Waste Management Account is established as a non-reverting account within the Department. All fees collected under this section shall be credited to the Account and shall be used for personnel and other resources necessary to do any one or more of the following:

(1) Provide a high level of professional review of permit applications for solid waste landfills and other solid waste management facilities;

(2) Provide timely review of permit applications;

(3) Improve monitoring of solid waste management facilities;

(4) Increase compliance activities related to solid waste management facilities; and

(5) Review and update rules governing the construction and operation of solid waste landfills to recognizing advances in technology and research to better protect public health and the environment.

(c) Applicants for permits shall pay an application fee according to the following schedule:

(1) Municipal Solid Waste Landfill accepting less than 100,000 tons/year of solid waste-New Permit-$25,000

(2) Municipal Solid Waste Landfill accepting less than 100,000 tons/year of solid waste-Amendment -$15,000

(3) Municipal Solid Waste Landfill accepting less than 100,000 tons/year of solid waste – Modification - $1,500

(4) Municipal Solid Waste Landfill accepting 100,000 tons/year or more of solid waste - New Permit - $50,000

(5) Municipal Solid Waste Landfill accepting 100,000 tons/year or more of solid waste – Amendment - $30,000

(6) Municipal Solid Waste Landfill accepting 100,000 tons/year or more of solid waste – Modification - $3,000

(7) Construction and Demolition Landfill accepting less than 100,000 tons/year of solid wasteNew Permit-$15,000

(8) CONSTRUCTION AND DEMOLITION Landfill accepting less than 100,000 tons/year of solid waste-Amendment -$9,000

(9) CONSTRUCTION AND DEMOLITION Landfill accepting less than 100,000 tons/year of solid waste – Modification - $1,500

(10) Construction and Demolition Landfill accepting 100,000 tons/year or more of solid waste - New Permit - $30,000

(11) Construction and Demolition Landfill accepting 100,000 tons/year or more of solid waste – Amendment - $18,500

(12) Construction and Demolition Landfill accepting 100,000 tons/year or more of solid waste – Modification - $2,500

(13) Industrial Landfill accepting less than 100,000 tons/year of solid waste-New Permit-$15,000

(14) Industrial Landfill accepting less than 100,000 tons/year of solid waste-Amendment - $9,000

(15) Industrial Landfill accepting less than 100,000 tons/year of solid waste Modification - $1,500

(16) Industrial Landfill accepting 100,000 tons/year or more of solid waste New Permit - $30,000

(17) Industrial Landfill accepting 100,000 tons/year or more of solid waste Amendment - $18,500

(18) Industrial Landfill accepting 100,000 tons/year or more of solid waste Modification - $2,500

(19) Tire Monofill New Permit - $1,750

(20) Tire Monofill Amendment - $1,250

(21) Tire Monofill Modification - $500

(22) Treatment and Processing New Permit - $1,750

(23) Treatment and Processing Amendment $1,250

(24) Treatment and Processing Modification $500

(25) Transfer Stations New Permit - $5,000

(26) Transfer Stations Amendment - $3,000

(27) Transfer Station Modification - $500

(28) Incinerator New Permit - $1,750

(29) Incinerator Amendment - $1,250

(30) Incinerator Modification - $500

(31) Large Compost Facility New Permit - $1,750

(32) Large Compost Facility Amendment - $1,250

(33) Large Compost Facility Modification - $500

(34) Land Clearing and Inert New Permit - $1,000

(35) Land Clearing and Inert Amendment - $500

(36) Land Clearing and Inert Modification -$250

(d) The application permit fee under this section shall be paid upon submission of the permit application.

(e) A permitted solid waste management facility shall pay an annual permit fee on or before August 1 of each year according to the following schedule:

1. Municipal Solid Waste Landfill $3,500
2. Post Closure Municipal Solid Waste Landfill $1,000
3. Construction and Demolition Landfill $2,750
4. Post Closure Construction and Demolition Landfill $500
5. Industrial Landfill $2750
6.. Post Closure Industrial Landfill $500
7. Transfer Station $750
8. Treatment and Processing Facility $500
9. Tire Monofill $500
10. Incinerators $500
11. Large Compost Facility $500
12. Land Clearing and Inert Debris Landfill $500

(f) As used in this section, the following definitions apply:

(1) 'New permit' means all of the following:

a. An application for a new solid waste management facility not previously permitted by the Department. It includes one site suitability review, the initial permit to construct and one permit to operate the constructed portion of a phase included in the permit to construct.

b. An application that proposes to expand the boundary of a permitted waste management facility for the purpose of expanding the permitted activity.

c. Any application that includes a proposed expansion to the boundary of a waste disposal unit within an existing permitted solid waste management facility.

d. An application for a substantial amendment to a solid waste permit, as defined in G.S. 130A 294(b1).

(2) 'Permit amendment' means all of the following:

a. An application for a permit to construct and one permit to operate for the second and subsequent phases of landfill development depicted in the approved facility plan for an existing solid waste management permit.

b. An application for a renewal or a permit review every five years after issuance of the existing solid waste management facility permit, as required by rule.

c. Any application that proposes a change in ownership or corporate structure of a permitted solid waste management facility

(3) 'Permit modification' means all of the following:

a. an application for any change to the plans approved in the existing permit for a solid waste management facility that does not constitute a 'permit amendment' or a 'new permit'."

b. a second or subsequent permit to operate for a constructed portion of a phase included in the permit to construct.

SECTION 16. Waste disposal surcharge.

[Note: DWM proposed to recodify an existing definition of "parent" and then insert the new definition of "orphan landfill" where the definition of "parent" now appears to keep the terms being defined in alphabetical order. I don't know whether that works or not as a matter of legislative drafting.]

G.S. 130A-290(a)(21a) is recodified as G.S. 130A-290(a)(21b).

SECTION 17.

G.S. 130A-290(a)(21a) is amended to read:

"(21a) Orphan landfill' means any area, whether publicly or privately owned, that was operated as a landfill for the disposal of municipal solid waste generated by the local citizenry and general public, that ceased to receive any waste after December 31, 1982, and for which assessment and remediation is needed in order to protect public health and the environment, but does not include any landfill used primarily for waste disposal from industrial sources."

SECTION 18.

Part 2A of Article 9 of Chapter 130A of the General Statutes is amended by adding a new section to read:

"§ 130A-309.08A. Solid waste disposal fee; use of proceeds.

(a) Fee Imposed. – A fee of two dollars ($2.00) per ton of waste is imposed on the disposal of municipal solid waste or construction or demolition debris in any landfill permitted pursuant to this Part. A fee of two dollars ($2.00) per ton of waste is imposed on the transfer of solid waste to a transfer station permitted pursuant to this Part for disposal outside the State.

(b) Determination and Payment of Fee. – The owner or operator of each landfill and transfer station permitted pursuant to this Part shall maintain scales, designed to determine waste tonnage, that are approved by the Department of Agriculture and Consumer Services. Each owner or operator shall record waste tonnage at the time the waste is received and calculate and record the fees due under this section for each

quarter of the calendar year on forms approved by the Department. Each owner or operator shall provide the completed forms, report the total number of tons of waste received and pay the fees due for each quarter of the calendar year to the Department no later than the 15th day of the following calendar month. The Department shall credit all fees received pursuant to this section to the Inactive Hazardous Sites Cleanup Fund established by G.S. 130A-310.11.

(c) Use of Proceeds. – The Department shall use the proceeds of the fees imposed by this section for the following purposes:

(1) Assessment and remediation of orphan landfills.

(2) Assessment and remediation of inactive hazardous substance or waste disposal sites for which a private party is or may be responsible if the private party cannot be identified or located or if the private party is unable or refuses to assume responsibility for the assessment or remediation.

(3) Up to fifteen percent (15%) of the proceeds may be used to fund staff to administer contracts for the assessment and remediation of orphan landfills and of inactive hazardous substance or waste disposal sites pursuant to subdivisions (1) and (2) of this subsection.

(4) Up to ten percent (10%) of the proceeds may be used for grants to units of local government to support redevelopment of brownfields.

(5) Up to ten percent (10%) of the proceeds may be used by the Department to provide the State's share of the cost of assessment and remediation of sites in the State that are listed on the federal National Priorities List sites."

SECTION 19.

G.S. 130A-310.6 is amended by adding a new subsection to read:

(c) The Secretary is authorized to develop and implement a remedial action plan for orphan landfills. Environmental and human health risks posed by an orphan landfill may be mitigated using a risk-based approach for assessment and remediation. The Secretary shall not seek cost recovery for work performed under this subsection at orphan landfills from any otherwise potentially responsible party provided that that party cooperates with assessment of the site and implementation of control and mitigation measures at the site, including but not limited to granting access to the site, allowing installation of monitoring wells, allowing installation and maintenance of improvements to the landfill cap, allowing installation of security measures, agreeing to record and implement land use restrictions, and providing access to any records regarding the orphan landfill."

SECTION 20

G.S. 130A-310.11 reads as rewritten:

"§ 130A-310.11. Inactive Hazardous Sites Cleanup Fund created.

(a) There is established under the control and direction of the Department the Inactive Hazardous Sites Cleanup Fund. This fund shall be a revolving fund consisting of any monies appropriated for such purpose by the General Assembly or available to it from grants, taxes, fees and other monies paid to it or recovered by or on behalf of the Department. The Inactive Hazardous Sites Cleanup Fund shall be treated as a nonreverting special trust fund and shall be credited with interest by the State Treasurer pursuant to G.S. 147-69.2 and G.S. 147-69.3.

(b) Funds credited to the Inactive Hazardous Sites Cleanup Fund pursuant to G.S. 130A-309.8A shall be used only as provided in G.S. 130A-309.08A(c)."

SECTION 21. The Health Services Commission may adopt rules to implement this act.

SECTION 22. Section X of this act becomes effective TO BE DETERMINED

EXHIBIT N

BOARD OF ADVISORS
Prof. Peter Carstensen,
*University of Wisconsin Law School**

Evan Edgar
*California Refuse Removal Council-North District**

Bert Foer
*American AntiTrust Institute**

Ron Mills
*Solid Waste Authority of Central Ohio**

Prof. Rodney Stevenson
*University of Wisconsin Graduate School of Business**
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EXECUTIVE DIRECTOR
Peter Anderson

March 13, 2007

Sen. Daniel Gray Clodfelter (Co-Chair)
Environmental Review Commission
408 Legislative Office Building
Raleigh, NC 27603-5925

Rep. Pryor Allan Gibson, III, Co-Chair
Environmental Review Commission
419A Legislative Office Building
Raleigh, NC 27603-5925

Dear Chairs and Members of the Environmental Review Commission:

Last December, I appeared before the Commission on behalf of the International Brotherhood of Teamsters to explain the significant shortcomings in current financial assurance regulations based upon a lengthy report the Center of a Competitive Waste Industry had previously prepared on the subject for the State of California.

At that time, I explained that the present rules completely fail to cover the risks of corrective action at a municipal solid waste (MSW) landfill in the future. These involve the costs of cleaning up after a site failure, as distinguished from the projected costs to maintain the site after it has closed. The absence of coverage for corrective action means that there is no pre-funding mechanism to address the costs of remediating a major site failure. In the case where the costs are substantial, there would be a very significant possibility that, even though the company remains nominally liable, the costs would ultimately fall to the taxpayer.

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The purpose of this letter is to follow up with regard to the current proposal by the Department to require assurance in the amount of no less than $3 million for corrective action. *In summary, the Department's recommendation to the Commission does not begin to address the very significant risks presented by several pending landfill proposals to site landfills in inappropriate coastal areas.*

While the recommendation does not limit the corrective action assurance to $3 million, the process is one in which the applicant is asked to submit its estimate. That is one that will tend to also make that figure become the maximum that will be established in practice. For companies aggressively seek to manage the risks of their business by offloading those risks to others wherever possible. They cannot be expected to go out of their way to fully describe the possible negative consequences to the State from an untoward outcome from those risks. Three million dollars would barely be sufficient to pay for the studies and reviews to determine how to respond to a major catastrophic event.

There are two fundamental concerns with the recommendation that we would like to bring to the Commission's attention. First is the appropriate amount of assurance for corrective action, and the second is the appropriate mechanism to provide that assurance.

The Appropriate Amount of Assurance for Corrective Action

Presently pending are a number of permit applications for MSW, C&D and industrial landfills that are both in estuary areas in which the water table is at or near the surface, and also in coastal regions subject to hurricane force storms. Compounding the enormous challenges posed by such unheard of siting criteria, some applicants are also proposing to make them worse by also either recirculating leachate or adding outside liquids to the waste mass, which may be several hundred feet high and encompass a volume greater than 100 football stadiums. This would increase moisture levels in the trash to approximately 45-65%, which is the consistency of wetlands, albeit in this case consisting of solid waste, including their hazardous constituents. That is to say, they want to build a massive marsh-like mountain of garbage, in a wetlands area, subject to violent storms.

You would be well put to bring before you unconflicted engineers to explain to you the implications that these unprecedented conditions create before you allow any further administrative action on these applications. For you may want to reject these applications from being considered for approval in the first instance. But, short of that, you would be well advised to insure that the risk has been fully managed by establishing essential financial assurances in order to protect your constituents from having to bail out such a reckless gamble.

Remember that even most landfills without these special challenges pose substantial risks. This is because, as documented in our report that we distributed to the Commission members earlier, the entire liner-based design for so-called dry tomb landfills, which were devised in the 1980s, are fatally flawed because, as the Environmental Protection Agency itself has stated, all of

the barriers "will ultimately fail," thereby only delaying but not preventing pollution.

Moreover, in the mid-1990s, without ever validating the major change, the landfill industry dramatically scaled up the size of their facilities by approximately 100 times, creating mega-sized landfills that are too big to fix and susceptible to catastrophic landslides, which have a far greater magnitude of cleanup costs than anything that has occurred before.

Now, these enormous site specific and operational risks on the coast are being added to the inherent infirmities in landfill design. Clearly, there is a non-trivial possibility that the entire experiment will fail catastrophically and be discredited, something that could also potentially impact all landfills similarly situated to the one that failed. This reality should shape the contours of legislation needed.

At a minimum, we would suggest, the legislation should direct the Department to:

1. Demarcate the sensitive coastal region where the water table is at or near the surface and are reached by storm surges.

2. Estimate the maximum costs of excavating, shipping and re-interring the wastes to safer sites inland.

3. Estimate the maximum costs of restoring the environment from a waste spill that could occur in operation or after closure in the event the designed barriers failed during a storm event.

Landfills in that demarcated coastal region should be required, as a function of their maximum total size, to show financial assurance in the amount the Department finds for moving the wastes safely inland and cleaning up a spill.

The Appropriate Mechanism for Financial Assurance for Corrective Action

Along with the *amount* for corrective action, it is also necessary to specify the appropriate *mechanisms* to make the required showing.

First, the landfill companies ought to be encouraged to work with the various risk management agents, to create an insurance-like mechanism, which do not presently exist in the market, to provide assurance at the least cost, as an alternative to bonding mechanisms, which will be the most expensive means of meeting these requirements.

The advantage of developing insurance-like instruments is that the costs of coverage will be minimal if the risks of the covered event occurring are, in fact, non-existent, as the landfill industry will argue. For apart from transaction fees, the premiums are essentially the amount of the coverage multiplied by the probability of the covered event.

If, on the other hand, the costs that the risk management industry put forward are very large, that means the risks are very significant, and that is something the State will want to know now, not later when it is too late. It would be wholly imprudent and irresponsible to rely upon the waste industry's self-interested representations, because the industry exists in a zero sum relationship with the State.

The legislation should specify that the coverage should meet the following minimum criteria. It should be provided by a financially sound counter-party, such as Best A+ for insurance companies, it should be actuarially calculated today based upon the long term risk so that the cost of premiums in the future will not rise by more than normal adjustments for inflation, and shall be renewable for not less than 100 years. In addition, diversifying risk further by such techniques as reinsurance should be encouraged.

Second, in the event that risk management instruments are not used, two of the presently allowed mechanisms should not be allowed. These are the financial means test, which is not much more than a corporate IOU, and captive insurance, which, again, is another form of self-insurance providing no diversification.

If you chose to follow these policy recommendations, we would be more than pleased to work with the Department to develop statutory language.

•

Presumably, you will hear testimony from the waste industry assuring you that there is no need to harbor any concerns, nonetheless to take any concerted action to protect the State's taxpayers, because their projects on the coast are perfectly safe.

As you listen to that testimony you may find it useful to turn to the Epilogue to the *Day of Reckoning* report that we previously provided to you that describes how South Carolina accepted unsupported assurances by a waste company in lieu of a bond. Rather than posting a large bond for the threat its Pinewood landfill posed to Lake Marion, a major source of drinking water for the coastal population, as demanded by the Department of Health and Environmental Control (DHEC), Laidlaw spent $250,000 lobbying. In this way, it secured and got three new appointees to the agency's Board, which allowed a corporate IOU to be posted instead of cash.

Not long after, Laidlaw went bankrupt, leaving almost the entire cleanup costs, estimated to be a billion dollars, for the State to pay. Only then did the new appointees understand what they had done and express their regrets:

> "Some of these things you just want to put out of your mind," Richard Jabbour reflected recently, recalling the financial fallout from the Pinewood landfill. "This," he exclaimed, "is one of them."

"We felt surely they would never go bankrupt," remembered Roger Leaks, who had been one of those new Board members appointed to remove the bonding requirement. "Maybe," he now wonders, "we should have held out for cash."

"The costs could be astronomical," fretted Sandra Molander, another former state environmental board member. "I'm sure there's not enough money there," she said.

We should learn from, and act upon, the lessons to be learned from South Carolina, and not repeat the mistakes from the past.

Sincerely,

Peter Anderson

Peter Anderson
Executive Director

DRAF EXHIBIT O
FOR REVIEW ONLY

GENERAL ASSEMBLY OF NORTH CAROLINA

SESSION 2007

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BILL DRAFT 2007-RIxz-4 [v.8] (01/30)

(THIS IS A DRAFT AND IS NOT READY FOR INTRODUCTION)
3/13/2007 11:04:42 AM

Short Title: Cleanup of Abandoned Manufactured Homes. (Public)

Sponsors: .

Referred to:

A BILL TO BE ENTITLED

AN ACT TO PROTECT PUBLIC HEALTH AND THE ENVIRONMENT BY ENCOURAGING COUNTIES TO DEVELOP PLANS THAT PROVIDE FOR THE DECONSTRUCTION OF ABANDONED MANUFACTURED HOMES AND THE REMOVAL OF REUSABLE OR RECYCLABLE COMPONENTS, BY PROVIDING FOR THE ABATEMENT OF ABANDONED MANUFACTURED HOMES THAT ARE DETERMINED TO BE A NUISANCE, AND BY IMPOSING AN ENVIRONMENTAL REMEDIATION TAX ON THE SALE OF NEW AND USED MANUFACTURED HOMES TO ENSURE THAT FUNDS WILL BE AVAILABLE FOR THE DECONSTRUCTION OF ABANDONED MANUFACTURED HOMES, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION.

The General Assembly of North Carolina enacts:

SECTION 1. Article 9 of Chapter 130A of the General Statutes is amended by adding a new Part to read:

"Part 2E. Management of Abandoned Manufactured Homes.

"**§ 130A-309.90. Findings; purpose.**

(a) The General Assembly finds that:

(1) The number of manufactured homes in North Carolina has risen dramatically as land has become scarce and the housing market has become more expensive.

(2) Manufactured homes may be difficult and expensive to repair when they begin to deteriorate. Often consumers simply buy another manufactured home unit rather than refurbish a manufactured home that needs repair.

(3) According to data obtained through the 2000 United States Census, there are more than 80,000 vacant manufactured homes in North

Carolina, of which 40,000 are estimated to be permanently untended or in need of extensive repair.

(4) Abandoned manufactured homes create public health and environmental problems and are a visual blight on the landscape of North Carolina. Further, an abandoned manufactured home poses a fire hazard, a safety hazard to unsupervised children, and is a potential source of toxic or hazardous materials that may escape into the environment. As a result, abandoned manufactured homes constitute a nuisance.

(5) Most landfills will not accept intact manufactured homes due to their bulky nature. In those instances where landfills do accept intact manufactured homes for disposal, the cost of disposal can be prohibitive for many manufactured homeowners. Landfill disposal costs include tipping fees, the costs of transporting the obsolete structures to the landfill, and the costs of removing any hazardous materials, such as asbestos and other harmful chemicals.

(6) Many components of manufactured homes can be reused or recycled, including windows, screens, doors, copper tubing, copper wiring, aluminum, tin, steel, lumber, steel frames, pipes, countertops, cabinets, and other appliances and fixtures. It is estimated that twenty-six percent (26%) to thirty-eight percent (38%) of the components of a manufactured home can be reused or recycled without extensive manual labor.

(7) It is desirable to allow units of local government to manage the disposal of abandoned manufactured homes for themselves and to encourage regional approaches to the deconstruction of abandoned manufactured homes, the removal of components from abandoned manufactured homes that are reusable or recyclable, and the proper disposal of the remainder.

(8) It is in the State's best interest to encourage the reduction of the volume of intact manufactured homes being disposed of at public sanitary landfills, to encourage the deconstruction of abandoned manufactured homes, the removal of components from abandoned manufactured homes that are reusable or recyclable, and to encourage the proper disposal of the remainder.

(b) The purpose of this Part is to provide units of local government with the authority, funding, and guidance needed to provide for the efficient and proper identification, deconstruction, recycling, and disposal of abandoned manufactured homes in this State.

"**§ 130A-309.91. Definitions.**

The following definitions apply to this Part:

(1) 'Abandoned manufactured home' means a manufactured home that is both:

a. Vacant or in need of extensive repair.

b. An unreasonable danger to public health, safety, welfare or the environment.

(2) 'Account' means the Manufactured Homes Management Account established pursuant to G.S. 130A-309.94.

(3) 'Intact' when used in connection with 'abandoned manufactured home' means an abandoned manufactured home from which the wheels and axels, white goods, and recyclable materials have not been removed.

(4) 'Manufactured home' is defined in G.S. 105-187.60.

(5) 'Responsible party' means any person or entity that possesses an ownership interest in an abandoned manufactured home.

"**§ 130A-309.92. Management of abandoned manufactured homes.**

(a) Plan. – Each county shall consider whether to implement a program for the management of abandoned manufactured homes. If, after consideration, the county decides not to implement a program, the county must state in the comprehensive solid waste management plan that it is required to develop under G.S. 130A-309.09A(b) that the county considered whether to implement a program for the management of abandoned manufactured homes and decided not to do so. A county may, at any time, reconsider its decision not to implement a program for the management of abandoned manufactured homes. If the county decides to implement a program, the county shall develop a written plan for the management of abandoned manufactured homes and include the plan as a component of the comprehensive solid waste management plan it is required to develop under G.S. 130A-309.09A(b). At a minimum, the plan shall include:

(1) A method by which the county proposes to identify abandoned manufactured homes in the county, including, without limitation, a process by which a manufactured home owner or other responsible party may request designation of their home as an abandoned manufactured home.

(2) A plan for the deconstruction of these abandoned manufactured homes.

(3) A plan for the removal of the components thereof for reuse or recycling, as appropriate.

(4) A plan for the proper disposal of abandoned manufactured homes that are not deconstructed under subdivision (2) of this subsection.

(b) Authority to Contract. – A county may contract with another unit of local government or a private entity in accordance with Article 15 of Chapter 153A of the General Statutes to provide for the management of abandoned manufactured homes within the county and the implementation of its plan under subsection (a) of this section.

(c) Restrictions. – A county or a party that contracted with the county under subsection (b) of this section shall not charge a disposal fee for the disposal of any abandoned manufactured home sold on or after 1 January 2008.

(d) An intact abandoned manufactured home shall not be disposed of in a landfill.

"**§ 130A-309.93. Process for the disposal of abandoned manufactured homes.**

(a) If a county adopts and implements a plan for the management of abandoned manufactured homes pursuant to this Part, the county shall notify the responsible party for each identified abandoned manufactured home in the county that the abandoned manufactured home must be properly disposed of by that person within 90 days. The notice shall be in writing and shall be served on the person as provided by Rule 4(j) of the Rules of Civil Procedure, G.S. 1A-1. The notice shall disclose the basis for the action, and advise that a hearing will be held before a designated public officer at a place within the county in which the manufactured home is located fixed not less than 10 days nor more than 30 days after the serving of the notice; that the responsible party shall be given the right to file an answer to the order and to appear in person, or otherwise, and give testimony at the place and time fixed in the notice; and that the rules of evidence prevailing in courts of law or equity shall not be controlling in hearings before the public officer.

(b) If, after notice and hearing, the public officer determines that the manufactured home under consideration is abandoned, the officer shall state in writing his findings of fact in support of that determination and the county shall order the person to dispose of the abandoned manufactured home within 90 days of the expiration of this period. If the responsible party fails to comply with this order, the county shall take any action it deems reasonably necessary to dispose of the abandoned manufactured home, including entering the property where the abandoned manufactured home is located and arranging to have the abandoned manufactured home deconstructed and disposed of in a manner consistent with the plan developed under G.S. 130A-309.92(a). If the responsible party is not the owner of the property on which the abandoned manufactured home is located, the county may order the property owner to permit entry onto the owner's property by an appropriate party to permit the removal and proper disposal of the abandoned manufactured home.

(c) When a county removes, deconstructs, and disposes of an abandoned manufactured home pursuant to subsection (a) of this section, whether directly or through a party that contracted with the county, the responsible party or the owner of the property on whose land an abandoned manufactured home is located shall be joint and severally liable for the actual costs incurred by the county, directly or indirectly, for its abatement activities and its administrative and legal expenses incurred, less the amount of grants for reimbursement received by the county under G.S. 130A-309.94(c) for the disposal activities for that manufactured home. The county may initiate a civil action to recover these unpaid costs from the responsible party or the owner of the property on whose land an abandoned manufactured home is located. Nonpayment of any portion of the actual costs incurred by the county shall result in the imposition of a lien on any real property in the county owned by the responsible party, or the owner of the property on whose land the abandoned manufactured home is located.

(d) This section does not apply to any of the following:

(1) A retail business premises where manufactured homes are sold.

(2) A solid waste disposal facility where no more than 10 manufactured homes are stored at one time if all of the manufactured homes received

for storage are deconstructed or removed from the facility within one year after receipt.

(e) This section does not change the existing authority of a county or a municipality to enforce any existing laws or of any person to abate a nuisance.

"**§ 130A-309.94. Manufactured Homes Management Account.**

(a) The Manufactured Homes Management Account is established within the Department. The Account is nonreverting and consists of revenue credited to the Account from the proceeds of the manufactured home environmental remediation tax imposed by G.S. 105-187.61. Funds in the Account may be used to:

(1) Provide grants to counties to reimburse their expenses for activities under this Part.

(2) Provide technical assistance and support to counties to achieve the purposes of this Part.

(3) Implement this Part, including costs associated with staffing, training, submitting reports, and fulfilling program goals.

(b) Each county that requests a reimbursement grant from the Account shall also submit to the Department a proposed budget specifying in detail the expenses it expects to incur in a specified time period in connection with the activities under this Part. The Department shall review each submitted budget and make modifications, if necessary, in light of the availability of funds in the Account, the county's capacity to effectively and efficiently manage the abatement of abandoned manufactured homes, and any other factors that the Department reasonably determines are relevant. When the Department and a county agree on the amount of the county's budget under this subsection, the Department and the county shall execute an agreement that reflects this amount and that specifies the time period covered by the agreement, and the Department shall reserve funds for the county in the amount necessary to reimburse allowable costs. The amount of a reimbursement grant shall be calculated in accordance with subsections (c) and (d) of this section. A county shall not receive a reimbursement grant unless it has filed all the annual reports it is required to submit under G.S. 130A-309.96.

(c) Reimbursement grants from the Account shall be made in accordance with the terms of the grant agreement developed pursuant to subsection (b) of this section, but in any event, all reimbursements shall be calculated on a per unit basis and based on the actual cost of such activities, not to exceed one thousand dollars ($1,000.00) for each unit. For a county designated as an enterprise tier one, two, or three area pursuant to G.S. 105-129.3 where the costs associated with the disposition of an abandoned manufactured home in a manner consistent with this part exceed one thousand dollars ($1,000) per unit, a county may request a supplemental grant in an amount equal to fifty percent (50%) of the amount in excess of one thousand dollars ($1,000). The Department shall consider the efficiency and effectiveness of the county program in making the supplemental grant, and the county participation must be a cash match.

(d) A county shall use reimbursement grant funds only for operating expenses that are directly related to the management of abandoned manufactured homes. If an operating expense is partially related to the management of abandoned manufactured homes, a county may use the reimbursement grant funds to finance the percentage of the

cost that equals the percentage of the expense that is directly related to the management of abandoned manufactured homes.

"**§ 130A-309.95. Authority to adopt ordinances.**

A county, or a unit of local government that is delegated authority to do so by the county, may adopt ordinances it deems necessary in order to implement this Part.

"**§ 130A-309.96. Reporting on the management of abandoned manufactured homes.**

(a) On or before 1 August of each year, any county that receives a reimbursement grant under G.S. 130A-309.94 shall submit a report to the Department that includes all of the following information:

(1) The number of units and approximate tonnage of abandoned manufactured homes removed, deconstructed, recycled, and disposed of during the previous fiscal year.

(2) A detailed statement of the county's abandoned manufactured homes account receipts and disbursements during the previous fiscal year that sets out the source of all receipts and the purpose of all disbursements.

(3) The obligated and unobligated balances in the county's abandoned manufactured homes account at the end of the fiscal year.

(4) An assessment of the county's progress in removing, deconstructing, recycling, and disposing of abandoned manufactured homes consistent with this Part.

(b) The Department shall include in its annual report to the Environmental Review Commission under G.S. 130A-309.06(c) a description of the management of abandoned manufactured homes in the State for the fiscal year ending the preceding 30 June. The description of the management of abandoned manufactured homes shall include all of the following information:

(1) The amount of taxes collected and distributed under G.S. 105-187.64 during the reporting period.

(2) The cost to each county of managing its abandoned manufactured home program during the reporting period.

(3) The beginning and ending balances of the Account for the reporting period and a list of grants made from the Account for the period, itemized by county.

(4) A summary of the information contained in the reports submitted by counties pursuant to subsection (a) of this section.

(5) Any other information the Department considers helpful in understanding the problem of managing abandoned manufactured homes in the State.

"**§ 130A-309.97. Effect on local ordinances.**

This Part shall not be construed to limit the authority of counties under Article 18 of Chapter 153A of the General Statutes or the authority of cities under Article 19 of Chapter 160A of the General Statutes."

SECTION 2. G.S. 130A-309.06(c) is amended by adding a new subdivision to read:

"(14) A description of the activities related to the management of abandoned manufactured homes in the State in accordance with G.S. 130A-309.96, the beginning and ending balances in the Manufactured Homes Management Account for the reporting period, the amount credited to the Manufactured Homes Management Account during the reporting period, and the amount of revenue used, itemized by county, for grants made under Part 2E of Article 9 of Chapter 130A of the General Statutes."

SECTION 3. G.S. 130A-309.09A(b) is amended by adding a new subdivision to read:

"(9) Include as a component a written plan for the management of abandoned manufactured homes as required under G.S. 130A-309.92(a)."

SECTION 4. Chapter 105 of the General Statutes is amended by adding a new Article to read:

"Article 5G.

"Manufactured Home Environmental Remediation Tax.

"**§ 105-187.60. Definitions.**

The definitions in G.S. 105-164.3 apply to this Article, except that the term 'sale' does not include lease or rental. 'Manufactured home' is defined in G.S. 105-164.3(20). Manufactured home also means any structure that otherwise satisfies the definition in G.S. 105-164.3(20) but that, although designed for use as a dwelling, is in fact used for commercial or other nonresidential purposes, and that may or may not be placed on a permanent foundation at the time of sale.

"**§ 105-187.61. Tax imposed.**

(a) A privilege tax is imposed on a manufactured home retailer at a flat rate for each new manufactured home sold by the retailer and for each used manufactured home sold by the retailer. An excise tax is imposed on each new manufactured home and on each used manufactured home purchased outside the State for storage, use, or consumption in this State. These taxes are in addition to all other taxes. The rate of the privilege tax and the excise tax is as follows:

(1) For each new or used singlewide manufactured home, three hundred dollars ($300.00).

(2) For each new or used multi-section manufactured home, three hundred dollars ($300.00) for each section of the manufactured home.

(b) The tax imposed by this Article shall only be paid once on each manufactured home throughout the useful life of the manufactured home.

"**§ 105-187.62. Administration.**

(a) The privilege tax this Article imposes on a manufactured home retailer who sells new or used manufactured homes at retail is an additional State sales tax, and the excise tax this Article imposes on the storage, use, or consumption of a new or used manufactured home in this State is an additional State use tax. Except as otherwise provided in this Article, these taxes shall be collected and administered in the same manner as the State sales and use taxes imposed by Article 5 of this Chapter. As under

Article 5 of this Chapter, the additional State sales tax paid when a new or used manufactured home is sold is a credit against the additional State use tax imposed on the storage, use, or consumption of the same manufactured home.

(b) The Secretary shall maintain a record of all manufactured homes on which the Manufactured Home Environmental Remediation Tax has been paid, listed by serial number.

"**§ 105-187.63. Exemptions.**

The exemptions in G.S. 105-164.13 and the refunds allowed in G.S. 105-164.14 do not apply to the taxes imposed by this Article.

"**§ 105-187.64. Use of tax proceeds.**

(a) The Secretary shall distribute the taxes collected under this Article, less the Department of Revenue's allowance for cost of collecting the taxes, in accordance with this section. The Secretary may retain the Department of Revenue's cost of collection, not to exceed one hundred thousand dollars ($100,000), as reimbursement to the Department of Revenue.

(b) Each quarter, the Secretary shall credit the net tax proceeds to the Manufactured Homes Management Account. Funds in the Manufactured Homes Management Account may be used only as provided in G.S. 130A-309.94.

"**§ 105-187.65. Proof of payment required to issue permit to manufactured home.**

(a) Retailers of manufactured homes shall provide proof of payment of all taxes due to be paid on a transaction under G.S. 105-187.61 at the time of sale. The proof of payment shall include the name and address of the retailer; the name and address of the owner; the make, model, size, and serial number of the manufactured home; the amount of sale; and the amount of tax due to be paid on the transaction.

(b) In lieu of proof of payment from the retailer pursuant to subsection (a) of this section, a person may obtain a record of payment from information maintained by the Secretary, or a person may pay the amount due to be paid on a transaction under G.S. 105-187.61 to the office of the tax collector for the county in which the manufactured home is to be located. The tax collector shall provide proof of payment to the person making payment. The tax collector shall promptly remit such payments to the Department of Revenue with relevant information concerning the transaction, including: the name and address of the retailer; the name and address of the owner; the make, model, size, and serial number of the manufactured home; the amount of sale; and the amount of tax paid.

(c) The tax collector may retain the county's cost of collection, not to exceed one percent (1%), of the Manufactured Home Environmental Remediation Tax collected by the county, as reimbursement to the county.

(d) The local government having jurisdiction shall not issue any permit to allow occupancy of a manufactured home subject to the tax imposed by this section without proof of payment pursuant to subsections (a) or (b) of this section from the owner of the manufactured home."

SECTION 5. The Department of Environment and Natural Resources may use up to fifty thousand dollars ($50,000) in the Manufactured Homes Management

Account, as established in Section 1 of this act, during each calendar year for the following purposes:

(1) Training and program development across the State

(2) Identification of qualified contractors

(3) Dissemination of best deconstruction practices.

SECTION 6. A county designated as an enterprise tier one, two, or three area pursuant to G.S. 105-129.3 may, upon resolution by the Board of Commissioners of their intent to (i) develop a plan for the management of abandoned manufactured homes and (ii) implement the plan once developed, request a planning grant of up to twenty five hundred dollars ($2,500) from the Manufactured Homes Management Account, as enacted by Section 1 of this act, to assist the county in preparing the plan pursuant to G.S. 130A-309.92 and in to identify abandoned manufactured homes.

SECTION 7. This act becomes effective 1 October 2008 and expires 1 October 2020. Section 4 of this act applies to sales of new or used manufactured homes made on or after that date.

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GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2007

EXHIBIT P

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BILL DRAFT 2007-RIxz-12 [v.2] (02/16)

(THIS IS A DRAFT AND IS NOT READY FOR INTRODUCTION)
3/12/2007 5:16:00 PM

Short Title: Cleanup of Abandoned Mobile Homes. (Public)

Sponsors: .

Referred to:

A BILL TO BE ENTITLED

AN ACT TO PROTECT PUBLIC HEALTH AND THE ENVIRONMENT BY ENCOURAGING COUNTIES TO DEVELOP PLANS THAT PROVIDE FOR THE DECONSTRUCTION OF ABANDONED MANUFACTURED HOMES AND THE REMOVAL OF REUSABLE OR RECYCLABLE COMPONENTS, BY PROVIDING FOR THE ABATEMENT OF ABANDONED MANUFACTURED HOMES THAT ARE DETERMINED TO BE A NUISANCE, AND BY IMPOSING A DISPOSAL TAX ON THE SALE OF NEW AND USED MANUFACTURED HOMES TO ENSURE THAT FUNDS WILL BE AVAILABLE FOR THE DECONSTRUCTION OF ABANDONED MANUFACTURED HOMES, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION.

The General Assembly of North Carolina enacts:

SECTION 1. Article 9 of Chapter 130A of the General Statutes is amended by adding a new Part to read:

"Part 2E. Management of Abandoned Manufactured Homes.

"**§ 130A-309.90. Findings; purpose.**

(a) The General Assembly finds that:

(1) The number of manufactured homes in North Carolina has risen dramatically as land has become scarce and the housing market has become more expensive.

(2) Manufactured homes may be difficult and expensive to repair when they begin to deteriorate. Often consumers simply buy another manufactured home unit rather than refurbish a manufactured home that needs repair.

(3) According to data obtained through the 2000 United States Census, there are more than 80,000 vacant manufactured homes in North

Carolina, of which 40,000 are estimated to be permanently untended or in need of extensive repair.

(4) Abandoned manufactured homes create public health and environmental problems and are a visual blight on the landscape of North Carolina. Further, an abandoned manufactured home poses a fire hazard, a safety hazard to unsupervised children, and is a potential source of toxic or hazardous materials that may escape into the environment. As a result, abandoned manufactured homes constitute a nuisance.

(5) Most landfills will not accept intact manufactured homes due to their bulky nature. In those instances where landfills do accept intact manufactured homes for disposal, the cost of disposal can be prohibitive for many manufactured homeowners. Landfill disposal costs include tipping fees, the costs of transporting the obsolete structures to the landfill, and the costs of removing any hazardous materials, such as asbestos and other harmful chemicals.

(6) Many components of manufactured homes can be reused or recycled, including windows, screens, doors, copper tubing, copper wiring, aluminum, tin, steel, lumber, steel frames, pipes, countertops, cabinets, and other appliances and fixtures. It is estimated that twenty-six percent (26%) to thirty-eight percent (38%) of the components of a manufactured home can be reused or recycled without extensive manual labor.

(7) It is desirable to allow units of local government to manage the disposal of abandoned manufactured homes for themselves and to encourage regional approaches to the deconstruction of abandoned manufactured homes, the removal of components from abandoned manufactured homes that are reusable or recyclable, and the proper disposal of the remainder.

(8) It is in the State's best interest to encourage the reduction of the volume of intact manufactured homes being disposed of at public sanitary landfills, to encourage the deconstruction of abandoned manufactured homes, the removal of components from abandoned manufactured homes that are reusable or recyclable, and to encourage the proper disposal of the remainder.

(b) The purpose of this Part is to provide units of local government with the authority, funding, and guidance needed to provide for the efficient and proper identification, deconstruction, recycling, and disposal of abandoned manufactured homes in this State.

"**§ 130A-309.91. Definitions.**

The following definitions apply to this Part:

(1) 'Abandoned manufactured home' means a manufactured home that is both:

a. Vacant or in need of extensive repair.

b. An unreasonable danger to public health, safety, welfare or the environment.

(2) 'Account' means the Manufactured Homes Management Account established pursuant to G.S. 130A-309.94.

(3) 'Intact' when used in connection with 'abandoned manufactured home' means an abandoned manufactured home from which the wheels and axels, white goods, and recyclable materials have not been removed.

(4) 'Manufactured home' is defined in G.S. 105-187.60.

(5) 'Responsible party' means any person or entity that possesses an ownership interest in an abandoned manufactured home.

"**§ 130A-309.92. Management of abandoned manufactured homes.**

(a) Plan. – Each county shall consider whether to implement a program for the management of abandoned manufactured homes. If, after consideration, the county decides not to implement a program, the county must state in the comprehensive solid waste management plan that it is required to develop under G.S. 130A-309.09A(b) that the county considered whether to implement a program for the management of abandoned manufactured homes and decided not to do so. A county may, at any time, reconsider its decision not to implement a program for the management of abandoned manufactured homes. If the county decides to implement a program, the county shall develop a written plan for the management of abandoned manufactured homes and include the plan as a component of the comprehensive solid waste management plan it is required to develop under G.S. 130A-309.09A(b). At a minimum, the plan shall include:

(1) A method by which the county proposes to identify abandoned manufactured homes in the county, including, without limitation, a process by which a manufactured home owner or other responsible party may request designation of their home as an abandoned manufactured home.

(2) A plan for the deconstruction of these abandoned manufactured homes.

(3) A plan for the removal of the components thereof for reuse or recycling, as appropriate.

(4) A plan for the proper disposal of abandoned manufactured homes that are not deconstructed under subdivision (2) of this subsection.

(b) Authority to Contract. – A county may contract with another unit of local government or a private entity in accordance with Article 15 of Chapter 153A of the General Statutes to provide for the management of abandoned manufactured homes within the county and the implementation of its plan under subsection (a) of this section.

(c) Restrictions. – A county or a party that contracted with the county under subsection (b) of this section shall not charge a disposal fee for the disposal of any abandoned manufactured home sold on or after 1 January 2008.

(d) An intact abandoned manufactured home shall not be disposed of in a landfill.

"**§ 130A-309.93. Process for the disposal of abandoned manufactured homes.**

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(a) If a county adopts and implements a plan for the management of abandoned manufactured homes pursuant to this Part, the county shall notify the responsible party for each identified abandoned manufactured home in the county that the abandoned manufactured home must be properly disposed of by that person within 90 days. The notice shall be in writing and shall be served on the person as provided by Rule 4(j) of the Rules of Civil Procedure, G.S. 1A-1. The notice shall disclose the basis for the action, and advise that a hearing will be held before a designated public officer at a place within the county in which the manufactured home is located fixed not less than 10 days nor more than 30 days after the serving of the notice; that the responsible party shall be given the right to file an answer to the order and to appear in person, or otherwise, and give testimony at the place and time fixed in the notice; and that the rules of evidence prevailing in courts of law or equity shall not be controlling in hearings before the public officer.

(b) If, after notice and hearing, the public officer determines that the manufactured home under consideration is abandoned, the officer shall state in writing his findings of fact in support of that determination and the county shall order the person to dispose of the abandoned manufactured home within 90 days of the expiration of this period. If the responsible party fails to comply with this order, the county shall take any action it deems reasonably necessary to dispose of the abandoned manufactured home, including entering the property where the abandoned manufactured home is located and arranging to have the abandoned manufactured home deconstructed and disposed of in a manner consistent with the plan developed under G.S. 130A-309.92(a). If the responsible party is not the owner of the property on which the abandoned manufactured home is located, the county may order the property owner to permit entry onto the owner's property by an appropriate party to permit the removal and proper disposal of the abandoned manufactured home.

(c) When a county removes, deconstructs, and disposes of an abandoned manufactured home pursuant to subsection (b) of this section, whether directly or through a party that contracted with the county, the responsible party or the owner of the property on whose land an abandoned manufactured home is located shall be joint and severally liable for the actual costs incurred by the county, directly or indirectly, for its abatement activities and its administrative and legal expenses incurred, less the amount of grants for reimbursement received by the county under G.S. 130A-309.94(c) for the disposal activities for that manufactured home. The county may initiate a civil action to recover these unpaid costs from the responsible party or the owner of the property on whose land an abandoned manufactured home is located. Nonpayment of any portion of the actual costs incurred by the county shall result in the imposition of a lien on any real property in the county owned by the responsible party, or the owner of the property on whose land the abandoned manufactured home is located.

(d) This section does not apply to any of the following:

(1) A retail business premises where manufactured homes are sold.

(2) A solid waste disposal facility where no more than 10 manufactured homes are stored at one time if all of the manufactured homes received

for storage are deconstructed or removed from the facility within one year after receipt.

(e) This section does not change the existing authority of a county or a municipality to enforce any existing laws or of any person to abate a nuisance.

"**§ 130A-309.94. Manufactured Homes Management Account.**

(a) The Manufactured Homes Management Account is established within the Department. The Account is nonreverting and consists of revenue credited to the Account from the proceeds of the manufactured home disposal tax imposed by G.S. 105-187.61. Funds in the Account may be used to:

(1) Provide grants to counties to reimburse their expenses for activities under this Part.

(2) Provide technical assistance and support to counties to achieve the purposes of this Part.

(3) Implement this Part, including costs associated with staffing, training, submitting reports, and fulfilling program goals.

(b) Each county that requests a reimbursement grant from the Account shall also submit to the Department a proposed budget specifying in detail the expenses it expects to incur in a specified time period in connection with the activities under this Part. The Department shall review each submitted budget and make modifications, if necessary, in light of the availability of funds in the Account, the county's capacity to effectively and efficiently manage the abatement of abandoned manufactured homes, and any other factors that the Department reasonably determines are relevant. When the Department and a county agree on the amount of the county's budget under this subsection, the Department and the county shall execute an agreement that reflects this amount and that specifies the time period covered by the agreement, and the Department shall reserve funds for the county in the amount necessary to reimburse allowable costs. The amount of a reimbursement grant shall be calculated in accordance with subsections (c) and (d) of this section. A county shall not receive a reimbursement grant unless it has filed all the annual reports it is required to submit under G.S. 130A-309.96.

(c) Reimbursement grants from the Account shall be made in accordance with the terms of the grant agreement developed pursuant to subsection (b) of this section, but in any event, all reimbursements shall be calculated on a per unit basis and based on the actual cost of such activities, not to exceed one thousand dollars ($1,000.00) for each unit. For a county designated as an enterprise tier one, two, or three area pursuant to G.S. 105-129.3 where the costs associated with the disposition of an abandoned manufactured home in a manner consistent with this part exceed one thousand dollars ($1,000) per unit, a county may request a supplemental grant in an amount equal to fifty percent (50%) of the amount in excess of one thousand dollars ($1,000). The Department shall consider the efficiency and effectiveness of the county program in making the supplemental grant, and the county participation must be a cash match.

(d) A county shall use reimbursement grant funds only for operating expenses that are directly related to the management of abandoned manufactured homes. If an operating expense is partially related to the management of abandoned manufactured homes, a county may use the reimbursement grant funds to finance the percentage of the

cost that equals the percentage of the expense that is directly related to the management of abandoned manufactured homes.

"**§ 130A-309.95. Authority to adopt ordinances.**

A county, or a unit of local government that is delegated authority to do so by the county, may adopt ordinances it deems necessary in order to implement this Part.

"**§ 130A-309.96. Reporting on the management of abandoned manufactured homes.**

(a) On or before 1 August of each year, any county that receives a reimbursement grant under G.S. 130A-309.94 shall submit a report to the Department that includes all of the following information:

(1) The number of units and approximate tonnage of abandoned manufactured homes removed, deconstructed, recycled, and disposed of during the previous fiscal year.

(2) A detailed statement of the county's abandoned manufactured homes account receipts and disbursements during the previous fiscal year that sets out the source of all receipts and the purpose of all disbursements.

(3) The obligated and unobligated balances in the county's abandoned manufactured homes account at the end of the fiscal year.

(4) An assessment of the county's progress in removing, deconstructing, recycling, and disposing of abandoned manufactured homes consistent with this Part.

(b) The Department shall include in its annual report to the Environmental Review Commission under G.S. 130A-309.06(c) a description of the management of abandoned manufactured homes in the State for the fiscal year ending the preceding 30 June. The description of the management of abandoned manufactured homes shall include all of the following information:

(1) The amount of taxes collected and distributed under G.S. 105-187.64 during the reporting period.

(2) The cost to each county of managing its abandoned manufactured home program during the reporting period.

(3) The beginning and ending balances of the Account for the reporting period and a list of grants made from the Account for the period, itemized by county.

(4) A summary of the information contained in the reports submitted by counties pursuant to subsection (a) of this section.

(5) Any other information the Department considers helpful in understanding the problem of managing abandoned manufactured homes in the State.

"**§ 130A-309.97. Effect on local ordinances.**

This Part shall not be construed to limit the authority of counties under Article 18 of Chapter 153A of the General Statutes or the authority of cities under Article 19 of Chapter 160A of the General Statutes."

SECTION 2. G.S. 130A-309.06(c) is amended by adding a new subdivision to read:

"(14) A description of the activities related to the management of abandoned manufactured homes in the State in accordance with G.S. 130A-309.96, the beginning and ending balances in the Manufactured Homes Management Account for the reporting period, the amount credited to the Manufactured Homes Management Account during the reporting period, and the amount of revenue used, itemized by county, for grants made under Part 2E of Article 9 of Chapter 130A of the General Statutes."

SECTION 3. G.S. 130A-309.09A(b) is amended by adding a new subdivision to read:

"(9) Include as a component a written plan for the management of abandoned manufactured homes as required under G.S. 130A-309.92(a)."

SECTION 4. Chapter 105 of the General Statutes is amended by adding a new Article to read:

"Article 5G.

"Manufactured Home Disposal Tax.

"**§ 105-187.60. Definitions.**

The definitions in G.S. 105-164.3 apply to this Article, except that the term 'sale' does not include lease or rental. 'Manufactured home' is defined in G.S. 105-164.3(20). Manufactured home also means any structure that otherwise satisfies the definition in G.S. 105-164.3(20) but that, although designed for use as a dwelling, is in fact used for commercial or other nonresidential purposes, and that may or may not be placed on a permanent foundation at the time of sale.

"**§ 105-187.61. Tax imposed.**

(a) A privilege tax is imposed on a manufactured home retailer at a flat rate for each new manufactured home sold by the retailer and for each used manufactured home sold by the retailer. An excise tax is imposed on each new manufactured home and on each used manufactured home purchased outside the State for storage, use, or consumption in this State. These taxes are in addition to all other taxes. The rate of the privilege tax and the excise tax is as follows:

(1) For each new or used singlewide manufactured home, three hundred dollars ($300.00).

(2) For each new or used multi-section manufactured home, three hundred dollars ($300.00) for each section of the manufactured home.

(b) The tax imposed by this Article shall only be paid once on each manufactured home throughout the useful life of the manufactured home.

"**§ 105-187.62. Administration.**

(a) The privilege tax this Article imposes on a manufactured home retailer who sells new or used manufactured homes at retail is an additional State sales tax, and the excise tax this Article imposes on the storage, use, or consumption of a new or used manufactured home in this State is an additional State use tax. Except as otherwise provided in this Article, these taxes shall be collected and administered in the same manner as the State sales and use taxes imposed by Article 5 of this Chapter. As under

Article 5 of this Chapter, the additional State sales tax paid when a new or used manufactured home is sold is a credit against the additional State use tax imposed on the storage, use, or consumption of the same manufactured home.

(b) The Secretary shall maintain a record of all manufactured homes on which the Manufactured Home Disposal Tax has been paid, listed by serial number.

"**§ 105-187.63. Exemptions.**

The exemptions in G.S. 105-164.13 and the refunds allowed in G.S. 105-164.14 do not apply to the taxes imposed by this Article.

"**§ 105-187.64. Use of tax proceeds.**

(a) The Secretary shall distribute the taxes collected under this Article, less the Department of Revenue's allowance for cost of collecting the taxes, in accordance with this section. The Secretary may retain the Department of Revenue's cost of collection, not to exceed one hundred thousand dollars ($100,000), as reimbursement to the Department of Revenue.

(b) Each quarter, the Secretary shall credit the net tax proceeds to the Manufactured Homes Management Account. Funds in the Manufactured Homes Management Account may be used only as provided in G.S. 130A-309.94.

SECTION 5. The Department of Environment and Natural Resources may use up to fifty thousand dollars ($50,000) in the Manufactured Homes Management Account, as established in Section 1 of this act, during each calendar year for the following purposes:

(1) Training and program development across the State

(2) Identification of qualified contractors

(3) Dissemination of best deconstruction practices.

SECTION 6. A county designated as an enterprise tier one, two, or three area pursuant to G.S. 105-129.3 may, upon resolution by the Board of Commissioners of their intent to (i) develop a plan for the management of abandoned manufactured homes and (ii) implement the plan once developed, request a planning grant of up to twenty five hundred dollars ($2,500) from the Manufactured Homes Management Account, as enacted by Section 1 of this act, to assist the county in preparing the plan pursuant to G.S. 130A-309.92 and in to identify abandoned manufactured homes.

SECTION 7. This act becomes effective 1 October 2008 and expires 1 October 2020. Section 4 of this act applies to sales of new or used manufactured homes made on or after that date.

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FOR REVIEW ONLY

EXHIBIT Q

GENERAL ASSEMBLY OF NORTH CAROLINA

SESSION 2007

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BILL DRAFT 2007-TAz-6 [v.3] (02/01)

(THIS IS A DRAFT AND IS NOT READY FOR INTRODUCTION)
3/12/2007 6:38:34 PM

Short Title: Amend Environmental Laws 2007. (Public)

Sponsors: .

Referred to:

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FOR REVIEW ONLY

A BILL TO BE ENTITLED

AN ACT TO AMEND CERTAIN ENVIRONMENTAL LAWS TO PROVIDE THAT AN APPLICATION FOR A CONSTRUCTION PERMIT FOR A PRIVATE DRINKING WATER WELL THAT IS TO BE LOCATED ON A SITE ON WHICH A WASTEWATER SYSTEM IS LOCATED MAY BE ACCOMPANIED BY A SITE PLAN RATHER THAN A PLAT AND TO PROVIDE THAT PROOF OF COMPLETION OF ANY REQUIRED PROFESSIONAL DEVELOP IS REQUIRED FOR RENEWAL OF A WELL CONTRACTOR CERTIFICATE, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION:

The General Assembly of North Carolina enacts:

SECTION 1. G.S. 87-97 (d) reads as rewritten:

"(d) Well Site Evaluation. – The local health department shall conduct a field investigation to evaluate the site on which a private drinking water well is proposed to be located before issuing a permit pursuant to this section. The field investigation shall determine whether there is any abandoned well located on the site, and if so, the construction permit shall be conditioned upon the proper closure of all abandoned wells located on the site in accordance with the requirements of this Article and rules adopted pursuant to this Article. If a private drinking water well is proposed to be located on a site on which a wastewater system subject to the requirements of Article 11 of Chapter 130A of the General Statutes is located or proposed to be located, the application for a construction permit shall be accompanied by a ~~plat,~~ plat or site plan, as defined in G.S. 130A-334."

SECTION 2. G.S. 87-98.7(b) reads as rewritten:

"(b) Renewal. – A certificate shall be renewed annually by payment of the annual fee and proof that the applicant has completed any professional development hours as may be required by the rules of the Commission. A person who fails to renew a

certificate within 30 days of the expiration of the certificate must reapply for certification under this Article."

SECTION 3. This act is effective when it becomes law.

DRAFT FOR REVIEW ONLY

EXHIBIT R

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2007

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DRAFT FOR REVIEW ONLY

BILL DRAFT 2007-TAz-4 [v.4] (03/06)

(THIS IS A DRAFT AND IS NOT READY FOR INTRODUCTION)
3/12/2007 4:39:15 PM

Short Title: Amend Natural Resource Laws 2007. (Public)

Sponsors: .

Referred to:

A BILL TO BE ENTITLED

AN ACT TO AMEND CERTAIN NATURAL RESOURCES LAWS TO CLARIFY THAT DRAFT FISHERY MANAGEMENT PLANS ARE NOT SUBMITTED FOR REVIEW TO THE ENVIRONMENTAL REVIEW COMMISSION, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION:

The General Assembly of North Carolina enacts:

SECTION 1. G.S. 113-182.1 (c1) reads as rewritten:

"(c1) The Department shall consult with the regional advisory committees established pursuant to G.S. 143B-289.57 (e) regarding the preparation of each Fishery Management Plan. Before submission of a plan for review by the Joint Legislative Commission on Seafood and Aquaculture ~~or the Environmental Review Commission~~, the Department shall review any comment or recommendation regarding the plan that a regional advisory committee submits to the Department within the time limits established in the Schedule for the development and adoption of Fishery Management Plans established by G.S. 143B-289.52. The Commission shall consult with the regional advisory committees regarding the development of any temporary management measure that the Commission determines to be necessary to ensure the viability of the species or fishery while the plan is being developed and regarding the development of any management measure to implement the plan. Before the Commission adopts a temporary management measure or a management measure to implement a plan, the Commission shall review any comment or recommendation regarding the management measure that a regional advisory committee submits to the Commission."

SECTION 2. G.S. 113-182.1(e) reads as rewritten:

"(e) The Secretary of Environment and Natural Resources shall monitor progress in the development and adoption of Fishery Management Plans in relation to the Schedule for development and adoption of the plans established by the Marine Fisheries Commission. The Secretary of Environment and Natural Resources shall report to the

Joint Legislative Commission on Seafood and Aquaculture on progress in developing and implementing the Fishery Management Plans on or before 1 September of each year. The Secretary of Environment and Natural Resources shall report to the Joint Legislative Commission on Seafood and Aquaculture within 30 days of the completion or substantial revision of each proposed Fishery Management Plan. The Joint Legislative Commission on Seafood and Aquaculture shall ~~concurrently~~ review each proposed Fishery Management Plan within 30 days of the date the proposed Plan is submitted by the Secretary. The Joint Legislative Commission on Seafood and Aquaculture may submit comments and recommendations on the proposed Plan to the Secretary within 30 days of the date the proposed Plan is submitted by the Secretary."

SECTION 3. This act is effective when it becomes law.

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GENERAL ASSEMBLY OF NORTH CAROLINA EXHIBIT S

SESSION 2007

U D

BILL DRAFT 2007-TAz-5 [v.3] (03/06)

(THIS IS A DRAFT AND IS NOT READY FOR INTRODUCTION)
3/12/2007 4:46:39 PM

Short Title: Amend Environmental Reporting Reqs. 2007. (Public)

Sponsors:

Referred to:

A BILL TO BE ENTITLED

AN ACT TO AMEND OR REPEAL VARIOUS ENVIRONMENTAL REPORTING REQUIREMENTS, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION.

The General Assembly of North Carolina enacts:

SECTION 1. G.S. 77-98 reads as rewritten:

"**§ 77-98. Annual report.**

The Commission shall submit an annual report, including any recommendations, on or before 1 October of each year to the Governor of North Carolina, the Environmental Review Commission of the General Assembly of North Carolina, the Governor of Virginia, and the General Assembly of Virginia."

SECTION 2. G.S. 106-744 reads as rewritten:

"**§ 106-744. Purchase of agricultural conservation easements; establishment of North Carolina Agricultural Development and Farmland ~~Preservaton~~ Preservation Trust Fund and Advisory Committee.**

. . .

(i) The Advisory Committee shall report no later than May 1 of each year to the Joint Legislative Commission on Governmental Operations, the Environmental Review Commission, and the House of Representatives and Senate Appropriations Subcommittees on Natural and Economic Resources regarding the activities of the Advisory Committee, the agriculture easements purchased, and agricultural projects funded during the previous year.

..."

SECTION 3. G.S. 130A-310.57 reads as rewritten:

"**§ 130A-310.57. (For expiration date – see note) Report on plan.**

The Department shall ~~publish~~ submit an annual report to the Environmental Review Commission on the mercury minimization plan on or before November 1. The report shall include, at a minimum, all of the following:

(1) A detailed description and documentation of the capture rate achieved.

(2) In the event that a capture rate of at least ninety percent (90%) is not achieved, a description of additional or alternative actions that may be implemented to improve the mercury minimization plan and its implementation.

(3) The number of mercury switches collected, the number of end-of-life vehicles containing mercury switches, the number of end-of-life vehicles processed for recycling, and a description of how the mercury switches were managed.

(4) A statement that details the costs required to implement the mercury minimization plan."

SECTION 4. This act is effective when it becomes law.

EXHIBIT T

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2007

U D

BILL DRAFT 2007-TAz-3 [v.8] (02/05)

(THIS IS A DRAFT AND IS NOT READY FOR INTRODUCTION)
3/12/2007 4:40:51 PM

Short Title: Environmental Technical Corrections 2007. (Public)

Sponsors: .

Referred to:

A BILL TO BE ENTITLED

AN ACT TO MAKE CLARIFYING, CONFORMING, AND TECHNICAL AMENDMENTS TO VARIOUS LAWS RELATED TO THE ENVIRONMENT, AS RECOMMENDED BY THE ENVIRONMENTAL REVIEW COMMISSION.

The General Assembly of North Carolina enacts:

SECTION 1. G.S. 58-37-1 reads as rewritten:

"**§ 58-37-1. Definitions.**

As used in this Article:

...

(7) "Motor vehicle insurance" means direct insurance against liability arising out of the ownership, operation, maintenance or use of a motor vehicle for bodily injury including death and property damage and includes medical payments and uninsured and underinsured motorist coverages.

With respect to motor carriers who are subject to the financial responsibility requirements established under the Motor Carrier Act of 1980, the term, "motor vehicle insurance" includes coverage with respect to environmental restoration. As used in this subsection the term, "environmental restoration" means restitution for the loss, damage, or destruction of natural resources arising out of the accidental discharge, dispersal, release, or escape into or upon the land, atmosphere, ~~water course~~ watercourse, or body of water of any commodity transported by a motor carrier. Environmental restoration includes the cost of removal and the cost of necessary measures taken to minimize or mitigate damage to human health, the natural environment, fish, shellfish, and wildlife.

..."

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END REVIEW

SECTION 2. G.S. 104E-10.1 reads as rewritten:

"**§ 104E-10.1. Additional requirements for low-level radioactive waste facilities.**

(a) An applicant for a permit for a low-level radioactive facility shall satisfy the ~~department~~ Department that:

(1) Any low-level radioactive waste facility heretofore constructed or operated by the applicant (or any parent or subsidiary corporation if the applicant is a corporation) has been operated in accordance with sound waste management practices and in substantial compliance with federal and state laws and regulations; and

(2) The applicant (or any parent or subsidiary corporation if the applicant is a corporation) is financially qualified to operate the subject low-level radioactive waste facility.

The approval of a permit shall be contingent upon the applicant first satisfying the ~~department~~ Department that ~~he~~ the applicant has met the above two requirements. In order to continue to hold a ~~license~~ permit under this Chapter, ~~a licensee~~ the permittee must remain financially qualified, and must provide any information requested by the Department to show that ~~he~~ the permittee continues to be financially qualified.

(b) Each permit applicant or permit holder (or any parent or subsidiary corporation if the permit applicant or permit holder is a corporation), as a condition of receiving or holding a permit, shall have an independent annual audit by a firm of duly licensed certified public accountants carrying a minimum of five million dollars ($5,000,000) professional liability insurance coverage, proof of which coverage shall be provided with the issuance of the audit report. Each permit applicant or permit holder referred to above shall also provide the Department ~~of Environment and Natural Resources~~ with a copy of the report and shall submit a copy of the report to the State Auditor for approval regarding its adequacy and completeness. As a minimum, the required report shall include the financial statements prepared in accordance with generally accepted accounting principles, all disclosures in the public interest required by law, and the auditor's opinion and comments relating to the financial statements. The audit shall be performed in conformity with generally accepted auditing standards.

(c) Within 10 days of receiving an application for a ~~license~~ permit or an amendment to a ~~license~~ permit to operate a low-level radioactive waste facility, the Department shall notify the clerk of the board of commissioners of the county or counties in which the facility is proposed to be located or is located, and, if the facility is to be located or is located within a city, the clerk of the governing board of the city, that the application has been filed, and shall file a copy of the application with the clerk. Prior to issuing a ~~license~~ permit or an amendment to an existing ~~license~~ permit the Secretary ~~of the Department~~ or ~~his~~ the Secretary's designee shall conduct a public hearing in the county, or in one of the counties, in which a person proposes to operate a low-level radioactive waste facility or to enlarge an existing facility. The Secretary shall give notice of the hearing at least 30 days prior to the date thereof by:

(1) Publication in a newspaper or newspapers having general circulation in the county or counties where the facility is to be located for three

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consecutive weeks beginning 30 days prior to the scheduled date of the hearing; and

(2) First class mail to persons who have requested such notice. The Department shall maintain a mailing list of persons who request notice pursuant to this subsection."

SECTION 3. G.S. 120-70.36 reads as rewritten:

"**§ 120-70.36. Staffing.**

The Legislative Services Officer shall assign as staff to the Joint Select Committee professional employees of the General Assembly, as approved by the Legislative Services Commission. Clerical staff shall be assigned to the Joint Select Committee through the offices of the ~~Supervisor of Clerks of the Senate and Supervisor of Clerks of the House of Representatives~~ Directors of Legislative Assistants of the Senate and House of Representatives. The expenses of employment of clerical staff shall be borne by the Joint Select Committee."

SECTION 4. G.S. 120-70.46 reads as rewritten:

"**§ 120-70.46. Staffing.**

The Legislative Services Officer shall assign as staff to the Environmental Review Commission professional employees of the General Assembly, as approved by the Legislative Services Commission. Clerical staff shall be assigned to the Environmental Review Commission through the offices of the ~~Supervisor of Clerks of the Senate and Supervisor of Clerks of the House of Representatives~~ Directors of the Legislative Assistants of the Senate and House of Representatives. The expenses of employment of clerical staff shall be borne by the Environmental Review Commission."

SECTION 5. G.S. 120-70.65 reads as rewritten:

"**§ 120-70.65. Staffing.**

The Legislative Services Officer shall assign as staff to the Commission professional employees of the General Assembly, as approved by the Legislative Services Commission. Clerical staff shall be assigned to the Commission through the ~~Offices of the Supervisor of Clerks of the Senate and Supervisor of Clerks of the House of Representatives~~offices of the Directors of Legislative Assistants of the Senate and House of Representatives. The expenses of employment of clerical staff shall be borne by the Commission."

SECTION 6. G.S. 130A-294(f) reads as rewritten:

"(f) Within 10 days of receiving an application for a permit or for an amendment to an existing permit for a hazardous waste facility, the Department shall notify the clerk of the board of commissioners of the county or counties in which the facility is proposed to be located or is located and, if the facility is proposed to be located or is located within a city, the clerk of the governing board of the city, that the application has been filed, and shall file a copy of the application with the clerk. Prior to the issuance of a permit or an amendment of an existing permit the Secretary or ~~his~~ the Secretary's designee shall conduct a public hearing in the county, or in one of the counties

in which the hazardous waste facility is proposed to be located or is located. The Secretary or ~~his~~ the Secretary's designee shall give notice of the hearing, and the public hearing shall be in accordance with applicable federal regulations adopted pursuant to RCRA and with Chapter 150B of the General Statutes. Where the provisions of the federal regulations and Chapter 150B of the General Statutes are inconsistent, the federal regulations shall apply."

SECTION 7. G.S. 143-215.74 reads as rewritten:

"**§ 143-215.74. Agriculture cost share program.**

(a) There is created the Agriculture Cost Share Program for Nonpoint Source Pollution Control. The program shall be created, implemented, and supervised by the Soil and Water Conservation Commission.

(b) The program shall be subject to the following requirements and limitations:

(1) The purpose of the program shall be to reduce the input of agricultural nonpoint source pollution into the ~~water courses~~ watercourses of the State.

(2) The program shall initially include the present 16 nutrient sensitive watershed counties and 17 additional counties.

..."

SECTION 8. G.S. 160A-479.7(a) reads as rewritten:

"(a) The charter may confer on the regional sports authority any or all of the following powers:

...

(16) To study and plan for new and improved major regional sports and recreational facilities including but not limited to arenas, stadia, gymnasia, natatoria, pitches, fields, ~~water courses~~watercourses, and other areas for the conduct of sports and recreational activities. These facilities should be of such sizes and in such locations that they will be adequate to serve the population of the entire jurisdiction of the authority (and beyond) to the extent possible;

..."

SECTION 9. Section 12.7.(d) of S.L. 2006-66 read as rewritten:

"**DEPARTMENT OF COMMERCE/REPORT ON AGRIBUSINESS FUNDS**

...

SECTION 12.7.(d) The Department shall submit the report to the House Appropriations ~~Committee~~ Subcommittee on ~~Environment, Health, and~~ Natural and Economic Resources, the Senate Appropriations Committee on Natural and Economic Resources, and the Fiscal Research Division no later than May 1, 2007."

SECTION 10. Section 2 of S.L. 2006-139 reads as rewritten:

"**SECTION 2.** The Commissioner of Agriculture shall file a report no later than 31 March of each year with the Chairs of the House of Representatives Appropriations Subcommittee on Natural and Economic Resources and Senate Appropriations ~~Subcommittees~~ Committee on Natural and Economic Resources, the

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Chair of the House of Representatives Agriculture Committee, and the Chair of the Senate Committee on Agriculture, Environment, and Natural Resources which shall include the following:

(1) The short- and long-term problems associated with maintaining a viable dairy industry in the State.

(2) Ways to sustain the existing dairy industry in the State.

(3) Opportunities to expand the dairy industry, including attracting both new dairy producers and new processors to the State.

(4) The contribution of dairy farms to the maintenance of prime agricultural land and the quality of life in the State.

(5) An analysis of the effectiveness of the Dairy Stabilization and Growth Program in achieving the goals of maintaining a local supply of fresh milk for processing and consumption, facilitating the entry of young farmers into the dairy industry, and preserving green space along the urban fringe.

(6) Other factors that impact the dairy industry in the State."

SECTION 11. This act is effective when it becomes law.

MINUTES
ENVIRONMENTAL REVIEW COMMISSION
3 April 2007

The Environmental Review Commission (ERC) met on Tuesday 3 April 2007 at 11:00 a.m. in Room 544 of the Legislative Office Building. Senator Albertson presided.

The following members were present: Senators Albertson, Bingham, Kinnaird, Swindell and Weinstein; and Representatives Harrison, Justice, and Warren. Other General Assembly members present were Representative Lucy Allen, Chair of the House Committee on Environment and Natural Resources; Representatives Dewey Hill, Wil Neuman, and Ruth Samuelson; and Senators Andrew Brock, Jerry Tillman, and John Snow. Mr. George Givens, Commission Counsel; Jeffrey Hudson, Assistant Commission Counsel; Jennifer McGinnis, Assistant Commission Counsel; Jennifer Mundt, Commission Analyst; Mariah Matheson, Research Assistant; and Mary Watson, Substitute Commission Clerk, were also present.

On 28 March 2007, notice was sent to members and interested parties via e-mail and regular mail. A copy of the notice is included in the attachments to these minutes as **Exhibit A**. Copies of the agenda for the meeting and visitor registration sheets are included in the attachments as **Exhibits B** and **C**.

Senator Albertson called the meeting to order. He stated that the meeting was called to receive a report about the biofuels industry. He then asked Mr. George Givens to comment on the agenda items. Mr. Givens announced that there had been one report received by the ERC, entitled "North Carolina's Strategic Plan for Biofuels Leadership: Fueling North Carolina's Future", which is the subject of the meeting (see **Exhibit D**).

Senator Albertson introduced Mr. Norris Tolson, Secretary of the Department of Revenue, to present the final report from the Biofuels Industry Strategic Plan Work Group on the development of the strategic plan. Mr. Tolson said looking at the future of fuels in North Carolina is a most important issue, not only for the immediate future, but also for the future of our children and grandchildren. An equally important question is what the State will do to ensure our energy independence. As the population of North Carolina grows and the demand for fuel rises as well, we will need creative answers to increase our fuel supply. We in North Carolina currently use about 5-6 billion gallons of petroleum-based liquid fuel a year. All of the fuel we use in North Carolina is refined somewhere else from crude oil that comes from places around the world that are not friendly to us. Mr. Tolson stated the Task Force believes that if the strategies devised by the group are used correctly, the State could develop a strong leadership position in alternative fuels along the East Coast of the United States. A new industry can be developed to increase the availability of alternative feed stocks. He added that many of our neighboring states have committed significant resources to generate alternative energy and the feedstocks necessary to drive the industry. Private and public partnerships need to work together to make it happen because the state cannot do it alone. Crops that we can grow in North Carolina offer us an opportunity to create a significant niche in the production of biofuels.

The plan will require action on the part of the General Assembly during this session if the state is to achieve the objectives laid out in the document. The results are sound, practical and encouraging. The plan is built around five strategic work groups: organizational leadership; market transformation; science, research and development on feedstocks and biomass; production and distribution; and the culture and education that will be required to get the consuming public to shift from traditional fuels to biofuels.

Senator Albertson next recognized Mr. Steven Burke, Senior Vice President for Corporate Affairs, North Carolina Biotechnology Center, to speak about the nine strategies:

1. Realistic vision and compelling commitment
2. Statewide Biofuels Commission
3. Statewide economic development initiatives
4. Creation of a new industry sector
5. A biofuels roadmap across the State
6. Science, research and development capabilities
7. Advanced biofuels acceleration facility
8. Advancing public commitment and workforce development
9. Appropriate and targeted incentives

At the conclusion of Mr. Burke's presentation, Senator Albertson thanked the members of the Task Force and all others who were involved in the development of the plan on behalf of the members of the ERC.

Senator Kinnaird asked about involving representatives of the big oil companies in the planning for alternative fuels. Mr. Tolson replied that some of the energy companies are starting their own resource programs and investing large sums of money in alternative energy. The Committee believes strongly that in order to make the plan work in North Carolina, a private/public partnership, including the energy companies should they choose to be involved, is essential.

Senator Bingham asked what the most practical use of biomass fuels would be. Mr. Tolson replied that according to the Strategic Plan, every gallon of fuel used in 2017 would contain 10 percent ethanol. Five good-size ethanol plants would be required to produce the 500 million gallons of alternative fuel needed to reach this goal. The committee has determined that the state will not be able to depend on corn as the only feedstock. Therefore the plan stresses the development of new feedstocks that can be grown in the state to make alternate fuels.

Senator Weinstein asked the presenters to define the word, "biomass" and the potential of biomass. Mr. Burke responded that biomass refers to any potential source of material grown in the ground that can be converted to the sugars that yield biofuels. Corn is a biomass of sorts, but more important for North Carolina's future is the grouping called cellulosic biomass. This type of biomass is obtained from forest resources, a resource that North Carolina has in abundance. While all of the 18 million acres of forest resources would not be used, they would provide the greatest source of cellulosic biomass of any state in the country. Hog waste and algae are other possibilities.

Representative Warren asked how advanced we are in our capability to produce some of the feedstocks we are not currently using. Secretary Tolson replied that we are further along in growing the crops than we are in converting them to use as fuel. The issue is figuring out how to convert them to ethanol economically and efficiently.

Senator Swindell asked what other states in the South and Midwest are doing to develop biofuels programs. Secretary Tolson replied that Tennessee has committed $76 million, Georgia $75 million, and New York $85 million to conduct the research to convert feedstocks to ethanol. Most of the current ethanol plants are in the Midwest, so the Midwest states are also spending a lot of money, not only to convert starch to ethanol, but also to determine how to distribute it and get people to convert to it at the gasoline station.

Representative Harrison asked what the infrastructure and regulatory structure impediments are to accomplishing the goals. Mr. Burke replied that impediments are to be explored in the future. If the state is to attempt to grow and produce at least 560 million gallons of liquid fuels in ten years, there will be new strains on the distribution system, on the review system, on what to do with fuel tanks, on how it is shipped, and on how it moves from the plant to the public. Part of the task over the next 15-20 years is to deal with those issues. Determining the answers to those questions will be a part of the task of the Biofuels Commission.

Senator Bingham asked for a comment on the practicality of diesel fuel versus ethanol and in what direction the work on biofuels will be going. Secretary Tolson responded that biodiesel is easier to make than ethanol. Almost everything can be converted to biodiesel fuel immediately and used in current engines. At the present time, however, there are no active projects with a goal of producing large quantities of biodiesel. He added that the work should go forward on ethanol with equal importance. Senator Bingham asked about the comparative cost and efficiency of diesel versus the ethanol fuel. Secretary Tolson responded that he did not know. He did say that ethanol is about 20 percent less efficient than gasoline.

The meeting adjourned at 11: 50 a.m.

Representative Pryor Gibson, Co-Chair

Senator Charlie Albertson, Co-Chair, Presiding

Dot Waugaman, Commission Clerk

Senator Daniel Clodfelter, Co-Chair

LIST OF EXHIBITS

Exhibit A Notice of Meeting dated 28 March 2007

Exhibit B Agenda of Meeting

Exhibit C List of Attendees

Exhibit D Report, "North Carolina Strategic Plan for Biofuels Leadership: Fueling North Carolina's Future", dated 1 April 2007

EXHIBIT A

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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DOT WAUGAMAN
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MARIAH B. MATHESON
COMMISSION ASSISTANT
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(919) 733-2578

28 March 2007

TO: Members of the Environmental Review Commission
Interested Parties

FROM: George F. Givens, Commission Counsel
Dot Waugaman, Commission Clerk

RE: **Notice of Commission Meeting**
Additional Information

COMMISSION MEETING:

The Environmental Review Commission (ERC) will meet at 11:00 a.m. Tuesday 3 April 2007 in Room 544 of the Legislative Office Building in Raleigh. At this meeting the ERC will hear the final report of the Biofuels Industry Strategic Plan Work Group pursuant to S.L. 2006-206.

This meeting is expected to last no more than one hour and to adjourn no later than 12:00 noon. No public staff planning meeting will be held in connection with this meeting.

ADDITIONAL INFORMATION:
If you have questions related to the Commission, you may contact the Commission Counsel or other Commission staff at (919) 733-2578.

EXHIBIT B

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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MARIAH B. MATHESON
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AGENDA
11:00 a.m. Tuesday 3 April 2007
Room 544 Legislative Office Building
Raleigh, North Carolina

1. Call to order
   Senator Charles W. Albertson, Presiding

2. Introductory remarks by Cochairs
   Senator Charles W. Albertson
   Senator Daniel G. Clodfelter
   Representative Pryor A. Gibson

3. Report to the Commission and explanation of agenda items
   George F. Givens, Commission Counsel

4. Final Report from the Biofuels Industry Strategic Plan Work Group on the development of the Strategic Plan (S.L. 2006-206, Sec. 3.2)
   E. Norris Tolson, Secretary of Revenue
   North Carolina Department of Revenue

   W. Steven Burke, Senior Vice President for Corporate Affairs
   North Carolina Biotechnology Center

5. Commission discussion and announcements

ADDITIONAL INFORMATION:

Persons having questions about the Commission meeting or other matters related to the Commission may contact Commission Counsel or other Commission staff at (919) 733-2578 or may visit the Commission's website at: http://www.ncleg.net/gascripts/DocumentSites/browseDocSite.asp?nID=12.

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — April 3, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Preston Howard	MCK
Doug Lassiter	NCSTA
Sue Cole	NC Biotech Center
Richard C. Reich	NCDA&CS
Albert Eckel	Corning
Bob Sloan	NCFA
Nancy Thompson	Nelson Mullins
DAVID BARNES	Poyner + Spruill
Lisa Martin	NC Home Builders

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — April 3, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Sabrina Vollmer	N&O
Mitch Peele	NC Farm Bureau
Sharon Strund	State Energy Office
Chris Anderson	
Alex Hobbs	NCSU
Andrew Meehan	NC Elec Coops
Jason Commander	NC Policy Watch
Kathy Hawkins	Progress Energy
Lisa Pillay	Duke Energy Carolinas
George Everett	Duke Energy Carolinas
Tommy Stevens	NCPC

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — April 3, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Amy Simes	DENR
Jennifer Epperson	Governor's office
Robert M. Zimmers.	NC Dept of Admin.
Matt Meyer	BioNetwork NCCCS
Howard Daly	NCDA&CS
Mark Shuller	DOT NC - DENR
Paul Sherman	NC Farm Bureau
CHARLES HALL	NC SOYBEAN ASSOC.
Mike Arnold	Lt. Gov.'s office
Erin Kinney	NC Conservation Network
Walt Vinroot	Gov's office

EXHIBIT C

VISITOR REGISTRATION SHEET

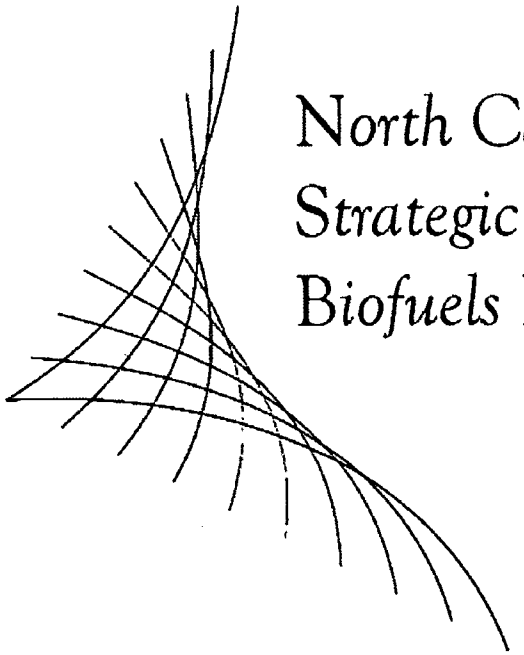
ENVIRONMENTAL REVIEW COMMISSION — April 3, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Anonymous	NCAEC
Charmaine Fuller	CJPC
Patrick Buffkin	Nelson Mullins
Ann McClees	McClees Consulting
Ian Palmquist	Equality NC
Reggie Jones	Williams Mullen
Angie Harris	Williams Mullen
	DEC

EXHIBIT D



North Carolina's Strategic Plan for Biofuels Leadership

Fueling North Carolina's Future
North Carolina's Strategic Plan for Biofuels Leadership

Submitted to the Environmental Review Commission,
North Carolina General Assembly
From
Project Co-conveners and Steering Committee

1 April 2007

Project Co-conveners

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Steering Committee Members and other engaged participants are listed on pages 8-9.

Fueling North Carolina's Future

2 *Imperative and Vision Well Combined*

3 *Project Process and Approach*

4 *Nine Realistic Strategies*

- *STRATEGY 1 • Realistic Vision and Compelling Public Commitment*
- *STRATEGY 2 • Statewide Biofuels Commission*
- *STRATEGY 3 • Statewide Economic Development Imperatives*
- *STRATEGY 4 • Creation of a New Industry Sector*
- *STRATEGY 5 • A Biofuels Roadmap Across the State*
- *STRATEGY 6 • Science, Research, and Development Capabilities*
- *STRATEGY 7 • Advanced Biofuels Acceleration Facility*
- *STRATEGY 8 • Advancing Public Commitment and Workforce Development*
- *STRATEGY 9 • Appropriate and Targeted Incentives*

8 *Project Members Statewide: Co-conveners, Steering Committee, and Participants*

10 *Strategies Delineation*

15 *Senate Bill 2051, August 2006*

Imperative and Vision Well Combined

What combination of vision, policies, and resources is required for North Carolina to develop a liquid biofuels industry that is substantial in output, agriculturally and economically important, sustainable, and significant across the State?

Almost 5.6 billion gallons of petroleum-based liquid fuels are consumed by North Carolinians each year.

Every gallon is produced elsewhere, yielding main economic return elsewhere. Each gallon verifies further that citizens are dependent upon fuels produced in other places, not all of which are reliably attentive to State or national security. No gallon contributes to the agricultural, forestry, or production economy of North Carolina.

North Carolina is well-advised to gain internal capability for production of a measurable percentage of its liquid biofuels consumption. Doing so reflects increasingly strong national and federal mandates, and is also mirrored by other states – many of which are targeting biofuels development far more aggressively and measurably than North Carolina. More importantly, gaining increased internal biofuels capability is eminently feasible in this State in coming decades. North Carolina is remarkably well-positioned to shape science, biotechnology, agricultural and biomass resources, smart participants, and policies into an internally strong biofuels sector.

In fact, more is realistically possible. With the right grouping of vision, strategy, and resource commitment over time, North Carolina can gain Mid-Atlantic and Southern leadership in a growing biofuels industry in coming years.

Many resources and capabilities will work together for this outcome. Among them, methodical and strategic development of new fuel feedstocks will be key. Few states can study, adapt, and grow as many possible sources. Canola, switchgrass, hulless barley, coastal Bermuda grass, industrial sweet potatoes, and miscanthus are among possibilities, along with animal waste, algae, and forest-based resources. As a result, North Carolina's future will target these feedstocks – as well as crops perhaps today barely envisioned – and will not be based on corn.

Working for these crops, a new industry, and increased biofuels capability impels sustained State policy and leadership. Resources must be committed. Varied institutional parties, public and private, must work together for common purpose. Thinking and outcomes must be shaped by the significance of the task, which remarkably touches so many large components of North Carolina's life and landscape: environmental stewardship, transportation and consumers, science and research, agriculture and forestry, counties, economy, and security.

Addressing the question above and these interrelated components has been for seven months the task of more than 70 engaged North Carolinians statewide. Their work, thoughtful discussion, and sound ideas have yielded this *Strategic Plan for Biofuels Leadership.*

Results are sound, practical, and encouraging, and so is the responsible future-thinking at hand. Is any state better prepared to address the imperative for biofuels leadership?

Project Process and Approach

North Carolinians have a tradition of coming together to address ideas and needs important to the State's future. Our ability to do so has been since June of 2006 directed effectively to biofuels.

In June of 2006, a first-ever *Biofuels Summit* convened 15 State, academic, and corporate leaders around the imperative for informed, future-directed State planning and policy. Key legislative participants, including Senator Charlie Albertson and Representative Dewey Hill, judged the imperative significant enough to catalyze legislation. In August, *Senate Bill 2051: State Energy Use/Energy Assistance* passed, mandating a statewide strategic plan.

The legislation yielded the process for *North Carolina's Strategic Plan for Biofuels Leadership,* a Project:

- Led by five Co-conveners: the College of Agriculture and Life Sciences at North Carolina State University, the School of Agriculture and Environmental Sciences at North Carolina Agricultural and Technical State University, the North Carolina Biotechnology Center, the North Carolina Rural Economic Development Center, and Secretary of Revenue E. Norris Tolson.

- Guided by a 24-member Steering Committee, comprised of the Co-conveners and appropriately diverse parties statewide, as listed on page 8.

Discussions and ideas were shaped in full Steering Committee meetings or in five Strategic Workgroups: Organizational Leadership; Market Transformation; Science, Research, Development, Feedstocks, and Biomass; Production & Distribution; and Culture & Education. In addition, all participants were requested early in the process to submit their initial roster of ideas, recommended activities, or suggested strategies, to trigger Committee learning and discussion.

Taken in total, the roster of ideas, recommendations, and strategies revealed main areas of necessary attention, yielded a logical framework for action over time, and provided a foundation for the broad strategies. Funding requirements were carefully considered and set.

The widely varied participating citizens worked productively, smartly, and very collegially. Their synthesis and consensus yielded this document and the Nine Realistic Strategies that follow.

Nine Realistic Strategies

North Carolina's goal is simple and bold in statement but challenging to bring about over time: *to develop a liquid biofuels industry that is substantial in output, agriculturally and economically important, sustainable, and significant across the State.*

Bringing about this outcome requires a smart combination of sustained policy, resources, and vision. Varied parties must work productively and interactively together over time. Commitment must be maintained over years, possibly decades, and will be shaped by new learning and expected challenges.

The following nine strategies in total address and bring together the combination of commitment, practical tools, and guiding vision required for comprehensive, cohesive activities statewide over many years.

STRATEGY 1 • Realistic Vision and Compelling Public Commitment

A **compelling goal** will shape policy and actions – and also trigger commitment and passion – by citizens, leadership, and institutions statewide:

North Carolina's vision is strong and ambitious. By 2017, 10 percent of liquid fuels sold in North Carolina will come from biofuels grown and produced within the State.

REQUIRED: Legislation and widespread endorsement of State leaders.

MORE INFORMATION provided under *Strategies Delineation*, on page 10.

STRATEGY 2 • Statewide Biofuels Commission

A **new entity** must be constituted to guide and oversee North Carolina's sustained, high-level, and policy-based biofuels initiative over time. Possibly a State-level Commission established by the General Assembly with staff assistance provided by a nonprofit, it will be granted lead responsibility and authority for: policy development and oversight, building upon appropriate work already undertaken by varied parties statewide, coordination and assistance for the ongoing work and missions of varied parties statewide, development of key activities, identification and implementation of specific programs and incentives, funding of certain research or development activities, and targeted progress reports to public, policy, and legislative leaders. Working for comprehensive, effective, and steady movement from research and development to deployment – production, distribution, and use statewide – will be a key mandate as well as responsibility. A catalyst and convener in approach, the Commission will constitute and draw on Task Forces and other groups statewide.

REQUIRED: Legislation and funding of $500,000 annually.

MORE INFORMATION provided under *Strategies Delineation*, on page 10.

STRATEGY 3 • Statewide Economic Development Imperatives

Because development of biofuels offers extraordinary opportunity for gain statewide, **sustained State policies and activities** must work aggressively for:

- National security
- Economic security
- Rural development
- Gain to farmers and agriculture
- Environmental benefits and stewardship
- Identification and development of local and regional resources, feedstocks, and production facilities

REQUIRED: Sustained commitment over time by State leaders and all involved parties.

MORE INFORMATION provided under *Strategies Delineation*, on page 11.

STRATEGY 4 • Creation of a New Industry Sector

Given its unparalleled biotechnology, agricultural, forestry, and resource strengths, North Carolina can realistically work for development within 10-15 years of:

- **A new biofuels industry** and economic sector statewide.
- **Mid-Atlantic and Southern leadership** within that industry.

Attaining both goals must inform all of the above activities and strategies.

REQUIRED: Sustained commitment over time by State leaders and all involved parties.

MORE INFORMATION provided under *Strategies Delineation*, on page 12.

STRATEGY 5 • A Biofuels Roadmap Across the State

Craft, implement, and continually refine **a coordinated plan** for development, production, and commercialization of biofuels throughout North Carolina, building on work undertaken to date by parties statewide. Resources, policy, and involved entities statewide must be merged. All involved parties and steps in the movement from science and research to feedstocks, production, distribution, worker training, and consumer utilization must be comprehensively addressed and integrated.

To be undertaken by the *Statewide Biofuels Commission,* working with its constituted Task Forces and partners statewide.

REQUIRED: Participation and leadership from all parties statewide and from the *Statewide Biofuels Commission.*

MORE INFORMATION provided under *Strategies Delineation*, on page 12.

STRATEGY 6 • Science, Research, and Development Capabilities

Research programs and resources at universities and other facilities statewide provide the requisite foundation for:

- Identification and development of improved or new feedstocks that can be particularly and efficiently grown, harvested, stored, and processed in North Carolina: *$4.5 million initial estimate*
- Development of processing capabilities, treatments, and enzymes key to efficient and competitive development of new feedstocks, including those from forests and other cellulosic sources: *$14.5 million initial estimate*
- Agricultural, forestry, and agronomic development, exploration, and testing: *$2 million initial estimate*
- Small scale pilot/deployment/processing plants to speed the movement of research to outcomes: *$4 million initial estimate*

Targeted and prioritized research over time will yield:

- *Short-term* use of existing feedstocks and process technology.
- *Mid-term* modification of existing feedstocks and process technology.
- *Longer-term* development of new feedstocks and process technology.

Priorities and goals for science, research, and development activities and funding will be established by the *Statewide Biofuels Commission.*

REQUIRED: Total funding of $25 million will be requested from legislative appropriation.

MORE INFORMATION provided under *Strategies Delineation*, on page 12.

STRATEGY 7 • Advanced Biofuels Acceleration Facility

Establishment of **a nationally unique public-private partnership facility** – involving multiple entities and companies – to methodically test, break down, and produce different feedstocks will offer North Carolina significant advantage, in particular to speed identification and development of crops most advantageous statewide for biofuels production.

REQUIRED: Legislation and financial commitment of 25 percent of total costs for a $25 million facility, with that commitment contingent upon the other funding being in place.

MORE INFORMATION provided under *Strategies Delineation*, on page 13.

STRATEGY 8 • Advancing Public Commitment and Workforce Development

To ensure that North Carolinians understand the personal and societal importance of biofuels produced within their State, a **coordinated statewide public endeavor** undertaken by varied parties must in the next five years work for and fund informed leadership, targeted education and workforce development, and consumer awareness.

To be implemented by the *Statewide Biofuels Commission.*

REQUIRED: Legislation and initial funding of $500,000.

MORE INFORMATION provided under *Strategies Delineation*, on page 13.

STRATEGY 9 • Appropriate and Targeted Incentives

A **comprehensive, dovetailed package** of incentives must be identified and implemented, to maximize development, production, distribution, retail infrastructure, and consumer purchase of biofuels produced within North Carolina.

To be identified, organized, and implemented by the *Statewide Biofuels Commission,* working with its constituted Task Forces and respondents statewide.

REQUIRED: Legislation to be developed.

MORE INFORMATION provided under *Strategies Delineation*, on page 14.

Project Members Statewide: Co-conveners, Steering Committee, and Participants

Project Co-conveners

- Steven Burke - North Carolina Biotechnology Center
- Billy Ray Hall - North Carolina Rural Economic Development Center
- Ghasem Shahbazi, PhD - North Carolina A&T State University
- Secretary E. Norris Tolson - North Carolina Department of Revenue
- Johnny C. Wynne, PhD - North Carolina State University

Steering Committee Members

- Michael J. Arnold - Office of the Lieutenant Governor
- Steven Burke - North Carolina Biotechnology Center
- Secretary W. Britt Cobb, Jr. - North Carolina Department of Administration. Designee: Speros Fleggas
- Secretary James T. Fain, III - North Carolina Department of Commerce. Designee: Robert K. McMahan, PhD
- James W. Gentry - North Carolina State Grange. Designee: David Meredith
- Billy Ray Hall - North Carolina Rural Economic Development Center
- Steve Kalland - North Carolina Solar Center
- H. Martin Lancaster - North Carolina Community College System. Designee: Matt Meyer
- Thomas Nagy - Novozymes North America, Inc. Designee: Garrett Screws
- Erica Upton Peterson - North Carolina Agribusiness Council, Inc.
- Secretary William Ross - North Carolina Department of Environment and Natural Resources. Designee: Manly Wilder
- Ghasem Shahbazi, PhD - North Carolina A&T State University
- Larry Shirley - State Energy Office
- Robert W. Slocum, Jr. - North Carolina Forestry Association
- Secretary E. Norris Tolson - North Carolina Department of Revenue
- Commissioner Steve Troxler - North Carolina Department of Agriculture & Consumer Services. Designee: Howard Isley
- Ivan Urlaub - North Carolina Sustainable Energy Association
- Larry B. Wooten - North Carolina Farm Bureau Federation. Designee: Mitch Peele
- Johnny C. Wynne, PhD - North Carolina State University
- Tim Shea - U.S. Army, Fort Bragg

Other Engaged Participants

- Kris Allsbury - BioNetwork - North Carolina Community College System
- J.D. Brooks - BioNetwork-BioAg Center - Robeson Community College
- Katrin Burt - InterSouth Partners
- Rachel Burton - Piedmont Biofuels
- Gerald Cecil, PhD - University of North Carolina at Chapel Hill
- Simon Cobb - Lotus Engineering, Inc.
- Bill Cooper - BioNetwork-BioProcessing Center - Pitt Community College
- Douglas Crawford-Brown, PhD - University of North Carolina at Chapel Hill
- Kurt Creamer - North Carolina Solar Center
- Carol Cutler-White - North Carolina Biotechnology Center
- Richard Dell - Advanced Vehicle Research Center of North Carolina
- Lyle Estill - Piedmont Biofuels
- Tobin Fried - Triangle J Council of Governments
- Anne Gilliam - Southern Alliance for Clean Energy
- Dennis Grady, PhD - Appalachian State University Energy Center
- Billy Guillet - North Carolina Rural Economic Development Center
- Charles Hall - North Carolina Soybean Producers Association
- Gary Harris - North Carolina Petroleum Marketers Association
- Joy Hicks - North Carolina General Assembly, Fiscal Research
- Alex Hobbs, PhD - North Carolina Solar Center
- Nathan Holleman - North Carolina Department of Agriculture & Consumer Services
- Randall Johnson - North Carolina Biotechnology Center
- Leslie Jones - BioNetwork-BioAg Center - Robeson Community College
- Steve Kelley, PhD - North Carolina State University
- Kathleen Kennedy, PhD - North Carolina Biotechnology Center
- Judy Kincaid - Sage Collaboration
- Paul Knott - BioNetwork-BioBusiness Center - Asheville-Buncombe Technical Community College
- Sam Lee - North Carolina Agribusiness Council
- Kristine Leggett - North Carolina General Assembly, Fiscal Research
- Bob Leker - State Energy Office
- Poul Lindergaard - Novozymes North America, Inc.
- Ted Lord - The Golden LEAF Foundation
- Elaine Matthews - North Carolina Rural Economic Development Center
- Andrew McMahan - Central Carolina Community College
- Cynthia McNeill-Moseley - State Energy Office
- Jason R. Nelson - North Carolina Biotechnology Center
- Cedric Pearce, PhD - MycoSynthetix
- Hal Price - Hal Price Biotechnology Consulting Service
- Jeffrey Ramsdell, PhD - Appalachian State University
- Maria Rapoza, PhD - North Carolina Biotechnology Center
- Ben Rich - North Carolina Solar Center
- Christy Russell - North Carolina Biotechnology Center
- Bill Schy, PhD - North Carolina Biotechnology Center
- Paul Sherman - North Carolina Farm Bureau Federation
- Kenneth Swartzel, PhD - North Carolina State University
- Sam Taylor - North Carolina Biosciences Organization
- Anne Tazewell - North Carolina Solar Center
- Mark Thomson - IDEA Engineering, Inc.
- Kristin Walker - North Carolina General Assembly, Fiscal Research

Strategies Delineation

Working productively over just seven months, from September of 2006 through March of 2007, 70 smart and engaged North Carolinians addressed the question at hand:

What combination of vision, policies, and resources is required for North Carolina to develop a liquid biofuels industry that is substantial in output, agriculturally and economically important, sustainable, and significant across the State?

Discussions and ideas were shaped in full Steering Committee meetings and in five Strategic Workgroups: Organizational Leadership; Market Transformation; Science, Research, Development, Feedstocks, and Biomass; Production & Distribution; and Culture & Education. In addition, all participants were asked early in the process to submit their initial roster of ideas, recommended activities, or suggested strategies – to trigger Committee learning and discussion.

Taken in total, the roster of ideas, recommendations, and strategies revealed main areas of necessary attention, yielded a logical framework for action over time, and provided a foundation for the broad strategies.

Key recommendations or ideas underlying the strategies are presented below. *They are representative of the types of outcomes and activities discussed and likely to be seen in coming years; they are not at present assumed to be assured or set.* Considering these and other, to-be-explored, recommendations will be a mandated task of the *Statewide Biofuels Commission* as it works with parties across North Carolina.

The content below reveals:

- The range of resources, policies, and bold ideas required.
- The richness of work and ideas already seen from parties statewide.
- The effectiveness and imagination with which engaged North Carolinians can together think about a topic of societal and economic importance to their future.

Strategy 1 • Realistic Vision and Compelling Public Commitment

Discussion was thoughtful and imaginative about ways to trigger policy, public commitment, and resources over time – and granted that states, like persons, often respond well to large visionary goals over time.

Strategy 2 • Statewide Biofuels Commission

Specific goals and tasks of the commission will include:

- Implementing *North Carolina's Strategic Plan for Biofuels Leadership* and meeting the milestones set forth in legislation/statutes;
- Marketing and promotion;
- Coordinating and advocating research;

- Coordinating and advocating policy;
- Administering grants and cost-sharing programs;
- Aggregating information and serving as a repository for biofuels activities;
- Serving as the lead agency representing North Carolina's interest in federal programs and in seeking federal funding;
- Programming the commercialization of biofuels in North Carolina;
- Addressing related areas of research and attention, including social sciences, consumer issues, broader environmental and energy implications, and economics;
- And others to inevitably evolve in coming years.

The Commission's membership would likely be made up of representatives from the following organizations, as well as from others as appropriate:

- Department of Administration
- Department of Agriculture & Consumer Services
- Department of Commerce
- Department of Environment and Natural Resources
- Department of Transportation
- Energy Policy Council
- Institute of Forest Biotechnology
- North Carolina Agribusiness Council
- North Carolina Biotechnology Center
- North Carolina Board of Science and Technology
- North Carolina Community College System
- North Carolina Farm Bureau Federation
- North Carolina Forestry Association
- North Carolina Rural Economic Development Center
- North Carolina Solar Center
- North Carolina State Grange
- Petroleum Marketers Association
- University of North Carolina
- Representatives of private industry that are engaged in the biofuels industry
- Any other entity that the Biofuels Industry Strategic Plan Steering Committee deems appropriate, particularly entities engaged in the biofuels industry

The five Project Co-conveners, drawing on the Steering Committee and other participants, will move the Commission from Strategy to reality and initial staffing in coming months.

Strategy 3 • Statewide Economic Development Imperatives

The six imperatives laid out were judged requisite to outcomes. Working for them should underlie and inform every policy, activity, and decision over coming years.

Meeting these imperatives is in fact key to the overall success of North Carolina's biofuels strategy.

Strategy 4 • Creation of a New Industry Sector

Guided by policy, leadership, and vision, North Carolina has proven successful at moving from traditional to new industry sectors, many of which spring from merging of technology with varied resources statewide.

The presumption is bold but realistic: groundwork laid in the short-term can lead to a new biofuels sector statewide in the longer-term of 10 to 15 years.

Working for this outcome is also key to the overall, long-term success of North Carolina's biofuels strategy – and must be taken seriously by varied parties and leaders in coming years.

Strategy 5 • A Biofuels Roadmap Across the State

Recommendation: Adopt and implement a roadmap for the commercialization of biofuels in North Carolina. The roadmap is to include a target list of recommended feedstocks that can be efficiently and economically grown, harvested, stored, and processed in North Carolina. The list will identify the best energy source feedstocks and highlight byproducts, outputs, and focus on feedstock quality. It will also include an action plan focusing on North Carolina's regional differences in agronomy and agriculture while also addressing the research and development needs of farmers and scientists.

Strategy 6 • Science, Research, and Development Capabilities

Recommendation: To help facilitate and coordinate research and development efforts throughout the State, the *Statewide Biofuels Commission* shall hold an annual symposium/conference bringing together scientists, researchers, and representatives of universities, government, and other organizations for collaboration, networking, information sharing, and coordination of feedstock and biomass research, development, commercialization, and deployment.

Recommendation: Support and promote the commercialization and deployment of new technologies for converting North Carolina grown and harvested feedstocks and biomass into biofuels.

Recommendation (Revenue Neutral): A key component to a strong biofuels industry is a well-trained workforce. A certification process and quality-assurance training program should be developed for technicians in the biofuels industry. Large-scale and small-scale production facilities can benefit from an integrated biofuels training program. Implementing existing curricula while combining resources to develop a comprehensive training program both reduces cost per student and expands the availability of classes. The biofuels training program should include both production techniques and quality-control testing. Quality control is needed to ensure that the biofuels produced in North Carolina meet all applicable specifications. The quality of the biofuels has a direct relationship to public acceptance. An inconsistent or poor-quality fuel will have a negative impact on the newly developing demand for biofuels.

Recommendation (Revenue Neutral): Develop streamlined environmental review and permitting processes required for development of biofuels production and distribution facilities.

Recommendation: To ensure movement from research and production to distribution and use, develop an ASTM-certified laboratory for testing biofuels, to be implemented by the North Carolina Department of Agriculture & Consumer Services at State testing facilities to allow easy access to testing for producers, particularly small producers, and ensure that all North Carolina-produced biofuels are properly tested and meet established specifications.

Strategy 7 • Advanced Biofuels Acceleration Facility

Recommendation: Endorse Novozymes' proposal to the U.S. Department of Energy for a pilot-scale facility focused on creating viable conversion processes specific to North Carolina and the Southeastern United States. The proposed pilot and deployment facility will develop processes for multiple biomass feedstocks relevant to the State and the Southeastern region; integrate technologies of pretreatment, hydrolysis, fermentation, and enzyme production; and deliver basic engineering and technical guidance for developing regional biorefineries. Novozymes is focused on securing federal, state, and local agreement for the regional biomass-to-ethanol technology center by identifying key partners and creating a governing structure for the facility.

Strategy 8 • Advancing Public Commitment and Workforce Development

Recommendation: Induce use of biofuels within State government by coordinating and/or implementing petroleum displacement programs for all State rolling stock. State government should continue to support biofuels use by going beyond the currently mandated 20 percent reduction or displacement of petroleum use.

Recommendation: Design and implement a pilot marketing program for biofuels targeting a pre-determined region within the State. The pilot program will measure the effectiveness of marketing and outreach methods to ascertain the best approach and practices for reaching a statewide audience.

Recommendation: Identify a county in North Carolina as a pilot/test program for converting all rolling stock to biofuels and environmentally friendly vehicles, including but not limited to E85 and biodiesel.

Recommendation: Endorse the Petroleum Displacement Plan as outlined in *Section 19.5, 2005 State Budget Provision* requiring State fleets to achieve a 20 percent reduction or displacement of current petroleum use by 2010 through the use of alternative fuels and hybrid vehicles.

Recommendation: Determine workforce needs and levels of education – certificate, associate, baccalaureate, or higher – necessary to meet those needs. Involve industry, community colleges, and universities in these determinations and in curricula development. Design and implement workforce development, education, and training curricula with clear, concise, and consistent messages for an array of target audiences.

Key messages of workforce development and training will address biofuels basics, energy issues, and mechanisms for behavior change. Key messages of education will address formal and informal instruction. An integral element of workforce development, education, and training will focus on the coordination and collaboration of existing programs and curricula.

Recommendation: Create a broader presence for North Carolina's biofuels efforts by implementing targeted public awareness and media campaigns. Targeted programs should be designed to take advantage of existing public relations and media efforts in an effort to disseminate accurate information, inform lawmakers, educate the public, and build trust.

Recommendation: Within the *Statewide Biofuels Commission*, designate a strategic committee whose purpose is to elevate, communicate, build, and implement a permanent and ongoing public information plan. The committee would provide periodic updates and reports on the *State of Biofuels in North Carolina* and act as a communications conduit to the General Assembly, other State and local leaders, and to the general public.

Strategy 9 • Appropriate and Targeted Incentives

Recommendation: Implement a comprehensive State-funded incentives program to maximize the development of cost-competitive, bio-based fuels, and to expand production and retail infrastructure. Example incentives include the following:

1. Reduce/remove motor fuels tax on biodiesel;
2. Tax ethanol based on energy content of fuel. Ethanol has approximately 30 percent less energy content than gasoline; therefore, reducing the motor fuels tax on the ethanol blend by 30 percent will be revenue neutral because motorists using E85 need to purchase more fuel to go the same distance as a gasoline-powered vehicle;
3. Expand tax credit for biofuels infrastructure (current 15 percent tax credit is set to expire this year); and
4. Provide a per-gallon payment to North Carolina biofuels producers (e.g. $0.10 per gallon for the first 10 million gallons of production).

Recommendation: Implement an incentive program for replacing mid-grade octane fuel tanks with E85 at stations across North Carolina. A grant program could supplement the conversion costs incurred by station owners.

Senate Bill 2051, August 2006

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2005

SESSION LAW 2006-206
SENATE BILL 2051

AN ACT TO REDUCE ENERGY, FUEL, AND WATER CONSUMPTION IN THE STATE THROUGH: (1) DEVELOPMENT OF A PLAN TO INCREASE THE AVAILABILITY AND USE OF ALTERNATIVE FUELS IN STATE-OWNED VEHICLE FLEETS; (2) PROVISION OF ENERGY ASSISTANCE TO LOW-INCOME PERSONS; (3) DEVELOPMENT OF A STRATEGIC PLAN TO EXPAND THE BIOFUELS INDUSTRY IN NORTH CAROLINA; AND (4) STUDY MECHANISMS TO IMPROVE ENERGY AND WATER CONSERVATION IN STATE-OWNED FACILITIES.

The General Assembly of North Carolina enacts:

... PART III. DEVELOP BIOFUELS INDUSTRY STRATEGIC PLAN

SECTION 3.1. There is established the Biofuels Industry Strategic Plan Work Group. The purpose of the Work Group is to develop a strategic plan for expansion of biofuels as an industry in North Carolina. The Work Group shall include representatives of the College of Agriculture and Life Sciences at North Carolina State University, the School of Agriculture and Environmental Sciences at North Carolina Agricultural and Technical State University, the North Carolina Biotechnology Center, and the Rural Economic Development Center, Inc. In developing this strategic plan, the Work Group shall delineate the increasing role of biotechnology in the development of biofuels and may consult with all of the following:

(1) The Department of Administration.
(2) The Department of Agriculture and Consumer Services.
(3) The Department of Commerce.
(4) The Department of Environment and Natural Resources.
(5) The Department of Transportation.
(6) The University of North Carolina System.
(7) The Community College System.
(8) The North Carolina Solar Center at North Carolina State University.
(9) The North Carolina Farm Bureau Federation.
(10) The North Carolina State Grange.
(11) The North Carolina Agribusiness Council.
(12) The North Carolina Forestry Association.
(13) Representatives of private industry that are engaged in biotechnology and the biofuels industry.
(14) Any other entity that the Biofuels Industry Strategic Plan Work Group deems appropriate, particularly entities that are engaged in biotechnology and the biofuels industry.

SECTION 3.2. The Biofuels Industry Strategic Plan Work Group shall submit an interim report on the development of the strategic plan, including any preliminary findings, recommendations, and legislative proposals, to the Environmental Review Commission no later than 15 January 2007. The Biofuels Industry Strategic Plan Work Group shall submit a final report on the development of the strategic plan, including any findings, recommendations, and legislative proposals, to the Environmental Review Commission no later than 1 April 2007.

Project Coordinators

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DRAFT: NOT FOR DISTRIBUTION
Feb. 16, 2007
RWS

A BILL TO BE ENTITLED
THE SOLID WASTE MANAGEMENT ACT OF 2007

Whereas, it is the declared public policy of the state to protect and enhance the water quality of the State's rivers and coastal estuaries; and

Whereas, it is the policy of the State to ensure the continued public enjoyment of the natural attractions of the State; and

Whereas, the ownership of solid waste facilities has taken new form in recent years; and

Whereas, the potential exists for the state of North Carolina and local government to incur costs from an environmental release from a landfill; and

Whereas, there have been substantial and beneficial changes in technology, materials, processes, and engineering practices in the field of solid waste management; and

Whereas, North Carolina should set a high standard in solid waste management practices and there is a desire to immediately improve solid waste management in North Carolina by implementing changes that account for the substantial and beneficial changes in technology, materials, processes and engineering practices in the field of solid waste management.

Now therefore the General Assembly of North Carolina enacts:

SECTION 1.(a). Financial qualifications for solid waste facility owners.

G.S. 130A-290 is amended by adding a new definition:

"(1aa) "Business entity" has the same meaning as in G.S. 55-1-40 (2a)."

SECTION 1.(b).

G.S. 130A-294(b2) is amended as follows:

"(b2) The Department may require an applicant for a permit under this Article to satisfy the Department that the applicant, and any parent, subsidiary, or other affiliate of the applicant or parent, and including any joint venturer with a direct or indirect financial or equity interest in the applicant:

(1) Is financially qualified to carry out the activity for which the permit is required.

The applicant shall demonstrate financial qualifications adequate to ensure proper design, construction, operation, maintenance, and closure of the facility. The applicant shall also demonstrate financial qualifications sufficient to obtain the financial assurance required under subpart (b) of this section. The initial demonstration of financial qualification for the design, construction, and closure of the facility may be limited to the first five-year phase of construction for which a permit to construct is sought. The applicant may be required to demonstrate financial qualification for each successive five-year phase of design, construction and operation of the facility when applying for a permit to construct each successive phase of the facility. The applicant shall provide cost estimates for site investigation; land acquisition, including financing terms and land ownership; design of the facility; construction of the first five-year phase of the facility, operation of the facility; closure of the facility; and the cost of providing financial assurance required under subpart (b) of this section. The applicant shall provide an audited, certified, financial statement and a combination of cash deposits, insurance policies, and binding letters of loan commitments from a triple A or higher rated rated financial institution licensed to do business in North Carolina sufficient to cover the anticipated costs. Where assets of a parent, subsidiary or other affiliate of the applicant or a joint venturer with a

direct or indirect financial or equity interest in the applicant is proposed to be used to determine the financial qualifications of the applicant, then that party must be listed on the permit of the facility. The applicant must show the ability to obtain financial assurance required under this Chapter and rules adopted by the Commission. A letter of intent to provide financial assurance provided by a North Carolina registered provider of at least triple A credit rating shall suffice for adequate demonstration

SECTION 2. Financial assurance for assessment and corrective actions.

G.S. 130A-294(b) is amended as follows:

" (b) The Commission shall adopt and the Department shall enforce rules to implement a comprehensive statewide solid waste management program. The rules shall be consistent with applicable State and federal law; and shall be designed to protect the public health, safety, and welfare; preserve the environment; and provide for the greatest possible conservation of cultural and natural resources. Rules for the establishment, location, operation, maintenance, use, discontinuance, recordation, post-closure care of solid waste management facilities also shall be based upon recognized public health practices and procedures, including applicable epidemiological research and studies; hydrogeological research and studies; sanitary engineering research and studies; and current technological development in equipment and methods. The rules shall not apply to the management of solid waste that is generated by an individual or individual family or household unit on the individual's property and is disposed of on the individual's property.

The Commission shall adopt rules for financial responsibility to ensure the availability of sufficient funds for closure and post-closure maintenance and monitoring at solid waste management facilities and for any corrective action the Department may require during the active life of a facility or during the closure and post-closure periods. To meet the financial responsibility requirements of this section for potential assessment and corrective action, the owner or operator of a sanitary landfill shall provide financial assurance sufficient to cover a minimum of $3,000,000.00 in costs. The Department may require financial assurance in a higher amount and may adjust the amount of financial assurance required upward after initial permit issuance, based upon the types of waste disposed in the landfill, the projected amount of waste to be disposed in the landfill, the location of the landfill, potential receptors of releases from the landfill, and inflationary factors. This amount is in addition to any financial assurance required for closure of the facility and for routine post-closure care. The rules may permit demonstration of financial responsibility through the use of a letter of credit, insurance, surety, trust agreement, financial test, or guarantee by corporate parents or third parties who can pass the financial test. The rules shall require that an owner or operator of a privately owned solid waste management facility demonstrate financial responsibility by a method or combinations of methods that will ensure that sufficient funds for closure, post-closure maintenance and monitoring, and any corrective action that the Department may require will be available during the active life of the facility, at closure, and for a period of not less than 30 years after closure even if the owner or operator becomes insolvent or ceases to reside, be incorporated, do business, or maintain assets in the State. The financial assurance shall be in a form that allows the Department to access the financial assurance for the purposes enumerated in this section and may not be accessed by the permit holder except as approved by the Department. Financial assurance for potential releases of contaminants shall be demonstrated prior to issuance of new permits and within six months of the effective date of this section for existing permits.

SECTION 3 HISTORY OF ENVIRONMENTAL COMPLIANCE
SECTION 3a.

G.S. 130A-309.06(b) is amended as follows:

" (b) The Department may refuse to issue a permit to an applicant who by past conduct ~~in this State~~ has repeatedly violated ~~related~~ statutes, rules, orders, or permit terms or conditions relating to ~~any solid waste management facility~~ environmental protection and who is deemed by the Department to be responsible for the violations. For the purpose of this subdivision, an applicant includes the owner or operator of the facility, or, if the owner or operator is a business entity, the parent, subsidiary or other affiliate of the applicant, ~~the parent of the subsidiary corporation,~~ a partner, ~~a corporate~~ officer, ~~or~~ director, ~~or a stockholder holding more than fifty percent (50%) of the stock of the corporation.~~ member, manager, and any person with a direct or indirect financial or equity interest in the applicant, other than a minority shareholder of a publicly traded corporation who has no involvement in management or control of the corporation or any of its subsidiaries or affiliates.

SECTION 3b.

G.S. 130A-294(b2)(2) is amended as follows:

(2) Has substantially complied with the requirements applicable to any ~~solid waste~~ activity in which the ~~applicant~~ applicant, or a parent, subsidiary or other affiliate of the applicant or parent, or a joint venturer with a direct or indirect financial or equity interest in the applicant, has previously engaged and has been in substantial compliance with federal and state laws, regulations, and rules for the protection of the environment. In determining whether the applicant and its affiliates have substantially complied with environmental laws in previous activities, the Department may consider the environmental compliance history of:

a. Officers, directors, managers, members, and partners in the applicant business entity;
b. All persons with a direct or indirect financial or equity interest in the applicant;
c. Officers, directors, managers, members, and partners in any business entity which has a direct or indirect financial or equity interest in the applicant;
d. Officers, directors, managers, members and partners in any business entity which is a parent, subsidiary or other affiliate of the applicant.

The applicant shall provide environmental compliance history information for each facility, business, business entity, joint venture or other undertaking in which any of the persons listed above is or has been an owner, operator, officer, director, manager, member, or partner, or in which any of the persons listed above has had a direct or indirect financial or equity interest, as requested by the Department."

SECTION 4. Sanitary landfill owner defined.

G.S. 130A-309.27(a)(1) is amended as follows:

"(1) "Owner or operator" means, in addition to the usual meanings of the term, any owner of record of any interest in land on which a landfill is or has been sited, and any person or ~~corporation~~ business entity which owns, directly or indirectly, a ~~majority~~ financial or equity interest in any other ~~corporation~~ business entity which is the owner or operator of a landfill, except that a minority shareholder of a publicly traded corporation who has no involvement in management or control of the corporation or any of its subsidiaries or affiliates shall not be considered an owner or operator solely on the basis of his stock holdings."

SECTION 5. Violation of permits

G.S. 130A-18 (a) is amended as follows:

" (a) If a person shall violate any provision of this Chapter; ~~or~~ the rules adopted by the Commission or rules adopted by a local board of health; or a condition or term of a permit or order issued under this Chapter, the Secretary or a local health director may institute an action for injunctive relief, irrespective of all other remedies at law, in the superior court of the county where the violation occurred or where a defendant resides.

(b) The Secretary of Environment and Natural Resources and a local health director shall have the same rights enumerated in subsection (a) of this section to enforce the provisions of Part 4 of Article 5 and Articles 8, 9, 10, 11, and 12 of this Chapter. (1983, c. 891, s. 2; 1997-443, s. 11A.61; 2001-474, s. 20; 2006-255, s. 13.4.)

G.S. 130A-22(a) is amended as follows:

"(a) The Secretary of Environment and Natural Resources may impose an administrative penalty on a person who violates Article 9 of this Chapter, rules adopted by the Commission pursuant to Article 9, or any term or condition of a permit or order issued under Article 9. Each day of a continuing violation shall constitute a separate violation. The penalty shall not exceed ten thousand dollars ($10,000) per day in the case of a violation involving nonhazardous waste. The penalty shall not exceed thirty-two thousand five hundred dollars ($32,500) per day in the case of a first violation involving hazardous waste as defined in G.S. 130A-290 or involving the disposal of medical waste as defined in G.S. 130A-290 in or upon water in a manner that results in medical waste entering waters or lands of the State; and shall not exceed fifty thousand dollars ($50,000) per day for a second or further violation involving the disposal of medical waste as defined in G.S. 130A-290 in or upon water in a manner that results in medical waste entering waters or lands of the State. The penalty shall not exceed thirty-two thousand five hundred dollars ($32,500) per day for a violation involving a voluntary remedial action implemented pursuant to G.S. 130A-310.9(c) or a violation of the rules adopted pursuant to G.S. 130A-310.12(b). If a person fails to pay a civil penalty within 60 days after the final agency decision or court order has been served on the violator, the Secretary of Environment and Natural Resources shall request the Attorney General to institute a civil action in the superior court of any county in which the violator resides or has his or its principal place of business to recover the amount of the assessment. Such civil actions must be filed within three years of the date the final agency decision or court order was served on the violator.

G.S. 130A-22 is amended by the addition of a new paragraph (j) which reads as follows:

"(j) The Secretary of Environment and Natural Resources may also assess a person who is assessed a civil penalty under this section the reasonable costs of any investigation, inspection, or monitoring that results in the assessment of the civil penalty."

SECTION 6. Notice of change of ownership.

G.S. 130A-294 is amended by adding a new subsection to read:

"( ) Solid waste management permits are not transferable. The person holding a permit for a solid waste management facility shall notify the Department of any significant change in the structure of the business entity that owns or operates the facility; the identity of any person or business entity previously identified as an owner or operator of the facility pursuant to G.S. 130A-309.27(a)(1); or in the financial assets identified in the financial qualification of the owner or operator. Notice to the Department shall be provided within 30 days. A change shall be considered significant if it has the potential to effect the financial qualifications of the permit holder or if it would result in a change in the identity of the owners or operators for purposes of either financial qualification or environmental compliance review. The Department may require new

financial qualification and environmental compliance reviews based those changes and may modify, revoke or require issuance of a new permit based on the outcome of the reviews."

SECTION 7. Transportation of nonhazardous solid waste.

G.S. 130a-294(a) is amended by adding a new subdivision to read:

"( ) Waste containers used for transport of solid waste by railway or barge, including the barge or railcar if the waste is not containerized, shall:

(1) be designed, constructed, loaded, operated, secured and maintained so as to prevent the escape of wastes, liquids, and odors and to prevent the loss or spillage of wastes in the event of an accident.

(2) be stacked safely and be secured to prevent accidents during transportation, loading and unloading.

(3) be completely enclosed or covered.

(4) be certified as having passed the following test to show that it is watertight, when it is placed in service and at least once every six months thereafter while it remains in service:

(i) have a minimum internal head of 24 inches of water applied to the container in an upright position for at least 15 minutes during which the container shall remain free from the escape of water.

(ii) be visually inspected for damage on all sides, plus the top and bottom and must have no visible holes, gaps or structural damage affecting its integrity or performance.

Owners of all containers shall keep a record of testing of each container for three years and provide copies of those records to persons who lease or handle the container. Such records shall be available to the Department for inspection at any receiving facility permitted by the Department.

The entry of liquids into a container; escape, loss or spillage of wastes or liquids from a container; or escape of odors from a container during transportation, holding and storage operations or in the event of an accident, shall be a violation of this subsection."

SECTION 8. Traffic study required.

G.S. 130A-294(a) is amended by adding a new subsection to read:

"( ) No application for a permit for a new solid waste management facility that is proposed to accept greater than 100,000 tons of waste per year shall be considered until a traffic study is completed. The study shall at a minimum include the following:

a. Identification of routes from the nearest limited access highway used to access the proposed facility and daily and hourly traffic volumes that will result along each approach route;

b. A map identifying land uses located along the identified approach routes, including but not limited to residential, commercial, and industrial development; agricultural operations; and identification of residences, schools, hospitals, nursing homes and other significant buildings fronting the roadways. Describe potential adverse impacts of increased facility traffic volumes and describe mitigation measures.

c. Identification of locations on approach routes where road conditions are inadequate to handle the increased traffic associated with the proposed facility. Describe potential mitigation measures.

The Department shall condition any permit issued for a solid waste management facility to provide mitigation of adverse impacts identified from the traffic study. The Commission may adopt rules to implement this section."

SECTION 9. Local government landfill liaison

G.S. 153A/160A (for counties/municipalities) is amended by adding a new subsection to read:

"( ) A local government that has planning jurisdiction over the site of a solid waste management facility with a service area greater than or equal to a 100 mile radius may employ a local government landfill liaison. The landfill liaison shall be a certified landfill manager in accordance with G.S. 130A-309.06. The landfill liaison may enter the landfill facility at reasonable times and inspect the landfill operation for purposes of :

a. ensuring that the facility meets all local requirements
b. identifying and notifying the Department of potential violations of landfill requirements; and
c. identifying and notifying the Department of potentially hazardous conditions.

The landfill liaison may not direct the operation of the facility."

SECTION 10. Independent engineer perform construction quality assurance

G.S. 130A-294 is amended by adding a new subsection as follows:

" ( ) The owner of a sanitary landfill shall employ a project engineer to inspect the construction of sanitary landfill units, landfill leachate handling facilities and landfill appurtenances. The project engineer shall be licensed to practice engineering in the State of North Carolina and must be independent of both the landfill owner and any person engaged in the design or construction of the landfill. The project engineer is responsible for observing, documenting and certifying that construction of the solid waste management facility units, leachate handling facilities and landfill appurtenances conforms to the plan approved by the Department, the permit to construct, and the rules adopted by the Commission. The project engineer or the engineer's representative shall be at the site at all times during the initial construction phase of the containment and leachate collection systems, shall observe and perform all required systems audits of the quality control inspections and shall ensure proper implementation of the design and permit requirements. All certifications must bear the seal and signature of the professional engineer and the date of certification."

SECTION 11(a) Minimum standards for new landfills and for landfill expansions onto previously unpermitted property .

G.S. 130A-294 is amended by adding a new subsection as follows:

"( ) The following standards shall apply to landfill facilities permitted after the effective date of this section and lateral expansions of landfill facilities onto property that was not included in a landfill permit issued prior to the effective date of this section:

(1) Municipal Solid Waste landfill units shall be constructed with double liners and must include a leak detection system between the liners and a low permeability layer under the secondary liner.

(2) Construction and Demolition landfill units shall be constructed with a composite liner system consisting of two components. The upper component shall consist of a flexible membrane liner and the lower component shall consist of a minimum of two feet of compacted soil with a maximum permeability of 1×10^{-7} centimeters per second. The liner shall be a minimum of 30 mil in thickness, except that a liner composed of high density polyethylene shall be a minimum of 60 mil in thickness. The liner shall be installed in direct and uniform contact with the compacted soil layer. The Department may approve an alternate liner system if the Department finds, based on modeling, that the alternate liner system will provide equivalent or greater impermeability.

(3) Sanitary landfill units shall be constructed so that the post-settlement bottom elevation of the liner system, or the post-settlement bottom elevation of the waste if no liner system is required, is a minimum of five feet above the seasonal high groundwater table and the bedrock datum plane contours established during the hydrogeologic investigation phase of the permit process.

(4) Sanitary landfill units and lateral expansions of existing units shall establish a minimum buffer distance between the waste boundary and streams or wetlands of 200 feet. The Department may approve a buffer that is less than 200 feet, but in no case less than 100 feet, upon finding that both of the following apply:

a. The proposed landfill or landfill expansion will serve a critical need in the community.
b. No feasible location exists that would allow for siting or expansion of the landfill in compliance with the requirement for 200 foot buffers.

(5) Sanitary landfill units shall not be placed in the 100-year flood plain or in lands reclaimed from previously designated 100-year flood plains.

[We need to harmonize (5) with the floodplain statutes – G.S. 143-215.54 and 143-215.54A. G.S. 143-215.54(c) prohibits solid waste disposal facilities, hazardous waste management facilities, salvage yards and chemical storage facilities in the 100-year floodplain, but 143-215.54A(b) allows the local government to issue a variance from that prohibition. We have not yet decided whether to keep the variance option and if so whether it should be at the state or local level.]

Section 11(b) Standards for landfill units that received a permit to construct after effective date

G.S. 130A-294 is amended by adding a new subsection to read:

"( ) The following criteria shall apply to all lined sanitary landfill units permitted on or after the effective date of this section.

(1) Any required leachate collection system shall be designed to return the head on the liner to one foot (30 cm) or less, within 72 hours, from a design storm of 25 year-24 hour falling on an empty cell. The leachate collection system shall maintain a head of less than one foot (30 cm) at all times during leachate recirculation. The operator may be required to monitor head on the liner to demonstrate that the head is being maintained in accordance with the rules and this section.
(2) All geomembrane base liner systems used in sanitary landfill units shall be tested for leaks and damage, by methods approved by the Department, to ensure that the liner is 100% evaluated.
(3) All leachate collection lines shall be designed and constructed to permanently allow remote camera inspection and cleaning. All leachate lines shall be cleaned and shall be remotely inspected by camera on an annual basis. The documentation of the camera inspection and the annual cleaning shall be placed in the facility operating record and provided to the Department upon request.
(4) All pipes used to transmit leachate shall provide dual containment outside of the lined disposal unit. New units and lateral expansions shall be constructed without pipe penetrations of the bottom liner, whether for leachate, stormwater or gas.

The Commission may adopt rules as needed to implement this section."

SECTION 11(c) Improve landfill standards.

The Commission shall review rules relating to the siting, construction and design of solid waste facilities to determine whether changes are required to protect the public health and environment; to improve the performance of solid waste management facilities; to take advantage of technological advances in landfill construction, maintenance and design; and to provide additional protection to environmentally sensitive areas of the state. The Commission shall enact rules necessary to minimize impacts to the environment and protect public health. These rules shall:

(1) Establish standards for the collection, control and utilization or destruction of landfill gasses at municipal solid waste landfills;
(2) Establish standards for the construction, operation, and maintenance of bioreactor landfills;
(3) Establish criteria for development of bird and wildlife management plans; and
(4) Incorporate measures necessary to minimize impacts to natural, historic and cultural resources, including but not limited to wetlands, critical fisheries habitat, parks, recreation areas, cultural and historic sites, and potential water supplies.

SECTION 11(d) Waste screening.

G.S. 130A-294 is amended by adding a new subsection to read:

"( ) Solid waste management facilities [permitted after the effective date of this section] shall have a waste screening plan approved by the Department. The plan shall identify measures adequate to ensure compliance with state laws, rules and applicable local ordinances that ban specific types of waste from disposal in solid waste landfills. The plan shall address all sources of waste generation."

SECTION 12a.

G.S. 130A-294 (4)(b) is amended as follows:

"The issuance of permits for sanitary landfills operated by local governments is exempt from the environmental impact statements required by Article 1 of Chapter 113A of the General Statutes, entitled the North Carolina Environmental Policy Act of 1971 unless the sanitary landfill will exceed any of the following thresholds:

1.The landfill will receive more than 300,000 tons of solid waste per year.
2. The landfill will have the capacity to dispose of more than 15,000,000 cubic yards of solid waste.
3. The landfill has a proposed service area equal to or greater than a 100 mile radius.

All sanitary landfill permits issued to local governments prior to July 1, 1984, are hereby validated notwithstanding any failure to provide environmental impact statements pursuant to the North Carolina Environmental Policy Act of 1971;"

Section 12b Note: should apply to pending applications.

G.S. 130A-294 is amended by adding a new subsection to read:

" ( ) An applicant for a permit to construct a sanitary landfill shall conduct a study of environmental impacts if the landfill will exceed any of the following thresholds:

1. The landfill will receive more than 300,000 tons of solid waste per year.
2. The landfill will have the capacity to dispose of more than 15,000,000 cubic yards of solid waste.
3. The landfill will have a proposed service area equal to or greater than a 100 mile radius.

The study of environmental impacts shall meet all of the requirements for an environmental impact statement under G.S. 113A-4 and rules adopted by the Department of Administration to implement the statute. In addition to information required for an adequate environmental impact statement under G.S. 113A-4 , the study shall address: the need for additional waste disposal capacity; consistency with North Carolina's solid waste management plan; the applicant's ability to ensure compliance with state law affecting

solid waste disposal (including bans on disposal of certain types of waste in landfills); and an alternative sites analysis. The Department shall publish notice of the draft environmental impact statement and shall hold a public hearing in the county where the landfill will be located no sooner than 30 days following the public notice. The Department shall consider the study of environmental impacts and mitigation measures proposed by the applicant in making the decision to issue or deny a permit."

SECTION 13. Amendments to Franchise Authority
Hold for language

SECTION 14 Denial of Permits for Solid Waste Facilities
G.S. 130A-294 is amended by addition of a new subsection to read:
"( ) The Department shall deny an application for a permit for a solid waste facility upon finding:
(1) That construction or operation of the facility will violate water quality standards for groundwater or surface waters, including wetlands, adopted by the Environmental Management Commission.
(2) That construction or operation of the facility will result in loss or significant reduction of continued long-range productivity that would jeopardize a renewable resource of more than local concern, including but not limited to watersheds or aquifers that are sources of public water supply.
(3) That construction or operation of the facility will result in significant damage to fragile or historic areas and other areas containing environmental or natural resources of more than local significance. These areas include, but are not limited to national or State parks or forests; wilderness areas; historic sites; recreation areas; segments of the natural and scenic rivers system; wildlife refuges, preserves and management areas; areas that provide habitat for threatened or endangered species; primary nursery areas and critical fisheries habitat designated by the Marine Fisheries Commission; and Outstanding Resource Waters designated by the Environmental Management Commission.
(4) That construction or operation of the facility will jeopardize public rights to access or use public trust waters.
(5) That the facility will be located in a natural hazard area, such as a floodplain or an area subject to excessive seismic activity, such that the facility will present a risk to public health or safety.
(6) In any case, that the proposed facility is inconsistent with rules adopted by the Commission for Health Services.
(7) In any case, that the proposed facility is inconsistent with ordinances adopted by the local government that has planning jurisdiction over the site of the proposed facility.
(8) In any case, that considering engineering requirements and all economic costs there is a practicable alternative that would accomplish the overall project purposes with less adverse impact on public resources.
(9) In any case, that the proposed development would contribute to cumulative effects that would be inconsistent with the guidelines set forth in subdivisions (1) through (5) of this subsection. Cumulative effects are impacts attributable to the collective effects of a number of projects and include the effects of additional projects similar to the
requested permit in areas available for development in the vicinity."

SECTION 15 Permit fees.
Article 9 of Chapter 130A of the General Statutes is amended by adding a new section to read:
"**§ 130A-293.1. Fees applicable to permits for solid waste management facilities.**
(a) It is the intent of the General Assembly that the fees collected pursuant to this section shall be used to support the Department's solid waste management program.

(b) The Solid Waste Management Account is established as a non-reverting account within the Department. All fees collected under this section shall be credited to the Account and shall be used for personnel and other resources necessary to do any one or more of the following:

(1) Provide a high level of professional review of permit applications for solid waste landfills and other solid waste management facilities;

(2) Provide timely review of permit applications;

(3) Improve monitoring of solid waste management facilities;

(4) Increase compliance activities related to solid waste management facilities; and

(5) Review and update rules governing the construction and operation of solid waste landfills to recognizing advances in technology and research to better protect public health and the environment.

(c) Applicants for permits shall pay an application fee according to the following schedule:

(1) Municipal Solid Waste Landfill accepting less than 100,000 tons/year of solid waste-New Permit-$25,000

(2) Municipal Solid Waste Landfill accepting less than 100,000 tons/year of solid waste-Amendment -$15,000

(3) Municipal Solid Waste Landfill accepting less than 100,000 tons/year of solid waste – Modification - $1,500

(4) Municipal Solid Waste Landfill accepting 100,000 tons/year or more of solid waste - New Permit - $50,000

(5) Municipal Solid Waste Landfill accepting 100,000 tons/year or more of solid waste – Amendment - $30,000

(6) Municipal Solid Waste Landfill accepting 100,000 tons/year or more of solid waste – Modification - $3,000

(7) Construction and Demolition Landfill accepting less than 100,000 tons/year of solid wasteNew Permit-$15,000

(8) CONSTRUCTION AND DEMOLITION Landfill accepting less than 100,000 tons/year of solid waste-Amendment -$9,000

(9) CONSTRUCTION AND DEMOLITION Landfill accepting less than 100,000 tons/year of solid waste – Modification - $1,500

(10) Construction and Demolition Landfill accepting 100,000 tons/year or more of solid waste - New Permit - $30,000

(11) Construction and Demolition Landfill accepting 100,000 tons/year or more of solid waste – Amendment - $18,500

(12) Construction and Demolition Landfill accepting 100,000 tons/year or more of solid waste – Modification - $2,500

(13) Industrial Landfill accepting less than 100,000 tons/year of solid waste-New Permit-$15,000

(14) Industrial Landfill accepting less than 100,000 tons/year of solid waste-Amendment -$9,000

(15) Industrial Landfill accepting less than 100,000 tons/year of solid waste Modification -$1,500

(16) Industrial Landfill accepting 100,000 tons/year or more of solid waste New Permit -$30,000

(17) Industrial Landfill accepting 100,000 tons/year or more of solid waste Amendment -$18,500

(18) Industrial Landfill accepting 100,000 tons/year or more of solid waste Modification - $2,500
(19) Tire Monofill New Permit - $1,750
(20) Tire Monofill Amendment - $1,250
(21) Tire Monofill Modification - $500
(22) Treatment and Processing New Permit - $1,750
(23) Treatment and Processing Amendment $1,250
(24) Treatment and Processing Modification $500
(25) Transfer Stations New Permit - $5,000
(26) Transfer Stations Amendment - $3,000
(27) Transfer Station Modification - $500
(28) Incinerator New Permit - $1,750
(29) Incinerator Amendment - $1,250
(30) Incinerator Modification - $500
(31) Large Compost Facility New Permit - $1,750
(32) Large Compost Facility Amendment - $1,250
(33) Large Compost Facility Modification - $500
(34) Land Clearing and Inert New Permit - $1,000
(35) Land Clearing and Inert Amendment - $500
(36) Land Clearing and Inert Modification -$250

(d) The application permit fee under this section shall be paid upon submission of the permit application.

(e) A permitted solid waste management facility shall pay an annual permit fee on or before August 1 of each year according to the following schedule:

1. Municipal Solid Waste Landfill $3,500
2. Post Closure Municipal Solid Waste Landfill $1,000
3. Construction and Demolition Landfill $2,750
4. Post Closure Construction and Demolition Landfill $500
5. Industrial Landfill $2750
6.. Post Closure Industrial Landfill $500
7. Transfer Station $750
8. Treatment and Processing Facility $500
9. Tire Monofill $500
10. Incinerators $500
11. Large Compost Facility $500
12. Land Clearing and Inert Debris Landfill $500

(f) As used in this section, the following definitions apply:

(1) 'New permit' means all of the following:

a. An application for a new solid waste management facility not previously permitted by the Department. It includes one site suitability review, the initial permit to construct and one permit to operate the constructed portion of a phase included in the permit to construct.

b. An application that proposes to expand the boundary of a permitted waste management facility for the purpose of expanding the permitted activity.

c. Any application that includes a proposed expansion to the boundary of a waste disposal unit within an existing permitted solid waste management facility.

d. An application for a substantial amendment to a solid waste permit, as defined in G.S. 130A 294(b1).

(2) 'Permit amendment' means all of the following:

a. An application for a permit to construct and one permit to operate for the second and subsequent phases of landfill development depicted in the approved facility plan for an existing solid waste management permit.

b. An application for a renewal or a permit review every five years after issuance of the existing solid waste management facility permit, as required by rule.

c. Any application that proposes a change in ownership or corporate structure of a permitted solid waste management facility

(3) 'Permit modification' means all of the following:

a. an application for any change to the plans approved in the existing permit for a solid waste management facility that does not constitute a 'permit amendment' or a 'new permit'."

b. a second or subsequent permit to operate for a constructed portion of a phase included in the permit to construct.

SECTION 16. Waste disposal surcharge.

[Note: DWM proposed to recodify an existing definition of "parent" and then insert the new definition of "orphan landfill" where the definition of "parent" now appears to keep the terms being defined in alphabetical order. I don't know whether that works or not as a matter of legislative drafting.]

G.S. 130A-290(a)(21a) is recodified as G.S. 130A-290(a)(21b).

SECTION 17.

G.S. 130A-290(a)(21a) is amended to read:

"(21a) Orphan landfill' means any area, whether publicly or privately owned, that was operated as a landfill for the disposal of municipal solid waste generated by the local citizenry and general public, that ceased to receive any waste after December 31, 1982, and for which assessment and remediation is needed in order to protect public health and the environment, but does not include any landfill used primarily for waste disposal from industrial sources."

SECTION 18.

Part 2A of Article 9 of Chapter 130A of the General Statutes is amended by adding a new section to read:

"§ 130A-309.08A. Solid waste disposal fee; use of proceeds.

(a) Fee Imposed. – A fee of two dollars ($2.00) per ton of waste is imposed on the disposal of municipal solid waste or construction or demolition debris in any landfill permitted pursuant to this Part. A fee of two dollars ($2.00) per ton of waste is imposed on the transfer of solid waste to a transfer station permitted pursuant to this Part for disposal outside the State.

(b) Determination and Payment of Fee. – The owner or operator of each landfill and transfer station permitted pursuant to this Part shall maintain scales, designed to determine waste tonnage, that are approved by the Department of Agriculture and Consumer Services. Each owner or operator shall record waste tonnage at the time the waste is received and calculate and record the fees due under this section for each

quarter of the calendar year on forms approved by the Department. Each owner or operator shall provide the completed forms, report the total number of tons of waste received and pay the fees due for each quarter of the calendar year to the Department no later than the 15th day of the following calendar month. The Department shall credit all fees received pursuant to this section to the Inactive Hazardous Sites Cleanup Fund established by G.S. 130A-310.11.

(c) Use of Proceeds. – The Department shall use the proceeds of the fees imposed by this section for the following purposes:

(1) Assessment and remediation of orphan landfills.

(2) Assessment and remediation of inactive hazardous substance or waste disposal sites for which a private party is or may be responsible if the private party cannot be identified or located or if the private party is unable or refuses to assume responsibility for the assessment or remediation.

(3) Up to fifteen percent (15%) of the proceeds may be used to fund staff to administer contracts for the assessment and remediation of orphan landfills and of inactive hazardous substance or waste disposal sites pursuant to subdivisions (1) and (2) of this subsection.

(4) Up to ten percent (10%) of the proceeds may be used for grants to units of local government to support redevelopment of brownfields.

(5) Up to ten percent (10%) of the proceeds may be used by the Department to provide the State's share of the cost of assessment and remediation of sites in the State that are listed on the federal National Priorities List sites."

SECTION 19.

G.S. 130A-310.6 is amended by adding a new subsection to read:

"(c) The Secretary is authorized to develop and implement a remedial action plan for orphan landfills. Environmental and human health risks posed by an orphan landfill may be mitigated using a risk-based approach for assessment and remediation. The Secretary shall not seek cost recovery for work performed under this subsection at orphan landfills from any otherwise potentially responsible party provided that that party cooperates with assessment of the site and implementation of control and mitigation measures at the site, including but not limited to granting access to the site, allowing installation of monitoring wells, allowing installation and maintenance of improvements to the landfill cap, allowing installation of security measures, agreeing to record and implement land use restrictions, and providing access to any records regarding the orphan landfill."

SECTION 20

G.S. 130A-310.11 reads as rewritten:

"§ 130A-310.11. Inactive Hazardous Sites Cleanup Fund created.

(a) There is established under the control and direction of the Department the Inactive Hazardous Sites Cleanup Fund. This fund shall be a revolving fund consisting of any monies appropriated for such purpose by the General Assembly or available to it from grants, taxes, fees and other monies paid to it or recovered by or on behalf of the Department. The Inactive Hazardous Sites Cleanup Fund shall be treated as a nonreverting special trust fund and shall be credited with interest by the State Treasurer pursuant to G.S. 147-69.2 and G.S. 147-69.3.

(b) Funds credited to the Inactive Hazardous Sites Cleanup Fund pursuant to G.S. 130A-309.8A shall be used only as provided in G.S. 130A-309.08A(c)."

SECTION 21. The Health Services Commission may adopt rules to implement this act.

SECTION 22. Section X of this act becomes effective TO BE DETERMINED

LANDFILL FRANCHISE OPTIONS

A. Eliminate the local franchise for landfills that are not local or regional in nature, which would bring the franchise decision back in line with the normal use of franchise authority and then rely on the State permit review, with an increased emphasis on site selection criteria, to address siting issues for those landfill. This is the approach taken in the first draft. The local governments would still review the landfill application for consistency with local ordinances and consistency with local ordinances would be a factor in the permit decision. Basically, the local government's role would be the same as in any other major environmental permitting process. The local government could influence the siting of a landfill within its jurisdiction, but through the use of its planning, zoning and other regulatory authority. Removing the franchise authority for large landfills will not necessarily eliminate the possibility that a waste management company would negotiate host fees with the local government.

B. Retain the local franchise requirement for all landfills, but also require a State franchise for facilities over a certain size. One difficulty here is figuring out what the criteria would be for issuing a State franchise as distinct from the criteria used to make the permit decision. Another question will be whether a State franchise should be issued by the same agency that issues the permit. We have looked at criteria such as consistency with the State's Solid Waste Management Plan, but the Plan only sets very general goals with respect to waste reduction, recycling, research of new waste management technology, etc. Since a "franchise" is normally intended to authorize a company to provide a specific service within a specific service area, the concept of a State franchise for landfills suggests that the State would be moving toward something analogous to a certificate of need. (That would certainly make for another interesting test case for the Supreme Court.)

C. Retain the local franchise requirement for all landfills, but move the franchise decision to a point later in the permit process -- maybe after the site suitability determination -- to avoid the current situation where local approval of a franchise suggests that the siting decision has already been made. As the bill is currently drafted, that would require the waste management company to prepare an EIS and get through the site suitability review by Division of Waste Management without knowing whether the local government will issue a franchise or not.

D. Retain the local franchise requirement in its current form, but prohibit payments from a waste management company to a local government in excess of any actual costs that will be incurred by the local government as a result of siting the facility within its jurisdiction (and normal taxes, fees, etc.) The money that flows from the waste industry to local government has become a major factor in local government decisions to issue a franchise and also creates political pressure to approve the site for reasons that have nothing to do with the appropriateness of the location. Eliminating the franchise authority (as in A) may or may not end the payment of host fees entirely, although it may remove one major incentive for those payments.

AMENDED FRANCHISE LANGUAGE: OPTION A

G.S. 130a-294(b1)(2) is amended as follows:

(2) A person who intends to apply for a new permit, the renewal of a permit, or a substantial amendment to a permit for a sanitary landfill with a proposed service area of less than 100 miles in radius shall obtain, prior to applying for a permit, a franchise for the operation of the sanitary landfill from each local government having jurisdiction over any part of the land on which the sanitary landfill and its appurtenances are located or to be located. Sanitary landfills that have a proposed service area equal to or greater than 100 miles in radius do not require a local government franchise or local government approval required by the Commission, but are subject to review for consistency with local government ordinances under subsection (4) of this Section. A local government may adopt a franchise ordinance under G.S. 153A-136 or G.S. 160A-319. A franchise granted for a sanitary landfill shall include all of the following:

a. A statement of the population to be served, including a description of the geographic area.

b. A description of the volume and characteristics of the waste stream.

c. A projection of the useful life of the sanitary landfill.

d. An explanation of how the franchise will be consistent with the jurisdiction's solid waste management plan required under G.S. 130A-309.09A, including provisions for waste reduction, reuse, and recycling.

e. The procedures to be followed for governmental oversight and regulation of the fees and rates to be charged by facilities subject to the franchise for waste generated in the jurisdiction of the franchising entity.

f. A facility plan for the sanitary landfill that shall include the exact boundaries of the proposed facility, proposed development of the facility site in five-year operational phases, the boundaries of all waste disposal units, final elevations and capacity of all waste disposal units, the amount of waste to be received per day in tons, the total waste disposal capacity of the sanitary landfill in tons, a description of environmental controls, and a description of any other waste management activities to be conducted at the facility. In addition, the facility plan shall show the location of soil borrow areas, leachate facilities, and all other facilities and infrastructure, including ingress and egress to the facility.

(2a) A local government may elect to award a preliminary franchise. If a local government elects to award a preliminary franchise, the preliminary franchise shall contain, at a minimum, all of the information described in sub-subdivisions a. through e. of subdivision (2) of this subsection plus a general description of the proposed sanitary landfill, including the approximate number of acres required for the proposed sanitary landfill and its appurtenances and a description of any other solid waste management activities that are to be conducted at the site.

(3) Prior to the award of a franchise for the construction or operation of a sanitary landfill, the board of commissioners of the county or counties in which the

sanitary landfill is proposed to be located or is located or, if the sanitary landfill is proposed to be located or is located in a city, the governing board of the city shall conduct a public hearing. The board of commissioners of the county or counties in which the sanitary landfill is proposed to be located or is located or, if the sanitary landfill is proposed to be located or is located in a city, the governing board of the city shall provide at least 30 days' notice to the public of the public hearing. The notice shall include a summary of all the information required to be included in the franchise, and shall specify the procedure to be followed at the public hearing. The applicant for the franchise shall provide a copy of the application for the franchise that includes all of the information required to be included in the franchise, to the public library closest to the proposed sanitary landfill site to be made available for inspection and copying by the public.

(4) An applicant for a new permit, the renewal of a permit, or a substantial amendment to a permit for a sanitary landfill shall request each local government having jurisdiction over any part of the land on which the sanitary landfill and its appurtenances are located or to be located to issue a determination as to whether the local government has in effect a franchise, zoning, subdivision, or land-use planning ordinance applicable to the sanitary landfill and whether the proposed sanitary landfill, or the existing sanitary landfill as it would be operated under the renewed or substantially amended permit, would be consistent with the applicable ordinances. The applicant for a permit for a landfill that will be exempted from the local franchise requirement under subpart (2) of this section shall also request the local government to:

(a) review the application for consistency with the local government's solid waste management plan, including goals for development and implementation of recycling or waste reduction programs; and

(b) comment on the adequacy of emergency and other public services to serve the facility.

The request to the local government shall be accompanied by a copy of the permit application and shall be delivered to the clerk of the local government personally or by certified mail. In order to serve as a basis for a determination that an application for a new permit, the renewal of a permit, or a substantial amendment to a permit for a sanitary landfill is consistent with a zoning, subdivision, or land-use planning ordinance, an ordinance or zoning classification applicable to the real property designated in the permit application shall have been in effect not less than 90 days prior to the date the request for a determination of consistency is delivered to the clerk of the local government. The determination shall be verified or supported by affidavit signed by the chief administrative officer, the chief administrative officer's designee, clerk, or other official designated by the local government to make the determination and, if the local government states that the sanitary landfill as it would be operated under the new, renewed, or substantially amended permit is inconsistent with a franchise, zoning, subdivision, or land-use planning ordinance, shall include a copy of the ordinance and the specific reasons for the determination of inconsistency. A copy of the determination, the review for consistency with the local government's solid waste management plan and comments on the adequacy of local services shall be provided to the applicant when the

determination is submitted to the Department. The Department shall not act upon an application for a permit under this section until it has received a determination from each local government requested to make a determination by the applicant; provided that if a local government fails to submit a determination to the Department as provided by this subsection within 15 days after receipt of the request, the Department shall proceed to consider the permit application without regard to a franchise, local zoning, subdivision, and land-use planning ordinances. Unless the local government makes a subsequent determination of consistency with all ordinances cited in the determination or the sanitary landfill as it would be operated under the new, renewed, or substantially amended permit is determined by a court of competent jurisdiction to be consistent with the cited ordinances, the Department shall attach as a condition of the permit a requirement that the applicant, prior to construction or operation of the sanitary landfill under the permit, comply with all lawfully adopted local ordinances cited in the determination that apply to the sanitary landfill. This subsection shall not be construed to affect the validity of any lawfully adopted franchise, local zoning, subdivision, or land-use planning ordinance or to affect the responsibility of any person to comply with any lawfully adopted franchise, local zoning, subdivision, or land-use planning ordinance. This subsection shall not be construed to limit any opportunity a local government may have to comment on a permit application under any other law or rule. This subsection shall not apply to any facility with respect to which local ordinances are subject to review under either G.S. 104E-6.2 or G.S. 130A-293.

February 19, 2007
DENR

SUMMARY OF LANDFILL RECOMMENDATIONS

1. Specify how a landfill applicant must demonstrate financial qualifications to construct and operate the landfill.

The applicant should provide cost estimates for: performing environmental studies; acquiring the site; designing the landfill; constructing and operating the landfill; and financial assurance required for corrective action and closure of the landfill. To show financial qualification, the applicant should submit an audited, certified, financial statement and identify sufficient assets to cover the estimated costs. Where assets of a parent, subsidiary, affiliate or joint venturer are offered in support of the financial qualifications of the applicant, then that party must be listed as an owner/operator on the facility permit.

2. Expand financial assurance requirements.

Require that the landfill operator provide financial assurance to cover possible corrective action (in the event of a leak from the landfill, for example). This would be in addition to the financial assurance currently required for the cost of closing the landfill and providing post-closure case. The minimum amount of financial assurance for corrective action should be $3 million. Financial assurance for corrective action should apply to both new and existing facilities. For new facilities, the financial assurance would be required before permit issuance.

3. Strengthen environmental compliance review of potential landfill operators.

Expand the scope of the existing environmental compliance review to include any past environmental violation (not just those related to solid waste) and a larger group of people associated with the permit applicant. For example, the environmental compliance review would be broadened to cover a person who holds a minority interest in the entity applying for a landfill permit (except for minority shareholders in publicly traded corporations who do have any involvement in management or control of the corporation.)

4. Broaden the definition of "owner or operator".

Include in the definition of "owner or operator" any person who has a financial or equitable interest in the entity that has applied for the landfill permit (except for minority shareholders in publicly traded corporations who do have any involvement in management or control of the corporation.)

5. Clarify solid waste enforcement provisions.

Amend the statute sections that authorize injunctive relief and civil penalties for solid waste violations to expressly allow the use of those enforcement remedies in response to a violation of a permit issued by the Department or an order issued by the Commission for Health Services. Increase the maximum civil penalty allowed for a solid waste or hazardous waste violation. Authorize the Department to recover the costs of investigating a violation.

6. Require notice to the Department of any significant change in the structure or assets of the business entity that holds a landfill permit.

The Department should be notified within 30 days of any significant change in the structure of the business entity that owns or operates the landfill facility; the identity of any person or business entity previously identified as an owner or operator of the facility pursuant to G.S. 130A-309.27(a)(1); or in the financial assets identified in the financial qualification of the owner or operator. A change is significant if it could effect the financial qualifications of the permit holder or result in a change in the identity of the owners or operators for purposes of either financial qualification or environmental compliance review. When the Department receives notice of a change, it can require a new environmental compliance or financial qualification review.

7. Set standards for safe transportation of solid waste by railway or barge.

Containers used to transport solid waste should be leak-tested and covered. Records of leak testing should be retained at the permitted solid waste facility for 3 years. It would be a violation to allow liquid to enter a container of solid waste or to allow solid waste, liquids or odors to escape from a container.

8. Require a traffic study for larger solid waste facilities.

Require that applications for solid waste management facilities proposed to handle more than 100,000 tons of waste per year include a study of the traffic impacts of the facility. The results of the study would be considered in the permit decision.

9. Authorize local landfill liaisons.

Authorize a local government with planning authority over a sanitary landfill that has a service area of greater than a 100-mile radius to designate a landfill liaison. The liaison would be a certified landfill manager, but would not direct the operation of the landfill. The landfill liaison would have authority to enter the landfill facility at reasonable times and inspect the landfill operation for purposes of: ensuring that the facility meets all local requirements; identifying and notifying the Department of potential violations; and identifying and notifying the Department of potentially hazardous conditions.

10. Require the permittee to employ an independent quality assurance engineer to oversee construction of the landfill.

The permittee should employ a licensed engineer who is independent of both the landfill owner and any person engaged in the design or construction of the landfill to inspect during construction. The project engineer would be responsible for certifying that construction of the solid waste management facility units, leachate handling facilities and landfill appurtenances conforms to the plan approved by the Department, the permit to construct, and the rules adopted by the Commission.

11. Establish minimum standards for new landfills and for landfill expansions onto previously unpermitted property.

Minimum standards for new landfills and for landfill expansion onto property that was not included within the scope of a previous permit would include:

a. double liners and a leachate collection system for municipal solid waste landfills;
b. composite liners for construction and demolition landfills;
c. a minimum separation of 5 feet between the bottom elevation of the waste (or the liner system, if the landfill has a liner) and seasonal high groundwater and bedrock;
d. a 200-foot buffer between the waste boundary and streams or wetlands (unless no feasible alternative location is available that would comply with the buffer requirement); and
e. a prohibition against siting landfill units in the 100-year floodplain or in area reclaimed from the floodplain.

12. Establish new standards for construction of lined sanitary landfill units permitted on or after the effective date of the bill

Specific standards for leachate collection systems and liners would include:

a. leachate collections systems should be designed to maintain a head of less than one foot during leachate recirculation.
b. the leachate collection system should be designed to return the head to one foot or less within 72 hours based on a 25 year-24 hour design storm falling on an empty cell.
c. geomembrane base liner systems must be tested for leaks and damage.
d. leachate collection lines should be designed and constructed to allow for remote camera inspection and cleaning. Lines should be cleaned and remotely inspected annually.
e. all pipes used to carry leachate should be constructed with dual containment outside of the lined disposal unit.
f. new units and lateral expansions should be constructed without pipe penetrations of the bottom liner, whether for leachate, stormwater or gas.

13. Direct the Commission for Health Services to review landfill rules and adopt new rules necessary to protect public health and the environment.

Rules adopted by the Commission should:

a. establish standards for the collection, control and utilization or destruction of landfill gasses at municipal solid waste landfills;
b. establish standards for the construction, operation, and maintenance of bioreactor landfills;
c. establish criteria for development of bird and wildlife management plans; and
d. incorporate measures necessary to minimize impacts to natural, historic and cultural resources, including but not limited to wetlands, critical fisheries habitat, parks, recreation areas, cultural and historic sites, and potential water supplies.

14 Require that all sanitary landfills have a waste screening plan to ensure that the facility is in compliance with waste bans.

15 Require an environmental study of very large landfills and landfills with an extended service area.

The existing exemption from the N.C. Environmental Policy Act for landfills owned and operated by local governments should be removed for facilities that receive more than 300,000 tons of waste per year; have a total disposal capacity of more than 15 million cubic yards of solid waste; or have a service area of more than 100 miles in radius. An environmental study should also be required for privately-constructed landfills that will exceed one of more of those thresholds. The environmental document would need to meet the standards for an environmental impact statement under the N.C. Environmental Policy Act and rules adopted by the Department of Administration to implement the act. The documents would also be subject to the same public notice and a public hearing would be required.

16. Change landfill franchise authority to differentiate between landfills that provide local service and those that have large regional or multi-state service areas.

The Department is still working on the specific recommendation to alter local government franchise authority.

17. Add a new statute section setting out the grounds for denial of a landfill permit.

The statute should authorize the Department to deny a landfill permit if it finds one of the following:

(a) Construction or operation of the landfill would violate water quality standards for groundwater or surface waters;

(b) The landfill would jeopardize a renewable resource of more than local concern, such as watersheds or aquifers that are sources of public water supply.
(c) Construction or operation of the landfill would damage fragile or historic areas or areas containing environmental or natural resources of more than local significance. Examples of these areas would include national or State parks or forests; wilderness areas; historic sites; recreation areas; segments of the natural and scenic rivers system; wildlife refuges, preserves and management areas; areas that provide habitat for threatened or endangered species; primary nursery areas and critical fisheries habitat designated by the Marine Fisheries Commission; and Outstanding Resource Waters designated by the Environmental Management Commission.
(d) Construction or operation of the facility would jeopardize public rights to access or use public trust waters.
(e) The facility will be located in a natural hazard area, such as an area subject to excessive seismic activity, that would increase the risk to public health or safety.
(f) The proposed facility would be inconsistent with statutory standards or rules adopted by the Commission for Health Services.
(g) The proposed facility would be inconsistent with ordinances adopted by the local government that has planning jurisdiction over the site of the proposed facility.
(h) There is a practicable alternative to be proposed landfill that would have less adverse impact on public resources.
(i) Construction of the landfill would contribute to cumulative effects that would damage a natural, historic, or cultural resource protected under the statute.

18. Establish permit fees for solid waste facilities. A copy of the proposed fee schedule is attached. Fee revenue would be used to support the solid waste regulatory program.

19. Establish a state-wide surcharge on disposal of solid waste at $2 per ton. The surcharge would apply to municipal solid waste and to construction and demolition waste that is either disposed of at a permitted solid waste facility or moves through a permitted transfer station en route to a disposal facility outside the State. The surcharge would be used to pay for cleanup of orphan landfills and other orphan inactive hazardous waste sites; provide state matching funds for remediation, monitoring and maintenance of Superfund sites in North Carolina; provide funds to local government for redevelopment of contaminated sites; and provide funds for administration of contracts to cleanup orphan landfills and inactive hazardous waste sites.

2007

ENVIRONMENTAL REVIEW COMMISSION

JUNE 11, 2007

MINUTES

Committee: **ENVIRONMENTAL REVIEW COMMISSION – ATTENDANCE**

2005-2007

DATES	11/22/05	12/20/05	1/24/06	2/14/06	3/08/06	3/14/06	3/15/06	4/11/06	5/3/06	5/15/06	10/9/06	11/15/06	12/13/06	1/17/07	1/23/07	3/13/07	4/3/07	6/14/07	6/14/07
MEMBERS																		3	5
Sen. Charlie Albertson, Co-Chair	A	√	√	√	√	√	√	√	A	√	√	√	√	√	√	√	√	√	√
Sen. Dan Clodfelter, Co-Chair	√	√	A	√	A	A	A	√	√	A	A	√	√	A	A	√	A	A	√
Sen. Stan Bingham (apptd. 3/17/06)	-	-	-	-	-	-	-	√	√	√	√	√	√	√	√	A	√	A	A
Sen. Katie Dorsett	√	√	A	√	A	√	√	√	√	√	√	√	A	√	√	A	A	√	A
Sen. Jim Forrester	√	A	√	√	√	√	A	√	A	A	A	√	A	A	A	A	A	√	A
Sen. Ham Horton (died 1/31/06)	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sen. Eleanor G. Kinnaird	√	√	√	A	√	A	A	√	√	√	A	√	√	√	√	√	√	√	A
Sen. A. B. Swindell	√	√	√	√	A	A	A	√	A	√	A	A	A	√	√	A	√	√	A
Sen. David Weinstein	√	√	√	√	√	A	A	√	√	A	√	√	√	A	A	√	√	√	A
Rep. Pryor Gibson, Co-Chair	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	A	√	√
Rep. Lucy Allen (apptd. 5/07)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	√	√
[redacted]. Joe Hackney	√	√	√	√	A	√	√	√	√	√	A	√	√	√	A	A	A	A	A
Rep. Jim Harrell	√	√	√	√	√	A	A	√	√	A	A	√	√	√	√	A	A	A	A
Rep. Pricey Harrison	√	√	√	√	√	√	A	√	√	√	√	√	√	√	√	√	√	√	A
Rep. Howard Hunter (died 1/6/07)	A	A	A	A	√	A	A	√	√	A	A	A	A	-	-	-	-	-	-
Rep. Carolyn H. Justice	A	A	√	√	√	A	A	√	A	√	√	√	√	√	√	√	√	A	A
Rep. Daniel McComas	A	√	A	√	√	A	A	√	√	A	√	√	A	A	√	√	A	A	A
Rep. Edith Warren	√	√	√	√	A	√	√	A	A	√	A	√	√	√	√	√	√	√	√
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Mary Watson, Acting Comm. Clerk	-	-	√	-	-	-	-	-	-	-	√	-	-	-	-	√	√	-	-

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North Carolina General Statutes
ARTICLE 12D.

Environmental Review Commission.

§ 120-70.41. Commission established.

The Environmental Review Commission is hereby established.

§ 120-70.42. Membership; cochairs; vacancies; quorum.

(a) The Environmental Review Commission shall consist of six Senators appointed by the President Pro Tempore of the Senate, six Representatives appointed by the Speaker of the House of Representatives, who shall serve at the pleasure of their appointing officer, the Chair or a Cochair of the Senate Committee on Agriculture, Environment, and Natural Resources or the equivalent committee, the Chair or a Cochair of the House of Representatives Committee on Environment and Natural Resources or the equivalent committee, the Chair or a Cochair of the Senate Committee on Appropriations – Natural and Economic Resources or the equivalent committee, and the Chair or a Cochair of the House of Representatives Committee on Appropriations – Natural and Economic Resources or the equivalent committee.

(b) The President Pro Tempore of the Senate shall designate one Senator to serve as cochair and the Speaker of the House of Representatives shall designate one Representative to serve as cochair.

(c) Except as otherwise provided in this subsection, a member of the Commission shall continue to serve for so long as the member remains a member of the General Assembly and no successor has been appointed. A member of the Commission who does not seek reelection or is not reelected to the General Assembly may complete a term of service on the Commission until the day on which a new General Assembly convenes. A member of the Commission who resigns or is removed from service in the General Assembly shall be deemed to have resigned or been removed from service on the Commission. Any vacancy that occurs on the Environmental Review Commission shall be filled in the same manner as the original appointment.

(d) A quorum of the Environmental Review Commission shall consist of nine members.

§ 120-70.43. Powers and duties.

(a) The Environmental Review Commission shall have the following powers and duties:

(1) To evaluate actions of all boards, commissions, departments, and other agencies of the State and local governments as such actions relate to the environment or protection of the environment, including but not limited to an evaluation of:

a. Benefits of each program relative to costs;

b. Achievement of program goals;

c. Use of measures by which the success or failure of a program can be measured; and

d. Conformity with legislative intent;

(2) To study on a continuing basis the organization of State government as it relates to the environment or to the protection of public health and the environment, including but not limited to:

a. Improvements in administrative structure, practices, and procedures;

b. Increased integration and coordination of programs and functions;

c. Increased efficiency in budgeting and use of resources;

d. Efficient administration of licensing, permitting, and grant programs;

e. Prompt, effective response to environmental emergencies;

f. Opportunities for effective citizen participation; and

g. Broadening of career opportunities for professional staff;

(3) To make any recommendations it deems appropriate regarding the reorganization and consolidation of environmental regulatory agencies and the recodification of statutes relating to the environment, including but not limited to:

a. Ways in which agencies may operate more efficiently and economically;

b. Ways in which agencies can provide better services to the State and to the people; and

c. Instances in which functions of agencies are duplicative, overlapping, incomplete in scope or coverage, fail to accomplish legislative objectives, or for any other reason should be redefined or redistributed;

(4) To review and evaluate changes in federal law and regulations, relevant court decisions, and changes in technology affecting the environment or protection of the environment;

(5) To review existing and proposed State law and rules affecting the environment or protection of the environment and to determine whether any modification of law or rules is in the public interest;

(6) To make reports and recommendations, including draft legislation, to the General Assembly from time to time as to any matter relating to the powers and duties set out in this section; and

(7) To undertake such additional studies as it deems appropriate or as may from time to time be requested by the President Pro Tempore of the Senate, the Speaker of the House of Representatives, either house of the General Assembly, the Legislative Research Commission, the Joint Legislative Commission on Governmental Operations, the Joint Legislative Utility Review Committee, or the Joint Select Committee on

Low-Level Radioactive Waste and to make such reports and recommendations to the General Assembly regarding such studies as it deems appropriate; provided that the Environmental Review Commission shall not undertake any study which the General Assembly has assigned to another legislative commission or committee.

(b) The Environmental Review Commission may continue the study of environmental agency consolidation and reorganization. The study of environmental agency consolidation shall include, but is not limited to:

(1) Monitoring the implementation of Session Laws 1989, c. 727;

(2) Evaluation of the organization, programs, and operation of the Department of Environment and Natural Resources;

(3) Evaluation of the organization, functions, powers, and duties of the components of the Department of Environment and Natural Resources, including boards, commissions, councils, and regional offices; and

(4) Recodification of the General Statutes relating to the environment and environmental agencies.

(c) In addition to its general powers and duties, the Environmental Review Commission shall have the following powers and duties with respect to hazardous waste management:

(1) To study the current and projected need for hazardous waste treatment, storage, and disposal capacity in the State in light of anticipated generation of hazardous waste and alternatives for hazardous waste treatment and disposal;

(2) To evaluate the potential for the development of additional hazardous waste treatment, storage, and disposal capacity by the private sector;

(3) To study the necessity for and scope of hazardous waste treatment, storage, and disposal facilities which are sited, owned, or operated by the State;

(4) To review progress in securing a volunteer county to host a hazardous waste treatment facility;

(5) To study incentives and compensation for the community which hosts, either voluntarily or involuntarily, a hazardous waste treatment facility, including any additional incentives and compensation which may be needed, whether there should be differential compensation for a volunteer county, options for use of funds by local governments, distribution of compensation among local governments, and methods of providing flexibility in the development of an incentives and compensation package for a particular local community;

(6) To review progress in developing interstate agreements for the treatment, storage, and disposal of hazardous waste;

(7) To assist in the development of cooperative, comprehensive regional approach to hazardous waste treatment and disposal;

(8),(9) Repealed by Session Laws 2001-474, s. 12.

(10) To study the capacity assurance requirement under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Pub. L. No. 96-510, 94 Stat. 2767, 42 U.S.C. 9601 et seq., as amended, and the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613, as amended as it relates to the continued eligibility of North Carolina for remedial actions under Superfund;

(11) To study alternatives available to the State for dealing with hazardous waste and the ramifications of those alternatives; and

(12) To receive and evaluate reports of every State agency, board, and commission which has any power or duty with respect to hazardous waste management.

§ 120-70.44. Additional powers.

The Environmental Review Commission, while in the discharge of official duties, may exercise all the powers provided for under the provisions of G.S. 120-19, and G.S. 120-19.1 through G.S. 120-19.4. The Environmental Review Commission may meet at any time upon the call of either cochairman, whether or not the General Assembly is in session. The Environmental Review Commission may meet in the Legislative Building or the Legislative Office Building upon the approval of the Legislative Services Commission.

Notwithstanding any rule or resolution to the contrary, proposed legislation to implement any recommendation of the Environmental Review Commission regarding any study the Environmental Review Commission is authorized to undertake or any report authorized or required to be made by or to the Environmental Review Commission may be introduced and considered during any session of the General Assembly.

§ 120-70.45. Compensation and expenses of members.

Members of the Environmental Review Commission shall receive subsistence and travel expenses at the rates set forth in G.S. 120-3.1.

§ 120-70.46. Staffing.

The Legislative Services Officer shall assign as staff to the Environmental Review Commission professional employees of the General Assembly, as approved by the Legislative Services Commission. Clerical staff shall be assigned to the Environmental Review Commission through the offices of the Supervisor of Clerks of the Senate and Supervisor of Clerks of the House of Representatives. The expenses of employment of clerical staff shall be borne by the Environmental Review Commission.

§ 120-70.47. Funding.

From funds available to the General Assembly, the Legislative Services Commission shall allocate monies to fund the work of the Environmental Review Commission.

MINUTES
ENVIRONMENTAL REVIEW COMMISSION
11 June 2007

The Environmental Review Commission (ERC) met on Monday 11 June 2007 at 3:00 p.m. in Room 544 of the Legislative Office Building. Representative Pryor Gibson and Senator Charlie Albertson presided.

The following members were present: Senators Albertson, Dorsett, Forrester, Kinnaird, Swindell and Weinstein; and Representatives Gibson, Allen, Harrison, and Warren. Mr. George Givens, Commission Counsel; Mr. Jeffrey Hudson, Assistant Commission Counsel; Ms. Jennifer McGinnis, Assistant Commission Counsel; Ms. Susan Iddings, Assistant Committee Counsel; Ms. Jennifer Mundt, Commission Analyst; Ms. Mariah Matheson, Research Assistant; and Ms. Dot Waugaman, Commission Clerk, were also present.

On 6 June 2007, notice was sent to members and interested parties via e-mail and regular mail. A copy of the notice is included in the attachments to these minutes as **Exhibit A**. Copies of the agenda for the meeting and visitor registration sheets are included in the attachments as **Exhibits B** and **C**.

Representative Gibson called the meeting to order. He asked Mr. George Givens to comment on the agenda items. Mr. Givens announced that two reports to be presented have been distributed to members via memorandum from Ms. Jennifer Mundt (see **Exhibit D**). The first is the NC Solid Waste Management Annual report from 1 July 2005 through 30 June 2006 (see **Exhibit D-1**); the second is the final report from RTI International entitled, "A Study of the Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients" (see **Exhibit D-2**). Mr. Givens added that other reports listed on the memorandum have been received but are being held for a future meeting.

Representative Gibson introduced Mr. Paul Crissman, Solid Waste Section Chief, Division of Waste Management, Department of Environment and Natural Resources (DENR), to speak on the annual report (see **Exhibit D-1**). Mr. Crissman showed a chart that demonstrates the increase in solid waste disposal over the last 16 years. Growth in per capita disposal is forecasted to go from 1.36 tons per year per person to 1.58 tons per year per person in 2026. He commented that while the amount of solid waste is increasing, Solid Waste Section staff has decreased by 20 percent.

Added to our increase in population, the growth in the amount of solid waste to deal with is astonishing. Solid waste in the state is very mobile. Most waste travels almost 90 miles to its final destination. Almost 40 percent of the state's solid waste currently goes through a transfer station. Regional landfills handle over half the state's waste. Every regional landfill is currently operated by a company that is different from the company that obtained the original permit. Capacity of a landfill has three criteria: how much cubic space, how much time, and how many cubic tons. Many landfills have unique permit conditions that allow only certain waste from certain areas.

In recent years, the Solid Waste Section has received applications for four new landfills that would be unique: (1) three were primarily for out-of-state waste; (2) the landfills were to be sited in unusual areas. If the three landfills were constructed (one proposal was withdrawn), North Carolina would switch from being an exporter of solid waste to being an importer. Urbanization is causing a problem in finding suitable locations to construct landfills.

There are 500-700 old landfills that were closed in the late 1970s and early 1980s and replaced by permitted sanitary landfills, but before the time of hazardous waste regulations. They were a huge improvement over the old town dumps, but not as protective of the environment as the landfills constructed under more recent legislation. Newer landfills have liners in order to be in compliance with the Resource Conservation and Recovery Act and North Carolina's Health Services Commission 1998 Rule. There have been no problems with base liners to date in North Carolina. In addition, since the

early 1990s, certain materials have been banned from landfills, and programs for other waste such as scrap tires and white goods were developed to keep them out of landfills as well. Goals regarding waste reduction and policies on waste management practices were also set. Mr. Crissman ended his presentation with a discussion of the 9 areas of legislation proposed for 2007.

Senator Forrester asked if any of the old "orphan" landfills are leaking. Mr. Crissman replied that orphan landfills have contamination associated with them, but not all have been inventoried and chronicled. In cases where landfills are not owned by the original permittee, there is a question of who is liable to clean up the contamination. Mr. Crissman replied that the liability issue is not clear.

In answer to a question by Senator Swindell, Mr. Crissman said there is a concern on the part of local governments that the stream of money for cleaning up orphan landfills will not be great enough in the early years to protect them against liability as many old landfill sites are currently being used for other purposes.

Representative Gibson asked Mr. Crissman for a map of North Carolina to superimpose the two maps showing solid waste flow in 1990-1991 and in 2005-2006. He also asked about how the assignment of liability occurs when ownership of landfills changes. Mr. Crissman replied that some are friendly exchanges, but some are court-ordered settlements with anti-trust arrangements. Representative Gibson then asked what is happening on dry tomb reclamation. Mr Crissman replied there is a research project at NC State University on that process, and there will probably be a report on it at a later time. He added that it is unlikely new ways will be found to cut down the cost of reclaiming orphan landfills. Representative Gibson asked if Mr. Crissman could describe the debate between the private sector solid waste administration and the issues affecting public sector solid waste administration. Mr. Crissman answered that the public sector is fearful of being put out of business. He went on to say the Section encourages the local government sector and would like to see more local government landfill facilities. North Carolina needs good landfills.

Mr. Givens said the three main areas of disagreement over the proposed solid waste legislation have to do with the franchise and state-wide review, technical standards, and the tipping fee. Since the current bills propose dramatic increases in technical standards, the cost of tipping will increase, whether or not a tipping tax is imposed. The Department proposed a $1 per ton tipping tax in 2006 and $2 a ton this year. The current Senate bill proposes a $2.50 tipping tax. Cities and counties are opposed to a tipping fee at this point, but have expressed a willingness to talk about what the tipping fee ought to be and what its uses would be. He went on to say that it is clear that one of the things that drives waste across state lines is relative cost of disposal. An attorney for one of the major proposed landfills made that point at the Environmental Law Section of the Bar seminar which focused on the issues. What is happening is that the total tipping fee (the cost of technical standards plus taxes) in other states is overcoming the transportation costs and making North Carolina a more attractive place to dispose of waste. The total tipping fee can be a disincentive for the migration of waste.

Representative Gibson recognized Mr. Scott Mouw, Community and Business Assistance Section Chief, Division of Pollution Prevention and Environmental Assistance, DENR, to speak about the status of recycling and recycling markets in North Carolina (see **Exhibit F**). Mr. Mouw showed pictures of commodities that were once considered waste that now can be recycled into new products. Companies that make products out of recycled products are anxious to receive their raw materials from recycling programs. He said that communities that modernize their recycling programs see excellent results in the form of increased recycling. He added that with the right programs, incentives and funding, over half of North Carolina's waste stream could be diverted from disposal into commodities.

Senator Albertson took over presiding in the absence of Representative Gibson. Senator Swindell asked what the General Assembly could do to help the glass companies who currently have to get cullet from across the country to make their recycled glass. Mr. Mouw replied that we need to make sure the ABC permit requirement for bars and restaurants to recycle bottles is successfully implemented next year. When communities have high participation rates and collect a lot of materials, recycling programs are very efficient.

Representative Harrison asked what new materials will be banned in landfills in the coming years. Mr. Mouw replied plastic bottles will be banned beginning in October 2009; wooden pallets from landfills generated from municipal solid waste landfills; and glass bottles from ABC permit holders. Although there has been a ban on aluminum cans since 1994, only about half the cans are recycled.

Senator Albertson asked how much is being recycled at present. Mr. Mouw said according to reports from local governments, about 1.3 million tons are being recycled by them. Anecdotal data indicates we are recycling 25-30 percent over all. He added that if there were a tax incentive for grocery stores to compost rather than to throw leftover food into a landfill there might be less going into the landfills.

Senator Albertson introduced Mr. Michael Gallaher, RTI International, to present results of "A Study of the Costs Associated with Providing Nutrient Controls that Are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients" (see **Exhibit G**). Mr. Dallas Wood presented information on the data collection and an overview of the cost developed. Mr. Gallaher then discussed the findings for each of six objectives:

- Objective 1: Evaluate the sustainability of the program at the current fee of $11 per pound of nitrogen
- Objective 2: Develop a proposed fee based on the cost-effectiveness analysis
- Objective 3: Develop a formula for calculating the offset payment fee
- Objective 4: Assess the advantages and disadvantages of expanding the nutrient offset payments to other nutrients and additional areas of the state
- Objective 5: Evaluate the ability of public (other than the EEP) and private entities to provide nutrient offsets
- Objective 6: Develop a comprehensive review of potential nutrient mitigation efforts available

In response to a question by Representative Harrison, Mr. Givens said that each house has passed a bill to extend the $11 cost per pound to mitigate discharges of nitrogen and other nutrients for another year. He added that either bill could pass as is or could be modified based on the findings of the report. The co-chairs will decide whether to handle the results of the report in a separate ERC meeting or through the session committees.

The meeting adjourned at 4:45 p.m.

Representative Pryor Gibson, Co-Chair, Presiding

Senator Charlie Albertson, Co-Chair, Presiding

Dot Waugaman, Commission Clerk

Senator Daniel Clodfelter, Co-Chair

LIST OF EXHIBITS

Exhibit A Notice of Meeting dated 28 March 2007

Exhibit B Agenda of Meeting

Exhibit C List of Attendees

Exhibit D Memorandum from Jennifer Mundt dated 11 June 2007, subject Reports to the Commission

Exhibit D-1 NC Solid Waste Management Annual Report, 1 July 2005 to 30 June 2006

Exhibit D-2 A Study of the Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients, dated June 2007

Exhibit E PowerPoint Presentation by Mr. Paul Crissman, "Solid Waste Management Annual Report," 11 June 2007

Exhibit F PowerPoint Presentation by Mr. Scott Mouw, "Status of Recycling and Recycling Markets in North Carolina," 11 June 2007

Exhibit G "A Study of the Costs Associated with Providing Nutrient Controls that Are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients," RTI International, June 2007

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

EXHIBIT A

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6 June 2007

TO: Members of the Environmental Review Commission
Interested Parties

FROM: George F. Givens, Commission Counsel
Dot Waugaman, Commission Clerk

RE: **Notice of Commission Meetings**
Additional Information

COMMISSION MEETINGS:

The Environmental Review Commission (ERC) will meet at 3:00 p.m. on Monday 11 June 2007 in Room 544 of the Legislative Office Building in Raleigh. The purpose of this meeting is to receive and review the following:

1. The Annual Report on Solid Waste Management (G.S. 130A-309.06(c)).

2. The Final Report on Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and other Nutrients (Nutrient Offset Payments) prepared by Research Triangle Institute, International pursuant to S.L. 2006-215, as amended by S.L. 2006-218 and Section 5.3 of S.L. 2006-255.

The Environmental Review Commission (ERC) and the Joint Legislative Transportation Oversight Committee will meet at 5:00 p.m. on Monday 11 June 2007 in Room 544 of the Legislative Office Building in Raleigh. The purpose of this meeting is to receive and review:

1. The Final Report and recommendations on the Merger of the Ecosystem Enhancement Program and the Clean Water Management Trust Fund prepared by Dye Management Group pursuant to Section 16 of Part XVI of S.L.2006-248.

No public staff meeting will be held in connection with this meeting.

ADDITIONAL INFORMATION:
If you have questions related to the Commission, you may contact the Commission Counsel or other Commission staff at (919) 733-2578.

EXHIBIT B

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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AGENDA
3:00 p.m. Monday 11 June 2007
Room 544 Legislative Office Building
Raleigh, North Carolina

1. Call to order
   Representative Pryor A. Gibson, Presiding

2. Introductory remarks by Cochairs
   Representative Pryor A. Gibson
   Senator Charles W. Albertson
   Senator Daniel G. Clodfelter

3. Report to the Commission and explanation of agenda items
   George F. Givens, Commission Counsel

4. Annual report on the status of solid waste management efforts (G.S. 130A-309.06(c))
   Paul S. Crissman, Solid Waste Section Chief
   Division of Waste Management, Department of Environment and Natural Resources (DENR)

   Scott B. Mouw, Community and Business Assistance Section Chief
   Division of Pollution Prevention and Environmental Assistance, DENR

5. Final Report by Research Triangle Institute (RTI) International on Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients (S.L. 2006-215, as amended by S.L. 2006-218 and Sec. 5.3 of S.L. 2006-255)
   Michael P. Gallaher, Director, Technology, Energy, and the Environment
   RTI International

   Dallas Wood, Research Economist
   RTI International

6. Commission discussion and announcements

7. Adjourn

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — June 14, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Ellen Larschede	DWM
ED MUSSLer	DWM
Mark Poindexter	DWM
Jon Holmes	Nicholas, Ernst/Dulce
Tommy Stevens	NCPC
Lisa Martin	NC Home Builders
Suzanne Harris	HBA of Raleigh-Wake Co.
Steve Rittenberg	Park Council
Amy Pickle	Southern Env Law Center
Wendy Kelly	H&W
Kathy Hawkins	Progress Energy

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — June 14, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Chris Anderson	
Scott Tarnay	Duke Energy
Kristin Beck	Progress Energy
Charles Case	Hunton & Williams
Mitch Peele	NC Farm Bureau
Doug Howey	NC PMA
DAVID BARNES	Poyner Spruill
Phil Carter	Waste Industries
Wayne Sullivan	MESCO
[illegible]	[illegible]
George A. Howard	Restoration Systems
Niketa Ashe	Legislative intern (Sen. Kinnaird)

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — June 14, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Kelly Williams	NCEEP/DENR
Marc Recktenwald	"
Leslie Kleczek	Nicholas Institute, Duke
Jason Robinson	DWQ/DENR
Rich Gannon	DENR-DWQ
Charlotte Jesneck	DENR DWM
Erin Kinney	NC Conservation Network
Fred Allen	NC Aggregates Assn
Bob Leker	State Energy Office
Mike Holland	CERES dr_mike@mindspring.com

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — June 14, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Jeryl K. Covington	City of Greensboro
Davis Mickey	BREDA
Roger Knight	Wyrick Robbins / Waste Industries USA
Thomas Moore	Tidwister & Welch
Thomas Dixon	Rep. Allen's intern
Cathy Akroyd	DWM / DENR
Linda Culpepper	NCDENR / DWM
Jeff Manning	NCDENR / DWQ
Bill Gilmore	NCEEP / DENR
Suzanne Klimek	"
Jim Stanfill	"

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — June 14, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Daniel Blum	Kennedy Covington
Scott Mouw	DENR - DPPEA
Tracy Kimbrell	Parker Poe.
Patrick Buffkin	Nelson Mullins
Nick Tosco	Sen. Dan Clodfelter
John Goodman	NC Chamber

EXHIBIT D

General Assembly of North Carolina
Environmental Review Commission
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11 June 2007

MEMORANDUM

To: Members of the Environmental Review Commission
From: Jennifer Mundt, Commission Analyst
Re: Reports to the Commission

The following report has been submitted by the Department of Environment and Natural Resources (DENR) to the Environmental Review Commission since the last reports distribution on 13 March 2007. This report is distributed in connection with today's ***Agenda Item # 4*** and is attached to this memorandum:

1. *North Carolina Solid Waste Management Annual Report July 1, 2005 through June 30, 2006.* 15 January 2007. Statutory Authority: G.S. 130A-309.06(c).

The following report has been submitted by Research Triangle Institute (RTI), International to the Environmental Review Commission since the last reports distribution on 13 March 2007. This report is distributed in connection with today's ***Agenda Item #5*** and is attached to this memorandum:

1. *Final Report on the Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients.* Authority: S.L. 2006-215, as amended by S.L. 2006-218 and Sec. 5.3 of S.L. 2006-255.

The following reports have been received since the last reports distribution on 13 March 2007 and are being held for distribution either as read-only or for presentation at a future meeting of the Commission. If you would like a copy of one of these reports in advance of the next meeting, please contact Jennifer Mundt at (919) 733-2578 or jennifermu@ncleg.net for assistance.

1. *Final Report on the Costs and Benefits of Reducing Emissions of Oxides of Nitrogen, Particulate Matter, and Greenhouse Gases from Motor Vehicles in this State.* 1 April 2007. Authority: S.L. 2006-248, Sec. 43.

2. *Annual Report on the Implementation of S.L. 2002-4 (Clean Smokestacks Act).* 1 June 2007. Authority: S.L. 2002-4, Sec. 14.

3. *Findings of the Community Conservation Assistance Program Review.* 31 March 2007. Authority: S.L. 2006-78.

4. *Semi-Annual Report on the Pilot Program for Inspection of Animal Waste Management Systems.* 15 April 2007. Authority: S.L. 2003-340, Sec. 6.2.

5. *Annual Report and Recommendations on the One-Stop Permit Assistance Program.* 1 October 2006. Statutory Authority: G.S. 143B-279.12.

6. *Annual Report on Litter Enforcement, Prevention, and Removal Efforts.* 1 March 2007. S.L. 2006-79, Sec. 15.

Please contact George Givens, Jeff Hudson, Jennifer McGinnis, Jennifer Mundt, or Mariah Matheson at (919) 733-2578 if you have any questions or comments.

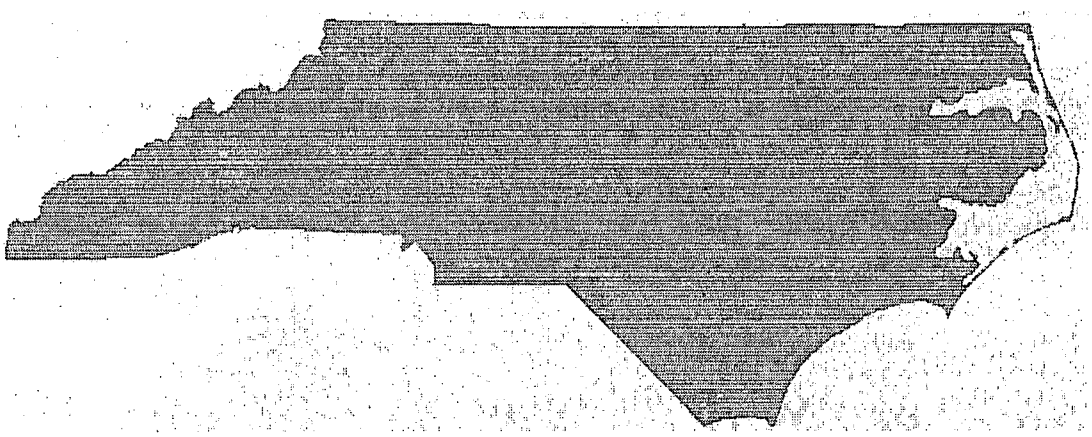
EXHIBIT D-1

North Carolina

Solid Waste Management

Annual Report

July 1, 2005 – June 30, 2006



State of North Carolina
Michael F. Easley, Governor

Department of Environment and Natural Resources
William G. Ross Jr., Secretary

Division of Waste Management
Dexter Matthews, Director

Solid Waste Section
Paul Crissman, Chief

Division of Pollution Prevention and Environmental Assistance
Gary Hunt, Director

Community and Business Section
Scott Mouw, Chief

Reduce-Reuse-Recycle

ACKNOWLEDGMENTS

Special thanks to the following staff for providing data and information for this 15th annual report:

- Ellen Lorscheider, *Planning and Programs, Branch Head*
- Pam Moore, *Tire Program*
- Bill Patrakis, *Medical Waste and White Goods Program*
- Rebecca Sluder, *Facility Data and Planning*
- Ethan Brown, *Facility Data and Planning*
- Garrett Davis, UNC-Institute of Government

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- Rachel Eckert, *Recycling and Environmental Purchasing Coordinator*
- Jim Hickman, *Local Government Assistance Team Leader*

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- Robert Matney, *Standards Engineer*

North Carolina Department of Administration
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- John Sharp, *Waste Management Analyst*

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The Solid Waste Section would also like to thank the county managers, solid waste directors, and recycling coordinators who provided much of this information and the Waste Management Specialists who gathered the information used in this report.

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CHAPTER 1 – Solid Waste Management

Executive Summary

The state per capita disposal rate is 1.36 tons per person per year, a 5 percent increase beyond last fiscal year and an increase of 27 percent from the FY 91-92 base year. North Carolina communities disposed of 11,765,183 tons of waste in North Carolina and out-of-state facilities. This represents an increase of 705,021 tons over the previous fiscal year. North Carolina-permitted solid waste management landfills received a total of 10,668,856 tons of solid waste during FY 2005-2006. Approximately 137,000 tons originated from other states, an increase of over 18,000 tons from FY 2004-2005. South Carolina and Virginia were the sources for all imported waste. North Carolina continues to export more waste than it imports. Over 1,234,000 tons of waste were exported in FY 2005-2006 compared to 137,980 tons imported into the state. During the 2005-2006 Fiscal Year, an increase of 72,381 tons of additional waste were exported from North Carolina to Georgia, South Carolina, Virginia, and Tennessee. There are four proposed landfills to be located in Eastern North Carolina that plan to import waste from out of state. The forecast for waste disposal requirements 10 years into the future indicates a need for disposal capacity to handle approximately 14 million tons of waste annually. Disposal rates of construction and demolition waste over the last five years are increasing at rates which are three times the disposal rates of municipal solid waste.

Waste Disposal

Current Year

North Carolina communities disposed of 11,765,183 tons of municipal and construction and demolition waste in North Carolina and out-of-state facilities.

Per Capita Rates (all waste)

The state measures changes in waste disposal rates by comparing the current year's per capita waste disposal rate to Fiscal Year 91-92 year's base per capita rate. (**Formula: Total Tons Disposed ÷ Population = Per Capita Disposal Rate**). Negative numbers indicate a decrease in the per capita disposal rate; positive numbers an increase. Waste reduction is a change from the base year, not a change from year to year. As seen in the following table, North Carolina continues to increase the absolute amount of waste disposed.

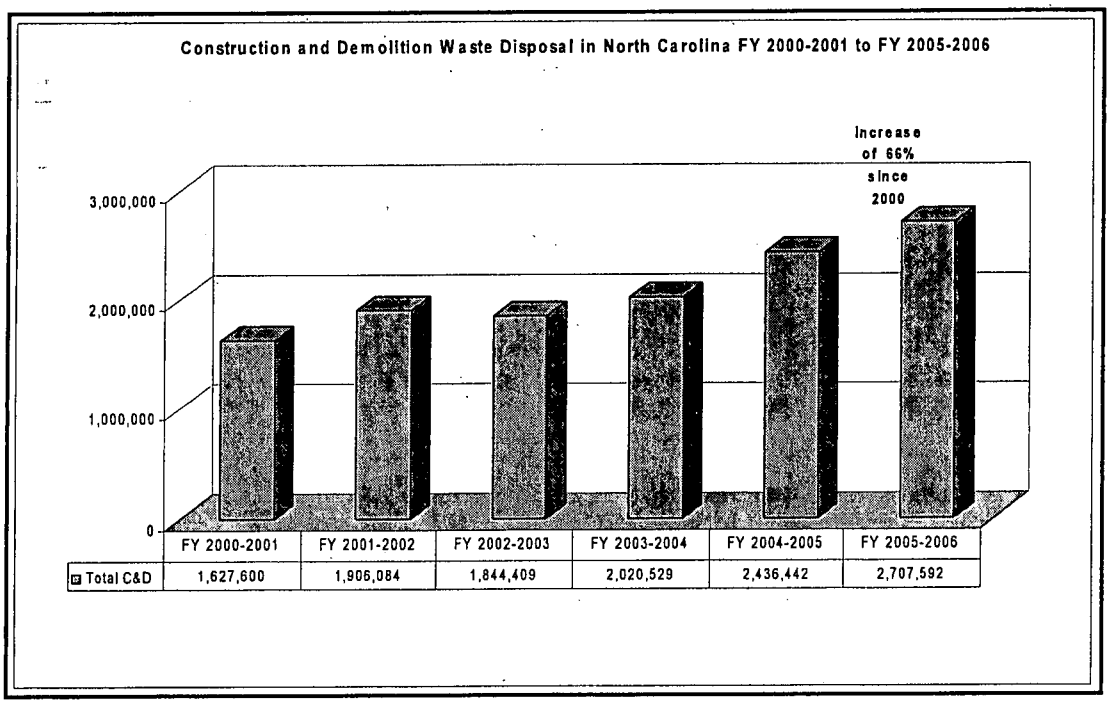
Fiscal Years	Tons Disposed	Population	Per Capita Disposal Rate	Percent Waste Change from Base Year 1991-1992
2005-2006	**11,765,183**	**8,682,066**	**1.36**	**27%**
2004-2005	11,029,485	8,541,263	1.29	21 %
2003-2004	10,713,444	8,418,090	1.27	19 %
2002-2003	10,236,960	8,323,375	1.23	15 %
2001-2002	9,999,284	8,188,008	1.22	14 %
2000-2001	9,752,510	8,049,313	1.21	13 %
1999-2000	10,267,137	7,938,062	1.29	21 %
1998-1999	9,214,323	7,797,501	1.18	10 %
1997-1998	8,607,578	7,645,512	1.13	5 %
1996-1997	8,741,727	7,490,812	1.17	9 %
1995-1996	7,722,795	7,336,228	1.05	-2 %
1994-1995	7,624,144	7,180,525	1.06	-1 %
1993-1994	7,038,505	7,036,927	1.00	-7 %
1992-1993	6,890,818	6,892,673	1.00	-7 %
1991-1992	(managed) 7,257,428	6,781,321	(Base Year Rate) 1.07	
1990-1991	7,161,455	6,632,448	1.08	

Statewide solid waste disposal reporting began in FY 90-91. The state made slight reductions in per capita waste rates in the early 1990s. Several factors caused these reductions. In 1990, weighing of all waste at municipal solid waste landfills was initiated by legislative statute. Facilities started charging a disposal fee for each ton of waste disposed. The disposal fee, commonly called a tipping fee, lessened waste disposal for a period of time and created an incentive to explore alternatives to landfill disposal. Strong public and private interest helped local governments start recycling and waste reduction programs in response to state mandates and a perceived disposal crisis. In 1991, tipping fees charged by landfills averaged $18 per ton. At the time, this additional cost was considered to be economically prohibitive for landfill use as a means of disposal. This year, the average cost in North Carolina is $35 per ton. Despite the increase in price, tipping fees in North Carolina remain some of the lowest in the United States.

Waste disposal is a free-market industry involving competition, which helps to keep disposal costs for consumers low. From 1991 to 2006, the face of waste disposal drastically changed as more stringent state regulations required construction of more costly state-of-the-art lined landfills. Many local governments got out of the "business" of waste disposal. Ownership of landfills has moved primarily toward the private sector. The number of active municipal solid waste landfills managed by local governments has decreased from 105 in 1991 to 32 in June 2006. In the same 15-year time period, private landfills increased from 5 to the current number of 8 privately owned landfills. Of the 11 largest municipal solid waste landfills only 3 - Wake County, Hanes Mill Road (city of Winston-Salem) and New Hanover County - are owned by local governments.

Construction and Demolition Waste

As development continues, roads, new buildings and homes are constructed, and the demolition of old buildings and factories takes place, North Carolina will see a continual increase in construction and demolition waste disposal. The occurrence of a natural disaster such as a hurricane or flood could augment the growth of construction and demolition disposal even further. North Carolina's construction and demolition landfills have seen a significant increase in disposal over the past five years. The previous FY 2005-2006 disposal of construction and demolition waste in North Carolina landfills totaled 2,707,592 tons. This number represents a 66 percent increase above the Fiscal Year 2000-2001 amount of 1,627,600. Increases last year were in part due to demolition of the old Pillowtex Plant in Cabarrus county and large amounts of construction and demolition activities at the Fort Bragg Army base in Cumberland County. Municipal solid waste disposal in North Carolina saw an increase of only 18 percent over the same period.



Imports and Exports

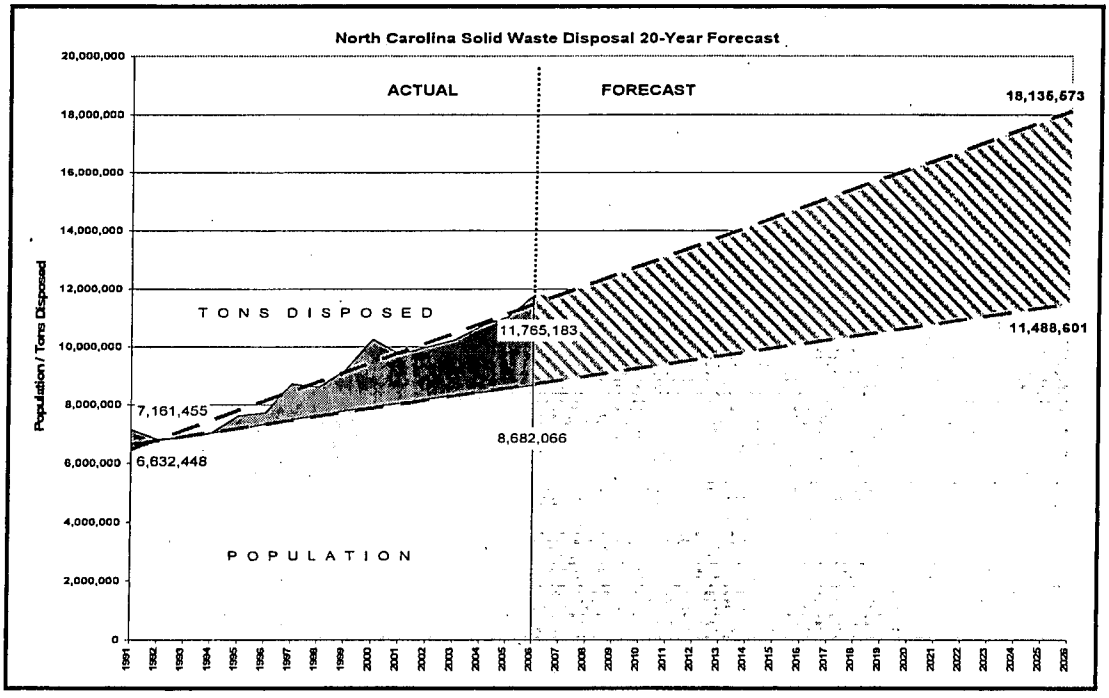
North Carolina continues to export more waste than it imports. Exported waste accounts for approximately 10 percent or a total of 1,234,307 tons of the total waste disposed in the past fiscal year 2005-2006.

In Fiscal Year 95-96, North Carolina exported waste to only one South Carolina landfill. During Fiscal Year 2005-2006, 47 North Carolina counties exported at least some waste to 12 out-of-state landfills and two transfer stations. Back and forth movement - where waste leaves the state only to re-enter for disposal - has continued for the fourth consecutive year. The Fort Mill Transfer Station in South Carolina received approximately 105,200 tons of waste from Mecklenburg County, which was then sent back into North Carolina for disposal. For this reason, the amount has not been included in the report's import or export totals.

Imports continue to increase, since some North Carolina landfills are located near state borders. In FY 95-96, only one landfill, located in Forsyth County, received imported waste. Currently, nine North Carolina landfills receive imported waste. The state has recently received several permit applications for sites that would primarily receive out-of-state waste.

Projections

Regression analysis helps forecast future waste disposal. Factoring in absolute population growth, North Carolina will dispose of approximately 14.5 million tons in 10 years and 16 million tons in 15 years. The 20-year forecast projects 18,135,573 tons of waste disposed for a population of 11,488,601. This means 1.58 tons of waste for every citizen in North Carolina. The obvious implication of this trend is that demand for landfill space will increase with time as populations grow, less waste is diverted and imports become a larger portion of waste disposed in North Carolina landfills.



State Waste Reduction Goal

The 1991 amendment to the Solid Waste Management Act of 1989 (Senate Bill 111), established a statewide goal to reduce the amount of landfilled material 40 percent by 2001. Disposal is measured on a per capita basis. Since FY 91-92, *waste disposal increased 27 percent - from 1.07 to 1.36 tons per person per year.* The statewide goal is unmet and the state per capita rate continues to increase, although several counties achieved the state's waste reduction goal.

Three fundamental, interrelated reasons that contributed to this failure are changes in the dynamics of waste disposal, a lack of commitment to waste diversion and economics. Waste management dynamics changed dramatically after the statewide reduction goal was established. Alternative technologies, such as incineration and mixed waste composting, did not develop as anticipated. Despite a great deal of interest and significant investment in these technologies, they did not decrease landfill disposal as expected. Additionally, the U.S. Supreme Court overturned legislation on flow control and prohibited local governments from directing waste to certain disposal facilities. Legally, waste is a commodity, and is allowed free movement. The economics of landfill disposal evolved since the 1989 adoption of the goal. As private landfill owners competed for tonnages, tipping fees remained low. Landfills did not become as expensive to operate as initially projected. Landfill customers readily adapted to higher tip fees and did not pursue waste reduction as a way to control costs. The combination of strong state and national economies of the early 1990s, moderate disposal costs and local communities establishing their own goals reduced the motivation to divert materials from landfills.

The commitment to reduce waste has waned over the years. Local governments perceive the 40 percent goal as "just a goal" and not a mandate. Funding and resources for waste reduction activities never occurred at the levels required or anticipated for waste reduction success. Despite landfill bans for used oil, yard trash, white goods, antifreeze, aluminum cans, lead-acid batteries, whole scrap tires and oyster shells (oyster shells are only banned from landfills for a 90 day period to promote recycling and alternative uses before disposal) waste disposal continues to increase. Additional landfill bans on alcoholic beverage containers from restaurants, motor vehicle oil filters, recyclable rigid containers and wooden pallets take effect in 2008 and 2009 and may make an impact on disposal.

Landfill Capacity

Current Status

North Carolina currently has 40 operational municipal solid waste landfills and one municipal solid waste incinerator. The total remaining capacity of all North Carolina MSW landfills measures approximately 261 million cubic yards with room for approximately 157 million tons of MSW waste. The estimate was obtained using the state's average utilization factor of .60 tons of waste per cubic yard of air space and does not include waste exported to out-of-state landfills. If North Carolina's rate of landfill use remains steady at last year's rate of approximately 7,910,640/tons annually, the state would have 19.8 years of landfill capacity remaining.

Imports and Proposed Facilities

Imports continue to increase. This increase negatively affects the state's future capacity. New facilities designed to import waste will make a negligible impact on increasing the state's capacity for disposal of North Carolina waste.

Projections

The concept of statewide capacity does not translate into statewide access. Regions of the state have limited capacity. Both eliminating out-of-state capacity and continuing the acceptance of out-of-state waste into North Carolina shrinks this capacity number further. At present, statewide capacity does not appear to be a problem. However, regions may experience disruptions and additional costs as facilities close, open, change jurisdictions or alter the average distance waste is transferred.

Much of the state's capacity is not widely available due to permit conditions, franchise arrangements, service areas and distance. The primary limiting factor regarding access to capacity in North Carolina is distance. The maximum distance that large quantities of waste travels is less than 100 miles one-way. Minor exceptions exist, but an examination of service areas supports this fact. Other examples of limiting factors affecting capacity are illustrated in that the Camp Lejeune landfill is for Marine Corps base use only; the Alamance County landfill is permitted to accept only Alamance County waste; and the Upper Piedmont landfill is permitted for a maximum 600 tons per day. Many landfills' franchise agreements only allow them to accept waste from a particular distance around the landfill. Some landfills owners/operators choose not to accept waste from other jurisdictions, although their permit and franchise allow it. Additionally, landfill owner/operators may elect not to construct or use all of the permitted space. This remaining capacity also assumes a current level of imported and exported waste. Increases in the importing of waste into North Carolina could decrease capacity even further.

Solid Waste Section Activities

The Solid Waste Section, with limited staffing, is facing additional responsibilities due to the increasing complexity of current and new applications, increase in compliance activities, additional mandates to permit and inspect different facility types, and budget reductions that have occurred over the past several years.

Current Facilities

There are 1,582 permitted solid waste facilities in North Carolina. This includes open and closed facilities, whether they are permitted or notified.

Changes to Solid Waste Regulations

On Jan. 1, 2007, construction and demolition landfill rules became effective. Prior to these rules, construction and demolition debris was managed in sanitary landfills under Rules 2A NCAC 13B .0501 through .0505. The new rules, 13B .0531 through .0547, are a greatly improved outline of all necessary steps to perform pre-engineering and hydrogeological site studies, to compile and submit applications for permits, to construct and to operate this type of landfill in North Carolina. The rules for sanitary landfills will in the future only be used to permit and construct landfills for industrial waste.

Compliance Activities

It is the goal of the Compliance Branch within the Solid Waste Section to conduct inspections on all facilities once or twice a year, depending on the type of facility. Facilities scheduled for one inspection a year are tire monofills, composting facilities and land clearing and inert debris landfill sites. Land clearing notified sites and pre-regulatory demolition sites are currently receiving no inspection at all. All other facilities should receive two inspections per year. Field inspections are currently only at 78 percent or 919 out of 1,181 inspection goal under current protocol. This shortfall is a result of a limited staff of field inspectors and hydrogeologists, as well as an increase in staff time spent on activities other than inspections. The compliance branch currently employs 12 field staff and two hydrogeologists who cover the entire state. Field staff spend a large portion of time focusing on complaints of illegal dumps and enforcement activities, handling emergency/disaster cleanup response, collection of local government solid waste plans and reports, and conducting certifications for recycling. As more facilities are permitted, compliance requirements change, disasters and illegal dumping continues, and local governments continue to report that current resources will be spread even further.

Facility Type	Number of Facilities	Minimum Inspections per Year	Total Inspections Needed
Municipal Solid Waste landfills (MSWLF)	177	2	354
Construction and Demolition landfills (CDLF)	86	2	172
Industrial landfills (INDUS)	37	2	74
Treatment and Processing facilities (TP)	28	2	56
Mixed Waste Processors (MWP)	19	2	38
Household Hazardous Waste facilities (HHW)	15	2	30
Incinerators (INCIN)	8	2	16
Tire Monofill landfills (TIRELF)	4	2	8
Tire collection /processing facilities (TIRETP)	11	1	11
Medical Waste facilities	5	2	10
Composting facilities (COMP)	52	1	52
Transfer facilities (TRANS)	104	2	208
Land Clearing and Inert Debris Landfills (LCID)	152	1	152
Land Clearing and Inert Debris Notified sites	731	0	0
Pre-Regulatory Demolition landfills (DEMO)	158	0	0
Total	1587		1181

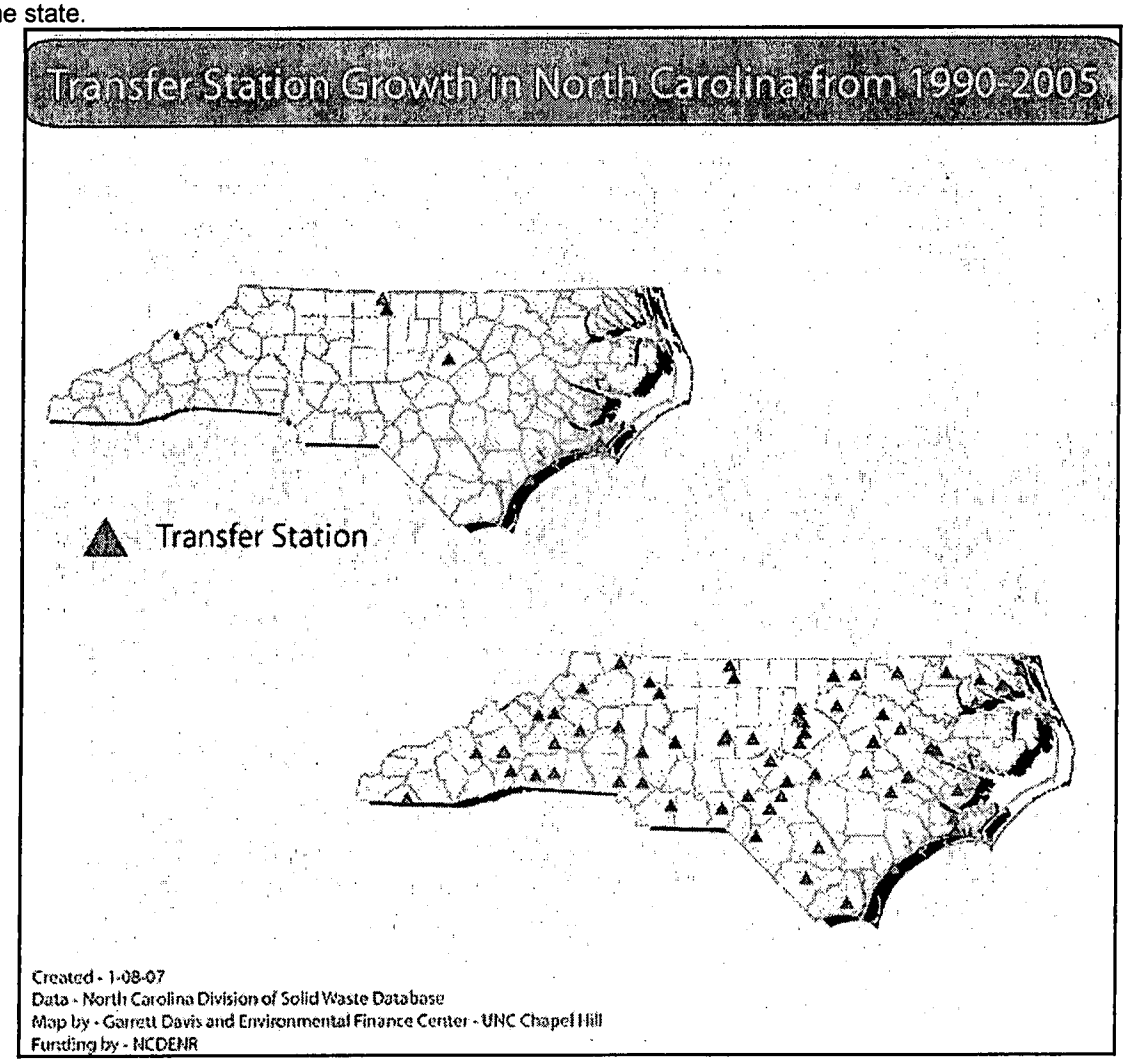
Medical Waste

Two new products have been approved for the treatment of medical waste and for pathological waste in particular. Previously, the only option available for the treatment of pathological waste in North Carolina was incineration. One new product manufactured by Sanitec uses shredding and microwave radiation. The second product is manufactured by Ozonator of Canada and uses shredding and ozone as a sterilizing agent. These two products offer more options for generators of medical waste.

Trends and Upcoming Issues

Transfer Stations

Since the 1990s, waste management and disposal in North Carolina has changed to a more regionally managed system of disposal. Waste is no longer primarily sent to the county-owned landfill but often to a transfer station in the county or many counties away. From the transfer station, the waste is then sent for disposal in a "regional landfill." The change in the management of waste evolved from stricter and more costly requirements for municipal solid waste landfills. In 1998, all unlined municipal solid waste landfills were required to close and all new landfills were required to be constructed with liners. Additional costs associated with liner construction encouraged this growth of regional landfills and transfer stations. Many counties did not find it economically beneficial to own and operate their own landfill, but chose to transfer their waste elsewhere. Growth in regional management of waste spurred application for the permitting of transfer stations across the state. In 1990, North Carolina had only five permitted transfer stations across the state.



Transfer station growth was relatively constant up until 1998. The largest growth in transfer station permitting occurred between 1998 and 1999 when the requirement for liners took effect. During this

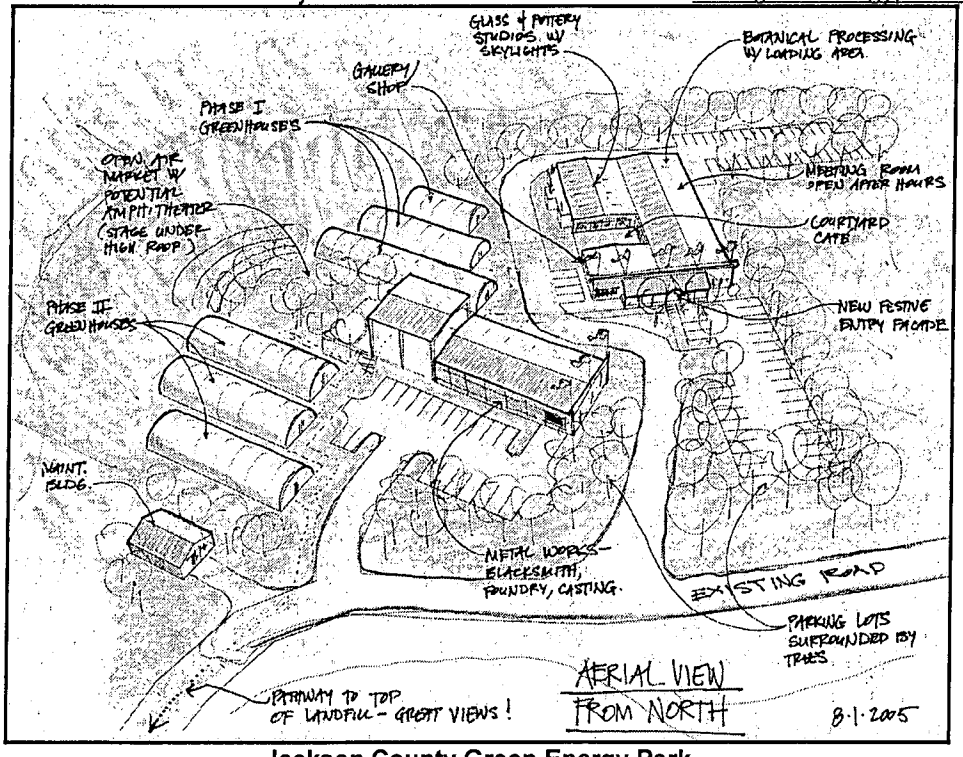
period, the number of transfer stations in North Carolina grew to a total of 72 facilities. Currently, there are 85 transfer stations permitted to receive waste within the state. In addition to the transfer of municipal solid waste, a market has developed for the transfer of construction and demolition waste. In some instances, part of the construction and demolition waste sent to a transfer station is diverted for reuse and taken to places such as Habitat for Humanity. As regional management of waste continues, we should continue to notice transfer stations for both construction and demolition and municipal solid waste increasing throughout the state.

Landfill Gas

North Carolina has many closed and active landfills, which are producing landfill gas. This gas can be a potential danger to the environment and public health if not managed properly. Methane (CH_4), the primary constituent of landfill gas, is over 20 times more effective in trapping heat in our atmosphere than carbon dioxide (CO_2). CH_4 remains in the atmosphere for up to 15 years, trapping in heat. CH_4 is also a primary constituent of natural gas and is an important energy source.

North Carolina's Solid Waste Section is taking an active role working with counties, local public organizations and private organizations in conjunction with EPA's Landfill Methane Outreach Program in developing various programs making use of the CH_4 component of the landfill gas. The programs include the generation of electric power, production of alternate fuels, operation of ceramic craft and glass-blowing studios, blacksmithing and metal working, green house operations for nursery stock, fish farming, kiln drying of lumber, apple storage and processing, heating of governmental buildings, and the provision of low cost energy to our industries, fire-training facilities and business incubators. In addition to protecting our environment and the public health, the energy derived from landfill gas is lowering our demand for the use of fossil fuels and is reducing the dependency on foreign energy sources.

An example of a highly successful methane recovery project is the Jackson County Green Energy Park, which was named EPA's Project of the Year for 2006. This project recovered gas from the closed Dillsboro landfill. The park includes pottery and glass-blowing studios, blacksmithing for horses, greenhouses and a biodiesel refinery. More information is available at: www.greenenergypark.org.



Jackson County Green Energy Park

Recommendations

On July 27, 2005 the North Carolina General Assembly passed Senate Bill 353. Senate Bill 353 imposed a moratorium on new landfills, directed the Environmental Review Commission to study issues related to solid waste disposal and created a Joint Select Committee on Environmental Justice.

The Environmental Review Commission, with the assistance of the Division of Waste Management, was by this bill directed to study issues related to solid waste. According to the text of the bill the study was to include:

> "(1) Financial responsibility requirements for solid waste landfills, including the application of requirements to limited liability companies and other business entity structures of applicants seeking solid waste landfill permits.
>
> (2) Application of franchise requirements and local government approval for solid waste landfill permits, including adequacy of public notice and comment, community studies, and site designations prior to local government approval.
>
> (3) Siting, design, and operational requirements for landfills for the disposal of construction or demolition waste, municipal solid waste, or industrial solid waste that are proposed in areas susceptible to flooding from natural disasters, areas with high water tables, and other environmentally sensitive areas.
>
> (4) Formation of dangerous chemicals and gases in flood-prone landfill environments.
>
> (5) Traffic considerations for proposed landfills.
>
> (6) Regulatory oversight and staffing for permitting and compliance of solid waste landfills, and inspection of waste containers on barges, railways, and trucks.
>
> (7) Compliance with statutory prohibitions on disposal of certain types of solid waste and measures to prevent disposal of hazardous waste in solid waste and construction and demolition landfills.
>
> (8) Ways to reduce the amount of solid waste disposed of within North Carolina landfills, including statewide tipping fees, bans on the disposal of certain types of waste in landfills, more aggressive recycling requirements, and enhanced regulatory requirements for landfills and other solid waste management facilities."

The study indicated several areas that needed to be addressed. The recommendations made by the department satisfy these requests.

1. **Specify how a landfill applicant must demonstrate financial qualifications to construct and operate the landfill.**

The applicant should provide cost estimates for: performing environmental studies; acquiring the site; designing the landfill; constructing and operating the landfill; and financial assurance required for corrective action and closure of the landfill. To show financial qualification, the applicant should submit an audited, certified, financial statement and identify sufficient assets to cover the estimated costs. Where assets of a parent, subsidiary, affiliate or joint venturer are offered in support of the financial qualifications of the applicant, that party must be listed as an owner/operator on the facility permit.

2. **Expand financial assurance requirements.**

Require that the landfill operator provide financial assurance to cover possible corrective action (in the event of a leak from the landfill, for example). This would be in addition to the financial assurance currently required for the cost of closing the landfill and providing post-closure case. The minimum amount of financial assurance for corrective action should be $3 million. Financial assurance for corrective action should apply to both new and existing facilities. For new facilities, the financial assurance would be required before permit issuance.

3. **Strengthen environmental compliance review of potential landfill operators.**

Expand the scope of the existing environmental compliance review to include any past environmental violation (not just those related to solid waste) and a larger group of people associated with the permit applicant. For example, the environmental compliance review would be broadened to cover a person who holds a minority interest in the entity applying for a landfill permit (except for minority shareholders in publicly traded corporations who do have any involvement in management or control of the corporation.)

4. **Broaden the definition of "owner or operator."**

Include in the definition of "owner or operator" any person who has a financial or equitable interest in the entity that has applied for the landfill permit (except for minority shareholders in publicly traded corporations who do have any involvement in management or control of the corporation.)

5. **Clarify solid waste enforcement provisions.**

Amend the statute sections that authorize injunctive relief and civil penalties for solid waste violations to expressly allow the use of those enforcement remedies in response to a violation of a permit issued by the Department or an order issued by the Commission for Health Services. Increase penalties for solid and hazardous waste violations. Authorize the department to recover the costs of investigating a violation.

6. **Require notice to the department of any significant change in the structure or assets of the business entity that holds a landfill permit.**

The department should be notified within 30 days of any significant change in the structure of the business entity that owns or operates the landfill facility; the identity of any person or business entity previously identified as an owner or operator of the facility pursuant to G.S. 130A-309.27(a)(1); or in the financial assets identified in the financial qualification of the owner or operator. A change is significant if it could effect the financial qualifications of the permit holder or result in a change in the identity of the owners or operators for purposes of either financial qualification or environmental compliance review. When the department receives notice of a change, it can require a new environmental compliance or financial qualification review.

7. **Set standards for safe transportation by railway or barge of solid waste.**

Containers used to transport solid waste should be leak-tested and covered. Records of leak-testing should be retained at the permitted solid waste facility for three years. It would be a violation to allow solid waste, liquids or odors to escape from a container.

8. **Require a traffic study for larger solid waste facilities.**

Require that applications for solid waste management facilities proposed to handle more than 100,000 tons of waste per year include a study of the traffic impacts of the facility. The results of the study would be considered in the permit decision.

9. **Authorize local landfill liaisons.**

Authorize a local government with planning authority over a sanitary landfill that has a service area of greater than a 100-mile radius to designate a landfill liaison. The liaison would be a certified landfill manager, but would not direct the operation of the landfill. The landfill liaison would have authority to enter the landfill facility at reasonable times and inspect the landfill operation for purposes of: ensuring that the facility meets all local requirements; identifying and notifying the department of potential violations; and identifying and notifying the department of potentially hazardous conditions.

10. **Require the permittee to employ an independent quality assurance engineer to oversee construction of the landfill.**

The permittee should employ a licensed engineer who is independent of both the landfill owner and any person engaged in the design or construction of the landfill to inspect during construction. The project engineer would be responsible for certifying that construction of the solid waste management facility units, leachate handling facilities and landfill appurtenances conforms to the plan approved by the department, the permit to construct and the rules adopted by the Commission.

11. Establish minimum standards for new landfills and for landfill expansions onto previously unpermitted property.

Minimum standards for new landfills and for landfill expansion onto property that was not included within the scope of a previous permit would include:

a. *double liners and a leak detection system for municipal solid waste landfills;*
b. *composite liners for construction and demolition landfills;*
c. *a minimum separation of 5 feet between the bottom elevation of the waste (or the liner system, if the landfill has a liner) and seasonal high groundwater and bedrock;*
d. *a 200-foot buffer between the waste boundary and streams or wetlands (unless no feasible alternative location is available that would comply with the buffer requirement); and*
e. *a prohibition against siting landfills units in the 100-year floodplain or in area reclaimed from the floodplain.*

12. Establish new standards for construction of lined sanitary landfill units permitted on or after the effective date of the bill.

Specific standards for leachate collection systems and liners would include:

a. *leachate collections systems designed to maintain a head of less than one foot during leachate recirculation;*
b. *leachate collection systems designed to return the head to one foot or less within 72 hours based on a 25 year-24 hour design storm falling on an empty cell;*
c. *geomembrane base liner systems tested for leaks and damage;*
d. *leachate collection lines designed and constructed to allow for remote camera inspection and cleaning and to require leachate lines cleaned and remotely inspected annually;*
e. *all pipes used to carry leachate constructed with dual containment outside of the lined disposal unit; and*
f. *new units and lateral expansions constructed without pipe penetrations of the bottom liner, whether for leachate, stormwater or gas.*

13. Direct the Commission for Health Services to review landfill rules and adopt new rules necessary to protect public health and the environment.

Rules adopted by the Commission should include:

a. *standards for the collection, control and utilization or destruction of landfill gasses at municipal solid waste landfills;*
b. *establish standards for the construction, operation and maintenance of bioreactor landfills;*
c. *Establish criteria for development of bird and wildlife management plans; and*
d. *Incorporate measures necessary to minimize impacts to natural, historic and cultural resources, including but not limited to wetlands, critical fisheries habitat, parks, recreation areas, cultural and historic sites and potential water supplies.*

14. Require that all solid waste management facilities have a waste screening plan to ensure that the facility is in compliance with waste bans.

15. Require an environmental study of very large landfills and landfills with an extended service area.

The existing exemption from the N.C. Environmental Policy Act for landfills owned and operated by local governments should be removed for facilities that receive more than 300,000 tons of waste per year; have a total disposal capacity of more than 15 million cubic yards of solid waste; or have a service area of more than 100 miles in radius. An environmental study should also be required for privately-constructed landfills that will exceed one of more of those thresholds. The environmental document would need to meet the standards for an environmental impact statement under the N.C. Environmental Policy Act and rules adopted by the Department of Administration to implement the act. The documents would also be subject to the same public notice and hearing requirements.

16. Change landfill franchise authority to differentiate between landfills that provide local service and those that have large regional or multi-state service areas.

The department is still working on the specific recommendation to alter local government franchise authority.

17. Add a new statute section setting out the grounds for denial of a landfill permit.

Statutory grounds for permit denial should include:

a. *Construction or operation of the landfill would violate water quality standards for groundwater or surface waters;*
b. *The landfill would jeopardize a renewable resource of more than local concern, such as watersheds or aquifers that are sources of public water supply.*
c. *Construction or operation of the landfill would damage fragile or historic areas or areas containing environmental or natural resources of more than local significance. Examples of these areas would include national or state parks or forests; wilderness areas; historic sites; recreation areas; segments of the natural and scenic rivers system; wildlife refuges, preserves and management areas; areas that provide habitat for threatened or endangered species; primary nursery areas and critical fisheries habitat designated by the Marine Fisheries Commission; and Outstanding Resource Waters designated by the Environmental Management Commission.*
d. *Construction or operation of the facility would jeopardize public rights to access or use public trust waters.*
e. *The facility will be located in a natural hazard area, such as an area subject to excessive seismic activity that would increase the risk to public health or safety.*
f. *The proposed facility would be inconsistent with statutory standards or rules adopted by the Commission for Health Services.*
g. *The proposed facility would be inconsistent with ordinances adopted by the local government that has planning jurisdiction over the site of the proposed facility.*
h. *There is a practicable alternative to be proposed landfill that would have less adverse impact on public resources.*
i. *Construction of the landfill would contribute to cumulative effects that would damage a natural, historic, or cultural resource protected under the statute.*

18. Establish permit fees for solid waste facilities. Revenue would be used to support the solid waste regulatory program.

19. Establish a statewide surcharge on disposal of solid waste at $2 per ton.

The surcharge would apply to municipal solid waste and to construction and demolition waste that is either disposed of at a permitted solid waste facility or moves through a permitted transfer station en route to a disposal facility outside the State. The surcharge would be used to pay for cleanup of orphan landfills and other orphan inactive hazardous waste sites; provide state matching funds for remediation, monitoring and maintenance of Superfund sites in North Carolina; provide funds to local government for redevelopment of contaminated sites; and provide funds for administration of contracts for cleanup of orphan landfill and inactive hazardous waste sites.

Consideration should also be given to the following:

1. **The state should invest resources to increase inspection and compliance activities to ensure the effectiveness of the state's current and pending disposal bans.**

2. **If enforcement of disposal bans can be improved, the state should consider additional disposal bans on readily recyclable materials.**

3. **The state should increase funding of recycling grants to community recycling programs and recycling businesses, as well as public recycling outreach campaigns.**

4. **The state should establish and enforce minimal performance standards for local recycling programs.**

5. **The state should require and/or provide incentives to private haulers to offer recycling services to all of their customers.**

6. **The state should institute incentives to encourage the diversion of large waste streams, such as food and wood wastes.**

7. **The state should enact legislation to establish a comprehensive statewide recovery system for electronics.**

CHAPTER 2 – Government Waste Reduction Activities

Annual reports received from local governments provide data on source reduction, reuse, recycling and composting activities statewide as well as other aspects of solid waste management. Data from these reports develop a picture of waste reduction efforts in North Carolina and of the relative effectiveness of these programs and trends in program implementation.

Source Reduction and Reuse Programs

The number of local governments with source reduction and/or reuse programs decreased again during FY 05-06. The decrease from governments reporting programs from 104 to 102 is possibly due to reporting fluctuations; however, the downward trend over recent years does show that local governments are failing to take advantage of cost effective waste reduction options.

Local Reduction/Reuse Programs

Program Type	FY 99-00	FY 00-01	FY 01-02	FY 02-03	FY 03-04	FY 04-05	FY 05-06
Source Reduction Programs							
Backyard Composting	59	64	67	69	68	59	55
Grass Cycling	36	35	29	38	38	33	33
Xeriscaping	11	8	8	11	14	13	14
Junk Mail Reduction	64	64	61	65	63	59	59
Enviroshopping	32	31	27	32	31	29	25
Promotion of Non-toxics	31	33	27	27	28	30	23
Other	6	3	4	2	1	2	1
Reuse Programs							
Swap Shops	23	28	34	33	31	33	37
Paint Exchange	23	19	19	19	18	18	18
Waste Exchange	8	4	3	4	6	8	3
Pallet Exchange	7	9	6	5	9	9	4
Other	10	8	9	11	7	11	5
Local Governments with Programs	**110**	**117**	**109**	**112**	**109**	**104**	**102**

Local Government Recovery Programs

Despite decreases in most of the traditional commodities, local government recovery grew by almost 50,000 tons or four percent during FY 2005-06. The increase was driven primarily by increases in the recovery of construction waste, organics (e.g., yard waste), tires and "other" materials. It should also be noted that the recovery of electronic equipment grew substantially during the past year. Recovery of electronic equipment increased 49 percent during FY 2005-06. Despite the marked increase, local government e-waste programs are only recovering about two percent of what is being generated annually.

The largest decline in recovery was in the fiber category, which fell by almost 10,000 tons. It was the first decline in paper recovery in three years. Most of the other traditional commodities rose or fell only slightly providing a sense of stagnation among local government recovery programs.

Increases in recovery failed to outpace increases in disposal again last year. Recovery grew by four percent as compared to a six percent increase in statewide disposal. **Without substantially increased efforts to improve and expand local waste reduction programs, increases in disposal will likely continue to grow at a faster rate than recovery.**

Local Government Recovery (Tons) and Performance Measures

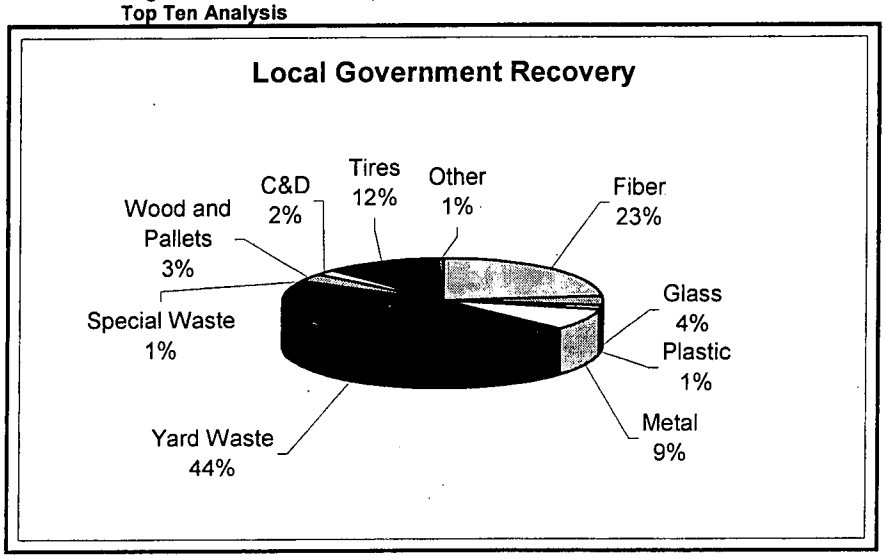
Material	FY 96-97	FY 97-98	FY 98-99	FY 99-00	FY 00-01
Total Paper	228,025	216,121	233,339	241,859	263,365
Total Glass	44,978	43,449	41,623	41,826	46,936
Total Plastics	13,699	14,399	14,835	14,474	15,062
Total Metal*	77,252	81,262	77,564	86,480	92,634
Total Organics**	640,410	504,554	525,033	638,757	540,582
Special Wastes***	3,230	3,527	3,817	4,907	4,947
Construction and Demolition Debris	N/A	N/A	N/A	59,598	15,406
Tires	N/A	N/A	N/A	N/A	N/A
Other	12,762	35,977	63,794	5,329	6,120
Totals	**1,020,356**	**899,290**	**960,005**	**1,093,032**	**985,052**
Per Capita Recovery (lbs.)	**279.19**	**242.03**	**254.40**	**285.61**	**243.66**
Recovery Ratio (Recycling:Disposal)	**0.13**	**0.11**	**0.10**	**0.11**	**0.10**

Material	FY 01-02	FY 02-03	FY 03-04	FY 04-05	FY 05-06
Total Paper	267,840	275,538	267,371	303,514	292,628
Total Glass	49,891	51,433	52,117	44,003	45,409
Total Plastics	17,269	16,807	18,679	18,320	18,134
Total Metal*	114,786	109,723	114,097	109,612	108,512
Total Organics**	468,901	689,027	589,124	583,101	604,347
Special Wastes***	5,426	5,926	6,271	6,690	6,900
Construction and Demolition Debris	17,648	20,002	24,084	20,292	24,001
Tires	N/A	N/A	N/A	113,670	146,177
Other	5,896	4,626	4,773	5,677	7,755
Totals	**947,657**	**1,173,082**	**1,076,516**	**1,204,879**	**1,253,863**
Per Capita Recovery (lbs.)	**231.47**	**281.88**	**255.76**	**282.13**	**288.84**
Recovery Ratio (Recycling:Disposal)	**0.10**	**0.11**	**0.10**	**0.11**	**0.11**

* Includes white goods, aluminum cans, steel cans and other metals.
** Includes yard waste, pallets and wood waste.
*** Includes electronics, used oil, oil filters, antifreeze and batteries.

The following figure provides a breakout by percentage of each commodity's contribution to total local government recovery. As can be seen, local government yard waste mulching and composting programs contribute well over 40 percent of all local government recovery. Yard waste recovery can fluctuate drastically from year to year and is commonly excluded from trend analysis. Fiber products constitute 23 percent of local government recovery, and despite a decline this year, will likely continue to provide for the majority of growth in local government recovery programs.

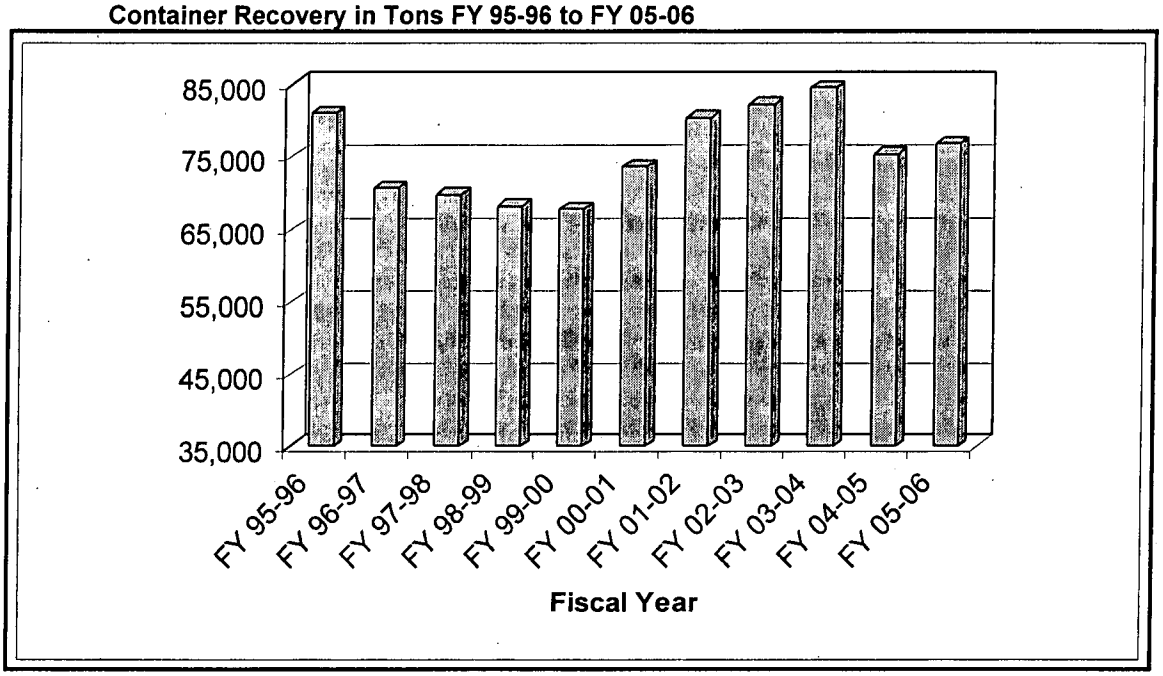
Top Ten Analysis



Recovery of Traditional Materials

Container recovery rebounded slightly from the sharp drop experienced last year, but has not yet recovered to the levels experienced in the early 2000s. Recovery of glass, PET, HDPE, aluminum and steel containers rose to 76,750 tons, up roughly 1,400 tons from FY 04-05. Of the seven commodities in the category, only aluminum containers and PET containers experienced decreases. It is likely that the actual recovery of aluminum did not actually drop, but rather very strong market conditions resulted in individuals selling aluminum cans directly to markets instead of contributing the containers to local government-operated recycling programs. Although small in comparison to the amount of paper recovered annually, container recovery provides the best snapshot of local government recovery program performance.

Container Recovery in Tons FY 95-96 to FY 05-06

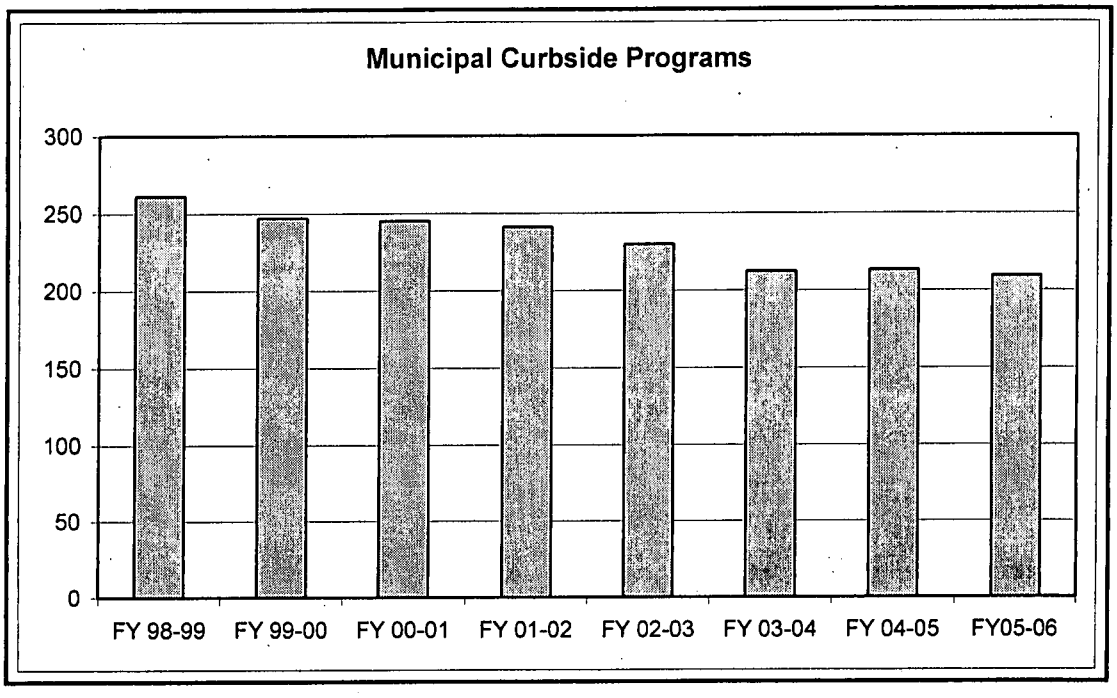


Local Government Recycling Program Management

The number of municipal curbside recycling programs dropped again during FY 2005-06 to 209. This trend has been continuing since 1999 and represents a problem for achieving meaningful waste reduction in North Carolina. Many curbside recycling programs were originally implemented in the early 1990s with out much thought or planning for maintaining the programs into the future. Many of these programs are still being operated in a manner consistent with the state of the recycling industry in the early 1990s. The recycling industry has evolved dramatically in the past 15 years, and unless small and mid-sized municipal governments update their programs to reflect the current state of the industry, it is likely that the trend of fewer curbside recycling programs will continue.

Despite the continuing decreases in the number of curbside programs, annexations and growth in larger municipalities resulted in another increase in the number of households served by curbside recycling. The number of households served by curbside recycling grew by more that 53,000 during FY 05-06. More than 1,438,000 households in North Carolina now have access to curbside recycling.

In a properly developed program, each household could potentially generate up to 750 pounds of recyclables per year. In reality, North Carolina households are contributing only about 225 pounds of recycling per year to their local recovery programs. If these programs were functioning at their potential, recovery of traditional commodities would increase by more than 375,000 tons. It is very clear that improving the breadth of program collection and increasing participation are keys to improving statewide recovery.



Drop-off programs continue to contribute more to recycling than any other type of program. Roughly 46 percent of all material recovered by local governments comes from drop-off recycling programs. The ability of these programs to handle special wastes, white goods and scrap metal is the primary reason why they contribute more than curbside programs. The use of mixed waste processing continues to decline in the state and may no longer be used for processing traditional recyclables in the future.

Recovery by Program Type

Program Type	Percent of Total Recovery
Curbside	37 %
Drop-off	46 %
Mixed Waste Processing	< 1 %
Other Programs	17 %

Special Waste Management

Local government collection of some special wastes fell slightly in FY06 from the previous year, in particular for oil, antifreeze and lead acid batteries, but the amounts were still in line with historical figures. Oil filters enjoyed a jump in tonnage, and a small increase in the number of related active programs. The disposal ban on filters set for October 2009 should spur development of additional programs over the next few years.

The amount of household hazardous waste (HHW) also rose in FY06, breaking the 2,000 ton barrier for the first time. The overall average cost for managing HHW programs fell from FY 05's abnormally high figure to a level more in keeping with the previous years. In general, special waste programs are similar to other local government recovery efforts in being on a solid plateau of activity, neither rising nor falling much from year to year. Despite the need for additional efforts to increase the amount of material being recovered, it is clear that there is little motivation for counties and municipalities to expand programs in this area.

Local Government Special Waste Management, FY02 to FY06

	FY02	FY03	FY04	FY05	FY06
Used Motor Oil					
Number of programs	127	125	124	119	122
Gallons collected	903,951	907,123	939,916	987,057	933,618
Oil Filters					
Number of programs	20	21	19	17	20
Tons collected	17.79	18.64	24.07	20.40	28.21
Antifreeze					
Number of programs	56	58	63	55	58
Gallons collected	27,668	26,308	26,767	41,050	32,415
Lead Acid Batteries					
Number of programs	86	86	90	89	95
Number collected	80,912	92,292	100,217	97,290	91,947
Household Haz. Waste					
Number of programs	28	31	32	34	34
Number of permanent sites	17	17	17	17	16
HHW tons collected	1483.97	1540.59	1760.17	1940.57	2066.91
Total cost reported	$2,180,355 ($1,469/ton)	$2,161,359 ($1,403/ton)	$2,429,912 ($1,381/ton)	$4,417,657 ($2,276/ton)	$2,718,980 ($1,315/ton)

Conversions: Oil, 1 gal = 7.4 lbs; Antifreeze, 1 gal = 8.42 lbs; Lead Acid Battery, 1 battery = 35.9 lbs

Yard Waste Management

Collection and diversion of more than a half million tons per year of yard waste remains a mainstay of local government solid waste management programs. The very slight rise in managed tons for FY 06 from the previous year reflects the absence of major weather events or droughts that can push yard waste collection dramatically up or down. The chart of historical collection below shows the steady nature of local government performance in this area, demonstrating straightforward compliance with the state's yard waste disposal ban. Without the ban, North Carolina disposed waste tonnage would be higher by five percent.

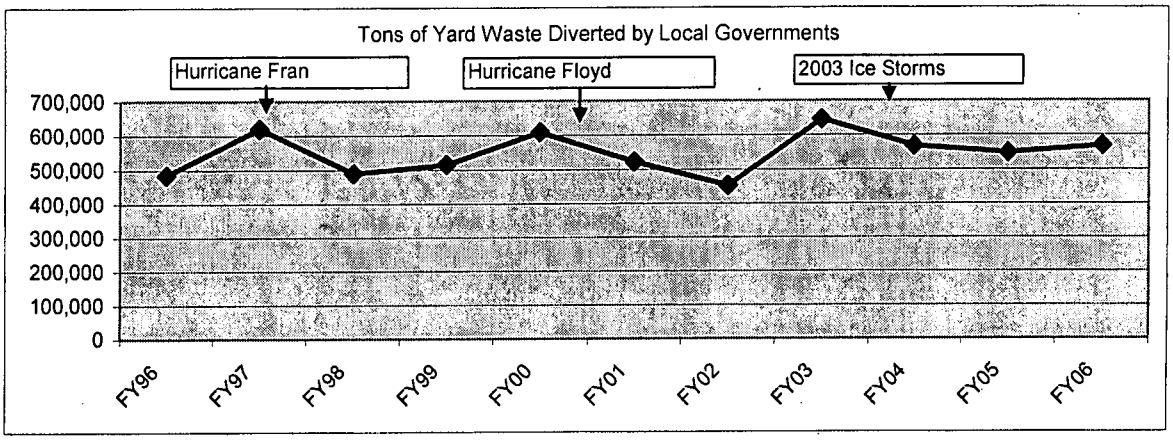
Local Government Yard Waste Management FY05 and FY06

Destination of Materials	FY 05 tons managed	FY 06 tons managed	Percentage Change
End Users (direct delivery)	72,413	54,438	-25%
Local mulch/compost facility	481,143	513,635	+7%
TOTAL DISPOSAL DIVERSION*	**553,556**	**568,073**	**+3%**
Other Public Facility**	141,394	151,960	+7%
Private Facility	77,079	79,854	+4%
LCID Landfill	132,585	128,157	-3%
YARD WASTE TOTALS	**763,220**	**776,084**	**+2%**

* Tonnages under the row for "Total Disposal Diversion" are not included in diversion because of data redundancy, uncertainty about actual disposition of the waste, and actual disposal of noted tonnages.

** Yard Waste Totals exclude tons for "other public facilities" - it is assumed these tons were captured under other categories.

Yard Waste Diverted From Disposal by Local Governments, FY96 – FY06



Recycling Markets and Prices

FY06 saw steady, high prices for recyclable materials, reflecting the global shift to reliance on recovered over virgin commodities. While domestic manufacturers maintained a growing interest in consuming recycled materials, China's influence on secondary material markets was still the big catalyst in material pricing. Some metal commodities, such as copper and aluminum, enjoyed very strong pricing globally due to tremendous demand pressure. Traditional recyclables collected by local government programs were no exception to the remarkably constant demand for recyclable materials. As can be seen in the table below, displaying the price received by three representative processing facilities in eastern, central and western North Carolina, recycling markets are demonstrating a consistency that should give local recovery programs confidence and reason to expand collection programs.

Composite Recycling Market Prices Received by Major NC Processors, FY 06

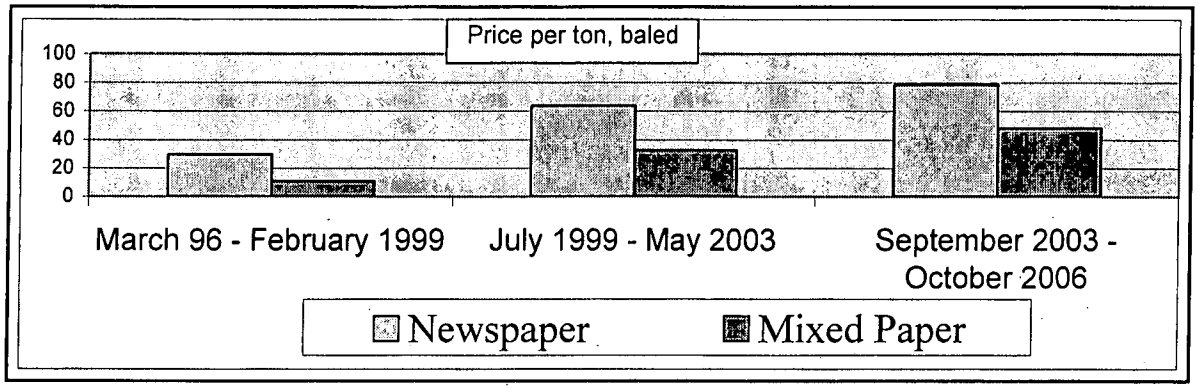
Materials	Summer 05	Fall 05	Winter 06	Spring 06	Summer 06
Aluminum Cans, Lbs., loose	$.56	$.55	$.64	$.71	$.74
Steel cans, gross tons, Baled	$39	$84	$67	$88	$115
PETE, Lbs. Baled	$.19	$.18	$.18	$.18	$.15
HDPE, Lbs., Baled	$.24	$.24	$.34	$.29	$.21
Newsprint, ton, baled	$83	$84	$79	$76	$71
Corrugated, ton, baled	$84	$84	$60	$73	$105
Office paper, ton, baled	$116	$115	$122	$120	$138
Mixed paper, ton, baled	$57	$48	$42	$45	$57
Clear glass, ton	$28	$28	$28	$23	$23
Brown glass, ton	$24	$24	$24	$17	$17
Green glass, ton	$2	$2	$2	-$5	-$5

Fiber prices generally stayed within a narrow range in FY 06. After a slight mid-year dip, both corrugated and mixed paper rebounded to their highs for the year by summer 2006. Steel cans were probably the most volatile commodity in FY 06, ending on a high note, while aluminum cans rose and then stayed in the 70 cents per pound range for the last six months of the fiscal year. Glass struggled to maintain its value, with all colors falling and green becoming a "cost" commodity. Glass pricing belies the demand for more cullet by North Carolina's glass plants, which can use twice as much material as they are currently receiving. But all in all, the basic "curbside mix" of materials has seen a consistent level of pricing over the course of four years, showing real staying power in the strength of recycling markets.

Mixed paper has become something of a bellwether for recycling markets over the past decade. From a commodity with sporadic demand in the mid-1990s, sometimes with no demand at all, it has become a highly marketable commodity, driven in large part by the Chinese appetite for high quality U.S. fiber. Domestic and foreign mills have found value in mixed paper, making it an easy commodity for communities to add to their curbside and drop-off programs. The marketability and thus collectibility of mixed paper bodes well for community efforts to increase participation and diversion, as now a household can put most of its fiber in their curbside and drop-off bins. The figure below shows the pricing history of

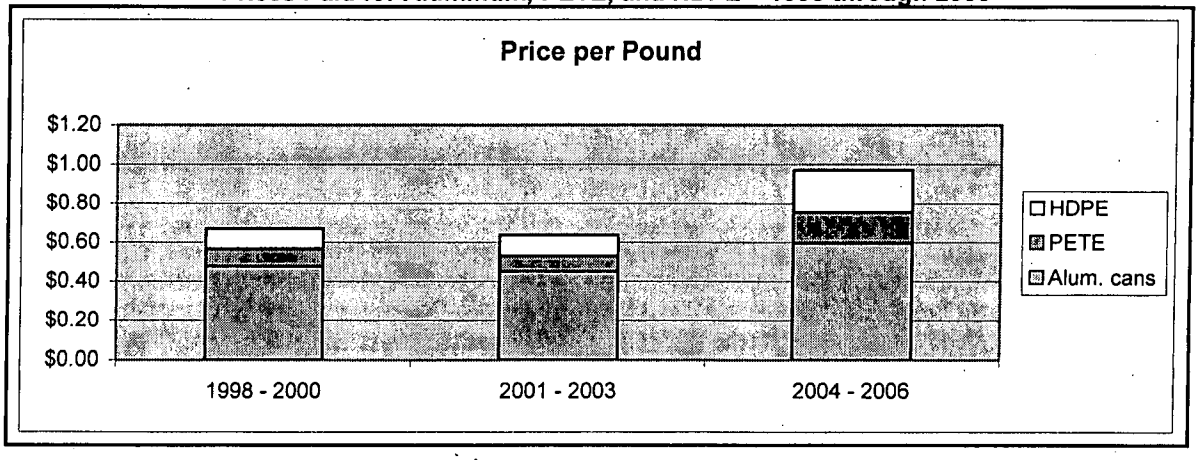
both mixed and newspaper in North Carolina over the course of three four-year time periods, demonstrating the upward climb of these grades.

Prices Received By NC Processors for Mixed Paper and Newspaper, March 1996 through October 2006



The following figure shows a similar price history chart for three types of container materials: PETE, HDPE, and aluminum cans. For the first two periods, 1998 through 2000, and 2001 through 2003, the combined price per pound paid for these materials hovered around just over 60 cents. However, from 2004 through 2006, the price increased by 45 percent to almost a dollar per pound.

Prices Paid for Aluminum, PETE, and HDPE – 1998 through 2006



Recycling Market Development

FY 06 saw the continued expansion of recycling businesses in North Carolina and some major investments in recycling facilities. Recycling remained a dynamic arena of entrepreneurial activity, especially for commodities such as plastics and discarded electronics. Among major investments, the firm GEEP Inc. opened a $4 million shredding plant in 2006 for electronics while Paperstock Dealers started up a new material recovery facility (MRF) in Raleigh, helping that city make major improvements to its curbside recycling program.

Other companies that expanded or made significant investments in FY 06 included FCR's upgrade to its Greensboro MRF, Tidewater Fiber and Orange Recycling's addition of sorting equipment to their processing facilities, EcoResin's opening of a new plant in Rutherford County, McGill-Leprechaun's addition of wood grinding operations, and Envision Plastic's expansion of its HDPE recycling facility. Many other smaller companies made improvements to their operations, investing in equipment and facilities to ramp up their capacity. A range of private sector activities in FY06 increased the availability of market outlets for discarded materials, while creating employment opportunities for North Carolinians in many parts of the state.

CHAPTER 3 – Local Government Assistance (Fiscal Year 2005-06)

Solid Waste Management Trust Fund Annual Report

This report details for FY 06 (July 1, 2005 - June 30, 2006) the activities and expenditures of the Solid Waste Management Trust Fund, which is administered by the Division of Pollution Prevention and Environmental Assistance (DPPEA) in the Department of Environment and Natural Resources. The Trust Fund was created by the Solid Waste Management Act of 1989 (SB 111). It is funded by a portion of the revenues from a fee on the sale of new tires and an advanced disposal fee on white goods (appliances), as well as a tax on virgin newsprint. Additional revenues can come from appropriations and contributions. The purpose of the Trust Fund is to support a range of solid waste management activities including: technical assistance to local governments, businesses and other entities on solid waste issues; public educational programs; research and demonstration projects; and recycling market development (G.S. 130A- 309.12).

As noted in the table below, the Solid Waste Management Trust Fund received $1,015,824 in revenues in FY 06. When added to the beginning balance on July 1, 2005 of $1,896,767, a total of $2,912,591 was managed in the Trust Fund for FY 06. Actual expenditures were $1,289,563, leaving a fund balance at the end of FY 06 of $1,623,028. However, a total of $539,858 of that balance was encumbered for standing grant contracts that have been awarded and for which funding had not been fully disbursed (grant contracts are paid on a reimbursement basis). The unencumbered balance at the end of FY 06 was $1,083,170. An additional set of grant contracts worth approximately $595,000 were in the process of being encumbered at the end of the fiscal year, which further reduced the available balance entering FY06.

FY 06 Trust Fund Expenditures and Revenues

	Total FY 06
Beginning Balance	$ 1,896,767
+ Revenue	$ 1,015,824
- Expenditures	$ 1,289,563
Ending Balance	$ 1,623,028
Encumbrances	$ 539,858
Unencumbered funds on 6/30/06	$ 1,083,170

Breakdown of FY06 Revenue Sources

Revenue Source	Total FY 06
Tire Tax	$ 629,698
White Goods ADF	$ 360,464
Newsprint Tax	$ 1,667
Appropriations	$ 0
Contributions and Misc.	$ 23,995
Total Revenues	$1,015,824

Trust Fund Revenue Sources - FY 06

Trust Fund revenues in FY 06, as indicated in the table above, came from four of the five possible revenue sources identified in the General Statutes. Activity from each revenue source is described below:

2% Tire tax – Trust Fund revenues from the tax on the sale of new tires accounted for $629,698 in FY 06, an increase of almost 5 percent from FY 05. Tire revenue accounted for over 60 percent of total Trust Fund revenues for FY 06.

White Goods Tax – Proceeds from the advanced disposal fee (ADF) on white goods accounted for $360,464 or about 36 percent of total revenues for FY 06. White goods proceeds were down almost 3 percent from FY 05.

Virgin Newsprint Tax – North Carolina newspaper publishers who fail to meet state-required purchasing goals for recycled content newsprint must pay a $15 per ton tax on the virgin newsprint they consume. The law allows wide exemptions for companies who are unable to purchase recycled content newsprint due to availability or pricing constraints, or who are actively involved in the recovery of newspaper for recycling. During FY 06, $1,667 was received from the virgin newsprint tax. Compliance with the law has been consistent - in 11 years, the annual revenue from the newsprint tax has never been higher than $3,000.

General Appropriations - When the Trust Fund was first established in 1989, a one-time appropriation of $300,000 was allocated to provide an initial fund balance. Since that time, however, there have been no further appropriations to the Trust Fund.

Contributions to the Trust Fund and Miscellaneous Revenues – DPPEA continued a recycling promotion program in FY 06 that entailed a cost-sharing partnership with local governments and private sector contributors. Local governments contributed $23,995 toward the campaign, but there were no private contributors in FY 06. The list of outreach program partners is provided in Attachment A to this report. More information on the recycling outreach program is provided below.

Trust Fund Expenditures - FY 06

Most of Trust Fund expenditures in FY 06 went to grants and to the state's recycling outreach efforts. Trust Fund resources were also used to continue delivery of technical assistance to North Carolina communities, recycling businesses, and waste generators. These activities are among the explicit purposes noted for the Trust Fund in G.S. 130A- 309.12, and are described in more detail below.

FY 06 Community Waste Reduction and Recycling Grants

The Community Waste Reduction and Recycling Grants (CWRARGs) are a standard annual grant cycle that DPPEA offers to local government and nonprofit recycling programs to expand and improve community recycling efforts. The CWRARGs usually include targeted grant categories designed to increase activity in certain program areas or to increase the recovery of certain commodities.

DPPEA held one CWRARG grant cycle in FY 06, which was initiated by a Request For Proposals distributed to local governments and to nonprofit agencies involved in waste reduction. Funding categories included Backyard Composting and General recycling activities. Bonus points were awarded in the FY 06 cycle to proposals that addressed new disposal bans and ABC permit recycling requirements passed by the General Assembly in 2005. DPPEA received and evaluated a total of 27 proposals, and selected 22 for a total of $299,866 in grant awards. Details on the grantees and their projects are provided under Attachment B to this report.

In addition to the CWRARG cycles, DPPEA conducts a related, ongoing request for proposals to develop "Swap Shops," which are community reuse centers open to the public. This open grant round resulted in two awards in FY 06 to Rutherford and Durham counties.

FY 06 Business Recycling Grants

To increase market demand and encourage recycling economic development in North Carolina, DPPEA conducted a grant cycle in FY 06 for recycling businesses. The grants are designed to help these businesses afford or leverage a critical capital expenditure and thereby expand their material-handling capacity. These expansions in turn translate into new market opportunities for local government recycling programs and for waste generators of all kinds.

In the spring of 2006, the Business Recycling Grant cycle attracted 25 proposals. Eighteen of these proposals were awarded grants for a total of $295,000 in funding. Details on the grantees and their projects are described in Attachment C to this report.

Recycle Guys and RE3 Outreach Campaigns

One of the greatest waste management challenges in North Carolina is increasing household participation in local government recycling programs. High participation raises the efficiency of local programs and results in a greater supply of materials for recycling businesses.

To boost participation rates, DPPEA continued its statewide recycling promotion campaigns in FY 06 - the "Recycle Guys" and "RE3." DPPEA's outreach efforts included:

- Continuation of broadcasts of RE3 and Recycle Guys television commercials.
- Distribution of supplemental materials that help expand the presence and reach of the campaigns.

- Production and distribution of cinema ads to increase public awareness of different aspects of recycling.

Technical Assistance Activities
The General Statutes direct DPPEA to use the Trust Fund to promote waste reduction and recycling generally, and specifically to provide technical assistance to local governments and to build recycling markets. The following section lists a number of activities that DPPEA pursued in FY 06 to accomplish these requirements.

Waste Reduction Partners Program
The Waste Reduction Partners (WRP) is a highly successful program using retired engineers and business professionals to provide environmental technical assistance to companies and local governments in western North Carolina. DPPEA continued its annual funding of WRP with $25,000 to support industrial solid waste audits and other recycling activities. With this funding, WRP helped western North Carolina businesses and other entities divert more than 18,769 tons of solid waste from landfills, a diverted cost of $1.33 per ton (by comparison, the most efficient curbside programs have costs of around $100 - $120/ton). The estimated solid waste reduction savings for businesses served by Waste Reduction Partners in FY 06 totaled $1,126,000, which translates into a leverage of savings to invested funding of 45 to 1.

Staff Support
To accomplish the technical assistance, public education and recycling market development requirements in the General Statutes, the Trust Fund was used in FY 06 to support staff positions in the Division of Pollution Prevention and Environmental Assistance. A total of $347,136 was expended to pay for salaries, benefits and some limited operational support. These positions are described below:

Recycling Market Development Specialist - This position provides marketing assistance to local governments and others involved in recyclable materials collection. As a part of the Recycling Business Assistance Center in DPPEA, this person is responsible for strengthening recycling capacity for secondary materials collected throughout the state. Among other duties, it manages the recycling markets directory required by state statute.

Recycling Market Development Specialist - This position is shared part-time with the N.C. Department of Commerce and is responsible for working with local and state economic developers to recruit recycling businesses to North Carolina.

Recycling Market Development Specialist - This position focuses on building the recycling infrastructure for the diversion of construction and demolition debris and wood waste, which together constitute one-third of the state's entire waste stream. In addition to managing grants and conducting other technical assistance, this position also produces the *Recycling Works* newsletter, which keeps recycling companies and community recycling programs abreast of market developments, material prices, and news about grants and available assistance.

Waste Management Analyst - In addition to working with local recycling coordinators, this position is responsible for developing educational materials and programs on solid waste issues for audiences ranging from school children to adult populations. In particular, this position implements the multimedia statewide Recycle Guys and RE3 campaigns designed to boost recycling participation rates in North Carolina and to make community recycling efforts more efficient.

Waste Management Analyst - This position is responsible for providing technical assistance to local governments on their waste reduction programs, including solid waste planning and full cost accounting (both statutory requirements for local governments). The position also manages recycling program data from state-mandated local waste reduction reports, which in turn allows completion of the State Solid Waste Management Annual Report.

Waste Management Analyst (DPPEA) – This position manages the WasteTrader waste exchange service, provides direct assistance to commercial and industrial waste generators, helps to manage

grants and the local reporting process, and is responsible for many training and outreach activities to local recycling programs.

Organics Recycling Specialist (DPPEA) This position provides technical assistance to local governments, recycling businesses, waste generators and the general public on the reduction and composting of organic waste streams, including yard wastes, which are banned from disposal by state statute.

Graduate Intern Program
To encourage professional development and complete technical assistance projects, DPPEA hired student interns to work in the division in FY 06. Student projects in FY 06 focused on development and implementation of the RE3 outreach campaign, as well as an analysis of electronics recycling policy issues.

Product Stewardship Initiatives
"Product Stewardship" is a growing movement by state and local governments to increase manufacturer responsibility for the environmental impacts of their products, including the diversion of those products from disposal to recycling. Greater manufacturer responsibility for end-of-life products will reduce cost and tax burdens on state and local governments. In FY 06, North Carolina participated in product stewardship initiatives by supporting the activities of the Product Stewardship Institute, including the development of a national agreement with the paint industry on paint disposal. DPPEA also helped lead a multi-state effort to encourage the producer responsibility for beverage containers and continued its participation with the Carpet America Recovery Effort (CARE), a national product stewardship program for the carpet industry.

Publications and Outreach Efforts
DPPEA used Trust Fund resources in FY 06 for a number of technical assistance and outreach activities, including: production of technical assistance materials to help in the implementation of new disposal bans and requirements for ABC permit holders to recycle; printing and distribution of the *Recycling Works* newsletter and other fact sheets; and travel to provide technical assistance to local governments and Trust Fund grantees.

Workshops and Training
DPPEA used Trust Fund-provided funding and technical assistance to support a major state recycling conference in March 2006 and to support other waste reduction workshops and outreach conducted by the Carolina Recycling Association and the North Carolina chapter of the Solid Waste Association of North America.

Temporary Assistance
As in past years, DPPEA used temporary labor to help enter data from more than 600 local government solid waste management annual reports. These reports are required by North Carolina statutes and they provide information necessary to complete the State Annual Solid Waste Report.

Planned Expenditures for FY 07

In FY 07, the Solid Waste Management Trust Fund will be used to provide technical assistance to local government recycling programs and to recycling businesses statewide. As part of that effort, DPPEA will conduct both a community-based and a recycling business grant cycle, helping directly expand collection and processing capacity for recyclable materials. DPPEA will further work to increase the reach of the Recycle Guys and RE3 campaigns. In addition, the Trust Fund will also continue to support the effective Waste Reduction Partners program in western North Carolina and a similar initiative covering the central and eastern part of the stat. North Carolina will also continue to participate in national coalitions seeking to promote product stewardship.

Questions regarding the North Carolina Solid Waste Management Trust Fund may be directed to Scott Mouw, Chief, Community and Business Assistance Section, Division of Pollution Prevention and Environmental Assistance, at 919-715-6512.

ATTACHMENT A: TRUST FUND REVENUE SOURCES

The North Carolina Solid Waste Trust Fund received more than 97 percent of its revenues in FY 06 from two sources: the statewide fees on the purchase of new tires and white goods (appliances). The Trust Fund only receives a small portion of the proceeds from these fees. The total distribution arrangement of each of these fees is described below:

Scrap Tire Tax - During this reporting period (July 1, 2005 - June 30, 2006), a two percent fee was levied on the purchase of new tires in North Carolina. The tire tax allocation is as follows:

- 68 percent of revenues are distributed to the counties on a per capita basis to pay for the proper management of discarded tires.
- 27 percent of revenues are credited to the Scrap Tire Disposal Account (administered by the Solid Waste Section) for local government grants and nuisance tire site cleanup.
- 5 percent of revenues are credited to the Solid Waste Management Trust Fund (administered by the Division of Pollution Prevention & Environmental Assistance).

White Goods Tax - During this reporting period (July 1, 2005 - June 30, 2006), a $3 dollar fee was levied on the purchase on all appliances. The white goods tax allocation is as follows:

- 72 percent of revenues are distributed to the counties on a per capita basis to pay for the proper management of discarded white goods.
- 20 percent of revenues are credited to the White Goods Management Account (administered by the Solid Waste Section) for grants to local governments for managing discarded white goods.
- 8 percent of revenues are credited to the Solid Waste Management Trust Fund (administered by the Division of Pollution Prevention & Environmental Assistance)

FUNDING PARTNERS FOR THE FY 06 RECYCLE GUYS and RE3 CAMPAIGNS

The Solid Waste Trust Fund received an additional small percentage of its revenues from partners supporting the Recycle Guys and RE3 educational campaign, as detailed below.

Partner Name	Amount Given
Chatham County	$1,000
City of Charlotte	$2,500
City of Raleigh	$5,000
Davidson County	$2,500
Lee County	$1,000
Mecklenburg County	$5,000
New Hanover County	$995
Orange County	$1,000
Catawba County	$1,000
Wake County	$4,000
TOTAL	**$23,995**

ATTACHMENT B: 2006 COMMUNITY WASTE REDUCTION AND RECYCLING GRANTS

GRANTEE	AMOUNT	GRANT DESCRIPTION
Anson County	$12,500	Anson County will implement oil recycling and make general improvements to the county's recycling program.
Town of Raeford	$25,000	The Town of Raeford will implement a commercial PAYT program and add cardboard recycling containers.
Coastal Enterprises	$12,000	Coastal Enterprises will purchase a forklift to help handle recyclables more efficiently at its processing facility.
Edgecombe County	$18,840	Edgecombe County will implement a school recycling program.
Gaston County	$8,750	Gaston County will purchase and put into service a variety of recycling bins to increase paper recycling in County offices and paper and plastic recycling in schools.
Henderson County Schools	$4,000	Henderson County Schools will purchase recycling bins to implement a school recycling program and will conduct a teacher workshop.
Iredell County	$20,355	Iredell County Recycling will purchase containers and trailers for glass, cardboard, steel cans, electronics and textile recycling.
Burke County	$17,580	Burke County will place rolloff containers at six recycling convenience sites for the collection and transport of mixed paper.
Town of Clarkton	$18,000	The Town of Clarkton will build a recycling convenience center beside the Town Hall.
Brunswick County	$4,500	Brunswick County will place composting bins at two schools for composting cafeteria food waste. It will also conduct a composting education program at the schools. The county will distribute 100 compost bins to residents and publish an educational brochure.
New Hanover County	$25,000	New Hanover County will develop a new recycling convenience center in an underserved area of the county for recycling ONP, OCC, RMP, glass, aluminum cans, plastic bottles, and rechargeable household batteries
Habitat for Humanity - Matthews	$17,045	Habitat for Humanity of Matthews will purchase a box-body cargo truck to increase its recovery of furniture, household goods and building supplies.
Land of Sky Regional Council	$12,500	Land-of-Sky Regional Council will create a community based social marketing campaign that helps local ABC permit holders to start recycling programs.
Cumberland County	$15,000	Cumberland County will purchase roll-out carts and implement a recycling program to collect office paper, magazines, aluminum, and plastic throughout the county school system.
Town of Princeton	$13,500	The Town of Princeton will implement an oil, oil filter and antifreeze recycling program.
Onslow County	$20,196	Onslow County will implement school recycling programs at three schools, and will purchase and provide recycling containers, roll carts, stickers, advertising, and collection of recyclables.
Pasquotank County	$16,200	Pasquotank County will purchase recycling containers to expand commercial collection, establish an oil filter recycling program, improve recycling collection at the County Correctional facility, and conduct public recycling education.
Pitt County	$10,000	Pitt Count will purchase a forklift to assist in managing electronics collected for recycling.
Wayne County	$7,400	Wayne County will conduct a pilot mobile home recycling project and establish an oil filter recycling program.
Cabarrus County	$7,000	Cabarrus County will develop and implement a multi-faceted educational

GRANTEE	AMOUNT	GRANT DESCRIPTION
		program targeting the recovery of used oil filters.
Habitat for Humanity – Wake County	$10,000	Habitat – Wake will purchase pallet racking that will expand and improve its ability to handle recyclable construction materials at its Raleigh ReUse Center.
Davidson County	$4,500	Davidson County SW to provide two compost educational programs, subsidize the cost of compost bin and provide a truckload sale event for the bins.

ATTACHMENT C: 2006 RECYCLING BUSINESS GRANT PROJECTS

GRANTEE	AMOUNT	GRANT DESCRIPTION
Cape Fear Site Works	$15,000	Cape Fear Site Works will install a large multi-functional shelter to assist in their C&D recycling operation.
Resource Reformers, LLC dba Clean Green	$30,000	Resource Reformers will develop an oil filter recycling awareness campaign and purchase a delivery truck, forklift, and material handling equipment to further develop its oil filter-recycling program.
DC Foam Recycle Center	$20,000	DC Foam will purchase and install a horizontal baler, forklift(s), trucks, trailers, electronic scales and other miscellaneous equipment needed to upfit a new post-consumer carpet recycling processing facility.
Ensley Plastics	$10,000	Ensley Corporation will purchase and utilize a grinder to grind segregated plastics.
Innovative Recycling Solutions	$25,000	Innovated Recycling Services will purchase a screener to make ground pallet & wood waste more marketable.
New Life Plastics	$10,000	New Life Plastic Recycling, Inc. will purchase and install a pelletizing line for the purpose of repelletizing polyethylene and polypropylene regrind.
Wellmark Plastics	$20,000	Wellmark will expand processing capabilities to meet increased demand for recycling plastic resin with the addition of a new shredder, grinder, and profile extruder.
Piedmont Pallets & Plastic	$15,000	Piedmont Pallets & Plastic will purchase a road tractor, trailers, box truck and pallet repair equipment to develop a pallet reuse and recycling operation.
Pallet One of NC - Siler City	$25,000	Pallet One of NC-Siler City will purchase and utilize a grinder to process scrap wood pallet waste.
GEEP	$30,000	GEEP will install processing equipment for e-waste recycling. The grant funds will be focused on the monitor processing line, which will handle the dismantling of CRT's.
Green Solutions	$15,000	Densified Solutions will collect post-industrial expanded polystyrene currently being disposed in landfills, and process it into third generation plastic.
Paper Stock Dealers - Raleigh	$10,000	Paper Stock Dealers of Raleigh will purchase, install and put into use screening equipment for the purpose of upfitting their new facility with single-stream recycling processing capacity.
PRR Services, LLC	$15,000	PRR Services is upgrading its material handling and processing capabilities through the purchase and installation of a horizontal baler.
Wake Habitat	$10,000	Habitat for Humanity of Wake County will purchase a skid steer loader and trailer to increase diversion capacity of salvaged and donated reusable building materials.
Advanced Recycling	$25,000	Advanced Recycling will purchase the building they are currently leasing, and buy a forklift to assist in material handling.
Alamance Habitat for Humanity ReStore	$5,000	The Alamance Habitat for Humanity Re-STORE will purchase a truck with a lift to further increase the capacity to recycle materials and merchandise.
Asheboro Recycling Center	$15,000	Asheboro Recycling Center, in partnership with the town of Asheboro, will begin a curbside recycling program.

CHAPTER 4 – State Agency Purchases of Recycled Products and Reduction of Solid Waste Disposal

ACKNOWLEDGMENTS

Published by the N.C. Division of Pollution Prevention and Environmental Assistance

Gary Hunt, Director
Scott Mouw, Chief, Community and Business Assistance Section
Rachel Eckert, Recycling and Environmental Purchasing Coordinator

DPPEA would like to thank the agencies that diligently submit their reports to our office each year. Your hard work and dedication is much appreciated.

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The Division of Pollution Prevention and Environmental Assistance provides free, non-regulatory technical assistance and training on methods to eliminate, reduce or recycle wastes before they become pollutants or require disposal. Contact DPPEA for more information about this document or waste reduction.

The report can be viewed online at http://www.p2pays.org/epp/stagencies.asp.
Hard copies are available upon request.

January 2007

Introduction

State agencies are directed to use products containing recycled materials by state law - N.C. General Statute 143-58.2(a), - and by Executive Order. Executive Order 156 was signed in 1999 in support of N.C. Project Green, the state environmental sustainability initiative, and was an updating and strengthening of the original initiative of Executive Order 8, signed in 1993.[1] Purchasing recycled and other environmentally preferable products improves recycling markets, helps reduce environmental impacts from waste, and saves energy and natural resources. Many state agencies and local school districts help achieve these goals through thoughtful purchasing decisions and the use of recycled content products.

North Carolina state government has continued to make progress toward environmental sustainability by offering recycled and environmentally preferable products at affordable prices on state contract. Currently, there are about 20 categories of products on term contract that offer products with recycled content materials, and several more products available exhibit some sort of environmentally preferable attribute, including recycled content packaging or energy efficiency. State agencies and others who can buy from state term contract, such as local governments, have a wide degree of choice in the purchase of high quality, cost-effective recycled products on term contract. The list of products can be seen at: **www.doa.state.nc.us/PandC/recycled.htm**.

This document summarizes the efforts of state agencies to purchase recycled products. It fulfills the reporting mandate of N.C. General Statute 143-58.2(f) for fiscal year 2006. It compiles purchasing reports required from 27 state government department and offices, 12 constituent institutions of the University of North Carolina, 53 community colleges and 82 local public school administrative units. In fiscal year 2005-2006, reports were received from 79 percent of agencies (174 out of 221). The majority of nonreporting agencies are local school entities. Almost half of the agencies that did not report did not comply with reporting requirements last year either. All reporting was conducted online, saving paper and postage.

The N.C. Division of Pollution Prevention and Environmental Assistance is the agency charged with compiling data from agency reports and publishing this summary. Copies of this and past reports may be obtained on-line at **www.p2pays.org/epp** or by calling (919) 715-6505 or (800) 763-0136.

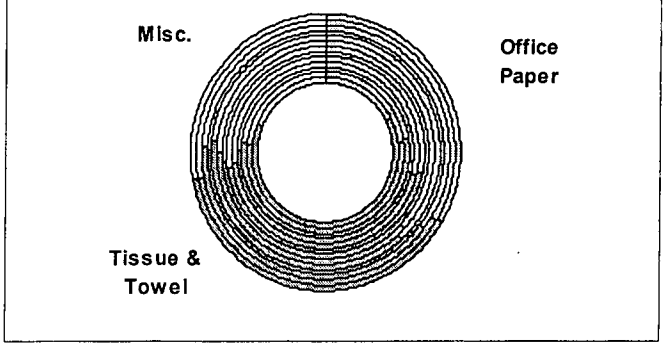
Purchases of Recycled Products

Paper and Paper Products

This is the fifth year in which agencies failed to meet the goal set forth by Executive Order 156: "State agencies shall attempt to meet the goal that, as of Fiscal Year 2000-01, 100 percent of the total dollar value of expenditures for paper and paper products be toward purchases of paper and paper products with recycled content".[2] Just about half the expenditures for paper were spent on office paper, achieving a 69 percent success in recycled content office paper purchases.

Twenty-one agencies succeeded in reaching the 100 percent goal this fiscal year for all paper purchases, including office paper, tissue and towel papers, and miscellaneous papers such as legal pads, file folders, labels and continuous feed forms. This number has been relatively consistent over the past 10 years. More than a third of the agencies achieved a stellar 90 percent or higher in recycled content purchases for their paper needs.

Figure 1. Percentage of Recycled Content Paper Categories 1994-2006



[1] Full text of No. 156 is available online at www.p2pays.org/epp/reports.asp.

Less than a quarter of reporting agencies purchased all their office paper with recycled content, but more than half bought all recycled content towel and tissue products. **Figure 1** demonstrates fluctuations in the three paper categories reported on since 1994, which is the innermost circle. Recycled content towel and tissue paper purchases have been declining the last two years, with 80 percent containing recycled content.

Since 2003, the percentage of recycled content paper purchases has decreased by 9 percent, a decline attributable to the reinstatement of the virgin paper available on state contract at a lower price. Recycled content paper costs just over two dollars more per box than virgin paper, or 20 cents per ream. Seeking more vendors of recycled content paper and implementing waste reduction techniques, such as double-sided printing and reusing one-sided pages, could help neutralize this cost, which is a notable obstacle in reaching statewide goals.

More positively, a significant impact is realized from the state's purchases of recycled content paper. For comparison, assume that the roughly $15 million spent on recycled content office paper and the nearly $7 million on virgin office paper included exclusively 8 1/2X11 white copy paper, all purchased from the state contract. The recycled office paper purchased conserved almost 89 million trees, saved enough BTUs to provide more than 600,000 households with energy for a year, and reduced the CO2 equivalent of removing 708,313 cars off the road for a year. Over 32 billion gallons of wastewater were also conserved, which is the equivalent of nearly 50,000 swimming pools. The solid waste avoidance could fill 148,496 garbage trucks, amounting to 4 billion pounds. If we converted the $7 million in virgin paper to 30 percent post consumer recycled paper, we could save another 37 million trees, 26 million more BTUs, and 63,332 more truckloads of garbage. These comparisons help put the impacts of the state's purchasing decisions in more tangible terms, and validate the motives behind our recycled content purchasing efforts[3].

Another element of recycled paper usage for state agencies includes contracted print jobs. Reported spending on outside print orders was $13.4 million, in-line with last year's data. Agencies achieved an impressive 10 percent increase of recycled content paper purchases in this category.

Figure 2. State Agency Total Purchases of Recycled Paper and Paper Products
Fiscal Years 1994-2006

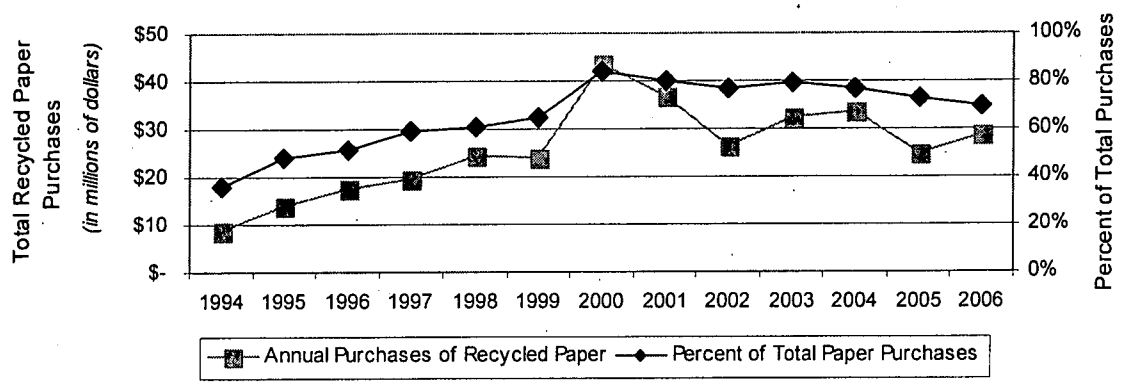


Figure 2 illustrates the trend in overall dollar amounts and percentages of recycled paper purchases over the past 13 fiscal years, including this year's increase in recycled content paper expenditures. Recycled content paper purchases totaled nearly $29 million, which represents 70 percent of all paper purchases, a

[3] These numbers are based on the assumptions outlined in the report. The weight of the office paper was estimated using a calculator at www.replanttrees.org, and the environmental impacts were estimated from the Environmental Defense's paper calculator at www.environmentaldefense.org/papercalculator.

slight decrease from last year. The data indicates a need to enhance efforts to achieve the 100 percent goal across all agencies. The accomplishment of the goal would be helped by a renewed emphasis and commitment from top management in directing agencies to meet the statutory and executive goals. A targeted campaign of outreach to agencies that purchased a high level of virgin paper is also warranted.

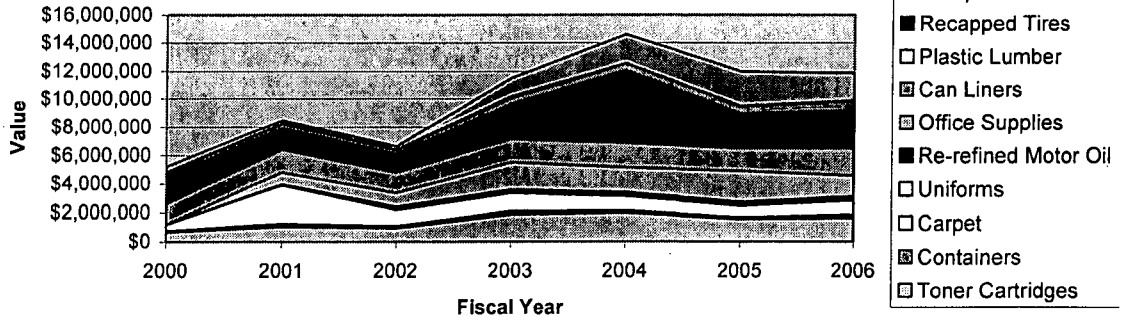
Policy and Administrative Support

While agencies are not required to develop a policy by the General Statutes or Executive Order, it could be the first step to improving our state's effectiveness in recycled content product purchases. Agencies are specifically charged with the responsibility of purchasing recycled content products, as well as designating a lead coordinator. A mere 41 percent of the reporting agencies responded positively to having a buy recycled policy or goal in place, consistent with the last three years. Agencies are also reporting that fewer administrators are communicating the importance of purchasing recycled content products, and less than half report having a lead coordinator for buy recycled efforts. These are key components to a successful recycled content procurement program, along with administrator encouragement, and should be examined as a way to significantly increase participation.

Non-Paper Products

Agencies reported spending $11.8 million on non-paper recycled products in fiscal year 2006, corresponding with last year's expenditures. Agencies seem to be aware of what the categories include due to outreach and education. In general, non-paper recycled product expenditures have begun to increase, and are expected to rise as purchasers become further educated about the products they buy, and as the array of recycled products become more available on term contracts and through vendors. Total expenditures of the recycled non-paper products reflect similar numbers as last year and are illustrated below in **Figure 3**. The size of the colored categories represent the total dollars of purchases in that category and the height in that fiscal year represents total purchases of non-paper recycled products. Reports revealed minor fluctuations in most categories; exceptions included containers, which nearly doubled, office supplies, which were down about half, and compost and mulch, which increased by more than 30 percent. The "other" category decreased by 20 percent and includes furniture, animal bedding, outdoor equipment, and housekeeping supplies. Re-refined motor oil purchases increased by 35 percent this year, which could be a result of education on the availability of the product.

Figure 3. Agency Purchases of NonPaper Recycled Content Products
Fiscal Year 2000-2006



Other Environmental Purchasing Efforts

Some state agencies have excelled beyond buying recycled, and have begun to tackle more sustainable purchasing issues like environmentally preferable purchasing (EPP). EPP, or green purchasing, includes a host of attributes that can be considered to decrease the impact of our purchases on the environment.

Several universities have developed green building initiatives for new facilities or have begun greening energy and water elements in older buildings. Green buildings require architects and contracts to consider many things from building placement, water and energy use and more environmentally friendly products. Other successes in state government this year include the initiation of dialogue between some

of the DOA Purchase and Contract engineers and DPPEA to revise some product specifications. One huge success included updating the carpet specifications to include more recycled content, as well as language that requires the vendor to remove and recycle old carpet.

Conclusion

The purchase of recycled content products is a well-established practice in state government, supported by statutory and executive order requirements, as well as state term contracts that offer high quality, affordable recycled content choices for state purchasers. Still, progress must be made to bring agencies to full compliance with the 100 percent recycled content paper goal.

Several key agencies could, with a few significant purchasing decisions, substantially increase the overall performance of state government in recycled paper purchasing. Converting the current $12.5 million in virgin paper purchases to recycled paper will allow North Carolina state government to contribute substantially to the strength of recycling markets. As a major player in the collection of paper for recycling, state government stands to benefit directly from improved markets. The use of recycled products will also help North Carolina achieve its environmental goals by reducing natural resource, energy and water usage, and preventing air and water pollution. In the case of a product like re-refined motor oil – which meets the exact specifications of virgin oil and is supported for use by engine manufacturers – agency purchases of the product is strongly recommended.

The following recommendations may help to increase recycled content purchasing in the future and help state government meet goals set forth both in Executive Order 156 and General Statutes.

Recommendations

I. Engage agencies regarding sustainability throughout the year. Continuing efforts to reach out and network with state agency purchasers will help establish green purchasing efforts as an every day activity. It will also strengthen the ability for DPPEA to collect and manage data related to state agency purchases. Reinvigorating NC Project Green, continuing onsite visits, and encouraging collegiate participation in the Collegiate Recycling Conference will revitalize this communication.

II. Increase administrative support and educational programs. Disparity among agencies in the degree of support and routine communication received from top management may be the most significant barrier to increased agency participation in recycling and recycled content product procurement. Administrative support is crucial also to the successful implementation of agency sustainability plans that incorporate waste reduction, recycling, and environmentally preferable procurement. For those agencies that have not yet prioritized waste reduction and buying recycled, it is recommended that they:

- Implement and adhere to the goals of Executive Order 156.
- Issue and enforce internal policies, official memoranda and formal declarations that demonstrate administrative leadership and support for Executive Order 156.
- Develop and implement ongoing outreach and education programs for employees and visitors, and take advantage of the assistance DPPEA can offer.

III. Increase procurement of non-paper recycled content products. Outright expenditures for non-paper recycled products continue to lag behind those of paper purchases. A vast variety of products are available with recycled content materials, which is apparent from the federal governments purchasing regulations under Executive Order 13101. Their *Comprehensive Procurement Guidelines* features more than 50 items in eight categories, including paper, non-paper office, construction, landscaping, park and recreational, transportation, vehicles and miscellaneous products (visit http://www.epa.gov/cpg/ for more information). Purchasing a diverse array of recycled content products not only strengthens recycling and job markets in North Carolina, it also helps agencies fulfill their obligation to become more environmentally sustainable. To improve overall buy-recycled efforts, state agencies should:

- Expand the quantity and variety of non-paper recycled products purchased through agency convenience contracts and state term contracts.
- Improve electronic tracking systems for all recycled product purchases.
- Specify or encourage the use of recycled materials and supplies by contracted services, especially in construction, housekeeping and printing.

IV. Make purchasing decisions based on full environmental impact vs. one-time cost. To determine the full environmental impact of a product or service, it is important to look at the full life cycle analysis of a product. By doing so, agencies can begin to make purchasing decisions that will reap short and long term benefits.

- Begin looking at products in terms of broad environmental impacts including: durability, energy efficiency, performance, recycled content and recyclability, toxicity, biodegradability, local manufacturers, and packaging.
- Open dialogue with P&C regarding products on STC and contractual services that take into account environmental impact.

Agencies that Purchased 100 Percent Recycled Paper in FY 06

Alamance Community College*
Appalachian State University
Asheboro City Schools
Davidson County Schools
Fayetteville Tech Community College
Guilford County Schools
Hoke County Board of Education*
James Sprunt Community College
Kannapolis City Schools
Madison County Schools
McDowell Technical Community College
Pamlico County Schools
Randolph Community College
Roanoke Rapids City Schools
Sampson County Schools
Stokes County Schools
UNC Charlotte
Wake Technical Community College
Wilkes County Schools
Wilson Technical Community College
Winston-Salem State University

*Did not report any office paper or miscellaneous paper purchases.

Agencies that Failed to Report Data for FY 06

Alexander County Schools
Alleghany County Board of Education
Asheville City Schools
Avery County Schools
Bertie County Schools
Bladen Community College
Brunswick County Schools
Cabarrus County Schools
Caldwell County Schools
Carteret Community College
Carteret County Schools
Catawba County Schools
Cherokee County Schools
Clay County Board of Education
Clinton City Schools
Coastal Carolina Community College
Columbus County Schools
Dare County Schools
Edenton-Chowan Schools
Edgecombe Community College
Elizabeth City State University
Fayetteville State University
Franklin County Schools
Graham County Schools
Hertford County Schools
Hyde County Board of Education
Iredell-Statesville Schools
Johnston County Schools
Kings Mountain District Schools
Lenoir County Public Schools
Lieutenant Governor's Office
McDowell County Schools
Mitchell County Schools
Mooresville Graded School District
NC Central University
NC School of the Arts
Northampton County Schools
Pasquotank County Schools
Pembroke State University*
Pender County Schools
Roanoke-Chowan Community College
Robeson County Public Schools
Shelby City Schools
Tyrrell County Schools
UNC Hospitals
Union County Public Schools
Warren County Schools

*Completed the 2005 State Agency Source Reduction, Recycling, and Composting Report

State Agency Source Reduction, Recycling, and Composting Efforts

This is the second consecutive year the Division of Pollution Prevention and Environmental Assistance collected the recycling report since FY 1999. Forty-four agencies reported data, consistent with last year, which constitutes 42 percent of the required reporting entities. Universities and community colleges are heavily represented, accounting for 40 reports.

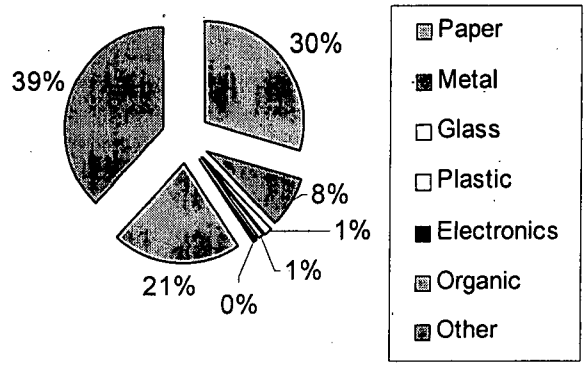
Agency departments pose a difficult challenge in reporting because they often have several regional offices to gather data from, and many work in leased facilities and share buildings with non-state businesses. They make up 27 percent of the required reports, and include more than twice as many state employees than the Capital area. This year four agency departments reported. The Department of Commerce and the Department of Insurance answered questions regarding their internal recycling program. The Department of Transportation filed a complete report, and a complete summary of their solid waste and recycling program is included in this Solid Waste Management Annual Report.

The majority of agency offices located in the Raleigh area are included under one contract for recycling and solid waste collection provided by the Department of Administration and managed by Facilities Management. Facilities Management gathers data from the collection companies and completes this report for agencies in the capital region.

Recycling Performance

In fiscal year 2006, state agencies collectively diverted 29,210 tons from disposal in landfills and incinerators. Respondents reported recycling 8,682 tons of paper, 2,315 tons of metals, 338 tons of glass, 349 tons of plastic, 6,180 tons of organics, and 11,219 tons of other materials, as demonstrated in Figure 1. Many universities and community colleges remarked that they now commingle their containers; glass and plastic categories may therefore represent estimated numbers or a lump sum of mixed containers.

Figure 1. 2006 Recycling Breakout



This data is extremely variable, and drawing comparisons to the 1999 data is difficult because reporting behaviors have most likely changed. **Based on FY 2006 data, the agency recycling rate for all wastes managed during the year was about 27 percent.** This is a 3 percent increase from the 2005 report, but still 8 percent less than the 1999-recycling rate. Three agencies reported recycling tonnages this year but did not include solid waste tonnages.

Figure 2. DOA Recycling Tonnages

Material	Tons
Paper	1852
Metal	15
Glass	3
Plastic	10
Total Tons Recycled	1880

The Capital area recycling data reported by Facilities Management is included in this data. A breakout of the categories is exhibited in Figure 2, representing 6 percent of the total recycling tonnage. Given the data reported, the projected recycling rate of the Capital region would be 53 percent, a gross overestimate that results from a lack of comparative solid waste disposal data

Data was collected for electronics recycling for the second year in a row. An encouraging one third of agencies have a contract set up with a computer recycling vendor, and in FY 2006 collected 126 tons of electronics. This does not include data from DOA or the State Surplus Office. Most agencies assert using the statewide electronics recycling contract

(www.doa.state.nc.us/PandC/926a.htm) to complement recycling through state surplus. A handful of agencies reported other vendors they work with, all of which are listed in our online Recycling Markets directory at www.p2pays.org/dmrm. A few claim to work in conjunction with their local government to dispose of electronics and one or two donated to local schools. Agencies and local governments are becoming keenly aware of the need to recycle electronic materials, bearing in mind their contribution of hazardous substances to landfills and the alternate opportunity of reclaiming valuable resources from electronic products.

Solid Waste and Program Costs

Approximately 80,078 tons of solid waste were landfilled or incinerated for state agencies in FY 2006, costing about $9.8 million in collection and disposal fees at an average cost of just under $123 per ton. This is just a fraction of the 134,599 tons reported in 1999 costing $11.75 million, but it is a 44 percent increase from last year. While the overall cost of disposal increase by almost $3 million from last year, the cost per ton actually decreased by five dollars. This number is extremely fickle depending on how complete agency reports are. Two agencies reported solid waste tonnages but did not report the cost of disposal.

Calculating the total cost of solid waste and recycling programs is difficult, and the report falls short in acquiring sequential data for accurate calculations. Some agencies even responded to this point. In particular, calculating the total cost of solid waste and recycling collection, in conjunction with a successful recycling program, may require more supplemental calculations. In order to determine the true cost or cost avoided, both programs must be considered in the equation. The reliability of this data also depends on how in-depth the reporting agencies examine their program fees.

Agencies are asked to report the cost avoided through recycling, calculated by multiplying the recycling tonnage by the cost per ton of solid waste. While most appeared to do this from the data, eight agencies reported tremendous differences in their cost avoided through recycling. Those discrepancies were either miscalculations or took into consideration other costs of the program that were not supplied in the report. The total cost avoided was over $4 million.

While nearly half the agencies reported some revenues for the sale of recyclables amounting to just over $300,000, the majority still experienced program costs totally nearly $2.7 million. Program costs include collection, processing and outreach and education. **The result is an average cost of $91 per ton of recyclables, $32 less than the cost for solid waste disposal**, which exemplifies the savings in recycling. Recycling programs should not have the expectation of zero cost, but can expect that there will be an overall savings by avoiding the higher disposal fees of solid waste. As with most new programs and efforts, there is sometimes a higher upfront cost for containers and initial education, and minimal costs to continue marketing the program.

Administrative Support and Source Reduction

The majority of agencies report that they receive top-down administrative support for recycling efforts, and well over half have a lead coordinator for waste reduction and recycling program. Forty-one percent have a waste reduction program, and a handful more have ongoing educational and promotional programs for waste reduction and recycling. Most agencies that routinely host the public at their facilities, such as state parks, highway rest areas, museums, and sports venues, provide recycling opportunities for visitors. Information is communicated and distributed via:

- ✓ Meetings with staff, dormitory resident assistants, and employee and student orientation
- ✓ Presentations and tabling special events such as: Move-In, Move-Out, Earth Day, America Recycles Day, Ozone Day
- ✓ Employee manual and materials distributed during student move-in and move-out
- ✓ Web sites, e-mails, electronic bulletin boards, brochures, fliers, newspaper, newsletters
- ✓ Posters, signs, and recycling bins
- ✓ Environmental Clubs and SGA.

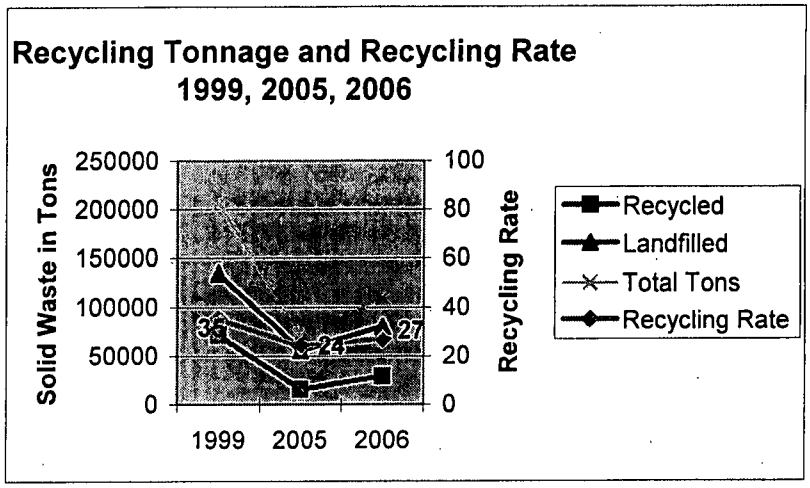
An outstanding 90 percent of state agencies practice waste reduction at the source, including reducing office paper by eliminating unnecessary reports and forms or converted to electronic format, making fewer copies, double sided printing, using email and voice mail to communicate, and posting announcements on bulletin boards or in break areas. Agencies estimate to have reduced 288.5 tons of paper by reducing

their usage in fiscal year 2006. A quarter of agencies conducted solid waste assessments of the amount and types of solid waste at its facilities. Some use this reporting process to reevaluate their program. Other agencies conduct site visits, collect landfill invoices, or audit on-site trash dumpsters. The results help in finding the best place to put recycling containers, deciphering which materials are most feasible to recycle, and identifying where waste reduction techniques would be most efficient.

Conclusion

While in many ways the revitalization of the recycling report has shown a great percentage of agencies continuing their waste reduction and recycling efforts that were established several years ago, there has not been significant overall improvement. Some agencies, including community colleges and a few universities, are struggling to recycle basic material like cardboard and aluminum cans. Sometimes this is a market issue. More often, it is a perceived barrier due to lack of education and funding, which stems from insufficient support internally.

This year's recycling tonnage represents a 70 percent increase from last year, but only a fraction of the 71,344 tons reported in 1999. This and other inconsistencies can be attributed to a few major challenges, making overall comparisons complicated. For instance, some agencies are reporting their data in tons while others in pounds. This year the data was reviewed more acutely. Next year, the integrity of the data will improve further with updates to the final report form. In addition, there has been a decrease in the number of departments reporting for regional offices in particular. Furthermore, some agencies in downtown Raleigh supplement the state's collection contract with their own, and have not reported that data.



Much of the variability in performance difference can be attributed to the inability of agencies to accurately track tonnages. Solid waste and recycling weights are still estimated because collection companies have not integrated onboard truck scales. Exact weights can only be obtained if collection is completed in one region and the truck is brought across scales to calculate the tonnage. For these reasons, data reported by state agencies likely underestimate the true quantities and costs of waste being disposed. Incomplete tracking and estimation may also contribute to fluctuations in reported recycling over time.

The unreliability of the data prevents an accurate comparison between recycling tonnage increasing causing a decrease in solid waste being disposed of in the state's landfills and incinerators. While the amount of recycling increased by 70 percent since 1999, and the solid waste tonnage only increased by 44 percent, which is less than half. Overall, the recycling rate improved by 3 percent, from 24 percent in 2005 to 27 percent in 2006. Improved awareness of agency solid waste streams and more accurate data collection will make a more reliable comparison possible. Data compiled for this report indicate that state agencies are recycling less than a third of their solid waste. It appears that agencies have simultaneously achieved some waste reduction through their efforts.

More encouraging are examples of agencies that have pulled forward as stars in waste reduction and recycling efforts. Many of the universities provide reuse programs including large-scale collection and redistribution of clothing, furniture, household supplies, and sometimes even electronic products. A few universities have conducted sustainability audits over the last year or two, which include energy and water tracking mechanisms as well as waste audits of the campus. With the re-establishment of the recycling report, some community colleges and universities have reached out for assistance to restart or

revitalize their program. UNC-Wilmington, Forsyth Tech and Wake Tech all contacted DPPEA following the reporting season last year for assistance in reviving their programs.

DPPEA has developed a new outreach and education campaign that is available to all universities and community colleges to help promote recycling programs. In FY 2006, many schools took advantage of the RE3 campaign, utilizing posters and commercials on campus. At annual outreach events from job festivals to Earth Day celebrations, campus coordinators gave out promotional materials to encourage students to visit www.re3.org to learn more about recycling. In 2007 DPPEA is planning to develop new materials to continue promoting the program, including online resources such as a web-blog, new commercials, and more promotional materials.

Recommendations

Upon review and consideration of the data contained in this report, DPPEA submits the following recommendations to improve the solid waste reduction and recycling efforts of North Carolina state agencies.

I. Assess the impact of source reduction and recycling on waste disposal and costs. Tracking the amounts of solid waste disposed annually by state agencies is the only way to determine whether efforts to reduce waste, including recycling programs, are impacting the waste stream. This information, along with data on the costs for collection and disposal of solid waste, can be used to evaluate the cost efficacy of agencies' waste management strategies as well as the costs avoided through waste reduction and recycling. To maximize data recovery and assessment, it is recommended that agencies:

- Conduct waste assessments at their constituent facilities, offices and institutions.
- Require full accounting for all costs associated with solid waste collection and disposal services.

II. Develop a means to communicate your recycling program. Programs are ineffective if they are not visible and not explained to employees. This may be as simple as quarterly e-mail reminders of what is accepted at the various bins in your office, and where the bins are located (i.e. by the copy machine, in the staff lounge, in the lobby, etc.). Depending on the work environment, such efforts may include a full-fledged outreach and education program. DPPEA makes materials available for promotional initiatives, including posters, stickers and other advertising tools through the RE3 program at www.re3.org.

CHAPTER 5 – White Goods Management

"White goods" are defined in General Statute 130A-290 (a)(44) as, "refrigerators, ranges, water heaters, freezers, unit air conditioners, washing machines, dishwashers, and clothes dryers and other similar domestic and commercial large appliances." In 1993, the North Carolina General Assembly passed the statute because white goods were difficult to dispose and contained chlorofluorocarbons refrigerants (CFCs). Counties were mandated to manage them by providing at least one disposal site, at no cost to citizens, and to arrange for the removal of CFCs. To fund this statute the General Assembly imposed a $3 tax (advanced disposal fee or ADF) on new white goods purchased.

Overview

- County revenues from scrap metals sales continue to stay high. The demand from overseas markets appears to remain strong despite minor price fluctuations. A number of counties that have made investments in infrastructure to increase efficiency and streamline costs are receiving good profits by selling scrap metals.

- Some counties are continuing to regain control of white goods programs from contractors and third parties. County governments that fail to realize the full worth of scrap metals lose considerable amounts of potential proceeds from their white goods programs.

- A small number of counties with high overhead costs continue to require subsidizing of their deficits. Those counties request cost over-run grants to balance their accounts. As scrap metal prices remain relatively high some counties continue to give away their scrap metals, losing substantial revenue.

- The white goods program continues to promote county infrastructure for improved white goods management through its capital improvements grant program. A number of counties that have used white goods money to improve infrastructure are now receiving lucrative returns.

- Several counties have established in-house chlorofluorocarbons (CFCs) reclamation programs. The white goods program promotes CFC reclamation by providing money to counties for purchasing of machinery and training of personnel. Refrigerant gas recycling provides another source of revenue to counties willing to organize such a program.

- A mechanism should be devised to ensure that counties are spending white goods tax revenues on their white goods programs.

This interim report is based on information supplied by counties' Annual Financial Information Reports (AFIRs). AFIRs are submitted to the Office of the State Treasurer. AFIRs are due by Nov. 1st. 45 counties had submitted AFIRs at the time this report was prepared, Jan. 15, 2007. A final, revised report will be issued when the remaining counties submit their AFIRs. It should be noted that, aside from many AFIRs from counties being late, many have blank or erroneous entries.

Counties that did not report as of January 15, 2007

Alamance	Alexander	Ashe	Beaufort
Buncombe	Burke	Caldwell	Camden
Caswell	Chowan	Columbus	Currituck
Dare	Davidson	Durham	Franklin
Gates	Granville	Greene	Halifax
Henderson	Hertford	Hoke	Hyde
Jones	Macon	Madison	McDowell
Mitchell	Montgomery	Moore	Nash
Northampton	Onslow	Pamlico	Pender
Perquimans	Pitt	Polk	Richmond
Robeson	Rowan	Rutherford	Scotland
Stanly	Stokes	Transylvania	Tyrrell
Vance	Warren	Watauga	Wayne
Wilkes	Yancey		

Financial Update

- **The white goods management account no longer runs a large surplus.** The number of counties that forfeit their tax proceeds declined significantly while overall grant requests continue to stay relatively high. In FY 98-99, 42 counties forfeited tax proceeds. However, by the fourth quarter of FY 05-06, only 8 counties had forfeited their proceeds.
- The amount of forfeited funds available for redistribution dropped 75 percent in the last few grant periods, at the same time that county requests for cost overrun and capital improvement grants have remained relatively steady.
- In FY 2003-04 the white goods management account received $539,293 in forfeited funds. In FY 05-06 the white goods management account received $295,473.29 in funds forfeited by counties. This represents a drop in revenue of nearly 45 percent.

Advance Disposal Fee

Net white goods ADF collections in FY 05-06 totaled $4,903,323.64. Funds were disbursed as follows:

$ 4,903,323.64	Allocated for direct distribution to counties
$ 935,846.14	Allocated for white goods management account
$ 374,338.46	Solid Waste Management Trust Fund
$ 224,092.96	N. C. Department of Revenue cost of collections
$ 3,369,046.08	Actual amount distributed directly to counties
$ 295,473.29	Forfeited by ineligible counties

Although $3,369,046.08 (72 percent of the net disposal fee collections) was allotted for distribution, ineligible counties forfeited $295,473.29. The forfeited funds went to the white goods management account, which receives 20 percent of net collections.

White Goods Management Account

The White Goods Management Account was established to help counties whose costs exceed their share of ADF revenue. The account receives 20 percent of white goods ADF revenues. It also receives funds forfeited by counties whose surplus exceeds their threshold amount. By the end of FY 05-06, the White Goods Management Account had $1,105,017.50 in actual and projected commitments and an account balance of $969,305.17 which was slightly higher than the starting balance of $878,734.03. These commitments include $500,000 for grant requests for the first half of the next fiscal year and $605,017.50 for capital improvement grants obligations. This account is used to fund counties that incur deficits in their white goods accounts and to provide capital funds to counties to upgrade program infrastructure.

WHITE GOODS DISPOSAL ACCOUNT BALANCE FY 05-06

Beginning Balance (July 1, 2005)	$ 878,734.03
Funds Received during FY 05-06	$ 1,231,319.43
Cost Overrun Grants Disbursed in FY 05-06	$ 498,046.81
Capital Improvement Grants Paid in FY 05-06	$ 642,701.48
Moneys Needed for Future Grant Awards*	$ 1,105,017.50
Ending Balance (June 30, 2006)	$ 969,305.17

*Includes $605,017.50 reserved for capitol improvement grants and $500,000 reserved for next round of overrun grants.

White Goods Management Account Grants

The first graph below shows that total amounts of money requested by counties for cost over-run grants in the last recent grant periods has decreased. There was a sharp rise in the amount of funds requested by counties for cost over-run grants in the January-June 2006 grant round of requests for the fiscal year. This was primarily due to the failure of one county to accurately report its expenses. Otherwise, the graph followed its historic values. The amounts of funds that are requested by counties for cost over-run grants have remained relatively stable for the last few grant rounds. This is thought to be due to the high value of scrap metal. At the end of 2001, the benchmark price (benchmark pricing does not include the costs of shipping and processing metals) of scrap metals was at $95 per ton. At the end of 2003, the benchmark

price was set at $150 per ton. Presently, at the end of 2006, the benchmark price of scrap metal stands at $185 per ton.

Over $289,273.52 in grants went to 24 counties for losses incurred July-December 2005; $208,773.29 was distributed to 24 counties for losses incurred January-June 2006 (Tables 1 and 2).

Table 1

Grant Requests & Awards from the White Goods Disposal Account for Losses Incurred July- December 2005

County	ADF	Amount Requested	Amount Paid
Brunswick	$15,858.97	$29,176.60	$29,176.60
Camden	$1,589.93	$3,421.00	$3,421.00
Chatham	$10,257.58	$18,029.29	$7,211.72
Chowan	$2,698.86	$7,980.37	$7,980.37
Cleveland	$18,165.24	$73,516.40	$29,406.56
Craven	$17,154.40	$736.72	$736.72
Currituck	$4,079.91	$9,173.72	$9,173.72
Duplin	$9,601.47	$6,203.67	$6,203.67
Edgecombe	$10,055.41	$9,346.73	$3,738.69
Gates	$2,048.90	$8,956.55	$3,582.62
Graham	$1,505.81	$25,226.07	$10,090.43
Hyde	$561.64	$4,649.48	$1,859.79
Lenoir	$10,918.91	$41,949.99	$29,364.99
Madison	$3,768.07	$2,924.00	$2,923.73
Moore	$14,797.40	$4,641.41	$4,641.41
Nash	$16,917.91	$40,255.17	$28,178.62
Northampton	$4,022.09	$20,159.22	$8,063.69
Orange	$22,560.15	$15,769.12	$6,307.65
Perquimans	$2,208.17	$8,442.57	$8,441.97
Pitt	$26,391.45	$1,745.60	$1,745.60
Randolph	$25,326.92	$1,665.63	$1,665.63
Rutherford	$67,790.62	$857.82	$857.82
Tyrrell	$415.51	$820.70	$328.28
Washington	$2,514.04	$9,180.02	$3,672.01

Table 2

Disposal Grant Requests & Awards from the White Goods Account for Losses Incurred January- June 2006

County	ADF	Amount Requested	Amount Paid
Beaufort	$0.00	$34,902.78	$17,451.39
Camden	$1,589.93	$5,883.00	$5,883.00
Carteret	$11,538.84	$37,755.84	$26,429.09
Chatham	$10,257.58	$26,205.03	$13,102.52
Cleveland	$18,165.24	$70,961.12	$35,480.56
Currituck	$4,079.91	$5,084.68	$5,084.68
Duplin	$9,601.47	$36,421.44	$18,210.72
Durham	$44,548.67	$162,373.42	$16,237.34
Graham	$1,505.81	$26,182.19	$13,091.10
Lenoir	$10,918.91	$28,600.49	$28,600.49
Macon	$0.00	$8,095.94	$8,095.94
Madison	$3,768.07	$3,569.00	$3,569.00
McDowell	$8,065.62	$1,353.54	$1,353.54
Mitchell	$2,982.53	$14,628.17	$10,239.72
Moore	$14,797.40	$12,407.26	$12,407.26
Nash	$16,917.91	$41,523.58	$29,066.51
Northampton	$4,022.09	$11,493.40	$5,746.70
Orange	$22,560.15	$26,968.64	$13,484.32
Pitt	$26,391.45	$1,706.76	$1,706.76
Rowan	$24,829.68	$218.49	$152.94
Rutherford	$67,790.62	$14,702.00	$7,351.00
Transylvania	$0.00	$4,405.72	$4,405.72
Tyrrell	$415.51	$8,763.77	$4,381.89
Washington	$2,514.04	$11,059.07	$7,741.35

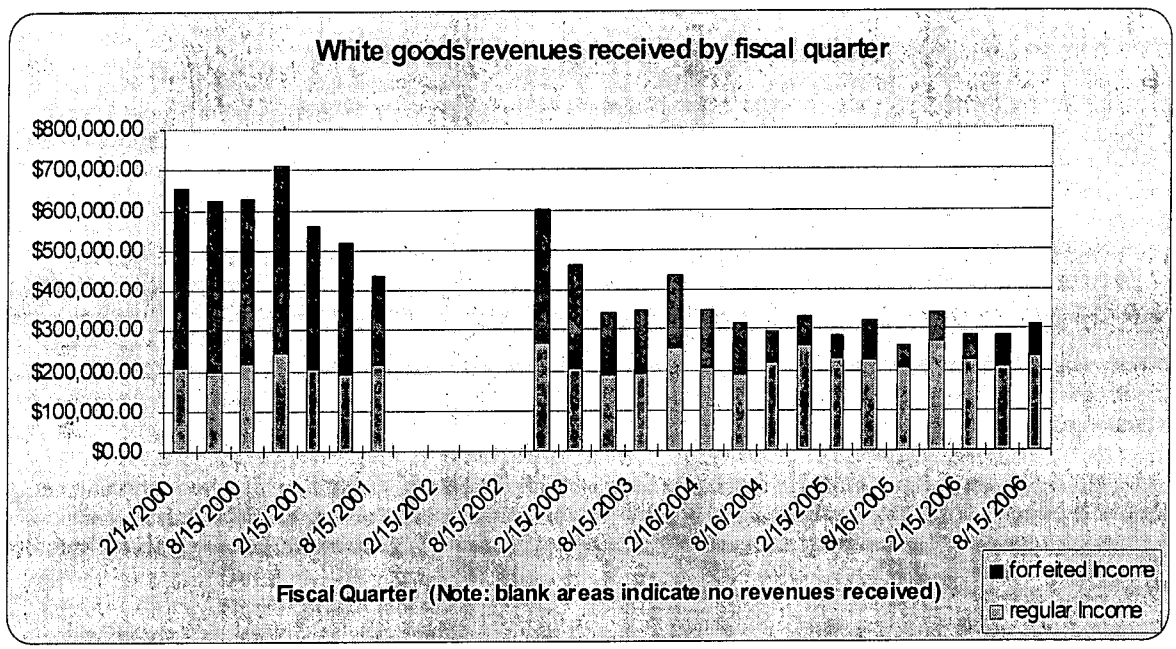
Capital improvement grants totaling $ 642,701.48 were awarded to 13 counties (Table 3). *In FY 05-06, counties received* $1,140,748.29 *in cost overrun and capitol improvement grants, and* $1,231,319.43 *in revenues was received.*

Table 3

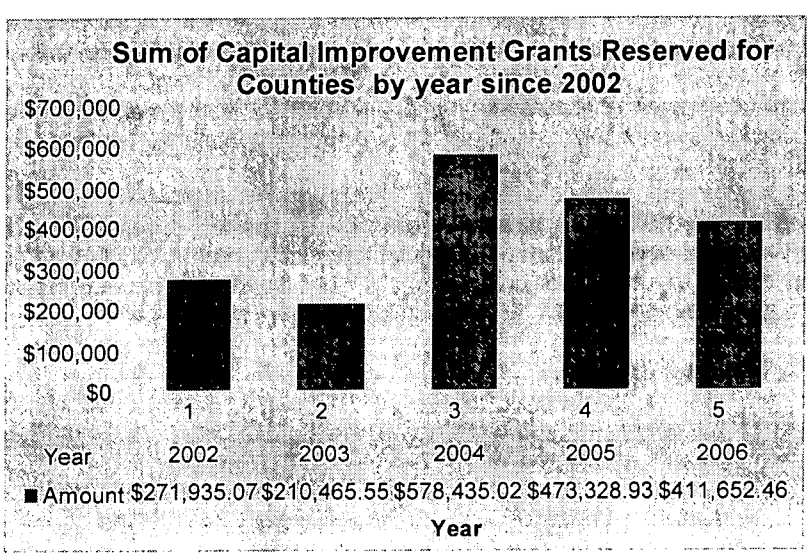
Capital Improvement Grants Paid to Counties for Fiscal Year 2005-2006

County	Amount	Purpose
Ashe	$34,500.00	roll-off truck
Caldwell	$56,100.00	skid steer
Chowan	$10,607.80	roll-off containers
Duplin	$93,569.85	concrete pad
Gates	$10,607.80	roll-off containers
Hoke	$45,898.00	concrete pad
Jackson	$34,304.83	loading area
Lincoln	$9,312.17	concrete pad repair
Lincoln	$53,851.70	Knuckleboom loader
Nash	$15,450.00	concrete pad
Perquimans	$12,918.50	roll-off containers
Pitt	$68,125.00	roll-off containers
Surry	$54,345.88	concrete pad
Wilkes	$143,109.95	road tractor-trailer

As the previous graph demonstrated, the total of the amounts requested have decreased gradually in recent grant periods. As the next graph depicts, the amount of available funds dropped significantly at the same time grant requests declined. Funds are received into the white goods account from the Department of Revenue forty five days after the end of the fiscal quarter.



The graph below shows that since the year 2002 capital improvement grant amounts have increased. The white goods program is actively encouraging counties to improve infrastructure and equipment to enhance county program efficiency. The net effect of these trends is that careful management of the fund is necessary to keep it solvent.



Program Results

Grant and ADF funding made it possible to clean up illegal dumpsites. Previously, many counties gave white goods a low priority and under-funded their management. The white goods account makes it

possible for counties to obtain the specialized equipment or develop collection and loading areas needed to improve white goods management.

In FY 05-06, 45 county collection sites took in 38,788 tons, or an estimated 969,700 appliances. This compares to the 25,749 tons, or 644,000 appliances, collected in FY 91-92 by all 100 counties. Without the program, large numbers of appliances would have likely been dumped or stockpiled.

White Goods Management by County Governments

The banning of white goods from landfills in 1989 has encouraged recycling and better management. Comprehensive white goods management laws enacted in 1993 included an ADF. In 1998, Senate Bill 124 extended the fee for three years but reduced it from $10 to $3. In 2000, the sunset on the fee was removed.

The major accomplishment of the program is a drastic reduction in illegal dumping of white goods. The critical factor was requiring local governments to provide collection sites at no cost to citizens. Counties can use ADF proceeds to clean sites based on the percentage of white goods at the site.

Another accomplishment came when counties began to implement proper management practices to capture and recycle CFCs. The practice avoids illegal venting of CFCs into the atmosphere, but also creates a potential revenue source.

Anecdotal data indicates that more can be accomplished in this area. Accidental and intentional venting of CFCs because of poor management practices may be more widespread than previously thought. Larger regulatory fines would act as a deterrent to illegal venting of CFCs and encourage counties to do more toward recycling.

The white goods program is actively encouraging and promoting counties to reclaim more refrigerant gasses from appliances. This is being done by emphasizing that the program can provide funding for the purchase of equipment and for the training of personnel. It is hoped that the net result will be a decrease in the amounts of ozone depleting CFC's accidentally released into the environment while at the same time opening up new revenue opportunities for counties in reclaimed CFCs.

The white goods program's emphasis on capital improvement grants has enabled counties to acquire the equipment and infrastructure for more efficient white goods management. At the same time, the use of machinery and infrastructure to better manage white goods produces higher revenues from scrap metals.

Though the white goods program has had many accomplishments, some problems remain. Those include the limited accountability by counties to assure that tax disbursements and grants are being used for direct white goods costs.

Many local governments are privatizing their white goods management. Overall, privatization does not necessarily mean that programs are more efficient. In many instances privatized white goods management is incorporated into a more comprehensive solid waste contract between a local government and a private firm, making it more difficult to measure program efficiency.

Counties That Forfeited Funds

Counties That Became Ineligible for Advance Disposal Fees (ADF) In March 2006
(Based on FY 04-05 AFIR Reports)

Anson	Beaufort	Bertie	Cabarrus	Cherokee
Forsyth	Franklin	Greene	Hoke	Hyde
Jones	Macon	Polk	Richmond	Robeson
	Sampson	Transylvania	Tyrrell	

Counties That Will Become Ineligible for Advance Disposal Fees in March 2007 (Based on FY 05-06 AFIR Reports)

These are counties that will not receive ADF distributions because undesignated balances exceed their threshold amounts.

Anson	Bertie	Cabarrus	Cherokee
Forsyth	Graham	Lincoln	New Hanover
Sampson	Union	Wilson	

Counties that do not submit their AFIR by March 1, 2007, will be ineligible to receive tax proceeds.

White Goods Management Costs

Counties can use the white goods ADF proceeds disbursed quarterly by the Department of Revenue for daily expenses incurred to recycle white goods. Funds can also be used for one-time expenses, such as purchasing specialized equipment and making site improvements for better management. Many county programs are not self-sustaining and require subsidies. Expenses for these programs include fuel, labor and the cost of associated items. Low or high program costs are not necessarily good indicators of program efficiency. This means that counties with minimal costs are not necessarily more efficient than counties with high costs. Some counties with low program costs are marginally in compliance with the law's intent.

The 45 reporting counties spent $2,851,767 in FY 05-06. Of this total $2,576,550 was for daily operations, $173,112 for capital improvements, and $102,105 to clean up illegal disposal sites.

Counties with high per-unit costs usually have extensive intra-county collections, a cost allocation plan, lack a local market, or have a combination of these factors. Counties with little or no disposal costs tend to have minimal programs, poor recordkeeping, and lack access to a local market or a combination of these factors. Because of the high value of scrap metal, many counties have metals recyclers willing to provide free pickup from county collection sites and/or provide CFC recovery in exchange for access to the scrap metal.

In recent years scrap metal prices are at historic highs yet some counties continue to pay private contractors to collect and haul scrap metals with little or no remuneration to the county. This imposes financial pressures on the white goods program since several of these counties must apply for taxpayer funded cost over run grants to finance their programs.

Highest Operating Costs Reported

County	Cost per Ton	Cost per Appliance
Chatham	$193.84	$7.75
Cumberland	$165.32	$6.61
Gaston	$163.04	$6.52
Graham	$146.80	$5.87
Cleveland	$117.78	$4.71
Duplin	$117.02	$4.68
Person	$113.65	$4.55
Wake	$109.46	$4.38
Randolph	$102.68	$4.11
Orange	$95.13	$3.81

Lowest Operating Costs Reported

County	Cost per Ton	Cost per Appliance
Anson	$0.00	$0.00
Brunswick	$0.00	$0.00
Martin	$1.66	$0.07
Iredell	$3.24	$0.13
Sampson	$11.62	$0.46
Wilson	$11.95	$0.48
Swain	$12.43	$0.50
Cabarrus	$16.62	$0.66
Lincoln	$17.31	$0.69
Cherokee	$22.50	$0.90

*Estimate assumes an average appliance weight of 80 pounds.

Outsourcing loading and transport to the recycler can reduce some costs. Other counties use in-house labor to sort and segregate metals, recover CFCs or extract motors or oil. Overall, operating costs by counties do not seem restricted by geography. Instead, analysis suggests that a correlation to distance to markets, extent of intra-county collections, extent of record keeping, and cost allocation plans among counties have a greater effect on county costs.

Tonnage Collected by Counties

In FY 05-06, 45 counties reported processing 38,788 tons of white goods. This translates into 969,700 individual appliances (assuming 25 appliances per ton), or about .11 appliances per person in North Carolina. In FY 91-92 all 100 counties collected 25,749 tons, or 644,000 appliances.

CHAPTER 6 – Scrap Tire Management

Scrap Tire Disposal Account

The Scrap Tire Disposal Account was created by the 1993 General Assembly. It receives 27 percent of its revenues from the Scrap Tire Disposal Tax initiated on October 1, 1993. The 2002 Session removed the sunset on the Scrap Tire Disposal Tax.

Beginning in October 1992, 25 percent of the STDA fund was allocated for cost overrun grants to counties and 75 percent was allocated for clean up of nuisance tire sites. Starting with the August 12, 1997 distribution, 50 percent of the fund is allocated for cost overrun grants, 10 percent for clean up of nuisance tire sites and 40 percent for processed tire material market development grants.

FY 05-06 Balances	
Balance of Funds as of July 1, 2005	$4,941,915.16
Deposits Received FY 2005-2006	$3,438,176.52
Total Funds in Account	$8,380,091.68
Grants to County Scrap Tire Programs	$1,706,606.38
Nuisance Tire Site Cleanup Program	$163,085.85
Processed Tire Material Grants	$393,598.29
Balance of Funds as of June 30, 2006	$6,116,801.16
Obligated funds as of June 30, 2006	$3,114,021.24
Net Balance of Funds as of June 30, 2006*	$3,002,779.92

* $3,114,021.24 obligated: $704,510 for tire cleanup, $2,409,511.24 for tire recycling grants under contract and under negotiation

Tire Tax Distribution

Of the state's tire disposal tax revenue, 68 percent is distributed to counties on a per capita basis. In the past year, the total amount distributed was $8,563,897.80. This subsidized tire disposal costs for the counties, but did not cover the total expenses of some counties. The total distributed to the counties represented 77 percent of the total reported disposal costs of $11,041,479.85. This provided an average of $1.57 for each of the 7.1 million scrap tires handled by the counties.

On January 1, 1994, counties stopped charging tipping fees to dispose of tires that were certified as generated in N.C. (G.S. 130A-309.58). Counties may charge a fee for tires presented for disposal that are not accompanied by a scrap tire certification form verifying the tires were generated in North Carolina, scrap tires stockpiled prior to January 1, 1994, or new tires that are scrapped by their manufacturer because they do not meet the standards for salable tires.

Counties whose scrap tire costs exceed the amount they receive in their allocation of the tire tax can apply for a grant to cover the deficit. For the first grant cycle of this fiscal year, 60 counties requested $1,157,388 and were awarded $799,168. In the second grant cycle, 61 counties requested $1,267,951 and were awarded $907,438.

Funds are available to help counties whose costs exceed their allocation. Historically, the amount of grant funds requested by counties has surpassed availability. Scrap tire legislation requires the division to consider county efforts to avoid free disposal of out-of-state tires and county program efficiency in using their allocated funds when making decisions about grant awards. The amounts requested and awarded are as follows.

Grant Period	10/02-3/03	4/03-9/03	10/03-3/04	4/04-9/04	10/04-3/05	4/05-9/05
Funds Available	$694,963	$788,202	$834,700	$974,029	$884,872.58	$1,011,756.57
Funds Awarded	$821,583	$816,985	$767,032	$949,011	$799,168.27	$907,438.11
Grant Requests	60	61	60	67	60	61
Funds Requested	$1,011,560	$1,107,107	$1,094,005	$1,403,584	$1,157,388.16	$1,267,950.84

Processed Tire Material Market Development Grants Awarded

The goal of the division's grant program is to make scrap tire recycling sustainable in North Carolina. This goal can be met. We anticipate awarding grants for manufacturing rubber products such as mats, auto parts, gaskets, flooring material, tire derived fuel, new tire manufacturing and other applications.

The Processed Scrap Tire Material Market Development Grants program received its first allocation of funding in August 1997. Grants awarded to date are:

- Roll-Tech, Inc., Hickory, N.C. — $212,420.00
  Construct additional molds to increase hard rubber tire manufacture
  COMPLETED
- Continental Tire, Inc., Charlotte, N.C. — $1,520,000.00
  Develop "tire to tire" technology with 25 percent recycled content goal
  COMPLETED
- Jackson Paper, Inc., Sylva, N.C. — $377,000.00
  Boiler modifications for tire derived fuel
  COMPLETED
- N.C. State University, Raleigh, N.C. — $38,291.00
  Tooling development for scrap tire recycling
  COMPLETED
- TIRES, Inc., Winston Salem, N.C. — $320,000.00
  Produce playground/industrial mats
  COMPLETED
- Texas Encore Materials, Inc. (Carolina Materials LLC), Belmont, N.C. — $983,360.00
  Manufacture extruded sheets from processed tire material
  COMPLETED
- Roll-Tech LLC, Hickory, N.C. — $855,937.50
  Equipment acquisition for manufacturing solid rubber wheels
- N.C. State University, Raleigh, N.C. — $122,480.00
  Performance of Tire Chips in Bed Systems Drain-fields of Septic Systems

Tire Cleanup Program

A total of 364 nuisance tire sites have been identified in North Carolina; 342 have been cleaned and 20 sites have cleanups underway. The remaining three sites are either under investigation or enforcement action. Counties are encouraged to locate and clean all small tire sites through countywide cleanup activities.

Status	Number of Sites	Total Known Tires	Total Tires	Cleared Tires
Cleaned Up	342	7,921,557	94%	7,921,557
Under Clean Up	20	514,780	5%	131,733
Remaining Sites	2	18,000	1%	0
TOTAL	**364**	**8,454,337**	**100%**	**8,053,290**

The law requires the Division to first address nuisance tire sites that pose the greatest threat to public health and the environment. At the program's start, efforts and actions to clean top priority sites were developed and initiated as funds were available. As cleanup funds were received through quarterly distributions, additional priority sites were cleaned.

The section has established and implemented a specific cleanup plan for each known nuisance tire site. As new sites are discovered, prompt investigation leads to a cleanup plan for each site within 30 days. The plan is implemented as soon as possible to minimize potential threats to human health and the environment. The section is committed to the N.C. Big Sweep program, with reimbursements going to counties that request funds to dispose of scrap tires collected by the statewide event.

To date 181 nuisance tire sites were cleaned using STDA funds. Cost recovery efforts collected $413,896.74 from responsible parties in 10 of these sites. One site is under cost recovery action.

As a cost saving measure, minimum-security inmates have removed over 600,000 tires from nuisance sites. Counties that have used inmate labor in nuisance tire cleanups are: Anson, Bladen, Buncombe, Burke, Camden, Chatham, Chowan, Cleveland, Columbus, Craven, Davidson, Halifax, Harnett, Iredell, Lee, Moore, New Hanover, Northampton, Onslow, Perquimans, Richmond, Robeson, Rockingham, Rutherford, Stokes, Surry, Washington and Yadkin.

Scrap Tire Generation

The U.S. EPA standard to estimate scrap tire generation is one tire per person, per year.[4] The 2005 N.C. population was about 8.7 million, so it is estimated an equal number of tires were generated. This includes passenger, truck, and tires for special uses, such as off-road equipment and tractors. Counties report tires received in either tons or the number of tires. Tons can be converted to number of tires. A ton of tires consist of 100 passenger tires, 20 truck tires, or 4 off-road tires (tractors and other large off-road equipment). A more accurate method of converting tons reported to number of tires was utilized for this report, as it was for last year's report. This method results in a lower total number of tires disposed from prior years but a more accurate accounting for the three categories of tires.

In FY 05-06, counties reported receiving tires in three size categories: 87 percent passenger car tires, 11 percent heavy truck tires and 2 percent off-road tires. During FY 05-06 counties disposed of 7,028,095 tires (6,113,879 passenger, 741,643 heavy truck and 172,563 off-road). Comparing tire generation to population results in .81 scrap tires per person.

Tire Volume

All counties are required to provide a facility for scrap tire collection and to report on their management programs. A summary of this data is presented in the Appendix.

In FY 05-06, North Carolina businesses and individuals disposed of approximately 166,000 tons of tires. These tires were managed by county collection facilities and private processing/disposal facilities as follows:

142,563 tons	Managed by counties and shipped to three NC processing firms
1,377 tons	Managed by counties and shipped out-of-state
22,116 tons	Tires taken directly to processing firms (not managed by counties)
166,056 tons	**Total**

Counties reported receiving approximately 144,000 tons from N.C. scrap tire generators. The counties shipped about 143,000 tons to three private North Carolina recycling facilities; the remaining tons were shipped to out-of-state processors.

Three private N.C. processing firms received 143,000 tons from county tire programs and an additional 22,000 tons directly from disposers not participating in county tire programs. These may be individuals involved in privately-funded cleanups or tire dealers not participating in a county program.

The tire program's success is proven by the increase in the number of tires disposed during the past twelve years. Almost all disposed tires are being handled at regulated disposal facilities. However, since free disposal was implemented in 1994, a problem has emerged with illegal disposal of out-of-state tires at county collection sites. The Solid Waste Section estimates that counties spend about $600,000 per year to manage out-of-state tires that are inappropriately disposed as North Carolina tires.
This cost estimate is based on disposal costs in counties with tire volumes greater than 120 percent of the county population (1.2 tires per person). Some counties are regional retail centers or have other factors that cause them to receive an excess volume of tires.

[4] "Markets for Scrap Tires," 1991. U.S. EPA, Office of Solid Waste. EPA/530-SW-90-074A. Washington, DC.

The Section assists counties in avoiding fraudulent disposal of out-of-state tires. County efforts to deter disposal of out-of-state tires is an eligibility factor when awarding grants from the STDA to cover cost over-runs.

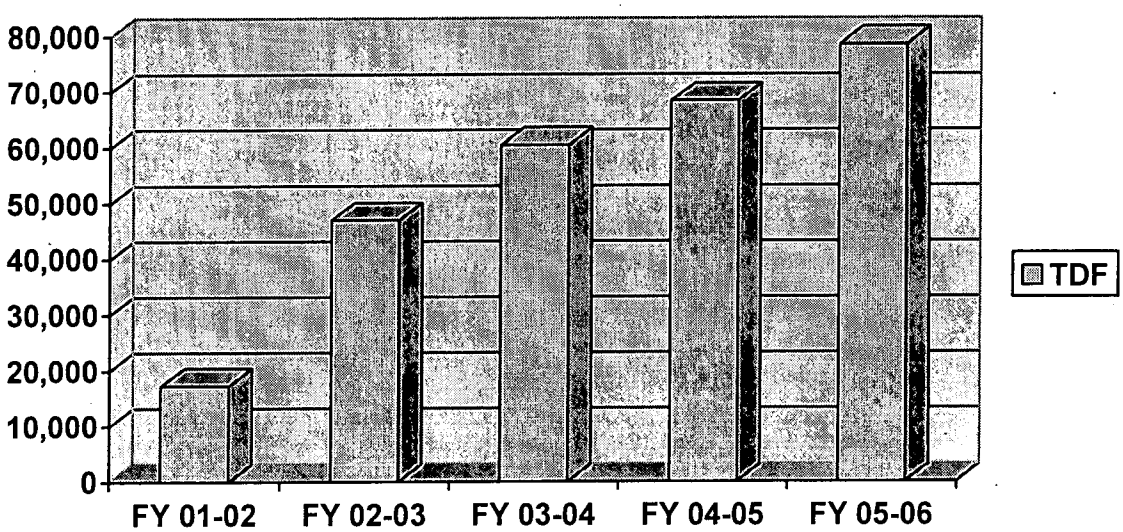
County Tire Disposal

There are 98 county programs, including one regional program [Carteret, Craven and Pamlico (CRSWMA)]. Counties reported spending a total of $11,041,479.85 for scrap tire disposal. The reported costs for scrap tire disposal varied greatly. Some counties only report disposal costs while other counties include associated costs, such as personnel or equipment. Counties with unusually low costs may stockpile tires during the year rather than sending them for processing. Some of the fluctuation is probably due to recordkeeping errors or county reporting errors. Also, some counties manage tires inefficiently. For example, counties that allow citizens to dispose tires in "green boxes" or at multiple recycling facilities incur increased labor costs to recover and load tires into trailers.

Tire disposal costs charged by processors are very competitive in N.C. North Carolina processors report that county contracts typically charge $70-$85 per ton, including transportation and trailer rental costs. Counties at a distance from processing facilities may pay as much as $85-$100 per ton.

Tire Recycling

In FY 05-06, 70% of tires received by the three North Carolina processing facilities were recycled. In order of weight recycled, the categories are tire derived fuel, civil engineering (including drain field material), crumb/ground rubber, retread/resale, and miscellaneous. The remaining tires go to the two permitted tire monofills in the state. The market for tire derived fuel (TDF) has seen strong growth in the last few years. Demand has increased from 17,304 tons in FY 01/02 to 78,474 tons in FY 05/06. While the recycling rate for scrap tires has continued to increase, the division actively seeks new opportunities for sustainable scrap tire recycling.



Addendum

Table 7 - COUNTY REPORTS OF TIRE DISPOSAL ACTIVITIES

County	Tax Revenue	Total Costs	Contractor
Alamance	$137,791.16	$181,210.44	CCTD
Alexander	35,208.11	36,129.63	USTR
Alleghany	10,900.26	26,345.00	USTR
Anson	25,761.84	23,078.64	TDS
Ashe	25,255.39	45,008.00	USTR
Avery	18,134.69	27,651.35	USTR
Beaufort	46,077.81	90,923.85	CCTD
Bertie	19,863.07	21,176.38	CCTD
Bladen	33,148.50	47,230.92	CCTD
Brunswick	84,766.36	141,805.02	CCTD
Buncombe	215,740.14	228,300.00	USTR
Burke	89,420.90	115,931.00	USTR
Cabarrus	146,749.85	143,000.00	USTR
Caldwell	78,932.94	80,322.81	USTR
Camden	8,409.89	13,291.50	CCTD
Caswell	23,829.27	17,784.04	CCTD
Catawba	148,377.97	220,945.61	USTR
Chatham	55,016.70	58,277.90	CCTD
Cherokee	25,748.31	40,658.30	USTR
Chowan	14,534.92	67,492.68	CCTD
Clay	9,616.02	19,538.50	USTR
Cleveland	98,041.11	168,103.83	USTR
Columbus	54,900.97	72,238.66	CCTD
CRSWMA	167,795.82	255,111.92	CCTD
Cumberland	312,040.84	262,436.32	CCTD
Currituck	21,696.48	31,604.50	WM
Dare	34,233.59	6985.93	CCTD
Davidson	153,887.46	160,832.87	USTR
Davie	37,988.48	28,589.13	USTR
Duplin	51,627.12	73,625.12	CCTD
Durham	239,662.54	301,200.52	CCTD
Edgecombe	54,290.40	75,938.00	CCTD
Forsyth	321,985.04	454,462.44	USTR
Franklin	52,906.78	67,573.04	CCTD
Gaston	193,036.73	192,244.17	USTR
Gates	11,016.69	11,433.10	CCTD
Graham	8,116.71	9,100.00	CCTD
Granville	53,147.27	82,354.39	CCTD
Greene	20,093.51	33,677.83	CCTD
Guilford	436,529.21	526,717.60	CCTD
Halifax	56,924.77	84,960.43	CCTD
Harnett	99,793.93	76,144.15	CCTD
Haywood	56,681.91	116,774.40	WR
Henderson	96,318.99	209,406.50	USTR
Hertford	23,883.47	42,747.60	CCTD
Hoke	38,462.12	28,741.84	CCTD
Hyde	5,696.27	12,340.56	CCTD
Iredell	136,179.16	214,875.00	USTR

County	Tax Revenue	Total Cost	Contractor
Jackson	35,692.50	45,689.22	USTR
Johnston	141,013.53	192,658.00	CCTD
Jones	10,290.49	15,591.95	CCTD
Lee	50,369.93	47,553.73	CCTD
Lenoir	58,996.76	96,259.42	CCTD
Lincoln	68,325.74	143,502.65	USTR
Macon	34,757.02	75,050.84	USTR
Madison	23,085.93	24,008.00	USTR
Martin	23,689.27	33,420.14	CCTD
McDowell	38,995.52	85,787.18	USTR
Mecklenburg	768,979.80	1,108,241.00	USTR
Mitchell	16,074.75	50,017.30	USTR
Montgomery	27,365.72	24,791.40	CCTD
Moore	79,559.15	56,508.97	CCTD
Nash	91,007.13	109,441.59	CCTD
New Hanover	174,096.46	286,757.53	CCTD
Northampton	21,757.12	24,983.40	CCTD
Onslow	160,025.34	141,934.58	CCTD
Orange	121,695.15	97,822.00	CCTD
Pasquotank	37,549.77	90,960.19	CCTD
Pender	45,067.69	70,949.07	CCTD
Perquimans	11,881.91	17,363.44	CCTD
Person	37,220.35	51,120.00	CCTD
Pitt	141,769.32	212,965.54	CCTD
Polk	19,066.46	18,260.00	USTR
Randolph	136,444.44	205,456.19	CCTD
Richmond	46,749.71	56,162.88	CCTD
Robeson	127,092.84	78,665.25	CCTD
Rockingham	92,765.07	109,858.00	CCTD
Rowan	133,960.41	152,818.74	USTR
Rutherford	63,664.74	96,211.40	USTR
Sampson	62,916.13	115,480.00	CCTD
Scotland	36,757.76	48,566.20	CCTD
Stanly	59,440.28	102,658.71	USTR
Stokes	46,102.01	43,527.74	USTR
Surry	72,651.61	137,630.56	CCTD
Swain	13,524.74	14,950.00	USTR
Transylvania	29,837.75	40,587.64	USTR
Tyrell	4,212.74	6,108.00	CCTD
Union	151,028.13	146,104.86	USTR
Vance	44,108.71	102,034.00	CCTD
Wake	722,228.12	813,779.60	CCTD
Warren	20,193.67	27,631.97	CCTD
Washington	13,560.72	35,848.26	CCTD
Watauga	43,099.78	42,652.70	USTR
Wayne	115,547.70	141,680.00	CCTD
Wilkes	67,379.77	120,000.00	USTR
Wilson	76,702.78	158,963.80	CCTD
Yadkin	37,226.51	29,837.74	USTR
Yancey	18,147.40	32,867.05	USTR
TOTAL	**$8,563,897.80**	**$11,041,479.85**	

CCTD – Central Carolina Tire Disposal / USTR – U.S. Tire Disposal / WM – Waste Management / WR – Waste Recovery

CHAPTER 7 – Department of Transportation

RECYCLE/REUSE/REDUCE REPORT

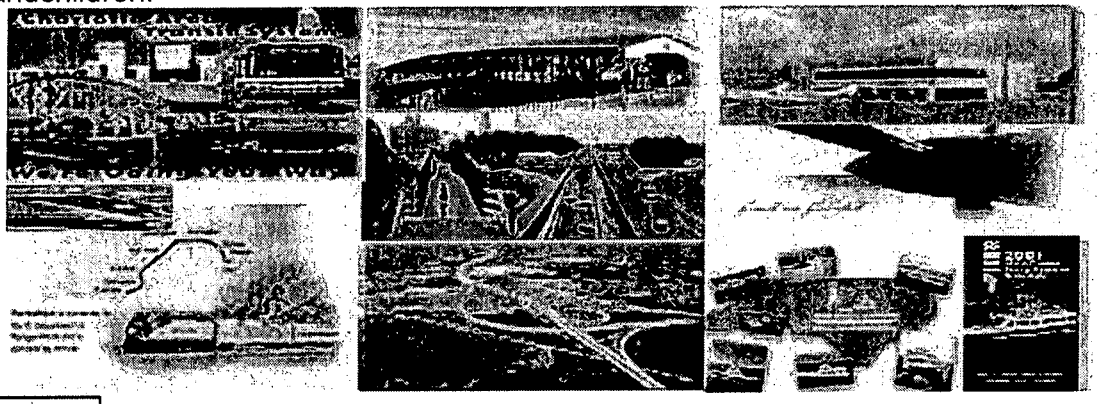
FISCAL YEAR 2005-2006

John L. Sharp
Waste Management Analyst
General Service Division

3 R PROGRAM - RECYCLE/REDUCE/REUSE

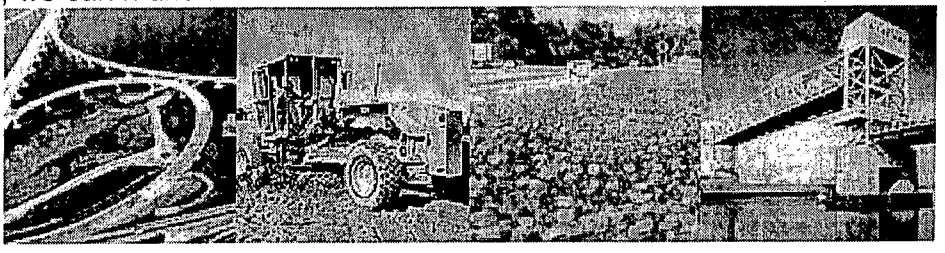
SPECIAL THANKS TO THE FOLLOWING FOR THEIR SUPPORT AND ASSISTANCE:

NCDOT SECRETARY LYNDO TIPPETT, Human beings are considered the "highest order" on earth. This title is more than an honor; it carries a special Responsibility. As living creatures, we have a moral obligation to do more than preserve our existing resources. We must set an example for the good of our successors—our children and grandchildren.

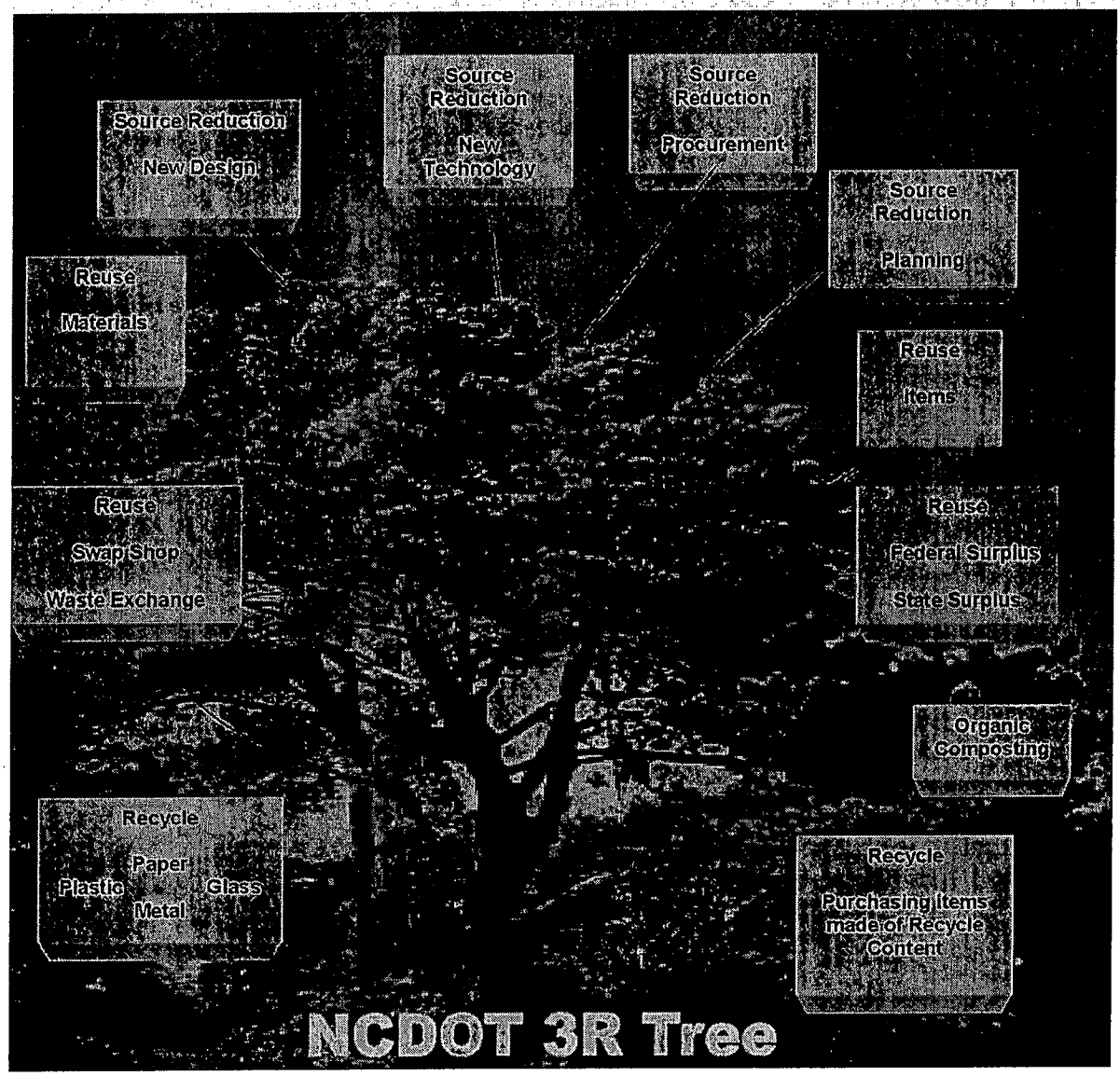


State Highway Administrator L. A. Sanderson, PE (Len), To achieve NCDOT's objective of preserving and enhancing natural, cultural and human resources while providing a safe and well-maintained interconnected transportation system requires the participation of each and every employee-

Together, we can make a difference.



NCDOT COMMISSIONER GEORGE TATUM- Together, we can make great strides in preserving our natural resources. These efforts to protect our environment will be rewarded by preservation of a quality life that will be enjoyed by generations to come.


Source Reduction
New Design
Source Reduction
New Technology
Source Reduction
Procurement
Source Reduction
Planning
Reuse
Materials
Reuse
Items
Reuse
Swap Shop
Waste Exchange
Reuse
Federal Surplus
State Surplus
Organic
Composting
Recycle
Paper
Plastic
Glass
Metal
Recycle
Purchasing Items
made of Recycle
Content
NCDOT 3R Tree

NCDOT 2006 Paper Recycling Program Environmental Impact

4,637651 Gallons of Water Saved
2,719359 Kilowatt Hours of Energy Saved
253,460 Gallons of Oil Saved
11,339 Trees Saved
2,001 Cubic Yards of Landfill Space Saved

Recycle/ Waste Facts:

- North America has 8% of the world's population, consumes 1/3 of the world's resources, and produces ½ of the world's garbage.
- Annually, enough Energy is saved by recycling steel to supply North Carolina with almost a decade worth of electricity
- Americans throw away enough office and writing paper annually to build a wall 12 feet high stretching from Los Angeles to New York.
- American consumers and industry throw away enough aluminum in a year to rebuild our entire airplane commercial fleet every three months.
- The estimated 272 billion aluminum cans reclaimed during the 1980s saved 2 billion feet of Landfill space
- More than 20,000,000 Hershey's Kisses are wrapped each day, using 48,545 square miles of aluminum foil annually. All that foil is recyclable, but not many people realize it.
- Scrap steel reduces related water pollution, air pollution, and mining wastes. It takes four times as much Energy to make steel from virgin ore.
- 40% of all U.S. municipal solid waste consists of paper and paperboard products
- Each ton of recycled paper saves 17 trees
- Each ton of recycled paper saves over 3 cubic yards of landfill space
- Each ton of recycled paper requires 6953 fewer gallons of water to manufacture than virgin paper
- Each ton of recycled paper requires 4077 kWh less energy than virgin paper to produce
- Each ton of recycle paper saves 400 Gallons of oil
- Manufacturing with copper scrap saves an estimated 85% in energy costs
- Recycling generates jobs and revenue
- Rainforests are being cut down at the rate of 100 acres per minute!
- A single quart of motor oil, if disposed of improperly, can contaminate up to 2,000,000 gallons of fresh water.
- Motor oil never wears out, it just gets dirty. Oil can be recycled, re-refined and used again, reducing our reliance on imported.

NCDOT Annual 3R Program Report 2005-2006

PART I. Education On Waste Reduction And Recycling

Effective education is the key to a successful waste reduction program. Executive Order 156 requires state agencies to (a) educate employees about recycling and waste reduction to ensure participation, and (b) establish a network of volunteers or designees to help the agency's lead coordinator carry out the agency's waste reduction education programs.
In regard to the past fiscal year (July 1, 2005- June 30, 2006), please answer the following questions: Yes / No

1. Does NCDOT have top down support for a recycling program?
   Yes

2. Does NCDOT have a lead coordinator for waste reduction and recycling efforts?
   Yes

3. Does NCDOT have a waste reduction position, office, or program?
   Yes

4. Does NCDOT have an ongoing educational and promotional program for waste reduction and recycling?
   Yes

5. If yes, how was it communicated and how was information distributed?
   Majority of the information was communicated and distributed electronically by: Employee news letter -In The Loop, Email-Dist A, Web site http://www.ncdot.org/environment/3R, Special Event days- Earth Day/ America Recyclers Day, Management/Staff meetings

6. NCDOT routinely hosts members of the public at its facilities (highway rest stops/ conferences) Does NCDOT provide waste reduction and recycling opportunities for visitors?
   Yes

PART II. Source Reduction (Waste Prevention) of Waste

North Carolina places source reduction (waste prevention) and reuse at the top of the hierarchy of preferred methods for managing solid waste. Executive Order 156 requires state agencies to practice waste prevention whenever feasible.
In regard to the past fiscal year (July 1, 2005 - June 30, 2006), please answer the following questions: Yes / No

1. Did most of NCDOT employees practice one or more techniques for reducing waste at the source?
   Yes

2. Did NCDOT conduct solid waste assessments of the amount and types of solid waste at its facilities?
   No

3. If yes, please describe briefly:
Questions 4-7 relate to office paper waste reduction carried out in NCDOT facilities from July1, 2005 - June 30, 2006.

4. Did your facilities take action to reduce office paper (copy paper, letterhead, envelopes, and packaging) waste?
Yes

5. If yes, what percentage of your facilities took action to reduce office paper waste?
70%

6. Which techniques did your agency practice to reduce office paper waste? (Check all that apply.)
Yes / No
a. Eliminated unnecessary reports and reduced report size.
Yes
b. Eliminated unnecessary forms or converted to electronic format.
Yes
c. Made fewer copies.
Yes
d. Printed or copied documents on both sides of the paper.
Yes
e. Used electronic mail and voice mail.
Yes
f. Post announcements on bulletin boards or in break areas.
Yes

7. How much paper (tons) overall was reduced by your agency?
160 Tons

PART III. Recycling And Composting Information

1. PAPER: newspaper, cardboard, magazines, office paper, mixed paper, computer printout, telephone books, hardback books, etc.
667 tons

2. METAL: aluminum cans, steel cans, scrap metal, white goods, etc.
1233 tons

3. GLASS CONTAINERS: clear, brown, green, and mixed glass.
8 tons

4. PLASTIC: PETE (#1), HDPE (#2), six-pack rings (LDPE, or #4), mixed plastic, etc.
6 tons

5. ORGANIC MATERIALS: wooden pallets, other wood, yard waste, food scraps, used cooking grease, animal manure, etc.
1672 tons

6. OTHER MATERIALS: lead-acid batteries, commingled materials, textiles/fabrics, motor oil, tires, asphalt, etc.
10,552 tons

7. GRAND TOTAL POUNDS RECYCLED/COMPOSTED:
14,138 tons

PART IV. Solid Waste Disposal And Cost Information

Enter NCDOT solid waste disposal and cost information for July 1, 2005-June 30, 2006

1. Total tons of solid waste disposed by land filling or incineration
   39,421 tons

2. Total costs for solid waste collection and disposal
   $ 1,419,170.00

3. Cost per ton of solid waste collected and disposed
   $ 36 /ton

4. Total tons recycled or composted
   14,138 tons

5. Total solid waste collection and disposal costs avoided through recycling and composting
   $ 508,968

6. Total revenues from sale of recycled materials and compost products
   $ 144,000.00

CHAPTER 8 – Department of Administration

Environmentally Preferred Purchasing

The Department of Administration continues to promote the purchase and use of reusable, refillable, repairable, more durable, and less toxic supplies and products. As the Department progresses, more of these products are being added to statewide term contracts, agency specific term contracts, as well as awarded through open market bids. For more information visit the DOA's Web site: http://www.doa.state.nc.us/PandC/

Solicitations advertised by the Division To Comply With the Session Laws 1993 {G.S. 130A - 309.14(al)}

Presently, the bids advertised in the Division of Purchase and Contract contain a Recycling and Source Reduction paragraph in item #10 of Instructions to Bidders. When developing bid invitation language, requirements and specifications, purchasers are continuing to look at alternative methods and products, if such products result in waste reduction and their procurement is both practicable and cost-effective.

Recycling and Source Reduction information provided by the contractors on bids received during the 2005 to 2006 fiscal year indicate the sustainable features or criteria of those products. Table 1 lists the primary sustainable features of the intended use, manufacture or packaging of the awarded products. Table 2 lists the purchase awards by the type of bid for those commodities.

Table 1

Primary Sustainable Feature of Awarded Purchases	Number of Bids by Sustainable Criteria	Percentage Bids by Sustainable Criteria
Recyclable	581	32.7%
Recycled Content Packaging	196	11.0%
Recycled Content other than packaging and metals	127	7.1%
Recycled Content - Metals	99	5.6%
Other - Energy Efficient, Reusable , Refillable	21	1.2%
Not Applicable - Contractual Services	458	25.7%
Purchases Without Documented Sustainable Comments which may include non-reusable medical products	297	16.7%
Total Bids	1779	100.00%

Table 2

Commodity Purchase Awards by Bid Type	Number Awards by Bid Type	Percentage Awards by Bid Type
Agency RFP	303	17.0%
Contractual Services	22	1.2%
Convenience Contracts	283	15.9%
Open Market	612	34.4%
Quotes	161	9.1%
Term Contracts	53	3.0%
Waivers	345	19.4%
Total	1779	100.0%

NC E-Procurement @Your Service

NC E-Procurement @ Your Service is a user-friendly, Internet-based purchasing system that offers electronic purchase order processing and enhanced administrative functions to buyers and vendors, resulting in operational efficiencies and cost savings.

The program's goals and objectives reflect the State's "One North Carolina" vision outlined by Governor Michael Easley, as well as that of the sponsoring agencies - the Department of Administration's Division of Purchase & Contract, the Office of the State Controller, and the Office of Information Technology Services' Statewide Information Technology Procurement Office. As of December 2006, the enterprise-wide system has over 49,700 vendors registered and over 14,000 users from more than 241 entities across the State including state agencies, hospitals, institutions, community colleges, K-12 public schools, and local governments.

Another way that NC E-Procurement has made the interactions between government and business more intuitive is to create an on-line marketplace for informal bidding; this marketplace is known as eQuote. The eQuote system allows users to submit electronic requests for quotes to vendors, replacing cumbersome manual quoting processes involving phone, fax, or U.S. mail. Vendors respond with their quotes on-line and buyers view the auto-tabulated quotes, award the contract, and submit the purchase order. After the purchase order is issued, the vendors who responded to the eQuote are electronically notified of the award.

NC E-Procurement @ Your Service contributes to a sustainable environment by significant reduction in hard copy document reproduction (paper, printers and supplies) by the use of electronic business transactions and electronic documents.

Compliance Program
The Division of Purchase and Contract is now able to conduct Compliance Reviews utilizing the NC E-procurement system. Reviews are conducted for community colleges and state agencies. By conducting compliance reviews utilizing NC E-procurement, travel (fuel reduction) is significantly reduced as well as paper reduction.

IPS (Interactive Purchasing System) & Vendor Link NC
The Division of Purchase and Contract continues to promote opportunities for vendors to do business with the state through electronic advertisement of goods, services and design/construction in IPS. The entities using this system consist of state agencies, institutions, universities, community colleges, K-12 public schools, and local governments.

Vendor Link allows vendors to register to receive electronic notification of solicitations. Vendor Link had 18,019 registered vendors as if June 30, 2006. The system continues to grow with the addition of users increasing from 138 Entities with 467 users as of June 30, 2006. This is an increased user base of 10% for the Entities and 6% for the users, which posted 6,031 bids.

Open Market Awards

- Office Panel Systems - It is standard procedure to incorporate refurbished language in the bid document for refurbished panel systems.
- Food Product Packaging - Wooden pallets that cases of food are shipped on are exchanged. Also, all of the cardboard cases are recyclable.
- Food serving equipment purchased made from stainless steel that can be recycled at end of use
- Emergency bar lights for police cars specified the new LED lamps. These bar lights offer more functionality (light patterns other than available with strobe lamps), energy efficiency (reduced electrical load on the car's alternator and battery), and significantly decrease maintenance (long life solid state LED displays eliminates lamp replacement due to mechanical vibration). Secondary benefits may include increased life for the lead acid automotive battery and potentially decreased automotive fuel consumption.
- A new type of imager allows the user to locate untreated latent fingerprints from up to 15 feet away without the use of traditional fingerprint powders or chemicals on most non-porous surfaces. After determining an area of interest that area would be processed in the normal manner. Potentially, the processing powders and chemicals used may be reduced to find areas of interest for normal processing.

Statewide Term Contracts

As existing term contracts are re-bid and new term contracts are developed, the Division of Purchase and Contract continues to improve the contracts by offering a wider range of sustainable or environmentally friendly products. Examples of the improved sustainable features of these term contracts are listed below.

- **Air Conditioners, Room, 031A** - Items available through this contract were awarded based on the lowest energy efficiency cost, meeting specifications. The majority of the items awarded are Energy Star Compliant, containing recycled materials and packaging.

- **Domestic Appliances, 045A** - All refrigerators, washers and dishwashers are "Energy Star" qualified. This is a fairly stringent measurement of energy efficiency, which is monitored by the Department of Energy. The payoff is a more efficient appliance, which use less energy over the lifetime of the product.

- **Batteries, Storage, 060B** - Battery casings are made from recycled material (96%). Batteries are exchanged as a core and picked up by the vendor. In addition the contractor will pick up and properly dispose of junk batteries on quantities less than 20. Core (junk) batteries are considered to be an environmental hazard and are otherwise expensive to properly remove.

- **Oil Filters, 060C** - Allows for multipacking, which reduces the number of individual boxes for the filters. This helps reduce trash that would otherwise be generated.

- **Tire, Automotive, Recapping and Repairing, 060E** - The retread tire provided should be a premium retread that will provide optimum tire mileage/service and safety. Recycling of tires through retreading and repairing reduces the new purchases and disposal of tire casings.

- **Passenger Cars, 070A; Law Enforcement Vehicles, 070B; Trucks/Vans/Utility Vehicles, 070G** - Bids included an AFV (alternate fuel vehicle) category for each line item. Passenger cars were bid for both standard and alternate fuels, with only the AFV types awarded, including a gasoline /electric hybrid vehicle. Limited availability restricted award of AFV type Law Enforcement and Trucks/Vans/Utility Vehicles. According to the Steel Recycling Institute, 67.7% of a vehicle is steel or iron. Of that steel or iron, 26.6% is post consumer material. Therefore, 18% of a vehicle is made from post consumer recycled material.

- **Remanufactured Toner Cartridges, 207A** - Common use cartridges are remanufactured to equivalency with the original OEM performance. Fewer cartridges are added to the waste stream.

- **Coolers, Water, Electric, 225A** - Packaging, refrigerant and metal components may contain or are recyclable.

- **Large & Specialty Lamps, 285A** - Encourages the use of energy efficient fluorescent lamps and lists products that meet the Federal Energy Management Program (FEMP) recommendations. Some of the lamps contain up to 65% recycled content including glass and mercury. Some of the packaging contains 73% recycled content. Some of the lamps are low mercury (TCLP compliant), non-hazardous.

- **Ballasts, 285B** – Electronic ballasts are more energy efficient, supports variable illumination on demand and reduces electro magnetic radiation. A link is provided to FEMP that illustrates ROI for retrofitting with more energy efficient lamps and ballasts. Ballasts contain no PCB's and can be disposed of in the trash. Reduced form factor minimizes packaging and metal enclosure requirements.

- **Carpet, 360A** - Recycled content required is either (1) minimum 5% postconsumer content except that vinyl-backed and other similar hardbacked products contain 20% by weight of postconsumer recycled content, (2) minimum 15% by weight of recovered materials (both preconsumer and postconsumer), or (3) minimum of 25% by weight of recyclable content.

- **Paper, Computer and Labels, 395B** - This contract is limited to recycled computer paper and continuous stock labels most often used by the State.

- **Fuel, Propane (Tankwagon), 405A** - Metal components may contain recycled materials. Metal is recyclable.

- **Recycled Motor Oil, 405H, 405J** - State Surplus Property disposes of waste oil and antifreeze under contract.

- **Bio-Diesel Fuel, 405L** - B20 blended fuel contains 80% diesel fuel and 20% virgin soy or reprocessed vegetable oil. Approximately 1,959,715 gallons purchased with 391,943 gallons from recycled biomass reduces crude oil consumption.

- **Gasohol, 405M** - E-10 blended fuel contains 90% unleaded gasoline and 10% ethanol. Approximately 1,049,076 gallons were purchased with 104,907 gallons from ethanol.

- **Furniture, Metal, Folding Chairs, Tables, Storage Units, Wood Library Furniture, 420 - Furniture, Desks (Wood), Credenzas, Conference Tables, Etc. & Bookcases, Furniture, 425B & C** - Contractors support sustainability through different practices, Mechanical parts can be recycled or replaced – extending service of item. Packaging is recycled and recyclable. Products may be ground up into particleboard. Packaging may contain up to 40% post consumer waste and is reusable. Wood, plastic and metal contain recycled post consumer content and are recyclable.

- **Furniture, Chairs, Ergonomic, 425E** - Fabric, Chair Cushions may contain up to 100% post consumer recycled content. Packaging contains post consumer waste, is reusable and recyclable after use.

- **Lateral and Vertical Filing Cabinets, 425F & 425G** - Cabinets contains from 10% to 30% recycled content. Corrugated boxes have a minimum of 50% post consumer waste and are recyclable. Contractor will purchase back files at end of their use.

- **Storage, Combination Storage/Wardrobe and Wardrobe Cabinets, 425H** - Cabinets have a minimum of 10% recycled metals. Packaging contains post consumer waste, is reusable and recyclable after use.

- **Industrial, Medical and Specialty Gases, 430A** - Are delivered statewide in reusable cylinders and are exchanged when replacement cylinders are needed.

- **Disinfectants and Odor Counteractants, 435A** - Plastic bottles and shipping boxes are 100% recyclable. Plastic containers for deodorant cake can be recycled after cake evaporates totally.

- **External Defibrillators, 465B** - Defibrillators can be refurbished and packaging materials can be recycled.

- **Indoor And Outdoor Waste Receptacles, Food Prep Containers, Pails, and Related Items, 485F** - Most plastic products contain 15% to 20% post consumer recycled content. Packaging contains 10% post consumer recycled content. Some containers are sold to customers to assist with sustainability management. For example the aluminum can recycle bins support recycling procedures recommended to users. Metal parts contain recycled content.

- **Brooms, Mops, Brushes, and Other Cleaning Implements, 485G** - Products may contain up to 60% post consumer recycled content. Packaging may contain up to 40% post consumer recycled waste. All cotton mops are made of cotton waste. Shipping boxes are recyclable. Broom handles can be used as wooden dowels for multiple purposes; such as garden stakes, hanging banners in classroom, etc. Forty-five percent of broom material is biodegradable.

- **LED Vehicle Traffic Signal Modules, 550A** - Traffic signals employing the high efficiency light emitting diode (LED) technology consumes 90% less energy than conventional signals, while providing greater reliability, long-lasting, and low-maintenance performance. Signals are certified for ENERGY STAR for reduced energy consumption.

- **Material Handling Carts/Trucks, 560A** - Very few products are made from virgin steel. Products are not shipped in cartons.

- **Musical Instruments and Accessories, 580B** - New designs use recyclable plastics. Band instruments may be traded in to be reconditioned and re-sold. Donations of trade-in instruments to the Links Program for the needy promotes music education. Plastic and brass parts may be recycled for future part replacement. Cardboard and pallets are recyclable.

- **Calculators, 600A** - Packaging material may be recycled.

- **Dictation/Transcription Equipment, 600C** - Vendors use recycled items (approx. 10%) and are ISO 9000 compliant. Packaging contains from 60%-100% recycled content.

- **Office Supplies, 615A** - Contractors are required to the extent feasible and practical, to offer as many recycled products, including packaging, especially those having post-consumer waste content. Wherever possible and practical, such products should be identified as such.

- **Napkins, Bathroom Tissue, and Paper Towels, 640A** - Contains 100% recycled fiber, 40% post-consumer recycled fiber.

- **Office Paper, 645A** - Contains both 100% and 50% post consumer and chlorine free copy paper. Other recycled and virgin paper products including envelopes are supported.

- **Cameras, Digital & Film, 655A** - The metal camera bodies, plastic parts and packaging materials can be recycled. Contract also includes the digital cameras and electronic storage media that promote reduction, reuse, and recycling and reduced environmental impact. Soft copy images can be easily transmitted to distance locations. Chemicals used in manufacturing and processing of the film are eliminated. Typically only proofed images are printed. Electronic storage media has a long lifetime before replacement. Even when the images are printed, the user can decide if high cost paper and toner are required. Disposal of the images on paper has less environmental impact than the toxic metals contained in film.

- **Bags, Plastic, Trash, 655B** - May have up to 15% recycled content.

- **Laminators & Laminating Film, 665A** - Some of the film contains 5% post consumer content. Packaging contains 25%-80% post consumer content.

- **Ammunition, 680A** - Brass shell casings can be saved and recycled and others can be reloaded.

- **Wiping Cloths, 735A** - All items are second-hand textiles. Vendors resell waste instead of sending to landfills. All recycled textile rags can be sold to make paper products. All rags can be re-laundered.

- **Vending Machines And Money Changers, 740B** - Packaging, refrigerant and metal components may contain recycled content and are recyclable.

- **Markerboards, Tackboards and Accessories, 785B** - Metal and wood components contain recycled materials.

- **Teaching Equipment, Electricity/Electronics Courses, 924A** - Office paper, cardboard and metal enclosures have recycled content. Documentation provided in soft copy instead of hard copies printed materials.

- **E-85 Fuel** - Agency Specific Contract for use by Motor Fleet Management. E-85 blended fuel contains 15% unleaded gasoline and 85% ethanol. Fuel is used in the flex fuel vehicles compatible for E85 fuel. Approximately 272,318 gallons were purchased with 231,470 gallons from ethanol.

- **Electronic Equipment Recycling Services, 926A** - Assists agencies and local governments with CRT disposal prohibition and in diverting surplus or discarded electronic products from landfill disposal.

Items Aiding Waste Reduction Purchased By State Agencies Through Term Contracts and Open Market

The following items purchased by State agencies meet the criteria for aiding waste reduction by being reusable, refillable, repairable, more durable, and/or less toxic than their traditional counterparts:

Reusable
Digital Cameras (reduces need for film and chemicals)
Refrigerant Recovery System (filters reusable refrigerant)
Musical Instruments
Rechargeable Dry Cell Batteries
Recycled Carpet and Virgin Carpet
Recycled Paper
Recycled Content Furniture (not traditional wood)
Printers
Solvent Degreaser (reuses solvent)
Tire Recapping & Repairing Service
Uniforms, Vacuum Bags, Wiping Cloths

More Durable
Above-Ground Vaulted Fuel Storage Tanks
Classroom Furniture, Electronic Lamps & Ballasts
Vacuum Cleaners, Floor Polish, Grader Blades
Grader Slope Attachment, Kindergarten Furniture
Paint Brushes, Plastic Lumber, Mattresses
Plastic Tableware, Staplers
Vertical File Cabinets, Wood Case goods
Wood library furniture

Energy Star – Reduced Energy Consumption
Audio Visual System,
Changeable Message Signs – Solar Powered
Domestic Appliances
Lighting Fixtures,
Room Air Conditioners,
Sonography Equipment
Television & Video Equipment, Lamps
Traffic Signals – LED,
Ultrasound Scanner
Ultrasound Training Simulator Equipment
Warning Lights - Vehicles Safety
Water Coolers

Used - Automobiles and trucks

Refillable
Ammunition - Cartridge Refills
Batteries - Vehicle & Storage
Drums – Steel, Fire Extinguishers
Cylinders for Welding, Medical & Specialty Gases
Fuel Tanks, Liquid Hand Soap
Self-Contained Breathing Apparatus

Repairable
Defibrillators, Musical Instruments
Tire Recapping & Repairing Service

Refurbished/Rebuilt
Aircraft Engines, Ferry Engine Repair Parts
Medical Diagnostic Equipment & Instrumentation
Remanufactured Toner Cartridges for Laser
Scientific Equipment, Sewing Machines

Less Toxic
Alternative Fuel Vehicles, Correction Fluid
Dry Cell Batteries, Electronic Lamps & Ballasts, Fertilizers/Farm Chemicals, Inks for printing (using non-petroleum based inks) Instructional Art Materials, Markerboard Markers, Mattresses, Scientific Products (eliminating Freon), Refrigeration and A/C Equipment

Longer Lasting
Floor Maintenance Machine Batteries, Library Furniture, Aluminum Nuts and Bolts – non-rusting alloys, Fluorescent electronic ballasts permit longer lamp life

Recyclable
Commodity Packaging, Commodity Metal enclosures & parts, Plastics, Steel & Reinforced Concrete Pipe, Chain Link Fencing, Electrical Wire, Treated Lumber, Motor Oil – refined, HVAC & Refrigeration Equipment - Refrigerants

Washable - HVAC Filters Wiping Cloths

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Of the
North Carolina
Solid Waste Management
Annual Report
July 1, 2005 – June 30, 2006

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APPENDIX A-1: PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE AND CONSTRUCTION AND DEMOLITION LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
1304	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	1,000,909	1,026,065	1,116,525	1,080,396	1,072,224	1,255,717	MSWLF
8202	WI-SAMPSON COUNTY DISPOSAL INC	447,290	613,534	775,052	940,344	849,094	866,528	MSWLF
6204	UWHARRIE ENV. REG. LANDFILL	685,584	671,808	700,619	706,997	729,158	760,704	MSWLF
0803	EAST CAROLINA REG LANDFILL	447,290	443,058	396,601	574,897	507,877	519,758	MSWLF
9209	WAKE COUNTY LANDFILL-NORTH	589,252	375,365	349,902	367,681	371,635	434,566	MSWLF
0403	CHAMBERS DEVELOPMENT MSWLF	49,979	216,576	225,788	234,976	288,249	262,093	MSWLF
3402	HANES MILL ROAD LANDFILL	323,049	287,953	274,119	238,948	274,561	266,504	MSWLF
7304	UPPER PIEDMONT REG LANDFILL	220,253	217,643	239,251	219,366	238,823	244,695	MSWLF
4112	GREENSBORO, CITY OF	269,228	259,080	251,505	237,057	219,090	201,396	MSWLF
2509	CRSWMA - LONG TERM REGIONAL LANDFILL	167,504	174,864	183,703	204,988	211,127	236,436	MSWLF
1403	FOOTHILLS ENVIRONMENTAL LANDFILL	165,086	170,687	198,767	187,696	203,788	219,353	MSWLF
2608	FORT BRAGG C&D LANDFILL	91,743	138,914	50,441	50,324	189,861	218,565	CDLF
6013	NORTH MECKLENBURG C&D LANDFILL	206,805	181,045	192,669	172,186	180,578	119,795	CDLF
2601	CUMBERLAND COUNTY LANDFILL	132,410	129,407	130,812	123,416	173,797	171,151	MSWLF
1107	BUNCOMBE COUNTY MSW LANDFILL	122,333	146,690	160,863	170,170	173,774	122,034	MSWLF
6504	NEW HANOVER COUNTY LANDFILL	148,792	117,637	117,867	187,387	171,425	245,781	MSWLF
9228	RED ROCK DISPOSAL, LLC		33,984	166,165	143,815	168,931	183,704	CDLF
1803	CATAWBA COUNTY LANDFILL	174,900	164,469	165,142	164,590	168,140	167,988	MSWLF
4903	IREDELL COUNTY SANITARY LF	121,341	121,253	128,291	134,241	149,417	162,637	MSWLF
9231	MATERIAL RECOVERY/ BROWNFIELD RD C&D LA				59,505	141,043	148,244	CDLF

APPENDIX A-1: PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE AND CONSTRUCTION AND DEMOLITION LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
6019	MECKLENBURG COUNTY LANDFILL	135,498	82,031	93,011	120,260	140,348	158,035	MSWLF
6709	ONSLOW COUNTY SUBTITLE D LANDFILL	103,057	104,967	107,639	120,106	131,685	141,239	MSWLF
4103	GREENSBORO, CITY OF	162,592	201,856	162,190	143,319	126,427	145,871	CDLF
3412	OLD SALISBURY ROAD CDLF	93,100	104,808	103,277	110,229	117,119	102,059	CDLF
5103	JOHNSTON COUNTY LANDFILL	89,683	93,267	97,593	103,501	108,751	109,822	MSWLF
2906	DAVIDSON CO MSW LINED LANDFILL	101,991	100,991	93,351	96,265	104,040	100,574	MSWLF
1306	HIGHWAY 49 C&D LANDFILL AND RECYCLING	57,101	57,453	61,571	85,975	101,695	112,072	CDLF
4116	MRR SOUTHERN,LLC				17,948	100,237	114,093	CDLF
4104	HIGH POINT CITY OF - LANDFILL	148,349	148,546	156,155	139,743	99,207	85,891	MSWLF
7803	ROBESON COUNTY LANDFILL	96,089	86,678	93,423	106,336	95,585	89,296	MSWLF
2301	CLEVELAND COUNTY LANDFILL OPEN	70,845	69,495	86,717	94,600	94,667	90,761	MSWLF
9606	WAYNE COUNTY LANDFILL	79,809	88,437	88,943	94,800	92,938	92,481	MSWLF
7904	ROCKINGHAM COUNTY LANDFILL	80,402	79,675	79,800	77,027	89,388	89,212	MSWLF
5504	BFI-LAKE NORMAN LANDFILL	103,598	121,364	74,612	85,398	85,247	112,369	CDLF
0104	AUSTIN QUARTER SWM FACILITY	94,979	90,027	97,059	95,056	82,685	74,163	MSWLF
8003	ROWAN COUNTY LANDFILL	69,471	69,131	73,350	79,166	75,524	98,548	MSWLF
9230	HWY 55 C & D LANDFILL, LLC			41,177	80,279	72,421	69,182	CDLF
3606	GASTON COUNTY LANDFILL	67,901	72,704	86,228	65,903	70,905	97,159	MSWLF
8606	SURRY COUNTY MSWLF	56,947	50,087	51,565	64,828	69,190	80,985	MSWLF
1007	BRUNSWICK COUNTY CDLF	26,231	31,829	42,009	51,994	63,913	76,390	CDLF

APPENDIX A-1: PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE AND CONSTRUCTION AND DEMOLITION LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
9704	WILKES COUNTY MSWLF	59,143	60,635	60,114	61,686	61,649	57,391	MSWLF
0105	COBLES C&D LANDFILL	99,226	79,036	78,328	57,962	57,825	55,849	CDLF
6801	ORANGE COUNTY LANDFILL	58,955	56,597	56,925	57,143	56,308	57,570	MSWLF
4407	HAYWOOD CO WHITE OAK LANDFILL	43,260	48,893	49,580	42,580	56,055	42,790	MSWLF
7407	C & D LANDFILL INC.	2,981	25,687	39,769	40,607	54,373	59,339	CDLF
4903	IREDELL COUNTY C&D UNIT	47,735	43,806	43,783	53,758	54,252	51,545	CDLF
5503	LINCOLN COUNTY LANDFILL	38,481	41,231	44,125	45,558	52,013	45,935	MSWLF
3606	GASTON COUNTY C&D LANDFILL	35,091	39,604	33,799	43,913	50,427	47,527	CDLF
8401	ALBEMARLE, CITY OF-LANDFILL	38,251	40,397	41,494	43,505	49,910	49,424	MSWLF
6708	CAMP LEJEUNE MSW LANDFILL	39,653	47,433	40,054	48,972	49,418	50,802	MSWLF
9214	BFI-HOLLY SPRINGS DISPOSAL INC	25,251	150,523	36,146	37,584	46,975	54,771	CDLF
1107	BUNCOMBE COUNTY C&D UNIT	43,370	24,238	8,209	29,889	39,252	58,730	CDLF
8003	ROWAN COUNTY C&D UNIT				12,171	35,070	38,939	CDLF
9003	GRIFFIN FARMS CDLF	24,088	20,763	26,604	32,381	33,639	42,747	CDLF
5409	LENOIR COUNTY MSW LANDFILL					33,323	43,600	MSWLF
2803	DARE COUNTY C&D LANDFILL	25,215	24,306	31,038	40,225	32,390	15,368	CDLF
9601	WAYNE COUNTY CDLF	30,838	39,537	31,563	24,481	31,616	28,569	CDLF
1302	CABARRUS COUNTY CDLF	32,294	29,666	31,622	25,570	31,461	158,626	CDLF
5101	JOHNSTON COUNTY C&D LANDFILL	37,728	42,548	38,774	33,853	31,233	39,646	CDLF
8401	ALBEMARLE, CITY OF, CDLF	24,370	28,262	29,362	34,503	30,318	28,413	CDLF

APPENDIX A-1: PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE AND CONSTRUCTION AND DEMOLITION LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
2601	CUMBERLAND COUNTY C&D UNIT	16,314	14,024	13,506	22,901	30,245	40,163	CDLF
9226	SHOTWELL LANDFILL INC.	1,902	22,919	21,946	30,094	30,204	36,600	CDLF
1803	CATAWBA COUNTY C&D UNIT			27,291	31,920	30,106	40,246	CDLF
6301	MOORE COUNTY C&D LANDFILL	31,144	26,675	24,807	26,237	29,823	36,406	CDLF
8807	TRANSYLVANIA COUNTY LANDFILL	20,186	22,495	24,034	26,496	28,303	26,732	MSWLF
5703	MACON COUNTY LANDFILL OPEN	36,510	37,041	38,145	27,889	27,746	27,783	MSWLF
2301	CLEVELAND COUNTY CDLF	14,790	14,913	62,119	24,638	25,762	25,155	CDLF
5403	LENOIR COUNTY CDLF	37,223	39,373	31,680	28,698	25,576	19,191	CDLF
3901	GRANVILLE COUNTY CDLF	22,122	29,599	24,128	24,063	24,579	31,260	CDLF
4302	HARNETT COUNTY CDLF	14,109	16,291	15,766	22,316	24,200	20,115	CDLF
8301	SCOTLAND COUNTY CDLF	28,446	24,867	23,613	24,545	23,874	16,078	CDLF
9809	WILSON COUNTY WESTSIDE C&D LANDFILL					22,137	31,442	CDLF
0501	ASHE COUNTY LANDFILL	24,833	22,598	22,528	22,342	21,704	22,643	MSWLF
8103	RUTHERFORD COUNTY C&D	14,963	18,291	16,316	24,173	20,604	21,768	CDLF
9001	UNION COUNTY C&D	28,546	31,443	27,498	24,897	20,278	27,859	CDLF
7002	PASQUOTANK COUNTY C&D LANDFILL	6,490	6,753	12,575	21,795	20,129	23,710	CDLF
2002	CHEROKEE COUNTY MSW FACILITY	20,138	19,179	18,977	19,124	18,631	20,113	MSWLF
1203	BURKE COUNTY CDLF	20,712	19,314	14,348	16,633	18,631	19,339	CDLF
5503	LINCOLN COUNTY C&D UNIT	11,404	14,635	18,730	16,337	16,097	10,351	CDLF
6801	ORANGE COUNTY C&D UNIT	33,471	27,729	20,231	17,328	16,084	16,157	CDLF

APPENDIX A-1: PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE AND CONSTRUCTION AND DEMOLITION LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
5803	MADISON COUNTY C&D UNIT	3,421	5,501	3,933	4,180	14,803	6,327	CDLF
8602	SURRY COUNTY C&D LANDFILL	15,951	17,403	13,910	14,814	13,680	16,260	CDLF
4501	HENDERSON COUNTY C&D LANDFILL	11,780	13,082	13,378	17,554	12,628	11,450	CDLF
7606	GOLD HILL ROAD C&D DEBRIS LANDFILL		7,471	9,980	15,418	12,401	13,327	CDLF
6403	NASH COUNTY C&D LANDFILL		38,963	14,925	17,023	11,928	18,690	CDLF
3301	EDGCOMBE COUNTY CDLF	44,236	18,507	18,639	19,977	11,778	7,670	CDLF
7803	ROBESON COUNTY CDLF	18,990	10,922	10,946	10,431	11,058	31,801	CDLF
4303	HARNETT CO ANDERSON CRK C&D LANDFILL	5,928	7,690	6,751	10,538	10,695	13,237	CDLF
2906	DAVIDSON COUNTY CDLF		3,670	8,077	11,707	10,638	7,999	CDLF
5704	HIGHLANDS C&D LANDFILL	7,274	8,962	11,075	9,601	9,463	9,383	CDLF
5301	LEE COUNTY C&D LANDFILL	7,987	7,868	8,114	9,247	7,637	7,767	CDLF
4407	HAYWOOD COUNTY C&D UNIT				10,116	7,498	15,594	CDLF
10002	YANCEY-MITCHELL C&D LANDFILL	3,751	2,809	3,443	4,557	6,519	5,851	CDLF
7502	POLK COUNTY C&D LANDFILL			2,347	4,184	5,524	2,481	CDLF
0905	BLADEN COUNTY C&D LANDFILL	5,635	6,859	4,562	3,861	5,469	5,309	CDLF
0104	AUSTIN QUARTER C&D UNIT	7,324	5,319	4,735	5,866	4,783	5,102	CDLF
4204	HALIFAX COUNTY CDLF	4,588	3,481	4,451	5,724	4,707	6,957	CDLF
0603	AVERY COUNTY C&D LANDFILL	3,478	3,164	2,472	2,830	3,855	3,460	CDLF
8202	WI-SAMPSON COUNTY C&D UNIT	21,618	2,724	9,666	545	3,623	2,357	CDLF
5901	MARTIN COUNTY C&D LANDFILL	3,759	3,572	3,829	4,410	3,567	9,518	CDLF

APPENDIX A-1: PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE AND CONSTRUCTION AND DEMOLITION LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
8603	SURRY COUNTY C&D LANDFILL	873	4,308	3,245	2,519	3,448	1,359	CDLF
9404	WASHINGTON COUNTY C&D LANDFILL	764	973	1,116	4,681	2,268	1,856	CDLF
4002	GREENE COUNTY CDLF	4,541	2,446	1,837	1,684	1,627	2,635	CDLF
0201	ALEXANDER COUNTY CDLF	4,000	3,664	4,435	3,566	1,556	2,444	CDLF
	NORTHAMPTON CO. C&D STOCKPILE	708	672	882	1,052	656	506	CDLF
TOTAL TONS		**8,267,236**	**8,574,707**	**8,860,027**	**9,446,562**	**9,948,591**	**10,597,882**	

APPENDIX A-1: PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
1304	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	1,000,909	1,026,065	1,116,525	1,080,396	1,072,224	1,255,717	MSWLF
8202	WI-SAMPSON COUNTY DISPOSAL INC	447,290	613,534	775,052	940,344	849,094	866,528	MSWLF
6204	UWHARRIE ENV. REG. LANDFILL	685,584	671,808	700,619	706,997	729,158	760,704	MSWLF
0803	EAST CAROLINA REG LANDFILL	447,290	443,058	396,601	574,897	507,877	519,758	MSWLF
9209	WAKE COUNTY LANDFILL-NORTH	589,252	375,365	349,902	367,681	371,635	434,566	MSWLF
3402	HANES MILL ROAD LANDFILL	323,049	287,953	274,119	238,948	274,561	266,504	MSWLF
0403	CHAMBERS DEVELOPMENT MSWLF	49,979	216,576	225,788	234,976	288,249	262,093	MSWLF
6504	NEW HANOVER COUNTY LANDFILL	148,792	117,637	117,867	187,387	171,425	245,781	MSWLF
7304	UPPER PIEDMONT REG LANDFILL	220,253	217,643	239,251	219,366	238,823	244,695	MSWLF
2509	CRSWMA - LONG TERM REGIONAL LANDFILL	167,504	174,864	183,703	204,988	211,127	236,436	MSWLF
1403	FOOTHILLS ENVIRONMENTAL LANDFILL	165,086	170,687	198,767	187,696	203,788	219,353	MSWLF
4112	GREENSBORO, CITY OF	269,228	259,080	251,505	237,057	219,090	201,396	MSWLF
2601	CUMBERLAND COUNTY LANDFILL	132,410	129,407	130,812	123,416	173,797	171,151	MSWLF
1803	CATAWBA COUNTY LANDFILL	174,900	164,469	165,142	164,590	168,140	167,988	MSWLF
4903	IREDELL COUNTY SANITARY LF	121,341	121,253	128,291	134,241	149,417	162,637	MSWLF
6019	MECKLENBURG COUNTY LANDFILL	135,498	82,031	93,011	120,260	140,348	158,035	MSWLF
6709	ONSLOW COUNTY SUBTITLE D LANDFILL	103,057	104,967	107,639	120,106	131,685	141,239	MSWLF
1107	BUNCOMBE COUNTY MSW LANDFILL	122,333	146,690	160,863	170,170	173,774	122,034	MSWLF
5103	JOHNSTON COUNTY LANDFILL	89,683	93,267	97,593	103,501	108,751	109,822	MSWLF
2906	DAVIDSON CO MSW LINED LANDFILL	101,991	100,991	93,351	96,265	104,040	100,574	MSWLF

APPENDIX A-1: PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
8003	ROWAN COUNTY LANDFILL	69,471	69,131	73,350	79,166	75,524	98,548	MSWLF
3606	GASTON COUNTY LANDFILL	67,901	72,704	86,228	65,903	70,905	97,159	MSWLF
9606	WAYNE COUNTY LANDFILL	79,809	88,437	88,943	94,800	92,938	92,481	MSWLF
2301	CLEVELAND COUNTY LANDFILL OPEN	70,845	69,495	86,717	94,600	94,667	90,761	MSWLF
7803	ROBESON COUNTY LANDFILL	96,089	86,678	93,423	106,336	95,585	89,296	MSWLF
7904	ROCKINGHAM COUNTY LANDFILL	80,402	79,675	79,800	77,027	89,388	89,212	MSWLF
4104	HIGH POINT CITY OF - LANDFILL	148,349	148,546	156,155	139,743	99,207	85,891	MSWLF
8606	SURRY COUNTY MSWLF	56,947	50,087	51,565	64,828	69,190	80,985	MSWLF
0104	AUSTIN QUARTER SWM FACILITY	94,979	90,027	97,059	95,056	82,685	74,163	MSWLF
6801	ORANGE COUNTY LANDFILL	58,955	56,597	56,925	57,143	56,308	57,570	MSWLF
9704	WILKES COUNTY MSWLF	59,143	60,635	60,114	61,686	61,649	57,391	MSWLF
6708	CAMP LEJEUNE MSW LANDFILL	39,653	47,433	40,054	48,972	49,418	50,802	MSWLF
8401	ALBEMARLE, CITY OF-LANDFILL	38,251	40,397	41,494	43,505	49,910	49,424	MSWLF
5503	LINCOLN COUNTY LANDFILL	38,481	41,231	44,125	45,558	52,013	45,935	MSWLF
5409	LENOIR COUNTY MSW LANDFILL					33,323	43,600	MSWLF
4407	HAYWOOD CO WHITE OAK LANDFILL	43,260	48,893	49,580	42,580	56,055	42,790	MSWLF
5703	MACON COUNTY LANDFILL OPEN	36,510	37,041	38,145	27,889	27,746	27,783	MSWLF
8807	TRANSYLVANIA COUNTY LANDFILL	20,186	22,495	24,034	26,496	28,303	26,732	MSWLF
0501	ASHE COUNTY LANDFILL	24,833	22,598	22,528	22,342	21,704	22,643	MSWLF
2002	CHEROKEE COUNTY MSW FACILITY	20,138	19,179	18,977	19,124	18,631	20,113	MSWLF

APPENDIX A-1: PUBLIC AND PRIVATE MUNICIPAL SOLID WASTE LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
TOTAL TONS		6,639,636	6,668,623	7,015,618	7,426,033	7,512,148	7,890,290	

APPENDIX A-1: PUBLIC AND PRIVATE CONSTRUCTION AND DEMOLITION LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
2608	FORT BRAGG C&D LANDFILL	91,743	138,914	50,441	50,324	189,861	218,565	CDLF
9228	RED ROCK DISPOSAL, LLC		33,984	166,165	143,815	168,931	183,704	CDLF
1302	CABARRUS COUNTY CDLF	32,294	29,666	31,622	25,570	31,461	158,626	CDLF
9231	MATERIAL RECOVERY/ BROWNFIELD RD C&D LA				59,505	141,043	148,244	CDLF
4103	GREENSBORO, CITY OF	162,592	201,856	162,190	143,319	126,427	145,871	CDLF
6013	NORTH MECKLENBURG C&D LANDFILL	206,805	181,045	192,669	172,186	180,578	119,795	CDLF
4116	MRR SOUTHERN,LLC				17,948	100,237	114,093	CDLF
5504	BFI-LAKE NORMAN LANDFILL	103,598	121,364	74,612	85,398	85,247	112,369	CDLF
1306	HIGHWAY 49 C&D LANDFILL AND RECYCLING	57,101	57,453	61,571	85,975	101,695	112,072	CDLF
3412	OLD SALISBURY ROAD CDLF	93,100	104,808	103,277	110,229	117,119	102,059	CDLF
1007	BRUNSWICK COUNTY CDLF	26,231	31,829	42,009	51,994	63,913	76,390	CDLF
9230	HWY 55 C & D LANDFILL, LLC			41,177	80,279	72,421	69,182	CDLF
7407	C & D LANDFILL INC.	2,981	25,687	39,769	40,607	54,373	59,339	CDLF
1107	BUNCOMBE COUNTY C&D UNIT	43,370	24,238	8,209	29,889	39,252	58,730	CDLF
0105	COBLES C&D LANDFILL	99,226	79,036	78,328	57,962	57,825	55,849	CDLF
9214	BFI-HOLLY SPRINGS DISPOSAL INC	25,251	150,523	36,146	37,584	46,975	54,771	CDLF
4903	IREDELL COUNTY C&D UNIT	47,735	43,806	43,783	53,758	54,252	51,545	CDLF
3606	GASTON COUNTY C&D LANDFILL	35,091	39,604	33,799	43,913	50,427	47,527	CDLF
9003	GRIFFIN FARMS CDLF	24,088	20,763	26,604	32,381	33,639	42,747	CDLF
1803	CATAWBA COUNTY C&D UNIT			27,291	31,920	30,106	40,246	CDLF

APPENDIX A-1: PUBLIC AND PRIVATE CONSTRUCTION AND DEMOLITION LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
2601	CUMBERLAND COUNTY C&D UNIT	16,314	14,024	13,506	22,901	30,245	40,163	CDLF
5101	JOHNSTON COUNTY C&D LANDFILL	37,728	42,548	38,774	33,853	31,233	39,646	CDLF
8003	ROWAN COUNTY C&D UNIT				12,171	35,070	38,939	CDLF
9226	SHOTWELL LANDFILL INC.	1,902	22,919	21,946	30,094	30,204	36,600	CDLF
6301	MOORE COUNTY C&D LANDFILL	31,144	26,675	24,807	26,237	29,823	36,406	CDLF
7803	ROBESON COUNTY CDLF	18,990	10,922	10,946	10,431	11,058	31,801	CDLF
9809	WILSON COUNTY WESTSIDE C&D LANDFILL					22,137	31,442	CDLF
3901	GRANVILLE COUNTY CDLF	22,122	29,599	24,128	24,063	24,579	31,260	CDLF
9601	WAYNE COUNTY CDLF	30,838	39,537	31,563	24,481	31,616	28,569	CDLF
8401	ALBEMARLE, CITY OF, CDLF	24,370	28,262	29,362	34,503	30,318	28,413	CDLF
9001	UNION COUNTY C&D	28,546	31,443	27,498	24,897	20,278	27,859	CDLF
2301	CLEVELAND COUNTY CDLF	14,790	14,913	62,119	24,638	25,762	25,155	CDLF
7002	PASQUOTANK COUNTY C&D LANDFILL	6,490	6,753	12,575	21,795	20,129	23,710	CDLF
8103	RUTHERFORD COUNTY C&D	14,963	18,291	16,316	24,173	20,604	21,768	CDLF
4302	HARNETT COUNTY CDLF	14,109	16,291	15,766	22,316	24,200	20,115	CDLF
1203	BURKE COUNTY CDLF	20,712	19,314	14,348	16,633	18,631	19,339	CDLF
5403	LENOIR COUNTY CDLF	37,223	39,373	31,680	28,698	25,576	19,191	CDLF
6403	NASH COUNTY C&D LANDFILL		38,963	14,925	17,023	11,928	18,690	CDLF
8602	SURRY COUNTY C&D LANDFILL	15,951	17,403	13,910	14,814	13,680	16,260	CDLF
6801	ORANGE COUNTY C&D UNIT	33,471	27,729	20,231	17,328	16,084	16,157	CDLF

APPENDIX A-1: PUBLIC AND PRIVATE CONSTRUCTION AND DEMOLITION LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
8301	SCOTLAND COUNTY CDLF	28,446	24,867	23,613	24,545	23,874	16,078	CDLF
4407	HAYWOOD COUNTY C&D UNIT				10,116	7,498	15,594	CDLF
2803	DARE COUNTY C&D LANDFILL	25,215	24,306	31,038	40,225	32,390	15,368	CDLF
7606	GOLD HILL ROAD C&D DEBRIS LANDFILL		7,471	9,980	15,418	12,401	13,327	CDLF
4303	HARNETT CO ANDERSON CRK C&D LANDFILL	5,928	7,690	6,751	10,538	10,695	13,237	CDLF
4501	HENDERSON COUNTY C&D LANDFILL	11,780	13,082	13,378	17,554	12,628	11,450	CDLF
5503	LINCOLN COUNTY C&D UNIT	11,404	14,635	18,730	16,337	16,097	10,351	CDLF
5901	MARTIN COUNTY C&D LANDFILL	3,759	3,572	3,829	4,410	3,567	9,518	CDLF
5704	HIGHLANDS C&D LANDFILL	7,274	8,962	11,075	9,601	9,463	9,383	CDLF
2906	DAVIDSON COUNTY CDLF		3,670	8,077	11,707	10,638	7,999	CDLF
5301	LEE COUNTY C&D LANDFILL	7,987	7,868	8,114	9,247	7,637	7,767	CDLF
3301	EDGCOMBE COUNTY CDLF	44,236	18,507	18,639	19,977	11,778	7,670	CDLF
4204	HALIFAX COUNTY CDLF	4,588	3,481	4,451	5,724	4,707	6,957	CDLF
5803	MADISON COUNTY C&D UNIT	3,421	5,501	3,933	4,180	14,803	6,327	CDLF
10002	YANCEY-MITCHELL C&D LANDFILL	3,751	2,809	3,443	4,557	6,519	5,851	CDLF
0905	BLADEN COUNTY C&D LANDFILL	5,635	6,859	4,562	3,861	5,469	5,309	CDLF
0104	AUSTIN QUARTER C&D UNIT	7,324	5,319	4,735	5,866	4,783	5,102	CDLF
0603	AVERY COUNTY C&D LANDFILL	3,478	3,164	2,472	2,830	3,855	3,460	CDLF
4002	GREENE COUNTY CDLF	4,541	2,446	1,837	1,684	1,627	2,635	CDLF
7502	POLK COUNTY C&D LANDFILL			2,347	4,184	5,524	2,481	CDLF

APPENDIX A-1: PUBLIC AND PRIVATE CONSTRUCTION AND DEMOLITION LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
0201	ALEXANDER COUNTY CDLF	4,000	3,664	4,435	3,566	1,556	2,444	CDLF
8202	WI-SAMPSON COUNTY C&D UNIT	21,618	2,724	9,666	545	3,623	2,357	CDLF
9404	WASHINGTON COUNTY C&D LANDFILL	764	973	1,116	4,681	2,268	1,856	CDLF
8603	SURRY COUNTY C&D LANDFILL	873	4,308	3,245	2,519	3,448	1,359	CDLF
	NORTHAMPTON CO. C&D STOCKPILE	708	672	882	1,052	656	506	CDLF
TOTAL TONS		**1,627,600**	**1,906,084**	**1,844,409**	**2,020,529**	**2,436,442**	**2,707,592**	

APPENDIX A-2: INCINERATION FACILITIES, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS					
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
6505-I	NEW HANOVER WASTE-TO-ENERGY FACILITY	108,381	120,751	123,823	74,984	104,755	70,974
TOTAL TONS		**108,381**	**120,751**	**123,823**	**74,984**	**104,755**	**70,974**

APPENDIX A-3: PRIVATE INDUSTRIAL LANDFILLS, DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS					
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
7302	CAROLINA POWER & LIGHT CO	637,626	587,579	604,673	601,271	424,991	366,747
4406	BLUE RIDGE PAPER PRODUCTS, INC.	254,825	238,262	248,125	262,223	278,181	304,512
9401	WEYERHAEUSER	69,697	88,631	94,243	107,389	111,463	129,729
5603	COLLINS & AIKMAN	2,988	1,465	4,748	5,292	6,724	3,472
9703	LOUISANA-PACIFIC CORPORATION	2,918	3,289	3,607	4,846	3,135	2,568
4204	HALIFAX COAL ASH LANDFILL	5,713	1,303	4,061	2,246	2,362	3,232
6004	DUKE POWER COMPANY	2,187	1,065	2,954	1,621	4,287	2,327
7602	EVEREADY BATTERY	616	676	849	401	538	590
1804	DUKE POWER/MARSHALL STEAM PL	231,476	1,497	520	366	685	1,064
TOTAL TONS		**1,208,047**	**923,766**	**963,780**	**985,654**	**832,365**	**814,240**

APPENDIX A-4: TRANSFER STATIONS AND MIXED WASTE PROCESSING FACILITIES, FY 2005-2006

PERMIT #	FACILITY	2005-2006	DISPOSAL DESTINATION	PERMIT #
0202-T	ALEXANDER CO. TRANSFER STATION	22,171	FOOTHILLS ENVIRONMENTAL LANDFILL	1403
0303-T	ALLEGHANY COUNTY TRANSFER FACILITY	9,512	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	1304
0703-T	ARS - BEAUFORT TRANSFER STATION	57,331	EAST CAROLINA REG LANDFILL	0803
0602-T	AVERY COUNTY TRANSFER STATION	13,632	BRISTOL LANDFILL, VA	
4118-T	BISHOP ROAD TRANSFER STATION	199,487	UWHARRIE ENV. REG. LANDFILL	6204
0904-T	BLADEN COUNTY TRANSFER STATION	21,338	WI-SAMPSON COUNTY DISPOSAL INC	8202
1010-T	BRUNSWICK COUNTY TRANSFER STATION	83,625	WI-SAMPSON COUNTY DISPOSAL INC	8202
1108-T	BUNCOME COUNTY TRANSFER STATION	42,345	BUNCOMBE COUNTY MSW LANDFILL	1107
1205-T	BURKE COUNTY TRANSFER FACILITY	57,950	FOOTHILLS ENVIRONMENTAL LANDFILL	1403
1604	CARTERET COUNTY TRANSFER STATION	117,651	CRSWMA - LONG TERM REGIONAL LANDFILL	2509
9211-T	CARY TOWN OF - TRANSFER STATION	2,502	SOUTH WAKE TRANSFER STATION	9221-T
9211-T	CARY TOWN OF - TRANSFER STATION	23,802	WI-SAMPSON COUNTY DISPOSAL INC	8202
2510-T	CHERRY POINT TRANSFER STATION	6,442	CRSWMA - LONG TERM REGIONAL LANDFILL	2509
7605-T	CITY OF ASHEBORO RECYCLING/SOLID WASTE TRA	19,541	UWHARRIE ENV. REG. LANDFILL	6204
3212-T	CITY OF DURHAM TRANSFER STATION	183,190	BRUNSWICK LANDFILL, VA	
2609	CITY OF FAYETTEVILLE/ WASTE INDUSTRIES TRANS	94,980	WI-SAMPSON COUNTY DISPOSAL INC	8202
6405-T	CITY OF ROCKY MOUNT TRANSFER STATION #2	97,311	BRUNSWICK LANDFILL, VA	

APPENDIX A-4: TRANSFER STATIONS AND MIXED WASTE PROCESSING FACILITIES, FY 2005-2006

PERMIT #	FACILITY	2005-2006	DISPOSAL DESTINATION	PERMIT #
2202-T	CLAY COUNTY TRANSFER STATION	5,751	PINEBLUFF LANDFILL, GA	
2403-T	COLUMBUS COUNTY TRANSFER STATION	43,047	WI-SAMPSON COUNTY DISPOSAL INC	8202
2703-T	CURRITUCK TRANSFER STATION	34,878	EAST CAROLINA REG LANDFILL	0803
9224	D.H. GRIFFIN RECLAMATION CENTER	74,652	MATERIAL RECOVERY/ BROWNFIELD RD C&D LAND	9231
9224	D.H. GRIFFIN RECLAMATION CENTER	2,780	BFI-HOLLY SPRINGS DISPOSAL INC	9214
2806	DARE COUNTY C&D LANDFILL	22,104	EAST CAROLINA REG LANDFILL	0803
2804-T	DARE COUNTY TRANSFER STATION	57,587	EAST CAROLINA REG LANDFILL	0803
5407-T	DUPONT KINSTON TRANSFER FACILITY	4,003	EAST CAROLINA REG LANDFILL	0803
5407-T	DUPONT KINSTON TRANSFER FACILITY	306	LENOIR COUNTY MSW LANDFILL	5409
8004-T	EAST SPENCER WASTE TRANSFER FACILITY	52,375	UWHARRIE ENV. REG. LANDFILL	6204
8004-T	EAST SPENCER WASTE TRANSFER FACILITY	9,173	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	1304
7903-T	EDEN, CITY OF TRANSFER STATION	4,966	ROCKINGHAM COUNTY LANDFILL	7904
3302-T	EDGCOMBE COUNTY TRANSFER STATION	26,344	EAST CAROLINA REG LANDFILL	0803
7406-T	EJE RECYCLING TRANSFER STATION	401	C & D LANDFILL INC.	7407
7406-T	EJE RECYCLING TRANSFER STATION	7,726	EAST CAROLINA REG LANDFILL	0803
2606-T	FORT BRAGG TRANSFER STATION	1,077	CUMBERLAND COUNTY LANDFILL	2601
2606-T	FORT BRAGG TRANSFER STATION	26,228	UWHARRIE ENV. REG. LANDFILL	6204

APPENDIX A-4: TRANSFER STATIONS AND MIXED WASTE PROCESSING FACILITIES, FY 2005-2006

PERMIT #	FACILITY	2005-2006	DISPOSAL DESTINATION	PERMIT #
3502-T	FRANKLIN COUNTY TRANSFER STATON	1,177	BRUNSWICK LANDFILL, VA	
3502-T	FRANKLIN COUNTY TRANSFER STATON	15,236	UPPER PIEDMONT REG LANDFILL	7304
9607-T	GOLDSBORO TRANSFER STATION	11,054	WAYNE COUNTY LANDFILL	9606
3803	GRAHAM COUNTY TRANSFER STATION	7,366	PINEBLUFF LANDFILL, GA	
4307-T	HARNETT CNTY-DUNN/ERWIN TRANSFER STATION	43,187	UWHARRIE ENV. REG. LANDFILL	6204
4305-T	HARNETT COUNTY TRANSFER STATION	10,938	UWHARRIE ENV. REG. LANDFILL	6204
4408	HAYWOOD COUNTY MWP FACILITY	35,924	HAYWOOD CO WHITE OAK LANDFILL	4407
4504-T	HENDERSON COUNTY TRANSFER FACILITY	68,507	PALMETTO LANDFILL, SC	
4602-T	HERTFORD COUNTY TRANSFER STATION	1,092	EAST CAROLINA REG LANDFILL	0803
4702	HOKE COUNTY TRANSFER STATION	28,896	UWHARRIE ENV. REG. LANDFILL	6204
4904-T	IREDELL COUNTY TRANSFER STATION	42,858	IREDELL COUNTY SANITARY LF	4903
4904-T	IREDELL COUNTY TRANSFER STATION	1,880	IREDELL COUNTY C&D UNIT	4903
5003-T	JACKSON COUNTY SCOTT CREEK TRANSFER STATIO	33,889	R&B LANDFILL	
5803-T	MADISON COUNTY TRANSFER	9,538	BFI, CARTER VALLEY	
5602-T	McDOWELL CO TRANSFER FACILITY	33,675	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	1304
9234	MRR WAKE TRANSFER STA, LLC	5,615	BFI-HOLLY SPRINGS DISPOSAL INC	9214
9234	MRR WAKE TRANSFER STA, LLC	52,347	MATERIAL RECOVERY/ BROWNFIELD RD C&D LAND	9231

APPENDIX A-4: TRANSFER STATIONS AND MIXED WASTE PROCESSING FACILITIES, FY 2005-2006

PERMIT #	FACILITY	2005-2006	DISPOSAL DESTINATION	PERMIT #
5408-T	ONSLOW CONTAINER SERVICE, INC.	26,022	EAST CAROLINA REG LANDFILL	0803
3416-T	OVERDALE ROAD TRANSFER STATION	714	FOOTHILLS ENVIRONMENTAL LANDFILL	1403
3416-T	OVERDALE ROAD TRANSFER STATION	132,701	UWHARRIE ENV. REG. LANDFILL	6204
6903-T	PAMLICO COUNTY TRANSFER STATION	8,542	CRSWMA - LONG TERM REGIONAL LANDFILL	2509
7003-T	PASQUOTANK COUNTY TRANSFER STATION	22,829	EAST CAROLINA REG LANDFILL	0803
9227-T	PCM CONSTRUCTION SERVICE- N RALEIGH C&D TRA	14,917	ROWLAND DEMO LANDFILL	92M
9227-T	PCM CONSTRUCTION SERVICE- N RALEIGH C&D TRA	38,410	RED ROCK DISPOSAL, LLC	9228
9229	PCM CONSTRUCTION SERVICES-APEX TRANSFER ST	3,833	CURRIN BROTHERS LANDFILL	92N
9229	PCM CONSTRUCTION SERVICES-APEX TRANSFER ST	56,960	RED ROCK DISPOSAL, LLC	9228
7103-T	PENDER CO TRANSFER STATION	25,603	WI-SAMPSON COUNTY DISPOSAL INC	8202
7202-T	PERQUIMANS-CHOWAN-GATES TRANSFER	24,408	EAST CAROLINA REG LANDFILL	0803
7503-T	POLK COUNTY TRANSFER STATION	10,512	UNION COUNTY LANDFILL, SC	
7503-T	POLK COUNTY TRANSFER STATION	1,378	PALMETTO LANDFILL, SC	
6014	QUEEN CITY TRANSFER STATION	13,021	FOOTHILLS ENVIRONMENTAL LANDFILL	1403
6014	QUEEN CITY TRANSFER STATION	23,325	UWHARRIE ENV. REG. LANDFILL	6204
6014	QUEEN CITY TRANSFER STATION	54,700	PALMETTO LANDFILL, SC	
6014	QUEEN CITY TRANSFER STATION	106,260	UNION COUNTY LANDFILL, SC	

APPENDIX A-4: TRANSFER STATIONS AND MIXED WASTE PROCESSING FACILITIES, FY 2005-2006

PERMIT #	FACILITY	2005-2006	DISPOSAL DESTINATION	PERMIT #
7603-T	RANDOLPH COUNTY TRANSFER FACILITY	65,772	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	1304
9608	RECYCLED MATERIALS, INC.	3	WAYNE COUNTY LANDFILL	9606
7902-T	REIDSVILLE, CITY OF TRANSFER FACILITY	6,582	UPPER PIEDMONT REG LANDFILL	7304
7703-T	RICHMOND COUNTY TRANSFER STATION	43,332	UWHARRIE ENV. REG. LANDFILL	6204
8104-T	RUTHERFORD COUNTY TRANSFER FACILITY	45,113	PALMETTO LANDFILL, SC	
8302-T	SCOTLAND COUNTY T.S.	25,711	UWHARRIE ENV. REG. LANDFILL	6204
2705	SOUNDSIDE RECYCLING & MATERIALS, INC	9,312	EAST CAROLINA REG LANDFILL	0803
2705	SOUNDSIDE RECYCLING & MATERIALS, INC	636	JOHN C. HOLLAND ENTERPRISES	
9221-T	SOUTH WAKE TRANSFER STATION	99,701	WI-SAMPSON COUNTY DISPOSAL INC	8202
9221-T	SOUTH WAKE TRANSFER STATION	49,642	WAKE COUNTY LANDFILL-NORTH	9209
3214-T	STONE PARK COURT TRANSFER STATION	25,781	RED ROCK DISPOSAL, LLC	9228
3214-T	STONE PARK COURT TRANSFER STATION	64,254	WI-SAMPSON COUNTY DISPOSAL INC	8202
8603-T	SURRY COUNTY TRANSFER STATION	29,272	SURRY COUNTY MSWLF	8606
8702-T	SWAIN COUNTY TRANSFER FACILITY	8,702	PINEBLUFF LANDFILL, GA	
2101-T	TOWN OF EDENTON TRANSFER STATION	4,276	EAST CAROLINA REG LANDFILL	0803
	TRIBAL TRANSFER STATION	25	PALMETTO LANDFILL, SC	
9005-T	UNION COUNTY TRANSFER STATION	80,463	CHAMBERS DEVELOPMENT MSWLF	0403

APPENDIX A-4: TRANSFER STATIONS AND MIXED WASTE PROCESSING FACILITIES, FY 2005-2006

PERMIT #	FACILITY	2005-2006	DISPOSAL DESTINATION	PERMIT #
6302	UWHARRIE ENV INC/MOORE CTY TRANSFER STATIO	57,721	UWHARRIE ENV. REG. LANDFILL	6204
6202-MRF	UWHARRIE ENVIRONMENTAL MRF	16,190	UWHARRIE ENV. REG. LANDFILL	6204
9302-T	WARREN COUNTY TRANSFER STATION	8,040	BRUNSWICK LANDFILL, VA	
9302-T	WARREN COUNTY TRANSFER STATION	35	UPPER PIEDMONT REG LANDFILL	7304
9808-T	WASTE INDUSTRIES- BLK. CRK. RD. TRANSFER	76,124	WI-SAMPSON COUNTY DISPOSAL INC	8202
9808-T	WASTE INDUSTRIES- BLK. CRK. RD. TRANSFER	26,805	BRUNSWICK LANDFILL, VA	
9217	WASTE INDUSTRIES CROSSWINDS PARK TRANSFER	198	WI-SAMPSON COUNTY DISPOSAL INC	8202
9806-T	WASTE INDUSTRIES WILSON TRANSFER ST.	72,124	WI-SAMPSON COUNTY DISPOSAL INC	8202
9806-T	WASTE INDUSTRIES WILSON TRANSFER ST.	26,805	BRUNSWICK LANDFILL, VA	
9102-T	WASTE INDUSTRIES-VANCE COUNTY	37,650	UPPER PIEDMONT REG LANDFILL	7304
9102-T	WASTE INDUSTRIES-VANCE COUNTY	10,900	BRUNSWICK LANDFILL, VA	
1903-T	WASTE MAN. - CHATHAM CO TRANSFER STATION	32,079	WI-SAMPSON COUNTY DISPOSAL INC	8202
5304-T	WASTE MAN. - LEE CO.TRANSFER STATION	62,731	WI-SAMPSON COUNTY DISPOSAL INC	8202
5304-T	WASTE MAN. - LEE CO.TRANSFER STATION	62,731	WI-SAMPSON COUNTY DISPOSAL INC	8202
1104	WASTE MANAGEMENT OF ASHEVILLE	151,662	PALMETTO LANDFILL, SC	
3608	WASTE MANAGEMENT OF CAROLINAS	156,643	PALMETTO LANDFILL, SC	
9215-T	WASTE MANAGEMENT OF RAL-DUR	1,859	BRUNSWICK LANDFILL, VA	

APPENDIX A-4: TRANSFER STATIONS AND MIXED WASTE PROCESSING FACILITIES, FY 2005-2006

PERMIT #	FACILITY	2005-2006	DISPOSAL DESTINATION	PERMIT #
9215-T	WASTE MANAGEMENT OF RAL-DUR	90,324	WI-SAMPSON COUNTY DISPOSAL INC	8202
9503-T	WATAUGA CO TRANSFER FACILITY	50,038	IRIS GLENN LANDFILL, TN	
4205-T	WELDON, TOWN OF, TRANSFER STATION	123,221	BRUNSWICK LANDFILL, VA	
4205-T	WELDON, TOWN OF, TRANSFER STATION	1,056	EAST CAROLINA REG LANDFILL	0803
9903-T	YADKIN COUNTY TRANSFER FACILITY	18,105	BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V	1304
10003-T	YANCEY-MITCHELL TRANSFER STATION	25,353	PALMETTO LANDFILL, SC	
TOTAL TONS		**4,060,488**		

Facilities without permit numbers listed are either temporary or out of state facilities.

APPENDIX A-5: TIRE MONOFILLS IN DESCENDING ORDER OF TONS, FY 2005-2006

PERMIT #	FACILITY	TONS						FACILITY TYPE
		2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	
4304	CENTRAL CAROLINA TIRE MONOFILL	61,104	66,010	71,112	77,672	79,710	87,434	TIRELF
1303	US TIRE DISPOSAL	89,426	92,866	152,432	13,282	18,139	22,440	TIRELF
TOTAL TONS		**150,530**	**158,876**	**223,544**	**90,954**	**97,849**	**109,874**	

APPENDIX B: COUNTY POPULATION, WASTE DISPOSAL, PER CAPITA RATE AND PERCENT REDUCTION, FY 2005-2006

COUNTY	POPULATION	MSW TONS MANAGED	MSW TONS DISPOSED				BASE YEAR PER CAPITA	PER CAPITA RATE	%CHANGE FROM 1991-1992
	JULY 2005	1991-1992	2002-2003	2003-2004	2004-2005	2005-2006	1991-1992	2005-2006	2005-2006**
ALAMANCE	138,572	99,302	144,913	143,358	163,266	166,815	0.91	1.20	2%
ALEXANDER	35,898	25,716	27,834	26,126	25,301	24,614	0.90	0.69	-26%
ALLEGHANY	10,912	14,131	8,249	8,193	8,828	9,594	1.45	0.88	-45%
ANSON	25,766	14,229	29,544	24,796	24,587	23,580	0.61	0.92	24%
ASHE	25,500	18,089	22,587	22,367	22,281	22,798	0.81	0.89	9%
AVERY	18,030	11,130	16,251	18,406	19,396	18,045	0.74	1.00	41%
BEAUFORT	46,010	41,796	67,593	70,668	58,588	60,670	0.99	1.32	25%
BERTIE	19,640	17,372	22,622	36,922	27,036	31,477	0.86	1.60	18%
BLADEN	32,866	25,048	44,554	31,482	30,178	30,666	0.86	0.93	45%
BRUNSWICK	89,463	78,123	120,506	140,371	158,103	172,389	1.48	1.93	9%
BUNCOMBE	216,738	159,040	255,112	319,594	332,213	301,430	0.90	1.39	30%
BURKE	88,293	78,006	81,642	85,273	86,867	87,160	1.02	0.99	-8%
CABARRUS	150,434	95,215	250,162	254,210	286,070	434,268	0.94	2.89	21%
CALDWELL	78,492	65,532	88,730	79,633	91,879	96,882	0.92	1.23	55%
CAMDEN	9,008	1,850	3,630	4,326	3,500	5,070	0.31	0.56	54%
CARTERET	62,760	86,894	88,515	101,592	100,409	122,886	1.62	1.96	-30%
CASWELL	23,759	5,136	9,116	9,672	5,380	5,879	0.25	0.25	65%
CATAWBA	149,032	151,559	192,830	196,758	198,555	208,837	1.26	1.40	1%
CHATHAM	56,090	33,235	40,298	39,984	38,166	40,117	0.84	0.72	-11%
CHEROKEE	26,180	16,020	18,977	19,132	18,679	20,113	0.78	0.77	4%
CHOWAN	14,470	13,692	16,621	24,102	18,360	20,655	0.99	1.43	6%
CLAY	9,876	4,172	4,792	5,283	5,737	5,269	0.57	0.53	-16%
CLEVELAND	97,056	73,138	150,089	120,048	121,404	117,031	0.86	1.21	3%

APPENDIX B: COUNTY POPULATION, WASTE DISPOSAL, PER CAPITA RATE AND PERCENT REDUCTION, FY 2005-2006

COUNTY	POPULATION	MSW TONS MANAGED	MSW TONS DISPOSED				BASE YEAR PER CAPITA	PER CAPITA RATE	%CHANGE FROM 1991-1992
	JULY 2005	1991-1992	2002-2003	2003-2004	2004-2005	2005-2006	1991-1992	2005-2006	2005-2006**
COLUMBUS	54,524	45,199	32,431	52,358	44,629	45,299	0.91	0.83	-19%
CRAVEN	92,670	86,549	88,270	94,147	100,073	105,031	1.05	1.13	-45%
CUMBERLAND	305,173	227,302	337,375	358,348	510,574	560,404	0.81	1.84	53%
CURRITUCK	22,984	13,792	31,116	43,358	38,295	37,085	1.00	1.61	29%
DARE	34,790	51,300	96,697	127,088	95,513	99,299	2.23	2.85	10%
DAVIDSON	154,294	139,617	139,610	167,005	141,483	141,207	1.08	0.92	-19%
DAVIE	38,930	19,348	37,735	33,983	36,094	39,046	0.68	1.00	8%
DUPLIN	51,920	33,310	43,416	56,243	44,883	46,833	0.82	0.90	6%
DURHAM	242,210	218,972	298,420	294,086	308,097	292,729	1.17	1.21	8%
EDGECOMBE	53,034	71,471	60,805	64,041	53,735	47,058	1.25	0.89	26%
FORSYTH	326,340	304,290	501,034	550,614	539,006	564,037	1.14	1.73	34%
FRANKLIN	54,106	28,702	47,668	50,129	45,922	38,476	0.76	0.71	29%
GASTON	193,886	165,100	216,267	226,625	232,948	239,157	0.93	1.23	49%
GATES	11,219	5,897	5,250	6,473	5,680	7,028	0.63	0.63	-26%
GRAHAM	8,119	4,508	7,681	6,464	6,581	7,161	0.62	0.88	43%
GRANVILLE	53,356	54,548	68,759	69,579	68,754	74,764	1.39	1.40	-1%
GREENE	20,173	7,428	5,942	6,789	7,775	7,685	0.48	0.38	30%
GUILFORD	441,428	471,541	709,579	659,224	653,690	703,606	1.35	1.59	0%
HALIFAX	56,253	54,907	53,760	42,186	53,374	55,944	0.98	0.99	-28%
HARNETT	101,608	69,073	73,593	85,390	90,619	90,784	1.01	0.89	-22%
HAYWOOD	56,595	57,842	51,047	55,627	66,387	60,800	1.21	1.07	-28%
HENDERSON	97,792	81,498	104,249	116,840	119,866	133,618	1.14	1.37	-5%
HERTFORD	23,864	14,288	21,206	24,984	36,138	30,577	0.63	1.28	7%

APPENDIX B: COUNTY POPULATION, WASTE DISPOSAL, PER CAPITA RATE AND PERCENT REDUCTION, FY 2005-2006

COUNTY	POPULATION	MSW TONS MANAGED	MSW TONS DISPOSED				BASE YEAR PER CAPITA	PER CAPITA RATE	%CHANGE FROM 1991-1992
	JULY 2005	1991-1992	2002-2003	2003-2004	2004-2005	2005-2006	1991-1992	2005-2006	2005-2006**
HOKE	40,696	18,331	28,027	31,269	28,968	29,925	0.80	0.74	-24%
HYDE	5,587	2,762	4,296	9,874	7,482	7,219	0.50	1.29	108%
IREDELL	139,727	114,539	174,819	191,086	208,136	231,821	1.19	1.66	26%
JACKSON	35,752	18,661	39,230	41,448	48,679	52,674	0.68	1.47	-3%
JOHNSTON	146,312	74,169	176,576	186,255	157,678	170,051	0.88	1.16	12%
JONES	10,246	4,360	2,725	3,008	2,917	2,803	0.47	0.27	-47%
LEE	53,789	48,341	67,648	67,941	76,971	70,320	1.16	1.31	37%
LENOIR	58,278	67,693	89,576	89,217	80,419	73,510	1.17	1.26	8%
LINCOLN	69,529	44,442	82,930	89,475	100,386	101,878	0.87	1.47	14%
MACON	32,550	19,738	35,825	35,388	37,209	37,167	0.82	1.14	21%
MADISON	20,296	11,676	13,056	13,654	24,340	15,677	0.68	0.77	-31%
MARTIN	24,580	30,112	17,458	17,038	20,336	28,121	1.19	1.14	-17%
MCDOWELL	43,175	29,180	38,321	38,065	39,935	39,325	0.82	0.91	2%
MECKLENBURG	796,232	677,573	1,278,129	1,280,887	1,285,489	1,506,402	1.29	1.89	51%
MITCHELL	15,880	15,768	13,865	14,500	16,761	18,008	1.11	1.13	-30%
MONTGOMERY	27,359	28,873	45,267	46,175	46,063	47,145	1.23	1.72	5%
MOORE	80,867	74,062	84,819	90,359	95,034	99,097	1.23	1.23	14%
NASH	91,544	84,594	103,213	114,139	110,941	116,431	1.09	1.27	-33%
NEW HANOVER	180,358	157,647	250,327	264,387	279,268	333,313	1.28	1.85	39%
NORTHAMPTON	21,568	19,528	19,271	29,323	15,359	16,300	0.94	0.76	4%
ONSLOW	157,748	158,344	149,346	181,006	189,905	200,160	1.04	1.27	8%
ORANGE	121,991	131,067	89,547	88,062	90,486	93,804	1.36	0.77	-34%
PAMLICO	13,068	8,541	8,359	12,451	9,036	10,195	0.75	0.78	-23%

APPENDIX B: COUNTY POPULATION, WASTE DISPOSAL, PER CAPITA RATE AND PERCENT REDUCTION, FY 2005-2006

COUNTY	POPULATION	MSW TONS MANAGED	MSW TONS DISPOSED				BASE YEAR PER CAPITA	PER CAPITA RATE	%CHANGE FROM 1991-1992
	JULY 2005	1991-1992	2002-2003	2003-2004	2004-2005	2005-2006	1991-1992	2005-2006	2005-2006**
PASQUOTANK	38,882	30,150	37,123	39,926	39,099	41,734	0.97	1.07	-1%
PENDER	46,538	18,188	29,063	30,586	33,845	36,448	0.60	0.78	-7%
PERQUIMANS	12,154	7,520	9,396	15,278	13,065	12,743	0.73	1.05	-12%
PERSON	37,125	24,249	35,017	35,014	34,732	34,837	0.80	0.94	9%
PITT	143,207	132,896	152,459	148,664	160,067	168,957	1.21	1.18	-21%
POLK	19,006	9,327	14,001	13,353	15,254	18,818	0.63	0.99	3%
RANDOLPH	137,283	78,663	120,390	127,792	124,035	119,466	0.73	0.87	10%
RICHMOND	46,676	60,752	64,246	76,304	92,606	71,854	1.35	1.54	-41%
ROBESON	127,695	104,700	126,032	129,897	117,786	133,002	0.99	1.04	-6%
ROCKINGHAM	91,817	71,481	100,478	97,642	98,556	98,604	0.83	1.07	37%
ROWAN	133,339	90,081	135,552	131,386	147,880	141,922	0.80	1.06	33%
RUTHERFORD	63,303	89,175	63,608	72,756	71,101	67,036	1.56	1.06	-39%
SAMPSON	63,566	33,545	52,657	54,907	50,182	52,238	0.70	0.82	29%
SCOTLAND	36,838	39,867	42,092	45,112	45,618	34,703	1.17	0.94	7%
STANLY	58,912	69,288	74,341	83,181	83,933	80,912	1.32	1.37	-1%
STOKES	46,234	17,976	16,223	15,656	11,259	11,176	0.47	0.24	-52%
SURRY	73,028	73,595	68,830	83,583	90,567	100,363	1.18	1.37	-29%
SWAIN	13,585	5,651	8,286	9,343	8,413	8,774	0.50	0.65	-8%
TRANSYLVANIA	29,880	30,072	30,539	32,343	37,794	40,073	1.16	1.34	-32%
TYRRELL	4,203	2,985	3,021	2,023	2,699	2,853	0.79	0.68	-32%
UNION	161,332	77,842	166,558	166,124	168,381	205,251	0.90	1.27	42%
VANCE	43,624	43,267	52,119	50,799	53,895	40,809	1.11	0.94	20%
WAKE	755,034	569,622	856,043	915,086	999,535	1,071,973	1.29	1.42	30%

APPENDIX B: COUNTY POPULATION, WASTE DISPOSAL, PER CAPITA RATE AND PERCENT REDUCTION, FY 2005-2006

COUNTY	POPULATION	MSW TONS MANAGED	MSW TONS DISPOSED				BASE YEAR PER CAPITA	PER CAPITA RATE	%CHANGE FROM 1991-1992
	JULY 2005	1991-1992	2002-2003	2003-2004	2004-2005	2005-2006	1991-1992	2005-2006	2005-2006**
WARREN	20,215	10,978	10,996	13,656	11,096	10,310	0.63	0.51	-18%
WASHINGTON	13,418	11,699	12,692	18,230	16,976	14,410	0.84	1.07	-10%
WATAUGA	42,934	36,755	50,099	53,111	65,132	62,503	0.99	1.46	6%
WAYNE	115,714	106,149	124,473	122,620	127,369	123,445	1.00	1.07	11%
WILKES	66,897	58,818	60,189	61,686	61,649	57,391	0.97	0.86	2%
WILSON	76,826	120,870	138,607	123,498	127,231	115,018	1.82	1.50	-12%
YADKIN	37,404	20,779	20,212	22,651	21,532	20,157	0.67	0.54	-19%
YANCEY	18,152	15,576	11,912	12,356	13,929	12,179	1.01	0.67	-27%
STATE TOTALS	**8,682,066**	**7,257,428**	**10,236,960**	**10,713,444**	**11,061,911**	**11,765,183**	**1.07**	**1.36**	**27%**

TOTAL ADJUSTED FOR HURRICANE DEBRIS (e.g. FRAN, FLOYD)

*** Percent Change formula: (current year per capita minus base year per capita) divided by base year per capita*

Appendix C
Imports and Exports
FY 1995-1996 through FY 2005-2006

Fiscal Year	Total Tons Exported	Receiving Facility	Distribution of Tons Received	Total Tons Imported	Receiving Facility	Distribution of Tons Received
2005-2006	1,234,307	Atlantic Waste, VA	32	137,307[4]	BFI- Lake Norman	18,403
		BFI, Carter Valley, TN	9,311		Chambers Development	55,869
		Bristol Landfill, VA	14,208		Gaston County C&D Landfill	30
		Brunswick Landfill, VA	411,107		Gaston County Landfill	239
		Eagle Point Landfill, GA	8,744		Griffin Farms C&D	510
		Iris Glenn Landfill, TN	53,706		Mecklenburg County Landfill	1944
		Lee County Landfill, SC	10,194		New Hanover Waste to Energy	9
		Maplewood Landfill, VA	361		Upper Piedmont Regional Landfill	56,428
		Palmetto Landfill, SC	538,508		Waste Management of the Carolinas	3,875
		Pinebluff Landfill, GA	13,010			
		R&B Landfill, GA	38,676			
		Union County Landfill, SC	136,450			
2004-2005	1,161,926[3]	Atlantic Waste, VA	44,864	119,202[3]	Chambers Development Landfill	82,535
		BFI- Carter Valley, TN	9,500		Gaston County Landfill	75
		Bristol Landfill, VA	14,314		Griffin Farms C&D Landfill	373
		Brunswick Landfill, VA	370,810		Mecklenburg County Landfill	584
		Eagle Point Landfill, GA	8,398		Piedmont Sanitary Landfill	1,754
		Fort Mill Transfer, SC[3]	52,731		Upper Piedmont Regional Landfill	30,163
		Iris Glenn Landfill, TN	53,126		Waste Management of the Carolinas Transfer	3,230
		Maplewood Landfill, VA	364			
		Palmetto Landfill, SC	507,307			
		Pinebluff Landfill, GA	14,414			
		R&B Landfill, GA	34,748			
		Union County, SC	51,338			
2003-2004	1,048,111	Atlantic Waste Disposal,VA	53,898	108,803	Charlotte Motor Speedway Landfill	3,567
		Carter Valley, TN	9,356		Lake Norman Landfill	6,452
		Bristol Landfill, VA	13,768		Chambers Development Landfill	61,301
		Brunswick Landfill, VA	377,250		Gaston County Landfill	106
		Eagle Point Landfill, GA	3,046		Griffin Farms C&D Landfill	197
		Iris Glenn Landfill, TN	10,608		Mecklenburg County Landfill	855
		Maplewood Landfill, VA	1,321		New Hanover Waste to Energy	3
		Palmetto Landfill, SC	479,650		Upper Piedmont Landfill	33,733
		Pinebluff Landfill, GA	12,788		Waste Management of the Carolinas Transfer	2,589
		R&B Landfill, GA	22,216			
		Hampton Roads, VA	4,072			
		Union County Landfill, SC	14,453			

2002-2003	**971,286**[2]	Maplewood Landfill, VA Atlantic Waste, VA BFI, Carter Valley, TN Bristol Landfill, VA Brunswick Landfill, VA Iris Glenn Landfill, TN Lee Co. Landfill, SC Palmetto Landfill, SC Pinebluff Landfill, GA R&B Landfill, GA John C. Holland Enterprises	10,887 61,912 8,746 13,000 396,386 41,384 31,084 395,418 9,839 2,030 600	**144,116**[2]	BFI- Charlotte Motor Speedway[2] Chambers Development, Anson Co.[2] Gaston Co. Landfill Griffin Farms C&D Landfill, Union Co. Mecklenburg Co. Landfill New Hanover Waste to Energy Piedmont Sanitary Landfill, Forsyth Co. Upper Piedmont Regional Landfill, Person Co Waste Management of Carolinas, Gaston Co.	66,246 91,990 127 201 1,181 1 37,264 10,949 2,403
2001-2002	**882,247**[1]	Maplewood Landfill, VA Atlantic Waste, VA BFI, Carter Valley, TN Bristol Landfill, VA Brunswick Landfill, VA Danville Transfer, VA Iris Glenn Landfill, TN Lee Co. Landfill, SC Palmetto Landfill, SC Pinebluff Landfill, GA R&B Landfill, GA	8,844 36,290 4,789 12,584 420,627 5,327 44,548 28,515 312,013 6,683 2,027	**117,981**	BFI- Charlotte Motor Speedway Chambers Development, Anson Co. Gaston Co. Landfill GDS Recycling Services, Catawba Co. Griffin Farms C&D Landfill, Union Co. Mecklenburg Co. Landfill Piedmont Sanitary Landfill, Forsyth Co. Upper Piedmont Regional Landfill, Person Co Waste Management of Carolinas, Gaston Co.	11,645 48,368 199 486 60 888 49,305 2,784 4,246
2000-2001	**900,743**	Brunswick Landfill, VA Palmetto Landfill, SC Iris Glenn Landfill, TN Atlantic Waste, VA Maplewood Landfill, VA Bristol Landfill, VA Lee Co. Landfill, SC Pinebluff Landfill, GA R & B Landfill, GA	436,264 340,782 44,863 30,275 18,541 13,121 9,912 6,809 176	**21,614**	Chambers Development Landfill, Anson Co. Waste Management, Gaston Co. (transfer) Addington Upper Piedmont Landfill, Person Mecklenburg Co. Landfill (CDLF) Gaston Co. Landfill Griffin Farms C&D Landfill, Union Co. GDS Recycling Services, Catawba Co. Uwharrie Env. MRF, Montgomery Co.	10,328 4,659 2,417 2,407 664 639 441 59
1999-2000	**1,106,897**	Palmetto Landfill, SC Brunswick Landfill, VA Lee Co. Landfill, SC Iris Glenn Landfill, TN Bristol Landfill, VA Pinebluff Landfill, GA	463,587 432,645 148,412 43,680 14,001 4,572	**41,840**	Addington Upper Piedmont Landfill, Person Co. Piedmont Sanitary Landfill, Forsyth Co. Gaston Co. Landfill Griffin Farms C&D Landfill, Union Co. GDS Recycling Services, Catawba Co. Uwharrie Env. MRF, Montgomery Co Mecklenburg Co. Landfill Uwharrie Env. Landfill, Montgomery Co.	32,976 (VA) 7,158 (VA) 640 (SC) 565 (SC) 377 (SC) 101 (SC) 15 (SC) 8 (SC)

1998-1999	**1,166,875**	Palmetto Landfill, SC Brunswick Landfill, VA Lee Co. Landfill, SC Iris Glenn Landfill, TN Bristol Landfill, VA Pinebluff Landfill, GA	446,858 382,479 277,246 41,612 14,766 3,914	**74,185**	Addington Upper Piedmont Landfill, Person Piedmont Sanitary Landfill, Forsyth Co. Griffin Farms C&D, Union Co. Gaston Co. Landfill Uwharrie Env. MRF, Montgomery Co. New Hanover Waste to Energy	53,798 (VA) 19,251 (VA) 594 (SC) 418 (SC) 67 (SC) 57 (MD)
1997-1998	**629,415**	Palmetto Landfill, SC Brunswick Landfill, VA Lee Co. Landfill, SC	422,248 190,890 16,277	**87,393**	Piedmont Sanitary Landfill, Forsyth Co. Addington Upper Piedmont Landfill, Person Co. Union Co. Landfill	80,570 (VA) 6,194 (VA) 629 (SC)
1996-1997	**280,400**	Palmetto Landfill, SC	280,400	**103,510**	Piedmont Sanitary Landfill, Forsyth Co. Union County Landfill	103,120 (VA) 390 (SC)
1995-1996	**111,097**	Palmetto Landfill, SC	111,097	**88,982**	Piedmont Sanitary Landfill, Forsyth Co.	88,982 (VA)

(1) This does not include 73,911 tons from Mecklenburg County that were exported to the Fort Mill Transfer Station in South Carolina and then imported to a landfill in North Carolina.

(2) This does not including 77,217 tons from Mecklenburg County that was exported to the Fort Mill Transfer Station in South Carolina and imported back to landfills in North Carolina.

(3) This does not include 99,065 tons of Municipal Solid Waste from Mecklenburg County that was exported to the Fort Mill Transfer Station in South Carolina and then imported back into North Carolina to the BFI- Charlotte Motor Speedway Landfill. The Total also does not include an additional 16,847 tons of construction and demolition material from Mecklenburg County sent to the Fort Mill Transfer Station and imported back to North Carolina to the BFI- Lake Norman Construction and Demolition Landfill.

(4) This does not include 107,888 tons from Mecklenburg County that was exported to the Fort Mill Transfer station in South Carolina and then imported back into NC to the Charlotte Motor Speedway Landfill.

APPENDIX D – Municipal Solid Waste Landfill Capacity by Facility

Austin Quarter SWM Facility (01-04)..... D-1
Chambers Development MSWLF (04-03)..... D-2
Ashe County Landfill (05-01)..... D-3
East Carolina Regional Landfill (08-03)..... D-4
Buncombe County MSW Landfill (11-07)..... D-5
Charlotte Motor Speedway Landfill V (13-04)..... D-6
Foothills Environmental Landfill (14-03)..... D-7
Catawba County Landfill (18-03)..... D-8
Cherokee County MSW Facility (20-02)..... D-9
Cleveland County Landfill (23-01)..... D-10
CRSWMA-Long-term Regional Landfill (25-09)..... D-11
Cumberland County Landfill (26-01)..... D-12
Davidson County MSW Lined Landfill (29-06)..... D-13
Hanes Mill Road Landfill (34-02)..... D-14
Gaston County Landfill (36-06)..... D-15
City of High Point Landfill (41-04)..... D-16
City of Greensboro (41-12)..... D-17
Haywood County – White Oak Landfill (44-07)..... D-18
Iredell County Sanitary Landfill (49-03)..... D-19
Johnston County Landfill (51-03)..... D-20
Lenoir County MSW Landfill (54-09)..... D-21
Lincoln County Landfill (55-03)..... D-22
Macon County Landfill (57-03)..... D-23
Mecklenburg County Landfill (60-19)..... D-24
Uwharrie Environmental Landfill (62-04)..... D-25
New Hanover County Landfill (65-04)..... D-26
Camp Lejeune MSW Landfill (67-08)..... D-27
Onslow County Subtitle D Landfill (67-09)..... D-28
Orange County Landfill (68-01)..... D-29
Upper Piedmont Regional Landfill (73-04)..... D-30
Robeson County Landfill (78-03)..... D-31
Rockingham County Landfill (79-04)..... D-32
Rowan County Landfill (80-03)..... D-33
Waste Industries – Sampson County Disposal, Inc. (82-02)..... D-34
City of Albemarle (84-01)..... D-35
Surry County MSWLF (86-06)..... D-36
Transylvania County Landfill (88-07)..... D-37
Wake County Landfill – North (92-09)..... D-38
Wayne County Landfill (96-06)..... D-39
Wilkes County MSWLF (97-04)..... D-40

NCDENR

Municipal Solid Waste Landfill Capacity

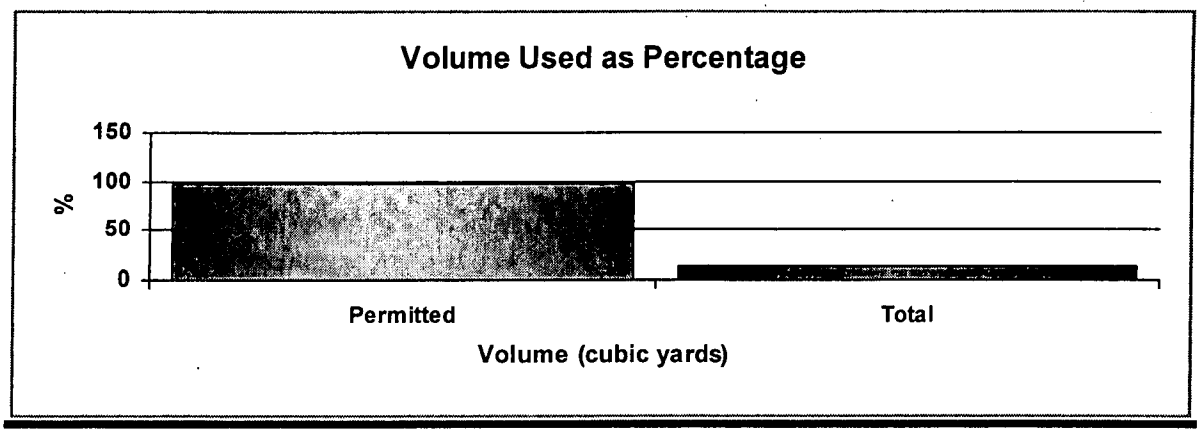
Analysis Date: April 23, 2007

AUSTIN QUARTER SWM FACILITY 01-04

County: ALAMANCE

	Opened:	**Surveyed:**	**Years Open:**
Dates	3/18/1994	2/3/2006	11.9
	Total:	**Avg per Year:**	**2005-2006:**
Tons Disposed	959,004.00	80,653.56	74,163.08
	Used:	**Permitted:**	**Total:**
Volume Airspace (cubic yard)	1,448,586.00	1,492,281.00	10,000,000.00
Remaining Airspace (cubic yard)		43,695.00	8,551,414.00
Utilization Factor:	0.66		

	Permitted:	**Total:**
Remaining Capacity for Tons of Waste:	28,927.30	5,661,272.60
Remaining Capacity in Years (Avg TPY):	0.36	70.19
Remaining Capacity in Years (2005-2006 TPY):	0.39	76.34



Calculations

Average Tons Disposed Per Year = Total Tons Disposed / Years Open
Remaining Airspace = Total Volume Airspace – Volume of Airspace Used
Utilization Factor = Total Tons Disposed / Volume of Airspace Used
Remaining Capacity for Tons of Waste = Remaining Airspace x Utilization Factor
Remaining Capacity in Years =
Remaining Capacity for Tons of Waste / Average Tons Disposed Per Year
Remaining Capacity for Tons of Waste / 2005-2006 Tons Disposed
Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

CHAMBERS DEVELOPMENT MSWLF 04-03

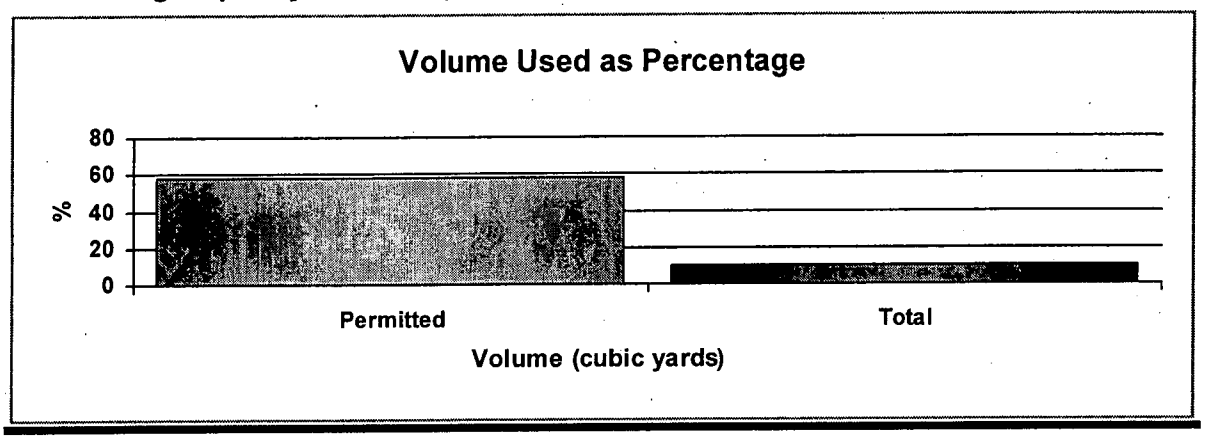
County: ANSON

	Opened:	Surveyed:	Years Open:
Dates	12/12/2000	6/15/2006	5.5

	Total:	Avg per Year:	2005-2006:
Tons Disposed	1,292,190.00	234,534.73	262,093.00

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,919,200.00	3,300,000.00	19,310,000.00
Remaining Airspace (cubic yard)		1,380,800.00	17,390,800.00
Utilization Factor:	0.67		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	929,687.34	11,709,158.95
Remaining Capacity in Years (Avg TPY):	3.96	49.93
Remaining Capacity in Years (2005-2006 TPY):	3.55	44.68



Calculations

Average Tons Disposed Per Year = Total Tons Disposed / Years Open
Remaining Airspace = Total Volume Airspace – Volume of Airspace Used
Utilization Factor = Total Tons Disposed / Volume of Airspace Used
Remaining Capacity for Tons of Waste = Remaining Airspace x Utilization Factor
Remaining Capacity in Years =
Remaining Capacity for Tons of Waste / Average Tons Disposed Per Year
Remaining Capacity for Tons of Waste / 2005-2006 Tons Disposed
Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

ASHE COUNTY LANDFILL 05-01

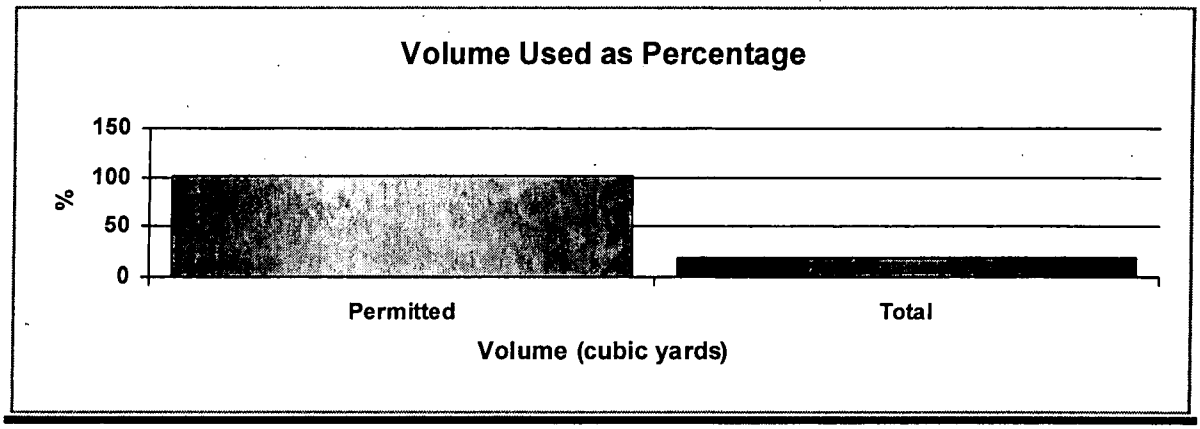
County: ASHE

	Opened:	Surveyed:	Years Open:
Dates	11/1/1993	6/14/2006	12.6

	Total:	Avg per Year:	2005-2006:
Tons Disposed	211,332.64	16,739.67	22,642.88

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	436,251.00	427,000.00	2,340,000.00
Remaining Airspace (cubic yard)		-9,251.00	1,903,749.00
Utilization Factor:	0.48		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	-4,481.45	922,231.24
Remaining Capacity in Years (Avg TPY):	-0.27	55.09
Remaining Capacity in Years (2005-2006 TPY):	-0.20	40.73



Calculations

Average Tons Disposed Per Year = Total Tons Disposed / Years Open
Remaining Airspace = Total Volume Airspace – Volume of Airspace Used
Utilization Factor = Total Tons Disposed / Volume of Airspace Used
Remaining Capacity for Tons of Waste = Remaining Airspace x Utilization Factor
Remaining Capacity in Years =
Remaining Capacity for Tons of Waste / Average Tons Disposed Per Year
Remaining Capacity for Tons of Waste / 2005-2006 Tons Disposed
Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

EAST CAROLINA REG LANDFILL 08-03

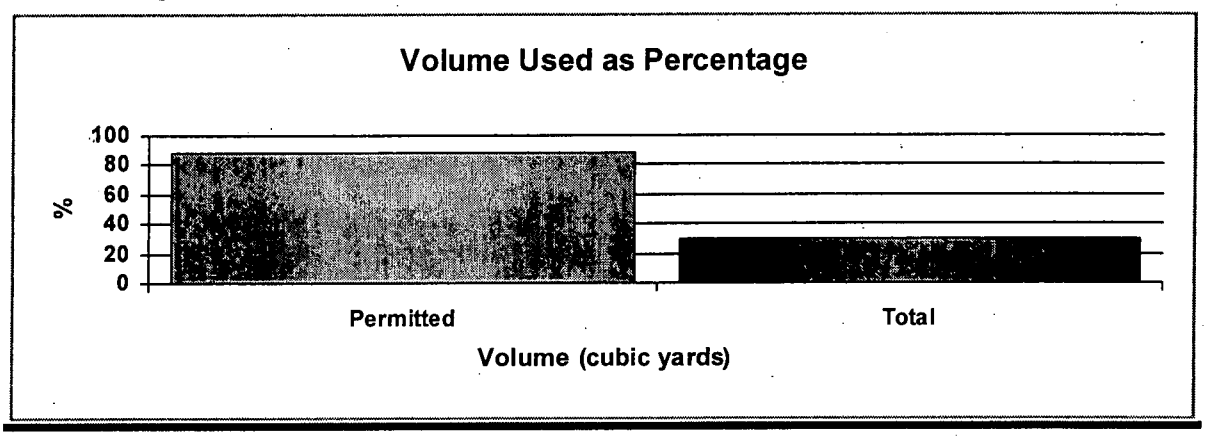
County: BERTIE

	Opened:	Surveyed:	Years Open:
Dates	8/6/1993	3/18/2006	12.6

	Total:	Avg per Year:	2005-2006:
Tons Disposed	5,412,094.69	428,785.45	519,757.76

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	7,303,661.00	8,267,000.00	24,200,000.00
Remaining Airspace (cubic yard)		963,339.00	16,896,339.00
Utilization Factor:	0.74		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	713,845.00	12,520,376.64
Remaining Capacity in Years (Avg TPY):	1.66	29.20
Remaining Capacity in Years (2005-2006 TPY):	1.37	24.09



Calculations

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Remaining Airspace = Total Volume Airspace – Volume of Airspace Used
Utilization Factor = Total Tons Disposed / Volume of Airspace Used
Remaining Capacity for Tons of Waste = Remaining Airspace x Utilization Factor
Remaining Capacity in Years =
Remaining Capacity for Tons of Waste / Average Tons Disposed Per Year
Remaining Capacity for Tons of Waste / 2005-2006 Tons Disposed
Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

BUNCOMBE COUNTY MSW LANDFILL 11-07

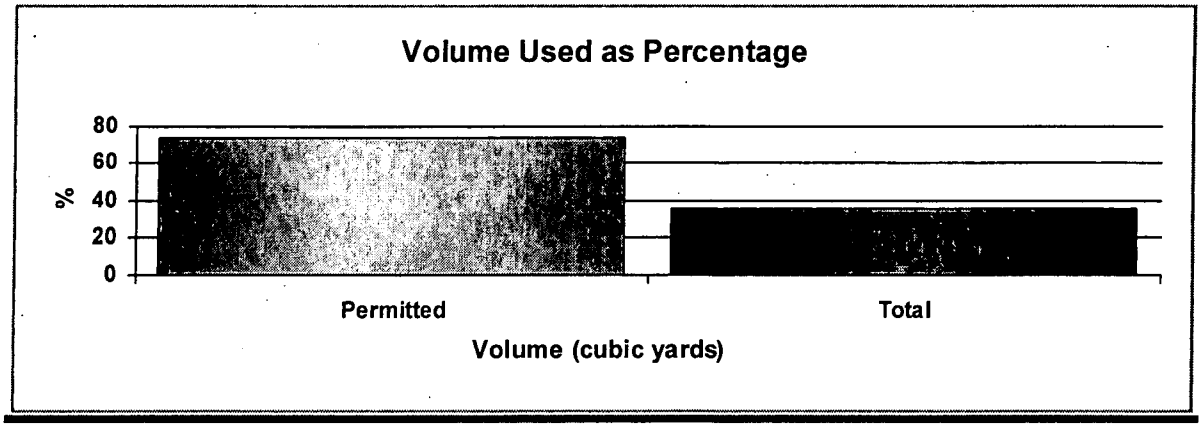
County: BUNCOMBE

	Opened:	Surveyed:	Years Open:
Dates	9/29/1997	6/15/2006	8.7

	Total:	Avg per Year:	2005-2006:
Tons Disposed	1,207,090.00	138,506.08	122,033.59

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	2,415,464.00	3,255,999.00	6,803,056.00
Remaining Airspace (cubic yard)		840,535.00	4,387,592.00
Utilization Factor:	0.50		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	420,044.10	2,192,629.83
Remaining Capacity in Years (Avg TPY):	3.03	15.83
Remaining Capacity in Years (2005-2006 TPY):	3.44	17.97



Calculations

Average Tons Disposed Per Year = Total Tons Disposed / Years Open
Remaining Airspace = Total Volume Airspace – Volume of Airspace Used
Utilization Factor = Total Tons Disposed / Volume of Airspace Used
Remaining Capacity for Tons of Waste = Remaining Airspace x Utilization Factor
Remaining Capacity in Years =
Remaining Capacity for Tons of Waste / Average Tons Disposed Per Year
Remaining Capacity for Tons of Waste / 2005-2006 Tons Disposed
Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

CHARLOTTE MOTOR SPEEDWAY LANDFILL V 13-04

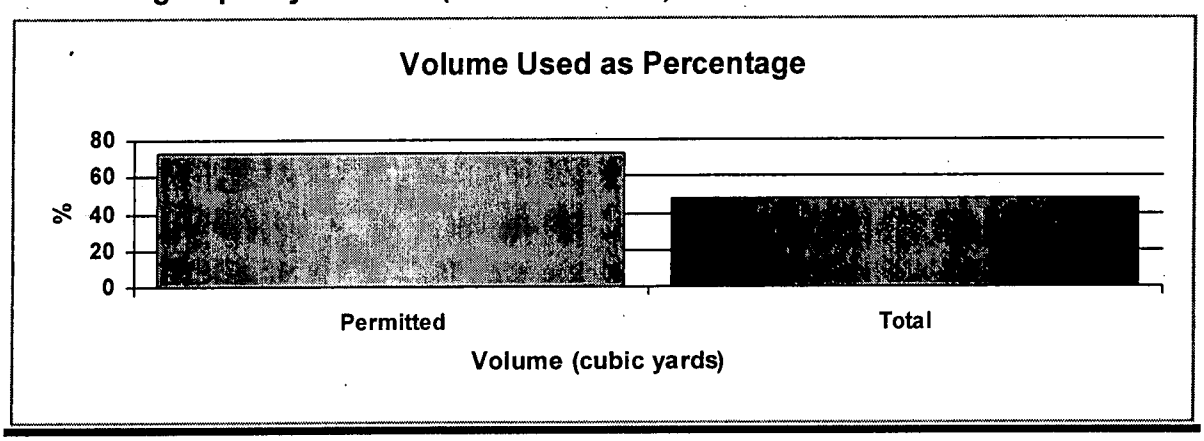
County: CABARRUS

	Opened:	Surveyed:	Years Open:
Dates	3/6/1992	6/15/2006	14.3

	Total:	Avg per Year:	2005-2006:
Tons Disposed	12,840,000.00	898,849.25	1,255,717.00

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	22,195,775.00	30,731,035.00	46,331,035.00
Remaining Airspace (cubic yard)		8,535,260.00	24,135,260.00
Utilization Factor:	0.58		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	4,937,549.53	13,961,969.72
Remaining Capacity in Years (Avg TPY):	5.49	15.53
Remaining Capacity in Years (2005-2006 TPY):	3.93	11.12



Calculations

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Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

FOOTHILLS ENVIRONMENTAL LANDFILL 14-03

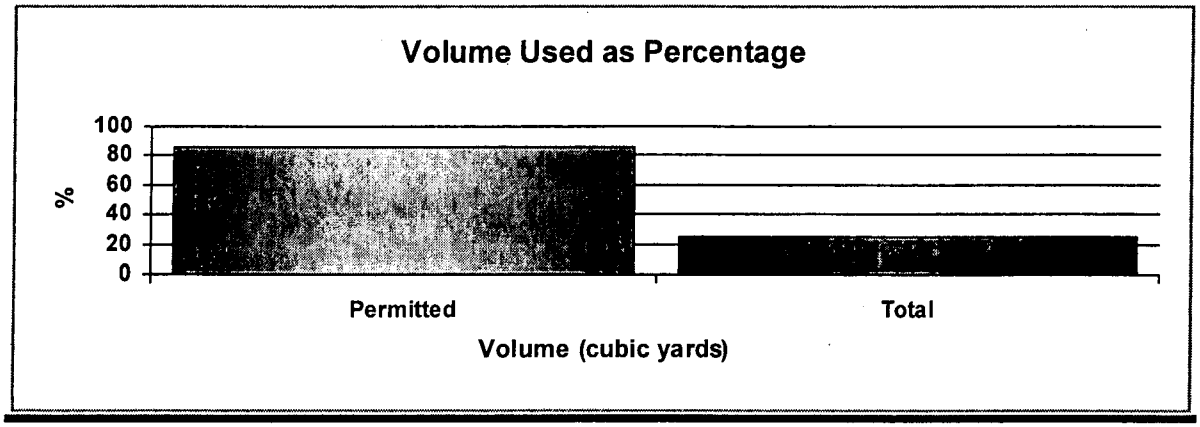
County: CALDWELL

	Opened:	Surveyed:	Years Open:
Dates	8/26/1998	3/8/2006	7.5

	Total:	Avg per Year:	2005-2006:
Tons Disposed	1,030,474.00	136,722.29	219,353.20

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	2,394,408.00	2,800,000.00	9,680,000.00
Remaining Airspace (cubic yard)		405,592.00	7,285,592.00
Utilization Factor:	0.43		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	174,553.38	3,135,477.80
Remaining Capacity in Years (Avg TPY):	1.28	22.93
Remaining Capacity in Years (2005-2006 TPY):	0.80	14.29



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Remaining Capacity in Years =
Remaining Capacity for Tons of Waste / Average Tons Disposed Per Year
Remaining Capacity for Tons of Waste / 2005-2006 Tons Disposed
Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

CATAWBA COUNTY LANDFILL 18-03

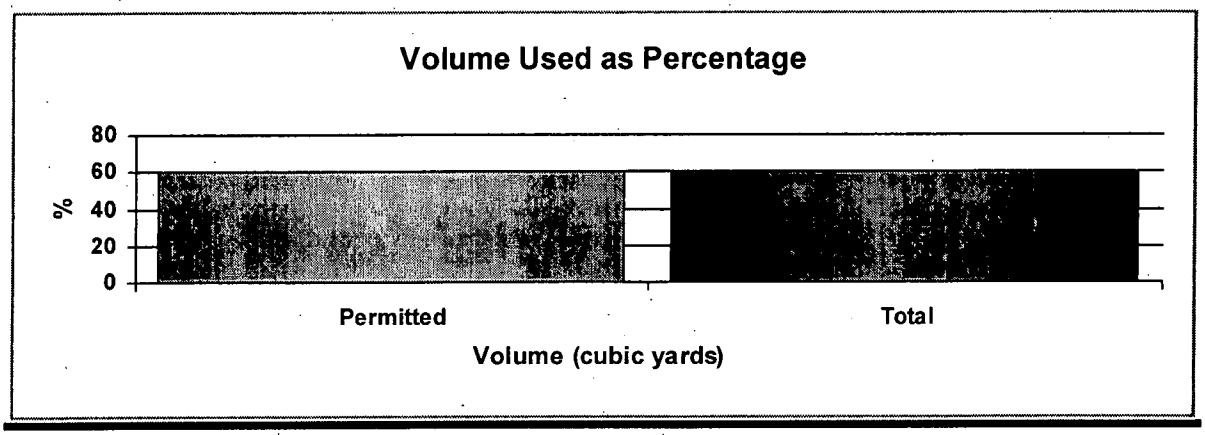
County: CATAWBA

	Opened:	Surveyed:	Years Open:
Dates	12/30/1997	5/6/2006	8.4

	Total:	Avg per Year:	2005-2006:
Tons Disposed	1,399,476.04	167,533.21	167,988.23

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	2,707,819.00	4,515,000.00	4,515,000.00
Remaining Airspace (cubic yard)		1,807,181.00	1,807,181.00
Utilization Factor:	0.52		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	934,001.32	934,001.32
Remaining Capacity in Years (Avg TPY):	5.58	5.58
Remaining Capacity in Years (2005-2006 TPY):	5.56	5.56



Calculations

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Utilization Factor = Total Tons Disposed / Volume of Airspace Used
Remaining Capacity for Tons of Waste = Remaining Airspace x Utilization Factor
Remaining Capacity in Years =
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Remaining Capacity for Tons of Waste / 2005-2006 Tons Disposed
Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

NCDENR

Municipal Solid Waste Landfill Capacity

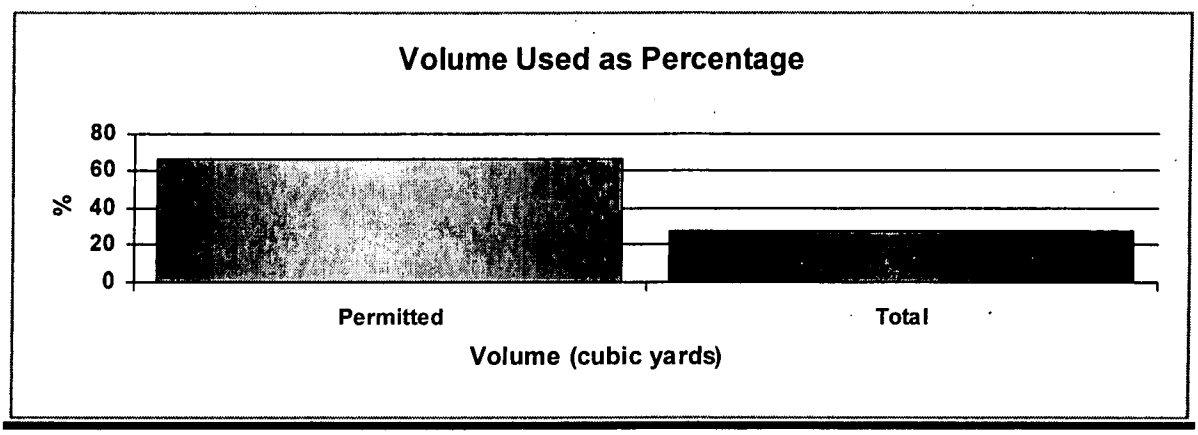
Analysis Date: April 23, 2007

CHEROKEE COUNTY MSW FACILITY 20-02

County: CHEROKEE

	Opened:	Surveyed:	Years Open:
Dates	1/9/1998	6/6/2006	8.4
	Total:	**Avg per Year:**	**2005-2006:**
Tons Disposed	160,721.00	19,108.52	20,113.00
	Used:	**Permitted:**	**Total:**
Volume Airspace (cubic yard)	309,560.00	465,479.00	1,127,940.00
Remaining Airspace (cubic yard)		155,919.00	818,380.00
Utilization Factor:	0.52		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	80,951.86	424,896.15
Remaining Capacity in Years (Avg TPY):	4.24	22.24
Remaining Capacity in Years (2005-2006 TPY):	4.02	21.13



Calculations

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Utilization Factor = Total Tons Disposed / Volume of Airspace Used
Remaining Capacity for Tons of Waste = Remaining Airspace x Utilization Factor
Remaining Capacity in Years =
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Remaining Capacity for Tons of Waste / 2005-2006 Tons Disposed
Permitted = Landfill Volume Constructed and Permitted to Operate
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NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

CLEVELAND COUNTY LANDFILL 23-01

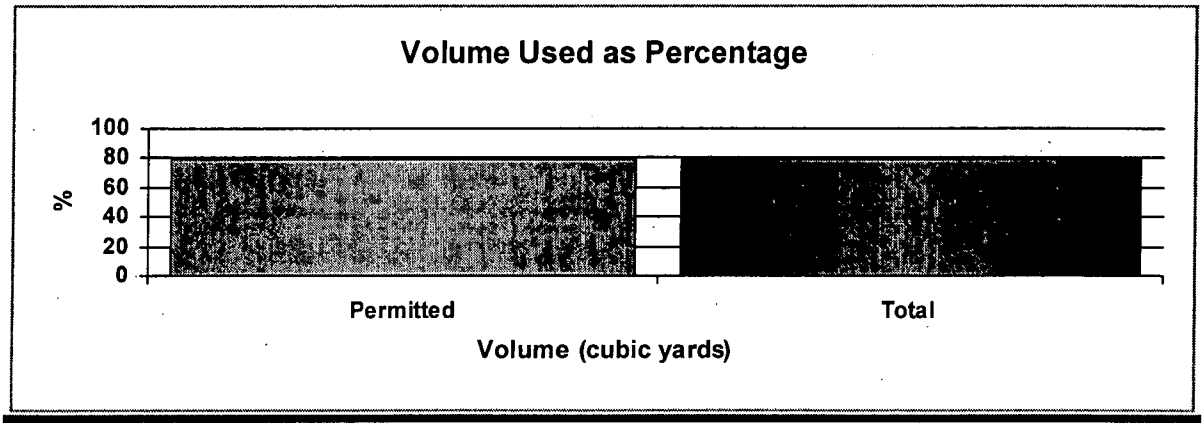
County: CLEVELAND

	Opened:	Surveyed:	Years Open:
Dates	7/27/1998	6/12/2006	7.9

	Total:	Avg per Year:	2005-2006:
Tons Disposed	636,352.80	80,732.98	90,761.05

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,284,048.00	1,613,364.00	1,613,364.00
Remaining Airspace (cubic yard)		329,316.00	329,316.00
Utilization Factor:	0.50		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	163,203.52	163,203.52
Remaining Capacity in Years (Avg TPY):	2.02	2.02
Remaining Capacity in Years (2005-2006 TPY):	1.80	1.80



Calculations

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Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

CRSWMA - LONG TERM REGIONAL LANDFILL 25-09

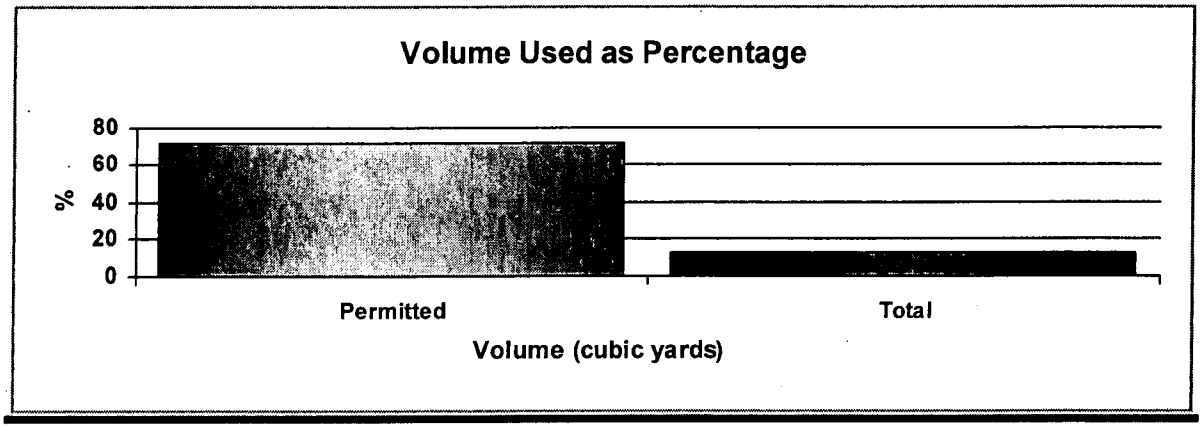
County: CRAVEN

	Opened:	Surveyed:	Years Open:
Dates	8/25/1999	7/7/2006	6.9

	Total:	Avg per Year:	2005-2006:
Tons Disposed	1,292,109.00	188,046.17	236,435.94

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,878,388.00	2,614,777.00	15,500,000.00
Remaining Airspace (cubic yard)		736,389.00	13,621,612.00
Utilization Factor:	0.69		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	506,548.62	9,370,059.57
Remaining Capacity in Years (Avg TPY):	2.69	49.83
Remaining Capacity in Years (2005-2006 TPY):	2.14	39.63



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Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

CUMBERLAND COUNTY LANDFILL 26-01

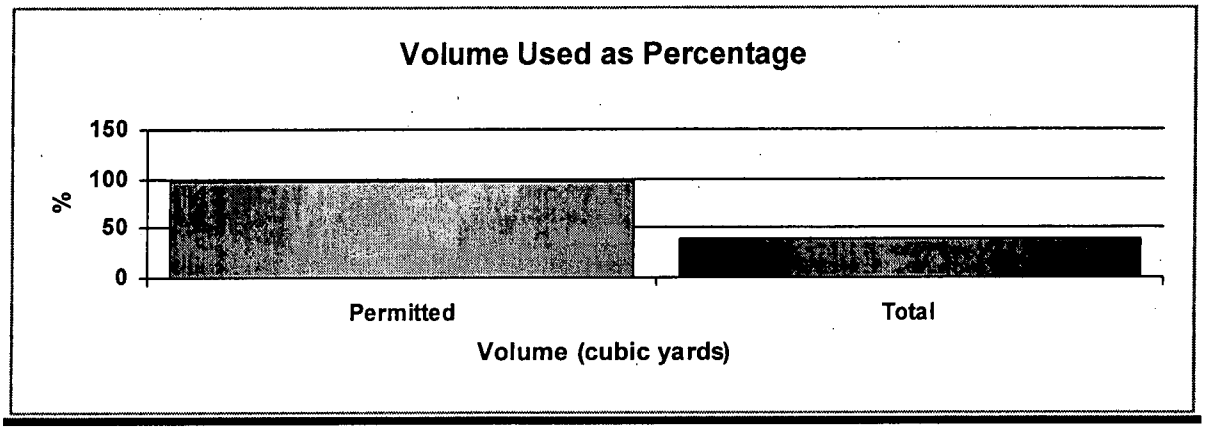
County: CUMBERLAND

	Opened:	Surveyed:	Years Open:
Dates	12/17/1997	6/22/2006	8.5

	Total:	Avg per Year:	2005-2006:
Tons Disposed	1,412,490.00	165,827.87	171,150.72

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	2,286,176.00	2,350,400.00	5,782,175.00
Remaining Airspace (cubic yard)		64,224.00	3,495,999.00
Utilization Factor:	0.62		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	39,680.13	2,159,966.52
Remaining Capacity in Years (Avg TPY):	0.24	13.03
Remaining Capacity in Years (2005-2006 TPY):	0.23	12.62



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NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

DAVIDSON CO MSW LINED LANDFILL 29-06

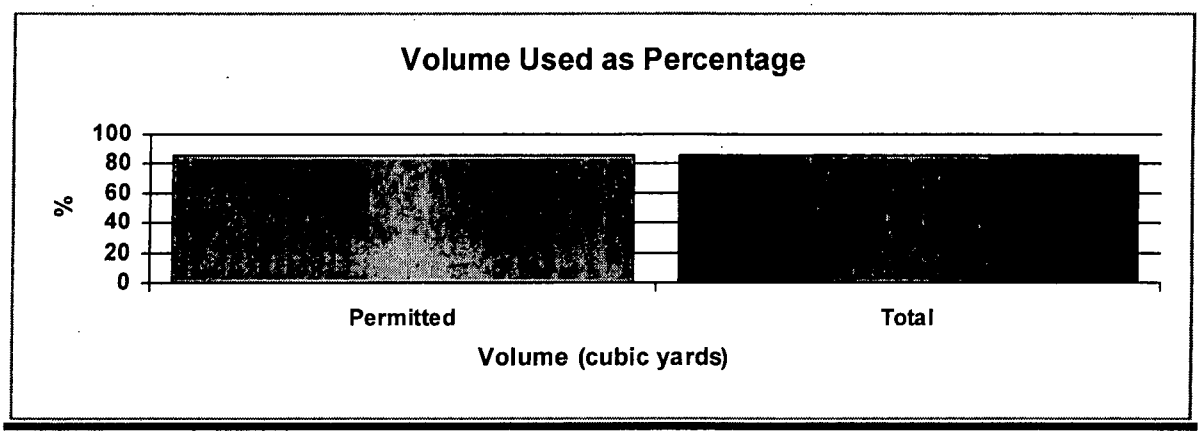
County: DAVIDSON

	Opened:	Surveyed:	Years Open:
Dates	10/1/1994	5/13/2006	11.6

	Total:	Avg per Year:	2005-2006:
Tons Disposed	1,110,745.00	95,573.30	100,573.80

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	2,084,985.00	2,425,000.00	2,425,000.00
Remaining Airspace (cubic yard)		340,015.00	340,015.00
Utilization Factor:	0.53		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	181,137.98	181,137.98
Remaining Capacity in Years (Avg TPY):	1.90	1.90
Remaining Capacity in Years (2005-2006 TPY):	1.80	1.80



Calculations

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Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

HANES MILL ROAD LANDFILL 34-02

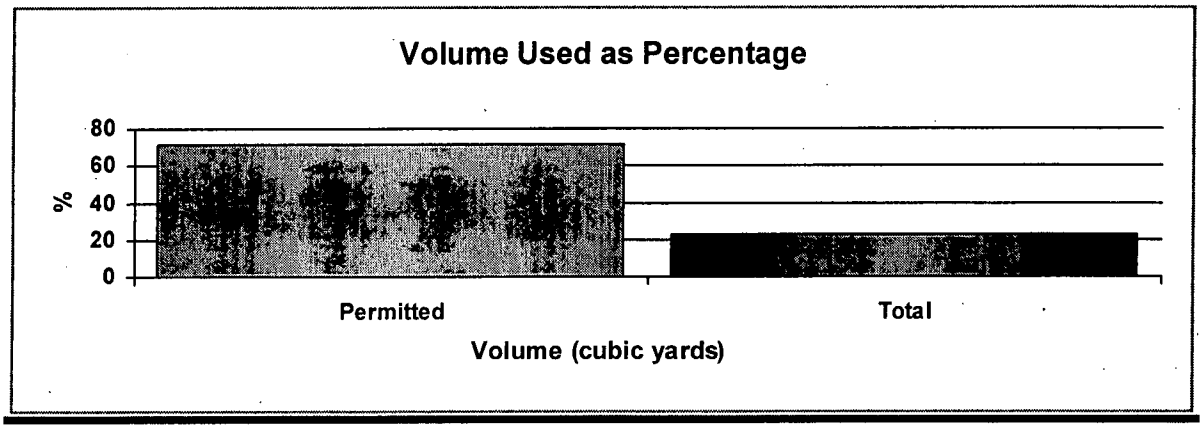
County: FORSYTH

	Opened:	Surveyed:	Years Open:
Dates	4/7/1997	1/7/2006	8.8

	Total:	Avg per Year:	2005-2006:
Tons Disposed	2,521,531.71	287,882.10	266,503.88

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	3,700,000.00	5,170,216.00	16,446,816.00
Remaining Airspace (cubic yard)		1,470,216.00	12,746,816.00
Utilization Factor:	0.68		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	1,001,944.94	8,686,892.09
Remaining Capacity in Years (Avg TPY):	3.48	30.18
Remaining Capacity in Years (2005-2006 TPY):	3.76	32.60



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NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

GASTON COUNTY LANDFILL 36-06

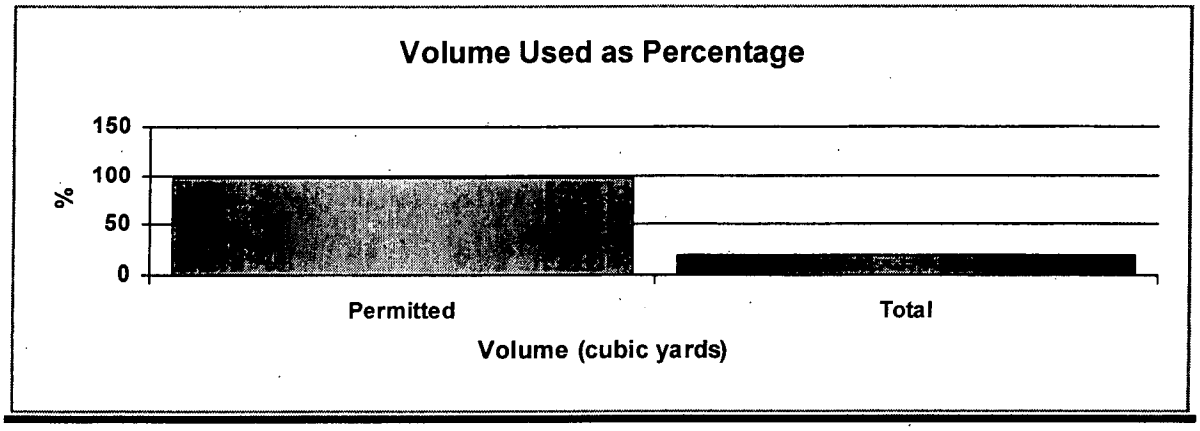
County: GASTON

	Opened:	Surveyed:	Years Open:
Dates	7/1/1997	6/5/2006	8.9

	Total:	Avg per Year:	2005-2006:
Tons Disposed	749,199.64	83,857.06	97,158.59

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,394,609.00	1,428,000.00	7,441,200.00
Remaining Airspace (cubic yard)		33,391.00	6,046,591.00
Utilization Factor:	0.54		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	17,938.02	3,248,296.69
Remaining Capacity in Years (Avg TPY):	0.21	38.74
Remaining Capacity in Years (2005-2006 TPY):	0.18	33.43



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Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

CITY OF HIGH POINT LANDFILL 41-04

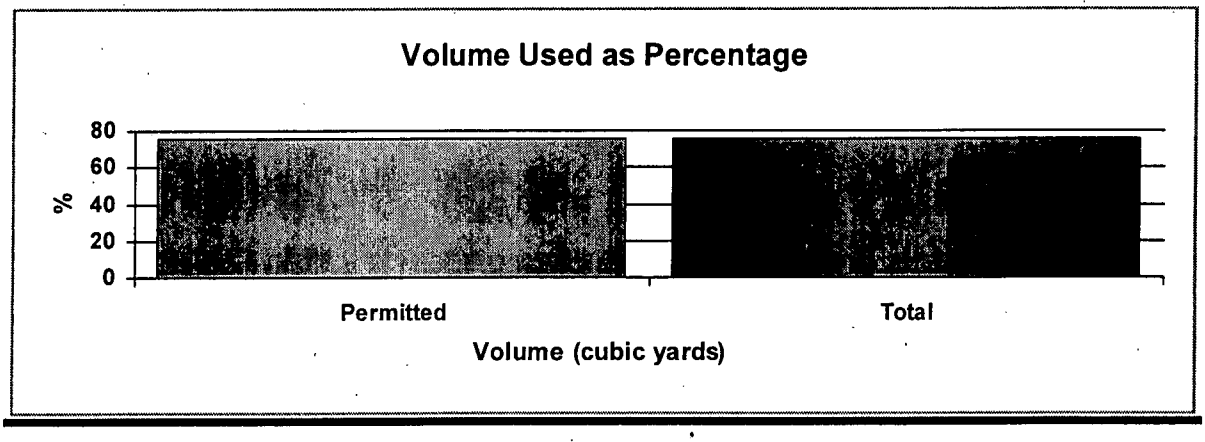
County: GUILFORD

	Opened:	Surveyed:	Years Open:
Dates	10/1/1993	5/13/2006	12.6

	Total:	Avg per Year:	2005-2006:
Tons Disposed	1,517,013.00	120,188.79	85,891.30

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	2,605,728.00	3,442,281.00	3,442,281.00
Remaining Airspace (cubic yard)		836,553.00	836,553.00
Utilization Factor:	0.58		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	487,027.72	487,027.72
Remaining Capacity in Years (Avg TPY):	4.05	4.05
Remaining Capacity in Years (2005-2006 TPY):	5.67	5.67



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Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

CITY OF GREENSBORO 41-12

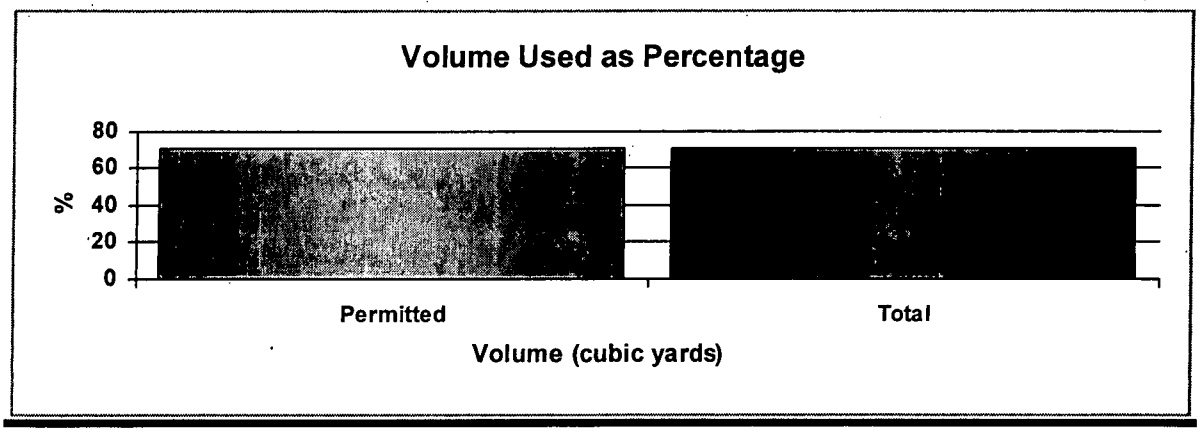
County: GUILFORD

	Opened:	Surveyed:	Years Open:
Dates	12/9/1997	7/12/2006	8.6

	Total:	Avg per Year:	2005-2006:
Tons Disposed	2,070,917.00	240,957.83	201,396.35

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	3,600,000.00	5,113,682.00	5,113,682.00
Remaining Airspace (cubic yard)		1,513,682.00	1,513,682.00
Utilization Factor:	0.58		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	870,752.72	870,752.72
Remaining Capacity in Years (Avg TPY):	3.61	3.61
Remaining Capacity in Years (2005-2006 TPY):	4.32	4.32



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Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

HAYWOOD CO WHITE OAK LANDFILL 44-07

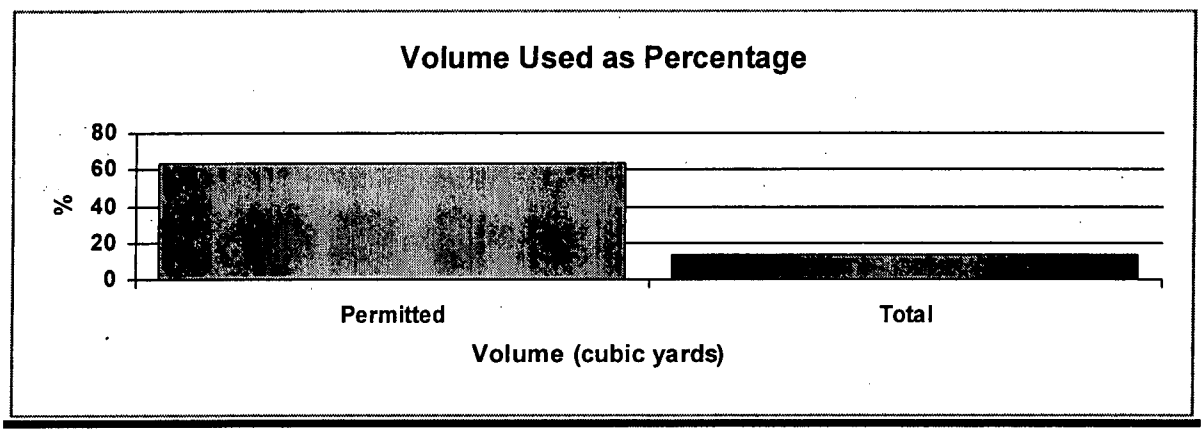
County: HAYWOOD

	Opened:	Surveyed:	Years Open:
Dates	10/15/1993	6/5/2006	12.6

	Total:	Avg per Year:	2005-2006:
Tons Disposed	552,424.23	43,681.73	42,790.16

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,156,622.00	1,819,337.00	8,335,231.00
Remaining Airspace (cubic yard)		662,715.00	7,178,609.00
Utilization Factor:	0.48		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	316,525.04	3,428,637.49
Remaining Capacity in Years (Avg TPY):	7.25	78.49
Remaining Capacity in Years (2005-2006 TPY):	7.40	80.13



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Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

IREDELL COUNTY SANITARY LANDFILL 49-03

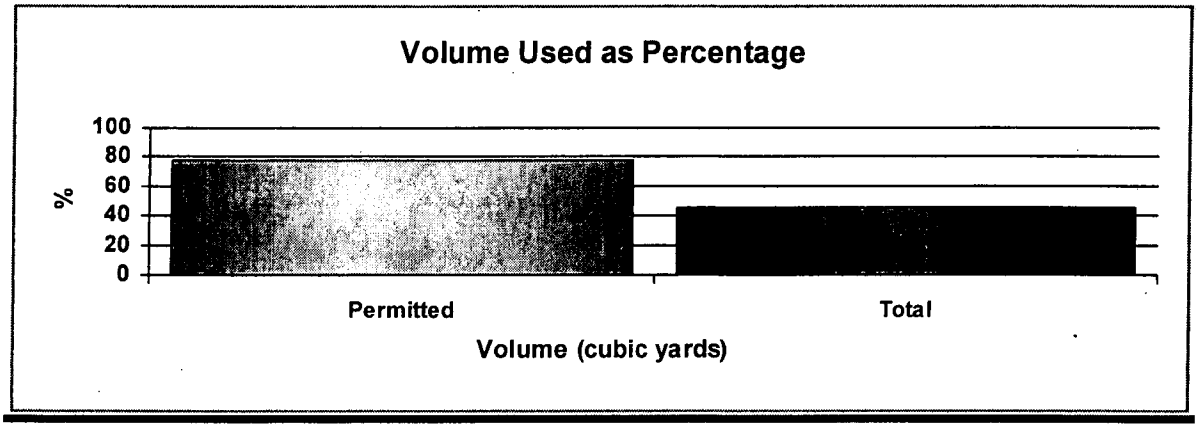
County: IREDELL

	Opened:	Surveyed:	Years Open:
Dates	10/8/1993	6/22/2006	12.7

	Total:	Avg per Year:	2005-2006:
Tons Disposed	1,607,700.00	126,467.78	162,636.75

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	2,999,744.00	3,863,570.00	6,661,380.00
Remaining Airspace (cubic yard)		863,826.00	3,661,636.00
Utilization Factor:	0.54		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	462,963.86	1,962,438.19
Remaining Capacity in Years (Avg TPY):	3.66	15.52
Remaining Capacity in Years (2005-2006 TPY):	2.85	12.07



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NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

JOHNSTON COUNTY LANDFILL 51-03

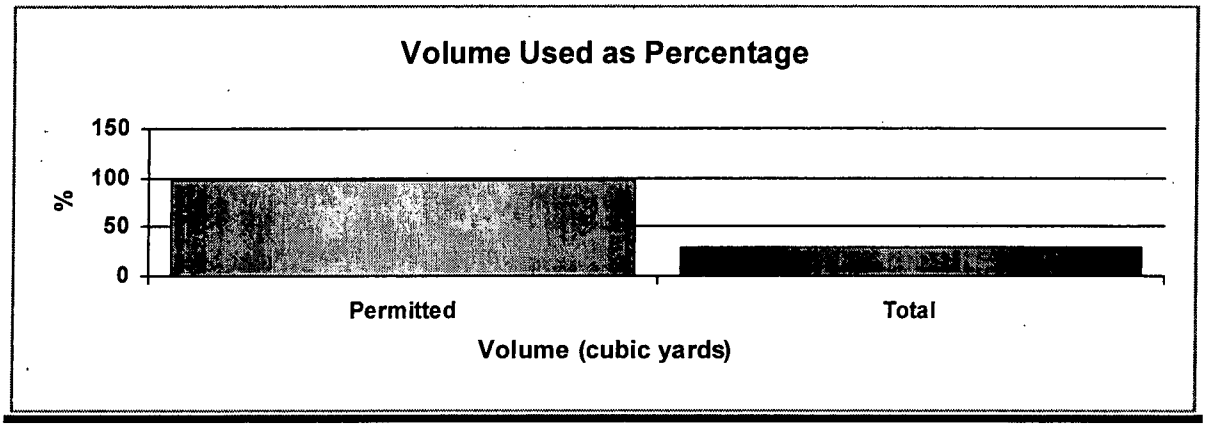
County: JOHNSTON

	Opened:	Surveyed:	Years Open:
Dates	10/1/1997	6/4/2006	8.7

	Total:	Avg per Year:	2005-2006:
Tons Disposed	874,469.00	100,751.64	109,822.31

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,890,314.00	1,933,819.00	6,347,780.00
Remaining Airspace (cubic yard)		43,505.00	4,457,466.00
Utilization Factor:	0.46		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	20,125.64	2,062,046.75
Remaining Capacity in Years (Avg TPY):	0.20	20.47
Remaining Capacity in Years (2005-2006 TPY):	0.18	18.78



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NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

LENOIR COUNTY MSW LANDFILL 54-09

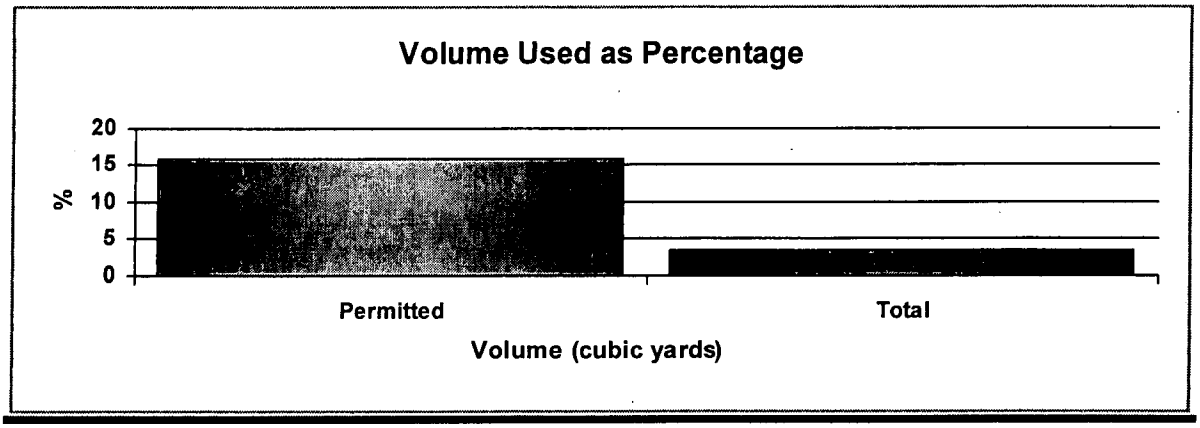
County: LENOIR

	Opened:	Surveyed:	Years Open:
Dates	7/1/2004	6/22/2006	2.0

	Total:	Avg per Year:	2005-2006:
Tons Disposed	80,939.33	40,974.83	43,599.93

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	99,981.00	635,000.00	3,000,000.00
Remaining Airspace (cubic yard)		535,019.00	2,900,019.00
Utilization Factor:	0.81		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	433,123.09	2,347,702.01
Remaining Capacity in Years (Avg TPY):	10.57	57.30
Remaining Capacity in Years (2005-2006 TPY):	9.93	53.85



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Total = Total Volume for the Landfill Site at Final Design

Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

LINCOLN COUNTY LANDFILL 55-03

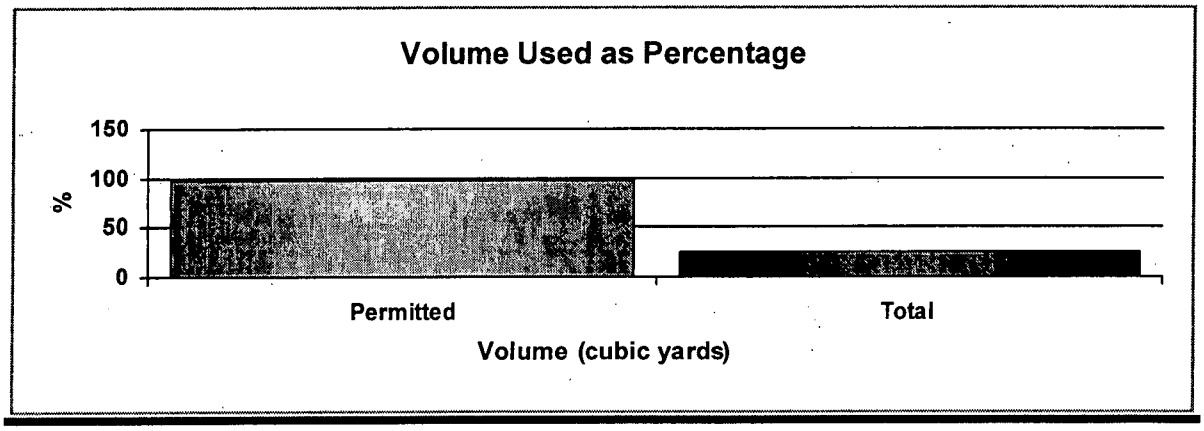
County: LINCOLN

	Opened:	Surveyed:	Years Open:
Dates	10/4/1993	7/6/2006	12.8

	Total:	Avg per Year:	2005-2006:
Tons Disposed	544,287.06	42,650.23	45,934.95

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,226,400.00	1,270,000.00	4,889,800.00
Remaining Airspace (cubic yard)		43,600.00	3,663,400.00
Utilization Factor:	0.44		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	19,350.06	1,625,849.00
Remaining Capacity in Years (Avg TPY):	0.45	38.12
Remaining Capacity in Years (2005-2006 TPY):	0.42	35.39



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Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

MACON COUNTY LANDFILL OPEN 57-03

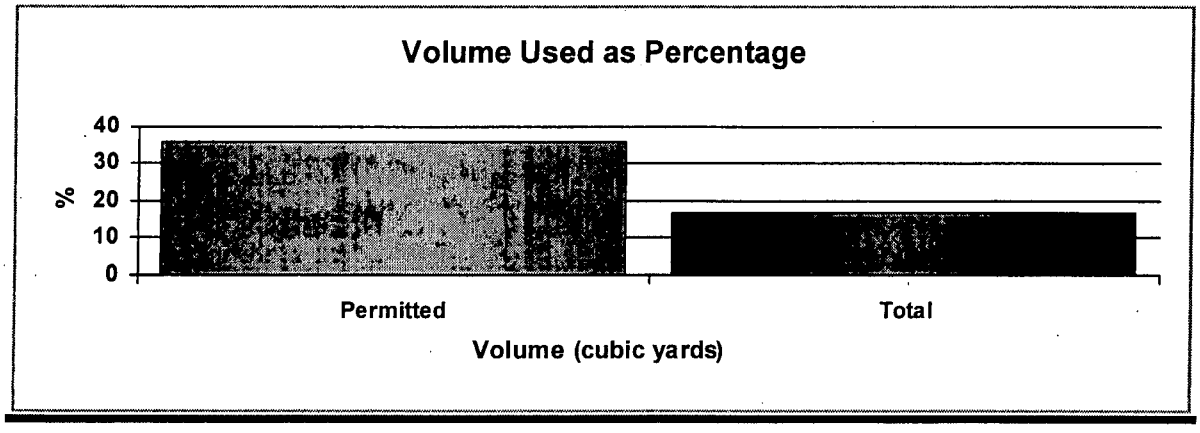
County: MACON

	Opened:	Surveyed:	Years Open:
Dates	5/1/1992	5/11/2006	14.0

	Total:	Avg per Year:	2005-2006:
Tons Disposed	242,024.96	17,243.63	27,783.49

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	456,539.00	1,279,949.00	2,723,049.00
Remaining Airspace (cubic yard)		823,410.00	2,266,510.00
Utilization Factor:	0.53		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	436,514.23	1,201,544.65
Remaining Capacity in Years (Avg TPY):	25.31	69.68
Remaining Capacity in Years (2005-2006 TPY):	15.71	43.25



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Remaining Capacity for Tons of Waste / 2005-2006 Tons Disposed
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Total = Total Volume for the Landfill Site at Final Design

Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

MECKLENBURG COUNTY LANDFILL 60-19

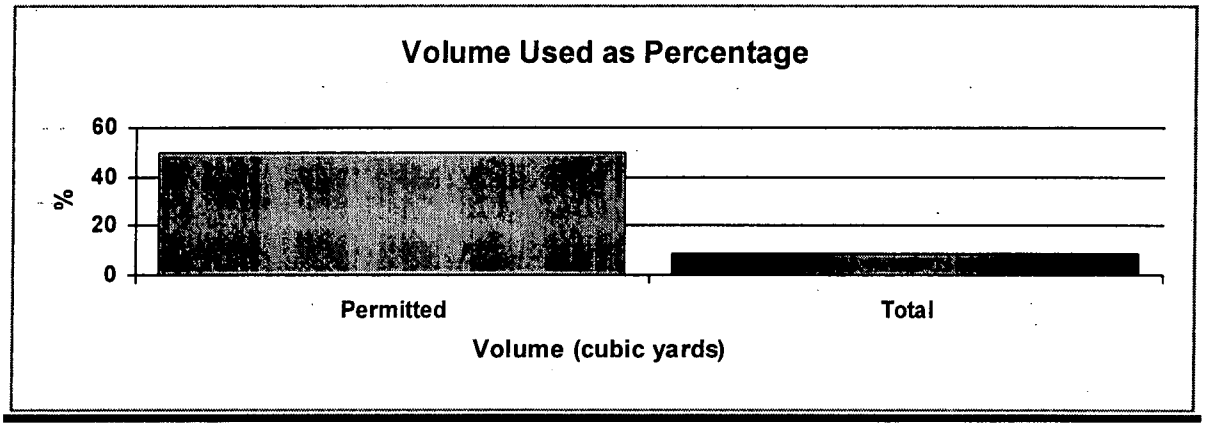
County: MECKLENBURG

	Opened:	Surveyed:	Years Open:
Dates	4/11/2000	2/15/2006	5.9

	Total:	Avg per Year:	2005-2006:
Tons Disposed	628,778.00	107,445.68	158,035.00

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,189,044.00	2,400,000.00	14,000,000.00
Remaining Airspace (cubic yard)		1,210,956.00	12,810,956.00
Utilization Factor:	0.53		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	640,365.28	6,774,557.79
Remaining Capacity in Years (Avg TPY):	5.96	63.05
Remaining Capacity in Years (2005-2006 TPY):	4.05	42.87



Calculations

Average Tons Disposed Per Year = Total Tons Disposed / Years Open
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Total = Total Volume for the Landfill Site at Final Design

NCDENR

Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

UWHARRIE ENVIRONMENTAL LANDFILL 62-04

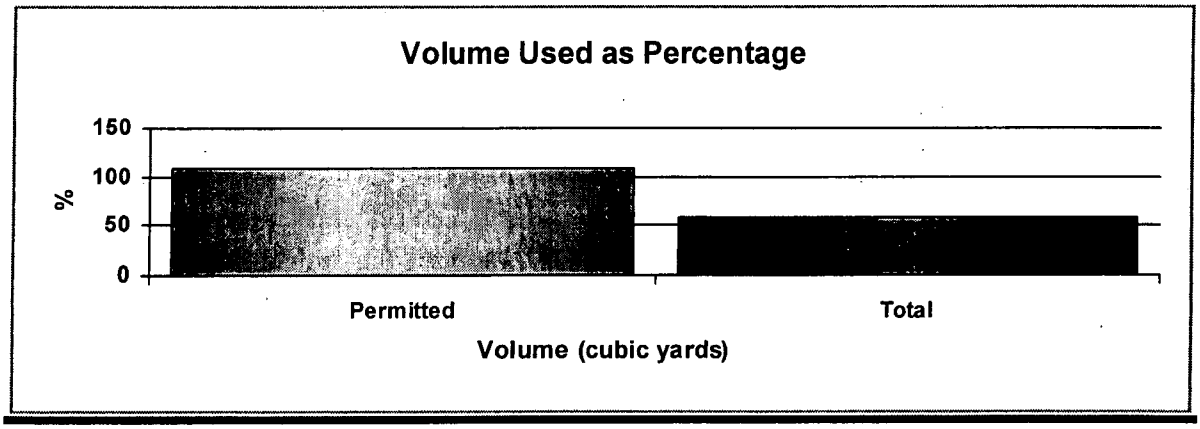
County: MONTGOMERY

	Opened:	Surveyed:	Years Open:
Dates	12/11/1995	4/4/2006	10.3

	Total:	Avg per Year:	2005-2006:
Tons Disposed	5,424,251.00	525,577.81	760,703.90

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	8,555,211.00	7,889,000.00	14,402,000.00
Remaining Airspace (cubic yard)		-666,211.00	5,846,789.00
Utilization Factor:	0.63		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	-422,397.03	3,707,033.18
Remaining Capacity in Years (Avg TPY):	-0.80	7.05
Remaining Capacity in Years (2005-2006 TPY):	-0.56	4.87



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Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

NEW HANOVER COUNTY LANDFILL 65-04

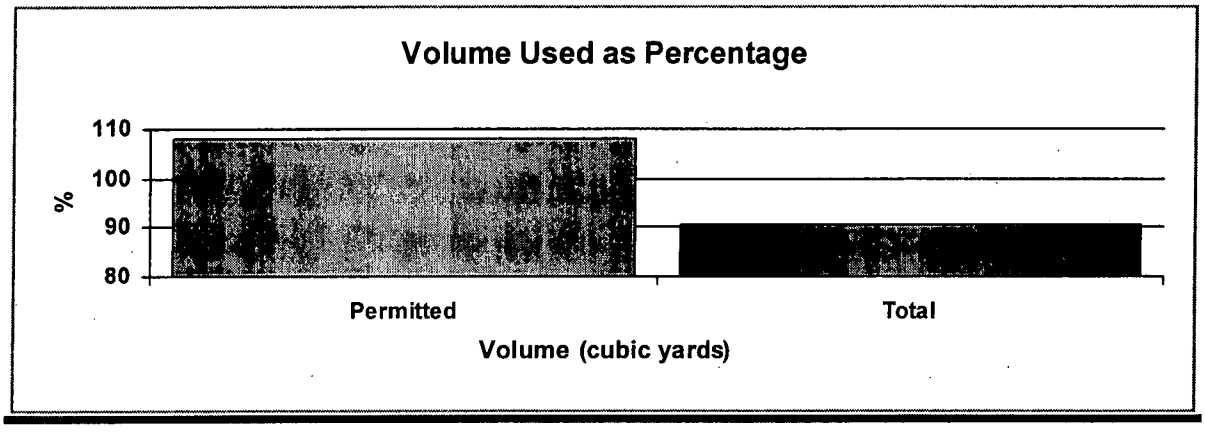
County: NEW HANOVER

	Opened:	Surveyed:	Years Open:
Dates	8/24/1981	8/21/2006	25.0

	Total:	Avg per Year:	2005-2006:
Tons Disposed	3,675,992.00	146,991.35	333,313.00

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	5,130,916.00	4,740,020.00	5,666,734.00
Remaining Airspace (cubic yard)		-390,896.00	535,818.00
Utilization Factor:	0.72		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	-280,053.42	383,881.30
Remaining Capacity in Years (Avg TPY):	-1.91	2.61
Remaining Capacity in Years (2005-2006 TPY):	-0.84	1.15



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Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

CAMP LEJEUNE MSW LANDFILL 67-08

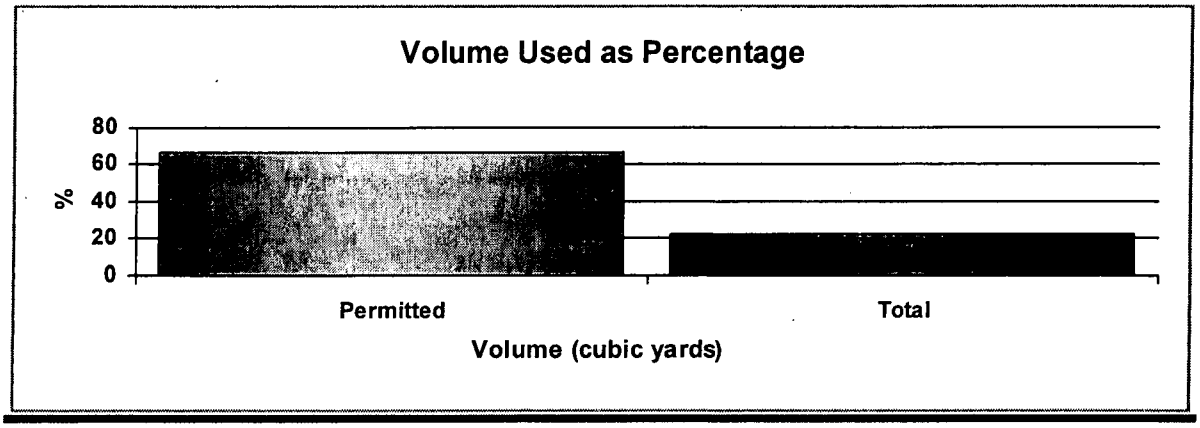
County: ONSLOW

	Opened:	Surveyed:	Years Open:
Dates	1/1/1998	6/30/2006	8.5

	Total:	Avg per Year:	2005-2006:
Tons Disposed	387,384.24	45,581.96	50,802.23

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	879,197.00	1,331,000.00	4,089,000.00
Remaining Airspace (cubic yard)		451,803.00	3,209,803.00
Utilization Factor:	0.44		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	199,069.56	1,414,275.86
Remaining Capacity in Years (Avg TPY):	4.37	31.03
Remaining Capacity in Years (2005-2006 TPY):	3.92	27.84



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Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

ONSLOW COUNTY SUBTITLE D LANDFILL 67-09

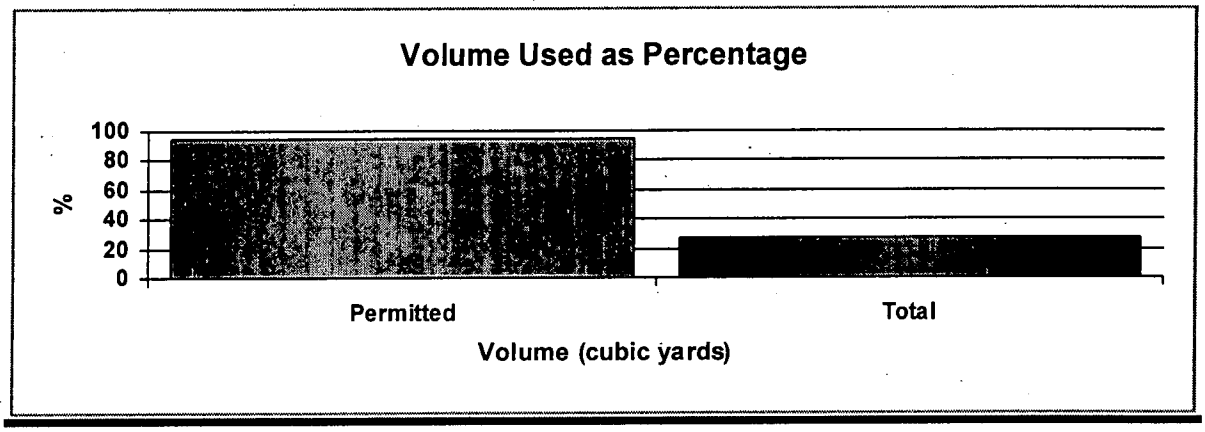
County: ONSLOW

	Opened:	Surveyed:	Years Open:
Dates	1/1/1998	5/25/2006	8.4

	Total:	Avg per Year:	2005-2006:
Tons Disposed	962,058.00	114,530.71	141,239.00

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,573,512.00	1,658,328.00	5,712,666.00
Remaining Airspace (cubic yard)		84,816.00	4,139,154.00
Utilization Factor:	0.61		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	51,857.19	2,530,712.33
Remaining Capacity in Years (Avg TPY):	0.45	22.10
Remaining Capacity in Years (2005-2006 TPY):	0.37	17.92



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NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

ORANGE COUNTY LANDFILL 68-01

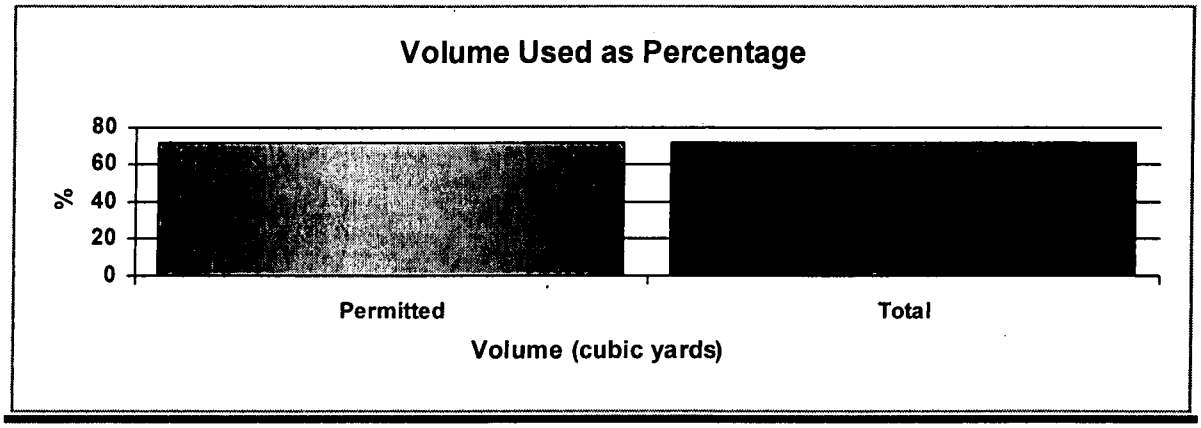
County: ORANGE

	Opened:	Surveyed:	Years Open:
Dates	7/1/1995	6/5/2006	10.9

	Total:	Avg per Year:	2005-2006:
Tons Disposed	629,824.00	57,586.61	57,569.72

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,152,000.00	1,604,000.00	1,604,000.00
Remaining Airspace (cubic yard)		452,000.00	452,000.00
Utilization Factor:	0.55		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	247,118.44	247,118.44
Remaining Capacity in Years (Avg TPY):	4.29	4.29
Remaining Capacity in Years (2005-2006 TPY):	4.29	4.29



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NCDENR

Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

UPPER PIEDMONT REGIONAL LANDFILL 73-04

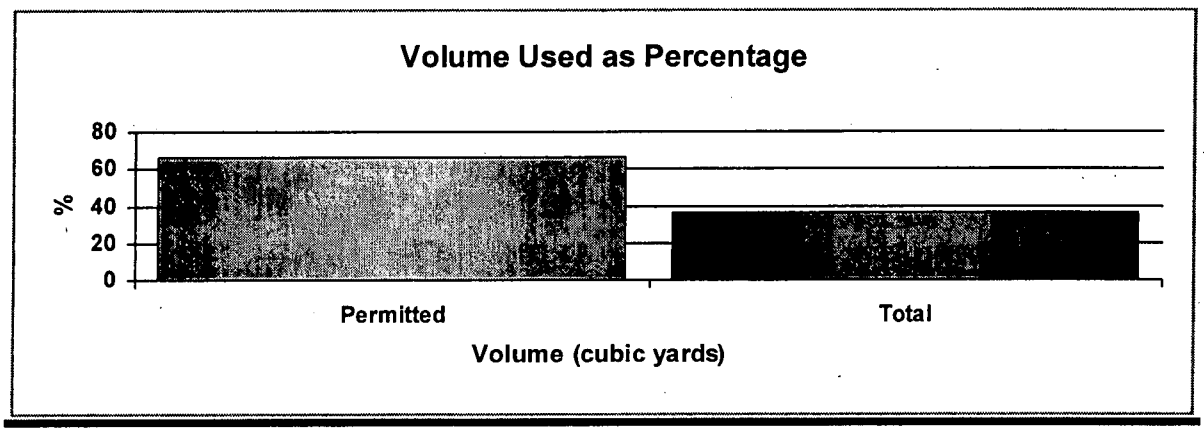
County: PERSON

	Opened:	Surveyed:	Years Open:
Dates	7/30/1997	3/3/2006	8.6

	Total:	Avg per Year:	2005-2006:
Tons Disposed	1,903,177.00	221,370.17	237,291.00

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	3,060,711.00	4,600,000.00	8,500,000.00
Remaining Airspace (cubic yard)		1,539,289.00	5,439,289.00
Utilization Factor:	0.62		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	957,143.43	3,382,197.71
Remaining Capacity in Years (Avg TPY):	4.32	15.28
Remaining Capacity in Years (2005-2006 TPY):	4.03	14.25



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Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

ROBESON COUNTY LANDFILL 78-03

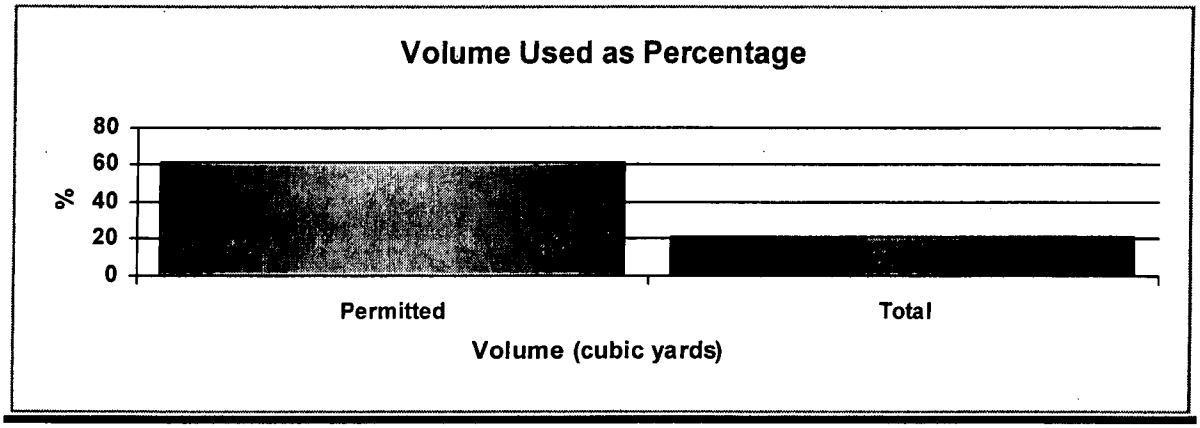
County: ROBESON

	Opened:	Surveyed:	Years Open:
Dates	1/1/1998	6/4/2006	8.4

	Total:	Avg per Year:	2005-2006:
Tons Disposed	796,196.00	94,477.09	89,296.08

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,221,253.00	2,000,000.00	6,000,000.00
Remaining Airspace (cubic yard)		778,747.00	4,778,747.00
Utilization Factor:	0.65		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	507,704.17	3,115,504.52
Remaining Capacity in Years (Avg TPY):	5.37	32.98
Remaining Capacity in Years (2005-2006 TPY):	5.69	34.89



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NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

ROCKINGHAM COUNTY LANDFILL 79-04

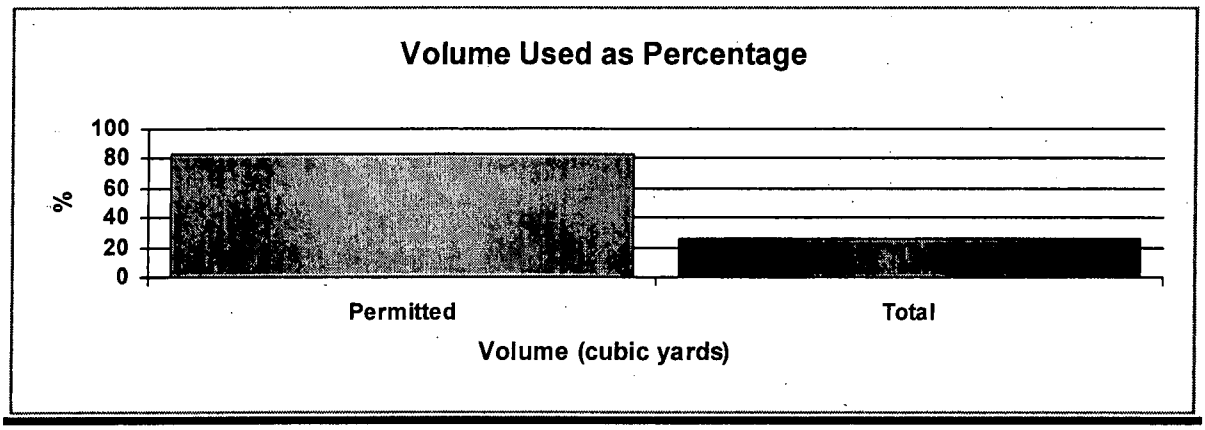
County: ROCKINGHAM

	Opened:	Surveyed:	Years Open:
Dates	5/5/1995	12/21/2005	10.6

	Total:	Avg per Year:	2005-2006:
Tons Disposed	793,144.00	74,555.13	89,212.00

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,562,244.00	1,865,268.00	5,870,000.00
Remaining Airspace (cubic yard)		303,024.00	4,307,756.00
Utilization Factor:	0.51		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	153,843.87	2,187,027.65
Remaining Capacity in Years (Avg TPY):	2.06	29.33
Remaining Capacity in Years (2005-2006 TPY):	1.72	24.51



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NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

ROWAN COUNTY LANDFILL 80-03

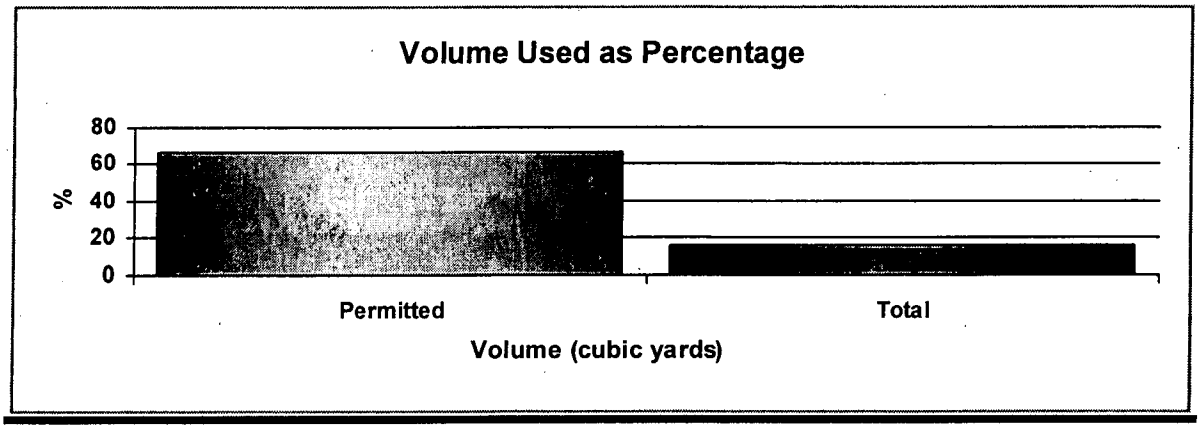
County: ROWAN

	Opened:	Surveyed:	Years Open:
Dates	12/1/1989	6/15/2006	16.5

	Total:	Avg per Year:	2005-2006:
Tons Disposed	1,221,118.00	73,792.73	38,835.28

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	2,287,140.60	3,451,834.00	15,071,000.00
Remaining Airspace (cubic yard)		1,164,693.40	12,783,859.40
Utilization Factor:	0.53		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	621,836.75	6,825,378.74
Remaining Capacity in Years (Avg TPY):	8.43	92.49
Remaining Capacity in Years (2005-2006 TPY):	16.01	175.75



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NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

WI-SAMPSON COUNTY DISPOSAL INC 82-02

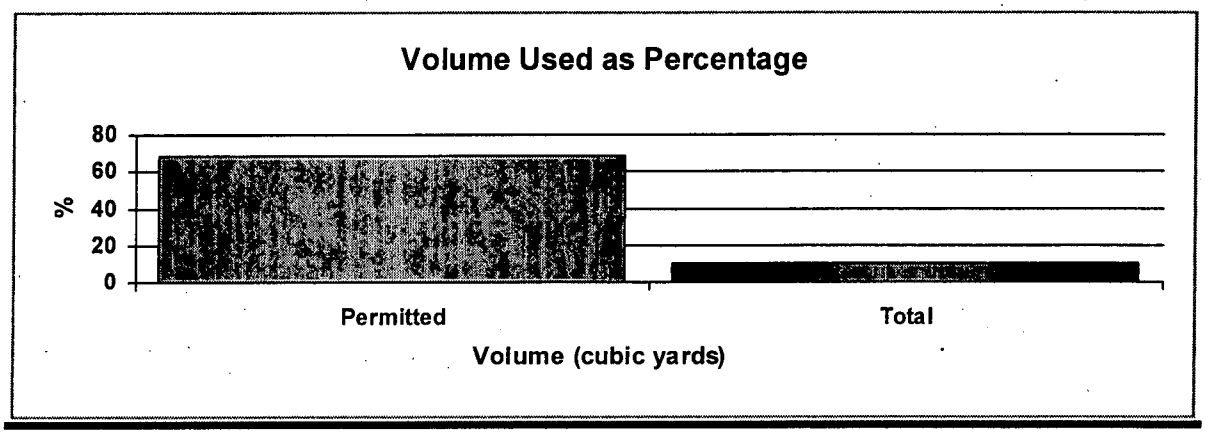
County: SAMPSON

	Opened:	Surveyed:	Years Open:
Dates	2/22/1999	12/22/2005	6.8

	Total:	Avg per Year:	2005-2006:
Tons Disposed	4,395,093.00	642,969.52	866,463.35

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	5,382,766.00	7,800,000.00	50,000,000.00
Remaining Airspace (cubic yard)		2,417,234.00	44,617,234.00
Utilization Factor:	0.82		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	1,973,700.55	36,430,506.70
Remaining Capacity in Years (Avg TPY):	3.07	56.66
Remaining Capacity in Years (2005-2006 TPY):	2.28	42.05



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NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

CITY OF ALBEMARLE — 84-01

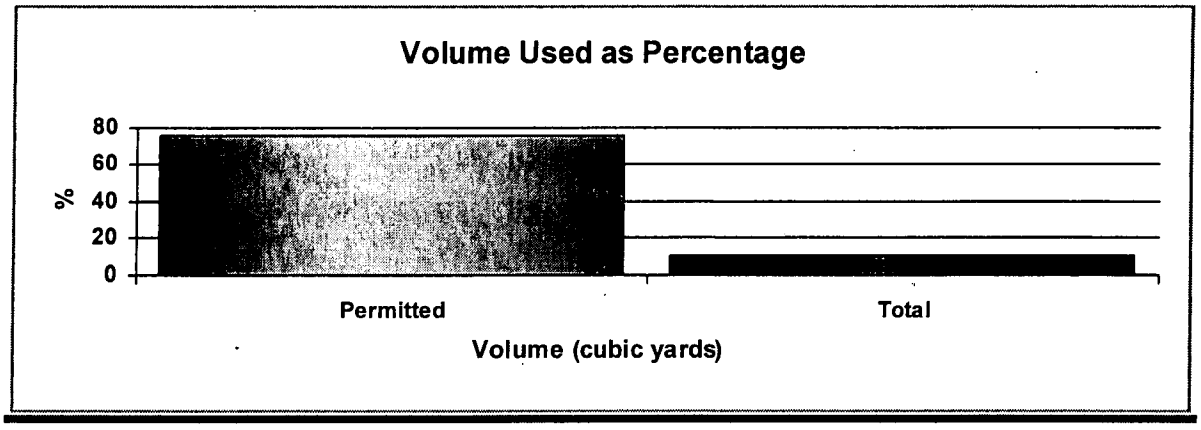
County: STANLY

	Opened:	Surveyed:	Years Open:
Dates	5/20/1999	6/20/2006	7.1

	Total:	Avg per Year:	2005-2006:
Tons Disposed	305,831.00	43,133.04	49,423.53

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	520,614.00	683,555.00	4,970,844.00
Remaining Airspace (cubic yard)		162,941.00	4,450,230.00
Utilization Factor:	0.59		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	95,718.53	2,614,256.03
Remaining Capacity in Years (Avg TPY):	2.22	60.61
Remaining Capacity in Years (2005-2006 TPY):	1.94	52.89



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NCDENR

Municipal Solid Waste Landfill Capacity

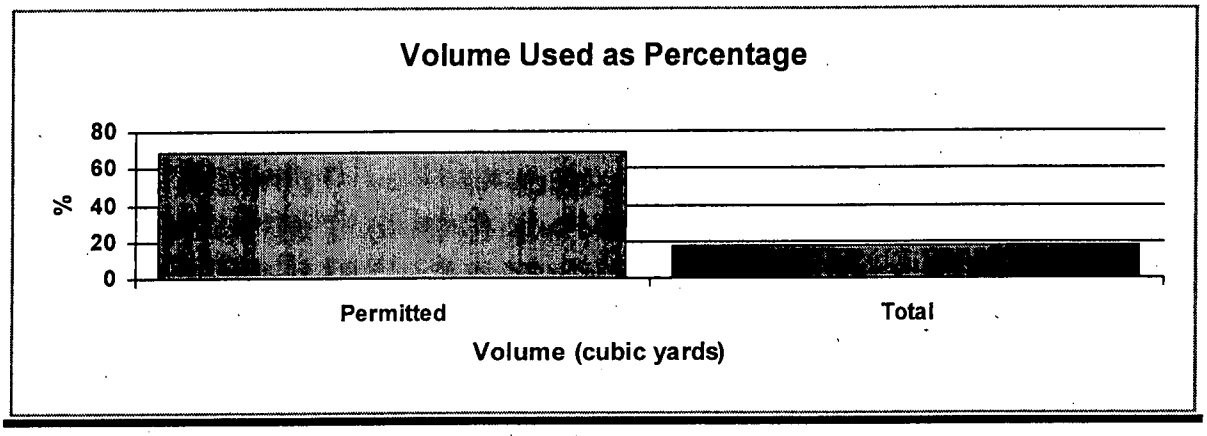
Analysis Date: April 23, 2007

SURRY COUNTY MSWLF 86-06

County: SURRY

	Opened:	**Surveyed:**	**Years Open:**
Dates	12/1/1998	6/16/2006	7.5
	Total:	**Avg per Year:**	**2005-2006:**
Tons Disposed	493,106.00	65,353.55	80,985.00
	Used:	**Permitted:**	**Total:**
Volume Airspace (cubic yard)	896,832.00	1,301,000.00	5,212,000.00
Remaining Airspace (cubic yard)		404,168.00	4,315,168.00
Utilization Factor:	0.55		

	Permitted:	**Total:**
Remaining Capacity for Tons of Waste:	222,224.08	2,372,612.97
Remaining Capacity in Years (Avg TPY):	3.40	36.30
Remaining Capacity in Years (2005-2006 TPY):	2.74	29.30



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NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

TRANSYLVANIA COUNTY LANDFILL 88-07

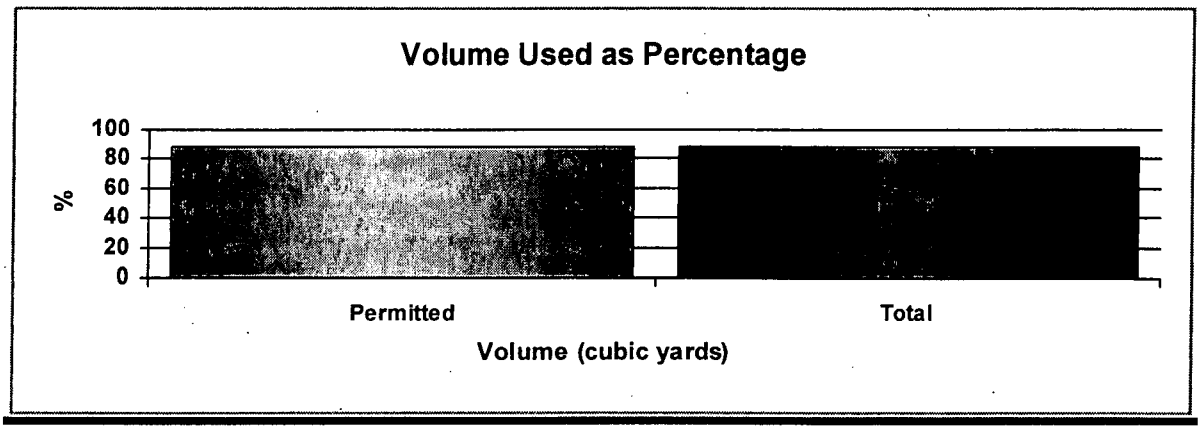
County: TRANSYLVANIA

	Opened:	Surveyed:	Years Open:
Dates	6/13/1990	9/29/2006	16.3

	Total:	Avg per Year:	2005-2006:
Tons Disposed	297,353.00	18,234.85	26,732.00

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	462,009.00	522,000.00	522,000.00
Remaining Airspace (cubic yard)		59,991.00	59,991.00
Utilization Factor:	0.64		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	38,610.73	38,610.73
Remaining Capacity in Years (Avg TPY):	2.12	2.12
Remaining Capacity in Years (2005-2006 TPY):	1.44	1.44



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NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

WAKE COUNTY LANDFILL-NORTH 92-09

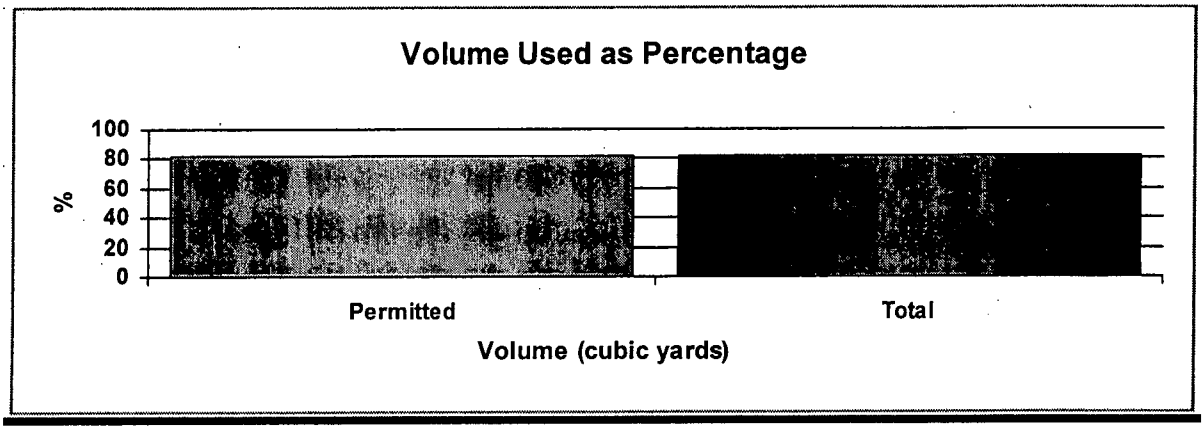
County: WAKE

	Opened:	Surveyed:	Years Open:
Dates	7/1/1998	7/8/2006	8.0

	Total:	Avg per Year:	2005-2006:
Tons Disposed	4,077,844.02	508,164.24	434,566.29

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	6,417,012.00	7,900,000.00	7,900,000.00
Remaining Airspace (cubic yard)		1,482,988.00	1,482,988.00
Utilization Factor:	0.64		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	942,400.26	942,400.26
Remaining Capacity in Years (Avg TPY):	1.85	1.85
Remaining Capacity in Years (2005-2006 TPY):	2.17	2.17



Calculations

Average Tons Disposed Per Year = Total Tons Disposed / Years Open
Remaining Airspace = Total Volume Airspace – Volume of Airspace Used
Utilization Factor = Total Tons Disposed / Volume of Airspace Used
Remaining Capacity for Tons of Waste = Remaining Airspace x Utilization Factor
Remaining Capacity in Years =
Remaining Capacity for Tons of Waste / Average Tons Disposed Per Year
Remaining Capacity for Tons of Waste / 2005-2006 Tons Disposed
Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

NCDENR

Municipal Solid Waste Landfill Capacity

Analysis Date: April 23, 2007

WAYNE COUNTY LANDFILL 96-06

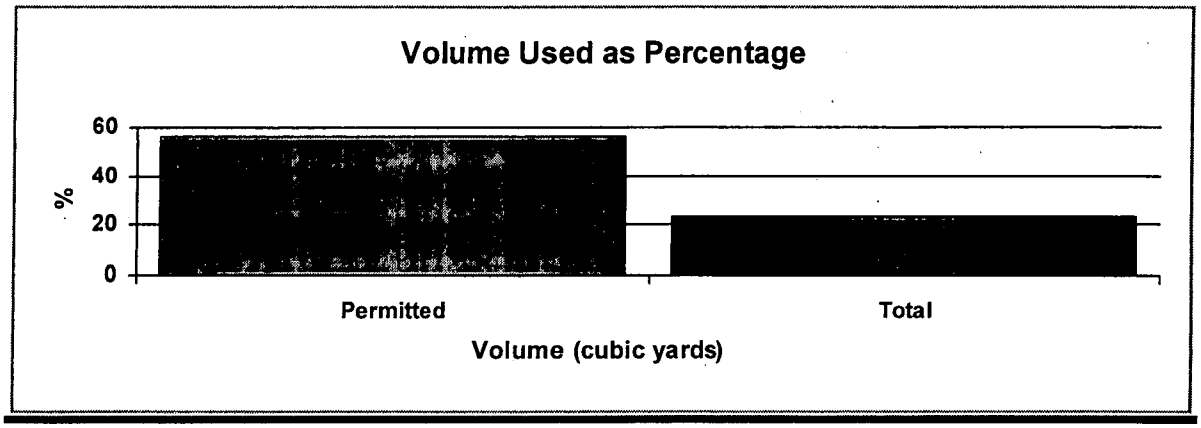
County: WAYNE

	Opened:	Surveyed:	Years Open:
Dates	1/26/1998	1/15/2006	8.0

	Total:	Avg per Year:	2005-2006:
Tons Disposed	726,284.72	91,066.27	92,480.93

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,175,711.00	2,082,000.00	5,000,000.00
Remaining Airspace (cubic yard)		906,289.00	3,824,289.00
Utilization Factor:	0.62		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	559,851.74	2,362,419.56
Remaining Capacity in Years (Avg TPY):	6.15	25.94
Remaining Capacity in Years (2005-2006 TPY):	6.05	25.54



Calculations

Average Tons Disposed Per Year = Total Tons Disposed / Years Open
Remaining Airspace = Total Volume Airspace – Volume of Airspace Used
Utilization Factor = Total Tons Disposed / Volume of Airspace Used
Remaining Capacity for Tons of Waste = Remaining Airspace x Utilization Factor
Remaining Capacity in Years =
Remaining Capacity for Tons of Waste / Average Tons Disposed Per Year
Remaining Capacity for Tons of Waste / 2005-2006 Tons Disposed
Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

Municipal Solid Waste Landfill Capacity
Analysis Date: April 23, 2007

WILKES COUNTY MSWLF 97-04

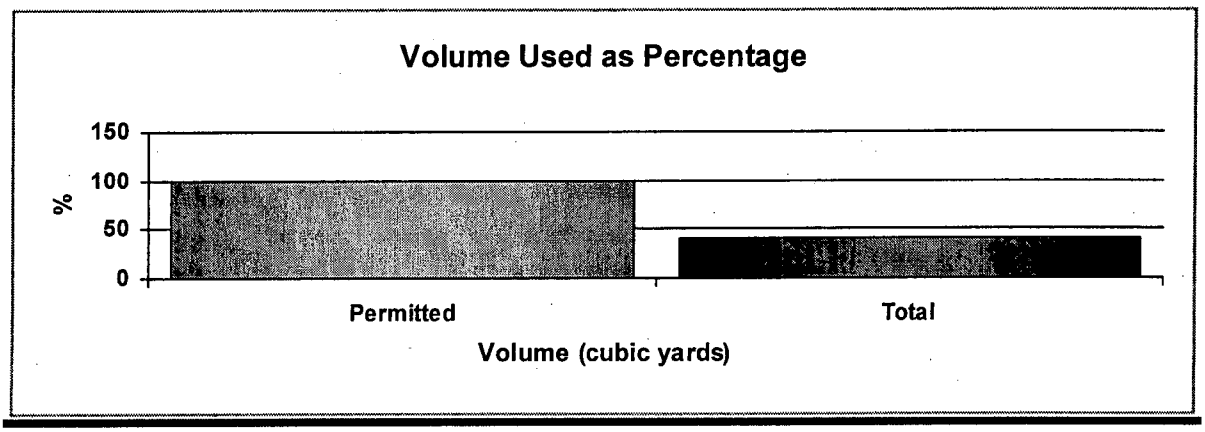
County: WILKES

	Opened:	Surveyed:	Years Open:
Dates	10/7/1993	7/18/2006	12.8

	Total:	Avg per Year:	2005-2006:
Tons Disposed	634,834.03	49,649.54	57,391.00

	Used:	Permitted:	Total:
Volume Airspace (cubic yard)	1,387,438.00	1,406,578.00	3,473,509.00
Remaining Airspace (cubic yard)		19,140.00	2,086,071.00
Utilization Factor:	0.46		

	Permitted:	Total:
Remaining Capacity for Tons of Waste:	8,757.67	954,499.49
Remaining Capacity in Years (Avg TPY):	0.18	19.22
Remaining Capacity in Years (2005-2006 TPY):	0.15	16.63



Calculations

Average Tons Disposed Per Year = Total Tons Disposed / Years Open
Remaining Airspace = Total Volume Airspace – Volume of Airspace Used
Utilization Factor = Total Tons Disposed / Volume of Airspace Used
Remaining Capacity for Tons of Waste = Remaining Airspace x Utilization Factor
Remaining Capacity in Years =
Remaining Capacity for Tons of Waste / Average Tons Disposed Per Year
Remaining Capacity for Tons of Waste / 2005-2006 Tons Disposed
Permitted = Landfill Volume Constructed and Permitted to Operate
Total = Total Volume for the Landfill Site at Final Design

This report is available online at:
http://www.wastenotnc.org/swhome/AR05-06.pdf

_____ Copies of this report were printed at cost of $_____.

EXHIBIT D-2

June 2007

A Study of the Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients

Final Report

Prepared for

Environmental Review Commission

Prepared by

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Center for Watershed Protection
8390 Main Street, 2nd Floor
Ellicott City, MD 21043

RTI Project Number 0210565.000.001

RTI INTERNATIONAL

RTI Project Number
0210565.000.001

A Study of the Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients

Final Report

June 2007

Prepared for

Environmental Review Commission

Prepared by

Michael P. Gallaher (RTI)
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Dallas Wood (RTI)
Tom Schueler (CWP)
Anne Kitchell (CWP)

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EXECUTIVE SUMMARY

In the 2005 General Assembly session, Senate Bill 1862 called for the General Assembly's Environmental Review Commission to conduct a study of the Nutrient Offset Fee Payment Program (NOFPP). The NOFPP is administered by the Ecosystem Enhancement Program (EEP), which can use the funds paid by excess emitters to construct nutrient controls within the river basin that offset the excess nutrients they emit. The objectives of this study include the following:

- Objective 1: Evaluate the sustainability of the program at the current fee of $11 per pound of nitrogen
- Objective 2: Develop a proposed fee based on the cost-effectiveness analysis
- Objective 3: Develop a formula for calculating the offset payment fee
- Objective 4: Assess the advantages and disadvantages of expanding the nutrient offset payments to other nutrients and additional areas of the state
- Objective 5: Evaluate the ability of public (other than the EEP) and private entities to provide nutrient offsets
- Objective 6: Develop a comprehensive review of potential nutrient mitigation efforts available

This study was contracted to RTI International in the spring of 2007. To assess the issues, RTI held meetings with all stakeholder groups and solicited best management practice (BMP) cost data from all available groups. The findings from the analysis are summarized below.

Because the type of offset projects undertaken by the EEP in the future significantly influences the financial analysis, three scenarios are evaluated for Objectives 1, 2, and 3.

- ***Scenario A: All Buffers***. The EEP implements exclusively riparian buffers on land obtained through conservation easements and purchased land. Based on RTI's assessment of the amount of land in the 50-foot buffer zone and projections of future competing demand for that land, this option should be viable for the foreseeable future (i.e., through 2020).
- ***Scenario B: Integrated Implementation***. In addition to buffers, the EEP pursues a number of stormwater wetland offset projects to target integrated environmental objectives. This results in higher costs per pound of nitrogen and phosphorous.
- ***Scenario C: All Stormwater Wetland Retrofit.*** The EEP does not undertake any buffer projects and instead installs all stormwater wetland projects, which again enables offset projects to be implemented closer in proximity (e.g., in local

watersheds) to where development is occurring, and again increasing the costs per pound of nitrogen and phosphorous.

E.1 Objective 1: Program Sustainability at $11 per Pound of Nitrogen

NOFPP program expenditures exceed revenue in the first year of the analysis for all three scenarios analyzed. The gap between offset fee revenue and program expenditures then widens with time as maintenance costs are incurred for projects initiated in previous years. In summary, given an $11/lb of nitrogen fee, the NOFPP program is currently unsustainable.

E.2 Objective 2: Proposed Fee Based on Cost-Effectiveness

We define cost-effectiveness as the offset fee that would be required for the NOFPP to be sustainable through the year 2020. The fixed offset fees for both river basins that yield a sustainable program through 2020 for each scenario are presented in Tables E-1 and E-2. Cost differences between the Neuse and Tar-Pamlico river basins are due to differences in land costs (design, construction, and maintenance costs are the same in the two river basins).

Table E-1. Cost-Effective Offset Fee for the Neuse River Basin

	Cost-Effective Offset Fee[a] ($/lb-30 N)	Cost-Effective Offset Fee ($/0.10 lb-30 P)
Scenario A	$25.77	$33.19
Scenario B	$43.94	$41.23
Scenario C	$94.80	$62.91

[a] Offset fee that allows the program to be sustainable through 2020.

Table E-2. Cost-Effective Offset Fee for the Tar-Pamlico River Basin

	Cost-Effective Offset Fee[a] ($/lb-30 N)	Cost-Effective Offset Fee ($/0.10 lb-30 P)
Scenario A	$19.70	$26.02
Scenario B	$39.40	$35.38
Scenario C	$90.21	$59.77

[a] Offset fee that allows the program to be sustainable through 2020.

E.3 Objective 3: Formula for Offset Payment Fee

The specification of the formula for the offset payment fee varies depending on the type of mitigation options pursued and the underlying rationale for pursuing them. For Scenarios A and C, we recommend the simple fixed cost-effective dollar per pound factors (presented in Table E-1 and Table E-2) with a 10% administrative surcharge. Both scenarios are implemented

through as a single BMP option; thus, there is minimal variation in NOFPP expenditures with respect to where the offset payments originate.

$$\text{Payment} = (\$/\text{lb})(\#\text{of lbs/year})(30 \text{ years})(1.1 \text{ AdminCosts})$$

Scenario B implements a mixture of buffers and stormwater wetlands. For this scenario we recommend incorporating the cost of the land being developed as a proxy for the type of mitigation project that would be needed to meet local environmental objectives.

$$\text{Payment} = [(\$/\text{lb})(\#\text{of lbs/year})(30 \text{ years})^* (\text{Total Land Cost } \$/14{,}000)\text{^(Exp)}^* (1.1 \text{ AdminCosts})$$

E.4 Objective 4: Expanding Nutrient Offset Payments

Other waterbodies in North Carolina, such as the Chowan River Basin, Jordan and Falls reservoirs, High Rock Lake, and other large reservoirs in the Catawba and Yadkin basins, could be considered candidates for extending the nutrient offset program. In terms of the potential extension of the program to nutrients besides nitrogen and phosphorus, RTI is not currently aware of any studies in North Carolina indicating that other nutrients (e.g., silica) should be considered.

E.5 Public versus Private Implementation

The EEP currently serves as the sole gateway for purchasing nutrient offsets in the Neuse and the Tar-Pamlico river basins. It receives payment for excess nutrients emitted by nonpoint sources, which it then uses to construct BMPs that will offset them. However, there are a wide range of alternative operational structures that could be developed, such as a market-style nutrient trading system.

Market-style structures can have significant advantages. In particular, the price paid by demanders of nutrient offsets would be determined by the interaction of market forces (supply and demand), which would ultimately ensure that the price these individuals pay for their excess nutrient loads will be enough to fund the BMP projects required to offset them. As a consequence, market-style structures will have great flexibility in the face of changes in supply (e.g., increasing costs of offsetting nutrients) and demand (e.g., increasing development driven by population growth). However, a regulatory body would be required to ensure that suppliers of nutrient offsets are generating the offsets they claim and to provide other regulation and oversight. If such a market-style structure were pursued, the EEP would be among the most well-

suited government entities for providing this supervision because of their past experience managing the NOFPP program.

The NOFPP seems well suited for market trading. That demand is sufficient to support such a structure is illustrated by the large amount of nutrient offsets already purchased under the program. In addition, the successful completion of several full-delivery projects under the current program illustrates the fact that private entities have the capabilities to generate the nutrient offset credits that would be required in such a market.

E.6 Mitigation Options Available

Current mitigation options being implemented in North Carolina primarily fall into the categories of riparian buffers, stormwater wetlands, bioretention ponds, and wet ponds. Additional mitigation projects identified include sand filters, underground sand filters, infiltration practices, and water quality swales. However, in general, these mitigation options are more costly.

E.7 Stakeholder Concerns

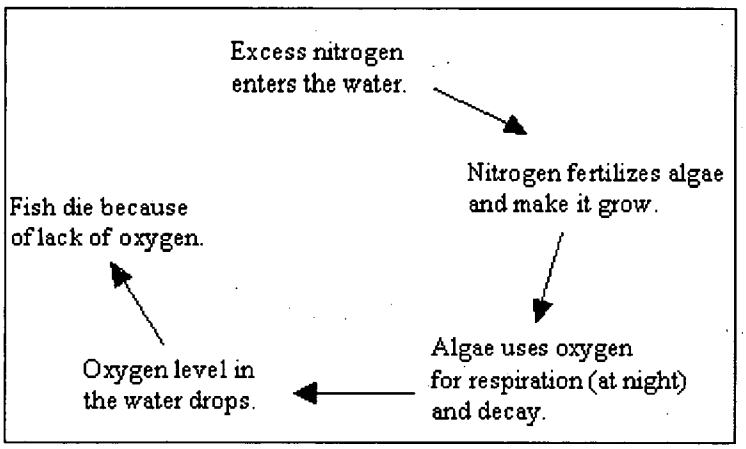
During our interviews with stakeholders, several shared the concerns that instituting higher nutrient offset fees could potentially have serious consequences for the pace and distribution of economic growth in the state of North Carolina. By raising the offset fee, one is also raising the cost of new development in the Neuse and Tar-Pamlico river basins. This could lead to people and firms locating in other parts of the state, slowing economic growth in areas affected by the NOFPP, or lead to less development overall, thus slowing growth for the entire state. Therefore, stakeholders urge policy makers to weigh the benefits of environmental protection against the potential costs to the state economy. In addition, stakeholders representing point sources, such as wastewater treatment facilities, expressed concern about the possibility that its members will need to use the NOFPP when they seek to expand their facilities to accommodate population growth, which would significantly increase their cost of service.

SECTION 1
HISTORICAL BACKGROUND

Nutrient pollution has been a concern in the Neuse River since the mid-1970s. By 1988, the entire Neuse River Basin had been classified as nutrient sensitive waters (NSW) by the Environmental Management Commission (EMC). This new classification led to more stringent nutrient limits for wastewater facilities and inspired a variety of other actions aimed at reducing nutrient discharges, such as a statewide ban on phosphate detergents (NCDWQ, 2002).

However, despite these initiatives, the Neuse River continued to face water quality problems. These problems came to a climax in the summer of 1995 when record rainfalls delivered a tremendous load of nitrogen into the river system. This excess nitrogen stimulated the growth of algae blooms and deprived hundreds of fish of the oxygen they needed to survive (see Figure 1-1).

Figure 1-1. Consequences of Excess Nitrogen in the Neuse River



Source: NCDWQ, 1998.

The General Assembly responded to the situation by passing House Bill 1339, which established the goal of reducing the amount of nitrogen delivered to the Neuse River Estuary by 30% over 5 years (NCDWQ, 1998). On December 11, 1997, the EMC followed this legislation with the adoption of the Nutrient Sensitive Waters Management Strategy, a collection of rules that outlined the nutrient loading limits for point and nonpoint sources, as well as other regulations that would be used to meet the legislature's reduction goal. This strategy was subsequently reviewed by the North Carolina Rules Review Commission and the General Assembly in its 1998 short session (NCDWQ, 2002a).

1.1 Nutrient Offset Fee Payment Program

Under the NSW Management Strategy, all new residential and commercial developments in the Neuse River Basin had to limit the amount of nitrogen released into the river to 3.6 pounds per acre per year. If a development failed to meet this limit, the development's owner had the option of either installing nutrient controls on the development site (also known as best management practices or BMPs) or voluntarily paying a specified fee to the North Carolina Wetland Restoration Fund as part of the Nutrient Offset Fee Payment Program (NOFPP). Table 1-1 provides an overview of the key rules.

Table 1-1. Pollutant Load Limits in the Neuse and Tar-Pamlico River Basins

River Basin	Rule
Neuse	The requirements in the Neuse Stormwater Rule 15A NCAC 2B.0235B for new developments require a 30% reduction in nitrogen loads, based on 1995 land use data, in nonurban areas of the Neuse River Basin and no net increase in the stormwater runoff volume generated by the 1-year, 24-hour storm.
Tar-Pamlico	The requirements in the Tar-Pamlico Stormwater Rule 15A NCAC 2B.0258 for new developments require a 30% reduction in nitrogen loads, based on predevelopment land use data, and no increase in phosphorus loads.

The Ecosystem Enhancement Program (EEP), which has administered the Wetland Restoration Fund under the Department of Environment and Natural Resources (DENR), would use the fees collected under this program to construct BMPs elsewhere in the river basin to offset the excess nutrients those developers emit (NCDWQ, 2006). It is important to note that, as the law and the rules are written, the EEP can construct the BMP anywhere in the Neuse River Basin as long as it prevents nutrients from reaching the Neuse River Estuary.

However, it should be noted that developers only had the option of using the NOFPP if they met certain requirements. These requirements differed based on whether the development was commercial or residential. If it was a residential development, the owner had to use (if necessary) on-site nutrient controls to reduce their nitrogen discharges to 6.0 pounds per acre per year before he/she was eligible to take advantage of the NOFPP. On the other hand, if the development was commercial, the owner had to use on-site BMPs to reduce nitrogen discharges to 10 pounds per acre per year before it was eligible to use the NOFPP.

The original offset fee paid by developers for excess nitrogen discharges was set in 1998 at a fixed rate of $11 per pound of nitrogen per year. However, this fee was estimated without the benefit of historical data for what offset mitigation projects would cost (NCDWQ, 2006).

1.2 Recent Changes to the Nutrient Offset Payment Program

In 2005, a series of amendments were proposed to the NSW Management Strategy. These amendments sought to expand the offset program to cover new river basins and nutrients; update the way nutrient offset payments are calculated to reflect the true and changing costs of mitigation, as well as to make pursuing projects closer to the location of environmental impact more feasible; and finally to reorganize and change the destination of nutrient offset payments from the Wetland Restoration Fund to the Riparian Buffer Restoration Fund.

First among the changes proposed by these amendments was that the offset payment program be expanded to the Tar-Pamlico River Basin to allow developers in that river basin the option of participating in the program in lieu of complying with the strict nutrient loading limits in the Tar-Pamlico NSW Rule (15A NCAC .0258) (NCDENR, 2005b).

However, there were several key differences between the offset payment program in the Neuse and the one proposed for the Tar-Pamlico. First, the nitrogen loading requirements were different in each river basin. The Neuse rules require that developers limit their nitrogen discharges to 3.6 pounds per acre per year, whereas the rules in the Tar-Pamlico region only require emitters to limit their nitrogen loading to 4.0 pounds per acre per year (NCDENR, 2005b).

Second, since the Tar-Pamlico NSW Rule also specifies limits for the amount of phosphorus developers can emit into the river basin (0.4 pounds per acre per year), the offset payment program in the Tar-Pamlico would provide developers with the option of paying an offset fee similar to the one paid for nitrogen in lieu of complying with the strict phosphorus limit.[1] According to these amendments, developers would be charged $45 per tenth of a pound of phosphorus per year (NCDENR, 2005b).

In addition to these changes, the 2005 amendments also proposed to change the methods and prices used to calculate a developer's total nutrient offset fee. First, the amendments would raise the price of loading nitrogen into the Neuse and Tar-Pamlico river basins from $11 per pound per year to $57 per pound per year. This new fee was intended to better reflect the true cost of mitigation and to provide the EEP with more flexibility as to the types of nutrient controls it could afford to pursue (NCDENR, 2005b).

[1] In cases where a developer wishes to use the nutrient offset payment option, but emissions of both nitrogen and phosphorus exceed mandatory limits, the developer would only be expected to pay the more expensive of the two fees. This procedure was established to avoid charging developers twice for the same nutrient emissions.

Second, the amendments proposed using a new formula for calculating the total fee that developers would have to pay to participate in the nutrient offset program. This new formula was intended to establish an automatic updating mechanism and incorporate the land costs associated with mitigation requirements to allow the EEP the flexibility of pursuing BMP projects closer to the point of impact. The proposed formula for nitrogen is included as follows (the formula for phosphorus is similar in structure) (NCDENR, 2005b):

Nitrogen Payment = [($/lb)(# of lbs/year)(30 years) + (Land Cost $/Ac) (1 Ac/35 Ac) (Devel. in Ac)] x (1.1 Ad Costs)

where

$/lb	=	the cost of mitigation in dollars per pound of nitrogen mitigation. As stated earlier, this fee was to be established at $57 per pound of nitrogen and $45 dollars per tenth of a pound of phosphorus by the proposed amendment. This fee would be updated annually based on the construction cost index, published in the *Engineering News Record.*
# of lbs/year	=	the number of pounds of nitrogen discharged each year for which mitigation is being requested.
Land Cost $/Ac	=	the current value of the property being developed as measured in dollars per acre. This value is based on the most recent county tax assessment.
1 Ac / 35 Ac	=	an adjustment factor, indicating that 1 acre of mitigation is required for every 35 acres of development.
Devel. in Ac	=	the overall size of the development, as measured in acres, for which mitigation is being requested.
1.1 Ad Costs	=	an adjustment factor used to reflect the administrative costs associated with the requested mitigation.

The final change proposed in the amendments was that the destination of nutrient offset payments from the NC Wetland Restoration Fund be changed to the Riparian Buffer Restoration Fund. This change was intended to provide the EEP with more flexibility in disposing of funds obtained from the nutrient offset program, because the projects that could be pursued under the Riparian Buffer Restoration Fund did not face the same restrictions as those that could be pursued under the NC Wetland Restoration fund (NCDENR, 2005b).

These changes proposed by the amendments became effective on March 1, 2006, during the 2005 short session of the North Carolina General Assembly (NCDWQ, 2006). However, later in the session, some of these changes were temporarily rescinded by Senate Bill 1862. This bill required that a) nutrient offset fees be temporarily lowered to $11 per pound of nitrogen and $11

per tenth of a pound of phosphorus, b) that a study of the nutrient offset payment be commissioned, and c) that payments made under the higher fee structure be refunded.

SECTION 2
NUTRIENT OFFSET PROGRAM ACTIVITIES TO DATE

Since the NOFPP's inception, the EEP has received $10,682,594 in fees ($11,670,996 in inflation-adjusted 2006 dollars) to offset 961,477 pounds of nitrogen and 391 pounds of phosphorus in the Neuse and Tar-Pamlico river basins. Table 2-1 provides nutrient offset payments into the program dating back to May 2001. In this section, we discuss the BMP projects EEP has installed to offset these nutrients and the methods used to implement them.

Table 2-1. Nutrient Offset Payments, May 2001 through February 2007

Year	Current-Year Dollars	Inflation Adjusted, 2006 Dollars
2001	$387,065[a]	$475,322[a]
2002	$1,375,443	$1,729,008
2003	$1,281,030	$1,528,702
2004	$1,540,816	$1,730,923
2005	$2,314,203	$2,423,003
2006	$2,938,989	$2,938,989
2007	$845,049[a]	$845,049[a]
TOTAL	**$10,682,594**	**$11,670,996**

[a] Partial year data.

Source: Provided by the EEP in March of 2007.

2.1 EEP Nutrient Offset Projects

To date, the EEP has initiated 14 BMPs in the Neuse River Basin that were funded by the NOFPP. According to the EEP's estimates, these projects account for more than 532,400 pounds of nitrogen and 36,500 pounds of phosphorus reduction. In 2006, a temporary hold was placed on starting new nutrient offset projects pending the results of the proposed amendments described in the previous section.

Thus far, 8 of the 14 projects pursued by the EEP have been riparian buffers. The remaining six projects are stormwater wetlands and other structural BMPs. Figure 2-1 graphically juxtaposes the locations of the nutrient offset projects the EEP has pursued to date with the origin of offset payments the NOFPP has received. As this figure illustrates, the majority of projects are located in Wake and Johnston counties. These counties also account for a sizeable portion of the offset payments received by the NOFPP.

Figure 2-1. Nutrient Offset Projects and Payments by County of Origin

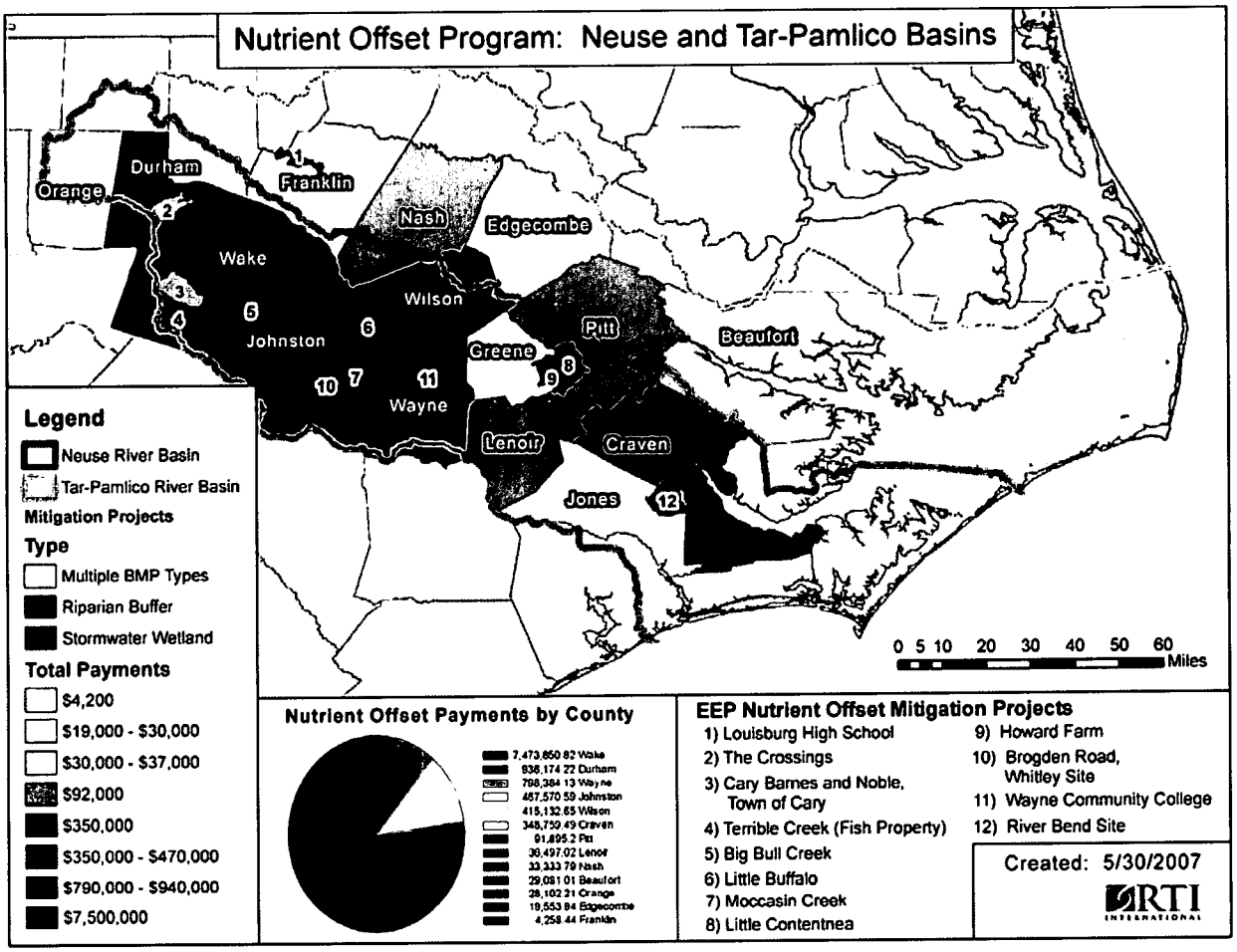


Table 2-2 summarizes specific information for each project initiated by the EEP. Included in this summary is the contract cost paid by the EEP and the pounds of nitrogen and phosphorus the EEP estimates that these projects offset over 30 years. By dividing the total cost for each project by the amount of nutrients it is believed to offset, we can calculate a dollars-per-pound-of-nutrient figure that can simplify comparisons between different projects. These calculations are reported in Table 2-3.

2.2 Project Design and Implementation Methods

The EEP uses two different methods for delivering these BMPs—design-bid-build and full delivery. Under the design-bid-build method, the EEP selects the mitigation site and type of BMP to be installed. Next, they contract with a private firm to design the project. Finally, they solicit bids from private contractors to construct the BMP and maintain it after its completion.

Table 2-2. EEP Nutrient Offset Mitigation Projects

Project Name	County	Type of Project	Stream Buffer (acreage)	Nitrogen Nutrient Reduction (pounds over 30 years)	Phosphorus Nutrient Reduction (pounds over 30 years)	Project Cost	Description	Consultant
Brogden Road	Johnston	Buffer project	15.00	34,096.50	2,196.00	420,000.00	Full delivery	Restoration Systems
Little Buffalo	Johnston	Buffer project	18.50	42,052.35	2,708.40	594,000.00	Full delivery	Restoration Systems
Big Bull Creek	Johnston	Buffer project	35.00	79,558.50	5,124.00	980,000.00	Full delivery	Restoration Systems
Terrible Creek Buffer (Fish Property)	Wake	Buffer project	45.60	103,653.36	6,675.84	29,555.50	Design only	Axiom
Whitley Site	Johnston	Buffer project	27.50	62,510.25	4,026.00	976,250.00	Full delivery	EBX
Moccasin Creek-Buffer	Johnston	Buffer project	20.20	45,916.62	2,957.28	427,815.80	Full delivery	Greene Environmental
Little Contentnea-Buffer	Greene	Buffer project	54.16	123,111.10	7,929.02	1,098,852.24	Full delivery	Greene Environmental
Howard Farm[a]	Greene	Buffer project	10.00	22,731.00	1,464.00	426,060.00	Full delivery	Land Management Group
BMP (River Bend Site)[b]	Craven	Stormwater wetland	0.00	5082	1560	58,275.00	Design, bid, build	NCSU
BMP (Town of Cary)	Wake	Multiple BMP Types	0.00	2820	450	400,950.00	Design, bid, build	Stantec
BMP (Wayne Community College)	Wayne	Stormwater wetland	0.00	4431	450	133,200.00	Design, bid, build	TetraTech
BMP (Cary Barnes and Noble)[b]	Wake	Multiple BMP Types	0.00	2820	510	$524,475	Design, bid, build	NCSU
The Crossings	Durham	Multiple BMP Types	0.00	2820	399	$435,350	Design bid, build	KO
Louisburg HS[b]	Franklin	Stormwater wetland	0.00	840	90	$63,500	Design, bid, build	NCSU

[a]Only portion of project funded with NOFPP. The reduction amounts listed are only those associated with what the NOFPP funded.

[b]Only portion of project costs reported. Other costs incurred as part of separate contracts.

Table 2-3. EEP Nutrient Offset Project Costs

Project Name	Restoration Practice	Project Cost ($/lb-30 N)[a]	Project Cost ($/0.10 lb-30 P)[b]
Brogden Road	Buffer project	$12.3	$19.1
Little Buffalo	Buffer project	$14.1	$21.9
Big Bull Creek	Buffer project	$12.3	$19.1
Terrible Creek Buffer (Fish Property)[c]	Buffer project	$0.3	$0.4
Whitley Site	Buffer project	$15.6	$24.2
Moccasin Creek-Buffer	Buffer project	$9.3	$14.5
Little Contentnea-Buffer	Buffer project	$ 8.9	$13.9
Howard Farm	Buffer project	$18.7	$29.1
BMP (River Bend Site)[c]	Stormwater wetland	$11.5	$3.7
BMP (Town of Cary)	Multiple BMP Types	$142.2	$89.1
BMP (Wayne Community College)	Stormwater wetland	$30.1	$29.6
BMP (Cary Barnes and Noble)[c]	Multiple BMP Types	$186.0	$102.8
The Crossings	Multiple BMP Types	$154.4	$109.1
Louisburg HS[c]	Stormwater wetland	$75.6	$70.6

[a] Cost per pound of nitrogen removed over 30 years.

[b] Cost per pound of phosphorus removed over 30 years.

[c] Does not report total cost.

Thus far, all of the structural stormwater BMP projects initiated by the EEP are being or have been delivered through the design-bid-build-process.

In full-delivery projects, the EEP plays a much less direct role in orchestrating the project. Using this method, the EEP first issues an RFP (request for project proposal) that indicates that it is looking for a contractor to construct a BMP in a certain river basin to offset a given amount of nutrients. Private construction firms identify potential sites and submit their project proposals to the EEP. The EEP then evaluates these proposals based on a number of criteria, such as total cost and whether the project fits with the EEP's overarching goal of improving watershed protection. As Table 2-2 indicates, almost 60% of the NOFPP BMPs have been full-delivery riparian buffer projects.

SECTION 3
BMP COST DATA

Any nutrient offset fee chosen by policy makers will ultimately have to cover the costs of pursuing the various BMPs required to offset the nutrient discharges of nonpoint sources. Therefore, understanding the costs of various BMP projects is essential and became the focus of RTI's data collection efforts. In this section, we describe the North Carolina BMP cost data collected for this study and the methods that were used to collect it.

3.1 Components of BMP Cost Data

For this study, we broke down the cost of constructing BMPs into four main cost components. The components include land, design, construction, and maintenance costs. The definition of each of these components is straightforward and similar for other types of construction projects.

- **Land** costs are incurred in obtaining access to or purchasing the land where the BMP will be placed.
- **Design costs** are the design and engineering fees. Design costs for a typical mitigation project are about 32% of construction costs (Schueler et al., in press), although design and engineering fees for stormwater retrofits requiring significant permitting efforts (e.g., retrofit projects requiring wetland permits) can run as high as 40%.
- **Construction** costs relate to the actual time, labor, capital, and materials used in designing and constructing the BMP.
- **Maintenance** costs are incurred in repairing, maintaining, and monitoring the BMP after it is constructed. For this analysis, we assumed a 30-year maintenance period, which corresponds to the offset fee formula.

An important distinction between these costs is that land, design, and construction costs are only incurred once in the life of the BMP, while maintenance costs will be incurred continually.

However, not all of the cost components may be relevant when calculating EEP offset expenditures. For example, land costs may not be incurred if public lands are available for pursuing mitigation projects. Maintenance costs may also not be relevant if local municipalities assume future maintenance responsibilities for offset projects. In the instances where land or maintenance activities are donated, we are not inferring that land opportunity costs or maintenance costs do not exist; they are just not incurred by the EEP and hence do not need to be covered by offset payments when assessing the fee structure needed to keep the NOFPP solvent.

In addition, it is also important to note that land costs may vary significantly based on the type of agreement involved. For example, costs are usually significantly lower when conservation easements are obtained as opposed to fee-simple purchases of land. Although the EEP has made outright purchases of land in the past, the vast majority of their projects are installed on land obtained through conservation easements. As a result, the remainder of this report exclusively deals with this form of agreement.

3.2 Identifying Stakeholders and their Concerns

The cost data collected by RTI were obtained from a wide range of stakeholder groups. To communicate the methods and objectives of this study and to facilitate data collection, several meetings with individual stakeholders were conducted:

- First stakeholder meeting at the Legislative Office Building, March 2, 2007
- Meeting with North Carolina Home Builder's Association (NCHBA), March 8, 2007
- Meeting with Restoration Systems, March 13, 2007
- Meeting with Environmental Defense Fund, March 14, 2007
- Meeting with the EEP, March 15, 2007
- Meeting with Neuse River Compliance Association, March 19, 2007
- Second meeting at the Legislative Office Building, May 7, 2007
- Meetings with county and city representatives, May, 2007

In this section, we report the comments and suggestions that these stakeholders offered on the general approach and purpose of our study.

3.2.1 First Stakeholder Meeting at the Legislative Office Building

The primary purpose of this meeting was for RTI to present the methodology it proposed for accomplishing the objectives of the study of the NOFPP. However, the meeting also proved to be an excellent way to establish contacts with stakeholders, because it was attended by different stakeholder groups including private firms affected by the NOFPP—such as members of the North Carolina Homebuilders Association and EEP contractors—as well as employees of government entities such as the EEP and the North Carolina Division of Water Quality (NCDWQ).

The main topic of discussion during this meeting was the scope of RTI's study and the purpose of the NOFPP in general. In particular, many individuals wondered whether it was appropriate for RTI to include land costs in the payment formula it was analyzing, because including them would only be relevant if BMPs had to be constructed close to the location of

impact. However, the answer to this question hinged on the policy decision of whether the purpose of the NOFPP is to reduce the amount of nutrients in the Neuse and Tar-Pamlico river basin estuaries at the lowest cost, or whether its goal is to protect watersheds. As a result, it was suggested that RTI look at multiple scenarios that would encompass the spectrum of plausible policies.

The topic of land costs was closely related to another concern expressed during the meeting—that the EEP was trying to pursue expensive stormwater wetland projects, when there was still plenty of land available for buffer projects. Once again, the answer to this question would depend on the NOFPP's ultimate goal.

3.2.2 Meeting with North Carolina Home Builders Association

The purpose of this meeting was for RTI to meet directly with members of the NCHBA, to listen to their concerns, and to approach them for information on the costs of constructing BMPs and the predicted value of land in the future. This meeting was primarily attended by developers and representatives of private contracting and engineering firms.

The conversation during this meeting covered a wide variety of topics. The issue of the ultimate goal of the NOFPP was revisited from the first stakeholders meeting, as was the question of which BMPs were most appropriate for the EEP to pursue. However, new concerns were also expressed. In particular, many of the attendees worried about the impact that higher fees would have on the future of development in the two river basins. Their concerns led them to suggest ways of lowering the overall cost faced by developers when complying with nutrient loading limits.

For example, one individual noted that BMP projects installed in developments offer more benefits than just offsetting nutrients. In fact, these projects reduce the amount of other pollutants that reach the river system and contribute to the amount of open space available in the development. Therefore, if developers could be compensated for the additional benefits generated by the BMPs they construct—for example, if their stormwater wetlands counted toward their open space requirements—this would significantly reduce the costs developers face when complying with nutrient loading limits.

The NCHBA submitted additional comments in an e-mail received on May 21 from Suzanne Harris, Vice President of Governmental Affairs. In this e-mail, the NCHBA expressed concern with including administration costs as a multiplier in the formulas RTI proposed for calculating nutrient offset fee. They suggested that the multiplier could be incorrect if there are

significant economies of scale (it becomes cheaper to manage more projects than a few). In this e-mail, NCHBA also expressed its support for reorganizing the NOFPP into a market-style trading program (as discussed in Section 5.2).

3.2.3 Meeting with Restoration Systems, LLC

Restoration Systems, LLC, is a private company that has constructed a variety of riparian buffer and wetland projects for the EEP. The purpose of the March 13th meeting was for RTI to obtain a better understanding of how private contractors operate under the NOFPP. Topics discussed included how potential project sites were selected and the various factors involved in constructing riparian buffers and wetlands.

In addition, the topic of expanding the private sector's role in the offset payment program was discussed. In particular, Restoration Systems recommended establishing a nutrient offset trading program in North Carolina. It was suggested that such a trading program, which linked suppliers of nutrient offsets like mitigation banks with nutrient emitters like private developers, would result in a variety of efficiencies over the current program, which uses the state to coordinate decisions between suppliers and consumers of nutrient offsets.

3.2.4 Meeting with Environmental Defense Fund

The purpose of this meeting was for the Environmental Defense Fund (EDF), represented by Joe Rudek, to express their opinions on the goals of RTI's study. In particular, EDF said that they hoped RTI paid adequate attention to BMPs other than riparian buffers, which have comprised the majority of nutrient offset projects thus far. Dr. Rudek said that other BMPs should be considered to allow the EEP the flexibility to pursue mitigation close to the location of environmental impact, which would not only achieve the NOFPP's goal of reducing nutrients in the estuary, but also work to protect local watersheds.

3.2.5 Meeting with the Ecosystem Enhancement Program

The purpose of this meeting was for RTI to obtain a better understanding of how the EEP administered the NOFPP. This meeting was attended by Suzanne Klimek, EEP Director of Operations, and other members of the EEP's staff.

As a result of this meeting, RTI was able to better understand what types of projects the EEP would like to pursue in coming years and the methods it uses to implement them (full delivery versus design-bid-build methods). In particular, RTI learned that the EEP would prefer to have more flexibility in the types of projects they pursue to allow them to better meet their broader goal of watershed protection as well as reducing nitrogen in the estuaries. In addition to

improving RTI's overall understanding of the NOFPP, Ms. Klimek and her staff provided RTI with data on nutrient offset payments dating back to 2001.

3.2.6 Meeting with Neuse River Compliance Association

The purpose of this meeting was for RTI to meet with representatives of the Neuse River Compliance Association (NRCA)—Cindy Finan, Haywood Phthisic, and Glenn Dunn. This organization represents point sources—such as wastewater treatment facilities operating in the Neuse River Basin.

To date, point sources have not used the NOFPP. However, during this meeting Ms. Finan and Mr. Phthisic expressed their concern that point sources will eventually have to use the NOFPP when they exhaust the technology options that have enabled them to avoid exceeding their current nutrient loading limits to date. According to Ms. Finan and her colleagues, when the original nutrient loading allocations were created, point sources given their nitrogen allocations based on their current National Pollutant Discharge Elimination System (NPDES) discharge permit with no reserve for growth. This becomes a problem when population growth demands that wastewater facilities and other point sources expand their operations, because NCDENR will not issue the necessary permit for an expansion unless the permittee can show (in advance) how they will accommodate its nitrogen loading levels over the next 30 years. If the permittee projects its nitrogen loading to exceed the original nitrogen loading allocation, they will either have to abandon the expansion or potentially purchase offsets through NOFPP.

The NRCA was not able to say when this possibility could occur. In 2006, nitrogen discharges by NRCA's members were 52% below state-mandated limits (NRCA, 2007). However, according to Ms. Finan, most of the NRCA's members are already pushing the limits of abatement technology—treating nitrogen in their wastewater well below the accepted Best Available Technology (BAT)—making it harder for them to accommodate future growth within the confines of their current nitrogen loading allocation. Therefore, according to Ms. Finan, it is possible that point sources could begin purchasing nutrient offsets from the NOFPP within the next few years.

3.2.7 Second Stakeholder Meeting at the Legislative Office Building

A second stakeholder meeting was held on May 7, 2007, so that RTI could present the preliminary findings of their study of the NOFPP. Individuals attending this meeting offered many excellent suggestions on how RTI could refine the results.

One of the major topics discussed during this meeting was the impact that the NOFPP could have on economic development. Several individuals, including representatives from Wayne County and the North Carolina Home Builders Association, remarked that nutrient offset fees would deter economic growth by making new construction projects more expensive to pursue. Although this is certainly a valid concern that policy makers will have to consider when determining where the fee should be set, an economic impact assessment was not included in the scope of this study.

A second issue related to these concerns is the question of whether predominantly rural areas would be subsidizing urban areas under higher fee structures that are intended to support more stormwater wetland projects. The reasoning underlying this concern is that rural counties may have to pay higher fees to support these stormwater wetland projects, even though those projects will most likely be installed in more urban counties where the environmental impacts are greatest.

In addition to questions of growth and equity, another issue that featured prominently during discussion was the fact that the Division of Water Quality potentially would not award nutrient offset credit to buffer projects pursued by the EEP unless they could ensure diffuse sheet flow across the buffer. In many cases, this would require the construction of concrete level spreaders. To address this concern, RTI said they would adjust their riparian buffer cost estimates by adding level spreader construction and maintenance costs to a certain percentage of projects (this issue is addressed in greater detail in Section 3.3.3).

Over the course of the meeting, several other important suggestions were made to refine RTI's results, including expanding the discussion of the role the private sector can play in administering the program, as well as the potential of market-based systems to set fee prices (looking into the Pennsylvania Nutrient Trading Program as an example of market-based nutrient trading); looking into Conservation Reserve Enhancement Program's experience with obtaining land for mitigation projects; considering the use of the purchase value of land rather than the tax-assessed value in RTI's basin-wide land cost estimates; reconsidering the inclusion of administration costs in RTI's proposals for offset fee formulas; and identifying other factors that could contribute to a reduction of available land for buffer projects over the next 20 years.

3.2.8 Meeting with Nash County and Rocky Mount City Planning Representatives

On May 11, 2007, RTI interviewed two representatives from Nash County: Nancy Nixon, County Planner, and Jonathan Boone, Public Works Director of the City of Rocky Mount. The purpose of this interview was to better understand Nash County's concerns about the NOFPP.

The primary issue discussed during this interview was that, if the fee became too high, the NOFPP would not be a viable alternative for developers in Nash County. They said they recognize that reducing the amount of nutrients in the estuary was a worthy goal and that they believed the NOFPP would allow the state government to construct larger BMP projects in better locations than would be available on the developing site. However, they worried that a fee that was too high would prevent many developers from seeing NOFPP as a viable alternative to constructing BMPs on site. This, they said, could potentially lead to slower economic growth in the county and the pursuit of less cost-effective mitigation practices.

An additional concern expressed by Ms. Nixon and Mr. Boone during this meeting was also voiced during the second stakeholders meeting— counties that are predominantly rural would be subsidizing urban counties under higher fee structures that are intended to support more stormwater wetland projects. As before, this concern is motivated by the fact that rural counties will have to pay higher fees to support these stormwater wetland projects, even though those projects will most likely be installed in more urban counties where the environmental impacts are greatest.

3.2.9 Meeting with Wayne County Representatives

On May 25, 2007, RTI interviewed County Manager Lee Smith to better understand Wayne County's concerns about the NOFPP. During this interview, the primary issue discussed was the consequences that the NOFPP could have on economic development in Wayne County. Mr. Smith explained that he was very much in favor of having an in-lieu fee system in place, but that environmental considerations must also be weighed against a desire for economic growth. Like several other stakeholders, he worried that significantly higher fees might result in slower economic growth in Wayne County and the entire river basin.

Following this line of reasoning, Mr. Smith discussed that higher nutrient offset fees could also lead to a redistribution of development throughout the state away from counties located in the Neuse River Basin. Firms that might usually locate in Wayne County, he said, might instead move to another county where nutrient offset fees were not charged, and this could possible lead to eutrofication in other watersheds. As a result, Mr. Smith recommended that a state-wide nutrient offset fee be adopted to improve North Carolina's overall water quality and to avoid problems associated with inequitable growth.

In addition to these concerns, Mr. Smith also stated that decreasing flow in the Neuse River resulting from increased water consumption could be a barrier to achieving the legislative goals of reducing nitrogen concentration in the estuaries. If water flow is reduced, he said, we

might see nitrogen concentration levels stabilize or possibly rise even if there was no net increase in nitrogen loading. He suggested a study was needed to investigate these issues.

3.3 BMP Cost Data for North Carolina

To determine the costs of constructing BMPs in North Carolina, RTI interviewed over 30 individuals in the private and public sectors. In this section, we describe the structure of these interviews, the type of BMPs for which data were eventually collected, and the cost data itself.

3.3.1 Description of Data Collection Method

In March and April of 2007, RTI approached 36 academics, private environmental engineering firms, and government agencies to request detailed cost information on BMP projects they had pursued in the state of North Carolina. Although each interview was unique, they all sought to obtain the following information:

- **A description of each BMP project itself.** Specifically, RTI asked for the year of construction for each BMP project, its geographic location, its size (in acres), drainage area (acres), the percentage of the drainage area that is impervious to rainfall, and a description of how the land surrounding the BMP was used (e.g., residential community, cattle grazing).
- **A detailed description of the costs involved in building each BMP project.** In particular, RTI asked that costs be broken down into the four categories described in Section 3.2—land, design, construction, and maintenance costs. During interviews with private firms, RTI also requested an estimate of the profit the firm received by doing the project (revenue over costs). We made this request to account for the overhead costs of conducting business, as well as the opportunity costs faced by the entrepreneur building the BMP. These elements are important because they will both ultimately be incorporated into the price charged by firms for installing BMPs.

RTI used the descriptions of individual BMP projects to estimate the total amount of nutrients each project would be expected to remove over its lifetime. This allowed RTI to express the cost information for that project in terms of dollars per pound of nitrogen ($/lb-N) and dollars per tenth of a pound of phosphorus ($/0.10 lb-P) offset, which is a measure of cost-effectiveness and applying the data to our financial analysis (explained in Section 4).

3.3.2 Description of Data and Sources

RTI collected detailed cost information for 45 separate BMP projects that have been constructed in North Carolina over the past 10 years. These projects were divided into four

groups based on BMP type: riparian buffers, stormwater wetlands, large bioretention areas,[2] and wetponds. A brief description of each BMP category follows.

- ***Riparian buffers:*** Strips of land covered in vegetation (such as trees, shrubs, or grass) and located between a potential pollutant source (such as an agricultural field) and a body of surface water. These buffers are designed to trap nonpoint source pollution, such as runoff from agricultural fields, and to prevent it from entering the body of water. (Osmond et al., 2002). Thus far, the EEP has only constructed forested buffer projects.
- ***Stormwater wetlands:*** Constructed wetlands that are heavily vegetated and contain a shallow amount of standing water. These structures remove nutrients by acting as a natural filter—as stormwater flows through the wetland, many of the nutrients it contains will either settle to the bottom or be absorbed through biological update (Wossink and Hunt, 2003).
- ***Large Bioretention Areas:*** A shallow depression in the landscape that is heavily vegetated. Stormwater is directed into the depression where nutrients will settle and be absorbed in the biological process (Wossink and Hunt, 2003).
- ***Wetponds:*** Runoff holding facilities that constantly contain standing water. Storm flows are held in the pond temporarily and then released to minimize large-scale flooding. Wetponds primarily remove nutrients from stormwater by allowing them to settle while the runoff resides in the pond (Wossink and Hunt, 2003).

Table 3-1 reports the number of projects included in each BMP type and the sources of cost data associated with each project. Although private-sector companies were often approached for information, the vast majority of detailed cost data collected was obtained from academic and government sources.

3.3.3 Adjusting Riparian Buffer Cost Estimates to Reflect the Cost of Level Spreaders

To be eligible for nutrient offset credit, riparian buffer projects must be able to guarantee that stormwater will flow evenly over the buffer. For nonagricultural BMPs, this will possibly require constructing concrete linear structures (called level spreaders) along the edge of the buffer in areas where physical characteristics of the land may increase the risk of concentrated water flow.

Since none of the buffer cost estimates collected by RTI included the cost of constructing and maintaining level spreaders, and it is likely that future buffer projects will have these structures, it was necessary to obtain additional data to adjust for these costs.

[2] Information was also collected for small bioretention retrofits, but we determined these mitigation projects are not applicable for EEP projects.

Table 3-1. Description of Data Obtained by RTI

BMP Type	Number of Projects	Data Source
Riparian buffers	8	Provided by private-sector firms that constructed riparian buffers for the EEP. These projects were primarily located in the Piedmont and inner Coastal Plain regions of the state.
Stormwater wetlands	17	Provided by academics in North Carolina State University's Water Quality and Stormwater Engineering Groups and engineers working for the city of Charlotte's Storm Water Services. These projects were scattered across the state but were primarily located in the state's Piedmont and Coastal Plain regions.
Large bioretention areas	12	Provided by academics in North Carolina State University's Water Quality and Stormwater Engineering Groups as well as individuals working for the North Carolina Department of Transportation and the town of Garner. These projects were scattered across the state but were primarily located in the state's Piedmont and Coastal Plain regions.
Wetponds	9	Provided by academics in North Carolina State University's Water Quality and Stormwater Engineering Groups. These projects were scattered across the state but were primarily located in the state's Piedmont and Coastal Plain regions.

First, RTI obtained construction cost estimates from the North Carolina Department of Transportation (DOT). Based on their experience with constructing "concrete wall" level spreaders, the DOT estimated that construction costs would average $60 per linear foot of level spreader. Second, based on discussions with the DOT, RTI estimated the cost of designing a level spreader by applying a standard design-to-cost ratio of 35%. This implies that level spreaders cost $21 per linear foot to design. Lastly, RTI interviewed several experts who estimated that properly maintaining a level spreader after construction would cost approximately $2 per linear foot per year.

Before we could use these data to adjust our original cost estimates, we then needed to 1) determine what portion of buffer projects would potentially require buffers and 2) approximately how long the average level spreader would be relative to the total length of the buffer.

To answer the first question, we assumed that agricultural land by its nature is relatively level and, hence, buffer projects on this land would not require level spreaders. Based on RTI's buffer availability analysis (discussed in Section 4.2.2), a conservative estimate of the portion of land associated with agriculture practices is approximately 45%.

The remaining 55% of potential buffer land would therefore currently be used for other purposes (e.g., grassland, pasture). Because it is impossible to predict exactly where the EEP will

be able to pursue most of their buffer projects, our analysis assumes that for 55% of future buffer projects level spreaders will be required.

The second question relates to the size (length) of level spreaders when needed. The length of any particular level spreader ultimately depends on the physical characteristics of the construction site. For example, a riparian buffer that is 4,000 feet long on hilly pastureland may require several level spreaders that sum to a total of 1,000 feet (25% of total length), while another site that is more amenable to diffuse water flow may only require several level spreaders that sum to a total of 400 feet (10% of total length). Because this is a prospective analysis, after discussions with experts, RTI made the conservative assumption that for future buffers requiring level spreaders, the total length of the spreaders would be 25 % of the project's total linear feet. The 25% level spreader assumption is used in the buffer cost estimate analysis throughout this report.

3.3.4 Total 30-Year Project Costs by BMP

Tables 3-2 and 3-3 summarize the average costs of installing different BMPs by cost category, as described in Section 3.2. To reflect the fact that land costs will differ by river basin, land and total costs are reported individually for the Neuse and Tar-Pamlico river basins. Values are expressed in both dollars per pound of nitrogen removed and dollars per pound of phosphorus removed.

Table 3-2. Mean Expenditures by BMP Cost Category for Nitrogen ($/lb-N per 30 year) in 2006 Dollars

BMP	Land Cost		Design Cost	Construction Cost	Present Value of 30-Year Maintenance Cost[a]	Total	
	Neuse	Tar-Pamlico				Neuse	Tar-Pamlico
Riparian buffers	$11.63[b]	$7.01	$1.95	$5.75	$2.04	$21.4	$16.8
Stormwater wetlands	$25.85[c]	$22.43	$14.38	$32.08	$9.68	$82.0	$78.6
Large bioretention areas	$71.18[c]	$61.77	$129.83	$329.69	$43.55	$574.3	$564.8
Wet Ponds	$43.94[c]	$38.13	$41.85	$130.79	$47.43	$264.0	$258.2

[a] Present value calculations use a discount rate of 5%.

[b] Based on average rural area land price. Prices are slightly higher in the Neuse compared with the Tar-Pamlico.

[c] Based on average low-density urban land price. Prices are slightly higher in the Neuse compared with the Tar-Pamlico.

Table 3-3. Mean Expenditures by BMP Cost Category for Phosphorus ($/0.10 lb-P per 30 year) in 2006 Dollars

BMP	Land Cost		Design Cost	Construction Cost	Present Value of 30-Year Maintenance Cost[a]	Total	
	Neuse	Tar-Pamlico				Neuse	Tar-Pamlico
Riparian buffers	$18.06[b]	$10.89	$3.03	$8.93	$3.17	$33.2	$26.0
Stormwater wetlands	$25.06[c]	$21.75	$10.71	$20.98	$8.91	$65.7	$62.3
Large bioretention areas	$46.96[c]	$40.75	$86.87	$221.30	$30.48	$385.6	$379.4
Wet Ponds	$23.29	$20.21	$28.12	$87.87	$26.08	$165.4	$162.3

[a] Present value calculations use a discount rate of 5%.

[b] Based on average rural area land price. Prices are slightly higher in the Neuse compared with the Tar-Pamlico.

[c] Based on average low-density urban land price. Prices are slightly higher in the Neuse compared with the Tar-Pamlico.

The total project cost for a BMP over 30 years is the sum of its one-time installation costs—which includes the purchase of the land as well as the design and construction of the BMP itself—and the present value of estimated maintenance costs over the next 30 years. Total project costs range from $21.4 per pound of nitrogen over 30 years for riparian buffers in the Neuse River Basin and $16.8 per pound of nitrogen in the Tar-Pamlico to $574 per pound of nitrogen over 30 years for large bioretention retrofits in the Neuse and $565 per pound of nitrogen over 30 years in the Tar-Pamlico. The differences in BMP costs across river basins are driven by differences in land prices.

Tables 3-4 and 3-5 report information on the mean, median, and range of total BMP project costs for each BMP type by river basin. These tables are intended to convey information on the distribution and variation of the cost information provided to RTI. As the tables indicate, the mean and median are very close for riparian buffers with relatively few extremes reported in its ranges for both river basins. This would indicate that there was not much variation in the information for riparian buffer costs. On the other hand, there are larger differences between the mean and the median costs for stormwater wetland, bioretention retrofits, and wetponds. The range of observations is also more spread out for these types of BMPs. This would indicate that there is a much greater degree of variability in the cost implementation.

Table 3-4. Distribution of Total 30-Year Project Costs by BMP for the Neuse River Basin in 2006 Dollars

	Dollars per Pound of Nitrogen			Dollars per Pound of Phosphorus		
BMP Category	Mean Total Project Cost (30-Year) ($/lb-N)	Median Total Project Cost (30-Year) ($/lb-N 30)	Range ($/lb-N 30)	Mean Total Project Cost (30-Year) ($/0.10 lb)	Median Total Project Cost (30 years) ($/0.10 lb)	Range ($/0.10 lb-P)
Riparian buffers	$21.4	$19.8	$16.8 to $30.9	$33.2	$30.7	$26.2 to $48.0
Stormwater wetlands	$82.0	$59.1	$26.0 to $155.1	$65.7	$37.0	$6.6 to $150.4
Large bioretention areas	$574.3	$514.6	$132.5 to $895.9	$385.6	$355.6	$87.4 to $591.0
Wetponds	$264.0	$240.90	$132.7 to $494.1	$165.4	$127.7	$70.3 to $261.9

Table 3-5. Distribution of Total 30-Year Project Costs by BMP for the Tar-Pamlico in 2006 Dollars

	Dollars per Pound of Nitrogen			Dollars per Pound of Phosphorus		
BMP Category	Mean Total Project Cost (30-Year) ($/lb-N)	Median Total Project Cost (30-Year) ($/lb-N)	Range ($/lb-N)	Mean Total Project Cost (30-Year) ($/0.10 lb-)	Median Total Project Cost (30 years) ($/0.10 lb-P)	Range ($/0.10 lb-P)
Riparian buffers	$16.8	$15.2	$12.2 to $26.3	$26.0	$23.6	$19.0 to $40.9
Stormwater wetland retrofit	$78.6	$59.1	$24.6 to $155.1	$62.3	$35.5	$5.3 to $150.4
Large bioretention retrofit	$564.8	$512.8	$132.5 to $881.0	$379.4	$355.6	$87.4 to $581.2
Wetponds	$258.2	$233.83	$125.6 to $491.4	$162.3	$124.0	$66.6 to $260.5

SECTION 4
FINANCIAL ANALYSIS (OBJECTIVES 1, 2, AND 3)

In this section, we discuss the financial analysis that underlies Objectives 1, 2, and 3 of the study. Because the type of offset projects pursued by the EEP in the future will significantly influence the financial analysis, we begin this section by defining three scenarios that are evaluated for each of the analysis Objectives 1, 2, and 3.

- ***Scenario A: All Buffers***. The EEP implements exclusively riparian buffers on land obtained primarily through conservation easements.
- ***Scenario B: Integrated Implementation***. In addition to buffers, the EEP pursues a number of stormwater wetland retrofit offset projects to target integrated environmental objectives. This would enables offset projects to be implemented closer in proximity (e.g., in local watersheds) to where development is occurring. This results in higher costs per pound of nitrogen and phosphorous.
- ***Scenario C: All Stormwater Wetlands.*** The EEP does not undertakes any buffer projects and instead installs all stormwater wetland projects. This implementation scenario is under consideration by the NCDWQ and would also increase the costs per pound of nitrogen and phosphorous.

Because of the prospective nature of the analysis, this section also defines and documents the trends used to adjust costs over time. These include

- forecasted demand for nutrient offsets,
- projected land costs and availability, and
- price indices for labor and materials.

This is followed by the financial calculations for Objectives 1, 2, and 3.

4.1 Implementation Scenarios

As shown in Tables 3-2 and 3-3 (Section 3.3), BMP costs vary greatly depending on the type of mitigation option employed. As a result, any analysis of program sustainability or offset payment formula design needs to be based on a detailed projection of the types of mitigation activities to be implemented.

To reflect the uncertainty in the types of mitigation options that may be implemented in the future, the financial analysis for this study was conducted relative to three different implementation scenarios that focus on buffers and stormwater wetlands. Based on the cost estimates presented in Tables 3-2 and 3-3, we assumed that large bioretention retrofits and wetponds are not viable options for BMPs because of their high cost. As a result, it is projected

that the EEP will likely pursue some mixture of the lower-cost buffers and stormwater wetland BMPs to meet the NOFFP's program objectives.

The three implementation scenarios shown in Table 4-1 are increasing in the average cost per pound of nitrogen and phosphorous offset by the EEP. This increased cost is primarily driven by an increased use of nonriparian buffer offset projects that are implemented to meet varying environmental objectives put forth by the EEP and NCDWQ. The specific BMP share distributions for each scenario are speculative. They are selected to provide insights into the potential range of costs the EEP might bear under different mission statements they may pursue as part of the NOFPP.

Table 4-1. Distribution of BMPs and Expenditures Incurred by the EEP

Scenario/BMP	BMP Share	Land Cost	Design Cost	Construction Cost	Maintenance Cost
Scenario A: All Buffers					
Riparian buffers	100%	√	√	√	√
Scenario B: Integrated Implementation					
Riparian buffers	70%	√	√	√	√
Stormwater wetlands[a]	5%		√	√	
Stormwater wetlands	25%	√	√	√	√
Scenario C: All Stormwater Wetlands					
Stormwater wetlands[a]	5%		√	√	
Stormwater wetlands	95%	√	√	√	√

√ = EEP assumes full cost.

[a] Local municipalities donate land and assume maintenance costs.

4.1.1 All Buffers

The all-buffer scenario is the lowest-cost scenario modeled. This scenario could be considered the most cost-effective way to meet the objectives of reducing nitrogen and phosphorous in the river basin estuaries. As discussed in Section 4.2.2, an all-buffer scenario would require buffer restoration on approximately 7% of the available buffer land in the Neuse River Basin and 1% of available buffer land in the Tar-Pamlico River Basin. Specific assumptions for this scenario include the following:

- Riparian buffers are the sole source of nutrient offsets, accounting for 100% of the total offsets demanded.
- The riparian buffer projects are implemented on land acquired through conservation easements or purchased by the EEP.

- All buffer projects are maintained by the EEP; hence, the EEP incurs maintenance costs over the 30-year life expectancy of the mitigation project.

4.1.2 Integrated Implementation

The EEP indicated that the current mix of offset projects has been strongly influenced by funding constraints of the existing offset payment structure. Thus, the integrated implementation scenario is intended to reflect a less-constrained world under which the EEP is able to pursue a wider range of mitigation options (beyond buffers) to achieve integrated environmental watershed objectives. Integrating projects conducted under the NOFPP into an overall water quality strategy could provide benefits beyond reduced nutrient loads in river estuaries such as improving water quality in local streams and rivers. Specific assumptions for this scenario include the following:

- Riparian buffers account for 70% of nutrient offsets.
- As in Scenario A, the riparian buffer projects are implemented on land acquired through conservation easements or purchased by the EEP.
- Stormwater wetland projects account for the remaining 30% of the nutrient offsets.
- The first 5% of the stormwater wetland projects are conducted on donated land, and local municipalities accept future maintenance responsibilities. Thus, the EEP does not incur land costs or maintenance costs associated with these projects.
- For the remaining 25% of the stormwater wetland projects, land must be purchased, and the EEP is responsible for maintenance over the 30 years of the project life expectancy.

4.1.3 All Stormwater Wetlands

Several stakeholder groups we spoke with expressed interest in the EEP conducting more offset mitigation projects in the regional areas where development is taking place. This approach has the benefit of contributing to the water quality of individual river/stream segments affected by development, in addition to the river estuary. In addition, the NCDWQ said that buffers might not be eligible for the NOFPP in the future because of concerns about effectiveness and long-term maintenance. To reflect these concerns, we included an all stormwater wetlands scenario. Specific assumptions for this scenario include the following:

- Stormwater wetlands account for 100% of nutrient offsets.
- As in Scenario B, the first 5% of the stormwater wetland projects are conducted on donated land, and local municipalities accept future maintenance responsibilities. Thus, the EEP does not incur land costs or maintenance costs associated with these projects.

- For the remaining 95% of the stormwater wetland projects, land must be purchased, and the EEP is responsible for maintenance over the 30 years of the project life expectancy.

4.2 Additional Data Used in RTI's Financial Analysis

In this section, we discuss the secondary data RTI used in conjunction with the BMP cost data described in Section 3 to study the sustainability of the NOFPP under a variety of different fee structures. These additional data include historical demand for nutrient offsets, geographic information system (GIS) assessment of land available for riparian buffer projects, GIS assessment of land costs in both river basins, and annual growth forecasts for each BMP cost component.

4.2.1 Historical and Forecasted Demand for Nutrient Offsets

Based on data RTI received from the EEP, the NOFPP has collected $10,508,435 in fees ($11,495,323 in inflation-adjusted 2006 dollars) to offset 954,433 pounds of nitrogen in the Neuse River Basin since May 2001. When these data are compared with population growth estimates for counties inside the river basin, a clear pattern emerges.

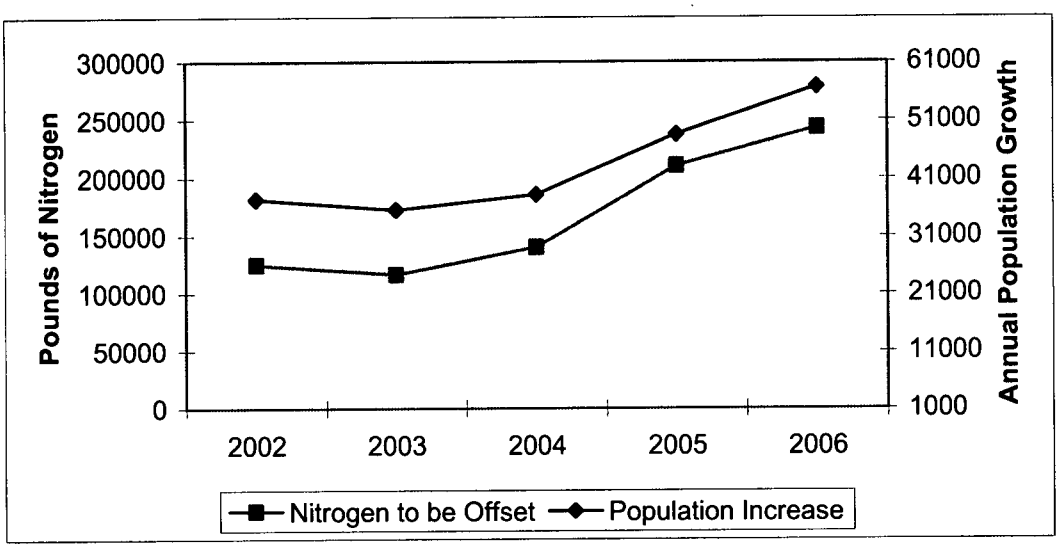
Figure 4-1 illustrates that the number of excess pounds of nitrogen needing to be offset by the NOFPP is closely correlated with population growth. This makes intuitive sense because excess nutrient loading is primarily generated through new development (both residential and commercial), which is itself in large part driven by population growth. Between 2002 and 2006, every new person entering the Neuse River Basin was associated with an average of 3.9 new pounds of nitrogen needing to be offset.[3] Using this pound-per-person ratio, we can project nutrient offset demand based on government population growth projections.

Assuming that this simple ratio stays constant into the future and applies for both river basins, RTI forecasts future demand for nitrogen offsets in the Neuse and Tar-Pamlico basins by using county population forecasts out to the year 2020.[4] For example, counties in the Neuse River Basin had a combined population of 2,151,298 in 2006, which is forecasted to increase to 2,739,453 by the year 2020. This implies a compound annual growth rate of approximately 1.6%. Therefore, RTI estimates that 38,498 new individuals will enter the Neuse River Basin in 2007, which will be associated with 148,731 pounds of excess nitrogen from new development.

[3] Because historical data for offsets are not available for the Tar-Pamlico river basin, the factor of 3.9 pounds of nitrogen per person is also used when projecting demand for the Tar-Pamlico river basin.

[4] In these calculations, RTI only included counties that had more than 5% of their areas located in the Neuse or Tar-Pamlico river basins.

Figure 4-1. Number of Pounds for Which the EEP Has Collected Nutrient Offset Payments and Population Growth in the Neuse River Basin: 2002–2006



Similar calculations were made for each year and each river basin and are presented in Tables 4-2 and 4-3.

4.2.2 Land Available for Riparian Buffer Restoration

As discussed in Section 2.1, the vast majority of nutrient offsets have been provided through the restoration of riparian buffers along the Neuse River and its tributaries. However, there is only a finite amount of land available for pursuing riparian buffer projects. Therefore, addressing the question of how much land is available for buffer restoration is critically important for assessing the viability of pursuing buffer projects in the future.

To determine the amount of land available for buffer restoration, RTI used three data sets: a HUC8 (8-digit hydrologic unit code) coverage for the Tar-Pamlico and Neuse river basins developed by the United States Geological Service (USGS), the USGS 1:24k-scale National Hydrography Dataset (NHD) dataset, and the 2001 National Land Cover Dataset (NLCD).

RTI combined these data with the desktop GIS program ArcMap to identify the total amount of potential buffer land in the Neuse and the Tar-Pamlico river basins. This was done by first using the data and software to identify the amount of land specifically within 50 feet of the centerline of each waterway within the Neuse and Tar-Pamlico river basins (HUC8 and NHD datasets), then to estimate the total amount of land within those areas by cover type using the NLCD 2001 dataset. The results of this analysis are presented in Table 4-4.

Table 4-2. Forecast of Nutrient Offset Demand for the Neuse River Basin from 2007 to 2020

Year	Estimated Cumulative Population	Population Increase Over Previous Year	Pounds Needing Offsets
2006	2,151,298		
2007	2,186,241	34,943	134,999
2008	2,221,752	35,511	137,192
2009	2,257,840	36,088	139,421
2010	2,294,514	36,674	141,685
2011	2,331,784	37,270	143,987
2012	2,369,659	37,875	146,325
2013	2,408,149	38,490	148,702
2014	2,447,265	39,115	151,117
2015	2,487,016	39,751	153,572
2016	2,527,412	40,397	156,067
2017	2,568,465	41,053	158,602
2018	2,610,184	41,719	161,178
2019	2,652,582	42,397	163,796
2020	2,695,667	43,086	166,456

RTI estimated that there are approximately 85,500 acres of land associated with the 50-foot buffer area surrounding either side of the waterways in the Neuse River Basin and 76,700 acres of land in the Tar-Pamlico.

Note that these estimates are larger than those implied by earlier analysis conducted by the NCDWQ. For example, in the "1998 Basin Wide Water Quality Plan," it was estimated that 3,443 miles of stream existed in the Neuse River Basin. This implies an estimate of 41,733 acres of land within the 50-foot buffer region that exists on both sides of these streams (approximately half of RTI's estimate).[5] The difference stems from RTI using a more detailed data set that includes more miles of stream (more smaller streams) than the one NCDWQ used.

[5] To replicate this calculation, remember that there are 5,280 linear feet in a mile, which implies that 18,179,040 linear feet of stream are associated with 3,443 miles. Multiplying this number by 100 (the size of the 50-foot buffer on either side of each stream) gives an estimate of the square feet of land in the buffer zone. Because there are 43,560 square feet in an acre, this implies a total of 41,733 acres of land in the Neuse River's 50-foot buffer zone.

Table 4-3. Forecast of Nutrient Offset Demand for Tar-Pamlico River Basin from 2007 to 2020

Year	Estimated Cumulative Population	Population Increase Over Previous Year	Pounds Needing Offsets
2006	772,264		
2007	778,460	6,196	23,938
2008	784,706	6,246	24,130
2009	791,002	6,296	24,323
2010	797,348	6,346	24,519
2011	803,746	6,397	24,715
2012	810,194	6,449	24,914
2013	816,695	6,500	25,113
2014	823,247	6,553	25,315
2015	829,852	6,605	25,518
2016	836,510	6,658	25,723
2017	843,222	6,712	25,929
2018	849,987	6,765	26,137
2019	856,807	6,820	26,347
2020	863,681	6,874	26,558

Table 4-4. Distribution of Land within 50 foot Buffer, by River Basin

Description	Neuse Area (acres)	Tar-Pamlico Area (acres)
Open water	10,973	8,756
Developed	5,040	2,980
Barren	552	682
Forest cover	24,748	21,486
Grassland, shrub, and pasture	8,384	8,146
Cultivated crops	7,349	9,732
Wetlands	39,459	33,666
Acres of Land	85,533	76,695
Total Acres (including Open Water)	96,507	85,452

The next step in RTI's analysis was to determine the amount of land that could potentially be used for installing riparian buffer projects (i.e., land physically fit for nutrient offset for riparian buffers). Based on conversations with the EEP, RTI assumed that land identified as being developed, barren, occupied by wetlands, or already covered by forest should not be considered eligible for buffer projects because land in these categories would either not support a forested riparian buffer (barren land), would not achieve additional nutrient offsets (land covered in forest is already acting as a buffer), or would not be available because of federal restrictions (no net wetland loss policy).[6] When land currently devoted to these uses is excluded from our estimates, we are left with a total of 15,734 acres of land available to sustain buffer projects in the Neuse River Basin and 17,880 acres of land able to sustain buffer projects in the Tar-Pamlico River Basin.

However, the current number of acres that could potentially host a riparian buffer does not reflect the amount of land that will *actually* be available for NOFPP buffer projects in the future. We must also take into account other interests competing for this land, in particular, buffer land demanded for other EEP programs and/or for urban development.

In addition to the NOFPP, the EEP administers other programs that will compete for land within the buffer region, such as their stream mitigation program. Currently, the EEP has a target of 53,396 linear feet of stream mitigation in the Neuse and 986 linear feet in the Tar-Pamlico through the year 2013. Assuming that this implied annual activity remains constant over time, we can estimate the EEP's stream mitigation target through the year 2020 (116,000 feet of stream mitigation in the Neuse and 2,000 feet in the Tar-Pamlico). Assuming that these projects restore 50 feet of buffer as part of each foot of mitigation, we can estimate the amount of acreage that these projects will require.[7] Based on RTI's calculations, the EEP's stream mitigation program will require 266 acres of buffer land in the Neuse River Basin and 5 acres of buffer land in the Tar-Pamlico River Basin through 2020.

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[6] In 1996, Kristin Komines studied the land cover along streams within the Neuse River Basin. In this study, Komines classified land as either agricultural, developed, or forested. Based on her analysis, Komines determined that 81% of stream edges in her sample had forested buffer of at least 50 feet (Moreau et al., 2000). RTI's buffer analysis appears to be consistent with these findings. As illustrated in Table 4-4, RTI estimated that 75% of land in the 50-foot "buffer zone" of the Neuse River Basin is classified as either forest or wetland.

[7] To estimate the amount of buffer land that will be required for these mitigation projects, we multiply each linear foot by 100 (representing the 50 feet of buffer on either side of the stream that will be restored during the project). This calculation gives us the square-feet of buffer land that will be required for the stream mitigation program to reach its target; dividing this number by 43,560 (the number of square feet in a single acre) gives you the target in terms of acreage.

In addition to the EEP, developers will also be competing for land within the buffer strip as urbanization spreads through the Neuse River and Tar-Pamlico basins. According to the National Resource Inventory, from 1992 to 2003 the number of acres of cropland in North Carolina decreased from 5.96 million acres to 5.50 million acres (USDA, 2000 and 2007). This decrease of 446,000 acres over 11 years represents a 0.71% annual decrease in cropland due to cropland being converted into a variety of other uses, including urban development.

If we assume that this rate of loss reflecting urban development remains constant into the future and this rate of conversion applies for all land we have identified as viable for riparian buffers (not just cropland), we can estimate that 1,385 and 1,573 acres of current buffer land in the Neuse and Tar-Pamlico river basins will be converted to other land uses by the year 2020.[8]

When estimates of competing demand for buffer land are taken into account, we are left with approximately 14.7 thousand acres available for NOFPP buffer projects in the Neuse River Basin and 16.9 thousand acres in the Tar-Pamlico. Based on the nutrient loading projections presented in section 4.2.1, RTI predicts that 2.1 million pounds of nitrogen in the Neuse River Basin and 353 thousand pounds of nitrogen in the Tar-Pamlico will need to be offset through the year 2020. If all of this nutrient loading was offset with riparian buffer projects, RTI predicts (using EEP's estimate that one acre of buffer offsets 2,273 pounds of nitrogen on average) that this would require 925 acres of buffer in the Neuse and 155 acres of buffer in the Tar-Pamlico River Basins to be restored. This amounts to utilizing 7% of the total amount of buffer land in the Neuse River Basin and 1% of buffer land in the Tar-Pamlico River Basin that is potentially available for riparian buffer projects. These results are summarized in Table 4-5.

4.2.3 Land Costs

The land used by the EEP for constructing BMPs is frequently be obtained through conservation easements or purchased from current owners when public land is not available. To estimate the price per acre of land in the Neuse and Tar-Pamlico river basins, RTI obtained recent tax parcel GIS data from eight counties that made these data freely available through the Internet: Beaufort, Carteret, Craven, Dare, Edgecombe, Halifax, Johnston, and Wake counties. Tax assessment data were used for land costs because no actual sales data were available. In discussions with the Carolina Builders Association, they indicated that they were beginning to

[8] It should be noted that there are other competing interests that RTI was not able to quantify in their analysis, for example, buffer projects being pursued for the Department of Transportation. Another relevant point to keep in mind is that this some landowners may be unwilling to allow a buffer to be installed on their property. Therefore, the following analysis should be interpreted as an approximation of the amount of land available for riparian buffer projects.

Table 4-5. Summary of Available Buffer Analysis

	Neuse River Basin	Tar-Pamlico River Basin
Acres of land suitable for buffers	15,734	17,880
Acres required for EEP stream mitigation until 2020	266	5
Acres of agricultural land consumed by development	1,385	1,573
Acres of land potentially available for buffer	14,083	16,302
Buffer required by NOFPP	925	155
NOFPP percentage of available buffer land	7%	1%

create a North Carolina land cost database (because one did not exist), but that it would not be available for this study. In addition, several stakeholders indicated that tax assessment data were appropriate because it represented an average of conservation easements payment and purchased land costs.

These counties are divided by the U.S. Census Bureau into three distinct categories: high-density urban areas (such as cities), low-density urban areas (such as suburban areas), and rural areas (such as unincorporated areas). By dividing the total value of land in each category by the total number of acres in each category, RTI estimated a dollar per value for each category in each of the six counties.

RTI then applied this dollar per acre figure to other counties in the river basins, based on geographic characteristics. For example, Franklin County borders Wake County; therefore, it was assumed that it would have similar land values to other counties that border Wake such as Johnston County. Using this method, RTI calculated dollar per acre figures for all counties that had more than 5% of their land area in the Neuse or Tar-Pamlico River Basin. The results of this analysis are summarized in Table 4-6.

Table 4-6. Dollar per Acre Land Costs by Category and River Basin

Land Category	Neuse River Basin Dollars per Acre	Tar-Pamlico River Basin Dollars per Acre
High-density urban	$200,311	$123,961
Low-density urban	$145,498	$126,264
Rural areas	$19,139	$8,646

Rural area land costs are used to estimate costs for riparian buffers. Low-density urban land costs are used to estimate costs for stormwater wetlands.

4.2.4 Price Data Used in Forecasting Land, Design, Construction, and Maintenance Costs

In Section 3, costs were presented in 2006 dollars for three types of BMP projects (riparian buffers, stormwater wetlands, large bioretention areas and wet ponds) and broken down across four major cost categories (land, design, construction, and maintenance).

Although this information may reflect the current cost of doing these projects, it is likely that installation and maintenance costs will rise over time. We used secondary data to forecast how costs would change over the next 13 years for each cost category. The specific data sets used to determine growth rates for each cost component are discussed below.

- **Assessed Value of Locally Taxable Property in North Carolina.** Data were obtained from the N.C. Department of Revenue for the total assessed value of real property in unincorporated areas and municipalities of counties in the Neuse and Tar-Pamlico river basins for the years 1996 to 2005 (provided by the Policy Analysis and Statistics Division of the North Carolina Department of Revenue in April 2007). RTI computed a compound annual growth rate for unincorporated land of 3.6% in the Neuse River Basin and 3.5% in the Tar-Pamlico. RTI computed similar growth rates for the value of municipal land—3.9% in the Neuse River Basin and 3.7% in the Tar-Pamlico. RTI assumed that all riparian buffers would be constructed on land in unincorporated areas, while stormwater wetlands and bioretention areas would be constructed on land in municipalities. Therefore, RTI used both growth rates when projecting land costs into the future.
- **Producer Price Index for Architectural, Engineering and Other Related Services.** Data were obtained from the U.S. Bureau of Labor Statistics for the prices received by architectural and engineering firms for the services they performed (this does not include construction) from 1997 to 2006 (BLS, 2007). Because BMPs are typically designed by environmental engineering firms, RTI believed that this is the best index for estimating the speed at which design costs will rise over time. The average annual growth rate is approximately 2.1%.
- **Producer Price Index for Construction Machinery and Equipment**. Data were obtained from the U.S. Bureau of Labor Statistics for the prices charged by firms for the sale of construction machinery and equipment from 1977 to 2006 (BLS, 2007). Because construction of BMPs typically require the use of various types of machinery and equipment (particularly for stormwater wetlands), we believe that this price index is appropriate for forecasting BMP construction costs. The average annual growth rate is approximately 1.6%.
- **Employment Cost Index.** Data were obtained from the Federal Reserve Bank of St. Louis for the Employee Cost Index from 2001 to 2006 (FRED, 2007). After a BMP is installed, it must be maintained to ensure it remains useful through its potential life

time. It was RTI's understanding that the largest component of these maintenance costs was the time individual workers put in performing various maintenance tasks. Therefore, the employment cost index was used to adjust maintenance cost each year. The average annual growth rate is approximately 2.4%.

4.3 Objective 1: Program Sustainability at $11 per Pound of Nitrogen

To calculate the sustainability of the program at the current fixed fee of $11/lb of nitrogen, we generated a time series of offset fees (revenue) and mitigation project costs (expenses). As discussed in Section 4.2.1, annual offset fees increase over time in proportion to the projected growth in demand for nitrogen offsets.

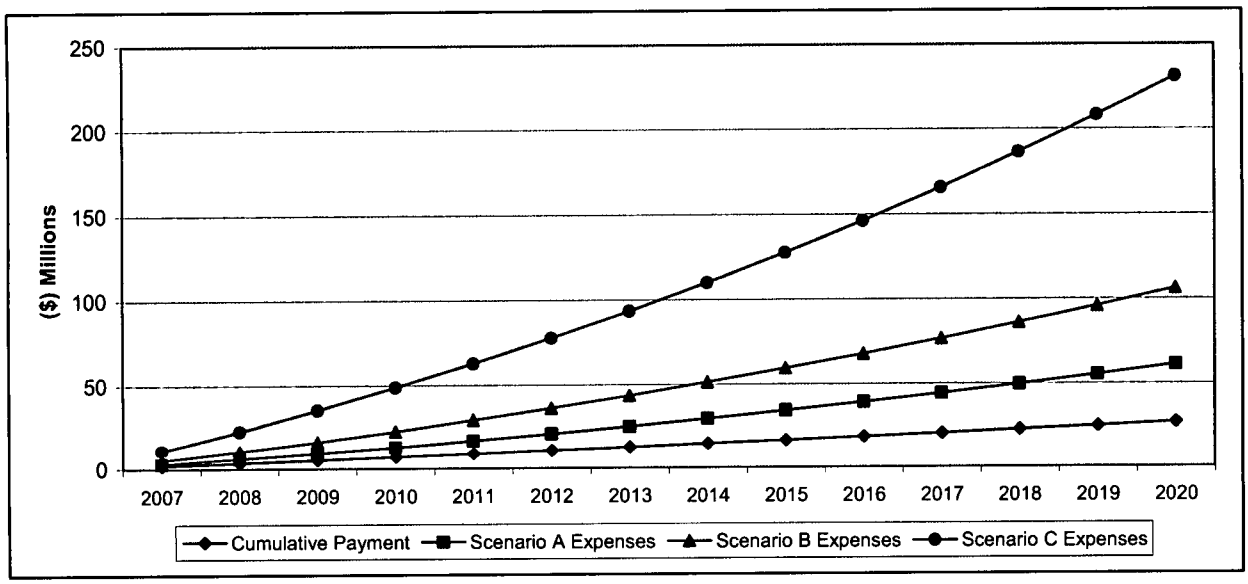
The analysis begins in 2007, and projects are assumed to be implemented in the same year as fees are paid. Thus, the program is always in balance in regard to offsets purchased and offsets implemented.

Table 4-7 and Figure 4-2 present the cumulative offset payment revenue stream and the cumulative NOFPP program expenses. Program expenses are presented for Scenarios A, B, and C. As the table and figure show, expenditures exceed revenue in the first year of the analysis for all three potential scenarios; and this deficit grows over time.

Table 4-7. Cumulative Offset Fee Revenue and NOFPP Mitigation Project Expenses

Year	Cumulative Payments	Scenario A Expenses	Scenario B Expenses	Scenario C Expenses
2007	$1,748,308	$2,962,207	$5,198,938	$11,210,910
2008	$3,522,850	$6,124,101	$10,715,511	$23,086,927
2009	$5,324,034	$9,496,141	$16,565,661	$35,661,105
2010	$7,152,275	$13,089,298	$22,766,084	$48,968,055
2011	$9,007,995	$16,915,072	$29,334,262	$63,044,017
2012	$10,891,623	$20,985,523	$36,288,503	$77,926,941
2013	$12,803,594	$25,244,846	$43,600,064	$93,656,559
2014	$14,744,350	$29,701,951	$51,285,976	$110,274,477
2015	$16,714,341	$34,366,176	$59,364,067	$127,824,257
2016	$18,714,024	$39,247,309	$67,853,001	$146,351,510
2017	$20,743,861	$44,355,611	$76,772,311	$165,903,993
2018	$22,804,325	$49,701,838	$86,142,450	$186,531,709
2019	$24,895,893	$55,297,267	$95,984,826	$208,287,012
2020	$27,019,052	$61,153,722	$106,321,851	$231,224,720

Figure 4-2. Cumulative Offset Fee Revenue and NOFPP Mitigation Project Expenses



In other words, given an $11/lb of nitrogen fee, the NOFPP program is currently unsustainable. This reflects the fact that the first-year costs (i.e., the sum of land, design, and construction) are more than $11/lb of nitrogen. The gap between revenue and average program expenditures only widens with time as maintenance costs are incurred for projects initiated in previous years. By year 2020, the program deficit for Scenario A is projected to be $61 million, the deficit for Scenario B is projected to be $106 million, and the deficit for Scenario C is projected to be $231 million.

4.4 Objective 2: Proposed Fee Based on Cost-Effectiveness

We define cost-effectiveness as the NOFPP being sustainable through the year 2020. That is to say, a cost-effective fee would be one that allows cumulative expenses to equal cumulative payments in the year 2020. This implies that the NOFPP will earn a surplus for several years, which will then be eaten up by deficits as maintenance costs from previously installed BMP projects accumulate. It is assumed that if the program can break even through 2020, at this point, the offset fee would be reassessed and adjusted. We looked at two fee structures for each river basin. The first is a fixed offset fee that does not change over time. The second is an offset fee that is tied to the construction price index and hence increases approximately 1% per year. Separate cost-effectiveness estimates for each of the three scenarios are provided for both the Neuse and Tar-Pamlico river basins.

4.4.1 Fixed Offset Fee

The cost-effective offset fee is determined by calculating the fee that will equate the cumulative fee revenue with program expenditures in the year 2020. The offset fees that yield a sustainable program through 2020 are presented by river basin in Tables 4-8 and 4-9. Figures 4-3 and 4-4 graph the time series of revenue and expenses. As discussed above, cumulative program expenses lag cumulative offset fee payments until they are equal in 2020.

Table 4-8. Cost-Effective Offset Fee for the Neuse River Basin

	Cost-Effective Offset Fee[a] ($/lb-30 N)	Cost-Effective Offset Fee[a] ($/0.10 lb-30 P)
Scenario A	$25.77	$33.19
Scenario B	$43.94	$41.23
Scenario C	$94.80	$62.91

[a] Offset fee that allows the program to be sustainable through 2020.

Figure 4-3. Cumulative Revenue and Expenses with Cost-Effective Nitrogen Offset Fees for the Neuse River Basin

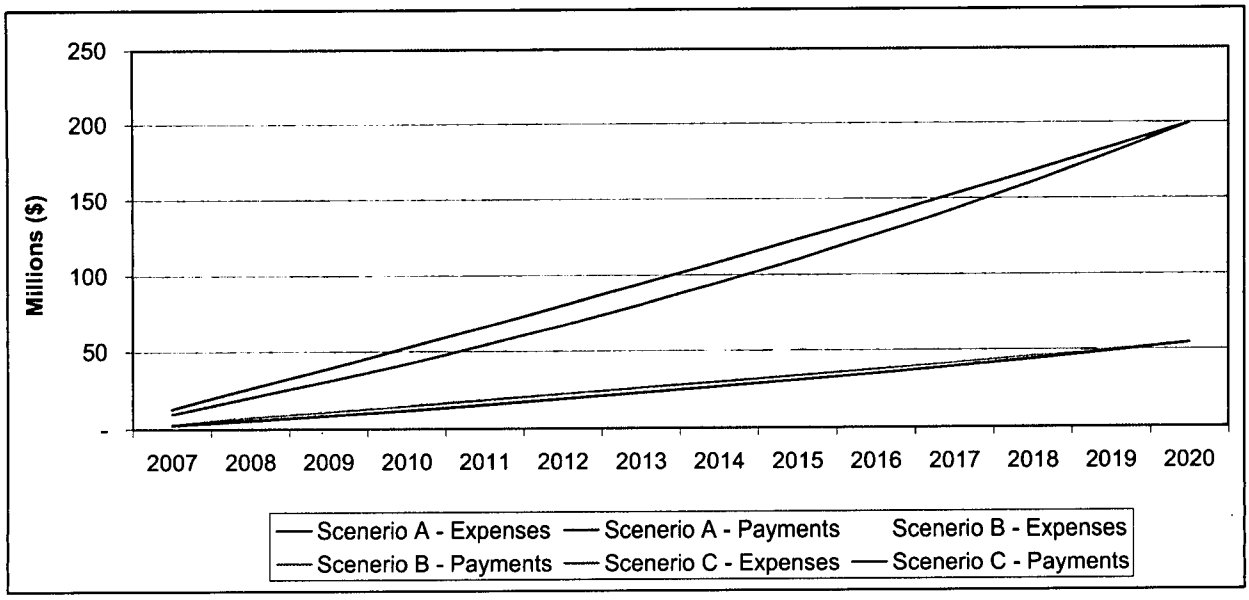
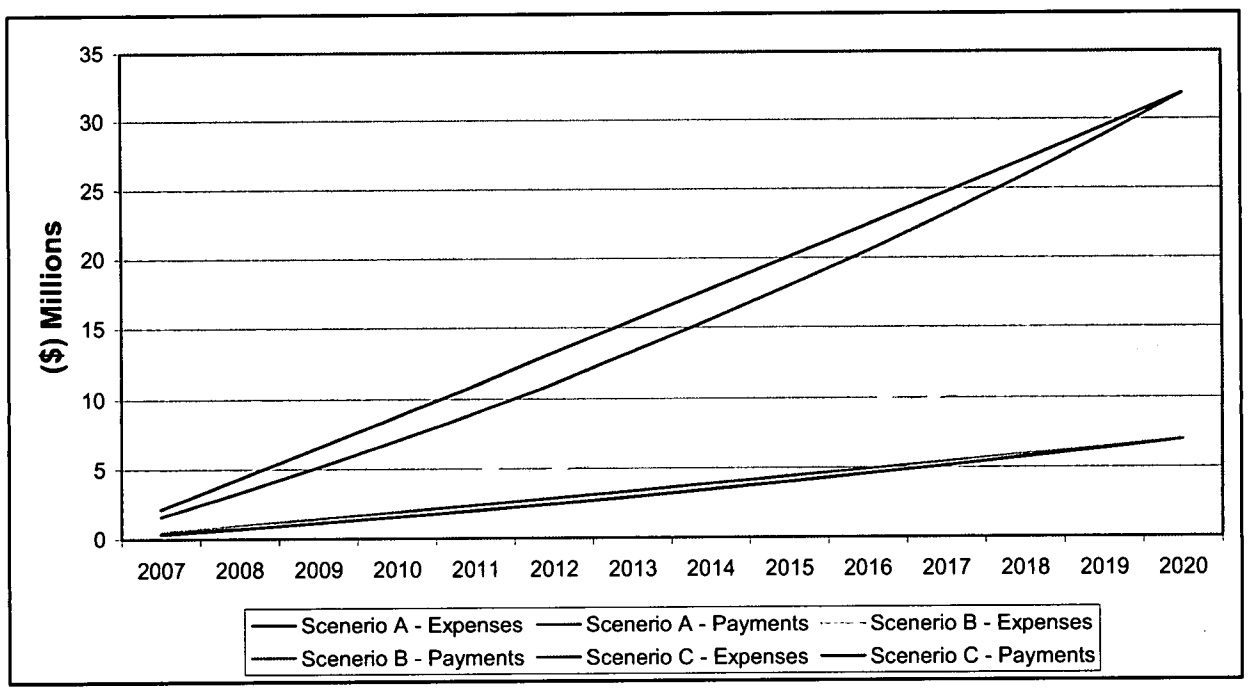


Table 4-9. Cost-Effective Offset Fee for the Tar-Pamlico River Basin

	Cost-Effective Offset Fee[a] ($/lb-30 N)	Cost-Effective Offset Fee[a] ($/0.10 lb-30 P)
Scenario A	$19.70	$26.02
Scenario B	$39.40	$35.38
Scenario C	$90.21	$59.77

[a] Offset fee that allows the program to be sustainable through 2020.

Figure 4-4. Cumulative Revenue and Expenses with Cost-Effective Nitrogen Offset Fees for the Tar-Pamlico River Basin



4.4.2 Offset Fee Program Administrative Costs

The offset fees collected to implement mitigation projects need to adequately cover not only the cost of designing and constructing a project but also the cost of administering the offset program itself. From the perspective of a mitigation project, program administration includes identifying and prioritizing potential mitigation projects and initiating those projects as offset fee payments are made. According to the proposed amendments discussed in Section 2, a 10% fee is added to each offset fee payment to cover the cost of administrating the offset fee program. This fee is intended to provide support for administrative (credit management, tracking payments, processing requests) and project delivery tasks (identifying sites, oversee implementation)

similar to other mitigation programs. EEP staff estimate 6% to 7% of their total program costs are for program administration.

Table 4-10 presents information about the typical components of a stormwater retrofit program. It is recommended that the information presented in Table 4-10 be used to determine if the 10% fee is sufficient to fund the administration of a stormwater retrofit program.

Table 4-10. Administrative Components of a Retrofit Program

Component	Key Tasks
Retrofit scoping	• Define retrofitting objectives • Translate objectives into performance criteria • Define preferred retrofit practices
Comparative subwatershed analysis	• Identify subwatersheds with greatest restoration potential
Desktop retrofit analysis	• Secure GIS and other mapping data • Conduct desktop search for retrofit sites • Prepare base maps for site investigations
Retrofit reconnaissance investigation	• Advanced preparation • Investigate and evaluate individual sites
Compile retrofit inventory	• Develop concept designs • Assemble retrofit inventory (e.g., compile list of potential projects)
Retrofit evaluation and ranking	• Neighborhood consultation • Develop screening/ranking criteria • Create priority project list
Subwatershed treatment analysis	• Compute pollutant removal benefits • Compare to retrofitting objectives
Contract and project management	• Obtain landowner approval • Secure permits and easements • Complete engineering analysis • Assemble final design package • Project management and contract administration
Project tracking and monitoring	• As-built inspection • Regular maintenance • Project tracking and monitoring

4.4.3 Adjusted Offset Fee

The cost-effective offset fee is determined by calculating the fee that will equate the cumulative fee revenue with the program expenditures in the year 2020, while also incorporating a factor to account for rising costs each year. The offset fees that yield a sustainable program

through 2020 are presented by river basin in Tables 4-11 and 4-12. Figures 4-5 and 4-6 graph the time series of revenue and expenses for both river basins.

Table 4-11. Adjusting Cost-Effective Offset Fee for the Neuse River Basin

	2007 Cost-Effective Offset Fee[a] ($/lb-N)	2020 Cost-Effective Offset Fee[a] ($/lb-N)
Scenario A	$23.13	$28.36
Scenario B	$39.44	$48.35
Scenario C	$85.10	$104.32

[a] Offset fee that allows the program to be sustainable through 2020.

Figure 4-5. Cumulative Revenue and Expenses with Adjusting Offset Fees for the Neuse River Basin

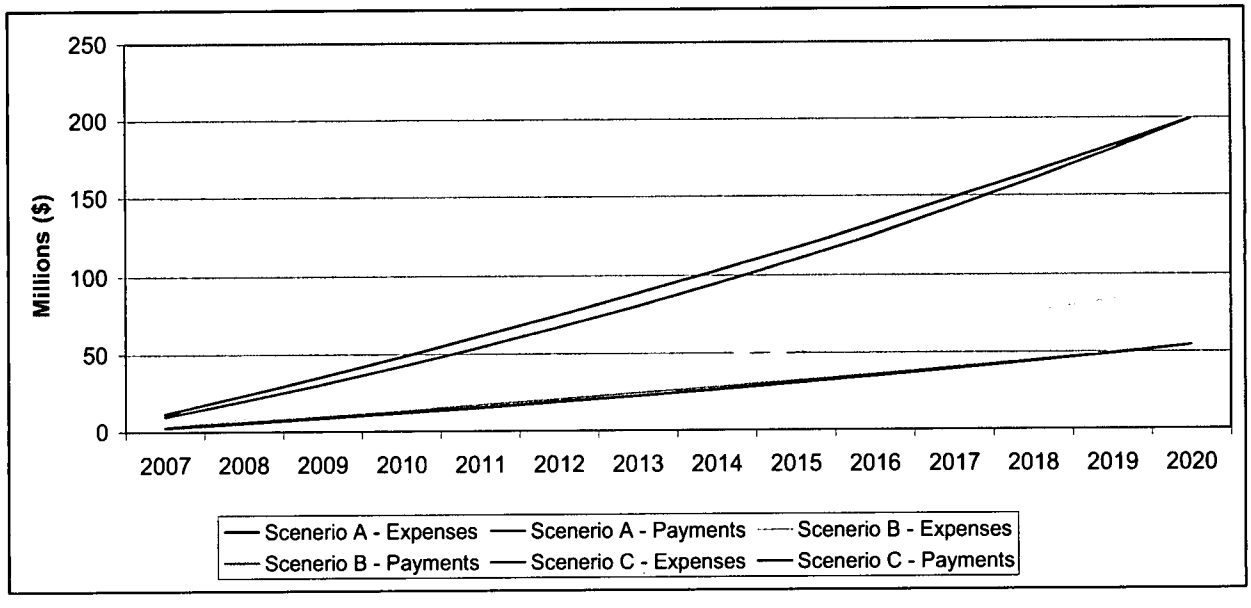
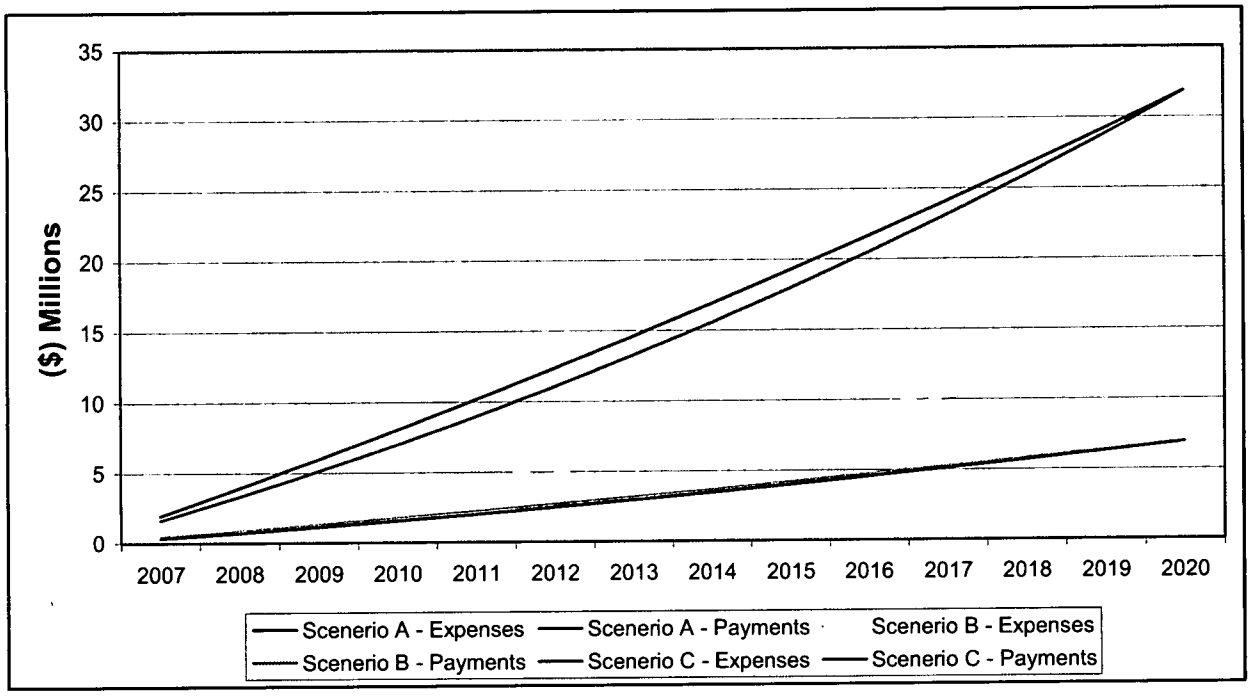


Table 4-12. Adjusting Cost-Effective Offset Fee for the Tar-Pamlico River Basin

	2007 Cost-Effective Offset Fee[a] ($/lb-N)	2020 Cost-Effective Offset Fee[a] ($/lb-N)
Scenario A	$17.72	$21.72
Scenario B	$35.44	$43.45
Scenario C	$81.15	$99.48

[a] Offset fee that allows the program to be sustainable through 2020.

Figure 4-6. Cumulative Revenue and Expenses with Adjusting Offset Fees for the Tar-Pamlico River Basin



The results are very similar to those of the fixed offset fee presented in Section 4.4.2. The only difference is that, with an inflation adjustment factor, payments track more closely with expenditures. However, it is unclear if the added complexity of an indexed offset fee is warranted because the differences between the fixed and adjusted offset fees are minimal.

4.5 Objective 3: Formula for Offset Payment Fee

The offset fee formula that has been used to date is a flat fee in terms of dollars per pound (30 year), with a 10% surcharge added to cover EEP administrative costs. Section 4.4.2 discusses the activities covered by the 10% administrative surcharge.

It seems logical that the formula for the offset payment fee could vary depending on the type of mitigation options pursued (Scenario A, B, or C) and on the underlying rationale for pursuing them. The issue is should the type of development project being offset factor into the payment fee. For example, the proposed payment formula presented in Section 1 contains a land cost component intended to help fund mitigation projects in the specific areas where the development is taking place. If this is the EEP's and the NOFPP's mission, then this formulation seems reasonable. However, if the mission is to simply offset nutrients affecting the estuary,

incorporating land costs does not seem appropriate. Thus, we propose the following formulas for the three scenarios covered in this study.

Formula for Scenario A:

Neuse River Basin

Nitrogen Payment = ($25.77/lb N)(#of lbs/year)(30 years)(1.1 AdminCosts)

Phosphorus Payment = ($33.19/0.10 lb P)(#of lbs/year)(30 years)(1.1 AdminCosts)

Tar-Pamlico River Basin

Nitrogen Payment = ($19.70/lb N)(#of lbs/year)(30 years)(1.1 AdminCosts)

Phosphorus Payment = ($26.02/0.10 lb P)(#of lbs/year)(30 years)(1.1 AdminCosts)

Rationale: The only factor that directly affects the water quality in the estuaries is the number of pounds of nutrients needing to be offset. A simple formula incorporating the cost-effective $/lb for nitrogen and $/0.10 lb for phosphorus produces a revenue stream that would allow the EEP to meet its objective of protecting the estuary and be sustainable through 2020.

Formula for Scenario B:

Neuse River Basin

Nitrogen Payment = [($25.77/lb N)(#of lbs/year)(30 years)*
((Land Cost $ per acre/19,000)^(0.64))*(1.1 AdminCosts)

Phosphorus Payment = [($33.19/0.10 lb P)(#of 0.10 lbs/year)(30 years) *
((Land Cost $ per acre/19,000)^(0.31))*(1.1 AdminCosts)

Tar-Pamlico River Basin

Nitrogen Payment = [($19.70/lb N)(#of lbs/year)(30 years)*
((Land Cost $ per acre/9,000)^(0.58))*(1.1 AdminCosts)

Phosphorus Payment = [($26.02/0.10 lb P)(#of 0.10 lbs/year)(30 years) *
((Land Cost $ per acre/9,000)^(0.31))*(1.1 AdminCosts)

Rationale: Under this scenario, the intent is to provide sufficient funds so that mitigation projects can be placed close to the area of the development. This is accomplished by incorporating the land cost of the property being developed (in terms of dollars per acre) into the offset fee to generate sufficient funds to support flexibility when choosing mitigation options.

The land cost factor (Land Cost $ per acre/19,000)^(0.64)) is structured so that when development occurs in rural areas the offset fee matches the cost-effective fee for Scenario A

(buffers).[9] For example, when the land cost per acre is about $19,000, the formula generates a fee of $25.77 for nitrogen payments in the Neuse River Basin.[10]

$25.77 * ($19,000/19,000)^(0.64) = $25.77

The exponent applied to the land cost formula (^(0.64)) is calibrated so that when development occurs in low-density urban areas the offset fee matches the effective fee for Scenario C (stormwater wetlands). For example, when the land cost per acre is about $145,000, the formula generates a fee of approximately $95 for nitrogen payments in the Neuse River Basin.

$25.77 * ($145,000/19,000)^(0.64) = $95

Again, the advantage of this formula specification is that it generates lower offset fees for development occurring in rural areas. The disadvantage of this formula specification is that actual revenue will be uncertain because fees are a function of where future development will take place. However, the EEP could adjust its mixture of BMPs over time to reflect this reality.

Formula for Scenario C:

Neuse River Basin

Nitrogen Payment = ($94.80) /lb N)(#of lbs/year)(30 years)(1.1 AdminCosts)

Phosphorus Payment = ($62.91/0.10 lb P)(#of lbs/year)(30 years)(1.1 AdminCosts)

Tar-Pamlico River Basin

Nitrogen Payment = ($90.21) /lb N)(#of lbs/year)(30 years)(1.1 AdminCosts)

Phosphorus Payment = ($59.77/0.10 lb P)(#of lbs/year)(30 years)(1.1 AdminCosts)

Rationale: Under this scenario stormwater wetlands are always implemented. Thus, the location of the development (or the land cost per acre) has little impact on the cost of the BMPs. As a result, we recommend a simple formula specification similar to the one for Scenario A.

[9] Land costs as rounded off from Table 4-6.

[10] Note that when the land cost per acre is $19,000, the ratio becomes 1.0 and the exponent does not influence the calculation.

SECTION 5
PROGRAM IMPLEMENTATION (OBJECTIVES 4, 5, AND 6)

5.1 Objective 4

Any assessment of expanding nutrient offset payments to other parts of the state or to other nutrients needs to be based on a full cost-benefit assessment that weighs the economic costs of imposing environmental assessments of water quality issues. From an economic perspective, nutrient offset fees can distort regional development costs and, hence, lead to marginal shifts in development away from river basins that require fees to river basins that do not require them. However, estimating the magnitude of these economic impacts is beyond the scope of this study.

Therefore, in this analysis, we only consider the environmental impacts of excessive nutrient loading when assessing the need to expand nutrient offset payments to a particular water body. From this perspective, the environmental question that needs to be asked is whether nutrients are creating sufficient environmental damage to warrant regulation in the water body under consideration. We focus on describing the existing literature and published studies to provide insights on this issue.

5.1.1 The Chowan River Basin

Among the other water bodies in North Carolina that have experienced, and could be considered candidates for, geographic extension of the nutrient offset program is the Chowan River Basin (part of the Albemarle-Pamlico Estuarine system). The Chowan was the first basin in the state to be designated as NSW in 1979 because of the occurrence of nuisance algal blooms and fish kills. Forest and agriculture dominate the North Carolina portion of the Chowan River Basin. Management strategies have been adopted to reduce the discharge of nutrients from wastewater treatment plant (WWTP) dischargers and agricultural runoff. The latest basin-wide plan for the Chowan indicates that, although conditions have improved over the past several decades, eutrophiation remains a concern (NCDWQ, 2002b).

5.1.2 The New River Watershed

The New River watershed in Onslow County (part of the White Oak River Basin) is another potential candidate. The Upper New River watershed was designated as NSW in 1991 because of persistent algal blooms, fish kills, and low oxygen levels. The watershed above Jacksonville is used primarily for forestry and agriculture. At Jacksonville, the river widens into a broad, slow-moving tidal estuary. It eventually discharges to the Atlantic Ocean through a narrow opening called New River Inlet. The shallow depth and narrow inlet that restricts tidal

exchange contribute to the long flushing time (ranging from 8 to 187 days) and semilagoonal nature of this system (Ensign et al., 2004). These physical properties make this system sensitive to excess nutrients. In the late 1990s, the City of Jacksonville removed its WWTP discharge from the upper New River Estuary, and Camp Lejeune consolidated seven of its discharges into one tertiary WWTP. Since the removal of these nutrient effluent sources, documented reduction of nitrogen and phosphorous, 57% and 71% decreases respectively, has occurred (Mallin et al., 2005). However, nutrient inputs from point and nonpoint sources remain a concern (NCDWQ, 2007a).

5.1.3 The Jordan and Falls of the Neuse Reservoirs

The Jordan and Falls of the Neuse reservoirs were both designated as NSW in the 1980s; nutrient Total Maximum Daily Load (TMDL) implementation remains an active process for both watersheds (NCDWQ, 2005c; NCDWQ, 2007b). Jordan Reservoir is located in the Cape Fear River Basin in Chatham County south of Chapel Hill and Durham. A nutrient management strategy and TMDL were developed to satisfy NSW requirements and a federally mandated TMDL. Both the NSW and TMDL programs include the development of a calibrated nutrient response model to support a management strategy to control nutrients and meet the state's chlorophyll a standard. This model determined that point sources discharge 36% of the nitrogen and 17% of the phosphorous load, and nonpoint sources discharge 64% of the nitrogen and 83% of the phosphorous load to Jordan reservoir. The NCDWQ has drafted new rules for the nutrient management strategy for Jordan Reservoir. In March, 2007 the EMC approved these rules to be released for public comments (expected summer 2007). These proposed rules follow the framework of previous nutrient strategies for the Neuse and Tar-Pamlico river basins, but these new rules include stormwater requirements for all local governments in the watershed, local implementation of buffer rules, and a rule requiring local governments to achieve nutrient loading reductions from existing developed lands. A separate rule outlining a trading framework to maximize options for achieving more cost-effective reductions is also planned (NCDWQ, 2007b).

Falls of the Neuse Reservoir (Falls Lake) is located within the headwaters of the Neuse River Basin in Durham and Wake counties. Approximately 61% of the watershed is forested, 16% is in agriculture, and 17% is suburban and urban development. Currently, Falls Lake is not classified as impaired, but several upstream tributaries are classified as impaired (NCDWQ, 2002c). In 2005, NCDWQ initiated a field study and modeling plan for the development of a nutrient management strategy for the lake. This study established 13 stations designed to monitor

the water quality on Falls Lake. Results indicate a spatial trend with nutrients and chlorophyll a concentrations higher at the upstream stations and decreasing toward the dam (NCDWQ, 2007c).

5.1.4 High Rock Lake

High Rock Lake, located in Rowan and Davidson counties, is scheduled as the next large Piedmont reservoir for examination (Woolfolk, 2005,). Water quality concerns for High Rock Lake date back to the mid-1970s, and the need for nutrient reduction strategies to address problems due to accelerated eutrophication has been apparent since the mid-1990s. In the most recent assessment period (1999 to 2001), NCDWQ classified the lake as "impaired" based on high levels of nutrients, combined with chlorophyll a, turbidity, and percentage dissolved oxygen saturation in excess of state standards (NCDWQ 2003). A nutrient management strategy was implemented in 1998. In addition, new point sources are being restricted from certain portions of the lake, and TMDLs are being developed for some upstream tributaries. Strategies used to reduce concentrations in these watersheds will also help reduce nutrient and sediment loading to the upper portion of the basin and ultimately High Rock Lake. NCDWQ will continue to monitor the lake. Other large reservoirs in the Catawba and Yadkin basins, as well as other water supply reservoirs, could be considered as candidates for extending the nutrient offset program.

5.1.5 Streams and Rivers Experiencing Eutrophication

In addition to the lakes, reservoirs, and estuaries discussed previously; streams and rivers that experience excessive nutrients may also be targeted for the NOFPP if they become subject to nutrient loading limits. For example, the Rocky River in Chatham County downstream of the Rocky River Reservoir has been observed to have extensive algal mats during summer months at its confluence with the Deep River. Excessive nutrients from both agricultural and residential activities are thought to be potential sources of these algae (NCDWQ, 2005). If this is confirmed and nutrient loading limits are set, this river could be a potential candidate for extending the NOFPP.

However, more information on this and other streams needs to be gathered before it can be determined whether the NOFPP would be applicable in these waterbodies. An additional concern must also be stressed, that when we are looking at smaller rivers or streams, there may simply not be enough off-site mitigation opportunities to make the NOFPP a feasible or sustainable option.

5.2 Objective 5: Public versus Private Implementation

The EEP currently serves as the sole gateway for purchasing nutrient offsets in the Neuse and the Tar-Pamlico river basins. It receives payment for excess nutrients emitted by nonpoint

sources, which it then uses to construct BMPs that will offset them (either through the use of the full delivery or design-bid-build processes described in Section 2). However, a wide range of alternative operational structures could be developed, such as a market-style nutrient trading system.

A market in nutrient credits would operate similarly to the way markets in other commodities operate. Both types of markets facilitate the exchange of desired goods between willing buyers and sellers. In the case of nutrient markets, individuals or companies that find it too expensive to meet mandated nutrient loading caps would be willing to purchase "credits" from other individuals or companies that have reduced nutrient loading elsewhere in the river basin beyond the capped amount. As a result, the excess nutrient loading of the credit purchaser is "offset" by the nutrient reductions of credit supplier.

Adopting a market structure to mitigate pollutants has a variety of advantages that have been well documented in the literature. Of particular interest to this study is the idea that the price paid by purchasers of nutrient credits could be determined by the interaction of market forces (supply and demand) that would ultimately ensure that the price was enough to cover the full cost of installing the BMP projects required. As a consequence, market-style structures will have great flexibility in the face of changes in supply (e.g., increasing costs of offsetting nutrients) and demand (e.g., an increase in development driven by population growth).

The same market forces that drive prices to balance supply and demand will also direct offset payments toward BMP projects that provide the greatest amount of nutrient reduction at the lowest cost. In the context of the NOFPP, this could mean that the majority of funds would be directed toward installing riparian buffer projects in rural areas of the two river basins. However, if the goal of the NOFPP is broader, and includes protecting water quality in individual watersheds, then regulations may be required that dictate that nutrient offsets must be supplied within a certain distance of environmental impact (King and Kuch, 2003).

Nutrient trading markets would still require continued government supervision to ensure they operate as intended. In particular, a key role for regulators would be to "certify" that each nutrient credit will offset the amount of nutrients it claims to offset. This can be a concern because the effectiveness of the BMPs generating nutrient offsets will vary based on site-specific factors, the quality of their construction, and the level of maintenance over time (King and Kuch, 2003).

Many states are developing market-style trading programs. Most recently, the Commonwealth of Pennsylvania began implementing a nutrient trading market to achieve the nutrient reduction goals laid out in the 2000 Chesapeake Bay Agreement (PADEP, 2007). This system allows individuals to buy and sell nutrient credits, which have been certified by the Pennsylvania Department of Environmental Protection, over an online market called NutrientNet (PADEP, 2007). This program is structurally similar to what has been discussed and could be used as a model for North Carolina, if policy makers considered pursuing a market-based solution.

Generally, the NOFPP seems well suited for market-style nutrient trading. A problem faced by other trading markets in the past has been an insufficient demand for nutrient offset, which led to a low volume of trades. However, the frequent purchase of nutrient offsets under the current system demonstrates that should not be an issue for the NOFPP. Also, the successful completion of eight full-delivery projects under the current program illustrates the fact that private entities have the capabilities to generate nutrient offset credits that they could provide to individual buyers. However, as mentioned previously, government regulation and oversight would be required to ensure that the market operates as intended. If such a market-style structure were pursued, the EEP would be among the best suited government entities for providing this oversight given its past experience in managing the current program.

Below, Section 5.2.1 provides an overview of other nutrient offset programs outside North Carolina, and Section 5.2.2 provides an overview of several high-profile, nonnutrient environmental trading programs that demonstrate the potential effectiveness of a market-style structure.

5.2.1 Similar Water Quality Offset Programs (from Table 5-1)

RTI spoke with program administrators of seven water quality offset programs identified in other states as being similar to the NOFPP in North Carolina. Appendix A describes these programs. Based on these conversations, we summarize in Table 5-1 eight major task areas associated with developing and maintaining a fee-based offset program. These task areas include the following:

- Offset program administration
  - rule making
  - environmental analysis
  - pollution monitoring
  - offset fee management (i.e., collection and disbursement)

- Offset project development
  - site selection
  - engineering design
  - offset project construction
  - offset project ongoing operation and maintenance

Governments' role typically included program setup, offset rule making, and development of a water quality management plan. These programs typically required development firms to submit water management plans to the program office. The program staff also reported that they were responsible for determining offset fees to be assessed. Offset fees are then typically used to develop new or improved existing water quality offset projects. The state and county program officers in many cases reported having environmental engineers on staff to conduct environmental assessments to inform emissions control policies.

Water quality offset programs were also responsible for offset project planning. These programs conduct offset project site selection. They typically contract the construction of offset projects to private construction firms, but long-term operation and maintenance is the responsibility of the program office.

The State of Maine Storm Water Compensation Fund is the only offset program interviewed that did not maintain direct control over offset projects. Although the program office was responsible for offset fee collection, they release an RFP for offset projects in selected regions. The offset project funds are then awarded as grants to nonprofit entities (e.g., a town council, an individual, an environmental group) that submit the most effective long-term offset project proposal. The grantees are then typically responsible for design, construction, and long-term operation and maintenance of the offset project. This year, the program is shifting away from single-site project awards toward awarding offset project grants that would designate regional responsibility for water quality offset projects.

5.2.2 Federal Environmental Trading Programs

Trading programs have been created to address compliance and create voluntary markets for the purchase of emission reduction credits (ERCs) to offset greenhouse gas (GHG) emissions.

Key elements to a successful GHG offsets (cap and trade) program include the following:

- market demand (i.e., cap) requires regulatory body enforcement
- clear rules surrounding the creation and use of offsets that will ensure the integrity of emission reductions

Table 5-1. Water Quality Offset Fees from Other Programs around the United States

Locality and Program	Contact	Fee	Costs Covered by Fee						
			Design	Engineering	Permitting	Construction	Land Acquisition	Program Administration	Maintenance
Arlington County, VA, Watershed Management Fund	Arlington County Department of Environmental Services 703-228-3612	$2.50/sq ft of impervious area requiring mitigation	✓	✓	✓	✓			✓
Austin, TX, Urban Watershed Structural Control Fund	Department of Watershed Protection and Development Review 512-974-2501	Fee based on impervious area base fee for first 0-1 ac $32,000	✓	✓	✓	✓	✓		✓
Baltimore, MD, Critical Area Program	Department of Planning 410 396-5902	$35,000/lb of phosphorous	✓	✓	✓	✓		✓	✓
Fairfax County, VA, Uniform Pro Rata Share Program	Department of Public Works and Environmental Services 703-324-1720	Determined on case-by-case basis and based on impervious area	✓	✓	✓	✓	✓	✓	✓
Gwinnett County, GA, Stream Buffer Mitigation Bank	Gwinnett County Water Resources 678-518-6150	$23,000 per water quality unit	✓	✓		✓			
Henrico County, VA, Environmental Fund	Henrico County Department of Public Works 804-501-4396	$8,000/lb of phosphorous	✓	✓	✓	✓			✓
State of Maine Stormwater Compensation Fund	Maine Department of Environmental Protection 207-287-2116	$10,000/lb of phosphorous for lake sheds $20,000/lb of phosphorous for severely blooming lake	✓	✓	✓	✓			✓
State of Maryland Critical Area 10% Rule	Maryland Critical Area Commission 410-260-3460	Equivalent cost: $38,400/lb of phosphorous retrofit cost: $22,500/lb of phosphorous	✓	✓	✓	✓		✓	✓

- clear rules and standardized processes for creating offsets that ensure validity and environmental integrity of projects
- clear rules regarding use of offsets to meet caps

Compliance trading programs typically result from government enforcement of air quality standards that cap direct emissions, limiting industries' allowable emissions. Offset regulators reduce uncertainty and risk to market participants by providing clear rules and standardized processes for creating and using ERCs.

Governments must recognize offsets as a valid emission reduction option. State or federal recognition of offsets is typically preceded by the validation of offset projects to ensure they are truly offsetting GHG emissions. Limitations in measurement and validation methodologies constrain the universe of reductions that can satisfy the rules for offset creation. The following are examples of trading programs.

The SO_2 Emission Allowance is a cap-and-trade program created by EPA's Acid Rain Program, which falls under Title IV of the 1990 Clean Air Act Amendments and was established to achieve significant reductions in the emissions of sulfur dioxide (SO_2) and nitrogen oxide (NO_x), the primary causes of acid rain.

EPA allocates emission allowances to utility units, based on their historic fuel consumption (1985–1987) and a specific emissions rate. Each allowance permits a unit to emit 1 ton of SO_2 annually. EPA's role in allowance trading is to record allowance transfers that are used for compliance and to ensure at the end of the year that a source's emissions do not exceed the number of allowances it holds. To accomplish this, EPA maintains an Allowance Management System (AMS). Each affected utility source, corporation, group, or individual holding allowances has an account in the AMS.

EPA outsources the majority of the day-to-day operations of the SO_2 trading program. The private company, ICF Consulting, has supported EPA's Clean Air Markets Division (CAMD) on all their market-based air emissions controls programs (4/03 to 4/07). The contract is cost plus fixed fee for $21.6 million.

Perrin Quarles Associates (PQA), under contract by CAMD, developed the Emissions and Allowance Tracking System (EATS), a generic software application to support regulatory agencies and countries who adopt emissions trading approach to reduce air pollution emissions.

The Regional Clean Air Incentives Market (RECLAIM) was created by the South Coast Air Quality Management District (SCAQMD) in California, which is responsible for

operating the program. RECLAIM covers all of Los Angeles and Orange counties along with half of Riverside County. This program controls the amount of nitrogen oxide (NO_x) and sulfuric oxide (SO_x) released in a 1 credit-to-1 pound NO_x emitted ratio. RECLAIM trading credits, or RTCs, were issued at a zero-cost basis to all sources whose yearly emissions are greater than 4 tons (8,000 pounds) per year at the start of the program.

Brokerage firms have emerged from the private sector in response to facilities participating in the trading scheme that have credits to sell or that need to purchase credits. Brokerage companies provide a fee-based service to bring market participants together for effective trading.

The Chicago Carbon Exchange[11] (CCX) is a self-regulatory exchange that administers a voluntary, legally binding pilot program for reducing and trading GHG emissions in North America with participation from offset providers in Brazil.

The exchange comprises North American companies with direct GHG emissions from their facilities and companies with no direct emissions but that comply with CCX rules by offsetting emissions with a selection of business related activities.

CCX members with direct emissions have voluntarily agreed to reduce their emissions by 1% each year for 3 years beginning in 2003. The 1% is calculated relative to a 1998 to 2001 average. Members are expected to reduce net emissions to 4% below baseline levels by the end of 2006.

CCX offset projects include the following:

- methane destruction projects for landfills and livestock operations
- agricultural practices projects to implement alternative crop tilling practices and initiate grass cover planting in applicable regions
- forestry practices such as forestation and forest enrichment projects
- renewable energy projects through the displacement of carbon dioxide (CO_2) emissions by eligible renewable energy facilities

Auditing, verification, and market surveillance activities are outsourced to a financial regulatory service company, NASD, Inc. NASD conducts audits of member-company emissions and reviews offset project verification methodologies. CCX requires third-party verification of GHG offset project achievements by approved verification service providers.

[11] Information obtained from CCX Web site, www.chicagoclimatex.com.

SGS and EcoSecurities[12] are one example of a carbon offset verification service provider. They provide periodic monitoring of project implementation and verification and the quantification and certification of projected and achieved emission reductions.

Valid projects under the CCX are required to offset 12 million tons of carbon per year. Few offset projects of this size exist in the United States. As a result, private-sector aggregators have emerged to provide fee-based services to allow smaller incremental offset projects to be aggregated to a level that meets the CCX requirement for offset project status.

5.3 Objective 6: Mitigation Options Available

The final objective of this study was to conduct a comprehensive review of the types of potential nutrient mitigation projects available. To accomplish this, the Center for Watershed Protection compiled and analyzed national cost data for a variety of structural stormwater retrofit practices, including wet ponds, wetlands, bioretention areas, filtering practices, infiltration practices, and swales (Schueler et al., in press). This effort produced national average construction costs for a wide range of mitigation practices that were not available for projects based in North Carolina. Additional mitigation project identified include sand filters, underground sand filters, infiltration practices, and water quality swales.

Using North Carolina event-mean-concentrations (EMCs) obtained from the National Stormwater Quality Database (NSQD) and pollutant removal efficiencies listed in the North Carolina Department of Environment and Natural Resources' (NCDENR) Manual of Stormwater Best Management Practices, the average construction costs for stormwater retrofits are presented in Table 5-2. National cost data for the mitigation options included in the study scenarios are also included in Table 5-2 for comparison. The project costs presented in Table 5-2 include only the construction cost and associated design and engineering fees; however, as shown earlier, these are by far the largest components of structural stormwater mitigation projects.

[12] This link is an example of validation method but based in the UK—
http://www.eci.ox.ac.uk/research/biodiversity/linkcarbon.php.

Table 5-2. Nutrient Mitigation Project Costs[a]

Stormwater Retrofit Practice	Median Cost ($/lb-30 N)[b]	Range ($/lb-30 N)[b]	Median Cost ($/0.10 lb-30 P)[c]	Range ($/0.10lb-30 P)[c]
Wet ponds	$177	$88 to $317	$93	$47 to $168
Wetlands	$110	$55 to $198	$107	$53 to $192
Large bioretention areas	$265	$188 to $433	$174	$125 to $286
Small bioretention areas	$755	$628 to $1,007	$498	$415 to $664
Sand filters	$503	$403 to $553	$332	$266 to $365
Underground sand filters	$1,637	$705 to $1,887	$1,079	$465 to $1,245
Infiltration practices	$240	$160 to $368	—[d]	—[d]
Water quality swales	$550	$308 to $968	$466	$262 to $822

[a] Assumes design and engineering fees at 32% of construction cost.

[b] Cost per pound of nitrogen removed per year, in 2006 dollars.

[c] Cost per pound of phosphorus removed per year, in 2006 dollars.

[d] Not computable; pollutant removal benefits not defined within NCDENR, 2005a.

SECTION 6
CAVEATS AND FUTURE RESEARCH

The primary objective of this study was to assemble nutrient mitigation cost data to support an evaluation of the offset fees collected as part of the NOFPP. As part of the study, we developed several mitigation scenarios the EEP could implement in the future and estimated the cost-effective offset fees needed to keep the program solvent through 2020 for each scenario.

It was not the purpose of this project to recommend which of the three scenarios (or alternative possible scenarios) the EEP should pursue. That is a public policy decision that requires a more extensive environmental and economic benefit-cost analysis. However, our findings should serve as valuable inputs into the decision-making process.

As part of this study's analysis, we encountered several issues that may warrant further research. These relate to pollutant removal efficiencies, and EMCs and land use loading rates. These factors are used in calculating the offsets required of developers and the nutrients mitigated by the EEP. They support an important process indirectly underlying the formula for payments evaluated in this study because it is essential that pounds "in" (generated) equal pounds "out" (offset) by the NOFPP. These issues are discussed briefly below and in greater detail in Appendix B and Appendix C.

6.1 Pollutant Removal Efficiencies

Pollutant removal efficiencies for the NOFPP were obtained from the NCDENR Stormwater BMP Manual. However, a number of additional BMP performance studies have been published since the NCDENR Stormwater BMP Manual was created. For example, pollutant removal efficiencies are also available from the National Pollutant Removal Performance Database (NPRPD). The national data from the NPRPD generally confirm the BMP pollutant removal efficiencies presented in the NCDENR manual. However, some discrepancies do exist between North Carolina studies extracted from the NPRPD and the removal efficiencies reported in the NCDENR manual. These discrepancies include the suspended solids for all BMP types and nitrogen for infiltration practices. Because of the limited amount of North Carolina BMP data, further research is recommended to develop state-specific pollutant removal efficiencies.

6.2 Event-Mean-Concentrations (EMCs) and Land Use Loading Rates

EMCs are used to calculate predevelopment pollutant loads and (estimated acceptable background unit area nutrient load) and postdevelopment pollutant load (estimated unit nitrogen

and phosphorus loading rate per acre of impervious cover for new or existing development). The current North Carolina EMCs were based on early 1980s National Urban Runoff Program data and then updated in 2000 by CH2M Hill. We recommend considering adjusting current EMCs for total nitrogen (TN) and total phosphorus (TP) based on the more extensive National Stormwater Quality Database (NSQD) estimates. In North Carolina, there is a statistically significant difference between residential, nonresidential, and open space EMCs for TN. In comparison, for TP, no statistical difference exists between residential and nonresidential EMCs, but a significant difference does exist between these two land uses and open space. This provides justification for using different EMCs based on categories of land use.

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APPENDIX A
DESCRIPTION OF OTHER NUTRIENT OFFSET PROGRAMS

A.1 Arlington County, VA

Arlington County requires stormwater treatment for all projects over 2,500 square feet that are covered by Virginia's Chesapeake Bay Preservation Ordinance. To comply with stormwater requirements, an applicant calculates the overall pollutant removal requirements for the site using a Stormwater Requirements Worksheet. On-site stormwater treatment is required for any impervious surfaces with which vehicles come into contact on the site, including but not limited to: parking areas; streets and roadways; loading docks; equipment, material, and waste storage areas; and vehicle fueling, washing, storage, maintenance, and repair areas. If the total pollutant removal requirements for the site cannot be met solely with on-site stormwater treatment, compliance can be achieved through approved combinations of additional on-site stormwater treatment for roofs, plazas, and other areas of the development site; on-site stormwater treatment for off-site areas, or a contribution to the County's Watershed Management Fund.

The Watershed Management Fund provides applicants with the option to contribute a fee-in-lieu program to comply with treatment requirements for nonvehicular areas. The intent of the hybrid on-site stormwater treatment practice/fee-in-lieu program is to recognize that most of the watershed impacts in Arlington County are due to the existing development already in the County. The Watershed Management Fund is used to address existing impacts through larger-scale watershed protection projects such as stream restoration, regional BMP retrofits, monitoring, and outreach and education. The contribution rate of $2.50 per impervious square foot of impact area only covers 40 to 60% of the total opportunity cost of BMP design, installation, and maintenance and is discounted to reflect the increased cost-effectiveness of watershed-scale solutions and the regional water quality from infill development in urban areas like Arlington.

A.2 Austin, TX, Urban Watershed Structural Control Fund

The City of Austin, TX, requires that, for all levels of impervious cover, projects in the designated urban watersheds must provide water quality controls when the cumulative total of both new and redeveloped impervious cover exceeds 5,000 square feet. The City provides a fee-in-lieu-of option to land developers as an alternative to providing on-site water quality improvement facilities in these urban watersheds. The fees are referred to as Urban Watersheds Structural Control Fund (UWSCF) fees and are based on a set of formulas from Appendix T of

the Environmental Criteria Manual. The UWSCF fee was first adopted in 1991 but has undergone several modifications since its inception. The goal of the fee is to approximate the cost of building a water quality control facility on a site including the cost of land that would be occupied by the facility.

The program works by having an applicant calculate the fees of three components of a site to come up with the final fee. The first component is the site impervious cover. The total impervious cover at a site, both redeveloped impervious cover and new impervious cover, is multiplied by a sliding scale of fees to calculate the total site impervious cover fee (Table A-1). The City then offers an incentive for redeveloping older properties by paying 75% of the fee for those areas of existing impervious cover on a site that is being redeveloped. The second component is a building fee based on the square footage and currently set at $0.10 per square foot. The third component is a site area fee that multiplies the site area in acres within the limits of construction of a project by $6,000 for commercial or multifamily development or $4,000 for single family and duplex development. Again, the City pays for 75% of this fee for those areas of existing impervious cover on a site that is being redeveloped. The City is currently reevaluating its redevelopment incentive and whether redevelopment should be treated just like new development.

Table A-1. Austin UWSCF Impervious Cover Charges

Area of Impervious Cover	Fee
0 to 1.00 acres	$32,000
1.01 to 2.00 acres	$18,000
2.01 to 10.00 acres	$11,000
10.01 to 20.00 acres	$8,000
20.01 acres or greater	$6,000

A.3 Baltimore, MD, Critical Area Program

The City of Baltimore is part of the larger Maryland Critical Area Program, and it developed their Critical Area Program with an associated offset fee program. The program actually has two offsets: a water quality offset fee with a current cost of $35,000/lb of phosphorous, and a buffer offset fee when stream buffer is removed that uses $2.50 a square foot as the current charge. Because of the highly urbanized nature of Baltimore, most of the offset fees are used for pavement removal or acquisition of parkland. The fee collected is allowed to be

used outside of the 1,000 foot Critical Area boundary, with the preference being to use the money in areas as close to the project as possible. Administration of the program is covered in the fee charged and is estimated to take about 5 to 10% of the total cost.

A.4 Fairfax County, VA

Fairfax County's program is called the Uniform Pro Rata Share Program. Fees under this program are based on the increase in impervious area and vary by watershed. The total fee for each watershed is based on master planning studies that identified a number of regional ponds as well as other flood control improvements (e.g., improved stream crossings) and the total potential impervious cover for each of the 30 major watersheds in Fairfax County. The total fee was divided by the projected increase in impervious area to determine the pro rata share by watershed. Fees vary from $1,784 per increase in impervious acre to $22,153 per increase in impervious acre, with an average of $5,469 per increase in impervious acre. The fees collected are placed into a watershed account and can only be expended for the established stormwater capital improvement projects in that watershed. The fees are recalculated every 6 months to account for changes in project costs and for addition and removal of projects as needed. Once a project is constructed, it remains in the program for 12 years to ensure maintenance.

A.5 Gwinnett County, GA, Stream Buffer Mitigation Bank

The Gwinnett County, GA, Stream Buffer Mitigation Bank Fund was established to provide for fee-in-lieu of mitigation for project sites where on-site mitigation of impacts to an existing stream buffer protection zone is not practical. The goal is to fund stream repair and restoration projects in watersheds that have the highest amount of stream degradation. The amount of mitigation necessary is determined by a water quality value calculation based on the proposed action in the stream buffer. Mitigation requirements can be satisfied by purchasing water quality values from the Gwinnett County Stream Buffer Mitigation Bank Fund.

The fee is based on the estimated cost of stream buffer restoration, and the in-lieu fee is currently set at $23,000 per water quality value unit. The methodology for developing the fee uses a water quality factor to determine the water quality value of a restored or preserved stream. The factor represents the functional value of the restored buffer to provide water quality protection for the stream and habitat enhancement for the stream biological community. Anecdotal evidence suggests that the current fee may be too low and does not cover the true cost of stream restoration of planting projects.

A.6 Henrico County, VA

Henrico County has an Environmental Fund that was established to accept fee-in-lieu contributions in instances where compliance with stormwater pollutant removal requirements is unachievable. The Environmental Fund provides a funding source for the water quality projects conducted within the county in the James River and Chickahominy River watersheds. The county uses the fee-in-lieu contributions to finance projects such as streambank stabilization, stream restoration, removal of stream obstructions, buffer establishment, regional BMPs, and constructed wetlands. Contribution to the Fund is based on a project's impervious percentages and the Watershed Management Area designation where the project is located. The contribution is based on a cost of $8,000.00 per pound of pollutant removal required to be achieved by the project. Pollutant loading and removal calculations are done in accordance with the simple method described in the Henrico County Environmental Program Manual.

Contributions to the Fund are based on a prorata share of the annual cost of providing equivalent pollutant removal projects over a normal year of development activity within the county. The current $8,000.00 per pound of pollutant removal requirement was derived from the annual cost of providing an equivalent level of pollutant removal based on a previous "site-by-site" approach. The current $8,000.00 per pound cost is based on older information and in need of review and adjustment to reflect changes in inflation and construction costs. The fee requirements can be reduced by providing forested stream protection area and energy dissipaters.

A.7 State of Maine

Maine's Stormwater Management Law authorizes the Department of Environmental Protection to accept a compensation fee in lieu of some of the phosphorus reduction required from projects located in lake watersheds identified as most at risk for development. The allowable per-acre phosphorus allocation for each lake most at risk is based on current water quality, potential for internal recycling of phosphorus, potential as a cold-water fishery, volume and flushing rate, and projected growth in the watershed. This allocation is used to determine phosphorus allocations for a project. Each project is required to incorporate phosphorus control measures that provide at least a 50% reduction in projected phosphorus export in stormwater runoff from the project site and may then opt to pay a compensation fee to provide the remaining phosphorus reduction necessary to meet the site's phosphorus allocation. The current rate is set at $10,000 per pound of annual algal-available phosphorus export.

The projects funded through the compensation fee-in-lieu are designed to provide long-term elimination or reduction of chronic phosphorus sources. The compensation project must be

located within the same lake watershed as the project for which the compensation fee is paid. Interviews suggest that the current fee does not fully cover retrofit construction costs, and they will be looking to revise the fee in the next year to be $20,000/lb of phosphorous. Interviews also suggest that a lesson learned is that it is better to have fees go directly to approved recipients at a more local level, rather than to a general state fund because it is difficult to dispense funds that come with greater levels of requirements for dispensing state-held funds.

A.8 State of Maryland Critical Area 10% Rule

The Maryland Chesapeake Bay Critical Area Protection Act (Critical Area Act) was enacted in 1984 to help reverse the deterioration of the Chesapeake Bay and the surrounding environment. The Act recognizes that the land immediately surrounding the Bays and their tributaries has the greatest potential to affect its water quality and wildlife habitats and designated all land within 1,000 feet of tidal waters or from the edge of tidal wetlands as "critical area." The criteria set forth in conjunction with the Critical Area Act require that any development or redevelopment within intensely developed areas (IDAs) be accompanied by practices to reduce water quality impacts associated with stormwater runoff to a level at least 10% below the load generated by the same site prior to development. IDAs are generally areas that were developed with residential, commercial, industrial, and institutional land uses at the time of the original critical area mapping and where relatively little natural habitat occurred. IDAs are also considered the preferred locations for future growth through redevelopment and/or new development.

When on-site treatment practices cannot meet the phosphorus load reductions in IDAs, then an offset fee can be paid as a last resort to meet requirements. The offset projects must be located within reasonable proximity to the Chesapeake Bay, Atlantic Coastal Bays, their tributaries and associated tidal wetlands, and preferably within the critical area itself. Funds are intended for use within the same watershed and to replace equivalent water quality improvement projects. In addition, any measure or practice that is used for an offset cannot be a measure that would have been required under existing laws, regulations, statutes, or permits. The current state guidance for calculating offset fees gives local municipalities two methodologies: an equivalent cost method for computing the cost of providing stormwater management on-site and a retrofit cost method that examines the cost to a local government to provide phosphorus treatment with a larger stormwater retrofit elsewhere in the community. The estimate using the equivalent cost method was done from a review of the actual costs of 73 stormwater treatment practices in the Mid-Atlantic region and was set at $38,400 including maintenance of the practice. The retrofit cost estimate was $22,500 including maintenance.

APPENDIX B
POLLUTANT REMOVAL EFFICIENCIES

Most stormwater management approaches rely heavily on the use of structural stormwater BMPs (e.g., structural stormwater controls) to mitigate the impacts of urbanization. This appendix reviews data on the ability of structural BMPs used in North Carolina to remove common stormwater pollutants.

B.1 Data Comparison

Table B-1 compares the pollutant removal efficiencies obtained from the NCDENR Stormwater BMP Manual with those obtained from the National Pollutant Removal Performance Database (NPRPD) (Winer, 2000). A number of additional BMP performance studies have been published since the NPRPD was created in 2000. As part of our research, we added these studies to the NPRPD and updated the pollutant removal efficiencies for each BMP (second column in Table B-1). North Carolina studies were then extracted from the NPRPD, and removal efficiencies were calculated (third column in Table B-1).

B.2 Findings

The updated national data from the NPRPD generally confirm the BMP pollutant removal efficiencies presented in the NCDENR manual. However, some discrepancies do exist between the North Carolina studies extracted from the NPRPD and the removal efficiencies reported in the NPRPD and NCDENR manual. These discrepancies include the suspended solids for all BMP types and nitrogen for infiltration practices (bolded numbers in the third column of Table B-1). For each North Carolina BMP type extracted from the NPRPD, the removal efficiencies are based on a small number of studies (fewer than five studies for each BMP type), and the reported removal rates are extremely variable (e.g., bioretention suspended solids and phosphorus removal range from –100% to 98% and –100% to 65%, respectively, while infiltration nitrogen removal ranges from 0% to 85%). This makes it difficult to draw any firm conclusions about the performance of these North Carolina BMPs and highlights the need for additional research.

Because of the limited amount of NC BMP data, further research is needed before state-specific pollutant removal efficiencies can be recommended. The current removal efficiencies in the NCDENR manual and the NPRDP are relatively comparable.

Table B-1. Comparison of North Carolina BMP Pollutant Removal Efficiencies to the Pollutant Removal Efficiencies Presented in the NCDENR Stormwater BMP Manual and the National Pollutant Removal Performance Database (NPRPD)

Pollutant	Stormwater BMP	NCDENR Manual (%)	National (%)	North Carolina (%)
Total suspended solids	Wet ponds	85	80	61[a]
	Dry ponds	50	49	**71**[a]
	Wetlands	85	72	N/A
	Filtering practices	85	86	N/A
	Bioretention	85	59[a]	**–100**[a]
	Infiltration practices	85	89[a]	**0**[a]
	Open channels	35	81	N/A
Total phosphorus	Wet ponds	40	52	41[a]
	Dry ponds	10	20	14[a]
	Wetlands	35	48	N/A
	Filtering practices	45	59	N/A
	Bioretention	45	5	2[a]
	Infiltration practices	N/A	65	33[a]
	Open channels	20	24	N/A
Total nitrogen	Wet ponds	25	31	26[a]
	Dry ponds	10	24	26[a]
	Wetlands	40	24	N/A
	Filtering practices	35	32	N/A
	Bioretention	35	46	40[a]
	Infiltration practices	40-70	42	**0**[a]
	Open channels	20	56	N/A

[a] Fewer than five studies

Note: Numbers in **bold** represent the BMP removal efficiencies that appear to be different in North Carolina compared with the national data.

APPENDIX C
EVENT MEAN CONCENTRATIONS AND LAND USE LOADING RATES

The National Stormwater Quality Database (NSQD) includes stormwater pollutant concentration and land use loading rates from over 3,770 separate storm events from 66 agencies and National Pollutant Discharge Elimination (NPDES) Municipal Separate Storm Sewer System (MS4) municipalities from 17 states collected by the University of Alabama and CWP. CWP analyzed the NSQD version 1.1 to compare North Carolina and national EMCs derived for total nitrogen (TN), total phosphorus (TP), and total suspended solids (TSS). Statistical trends were examined for the EMCs based on land use, including residential, nonresidential, and open space. There were no database entries for different physiographic regions (i.e., coastal vs. piedmont).

Table C-1 provides the current and NSQD derived EMCs for North Carolina and nationally for comparison. Current EMCs were obtained from the NCDENR Stormwater BMP Manual.

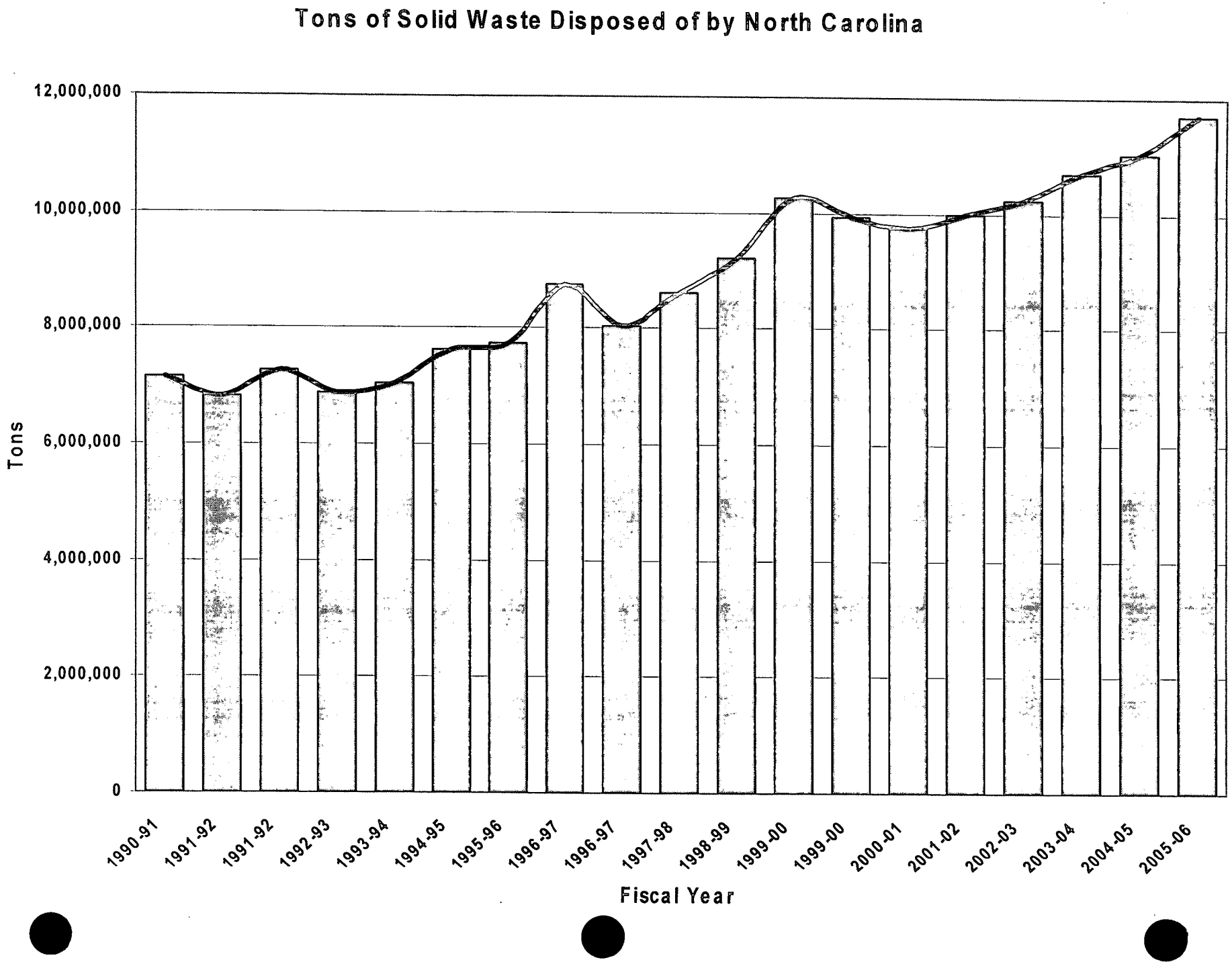
Table C-1. Current and NSQD Event-Mean Concentrations

Parameter	Region	Current North Carolina EMCs (mg/L)	NSQD EMCs (mg/L)
Total Nitrogen			
	National		1.90
	North Carolina		2.29
	Residential	1.50	2.14
	Nonresidential	2.70	2.54
	Open space	1.10	0.84
Total Phosphorus			
	National		0.28
	North Carolina		0.27
	Residential	0.20	0.26
	Nonresidential	0.35	0.30
	Open space	0.20	0.11
Total Suspended Solids			
	National		61
	North Carolina		41

Solid Waste Management Annual Report
Environmental Review Commission
June 11, 2007

Paul Crissman, Chief
Solid Waste Section
Division of Waste Management
Department of Environment and Natural Resources

EXHIBIT E


Tons of Solid Waste Disposed of by North Carolina
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10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
Tons
1990-91
1991-92
1991-92
1992-93
1993-94
1994-95
1995-96
1996-97
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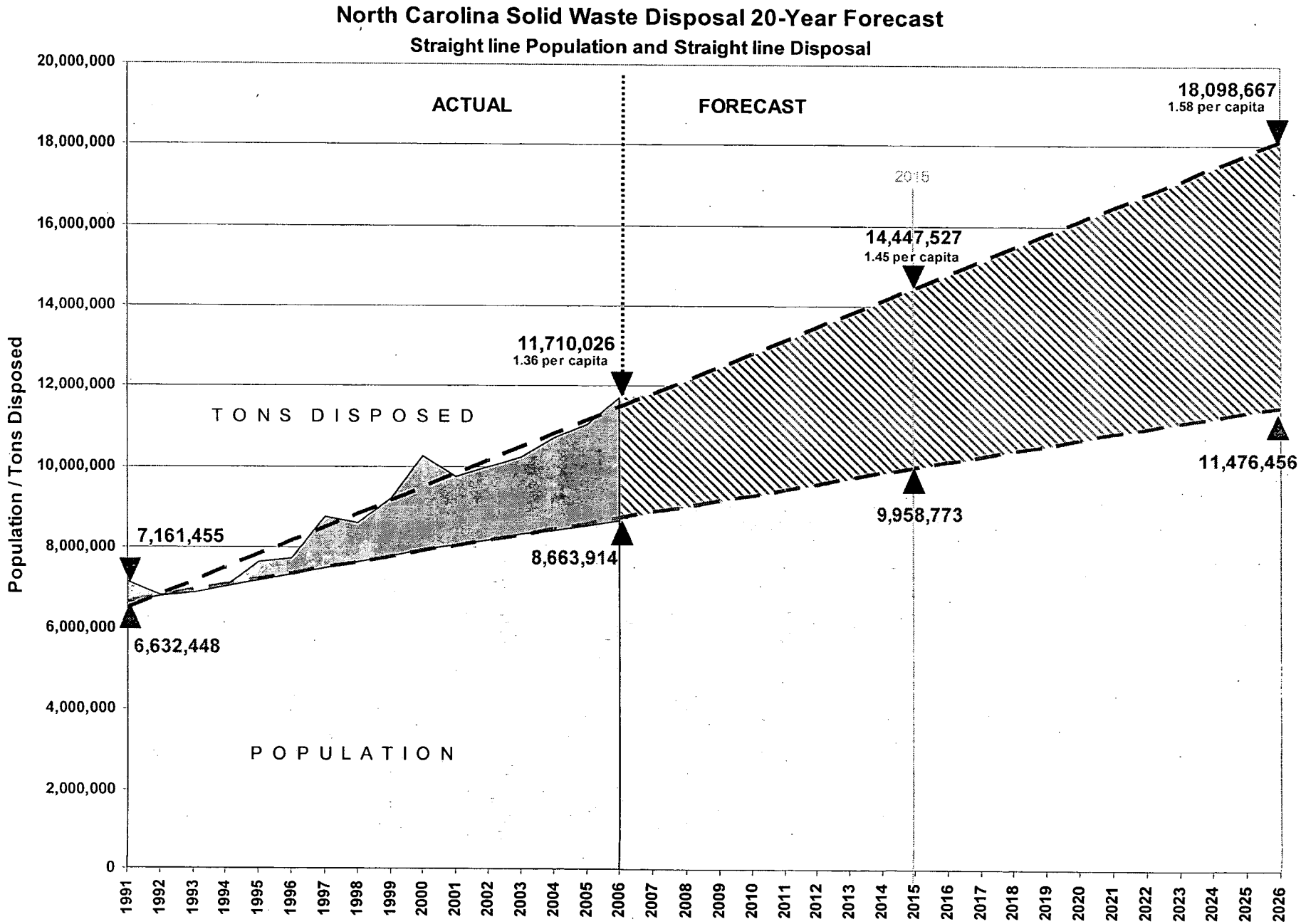
Fiscal Year


North Carolina Solid Waste Disposal 20-Year Forecast
Straight line Population and Straight line Disposal
ACTUAL
FORECAST
2015
18,098,667
1.58 per capita
14,447,527
1.45 per capita
11,710,026
1.36 per capita
11,476,456
9,958,773
8,663,914
7,161,455
6,632,448
TONS DISPOSED
POPULATION
Population / Tons Disposed
20,000,000
18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
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1991
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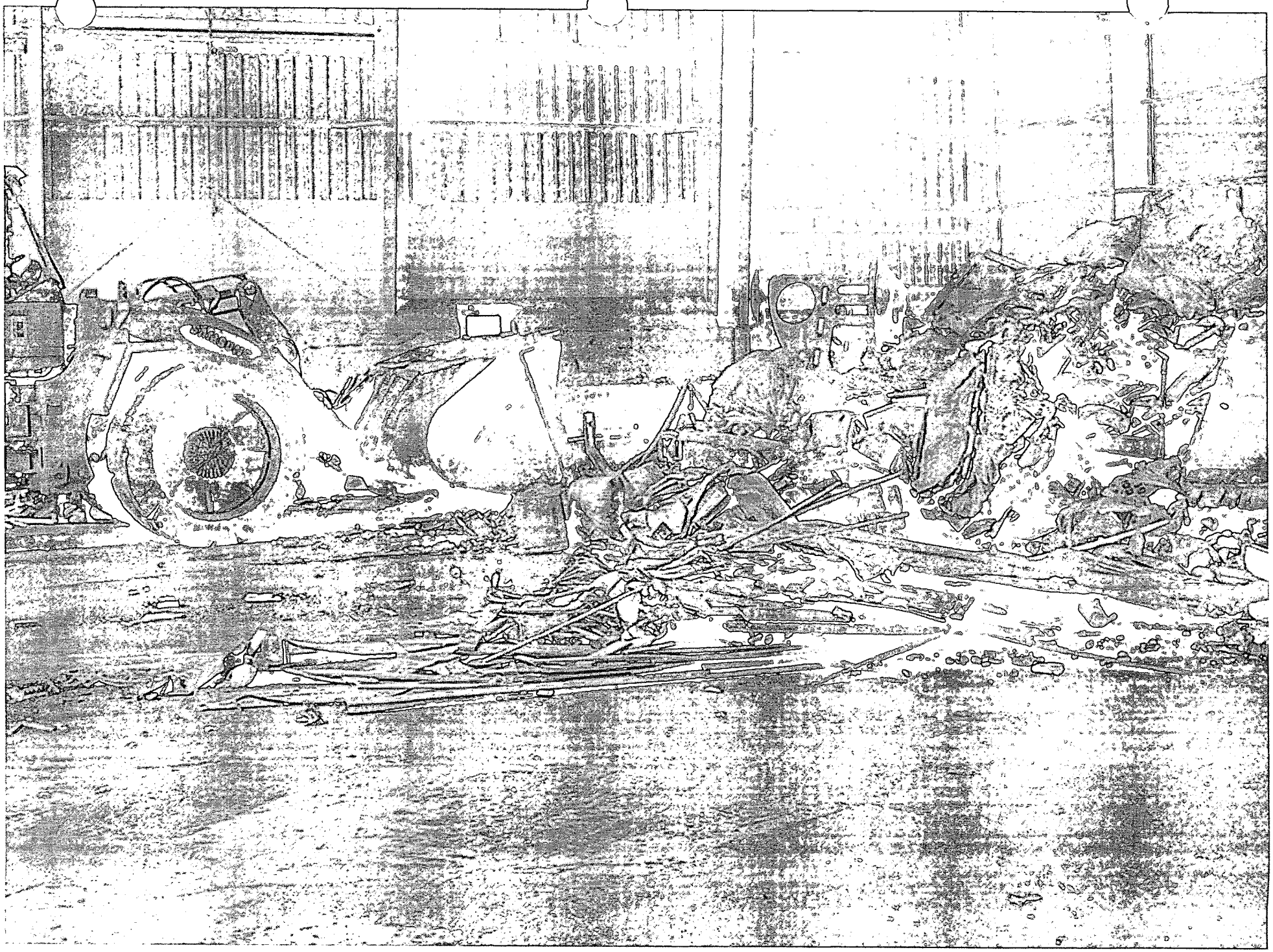
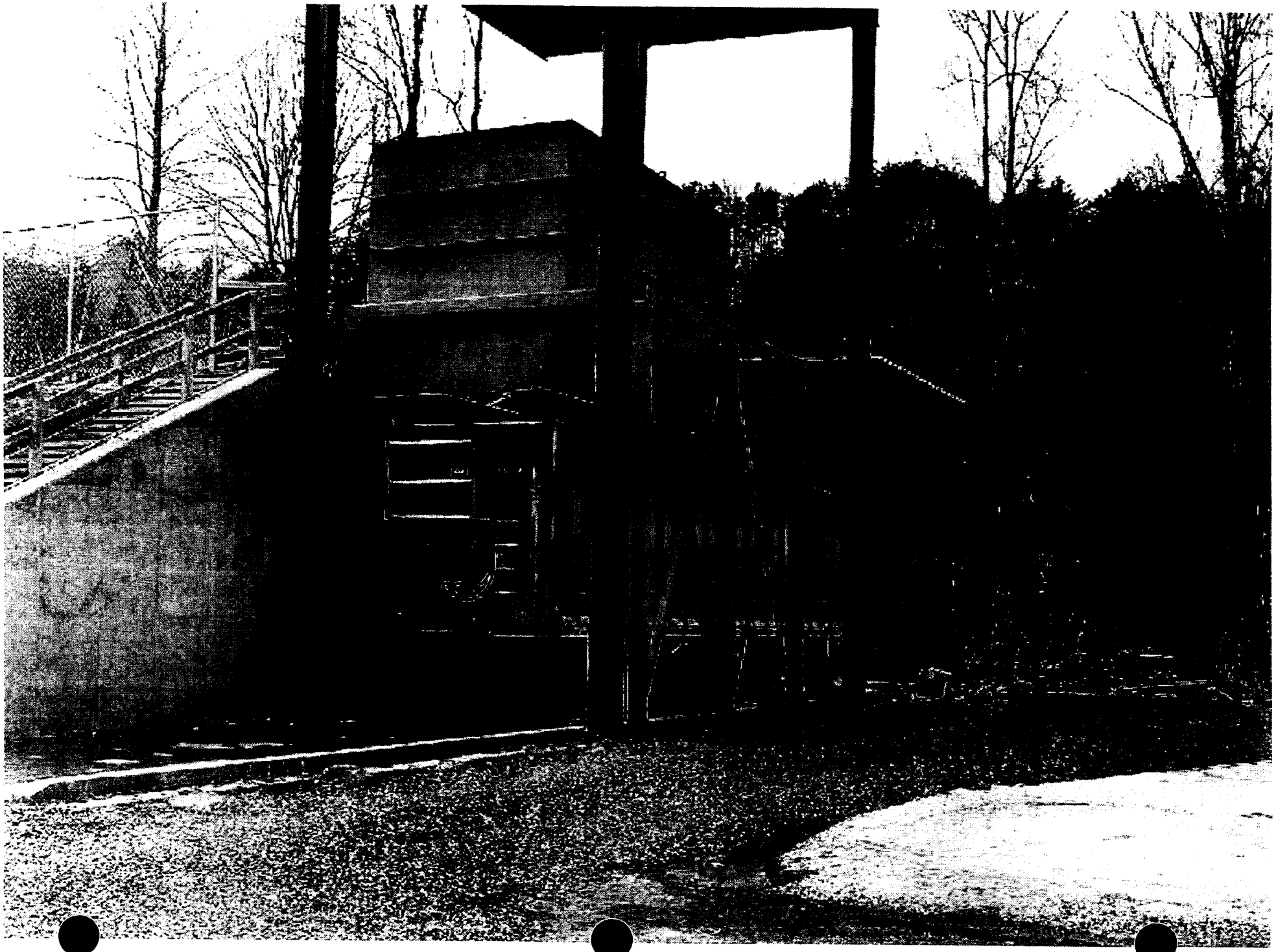
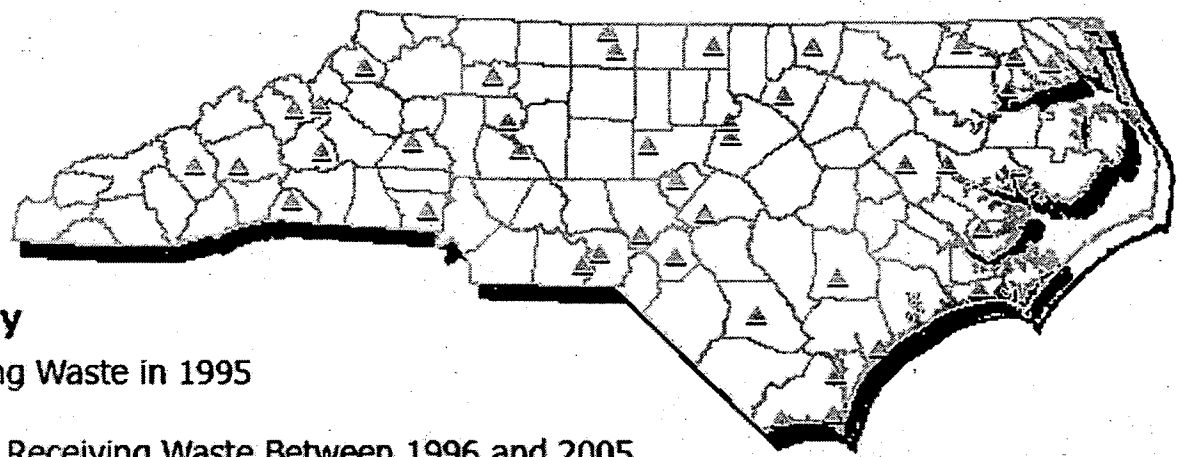
2023
2024
2025
2026





Transfer Station/Treatment and Mixed Waste Processing Facility Growth in North Carolina 1995 and 2005

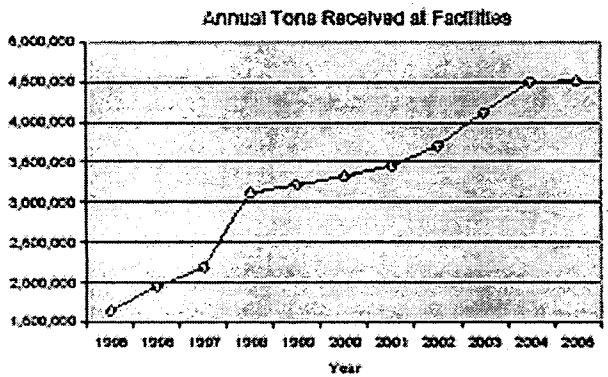


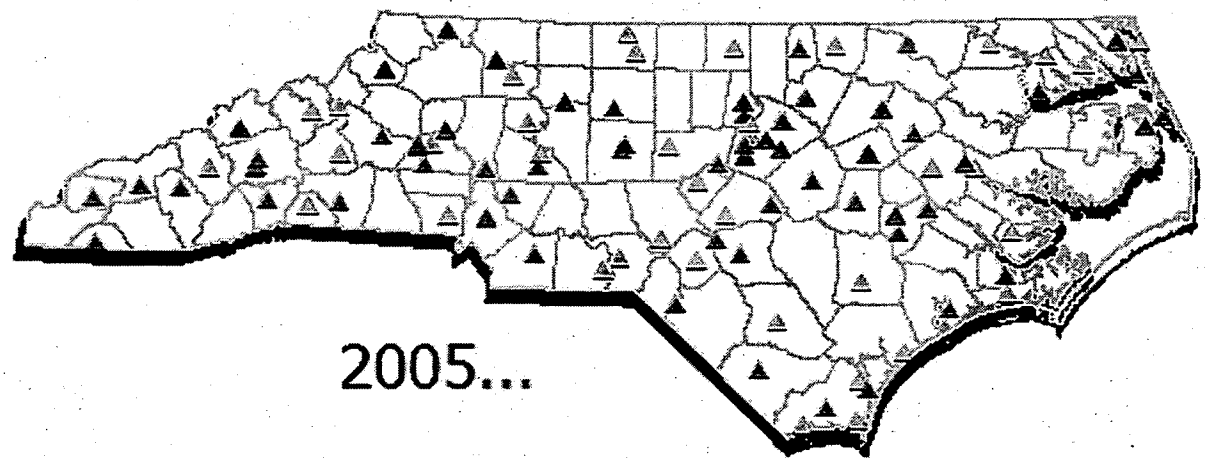
1995...

Facility

Recieving Waste in 1995

Started Receiving Waste Between 1996 and 2005

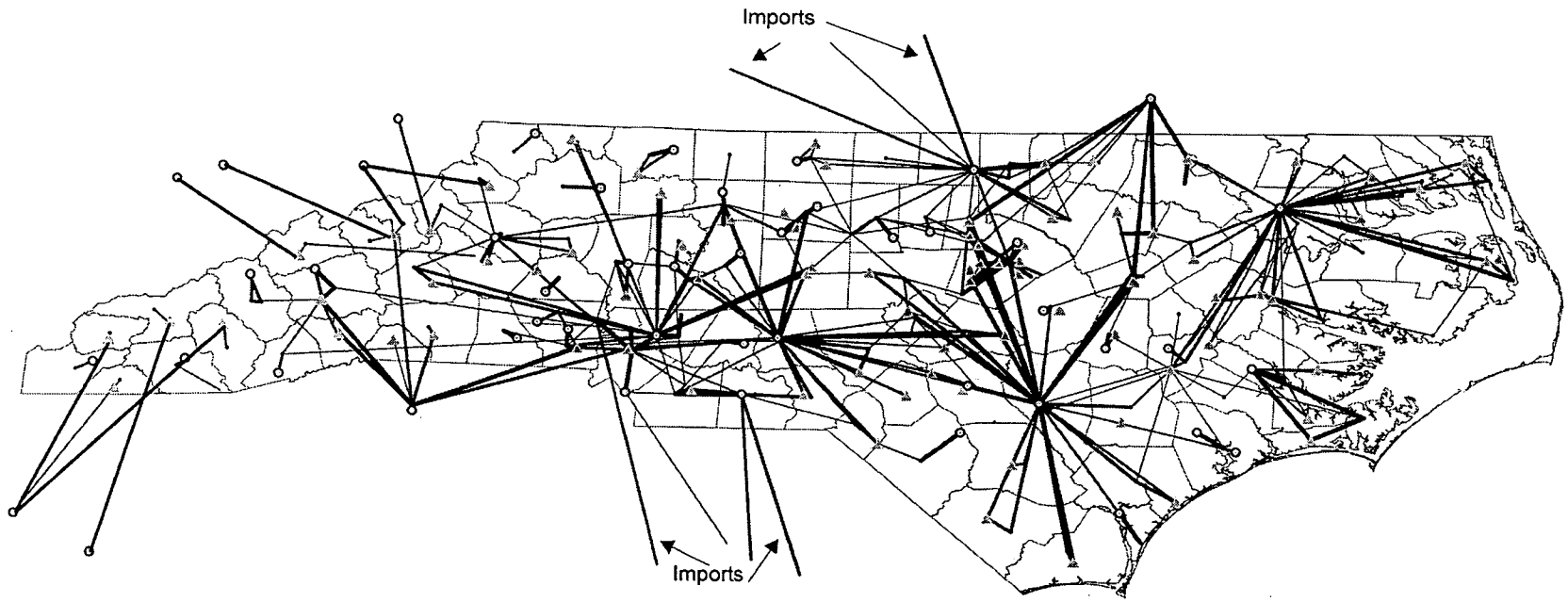




2005...

Created - 1-08-07
Data - North Carolina Division of Solid Waste Database
Map by - Garrett Davis and Environmental Finance Center - UNC Chapel Hill
Funding by - NCDENR

Wasteflows in North Carolina > 500 Tons
FY 2005 - 2006



Tons

- 502 - 3127
- 3128 - 12795
- 12796 - 29598
- 29599 - 62731
- 62732 - 859588
- Open Transfer Stations
- Open MSW Landfills

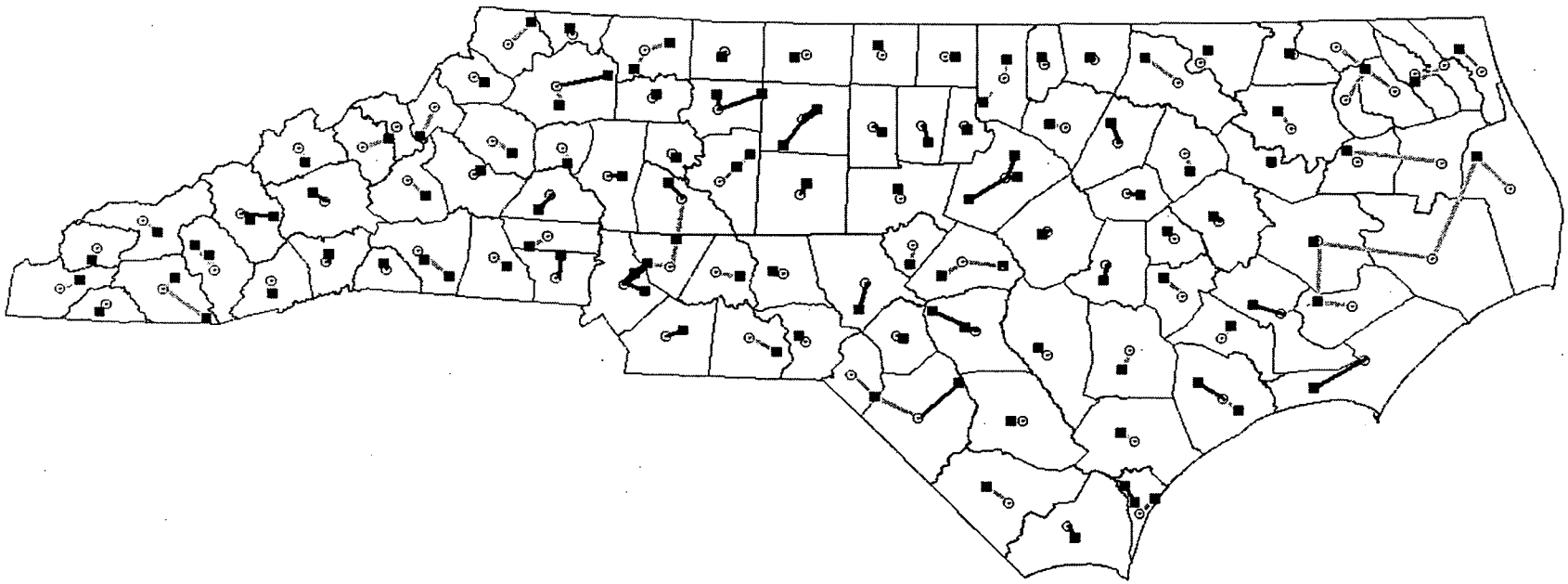
UNC
SCHOOL OF GOVERNMENT
ENVIRONMENTAL FINANCE CENTER

N

0 30 60 120 180 240 Miles

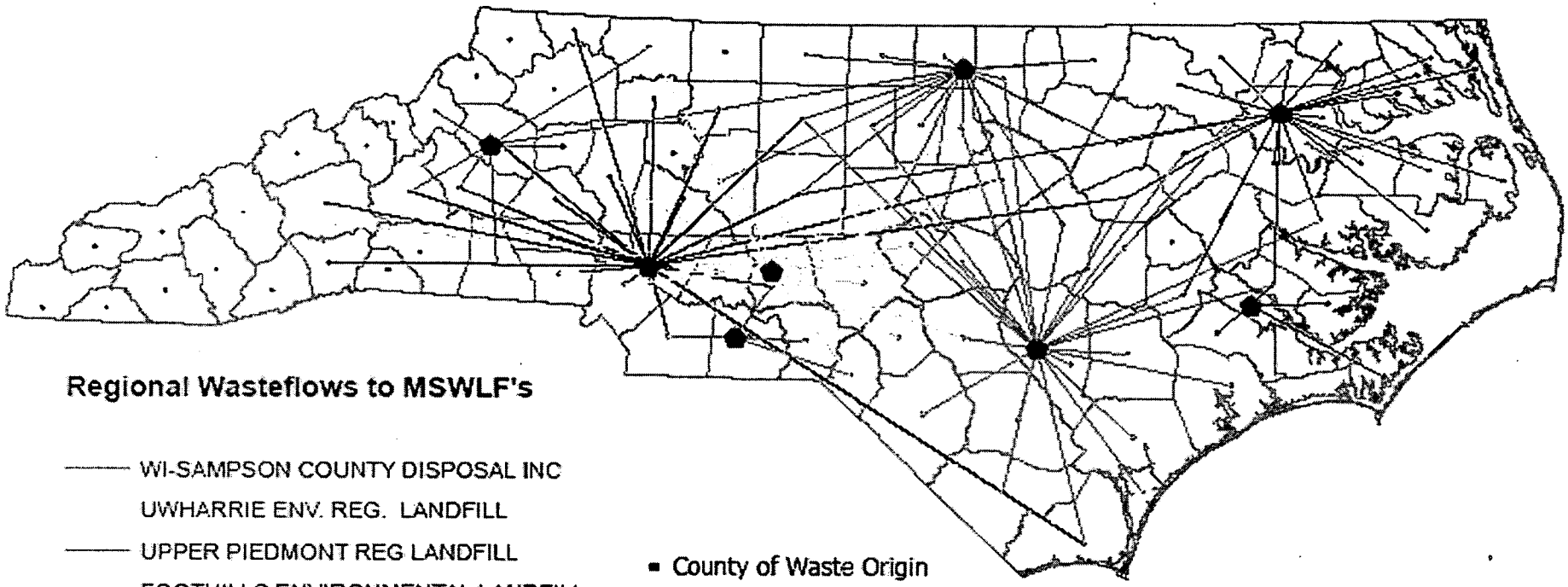
Map Produced March 1st, 2007 by Garrett Davis

Municipal Solid Waste Flow FY 1990-1991



Solid Waste Facilities
County Centers
Waste Flow
<1,000
1,000 to 70,000
70,000 to 280,000
>280,000

Wasteflows to Regional Landfills in North Carolina For FY 2005-2006



Regional Wasteflows to MSWLF's

- WI-SAMPSON COUNTY DISPOSAL INC
- UWHARRIE ENV. REG. LANDFILL
- UPPER PIEDMONT REG LANDFILL
- FOOTHILLS ENVIRONMENTAL LANDFILL
- EAST CAROLINA REG LANDFILL
- CRSWMA - LONG TERM REGIONAL LANDFILL
- CHAMBERS DEVELOPMENT MSWLF
- BFI-CHARLOTTE MTR SPEEDWAY LANDFILL V

▪ County of Waste Origin

Created - 1-08-07
Data - North Carolina Division of Solid Waste Database
Map by - Garrett Davis and Environmental Finance Center - UNC Chapel Hill
Funding by - NCDENR

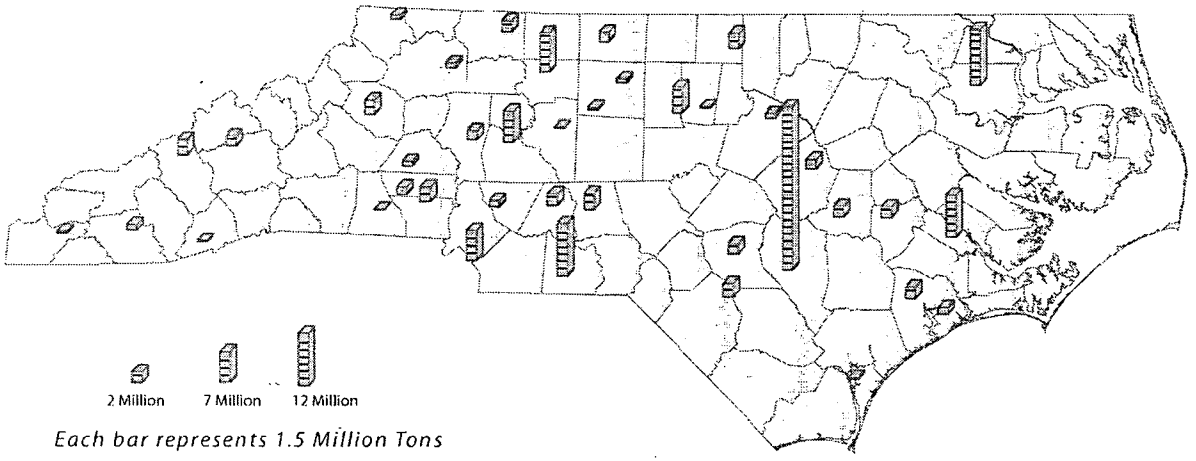
Actual Imports / Exports

	FY 1997-1998	FY 1998-1999	FY1999-2000	FY 2000-2001	FY 2001-2002	FY 2002-2003	FY 2003-2004	FY 2004-2005	FY 2005-2006
Imports	87,393	74,185	41,840	21,614	117,981	144,116	108,803	119,202	137,307
Exports	629,415	1,166,875	1,106,897	900,743	882,247	971,286	1,048,111	1,161,926	1,234,307

Fiscal Year

Capacity in North Carolina Landfills as of FY 2005-2006

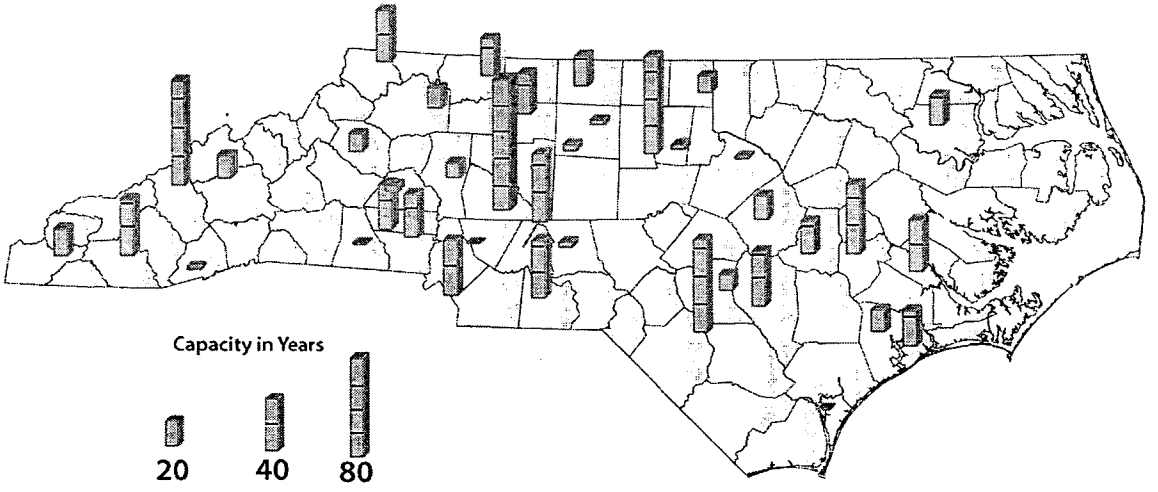
Total Capacity in Tons



Each bar represents 1.5 Million Tons

Capacity in North Carolina Landfills as of FY 2005-2006

Total Capacity in Years



Each bar represents 20 years

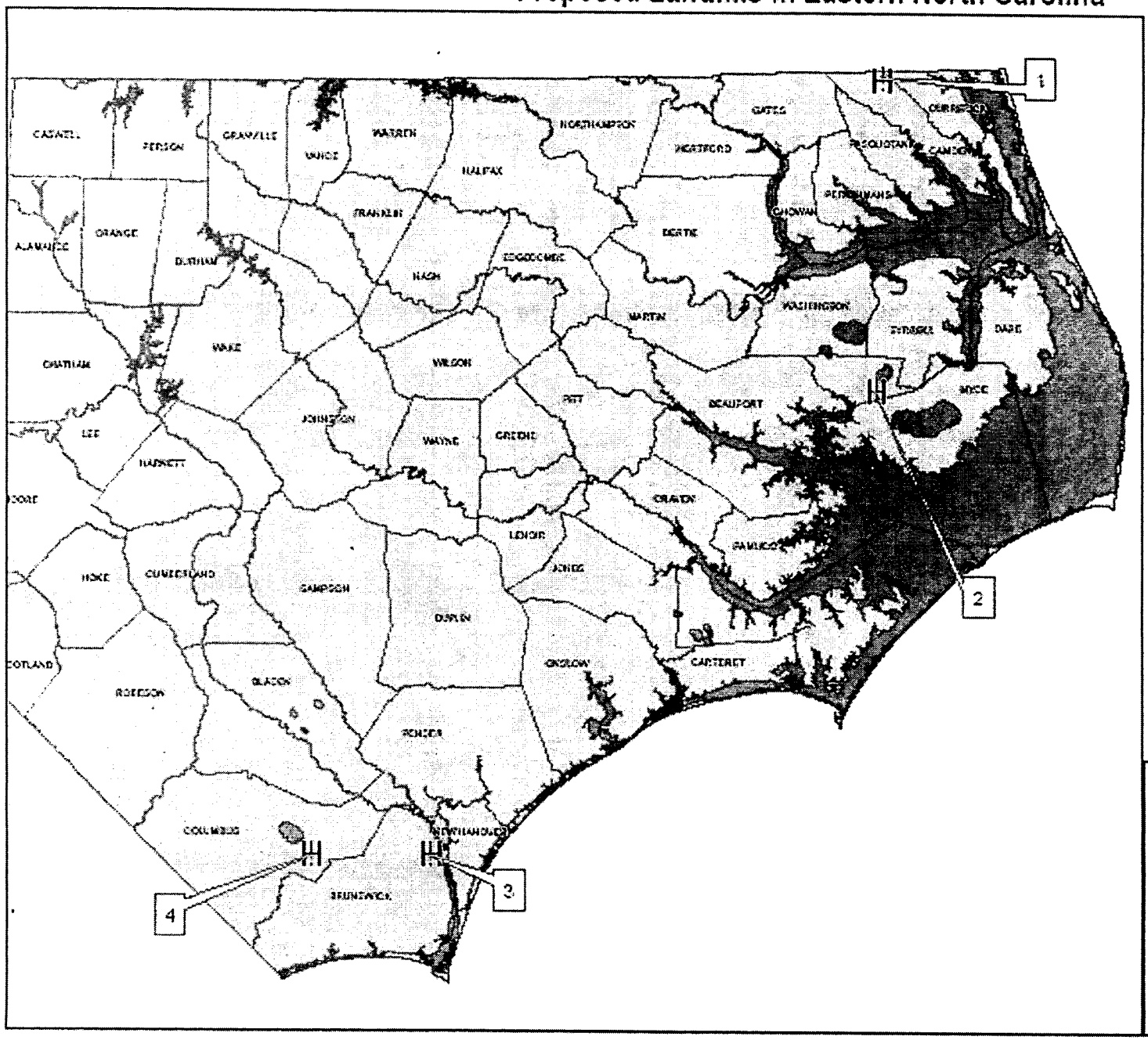
State-wide Municipal Solid Waste Landfills (MSWLF)

40 MSW Landfills currently operating
Average facility size: 316.92 acres
Average waste footprint: 76.48 acres
Average "tip" fee: $33.89
Average utilization factor: 0.58 tons/cubic yard
Average years in operation: 10.15 years

	Average	FY2005-2006	Total
MSW Disposed (tons)	6,608,556.96	7,910,640.27	67,076,853.11

	Used	Permitted	Planned
Volume (yd^3)	110,647,868.6	143,447,772	372,022,542
Remaining Volume		32,799,903.4	261,374,673.4
Remaining Capacity			
Tons of Waste		19,023,943.97	151,597,310.6
Years (average)		2.89	22.94
Years (FY05-06)		2.40	19.16

Proposed Landfills in Eastern North Carolina

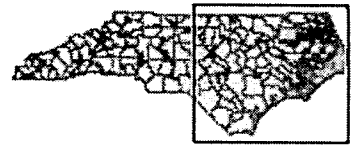


1. Black Bear, LLC
Waste Industries
(MSW Landfill)

2. Alligator River, LLC
(C&D Landfill)

3. North Carolina Resource Conservation, LLC
Sims Group USA Corp.
formerly HugoNEU
(Autofluff Recycler)

4. Riegel Ridge, LLC
Waste Management, Inc.
(MSW Landfill)

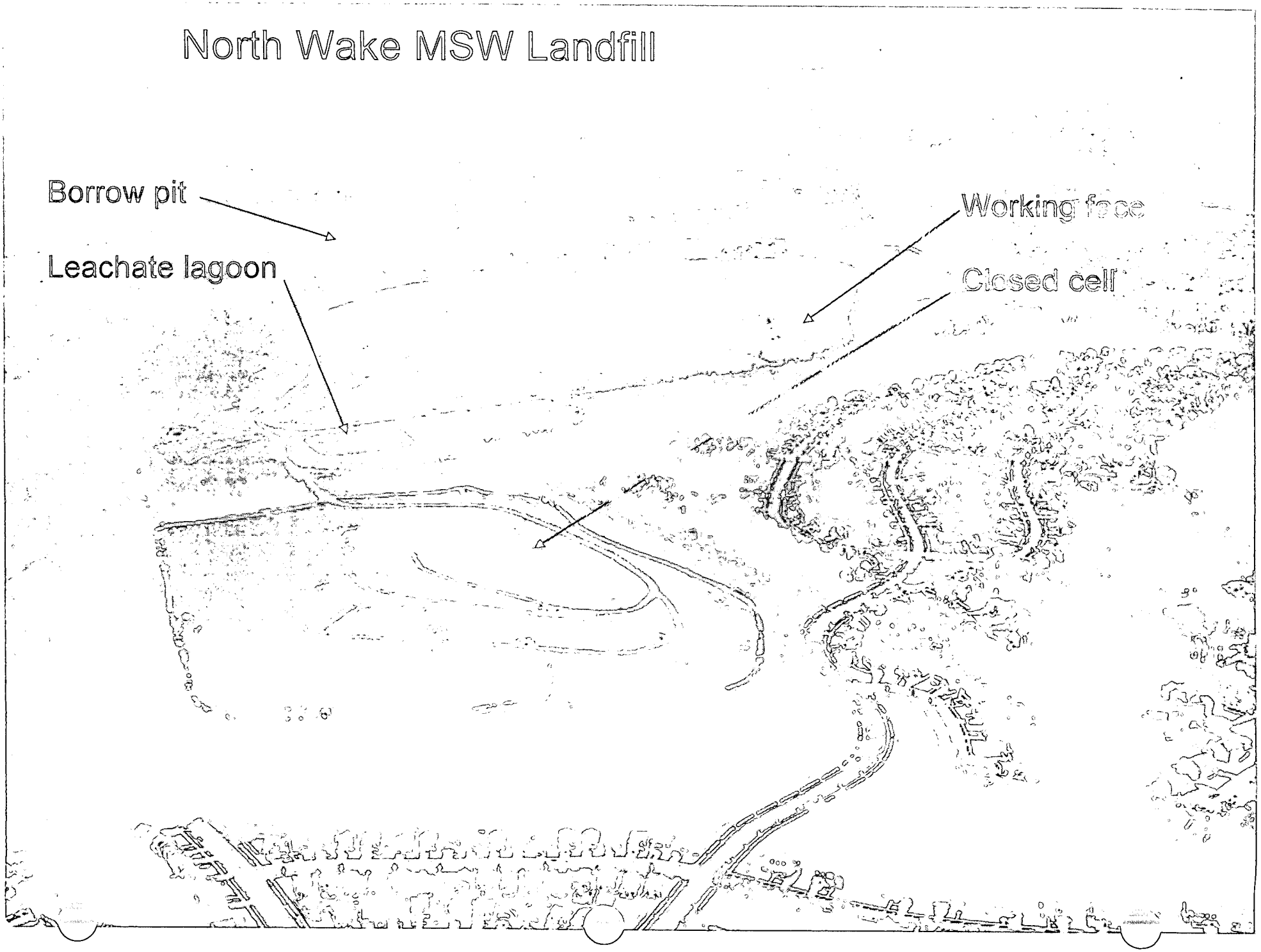


Forecast Imports / Exports

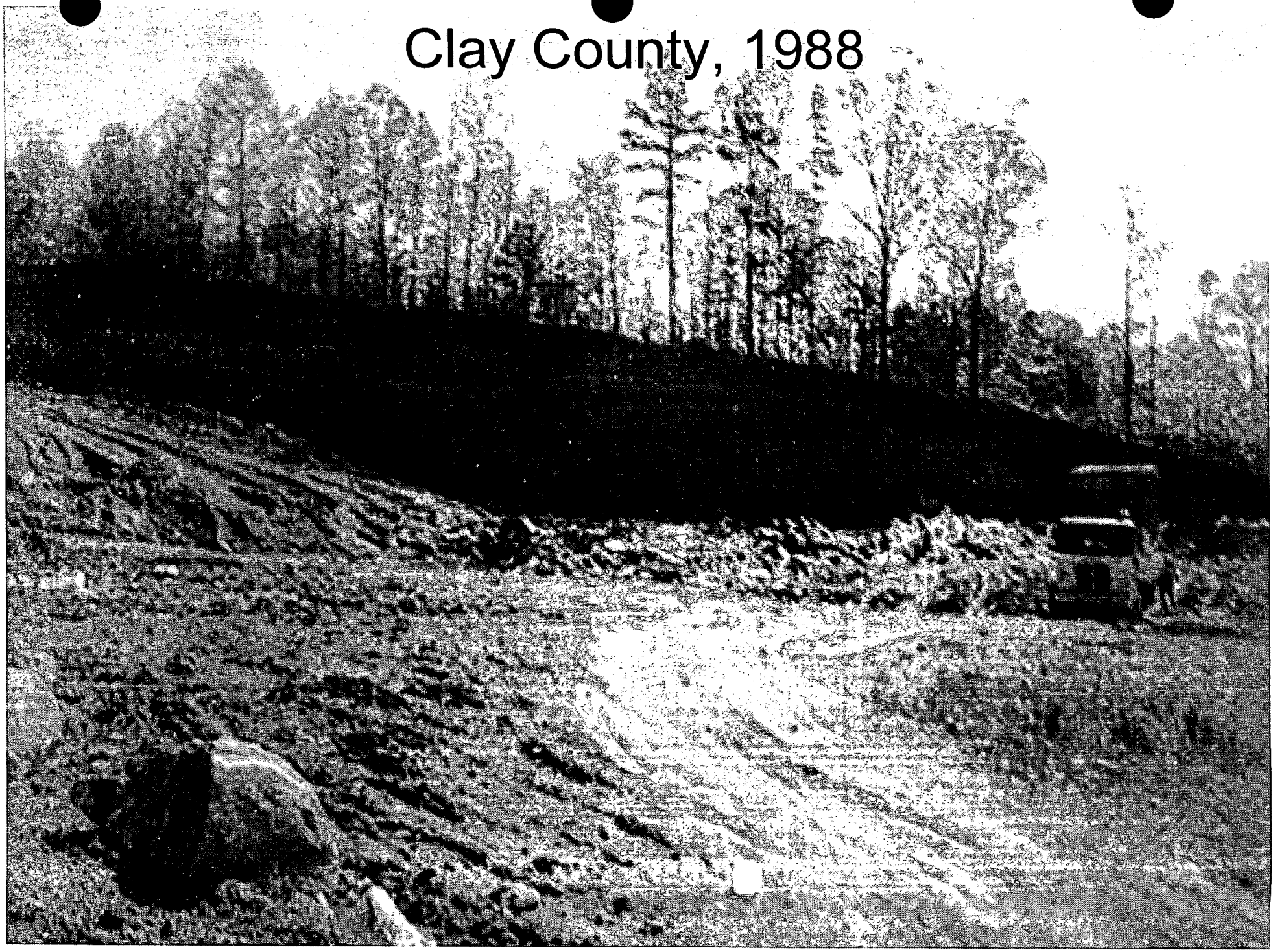
	FY 1997-1998	FY 1998-1999	FY1999-2000	FY 2000-2001	FY 2001-2002	FY 2002-2003	FY 2003-2004	FY 2004-2005	FY 2005-2006	Proposed
Imports	87,393	74,185	41,840	21,614	117,981	144,116	108,803	119,202	137,307	4,000,000
Exports	629,415	1,166,875	1,106,897	900,743	882,247	971,286	1,048,111	1,161,926	1,234,307	

Fiscal Year

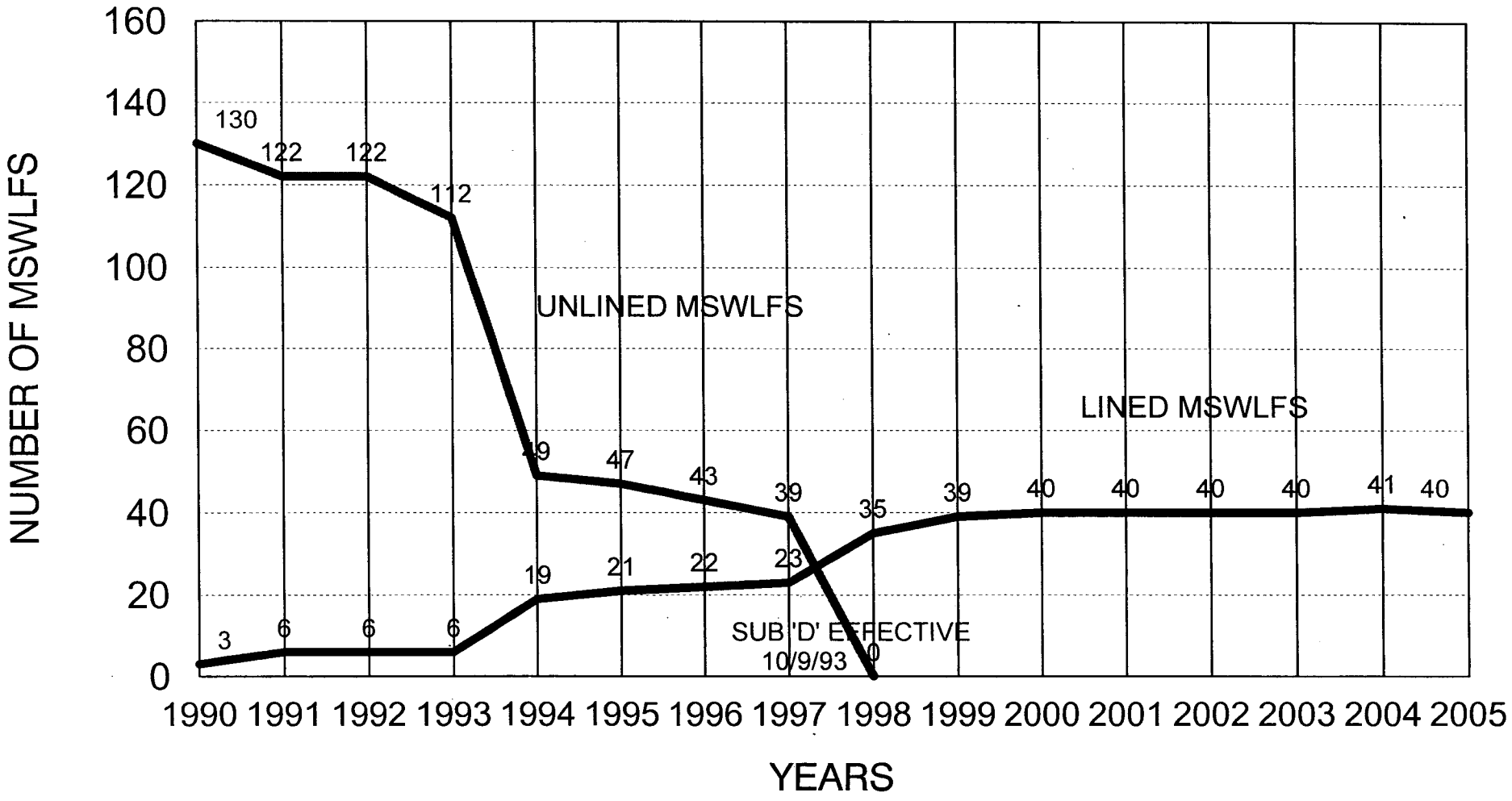
North Wake MSW Landfill



Clay County, 1988

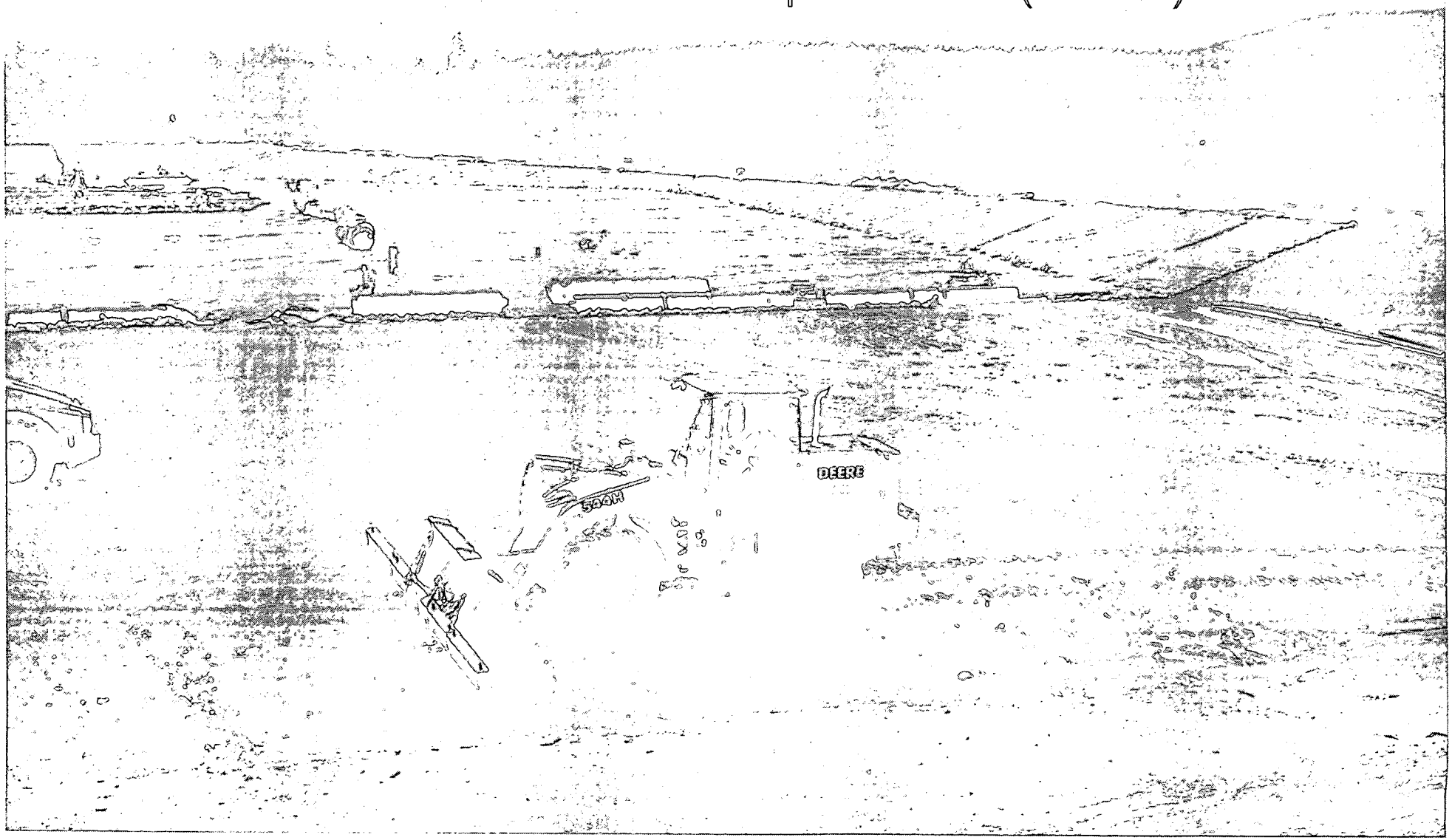


STATUS OF MSWLFS IN NORTH CAROLINA



State lined landfill requirements (the 98 rule)

Federal Sub-title D Landfill requirements (RCRA)

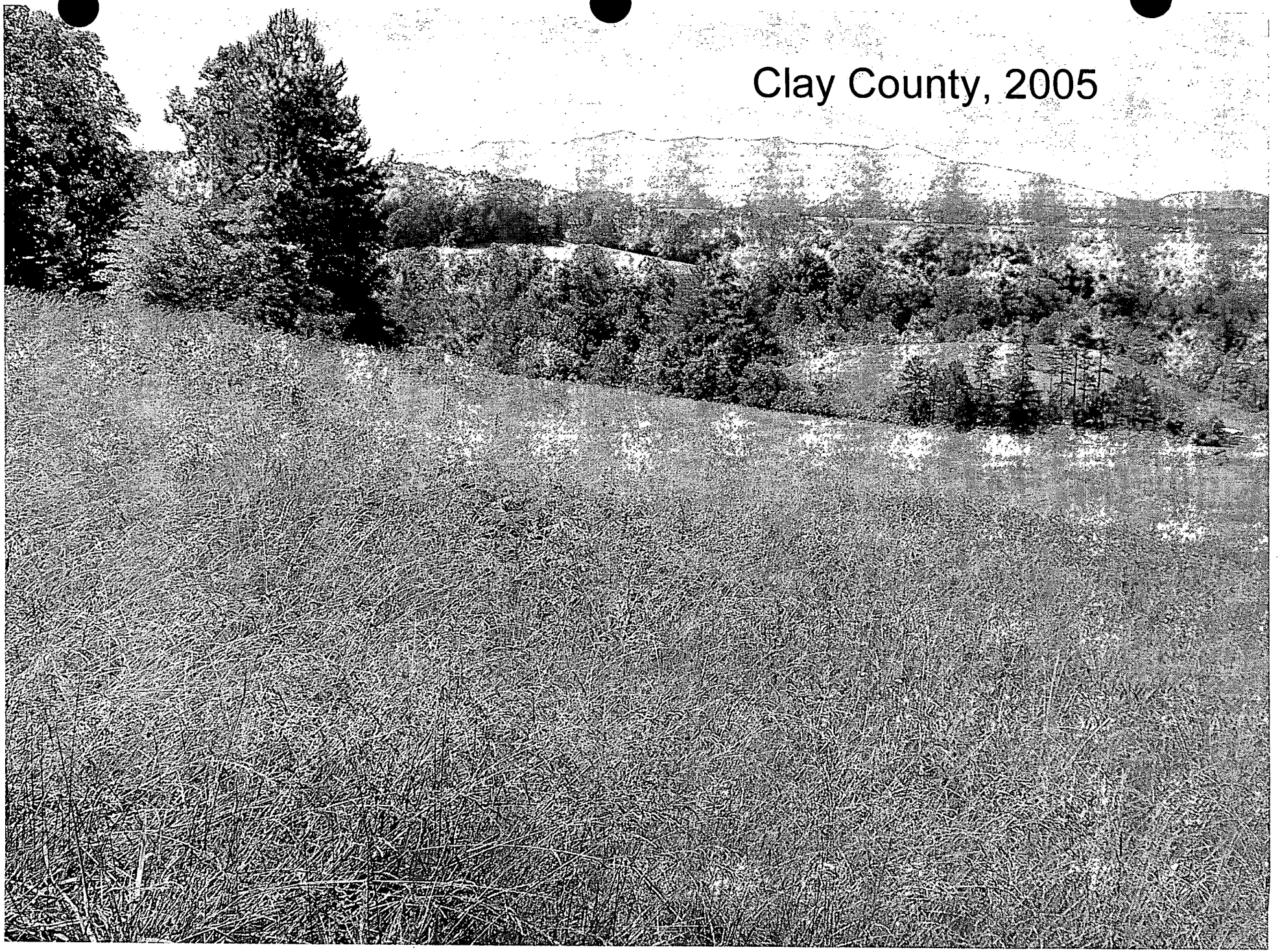


Solid Waste Management Act of 1989

Established:

- Reporting requirements
- Planning requirements
- Landfill bans
- New programs
- Set goals and policies

garbage barge from New York City


Clay County, 2005

Summary
Issue Identification

- Increasing amount of waste
- Use of new/different facilities
- State regulatory staffing reductions
- Mobility of waste/inter-state movement
- Large in-state regional facilities
- Landfill ownership transfer
- Capacity (distribution & lack of acceptance)
- New landfills proposed for primarily out-of state waste
- Landfills proposed in areas not previously anticipated
- Legacy of old landfills

Proposed legislation for 2007

1. Strengthen **financial/environmental qualifications** review
2. Strengthen **financial assurance** associated with landfill ownership
3. Clarify landfill **owner definition** and **ownership transfer** notification
4. Strengthen **state enforcement** measures
5. Improve/strengthen landfill requirements for the ***next generation*** of landfills
6. Improve/strengthen performance of **current landfills**
7. Require **environmental studies** for large facilities
8. Fund state regulatory **staff expansion** through permit fee
9. Fund **clean up of orphan landfills** through fee on solid waste disposal

*Landfill requirements based on: experience in North Carolina, new technologies, need to provide improved protections to the public

Solid Waste in North Carolina
The Future:

More of the Same

(Probably continue to have more and more waste)

Yet Very Different

(Probably become one of the nation's leading importers of waste)

Paul Crissman
Solid Waste Section
Division of Waste Management
Department of Environment and Natural Resources
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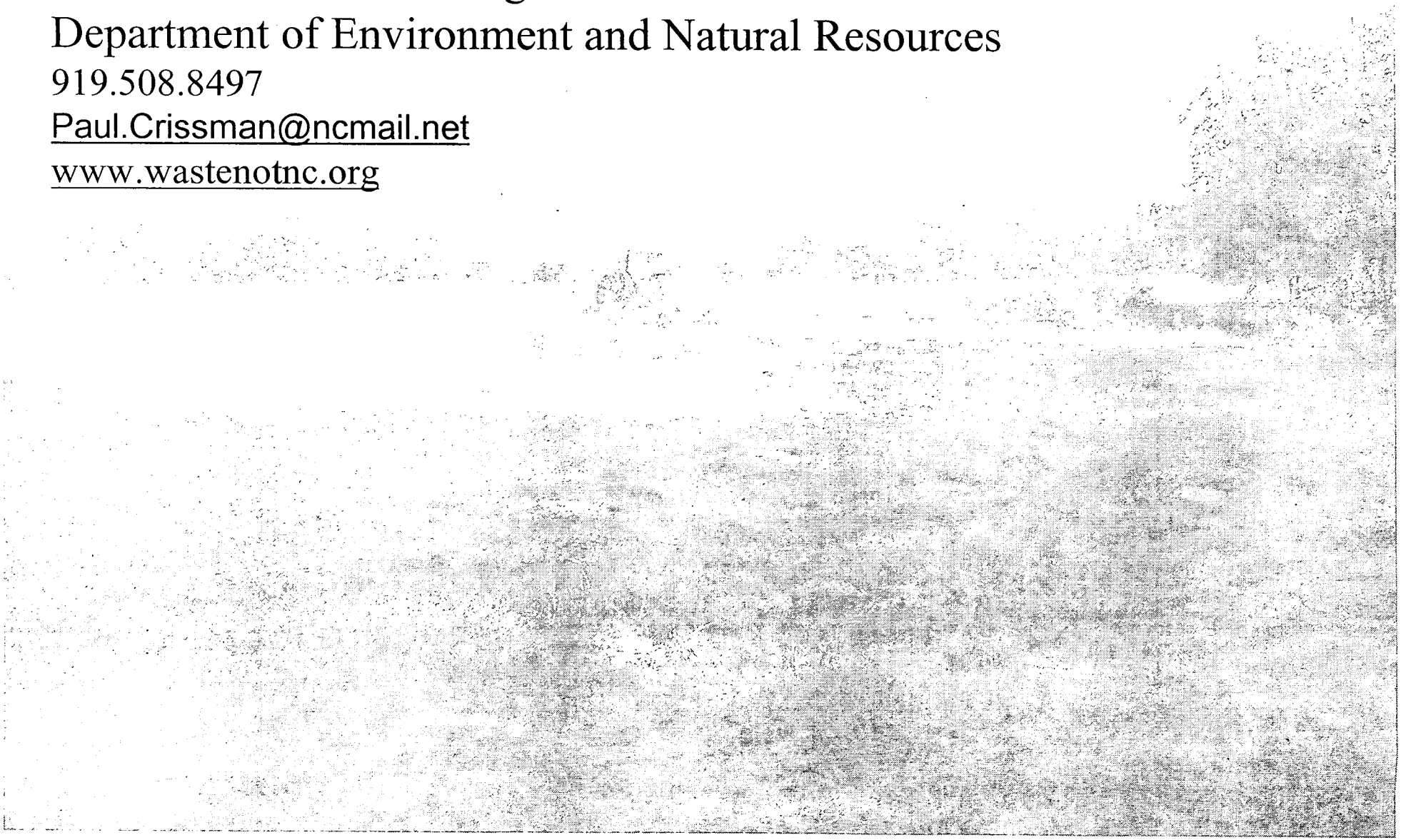
Paul.Crissman@ncmail.net
www.wastenotnc.org



Status of Recycling and Recycling Markets in North Carolina

Environmental Review Commission
6/11/2007

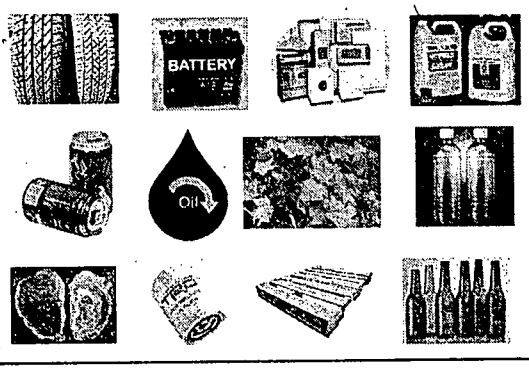
What is the goal?

Solid Waste Management

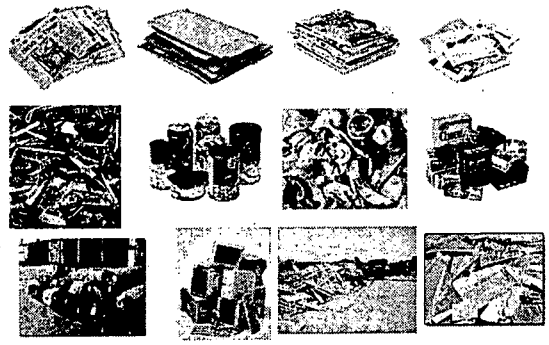
Versus

Materials Management

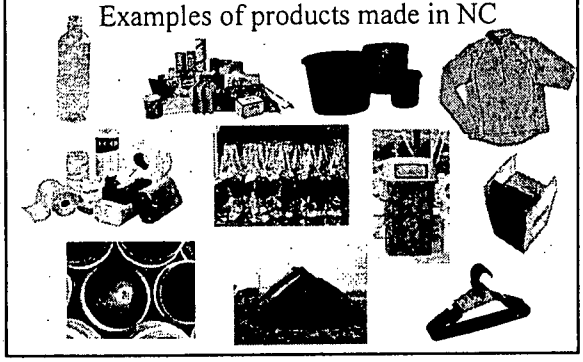
Which of these things are "waste?"



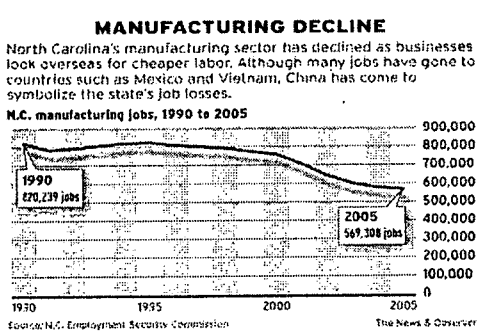
Which of these materials are "waste?"



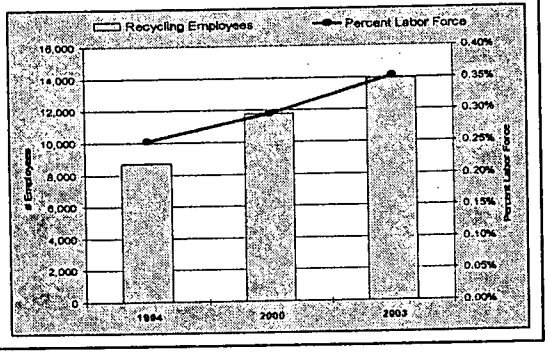
Recycling Essential to NC Manufacturers – Examples of products made in NC



Jobs



Growth in Recycling Jobs in NC



Examples of Recyclers in NC

- Nucor – largest recycler in the U.S.
- Envision Plastics – second largest HDPE recycler in the U.S.
- Union Gypsum – recycler of wallboard into soil products
- Brooks Contractors – turns food wastes and other organics into compost
- Synergy – recycler of wide range of electronics
- Curbside Management – fast growing small company providing curbside services in western NC
- Owens-Illinois – uses recycled glass to make new bottles

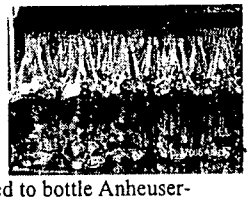
What's going to the landfill in NC?

- 87,000 tons of plastic bottles
- 50,000 tons of electronics
- 700,000 tons of wood and pallets
- 1.26 million tons of recyclable paper
- 200,000 tons of glass bottles
- 95,000 tons of aluminum and steel cans
- 300,000 tons of wallboard
- 1.2 million tons of food waste
- Etc.

Market value of disposed materials

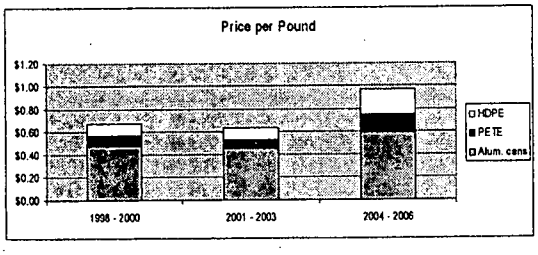
- Aluminum cans – over 25,000 tons disposed at a market value of ***$30 million/year.***
- Plastic bottles – 87,000 tons disposed at a market value of ***$40 million/year.***
- Paper – over 1.2 million tons disposed at a market value of ***$50 million/year.***

Glass recycling in NC



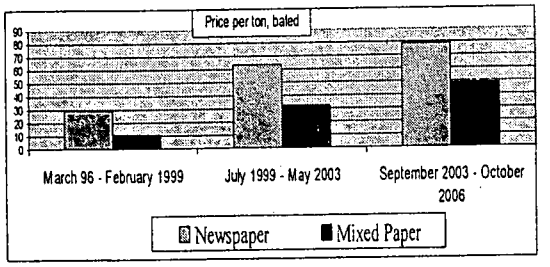
- Three glass plants in NC.
- Manufacturer containers used to bottle Anheuser-Busch and Miller products.
- Plants could use twice as much "cullet" as currently receiving.
- ABC Commission recycling requirements will increase cullet supply.
- Increase curbside and drop-off recovery will also increase supply.

Historical Prices on Container Materials



Recycling Market Prices since March 1996

Prices per ton received by major processors in NC from mills



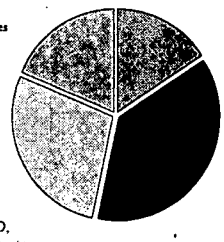
Local recycling programs

- Recycling rates growing slowly, huge potential.
- Communities that modernize programs see results:
  - Kernersville tonnage up 45%
  - Brevard recycling program cheaper than garbage collection and disposal
  - Wake Forest participation rates up to 97%
  - Raleigh tonnage up 30% in two years.
  - Chowan/Perquimans/Gates counties enjoying a $79/ton benefit for every additional ton recycled
- Local governments need motivation/incentives to improve programs.

Private recycling efforts

- Tremendous growth in private recycling sector.
- Commercial, industrial and C&D waste streams still contain large amounts of recyclables, for example.:
  - Over 150,000 tons per year of office paper
  - 300,000 tons per year of metal in the C&D waste stream
  - 60,000 to 100,000 tons of glass in bars and restaurants
  - 150,000 tons of compostable food waste in supermarkets per year.
- Generators, haulers, and recyclers need motivation/incentives to increase recycling.

North Carolina Waste Diversion Potential



Disposables
Diapers, fines and misc. organics, treated lumber, etc.

Traditional recyclables
Paper, bottles & Cans, etc.

Materials with some diversion potential
Furniture, Some C&D, some industrial waste, etc.

High Potential Materials
Wood waste, Food waste, electronics, some C&D, film plastics, etc.

With the right programs, incentives, and funding in place, over half of North Carolina's waste stream is divertable from disposal.

Best kind of policy approach for waste reduction

Mandates

+

Incentives/Funding

+

Enforcement

turning knowledge into practice

A Study of the Costs Associated with Providing Nutrient Controls that Are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients

Presented by
Michael P. Gallaher
Dallas W. Wood
RTI International

Presented at
Legislative Office Building
June 11, 2007
Raleigh, NC

RTI INTERNATIONAL
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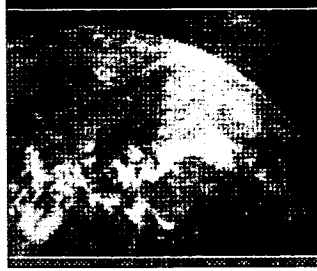
Phone 919-541-5935 Fax 919-541-6683 E-mail mpg@rti.org

RTI International is a trade name of Research Triangle Institute

EXHIBIT G

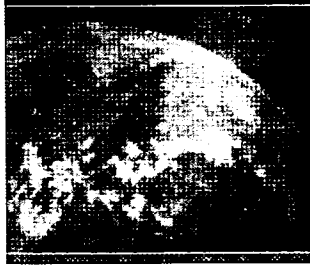


Study Overview

- Study is being prepared for:
  - Environmental Review Commission with the approval of the Legislative Services Commission

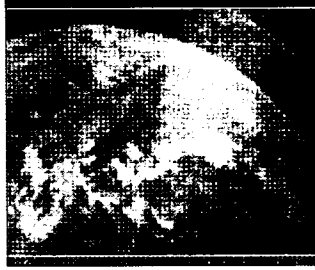
- Project activities and reporting schedule:

• First stakeholders meeting	March 2, 2007
• Draft report	April 30, 2007
• Second stakeholders meeting	May 4, 2007
• Final report	June 1, 2007
• Presentation to General Assembly	June 11, 2007



Project Team

- RTI International
  - Michael Gallaher
  - Randy Dodd
  - Kim Matthews
  - Dallas Wood
- Center for Watershed Protection
  - Tom Scheuler
  - Anne Kitchell
- Bill Hunt (NCSU)



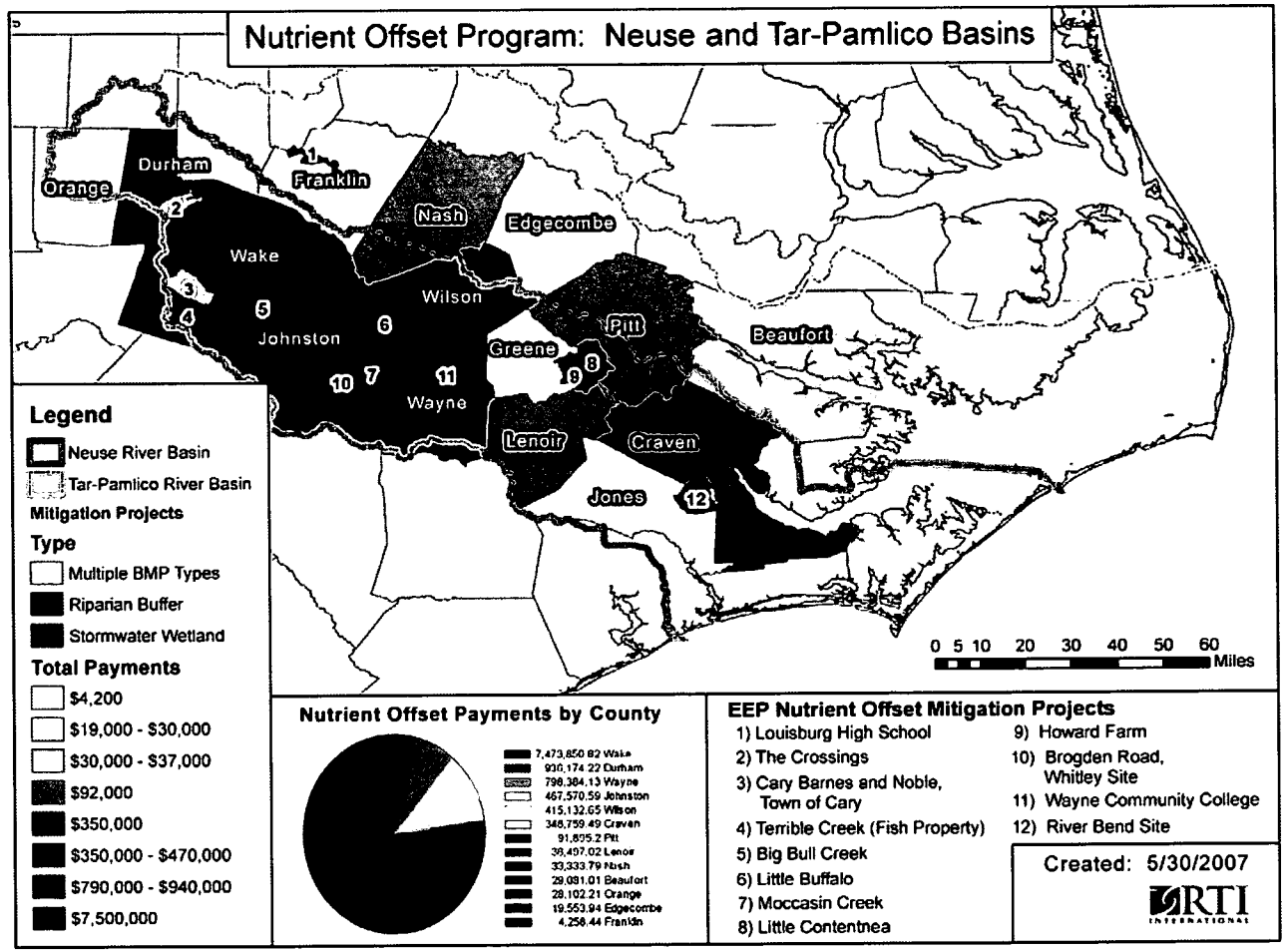
Presentation Outline

- Historical Background of Nutrient Offset Payment Program
- Discussion of 6 Project Objectives
- Financial Analysis Methods and Policy Scenarios
- RTI's Data Collection Efforts
- Findings are Recommendations for the Objectives
- Caveats and Future Research

Historical Background: The Nutrient Offset Payment Program

- Nutrient Offset Fee Payment Program (NOFPP): The NOFPP is administered by the Ecosystem Enhancement Program (EEP).
- Funds paid by excess dischargers are used to construct nutrient controls within the river basin that offset the excess nutrients they discharge.
- The majority of current NOFPP projects are riparian buffer restoration projects in the Neuse River Basin.

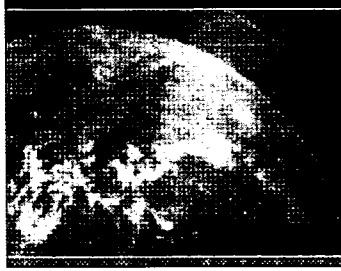
Historical Background: EEP Projects Pursued



RTI INTERNATIONAL

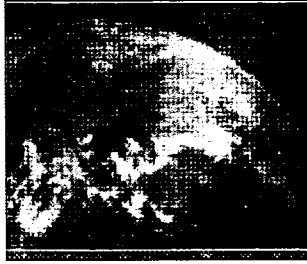
Historical Background: Proposed Amendments

- In 2006, several changes to the original 1998 payment rules were proposed to better reflect the true costs of mitigation and to expand the program to new river systems. These changes included the following:
  - Raising the nitrogen offset fee from $11 to $57 per pound per year,
  - Expanding the NOFPP to the Tar-Pamlico River Basin, and
  - Creating a nutrient offset program for phosphorous in the Tar-Pamlico River Basin.



Project Objectives

- The objectives of this study include the following:
  - Objective 1: Evaluate the sustainability of the program at the current fee of $11 per pound of nitrogen
  - Objective 2: Develop a proposed fee based on the cost-effectiveness analysis
  - Objective 3: Develop a formula for calculating the offset payment fee
  - Objective 4: Assess the advantages and disadvantages of expanding the nutrient offset payments to other nutrients and additional areas of the state
  - Objective 5: Evaluate the ability of public (other than the EEP) and private entities to provide nutrient offsets
  - Objective 6: Develop a comprehensive review of potential nutrient mitigation efforts available



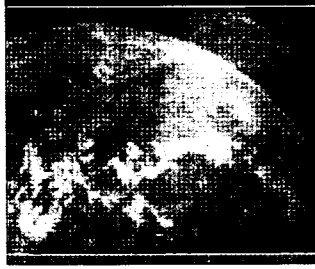
Financial Analysis: Description

Because of the cost differences across different projects, RTI needed to forecast the **distribution** of project types to be used in each of these analyses:

- ***Scenario A: All Buffers.*** The EEP implements exclusively riparian buffers on land obtained through conservation easements and purchased land.

  Scenario B: Integrated Implementation. In addition to buffers, the EEP pursues a number of stormwater wetland offset projects to target integrated environmental objectives. This results in higher costs per pound of nitrogen and phosphorous.

- ***Scenario C: All Stormwater Wetland Retrofit.*** The EEP does not undertake any buffer projects and instead installs all stormwater wetland projects, which again enables offset projects to be implemented closer in proximity (e.g., in local watersheds) to where development is occurring, and again increasing the costs per pound of nitrogen and phosphorous.



Financial Analysis: Potential Policy Scenarios

Scenario/BMP	BMP Share	Land Cost	Design Cost	Construction Cost	Maintenance Cost
Scenario A: All Buffers					
Riparian buffers	100%	√	√	√	√
Scenario B: Integrated Implementation					
Riparian buffers	70%	√	√	√	√
Stormwater wetlands[a]	5%		√	√	
Stormwater wetlands	25%	√	√	√	√
Scenario C: All Stormwater Wetlands					
Stormwater wetlands[a]	5%		√	√	
Stormwater wetlands	95%	√	√	√	√

√ = EEP assumes full cost.

[a] Local municipalities donate land and assume maintenance costs.

Data Collection: Description

- Any nutrient offset fee chosen by policy makers will ultimately have to cover the costs of pursuing the various BMPs required to offset the nutrient emissions of nonpoint sources.
- Therefore, understanding and obtaining cost data for various BMP projects became the focus of RTI's data collection efforts.
- RTI interviewed 37 stakeholders. Of those interviewed, 8 provided detailed BMP cost information.

Data Collection: Data Sources

BMP Type	Number of Projects	Data Sources
Riparian Buffers	8	Provided by private-sector firms that constructed riparian buffers for the EEP. These projects were primarily located in the Piedmont and inner Coastal Plain regions of the state.
Stormwater Wetlands	17	Provided by academics in North Carolina State University's Water Quality and Stormwater Engineering Groups and engineers working for the city of Charlotte's Storm Water Services. These projects were scattered across the state but were primarily located in the state's Piedmont and Coastal Plain regions.
Large Bioretention Areas	12	Provided by academics in North Carolina State University's Water Quality and Stormwater Engineering Groups as well as individuals working for the North Carolina Department of Transportation and the town of Garner. These projects were scattered across the state but were primarily located in the state's Piedmont and Coastal Plain regions.
Wetponds	9	Provided by academics in North Carolina State University's Water Quality and Stormwater Engineering Groups. These projects were scattered across the state but were primarily located in the state's Piedmont and Coastal Plain regions.

Data Collection: BMP Cost Components

- **Land** costs are incurred in obtaining access to or purchasing the land where the BMP will be placed.
- **Design costs** are fees associated with the designing and engineering the BMP. Design costs for a typical mitigation project are about 32% of construction costs
- **Construction** costs relate to the actual time, labor, capital, and materials used in designing and constructing the BMP; for example, the costs of constructing level spreaders on a riparian buffer.
- **Maintenance** costs are incurred in repairing, maintaining, and monitoring the BMP after it is constructed. For this analysis, we assumed a 30-year maintenance period, which corresponds to the offset fee formula.

Data Collection: BMP 30 year costs

Restoration Expenditures = Land costs +

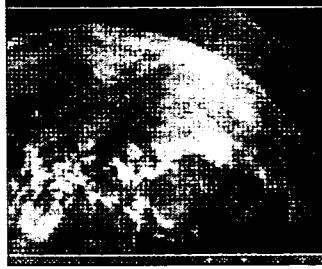
Installation costs +

Maintenance costs

Restoration Expenditures = One time costs +

$\sum$ (annual costs)

Restoration Expenditures = Present Value (costs)



Data Collection: BMP Cost Data Summary

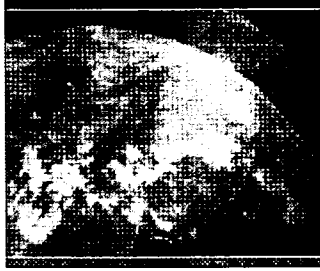
Mean Expenditures by BMP Cost Category ($/lb-N per 30 year)

BMP	Land Cost		Design Cost	Construction Cost	Present Value of 30-Year Maintenance Cost[a]	Total	
	Neuse	Tar-Pamlico				Neuse	Tar-Pamlico
Riparian buffers	$11.63[b]	$7.01	$1.95	$5.75	$2.04	$21.4	$16.8
Stormwater wetlands	$25.85[c]	$22.43	$14.38	$32.08	$9.68	$82.0	$78.6
Large bioretention areas	$71.18[c]	$61.77	$129.83	$329.69	$43.55	$574.3	$564.8
Wet Ponds	$43.94[c]	$38.13	$41.85	$130.79	$47.43	$264.0	$258.2

[a] Present value calculations use a discount rate of 5%.

[b] Based on average rural area land price. Prices are slightly higher in the Neuse compared with the Tar-Pamlico.

[c] Based on average low-density urban land price. Prices are slightly higher in the Neuse compared with the Tar-Pamlico.



Data Collection: BMP Cost Data Summary (cont.)

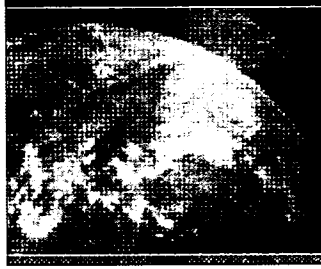
Mean Expenditures by BMP Cost Category ($/0.10 lb-P per 30 year)

BMP	Land Cost		Design Cost	Construction Cost	Present Value of 30-Year Maintenance Cost[a]	Total	
	Neuse	Tar-Pamlico				Neuse	Tar-Pamlico
Riparian buffers	$18.06[b]	$10.89	$3.03	$8.93	$3.17	$33.2	$26.0
Stormwater wetlands	$25.06[c]	$21.75	$10.71	$20.98	$8.91	$65.7	$62.3
Large bioretention areas	$46.96[c]	$40.75	$86.87	$221.30	$30.48	$385.6	$379.4
Wet Ponds	$23.29	$20.21	$28.12	$87.87	$26.08	$165.4	$162.3

[a] Present value calculations use a discount rate of 5%.

[b] Based on average rural area land price. Prices are slightly higher in the Neuse compared with the Tar-Pamlico.

[c] Based on average

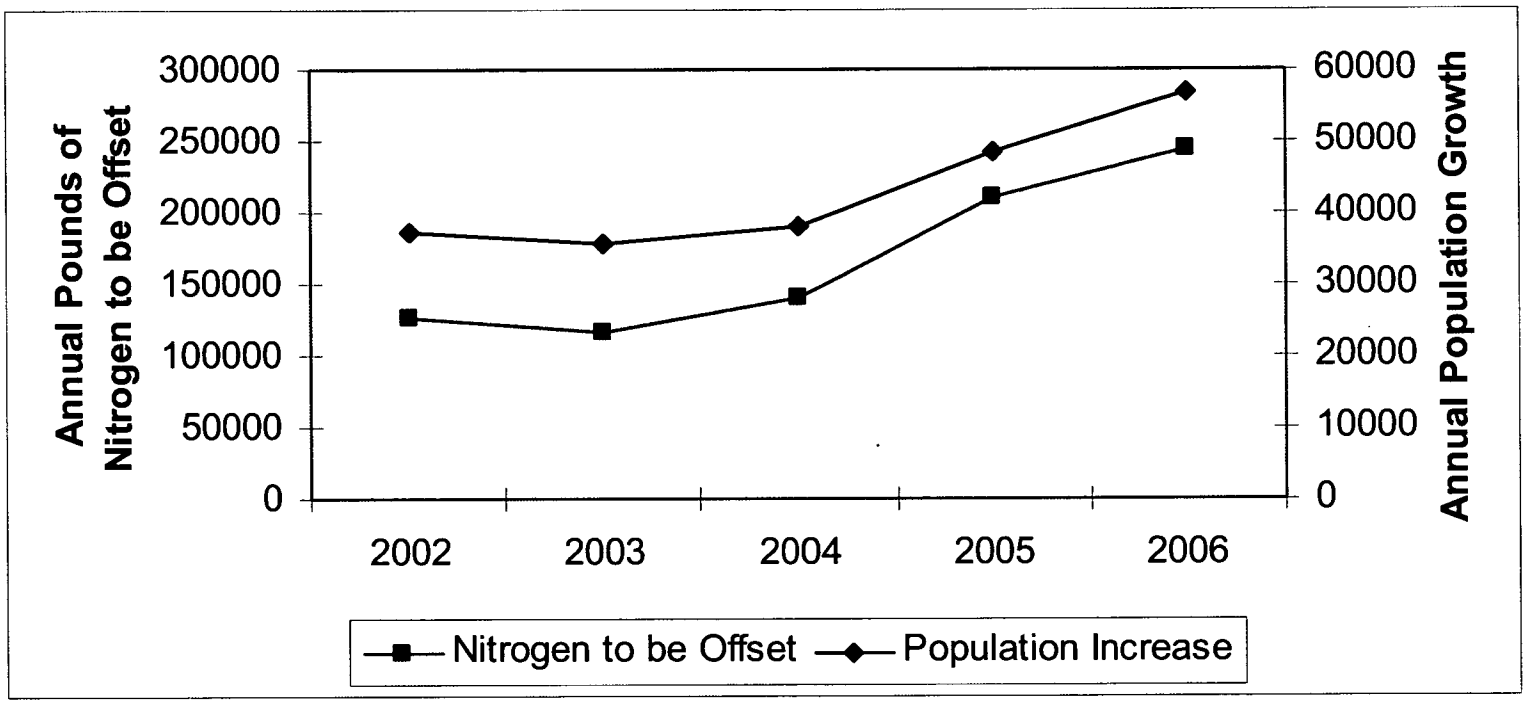


Data Collection: Additional Data Components

- In addition to the BMP cost data that RTI collected through stakeholder interviews, other data components were acquired to complete our financial analysis. These components included:
  - Forecasted demand for nutrient offsets
  - Amount of land available for riparian buffer projects
  - Estimated land costs in Neuse and Tar-Pamlico river basins ($/acre)
  - Estimate growth rates for land, design, construction, and maintenance costs

Data Collection: Forecasted Demand for Nutrient Offsets

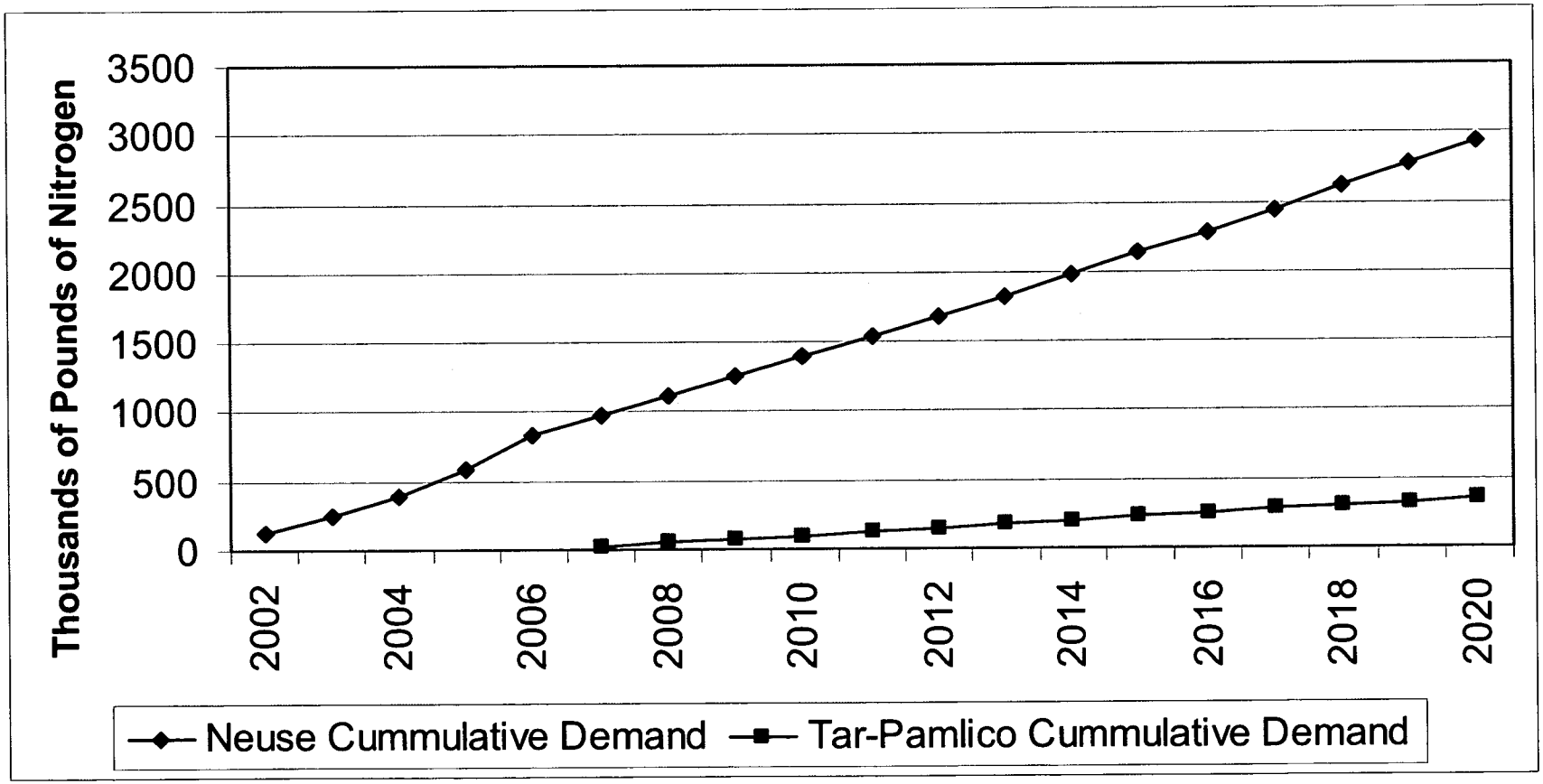
Nutrient Offset Demand and Annual Population Growth in the Neuse River Basin: 2002–2006



Between 2002 and 2006, every new person entering the Neuse River Basin was associated with an average of 3.9 new pounds of nitrogen needing to be offset.

Data Collection: Forecasted Nutrient Offset Demand (cont.)

Forecast of Cumulative Nitrogen Offset Demand in Neuse and Tar-Pamlico River Basins to 2020.



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Data Collection: Land Available for Riparian Buffer Projects

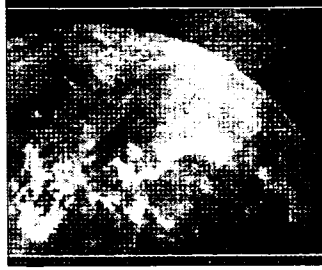
Distribution of Land within 50-Foot Buffer, by River Basin

Description	Neuse Area	Tar-Pamlico Area
Open Water	10,973	8,757
Developed	5,040	2,980
Barren	552	683
Forest Cover	24,748	21,486
Grassland	8,384	8,147
Cultivated Crops	7,349	9,733
Woody Wetlands	39,459	33,667
Acres of Land	85,533	76,695
Total Acres (including Open Water)	96,507	85,452

Data Collection: Riparian Buffer Analysis (cont.)

- By excluding forest, developed, wetland, and other types of land uses, RTI estimates that 18% of the land within the Neuse's 50-foot buffer is viable for potential riparian buffer projects.

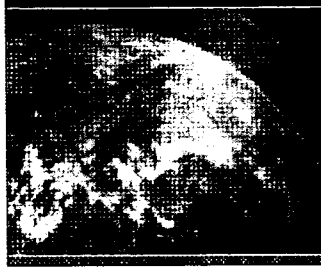
Land Cover Description	Neuse (Acres)	% of Total Land	Tar-Pam (Acres)	% of Total Land
Developed Land	5,040	6%	2,980	4%
Forest, Wetland, and Other	64,760	76%	55,836	73%
Potential Land for Buffers	**15,734**	**18%**	**17,880**	**23%**
Total Land	85,533	100%	76,659	100%



Data Collection: Riparian Buffer Analysis (cont.)

	Neuse River Basin	Tar-Pamlico River Basin
Acres of land suitable for buffers	15,734	17,880
Acres required for EEP stream mitigation until 2020	266	5
Acres of agricultural land consumed by development	1,385	1,573
Acres of land potentially available for buffer	14,083	16,302
Buffer required by NOFPP	925	155
NOFPP percentage of available buffer land	7%	1%

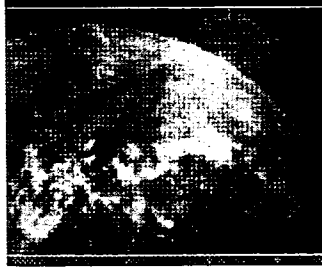
- RTI predicts that 2.1 million pounds of nitrogen in the Neuse River Basin and 353,000 pounds of nitrogen in the Tar-Pamlico will need to be offset through the year 2020.
- If all of this nutrient loading was offset using riparian buffers, RTI predicts (using EEP's estimate that 1 acre of buffer offsets 2,273 pounds of nitrogen on average) that this would require 925 acres of riparian buffer to be restored in the Neuse River Basin and 155 acres to be restored in the Tar-Pamlico.



Data Collection: Estimated Land Costs

Land Category	Neuse River Basin Dollars per Acre	Tar-Pamlico River Basin Dollars per Acre
High-density urban	$200,311	$123,961
Low-density urban	$145,498	$126,264
Rural areas	$19,139	$8,646

- RTI downloaded recent tax parcel GIS data from 8 counties that made these data freely available for download from the Internet: Beaufort, Carteret, Craven, Dare, Edgecombe, Halifax, Johnston, and Wake counties.
- Tax parcel data were used because no databases exist for actual sales data. Experts thought this was an appropriate proxy for a combination of conservation easements and purchases that would be used to implement the program in the future.



Data Collection: Annual Growth in Cost Components

RTI identified historical price data for several commodities linked to each cost category and used linear regression analysis to forecast growth in each time series to the year 2020.

Cost Component	Secondary Data	Source	Estimated Growth Rate	
			Neuse	Tar-Pam
Rural Land	Assessed Value of Taxable Real Property by County	NCDOR	**3.6%**	**3.5%**
Urban Land	Assessed Value of Taxable Real Property by County	NCDOR	**3.9%**	**3.7%**
Design	Architectural, engineering and related services price index	USBLS	**2.1%**	**2.1%**
Construction	Construction machinery manufacturing price index	USBLS	**1.6%**	**1.6%**
Maintenance	Employment Cost Index: Compensation: Private Industry Workers	FRED	**2.4%**	**2.4%**

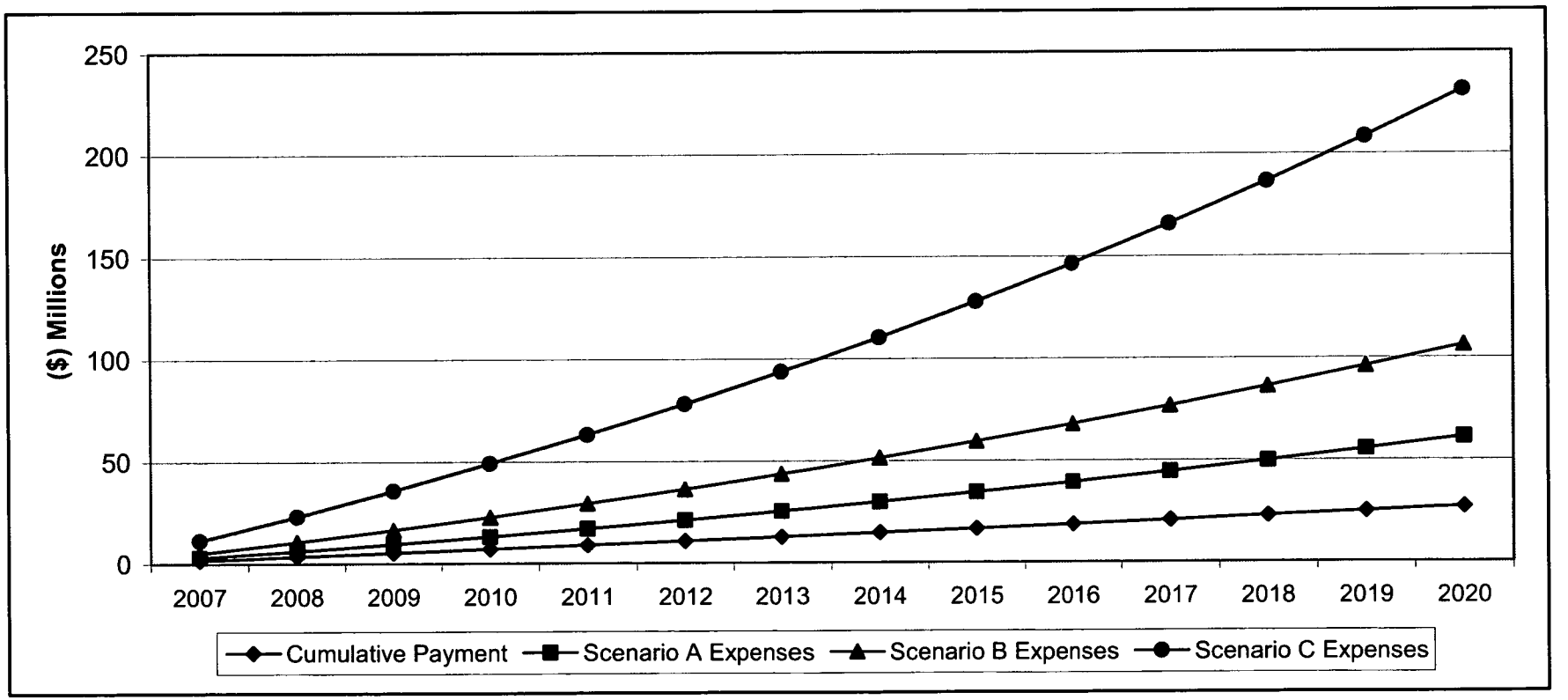
Objective 1: NOFPP Sustainability at Current Fee of $11/lb

NOFPP Cumulative Expenses Exceed Cumulative Payments in Both River Basins.

Year	Cumulative Payments	Scenario A Expenses	Scenario B Expenses	Scenario C Expenses
2007	$1,748,308	$2,962,207	$5,198,938	$11,210,910
2008	$3,522,850	$6,124,101	$10,715,511	$23,086,927
2009	$5,324,034	$9,496,141	$16,565,661	$35,661,105
2010	$7,152,275	$13,089,298	$22,766,084	$48,968,055
2011	$9,007,995	$16,915,072	$29,334,262	$63,044,017
2012	$10,891,623	$20,985,523	$36,288,503	$77,926,941
2013	$12,803,594	$25,244,846	$43,600,064	$93,656,559
2014	$14,744,350	$29,701,951	$51,285,976	$110,274,477
2015	$16,714,341	$34,366,176	$59,364,067	$127,824,257
2016	$18,714,024	$39,247,309	$67,853,001	$146,351,510
2017	$20,743,861	$44,355,611	$76,772,311	$165,903,993
2018	$22,804,325	$49,701,838	$86,142,450	$186,531,709
2019	$24,895,893	$55,297,267	$95,984,826	$208,287,012
2020	$27,019,052	$61,153,722	$106,321,851	$231,224,720

Objective 1: NOFPP Sustainability (cont.)

The costs of BMP construction and maintenance will exceed revenues from both river basins into the forecasted future.



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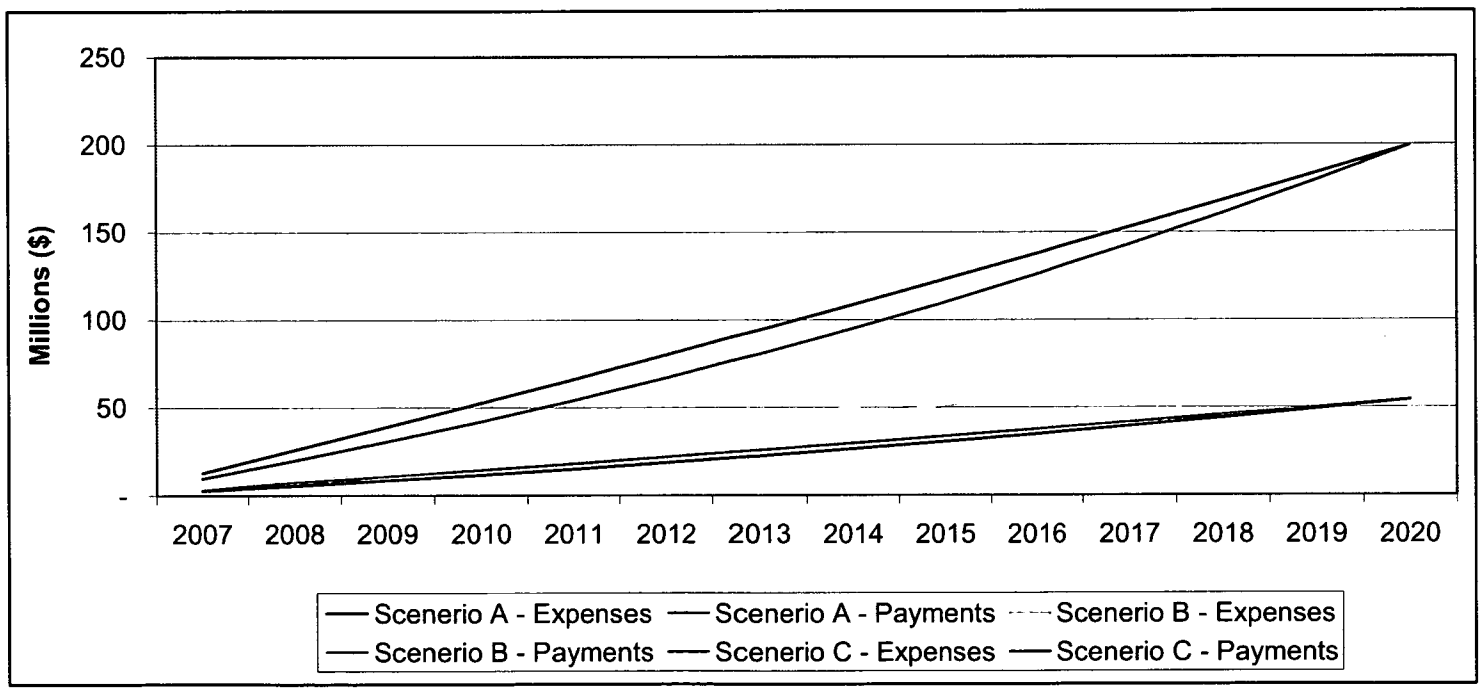
Objective 2: Proposed Cost-Effective Fee

- RTI defines cost-effectiveness as the NOFPP being sustainable through the year 2020.
- Using the data previously discussed, RTI evaluated two types of fees against this criterion for each river basin.
  - A fixed-offset fee
  - A fee annually adjusted to conform with rising construction costs

Objective 2: Cost-Effective Fixed Fee (Neuse)

	Cost-Effective Offset Fee ($/lb-30 N)	Cost-Effective Offset Fee ($/0.10 lb-30 P)
Scenario A	$25.77	$33.19
Scenario B	$43.94	$41.23
Scenario C	$94.80	$62.91



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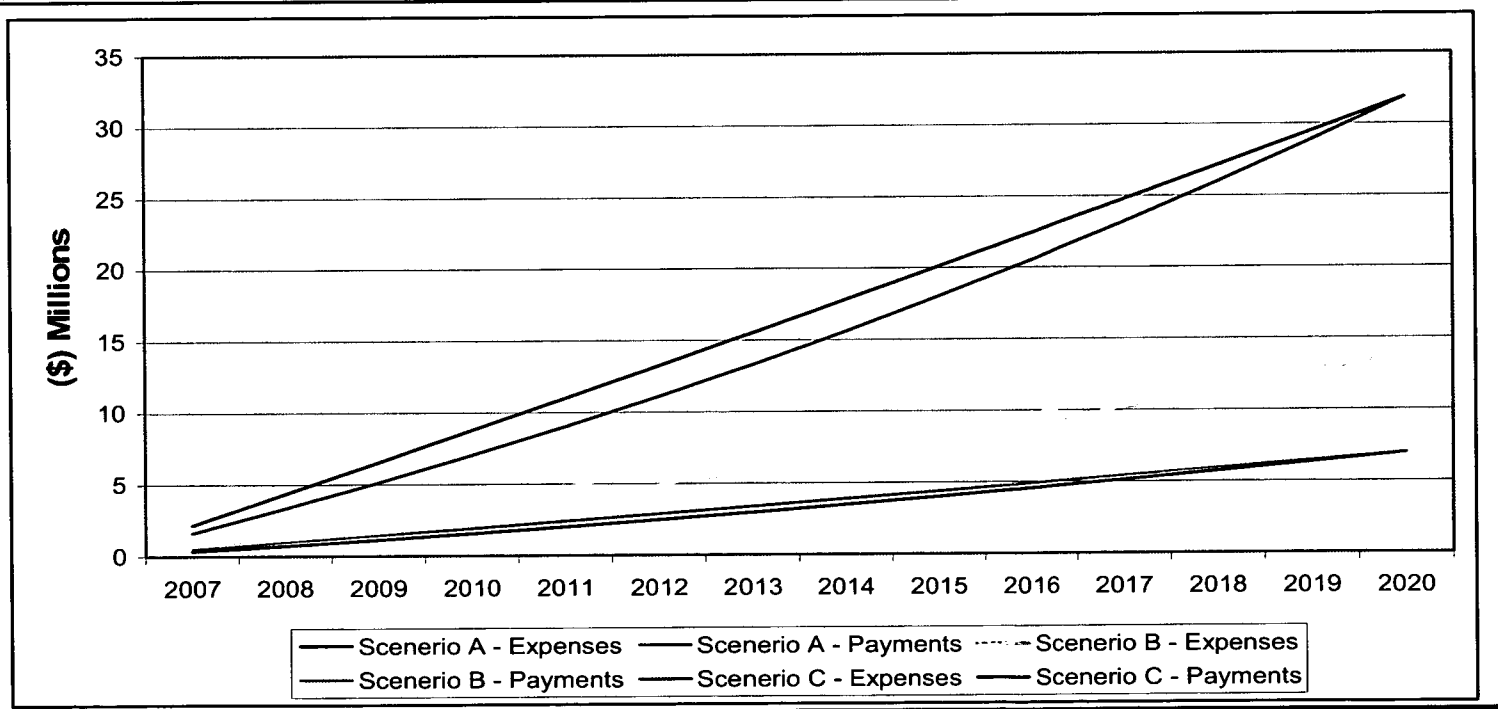
Objective 2: Cost-Effective Fixed Fee (Tar-Pam)

	Cost-Effective Offset Fee ($/lb-30 N)	Cost-Effective Offset Fee ($/0.10 lb-30 P)
Scenario A	$19.70	$26.02
Scenario B	$39.40	$35.38
Scenario C	$90.21	$59.77



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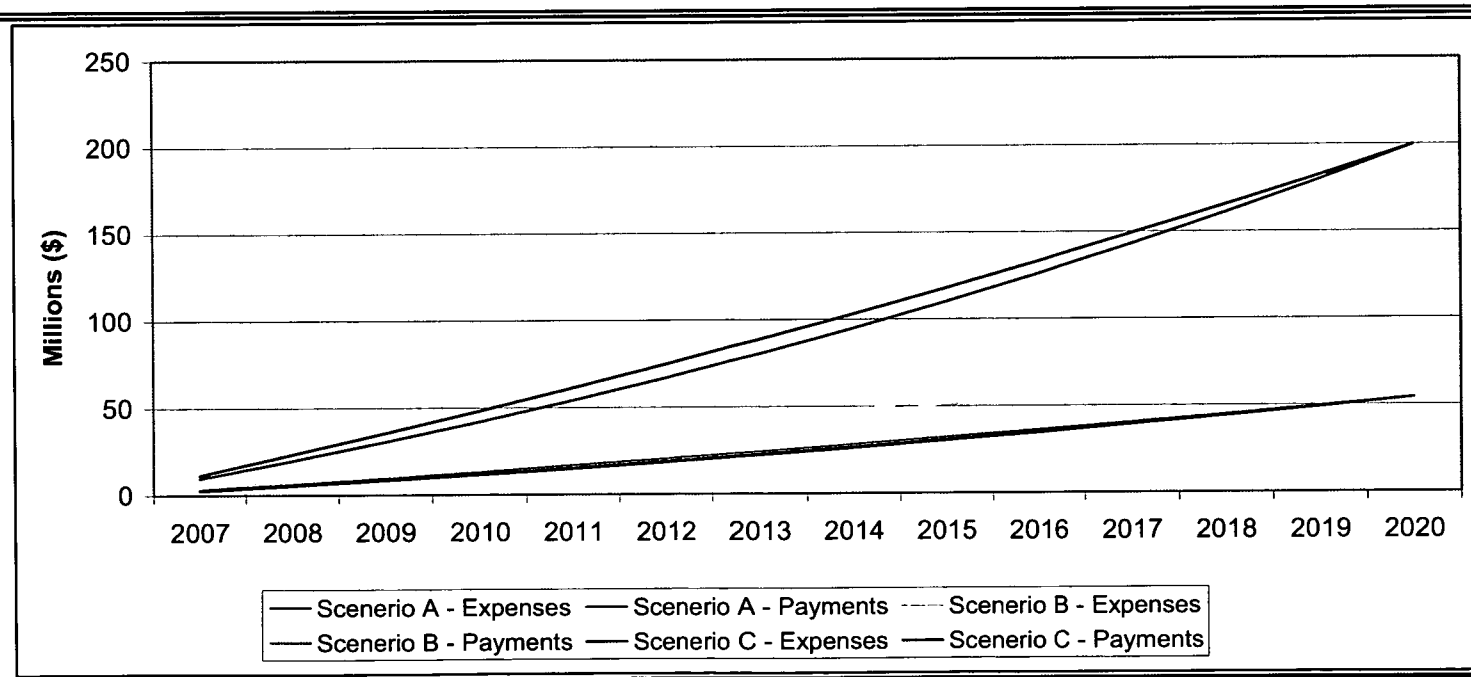
Objective 2: Cost-Effective Adjusted Fee (Neuse)

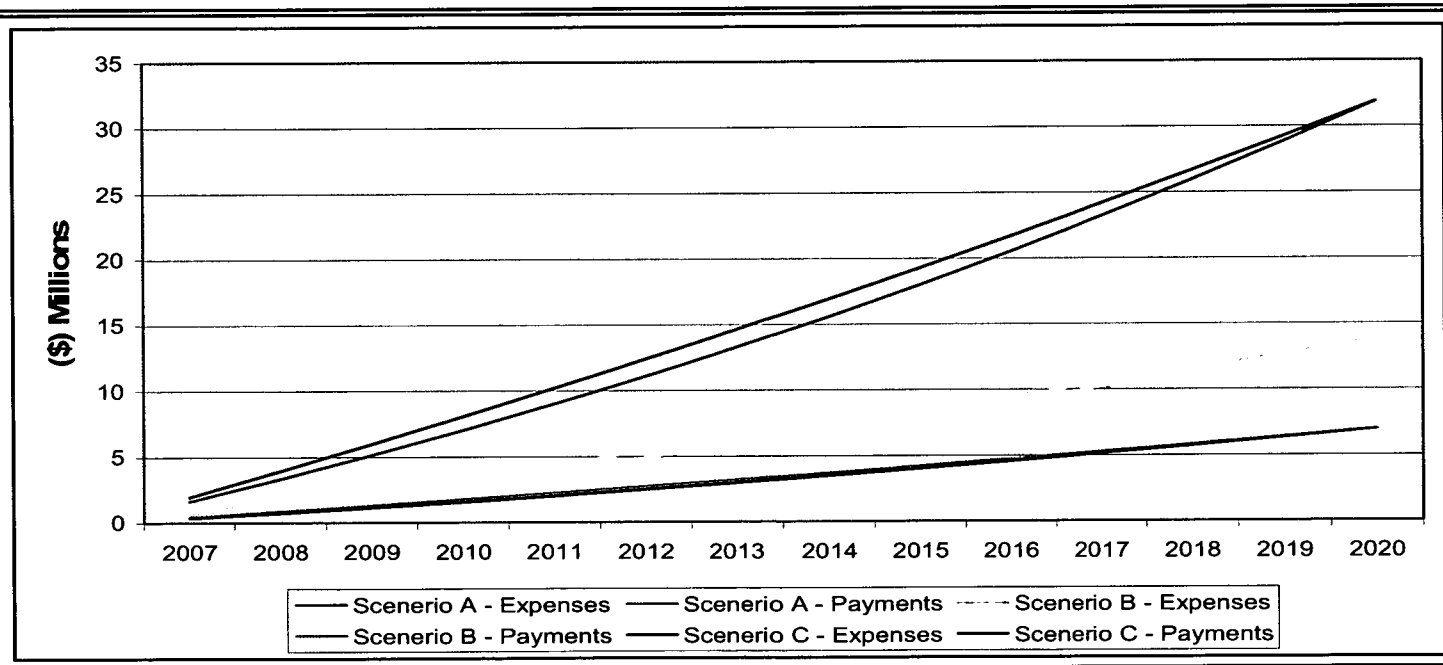
	2007 Cost-Effective Offset Fee ($/lb-N)	2020 Cost-Effective Offset Fee ($/lb-N)
Scenario A	$23.13	$28.36
Scenario B	$39.44	$48.35
Scenario C	$85.10	$104.32



RTI INTERNATIONAL

Objective 2:
Cost-Effective Adjusted Fee (Tar-Pam)

	2007 Cost-Effective Offset Fee ($/lb-N)	2020 Cost-Effective Offset Fee ($/lb-N)
Scenario A	$17.72	$21.72
Scenario B	$35.44	$43.45
Scenario C	$81.15	$99.48



Objective 3: Formulas for calculating the offset payments

- **Formula for Scenario A:**

  Neuse River Basin
  Nitrogen Payment = ($25.77/lb N)(#of lbs/year)(30 years)(1.1 AdminCosts)
  Phosphorus Payment = ($33.19/0.10 lb P)(#of lbs/year)(30 years)(1.1 AdminCosts)

  Tar-Pamlico River Basin
  Nitrogen Payment = ($19.70/lb N)(#of lbs/year)(30 years)(1.1 AdminCosts)
  Phosphorus Payment = ($26.02/0.10 lb P)(#of lbs/year)(30 years)(1.1 AdminCosts)

- **Rationale:** The only factor that directly affects the estuaries is the number of pounds of nutrients needing to be offset. A simple formula incorporating the cost-effective $/lb for nitrogen and $/0.10 lb for phosphorus produces a revenue stream that would allow the EEP to meet its objective of protecting the estuary and be sustainable through 2020.

Objective 3: Proposed Formulas (cont.)

- **Formula for Scenario B:**

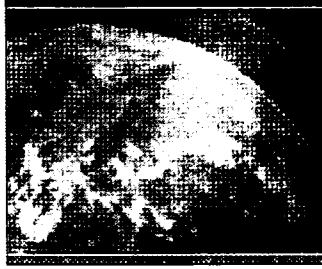
  Neuse River Basin
  Nitrogen Payment = [($25.77/lb N)(#of lbs/year)(30 years)*
  ((Land Cost $ per acre/19,000)^(0.64))*(1.1 AdminCosts)

  Phosphorus Payment = [($33.19/0.10 lb P)(#of 0.10 lbs/year)(30 years) *
  ((Land Cost $ per acre/19,000)^(0.31))*(1.1 AdminCosts)

  Tar-Pamlico River Basin
  Nitrogen Payment = [($19.70/lb N)(#of lbs/year)(30 years)*
  ((Land Cost $ per acre/9,000)^(0.58))*(1.1 AdminCosts)

  Phosphorus Payment = [($26.02/0.10 lb P)(#of 0.10 lbs/year)(30 years) *
  ((Land Cost $ per acre/9,000)^(0.31))*(1.1 AdminCosts)

- **Rationale**: Under this scenario, the intent is to provide sufficient funds so that mitigation projects can be placed close to the area of the development. This is accomplished by incorporating the land cost of the property being developed (in terms of dollars per acre) into the offset fee to generate sufficient funds to support flexibility when choosing mitigation options.



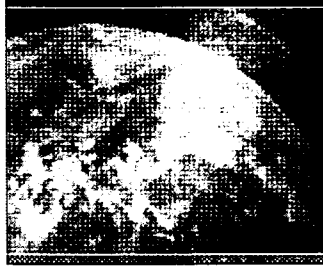
Objective 3: Proposed Formulas (cont.)

- **Formula for Scenario C:**

  Neuse River Basin
  Nitrogen Payment = ($94.80/lb N)(#of lbs/year)(30 years)(1.1 AdminCosts)
  Phosphorus Payment = ($62.91/0.10 lb P)(#of lbs/year)(30 years)(1.1 AdminCosts)

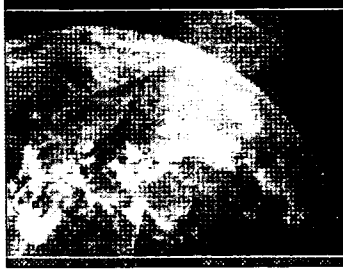
  Tar-Pamlico River Basin
  Nitrogen Payment = ($90.21/lb N)(#of lbs/year)(30 years)(1.1 AdminCosts)
  Phosphorus Payment = ($59.77/0.10 lb P)(#of lbs/year)(30 years)(1.1 AdminCosts)

- **Rationale:** Under this scenario, stormwater wetlands are always implemented. Thus, the location of the development (or the land cost per acre) has little impact on the cost of the BMPs. As a result, we recommend a simple formula specification similar to the one for Scenario A.



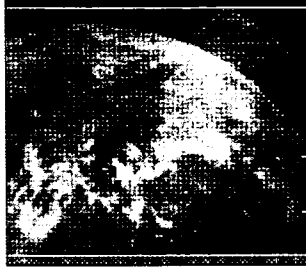
Objective 4: Expanding NOFPP

- Nutrient offset fees can distort regional development; however, these distortions are likely minor compared with economic and environmental consequences of excess nutrient loading.
- Environmental Question: For each river basin, are nutrients creating sufficient environmental damage that they need to be mitigated?
- A full benefit-cost analysis is beyond the scope of this study; thus, we focus on the existing literature and published studies to provide insights on this issue.



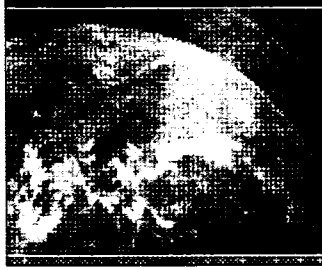
Objective 4: Expanding NOFPP (cont.)

- Other water bodies in North Carolina have historically experienced and continue to experience symptoms of human-induced eutrophication and could, therefore, be considered candidates for geographic extension of the nutrient offset program. These bodies include:
  - Chowan River Basin
  - Jordan and Falls Reservoirs
  - Catawba and Yadkin River Basins



Objective 5: Evaluate Alternative NOFPP Structures

- The EEP currently operates the NOFFP either through a design-bid-build or a full-delivery process. However, a wide range of alternative structures could be developed to implement a nutrient offset trading system.
- As part of this task we specifically investigated the feasibility of providing nutrient offsets through a regulated trading market.



Objective 5: Alternative Structures (cont.)

- There are many instances where federal and state governments have established trading systems (while maintaining regulatory oversight and supervision) to mitigate pollutants or protect wetlands.

- Examples of such programs include:
  - Tar Pamlico Point Nonpoint Source Trading Program
  - Pennsylvania Nutrient Trading Program
  - U.S. Environmental Protection Agency's (EPA's) SO_2 Emission Allowance
  - Regional Clean Air Incentives Market (RECLAIM)

Objective 5: Alternative Structures (cont.)

Given proper regulatory oversight and supervision …

The Nutrient Offset Program seems well suited for market trading.

Using a private-sector mitigation bank is a proven method for implementing market-based systems.

Private entities in the state have the capabilities to implement such a program.

We were not able to conduct a quantitative analysis, but there is no reason to expect there would be a degradation in cost-effectiveness or timeliness with a market-based system.

Objective 5: Advantages and Disadvantages of a Market-Based Nutrient Trading System

- Advantages
  - supply and demand intersect (i.e., they are in the same cost range)
  - would produce lowest cost
  - would capture changes in cost over time

- Disadvantages
  - more difficult to control placement of mitigation options
  - market may be too thin for regional/county-level markets
  - would not address integrated environmental or equity objectives

Objective 6: Review of Other Potential Mitigation Efforts

- The Center for Watershed Protection compiled and analyzed national cost data for a variety of structural stormwater retrofit practices, including wet ponds, wetlands, bioretention areas, filtering practices, infiltration practices, and swales.
- This effort produced national average construction costs for a wide range of mitigation practices that were not available for projects based in North Carolina. Additional mitigation projects identified include sand filters, underground sand filters, infiltration practices, and water quality swales.

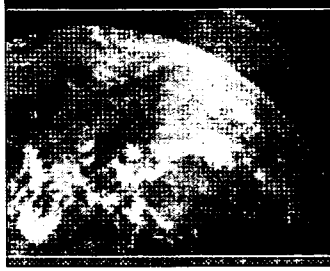
Objective 6: Review of Other Mitigation Efforts (cont.)

Stormwater Retrofit Practice	Median Cost ($/lb-30 N)[a]	Range ($/lb-30 N)[a]	Median Cost ($/0.10 lb-30 P)[b]	Range ($/0.10lb-30 P)[b]
Wet ponds	$177	$88 to $317	$93	$47 to $168
Wetlands	$110	$55 to $198	$107	$53 to $192
Large bioretention areas	$265	$188 to $433	$174	$125 to $286
Small bioretention areas	$755	$628 to $1,007	$498	$415 to $664
Sand filters	$503	$403 to $553	$332	$266 to $365
Underground sand filters	$1,637	$705 to $1,887	$1,079	$465 to $1,245
Infiltration practices	$240	$160 to $368	—[c]	—[c]
Water quality swales	$550	$308 to $968	$466	$262 to $822

[a] Cost per pound of nitrogen removed per year, in 2006 dollars.

[b] Cost per pound of phosphorus removed per year, in 2006 dollars.

[c] Not computable; pollutant removal benefits not defined within NCDENR, 2005a



Caveats and Future Research

- It was not the purpose of this project to recommend which of the three scenarios (or alternative possible scenarios) the EEP should pursue. That is a public policy decision that requires a more extensive environmental and economic benefit-cost analysis. However, our findings should serve as valuable inputs into the decision-making process.
- As part of this study's analysis, we encountered several issues that may warrant further research. These relate to
  - pollutant removal efficiencies and
  - event-mean-concentrations (EMCs) and land use loading rates.
  - These factors are used in calculating the offsets required of developers and the nutrients mitigated by the EEP.

Summary

- Please send comments to:
  - Michael Gallaher (mpg@rti.org), or
  - Dallas Wood (dwood@rti.org).

MINUTES
Joint Meeting of the
ENVIRONMENTAL REVIEW COMMISSION
and the
JOINT LEGISLATIVE TRANSPORTATION OVERSIGHT COMMITTEE
11 June 2007

The Environmental Review Commission (ERC) met jointly with the Joint Legislative Transportation Oversight Committee (JLTOC) on Monday 11 June 2007 at 5:00 p.m. in Room 544 of the Legislative Office Building. Senator Clark Jenkins, Co-chair of the JLTOC, presided.

The following members of the JLTOC were present: Senators Jenkins, Hunt, Rand and Stevens; and Representatives Cole, Carney and Coates. The following members of the ERC were present: Senators Albertson and Clodfelter; and Representatives Gibson, Allen and Warren. Mr. George Givens, Commission Counsel; Mr. Jeffrey Hudson, Assistant Commission Counsel; Ms. Jennifer Mundt, Commission Analyst; Ms. Mariah Matheson, Research Assistant; and Dot Waugaman, Commission Clerk, were also present from ERC staff. Ms. Lisa Hollowell, Fiscal Analyst; Bob Weiss, Fiscal Analyst; and Giles Perry, Committee Counsel, were present from JLTOC staff.

On 6 June 2007, notice was sent to ERC members and interested parties via e-mail and regular mail. A copy of the notice is included in the attachments to these minutes as **Exhibit A**. Copies of the agenda for the meeting and visitor registration sheets are included in the attachments as **Exhibits B** and **C**.

Senator Jenkins called the meeting to order. He recognized Ms. Hollowell to introduce the presenter. Ms. Hollowell gave a synopsis of the history of the study to merge the Ecosystem Enhancement Program (EEP) and the Clean Water Management Trust Fund (CWMTF). The contract work was performed by Dye Management Group, Inc. The chairs have received an interim report and a draft final report and briefing from the firm. The final report and briefing was presented by Mr. Robert Cooney, Vice President of the firm (see **Exhibit D** for a copy of his PowerPoint presentation and **Exhibit E** for a copy of the Final Report and Recommendations). Senator Jenkins requested that committee and commission members hold their questions until the end of the report.

The highlights of the recommendations of the study include:

- A merger of the EEP and CWMTF is not recommended; instead programmatic synergies should be aggressively pursued
- The North Carolina Department of Transportation (NCDOT) and North Carolina Department of Environment and Natural Resources (NCDENR) must renegotiate the memorandum of agreement (MOA) with the United States Army Corps of Engineers to increase flexibility
- NCDOT and EEP must work together to manage surplus issues
- NCDOT and EEP should transition from advanced mitigation to just-in-time mitigation including two-phased TIP
- Implementation will require senior executive engagement from NCDOT and NCDENR

Representative Gibson asked how the just-in-time model fits into Region IV's interpretation of where we are now versus where we need to go. Mr. Cooney replied the preference would be to have advanced mitigation. The challenge is that advanced mitigation presents a need for a much more accurate level of planning. Representative Gibson then asked how to rectify the natural antagonistic relationship between DENR, whose job is to protect the environment, and DOT, whose job is to develop

roads and highways. Mr. Cooney replied that the just-in-time approach presumes that the mitigation would be in place at the time the permit is applied for. With the just-in-time approach, the mitigation would not be in place for five years with monitoring so it can be said the situation is fully functionally mitigated. The elements of advanced mitigation would be achieved with more information. Mitigation banking would be more reasonably expensed. The goal would be to move transportation projects ahead in an environmentally sensitive and fiscally responsible way. Mr. Cooney commented that at present the balance leans toward protecting the environment at the expense of fiscal constraints. It is hoped that by starting later there will not be as much surplus mitigation, which will result in being more fiscally conservative. Changes to the MOA with the U. S. Army Corps of Engineers will also help in that if there is surplus mitigation, it can be used to mitigate other areas within the same river basin, and DOT will not need to build as much mitigation. The Corps has been clear in discussions with the study team that they are open to the one-to-one concept, but want to be able to make the call at the time of permitting.

Representative Gibson asked how DENR and DOT could work together to achieve the just-in-time mitigation. Mr. Cooney replied that one of the requirements of being able to do that is the development of accurate forecasting tools by DOT. EEP today works with the forecasting they receive from DOT. Representative Gibson asked if private mitigation outside of experimentation is not feasible in the current model. Mr. Cooney commented Dye Management did not see much enthusiasm in the mitigation banking community coming into North Carolina. Currently, there are eight mitigation banks with fifteen sites in the state. Their suggestion for the pilot is to have EEP turn over responsibility in some areas where banks are functioning to the banks, and if that works, it will demonstrate that banking can be viable. The difficulty is that in North Carolina taking mitigation off the critical path of projects seems to work. It may cost more, but it works.

Representative Gibson asked if Dye Management had heard from DENR or DOT about what the pilot program would cost or what staff it would take for the transition. Mr. Cooney replied there are cost estimates for some of the recommendations in the report; however, they did not get estimates of how much staff it would take.

Representative Allen asked if Mr. Cooney believed it would be a good idea to allow CWMTF to provide compensatory mitigation. Mr. Cooney replied it would provide opportunities to leverage the total expenditure in terms of mitigation. There is a lot of resistance to that idea from current grantees of the program because they feel that any change to the CWMTF could take away from its intended purpose to provide grants for improving water quality in North Carolina. It would, however, open up a new method for mitigation. Representative Allen commented that she does not see how the change could be made without damaging the mission of the Fund.

Senator Jenkins said some of the interim reports discussed specifics, particularly the surplus inventory. In Division II, there is $100 million worth of land with no projects identified that needs to be divested. Another is the fact that the North Carolina Merger 01 process is the only one like it, and all the other states do it differently. Mr. Cooney said Florida has a process that is similar, called their Environmental Transportation Decision-Making Process, although their completion process is quicker than North Carolina's. With the Florida process, advice and input is sought at certain points in the process, while in North Carolina there are defined points at which they seek concurrence before moving to the next step.

Senator Jenkins said the proposed federal program would change the method and responsibility for providing necessary mitigation. Mr. Cooney responded that under the proposed federal rulemaking issued in June 2006, if adopted as stated, mitigation banks will take more responsibility for providing mitigation. One of the things the regulation would do is eliminate fee programs. The challenge in North Carolina is that there are only a few mitigation banks in the state. The short term solution in regard to mitigation banks might be that DOT would have to be responsible for doing its own mitigation again. Historically there has been a lot of tension in North Carolina between DOT and regulators concerning mitigation, tension that is not seen in other states. In Virginia and Georgia, the DOT takes responsibility for mitigation either by buying credits or by doing it. While some

projects missed contract letting dates for various reasons, those two states did not have the problem that has been present in North Carolina in the past.

Senator Jenkins commented that one of the reasons for the lack of private mitigation banker participation is that certain river basins have been carved out by EEP, resulting in a monopoly situation, somewhat restricting private mitigation bankers. Mr. Cooney replied that DOT is the sole source provider for 85 percent of mitigation needs, which means that 85 percent of the state is not available to the private banker. EEP will go to bankers as a source of credits, however, so they will occasionally sub work to a banker. Nationally, bankers put their effort into building banks where they think DOT will need credits, and in North Carolina, that is not currently an option. Senator Jenkins commented that the situation is one in which a state agency is creating a monopoly at the expense of what private business is willing to do. He added that he believes that situation needs to be addressed. Mr. Cooney said that circumstance led to the recommendation for the mitigation banking pilot. The consultants believe the pilot program might open the door for mitigation banks to return to the state.

Representative Gibson asked if there was any investigation into the qualitative aspects of the mitigation and survivability. Mr. Cooney replied they did talk to the stakeholders about their thoughts on that. There appeared to be greater comfort from regulators in the Division of Water Quality about the quality of the mitigation that is coming out of EEP versus the quality of mitigation done when DOT was responsible for the program, but there is no statistical validation of that, and there is no baseline data to determine the answer. Representative Gibson commented that it is important to maintain the quality of mitigation. He added that it was probably the concern for quality that began the EEP, thereby putting private mitigation banking up against public. EEP being in charge of making qualitative judgments and being in competition with private bankers is a problem that requires a solution. Senator Jenkins commented that in today's economic climate, the state cannot be spending money on something that reaps no benefit.

The meeting adjourned at 6:00 p.m.

Representative Pryor Gibson, Co-Chair, ERC

Senator Charlie Albertson, Co-Chair, ERC

Dot Waugaman, Commission Clerk

Senator Daniel Clodfelter, Co-Chair, ERC

Senator Clark Jenkins, Co-Chair, JLTOC, Presiding

Representative Nelson Cole, Co-Chair, JLTOC

LIST OF EXHIBITS

Exhibit A	Notice of Meeting dated 6 June 2007
Exhibit B	Agenda of Meeting
Exhibit C	List of Attendees
Exhibit D	PowerPoint presentation by Mr. Robert Cooney concerning the final report
Exhibit E	Final Report of Findings and Recommendations of the Study of the Merger of Ecosystem Enhancement Program and Clean Water Management Trust Fund, dated June 2007

General Assembly of North Carolina
Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

EXHIBIT A

GEORGE F. GIVENS
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(919) 733-2578

6 June 2007

TO: Members of the Environmental Review Commission
Interested Parties

FROM: George F. Givens, Commission Counsel
Dot Waugaman, Commission Clerk

RE: **Notice of Commission Meetings**
Additional Information

COMMISSION MEETINGS:

The Environmental Review Commission (ERC) will meet at 3:00 p.m. on Monday 11 June 2007 in Room 544 of the Legislative Office Building in Raleigh. The purpose of this meeting is to receive and review the following:

1. The Annual Report on Solid Waste Management (G.S. 130A-309.06(c)).

2. The Final Report on Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and other Nutrients (Nutrient Offset Payments) prepared by Research Triangle Institute, International pursuant to S.L. 2006-215, as amended by S.L. 2006-218 and Section 5.3 of S.L. 2006-255.

The Environmental Review Commission (ERC) and the Joint Legislative Transportation Oversight Committee will meet at 5:00 p.m. on Monday 11 June 2007 in Room 544 of the Legislative Office Building in Raleigh. The purpose of this meeting is to receive and review:

1. The Final Report and recommendations on the Merger of the Ecosystem Enhancement Program and the Clean Water Management Trust Fund prepared by Dye Management Group pursuant to Section 16 of Part XVI of S.L.2006-248.

No public staff meeting will be held in connection with this meeting.

ADDITIONAL INFORMATION:
If you have questions related to the Commission, you may contact the Commission Counsel or other Commission staff at (919) 733-2578.

General Assembly of North Carolina
State Legislative Building
Raleigh, North Carolina

JOINT MEETING
Environmental Review Commission
Joint Legislative Transportation Oversight Committee

AGENDA
5:00 p.m. Monday 11 June 2007
Room 544 Legislative Office Building
Raleigh, North Carolina

1. Call to order
   Senator S. Clark Jenkins, Presiding

2. Introductory remarks by Cochairs
   Senator S. Clark Jenkins
   Representative Nelson Cole

   Senator Charles W. Albertson
   Senator Daniel G. Clodfelter
   Representative Pryor A. Gibson

3. Report and explanation of agenda items
   Lisa Hollowell, Fiscal Analyst
   George F. Givens, Commission Counsel

4. Final Report and recommendations by Dye Management Group on the Merger of the Ecosystem Enhancement Program and the Clean Water Management Trust Fund pursuant to Section 16 of Part XVI of S.L.2006-248.
   Robert Cooney, Vice-President
   Dye Management Group, Inc.

5. Discussion and announcements

6. Adjourn

EXHIBIT C

VISITOR REGISTRATION SHEET

Joint Meeting of TRANSPORTATION OVERSIGHT and ENVIRONMENTAL REVIEW COMMISSION — June 14, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Phillip Aycue	NCDOT
MARK FOSTER	NCDOT
Larry Goode	NCGA
BERRY JENKINS	CAROLINAS AGC
Doug Howey	NCPMA
JOE MILANO II	RTA
Molly Diggins	Sierra Club
Kathy Hawkins	Progress Energy
Lisa Martin	NC Home Builders Assoc.
DANIEL [illegible]	KENNEDY COVINGTON
George A Howard	Restoration Systems

EXHIBIT C

VISITOR REGISTRATION SHEET

Joint Meeting of TRANSPORTATION OVERSIGHT and
ENVIRONMENTAL REVIEW COMMISSION June 14, 2007

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Thomas C. Caves, Jr.	NC Dept. of Crime Control & Public Safety
James B. Stanfill	NCDENR - EEP
Stephanie Horton	NCDENR - EEP
TAD BOGGS	NCDENR - EED
Bill Rosse	NCDOT
STEVE VARNEDOE	NCDOT
[illegible] Holman	Nicholas Inst / Duke Univ
AMY PICKLE	SOUTHERN ENVIRONMENTAL LAW CENTER
Erin Kinney	NC Conservation Network
[illegible] Deason	BOA
[illegible]	RANC - LPA's

EXHIBIT C

VISITOR REGISTRATION SHEET

Joint Meeting of TRANSPORTATION OVERSIGHT and ENVIRONMENTAL REVIEW COMMISSION — June 14, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Elizabeth Self	DENR
LISA RIEGEL	NHTF
Francine Durso	CWM. TF
D G Martin	C. WMTF
Robin Smith	DENR
Bill Gilmore	EEP
Suzanne Klimek	EEP
Greg Thorpe	NCDOT
Debbie Barbour	NCDOT
Fred Allen	NC Aggregates Assn.
Johanna Reese	DOT

Ecosystem Enhancement Program

cleanwater MANAGEMENT TRUST FUND

North Carolina General Assembly

Study of the Merger of Ecosystem Enhancement Program & Clean Water Management Trust Fund

Final Briefing

June 2007

DYE MANAGEMENT GROUP, INC.

EXHIBIT D

Highlights

- Merger of EEP and CWMTF not recommended; instead aggressively pursue programmatic synergies
- NCDOT and NCDENR must renegotiate EEP MOA to increase flexibility
- NCDOT and EEP must work together to manage surplus issues
- NCDOT and EEP should transition from advanced mitigation to just-in-time mitigation including two-phased TIP
- Implementation will require senior executive engagement from NCDOT and NCDENR

2

Agenda

- Study context
- Study scope and approach
- Summary of findings
- Key recommendations
- Implementation timelines and responsibilities

3

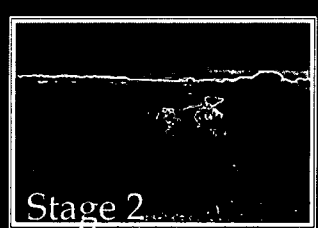
Regulatory Framework

- §401 and § 404 of Clean Water Act established basis for regulations requiring permits and mitigation as a condition of a permit when impacting "waters of the United States"
- Companion North Carolina statues and regulations for "waters of the State"
  - EPA,U.S. Army Corp of Engineers and DWQ have lead responsibility

4

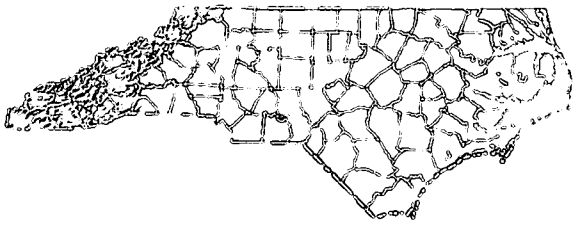
What is Mitigation?

- Goal is "no net loss"
- Minimum requirement is 1:1, but may be done at higher ratios to provide insurance against failure or to compensate for off-site/out-of-kind replacement
  - In North Carolina, mitigation is traditionally done in the same USGS eight-digit "cataloguing unit" as the impact



North Carolina

- Contains 5.7 million acres of wetlands, 95% of this in the coastal plan region of the state
- 93 natural heritage aquatic areas of national concern and state significance
- 70% of rare and endangered species in the state are wetland dependent



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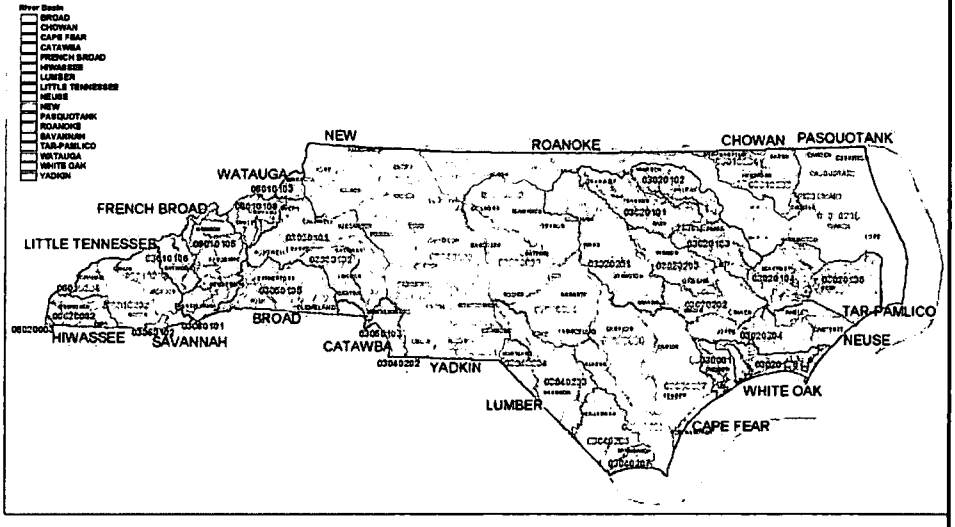
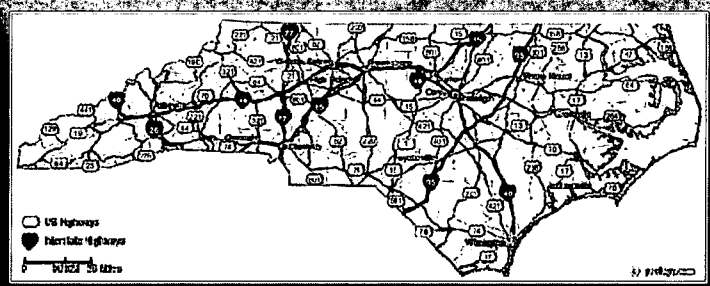
Cataloging Units Across River Basins



7

North Carolina Highway Trust Fund

- Adopted in 1989 and included:
  - Completion of the Intrastate Highway System, a 3,600 mile network of four-lane highways
  - Construction of urban loops



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Mitigation Prior to 2003

- NCDOT managed own mitigation program
  - Mitigation was project specific
  - A large number of projects delayed due to mitigation
    - Increased cost of construction
    - Impacted NCDOT credibility with stakeholders
- State established the Wetlands Restoration Program (WRP) as an in-lieu fee program

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Ecosystem Enhancement Program

- Advanced mitigation
- Programmatic watershed based approach
- Mitigation required to be in 8-digit cataloguing unit
- Seven year build-out leveraging high quality preservation lands to start-up

Payne Dairy (Jumping Run Creek) stream restoration site

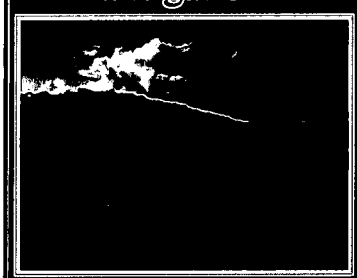
Aerial shot of the site prior to construction

Photo showing the relocated and more sinuous channel

10

Clean Water Management Trust Fund

- Established by the legislature in 1996
- Voluntary grants based program
- Five program areas
- Not allowed to provide compensatory mitigation



Wastewater: Lake Fontana

Stormwater/Restoration: Wilson Bay

Acquisitions: Chimney Rock

11

Study Background (1 of 2)

- As the EEP ramped up a number of questions were raised by various policy-makers and other stakeholders:
  - Overall cost effectiveness of EEP
  - Appropriateness of EEP's mission/goals/objectives
  - Whether requiring mitigation within a specific 8-digit cataloguing unit was creating operational complexities and significantly increasing the cost of mitigation for NCDOT
  - Practicality of delivering advanced mitigation given the lack of stability in NCDOT's "demand forecast"

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Study Background (2 of 2)

- Questions were also raised about potential synergies between the EEP and the CWMTF:
  - Potential of removing the restriction on the CWMTF participating in compensatory mitigation
  - Allowing some CWMTF or other state funded projects be applied as mitigation credits for transportation projects
  - Opportunities to work with regulators in certain cases to utilize non-traditional mitigation approaches for projects

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Study Scope (1 of 2)

- Review current organizational structure and key work processes of EEP and CWMTF
- Compare EEP's processes with NCDOT's mitigation program
- Assess potential role of mitigation banks
- Review practices in peer states and assess applicability
- Assess impact of proposed federal rule making on EEP
- Develop an inventory of acquisitions/credits to assess the extent of the mitigation surplus

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Study Scope (2 of 2)

- Conduct an alternatives analysis of potential organizational models:
  - Status quo
  - Status quo with modifications designed to achieve efficiencies and promote enhanced programmatic synergies between EEP and CWMTF
  - Merger of EEP and CWMTF programs
  - Returning responsibility for mitigation to NCDOT
  - Implementing a private mitigation banking model

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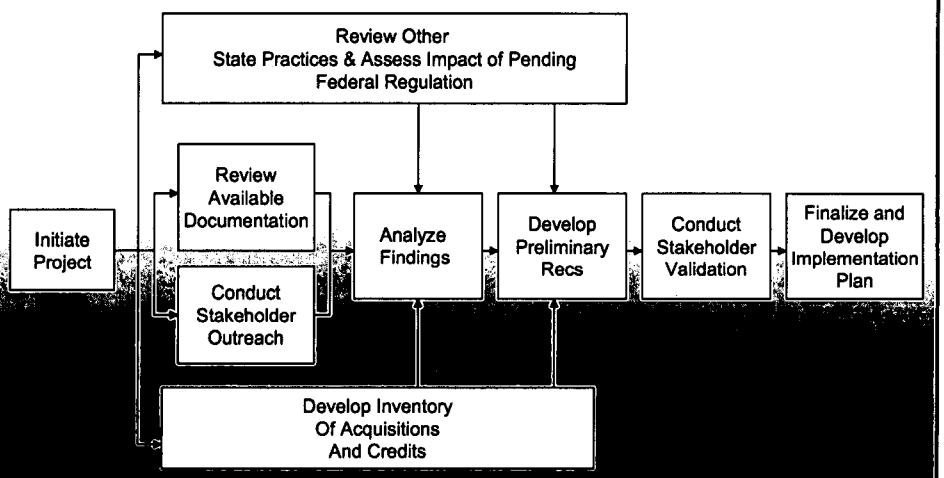
Project Approach



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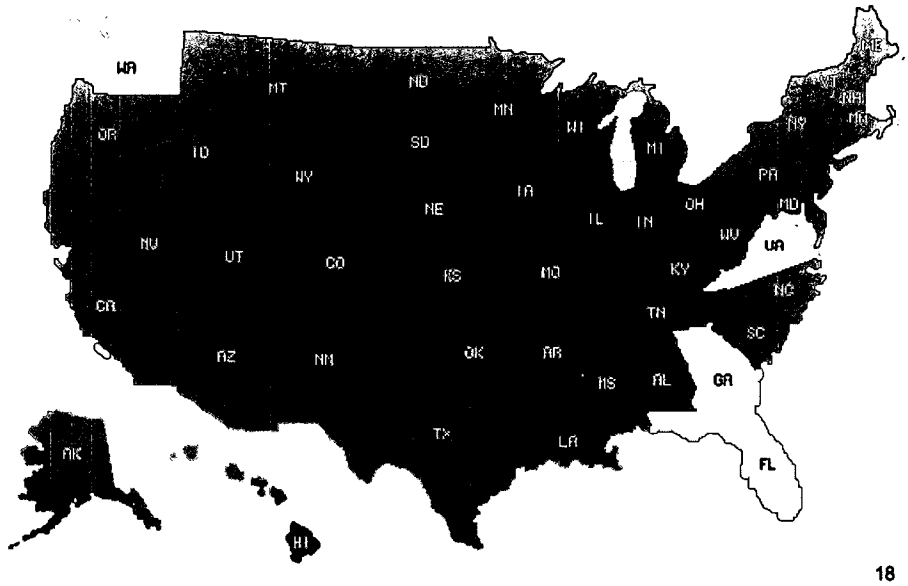
Stakeholder Interviews

Stakeholder Group	Interviews
CWMTF management and staff	4
CWMTF board members	2
CWMTF grantees	2
EEP management and staff	8
NCDENR senior management	1
State regulatory agency staff	1
Federal regulatory agency staff	5
NCDOT Board members, management and staff	7
FHWA Division staff	4
EEP on-call consultants/contractors/full delivery providers	3
Environmental advocacy groups	1
State Property Office	1
Private mitigation bankers	2
Total Interviews:	**41**

17

Review of Peer States



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Summary of Findings (1 of 8)

- No permit has been delayed for mitigation since the initiation of the EEP:
  - Mitigation has been removed from the critical path for obtaining permits and letting highway construction projects
  - NCDOT has avoided at least $6.5 million in potential construction cost increases due to delayed lettings

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Summary of Findings (2 of 8)

- There are is a fundamental disconnect in EEP's strategy/approach:
  - Inability to accurately predict needs in order to have the right amount of mitigation in the ground in the right place five years ahead of the project being let

20

Summary of Findings (3 of 8)

- There will likely be a surplus of mitigation in a number of cataloguing units as a result of:
  - Volatility in the TIP
  - Inexperience in forecasting mitigation requirements on the part of NCDOT
  - Lack of any flexibility to apply credits outside the cataloguing unit being impacted
  - An overly aggressive program on the part of both NCDOT and the EEP to acquire high-quality preservation lands; to date, approximately $100 million has been spent to acquire high-quality preservation lands

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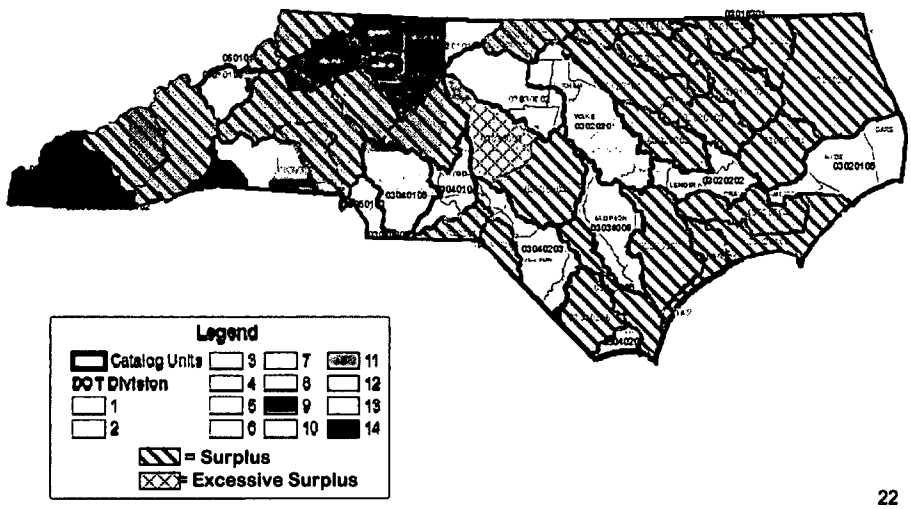
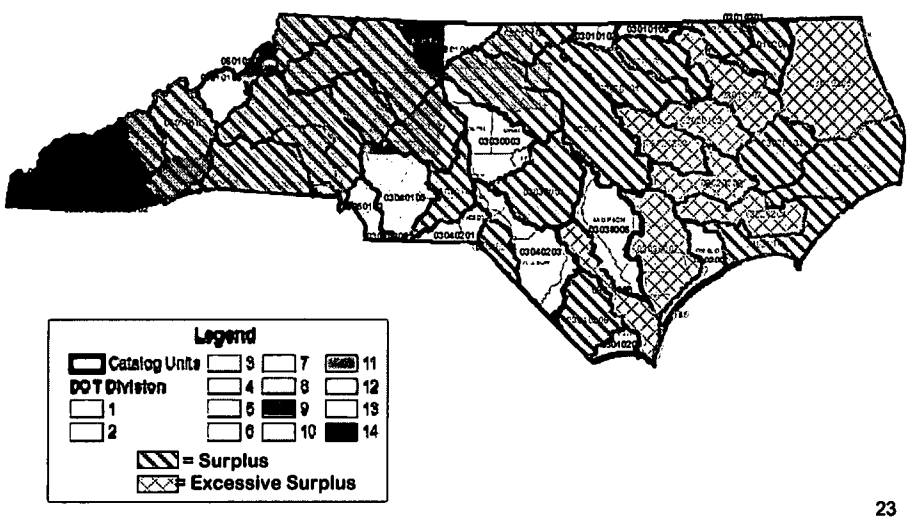
Stream Restoration Mitigation Projection Surplus – June 2010



22

Riparian Restoration Mitigation Projection Surplus – June 2010



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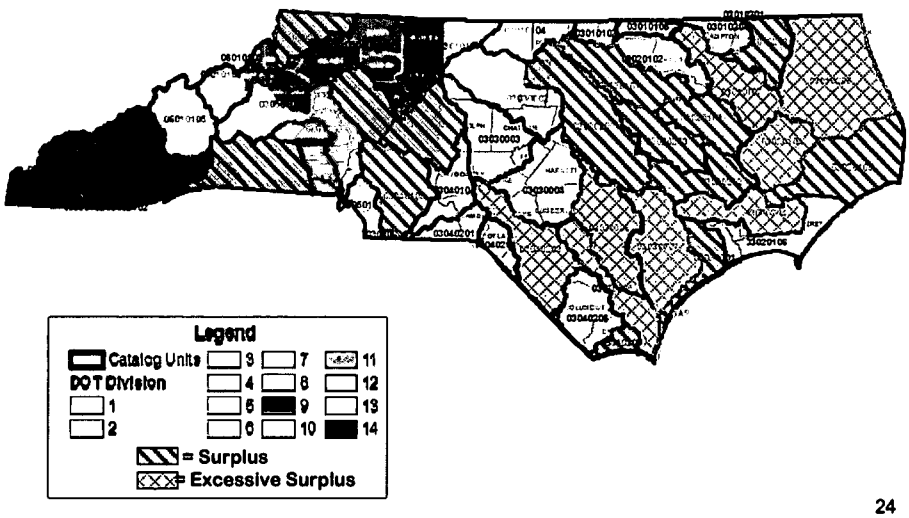
Nonriparian Restoration Projection Surplus – June 2010



24

Summary of Findings (4 of 8)

- EEP is recognized nationally as a model program; however, there are no states actively trying to replicate an EEP-like program for a variety of reasons.
  - Number and degree of maturity of mitigation banks in many states
  - Extensive organizational change management required to implement an EEP-like program
  - Implementation cost
  - Uncertainty concerning the impact of the proposed federal mitigation rules

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Summary of Findings (5 of 8)

- Draft of proposed federal mitigation banking rules would eliminate in-lieu fee programs:
  - Likely cause substantial restructuring of the EEP
  - Responsibility for mitigation could be transferred back to NCDOT
  - EEP is well respected by regulators at the federal level and a number of comments on the proposed rule voiced support for EEP-like programs
  - Reasonable likelihood that the final rule will allow programs similar to the EEP to continue

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Summary of Findings (6 of 8)

- Several of our peer states make extensive use of mitigation banks for transportation projects; however, mitigation banks have traditionally not been very strong in North Carolina:
  - Very narrow definition of service area (cataloguing unit)
  - Banks not economical in some areas due to limited demands for services
  - State-sponsored "competition"

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Summary of Findings (7 of 8)

- EEP and the CWMTF have worked together:
  - EEP buying "projects" from CWMTF
  - Partnering on land acquisitions
- There are also a number of other potential programmatic synergies:
  - Working together to address the surplus issue
  - Partnering on functional mitigation and out-of-the-box mitigation projects
  - Integrating EEP's watershed planning process with CWMTF's application and selection process

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Summary of Findings (8 of 8)

- Lack of integration between the state's various water resources planning processes:
  - EEP's watershed planning
  - DWQ's basin-wide planning
  - No clear list of priority projects from these planning efforts
  - No linking of these plans/priorities into the CWMTF application process
- EEP and CWMTF using two different site stewardship approaches

29

Key Recommendations (1 of 7)

- There are limited benefits to merging EEP and CWMTF:
  - Different organizational focuses: voluntary grants program vs. compensatory mitigation
  - CWMTF is a grantor agency; EEP is a delivery organization
  - Significant risk in terms of achieving stakeholder buy-in and cultural change

30

Key Recommendations (2 of 7)

- While the organizations should remain independent, programmatic synergies between EEP and CWMTF should be aggressively pursued
- The EEP should be formally linked into all state land acquisitions to ensure mitigation $$ have first chance to fund potential acquisition opportunities

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Key Recommendations (3 of 7)

- NCDOT and NCDENR should work with the U.S. Army Corps of Engineers to negotiate changes to the MOA to provide added flexibility:
  - Ability to utilize applicable, surplus credits within the same river basin rather than constructing additional mitigation
  - Clear statement of direction that mitigation ratios will be reduced in situations where mitigation is in the ground and functional at the time of impact

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Key Recommendations (4 of 7)

- Immediate implementation of a surplus action plan:
  - Confirmation of identified surplus in various cataloguing units
  - Review of HQP and other sites to determine if all uplands are required
  - Action strategy for each property including sale of the property if that is most appropriate
  - Partnership between EEP and CWMTF for selected projects – possible target of 20% of CWMTF funds for this purpose

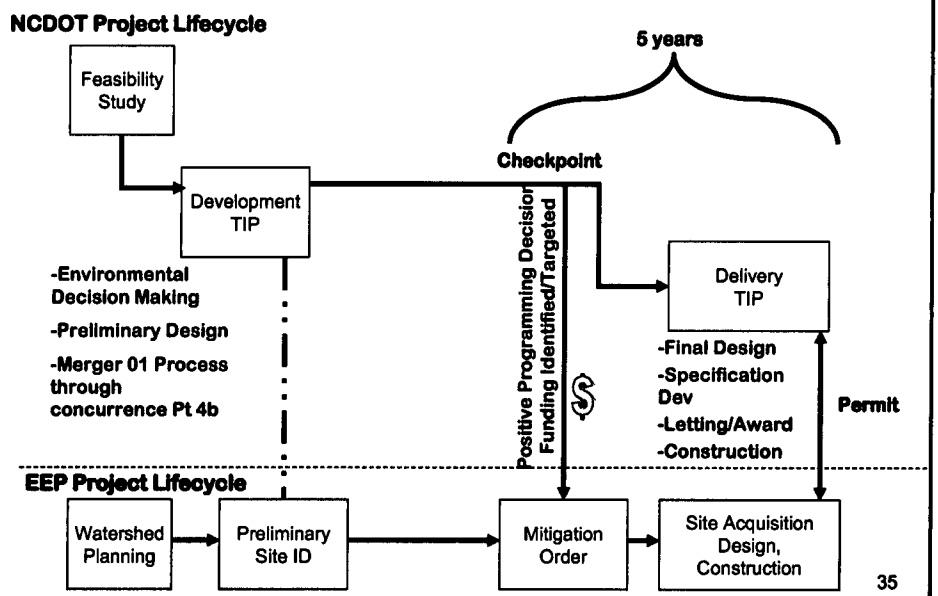
33

Key Recommendations (5 of 7)

- Move from an advanced mitigation model to a just-in-time mitigation model:
  - NCDOT should implement a two-phased TIP with a development TIP and a delivery TIP
  - Mitigation would be ordered at time a project is programmed into the delivery TIP
  - NCDOT would pay EEP on a per-credit fee basis when mitigation is ordered

34

Just-in-time Mitigation



35

Key Recommendations (6 of 7)

- EEP and CWMTF should partner on pilot projects for functional mitigation and out-of-the-box mitigation
- EEP should initiate a three-year mitigation banking pilot in multiple watersheds
- NCDENR should work with EEP and CWMTF to establish a single stewardship approach for both organizations

36

Key Recommendations (7 of 7)

- NCDENR should improve the integration and overall value proposition of its various water resource planning processes by:
  - Improving integration of the EEP's watershed planning with DWQ's basin-wide planning process
  - Strengthening the end products resulting from the watershed planning process to define specific priority projects
  - Linking CWMTF's grant application/selection process more closely to the basin wide and watershed plans and the identified priority projects

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Implementation Plan

- A number of elements are time sensitive:
  - Changes to the MOA
  - Surplus action plan
- Others will require staged-transition plans:
  - Shift to just-in-time mitigation
- Effective implementation will require:
  - Senior executive engagement
  - On-going coordination between EEP, CWMTF, NCDENR management and NCDOT

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Implementation Timeline

NCDOT & DENR | EEP & CWMTF | CWMTF
NCDOT & EEP | NCDOT | EEP

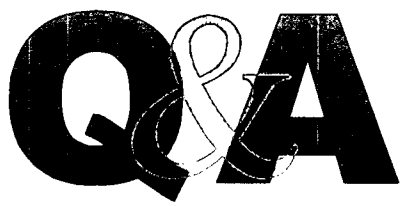
	2007				2008				2009				2010				2011			
	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter
Modify MOA																				
Identify actual surplus																				
Implement partnership to help manage surplus																				
Initiate functional mitigation pilot project																				
Evaluate options for water resource planning process & implement proposed improvements to watershed planning/CWMTF processes																				
Complete design & deploy 2 stage TIP																				
Implement & deploy web-based grants tracking application software																				
Design and implement CWMTF outcome measurement and reporting process																				
Implement EEP project delivery process improvements																				
Conduct a review to achieve standardization between EEP and CWMTF																				
Initiate the EEP/CWMTF out-of-the-box mitigation pilot project																				
Transition to a just-in-time mitigation approach based on the programming of a project into the delivery TIP																				
Transition to a per fee credit basis for NCDOT acquisition of mitigation credits																				

Recap

- Merger of EEP and CWMTF not recommended; instead aggressively pursue programmatic synergies
- NCDOT and NCDENR must renegotiate EEP MOA to increase flexibility
- NCDOT and EEP must work together to mange surplus issues
- NCDOT and EEP should transition from advanced mitigation to just-in-time mitigation including two-phased TIP
- Implementation will require senior executive engagement from NCDOT and NCDENR

40

Questions and Discussion



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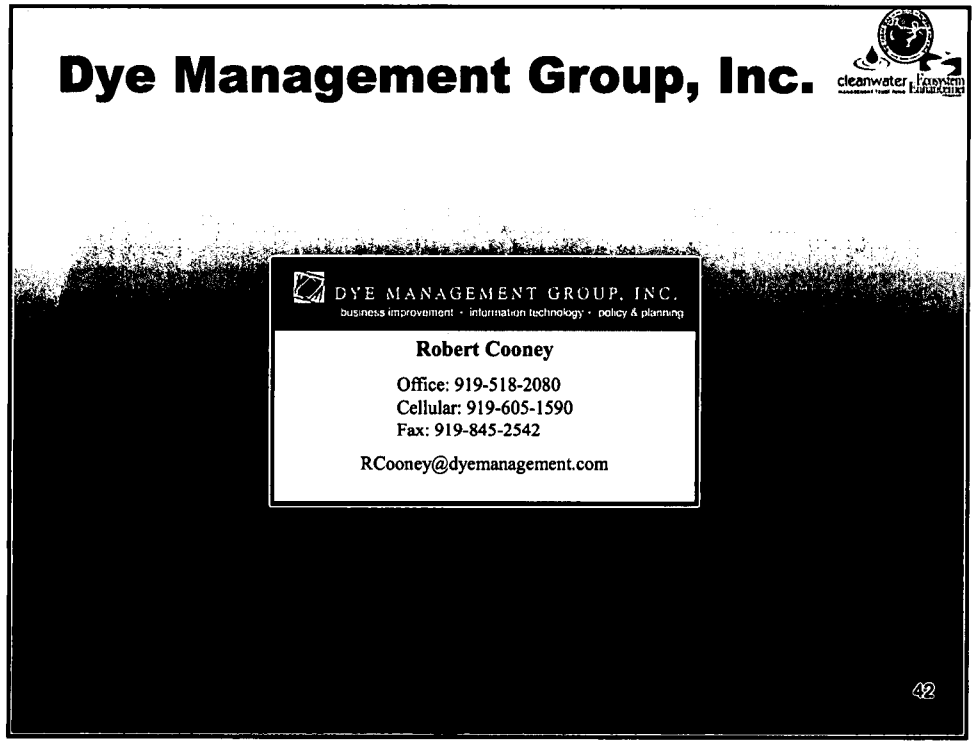

Ecosystem Enhancement Program

cleanwater MANAGEMENT TRUST FUND

EXHIBIT E

North Carolina General Assembly

Study of the Merger of Ecosystem Enhancement Program & Clean Water Management Trust Fund

Final Report of Findings and Recommendations

DYE MANAGEMENT GROUP, INC.

In conjunction with

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North Carolina General Assembly

Study of the Merger of Ecosystem Enhancement Program & Clean Water Management Trust Fund

Final Report of Findings and Recommendations

June 2007

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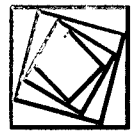

North Carolina General Assembly

Study of the Merger of Ecosystem Enhancement Program & Clean Water Management Trust Fund

Final Report of Findings and Recommendations

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Executive Summary

Section 16 of Part XVI of Session Law 2206-248, House Bill 1723 directed the Environmental Review Commission and the Joint Legislative Transportation Oversight Committee to jointly study the merger of the organizational functions of the Ecosystem Enhancement Program (EEP) and the Clean Water Management Trust Fund (CWMTF). The North Carolina General Assembly engaged Dye Management Group, Inc. to conduct this study. This report documents the result of this study.

Based on the study, the merger of the EEP and the CWMTF is not recommended. However, there are opportunities for a number of programmatic synergies between the EEP and the CWMTF, which should be initiated. In addition, the study also identified a number of policy changes and process improvements to improve the overall efficiency and effectiveness of EEP operations and the interrelationship between EEP and the North Carolina Department of Transportation (NCDOT).

A. Study Overview

In 1989, the North Carolina General Assembly passed the Highway Trust Fund Act, initiating a significant transportation construction program. The increase in impacts to aquatic resources resulting from the highway construction program also resulted in a substantial increase in compensatory mitigation requirements for the North Carolina Department of Transportation (NCDOT) under §401 and §404 of the Clean Water Act.

During the 1990s, NCDOT typically addressed the mitigation required to obtain permits from the United States Army Corps of Engineers (USACE) and the North Carolina Division of Water Quality (DWQ) at the time of the permit application. Permit applications were made within the year prior to the proposed date for letting the transportation project (selection of a construction contractor) and initiating the construction phase of a project. As part of the permit application process, NCDOT discussed mitigation requirements, the acceptable location for this mitigation, and the details concerning the construction of this mitigation with regulators. NCDOT developed detailed mitigation plans for each project and USACE and DWQ staff reviewed these plans thoroughly prior to issuing the appropriate permits. This process was relatively ineffective, and an estimated 40% of projects requiring mitigation were delayed for several months or several years because of permit issues related to mitigation. These delays increased the cost of constructing the projects and created a loss of confidence in NCDOT by its numerous stakeholders.

Because of these problems with mitigation, the North Carolina Board of Transportation and NCDOT initially established its own internal advanced mitigation program, with the goal of having mitigation in place at the time a project was actually let to construction. Then in 2001, an interagency team recommended that the responsibility for providing mitigation be

transferred to a new agency within the Department of Environment and Natural Resources (NCDENR). This agency, to be known as the Ecosystem Enhancement Program, would provide advanced mitigation to meet the needs of NCDOT as well as take over responsibility for the in-lieu-fee program, which was then housed in the Wetlands Restoration Program (WRP).

The cornerstone of the EEP is a detailed watershed-planning process that is designed to identify high-quality, cost-effective mitigation projects that will also contribute to watershed improvement and protection and open space preservation. The EEP provides a programmatic approach to providing in-ground, functioning compensatory mitigation for the majority of permitted impacts in advance of the loss of aquatic resources.

The EEP develops mitigation sites and/or acquires mitigation credits from mitigation banks to meet NCDOT mitigation requirements based on demand forecasts provided by NCDOT. The Memorandum of Agreement (MOA) between NCDOT, NCDENR and USACE, which established the EEP, specifies that this mitigation will be implemented within the same eight-digit United States Geologic Survey (USGS) cataloguing unit in which the impact occurred. EEP uses a number of techniques to identify appropriate mitigation sites including its watershed planning process, which it conducts at various levels of detail in the different river basins across the state based on the anticipated level of needs in the cataloguing units within the river basin. .

To help jumpstart the EEP and immediately remove mitigation from the critical path for obtaining a permit and initiating construction of transportation projects, EEP was initially given additional flexibility in the way that mitigation was provided. This included allowing the EEP to utilize high-quality preservation lands in higher ratios than is normally allowed to meet 100% of permit requirements, with the understanding that the required wetland and stream restoration would be developed by the end of the transition period. The goal was that, at the end of a seven-year ramp-up period, the EEP would begin to have the actual restoration projects in the ground, with successful monitoring complete, in advance of the letting of the construction project at which point half of the high quality preservation lands would then be released for future use within the designated ecoregion.

While the EEP is focused on providing mitigation, North Carolina's Clean Water Management Trust Fund (CWMTF) has a broader mission of preserving and enhancing water quality within the state of North Carolina. Established by the General Assembly in 1996, CWMTF helps local governments, state agencies, and conservation non-profit groups finance projects to protect and restore surface water quality. Since 1996, as result of on-going appropriations from the General Assembly, CWMTF has awarded 943 grants for a total of $711.5 million. CWMTF provides grants to:

- Enhance or restore degraded waters.
- Protect unpolluted waters.
- Contribute toward a network of riparian buffer and greenways for environmental, educational, and recreational benefits.

CWMTF projects include improvements to wastewater treatment and collection systems; storm water management; wetlands, riparian buffer, and stream restoration; and the acquisition of buffers, floodplains, wetlands, and greenways. CWMTF's enabling legislation specifically restricts it from providing compensatory mitigation.

Beginning in 2004 and continuing into 2005 and 2006, as the EEP program ramped up and acquisition and restoration activities were initiated, a number of questions were raised about the actual cost of the EEP and whether the cost of its operation will provide the anticipated payback in terms of helping to expedite the letting of transportation projects. In addition, there were other operational questions raised as well, including whether the MOA stipulation to require mitigation within a specific cataloguing unit was creating operational complexities for the EEP and thus significantly increasing the cost of mitigation for NCDOT.

At the same time, there were also questions raised by a number of policy makers about whether there may be potential synergies between the EEP and the CWMTF that the state was not taking full advantage of, given some of the overlap in the missions of these two agencies. Some policy makers, for example, questioned whether the prohibition on the CWMTF participating in compensatory mitigation should be re-assessed. Removing the restriction on the CWMTF participating in compensatory mitigation could allow some of the riparian buffer, wetland and stream restoration projects funded by the state through the CWMTF to then be applied as mitigation credits for transportation projects. Likewise, some policymakers believed that there could be opportunities to work with regulators in certain cases to utilize non-traditional mitigation approaches for projects such as repairing a failing wastewater treatment plant downstream in an area being impacted by a transportation project.

In response to these issues and others, this study was initiated. The scope of the study included conducting a detailed review of the current organizational structure and key work processes of both the EEP and the CWMTF programs, comparing the EEP processes with the previous NCDOT mitigation program and assessing the potential role of mitigation banks in North Carolina. In addition, the study team was asked to review practices in other peer states and assess their applicability to North Carolina, assess the impact of proposed federal rule making on the EEP, and develop an inventory of acquisitions and credits to assess whether there is a surplus of mitigation credits in some areas of the state. The team also conducted a detailed alternatives analysis of five (5) potential models for both better integrating the EEP and the CWMTF and providing mitigation in North Carolina. These alternatives included:

- The status quo in which the EEP and the CWMTF are independent programs.
- The status quo with modifications designed to improve the efficiency of the current program environment and promote enhanced programmatic synergies between the EEP and the CWMTF.
- A merger of the EEP and the CWMTF programs.
- Returning responsibility for mitigation for transportation projects to NCDOT.

- Implementing a private mitigation banking model to the extent practical.

As part of this study effort, the team conducted a significant stakeholder outreach effort, including conducting more than 40 detailed interviews and executing follow-up work sessions with various stakeholders to review findings and potential recommendations.

B. Summary of Key Findings

Highlights of some of the key findings from this study include the following:

- The NCDOT mitigation program was not effective in meeting its program objectives, with more than 40% of permits requiring mitigation delayed for various lengths of time.
- No permit has been delayed for mitigation since the initiation of the EEP, resulting in cost avoidance to NCDOT of at least $6.5 million in potential construction cost increases due to delayed lettings.
- Based on NCDOT's demand forecast, there will be a surplus of mitigation in a number of cataloguing units. This surplus is the result of a number of factors, which include volatility in the transportation improvement program (TIP), inexperience in forecasting mitigation requirements on the part of NCDOT, the lack of any flexibility to apply credits outside the cataloguing unit being impacted, and an overly aggressive program on the part of both NCDOT and the EEP to acquire high-quality preservation lands.
- Based on NCDOT's demand forecast, there will be a surplus of mitigation in a number of cataloguing units. This surplus is the result of a number of factors, which include volatility in the transportation improvement program (TIP); inexperience in forecasting mitigation requirements on the part of NCDOT; decreases in actual mitigation requirements after mitigation was acquired based on the initial higher forecast;.the lack of any flexibility to apply credits outside the cataloguing unit being impacted, and an overly aggressive program on the part of NCDOT and EEP to acquire high-quality preservation lands.
- The genesis of this surplus issue pre-dates the EEP. It started with the NCDOT's advance mitigation program and the department's efforts to acquire high-quality preservation lands.
- Between the EEP and NCDOT, more than $78 million has been spent to acquire high-quality preservation lands. However, some of this land is uplands, and, based on discussions with various stakeholders, portions of these properties may be logical candidates for sale.
- The EEP is recognized nationally as a model program; however, there are no states actively trying to replicate the EEP program for a variety of reasons. These reasons include the number and the degree of maturity of mitigation banks in many states, the organizational change and management effort required to implement an EEP-like

program, the cost of implementing the program, and uncertainty concerning the impact of the proposed federal mitigation rules on an EEP-like program.

- The proposed federal mitigation banking rules, as initially written in draft form, would eliminate in-lieu fee programs. This would likely cause substantial restructuring of the EEP and how it provides mitigation for permittees, including the NCDOT. In many cases, responsibility for mitigation would be transferred back to NCDOT. If this were to occur, NCDOT would need to utilize mitigation banks and/or implement project specific mitigation. However, the EEP is well respected by regulators at the federal level and a number of comments on the proposed rule voiced support for EEP-like programs =. Thus, it is our sense that there is a reasonable likelihood that the final rule will allow programs similar to the EEP to continue.
- Several of the peer states surveyed as part of the study make more extensive use of mitigation banks to meet their mitigation requirements for transportation projects; however, mitigation banks have traditionally not been very strong in North Carolina. Some of the reasons for this are the very narrow definition of service area (cataloguing unit) and the fact that banks would not be economically viable due to limited demands for services in some areas of the state.
- There are a number of ways in which the EEP and the CWMTF already work together today. However, we believe there are a number of potential additional programmatic synergies between the two organizations, including working together to address the surplus issue, partnering on functional mitigation and out-of-the-box mitigation projects, and more tightly integrating the EEP's watershed planning process with the CWMTF's application and selection process.

C. Summary of Major Recommendations

Some of the major recommendations from the study include the following:

- Our analysis suggests that there are limited benefits to merging the EEP and the CWMTF. While both agencies are focused on creating positive environmental outcomes, the EEP is responsible for delivering a compensatory mitigation program based in a fairly structured, regulatory environment. The CWMTF, on the other hand, is responsible for managing a voluntary program with a substantially larger scope. Likewise, while the EEP is a delivery organization that manages the restoration of streams and wetlands, the CWMTF is a grantor agency that provides funding to other organizations that actually design and implement projects. In addition, there would be significant risk in terms of stakeholder buy-in and cultural change between the two organizations.
- While we do not recommend an actual merger of the two organizations, we believe that there are a number of programmatic synergies between the EEP and the CWMTF that should be aggressively pursued. These programmatic synergies include:
  - Ensuring that the EEP is engaged in all state land acquisitions in order to utilize mitigation dollars as the first source of funding for any acquisitions by the state

in an area where there is a need for mitigation credits and the property being acquired would be eligible for mitigation credits.

- Linking the two organizations more closely through tighter integration of the EEP's watershed planning process with the CWMTF's grant application and selection process.
- Developing a partnership between the EEP and the CWMTF to provide a mechanism to help other state agencies, local governments, or land trusts acquire the mitigation lands that may be declared as surplus.
- Developing a partnership between the EEP and the CWMTF to jointly pursue functional replacement projects and a pilot of an out-of-the-box mitigation project.

- In addition, the General Assembly should consider removing the prohibition on the CWMTF participating in compensatory mitigation. Having the option to utilize CWMTF monies for compensatory mitigation would provide the state additional flexibility and provide the potential for better leveraging the state's scare financial resources. It also may allow the CWMTF and the EEP to work together more effectively in the future on functional mitigation and out-of-the-box mitigation initiatives.
- NCDOT and NCDENR, as the state's two agency partners in the MOA, should work with USACE to negotiate changes to the MOA to provide for the flexibility to utilize applicable, surplus credits between cataloguing units a within the same river basin.
- NCDOT and NCDENR should also renegotiate the MOA to include a clear statement of direction that mitigation ratios may be reduced in situations where mitigation is in the ground and functional at the time of impact. This will substantially reduce the amount of mitigation needed over the long term and result in significant savings for the state.
- NCDOT and the EEP should complete identification of surplus properties and develop an action plan for each property including sale of the property if that is most appropriate.
- NCDOT should improve the quality of the demand forecast for mitigation by implementing a two-phased Transportation Improvement Program (TIP). This two-phased TIP would include a development TIP that contains projects from the feasibility study, environmental planning and preliminary design stages of the project delivery life cycle, and a delivery TIP consisting of projects that are in final design, letting preparation, and the construction phases of the project delivery life cycle. A comprehensive review and sign-off process would be required to program a project into the delivery TIP.
- NCDOT and the EEP should shift from the current advanced mitigation approach to more of a just-in-time mitigation approach, wherein mitigation is ordered and work initiated well in advance of starting construction but only at a point where there is a firm commitment by NCDOT that the transportation project will actually be done. This will allow the actual requirements for mitigation to be more clearly understood

because most of the collaborative decision-making in the department's Merger 01 process will have been completed.

- NCDOT should shift from compensating the EEP on an expense reimbursement methodology to a per-credit fee basis when the department begins ordering mitigation at the time a project is programmed for construction. We believe that this recommendation should be implemented as the current build-out of mitigation is completed and the just-in-time mitigation approach based on the two-phased TIP is initiated.
- The EEP should strengthen and further integrate its watershed planning process with other functional areas by:
  - Improving integration of the EEP's watershed planning with DWQ's basin-wide planning process.
  - Strengthening the end products resulting from the watershed planning process to define specific priority projects.
  - Linking the CWMTF grant application process more closely to watershed plans.
- The EEP and the CWMTF should partner on pilot projects for functional mitigation and out-of-the-box mitigation.
- The EEP should initiate a three-year mitigation banking pilot in multiple watersheds.

In preparing a proposed timeline for implementing these recommendations, the study team attempted to clearly delineate between short- and longer-term recommendations. Short-term recommendations include renegotiating elements of the MOA to obtain additional flexibility and better manage the surplus of mitigation. These recommendations must be addressed immediately, as time is of the essence. Then, there are a number of other recommendations that can be implemented over the next two years, while some recommendations have a logical transition point three to four years in the future, as the current EEP mitigation build-out begins to level off.

Integral to the implementation of a number of the shorter-term recommendations, such as renegotiating the MOA to obtain additional flexibility, will be the involvement of the senior executives of NCDENR and NCDOT. We believe that not only support but active hands-on involvement at the secretary level will be required to execute on a number of these recommendations.

I. Study Introduction

Section 16 of Part XVI of Session Law 2206-248, House Bill 1723 directed the Environmental Review Commission and the Joint Legislative Transportation Oversight Committee to jointly study the merger of the organizational functions of the Ecosystem Enhancement Program (EEP) and the Clean Water Management Trust Fund (CWMTF). The North Carolina General Assembly selected Dye Management Group, Inc., along with our teaming partners, the Environmental Law Institute and SEPI Engineering, to conduct this study. This report documents the key findings and recommendations of this study.

This chapter provides background on the study scope and objectives. It also outlines our project approach and research methodology. The remaining sections of this report define the programmatic environment and regulatory framework in North Carolina, describe mitigation practices and strategies in other states, and compare these practices to North Carolina's. The report also provides an overview of current federal regulations and the potential impact of anticipated regulatory changes at the federal level, presents an analysis of various organizational and programmatic alternatives for both integrating EEP and CWMTF and providing mitigation, describes our findings and recommendations, and provides a proposed transition plan for implementing the various recommendations.

A. Study Background

The Federal Water Pollution Control Act (or The Clean Water Act), enacted in 1972, provides the basis in §401 and §404 for federal and state requirements that all permittees, including state departments of transportation and other government agencies, as well as private individuals and organizations, to mitigate impacts to streams and wetlands that are "waters of the United States." In addition, the state of North Carolina adopted rules in 2001 regulating impacts to so-called "isolated waters" that fall outside the jurisdiction of the federal Clean Water Act. With a goal of maintaining nutrient reduction functions, North Carolina has also adopted Nutrient Offset Program in the Neuse and Tar-Pamlico river basins and rules protecting riparian buffers within the Neuse, Catawba, and Tar-Pamlico river basins.

Primary responsibility for the administering the federal program rests with the United States Army Corp of Engineers (USACE), based in part on policies and guidelines established by the United States Environmental Protection Agency (EPA). The primary responsibility for administering the state program in North Carolina rests with the Division of Water Quality (DWQ) of the North Carolina Department of Environment and Natural Resources (NCDENR).

The goal of the 404 program is no net loss. To achieve this policy of no net loss, regulators require permittees to go through a three-step mitigation sequence, of which the third step is

compensation for acres lost to the permitted impact. Federal policy recommends that permittees provide a minimum of 1 to 1 acreage replacement for compensatory mitigation. For example, if one acre of wetlands were being impacted by a proposed transportation or other development project, the permit applicant would be required to restore one acre of the same type of wetland. In many instances, permittees may be required to mitigate at a higher ratio in order to provide some insurance against failure of mitigation, or to compensate for a temporal loss of function.

Federal policies dictate a preference that mitigation is typically provided in the watershed as the permitted impact, typically within the same hydrologic cataloguing unit (HUC). Hydrologic cataloguing units are defined by the United States Geological Survey (USGS), which has divided and sub-divided the nation into successively smaller hydrologic units that are classified into four levels: regions, sub-regions, accounting units, and cataloguing units. The eight-digit cataloguing unit is a geographic area representing part or all of a surface drainage basin, a combination of drainage basins, or a distinct hydrologic feature. There are 2,264 cataloguing units in the United States. North Carolina has 54 HUCs or cataloguing units within its 17 river basins.

In 1989, the North Carolina General Assembly passed the Highway Trust Fund Act, initiating a significant transportation construction program, including seven outer loops and four-lane divided highways for towns with populations greater than 50,000. The increase in highway construction conducted under the program also resulted in a substantial increase in the amount of compensatory mitigation required for the North Carolina Department of Transportation (NCDOT), especially given that North Carolina is 17% wetlands.

During the 1990s, NCDOT typically addressed the mitigation required to obtain permits from the USACE and DWQ at the time of the permit application. Permit applications were made within the year prior to the proposed date for letting the transportation project (selection of a construction contractor) and initiating the construction phase of a project.

As part of the permit application process, NCDOT discussed mitigation requirements, the acceptable location for this mitigation, and the details concerning the construction of this mitigation with regulators. NCDOT developed detailed mitigation plans for each project, and USACE and DWQ staff reviewed these plans in detail prior to issuing the appropriate permits.

NCDOT typically provided mitigation on-site or as near the site as possible. NCDOT usually took responsibility for providing the mitigation, either by designing the mitigation in-house or with consultant engineers and then contracting for construction of the mitigation. On occasion, NCDOT purchased mitigation credits from mitigation bankers. DOT also developed mitigation banks by contracting with private firms to sponsor the bank, to develop qualifying mitigation in advance of the need, based on their assumptions about the market for mitigation requirements, and then make these "credits" available for purchase by impactors to use to satisfy the mitigation requirements of regulators.

Because the discussion of mitigation requirements was occurring between NCDOT and the regulatory staff of the USACE and DWQ for the first time when the permit application was

submitted, the process of reviewing the detailed mitigation plans and obtaining approval for the proposed mitigation became a critical path activity to initiate construction of transportation projects. As a result, a large number of projects were delayed due to permits not being obtained in time because of the inability to reach consensus on mitigation requirements between NCDOT, USACE, Division of Coastal Management (DCM) and DWQ and obtain regulatory approval of NCDOT's proposed mitigation plans for a project. NCDOT has estimated that up to 40% of projects requiring mitigation were delayed, with these delays ranging from several months to a number of years.

In response to these delays, NCDOT and its Board of Transportation began an effort in the mid 1990s to identify mitigation needs for projects earlier and begin to secure advance mitigation. Advance mitigation refers to having acceptable mitigation in place and functioning prior to the request to use this mitigation to meet the requirements of a specific permit application.

NCDOT identified its anticipated mitigation requirements based on analysis of upcoming projects in its Transportation Improvement Program (TIP). It began trying to secure the anticipated mitigation through a number of approaches, including selecting sites and beginning to construct mitigation while a transportation project was still in the preconstruction phase, purchasing a number of high-quality preservation lands to provide part of the required mitigation for future projects, and purchasing available credits from mitigation bankers.

However, significant volatility within the TIP has limited the success of the NCDOT advanced mitigation program. The priority and sequencing of projects within the TIP would change frequently for any number of reasons. Some of these reasons included various delays in the NCDOT project development process; changes in the relative priority of different projects by NCDOT board members, legislators and local officials; other issues raised by regulators besides mitigation as part of the permitting process; and continuous shifting between various potential funding sources proposed for use on a project.

The result of these changes in the TIP would be imbalances in the inventory of advanced mitigation. Mitigation would be developed in one HUC for a project, which was delayed or deferred creating at least a short-term surplus of mitigation in that cataloguing unit. At the same time, mitigation would not be available in another cataloguing unit for a project whose priority had been moved up and for which planning for advance mitigation had not been initiated. Quite often, this would again lead to a delay in the letting of this project. Both of these outcomes represented significant cost impacts to NCDOT: in the first case, the cost of developing potentially unneeded mitigation, and in the second case, the costs associated with delays in the start of construction for a project for which the required mitigation was not available.

In addition, there were also a number of questions around organization mission and focus concerning NCDOT's mitigation program. Environmental specialists on staff at NCDOT coordinated NCDOT's mitigation program; however, the core mission of NCDOT is transportation focused: the safe and efficient movement of people and goods. This mission is principally achieved through planning, designing, building, and operating the state's

transportation infrastructure. The acquisition of high-quality preservation lands and the planning, design, and construction of stream and wetlands restoration projects was at best an adjunct to this core mission, necessitated by the requirement to provide mitigation to obtain permits for the department's transportation projects.

In response to the challenges NCDOT was having in providing mitigation, NCDOT, NCDENR, and the USACE worked together to establish the Ecosystem Enhancement Program (EEP). NCDOT, NCDENR, and the USACE signed a Memorandum of Agreement (MOA) providing the framework for this program in July of 2003.

A primary responsibility of EEP, which is housed within NCDENR, is to administer an in-lieu fee program to provide required mitigation for NCDOT projects in advance of the start of construction projects and the loss of the aquatic resource to be impacted by these projects.

An in-lieu fee program is an agreement between a regulatory agency (state, federal, or local) and a single sponsor, generally a public agency or non-profit organization. According to the USACE, "in-lieu fee mitigation occurs in circumstances where a permittee provides funds to an in-lieu fee sponsor instead of either completing project-specific mitigation or purchasing credits from a wetland mitigation bank approved under the Banking Guidance."[1]

Under an in-lieu fee agreement, the mitigation sponsor collects funds from one organization or a number of organizations who are required to conduct compensatory mitigation required under §404 or another state or local wetland regulatory program. The sponsor may use the funds pooled from multiple permittees to create one or a number of sites under the authority of the agreement to satisfy the permittees' required mitigation. In-lieu fee mitigation is typically categorized as mitigation conducted after permitted impacts have occurred; however, the goal of the EEP program for NCDOT is specifically to provide mitigation in advance of the anticipated impacts.

The cornerstone of the EEP is a detailed watershed-planning process that is designed to identify high-quality, cost-effective mitigation projects that will also contribute to watershed improvement and protection and open space preservation. The EEP provides a programmatic approach to providing in-ground, functioning compensatory mitigation for the majority of permitted impacts in advance of the loss of aquatic resources.

The EEP develops mitigation sites and/or acquires mitigation credits from mitigation banks to meet NCDOT mitigation requirements, based on demand forecasts provided by NCDOT about anticipated mitigation requirements and the proposed letting dates for these projects in NCDOT's TIP. The MOA specifies that this mitigation will be implemented within the

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[1] US Department of the Army, US Environmental Protection Agency, US Department of Interior, and US Department of Commerce. *Federal Guidance on the Use of In-lieu fee Arrangements for Compensatory Mitigation under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.* 2000.

same HUC that the impact occurred. The appropriate sites for implementing the required mitigation are intended to be identified through river basin and detailed watershed plans that the EEP develops. The EEP develops its mitigation projects through one of three approaches: purchase from a bank, design/bid/build and full delivery. Under the design/bid/build approach, the EEP contracts separately with engineering firms for design and then contracts with a construction firm for the actual restoration project. Under the full delivery approach, the EEP effectively purchases credits in one or more watersheds from a private delivery provider who is responsible for site selection, design, and construction, according to standards and specifications developed by the EEP.

To help jump-start the EEP and immediately remove mitigation from the critical path for obtaining a permit for and initiating construction of transportation projects, the MOA provided the EEP with additional flexibility in the way that mitigation was provided. This included initially allowing the EEP to utilize high-quality preservation lands in higher ratios than is normally allowed EEP to utilize high-quality preservation to meet 100% of permit requirements, with the understanding that the required wetland and stream restoration would be developed by the end of the transition period. The goal was that, at the end of a seven-year ramp-up period, the EEP would begin to have the actual restoration projects in the ground, with successful monitoring complete, in advance of the letting of the construction project at which point ½ of the HQP is released for future use in the ecoregion.

In addition to its responsibilities to provide mitigation for NCDOT, EEP also manages the state's in-lieu fee program for non-NCDOT mitigation needs, which was formerly the Wetlands Restoration Program (WRP) that was established in 1996. The EEP also manages a nutrient offset program that provides dischargers and developers in three river basins with the option to purchase credits instead of conducting their own mitigation to offset discharge of wastewater and other effluents into state waters.

While the EEP is focused on providing mitigation, North Carolina's Clean Water Management Trust Fund (CWMTF) has a broader mission of preserving and enhancing water quality within the state of North Carolina. Established by the General Assembly in 1996, CWMTF helps local governments, state agencies, and conservation non-profit groups to finance projects in order to protect and restore surface water quality. Since 1996, as result of on-going appropriations from the General Assembly, CWMTF has awarded 943 grants for a total of $711.5 million. CWMTF provides grants to:

- Enhance or restore degraded waters.
- Protect unpolluted waters.
- Contribute toward a network of riparian buffer and greenways for environmental, educational, and recreational benefits.

CWMTF projects include improvements to wastewater treatment and collection systems; storm water management; wetlands, riparian buffer and stream restoration; and the acquisition of buffers, floodplains, wetlands, and greenways. CWMTF's enabling legislation specifically restricts it from providing compensatory mitigation.

B. Study Scope and Objectives

Beginning in 2004 and continuing into 2005 and 2006 as the EEP program ramped up and acquisition and restoration activities were initiated, a number of questions were raised about the actual cost of the EEP and whether the cost of its operation will provide the anticipated payback in terms of helping to expedite the letting of transportation projects. In addition, there were other operational questions raised as well, including whether the MOA stipulation to require mitigation within a specific HUC or cataloguing unit was creating operational complexities for the EEP and thus significantly increasing the cost of mitigation for NCDOT.

At the same time, there were also questions raised by a number of policymakers about whether there may be potential synergies between the EEP and the CWMTF that the state was not taking full advantage of, given some of the overlap in the missions of these two agencies. Some policymakers, for example, questioned whether the prohibition on the CWMTF participating in compensatory mitigation should be re-assessed. Removing the restriction on the CWMTF participating in compensatory mitigation could allow some of the riparian buffer, wetland, and stream restoration projects funded by the state through the CWMTF to then be applied as mitigation credits for transportation projects. Likewise, some policymakers believed that there could be opportunities to work with regulators in certain cases to utilize non-traditional mitigation approaches for projects, such as repairing a failing wastewater treatment plant downstream from a proposed transportation project. These types of proposed "out of the box" mitigation approaches could provide additional points of synergy between the EEP as the agency responsible for mitigation and the wider range of water quality initiatives typically funded by the CWMTF.

In addition, there have been recent changes in the leadership and management of the CWMTF, with a new board chairperson taking office and a search underway for a new executive director. Thus, given that this is a transition time at the CWMTF, it was also thought that this might be an appropriate point at which to further explore and execute on potential synergies between the two organizations.

In response to these issues and others, the North Carolina General Assembly enacted Section 16 of Part XVI of Session Law 2006-248, House Bill 1723, which directed the Environmental Review Commission and the Joint Legislative Transportation Oversight Committee to jointly study the merger of the organizational functions of the EEP and the CWMTF. The General Assembly then engaged Dye Management Group, Inc. to conduct this study.

The scope of this study includes the following objectives and tasks:

- Conducting a detail review of the current organizational structure and key work processes of both the EEP and the CWMTF programs.
- Comparing the current EEP processes with mitigation processes utilized by NCDOT prior to the creation of the EEP.

- Reviewing the current state of the mitigation banking industry in North Carolina and assessing the feasibility of using mitigation banks to provide all or some of the mitigation credits required for NCDOT projects.
- Reviewing practices in other peer states in regards to providing mitigation for transportation projects.
- Reviewing proposed or anticipated federal rule-making on compensatory mitigation and assessing the impact of this rule-making on the EEP.
- Assessing based on the information developed during the study the feasibility of merging the EEP and the CWMTF.
- Analyzing multiple organizational models and programmatic approaches for providing mitigation for transportation projects.
- Developing and documenting an inventory of acquisitions and credits, including identifying assets acquired by NCDOT prior to the initiation of the EEP.
- Utilizing this inventory of acquisitions and credits to identify the extent of the surplus of mitigation credits in some areas of the state and developing recommendations on how to address this surplus.
- Recommending appropriate strategies to address the delivery of mitigation in North Carolina and providing an implementation plan with suggested timing and sequencing for any recommendations.

C. Research Questions

In designing our project approach for this study, Dye Management Group, Inc. identified a number of potential research questions that were then used as a general framework for identifying and evaluating the various alternatives for delivering a cost-effective mitigation program for transportation projects in North Carolina. Some of these research questions included:

- Is the EEP program helping to reduce or eliminate the previous delays in obtaining permits for transportation projects in North Carolina?
- How much more effective is the EEP program than the previous NCDOT mitigation program in terms of expediting delivery of transportation projects?
- Based on the current and future projected cost of the EEP program, what is the return on investment (if any) based on the extent to which the EEP can help NCDOT to expedite the letting of transportation processes, thus allowing projects to be let sooner and presumably at a lower construction cost?
- What are the potential operational synergies between the EEP and the CWMTF? Are these synergies compelling enough to merge the two programs?
- What would be the cost of merging the EEP and the CWMTF programs?

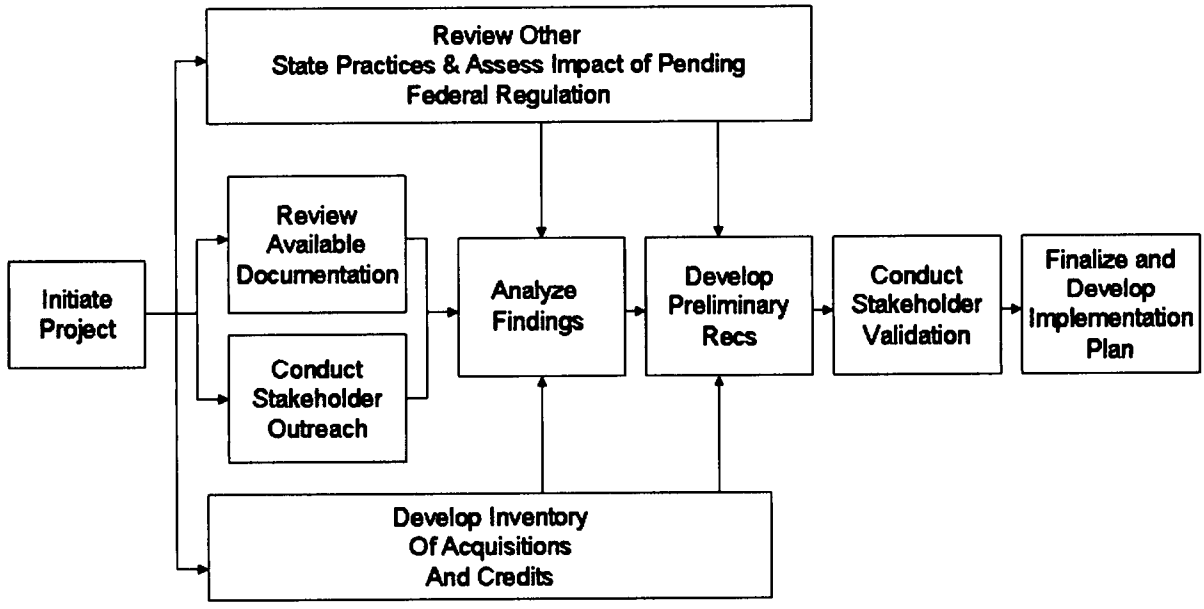
- What are the risks to merging the EEP and the CWMTF, and which mitigation strategies can be implemented to manage these risks?
- How would the merger of the CWMTF and the EEP affect the ability of NCDOT mitigation projects to effectively implement recognized compensatory mitigation recommendations and to meet prescribed ecological goals and standards?
- How does the cost of operating the EEP compare with the use of private mitigation bankers? Which approach is more cost-effective?
- Is the service delivery of the EEP program a candidate for outsourcing, given that there are mitigation bankers who specialize in performing this banking function as their core businesses?

D. Project Approach and Research Methodology

Dye Management Group, Inc.'s project approach and research methodology was specifically designed to address the research questions listed above. Our project approach extensively leveraged the experience and intellectual capital of our team members to allow completion of the project within an approximate 20-week time frame.

Exhibit I-I illustrates our project approach. The individual elements or phases of this approach are then described in further detail below.

Exhibit I-I: Project Approach for EEP/CWMTF Merger Study



1. Initiate project.

This stage involved conducting an initiation meeting with legislative staff and finalizing the detailed work plan and schedule for conducting the study. As part of this phase, the study team also identified key points of contact with the EEP, the CWMTF, and the NCDOT. The team also identified other key stakeholders with the USACE, EPA, the Federal Highway Administration (FHWA) and other organizations within the scope of the study.

2. Review available documentation.

The study team reviewed a wide range of program documentation, enabling legislation and other appropriate literature. Examples of documentation reviewed by the team include:

- The MOA that established the framework and policies for the EEP as well as supporting state legislation.
- The legislation establishing the CWMTF.
- Policy and procedure manuals developed by the EEP for a range of business processes, including watershed planning and the design/bid/build and full delivery procurement processes.
- The CWMTF's application and grant selection process.
- Available documentation on the NCDOT mitigation program prior to the initiation of the EEP.
- Documentation on NCDENR's stewardship program for providing ongoing monitoring and maintenance of mitigation sites, following the initial implementation and monitoring period when restoration is completed.

3. Conduct stakeholder outreach.

Our project approach incorporated considerable stakeholder outreach to ensure that various views on issues were known and available to the research team members and that any potential risks or issues surrounding potential recommendations were understood early in the process. A total of 41 interviews were conducted with a range of stakeholders including management, staff, board members, and grantees of the CWMTF; management and staff and a number of private sector partners of the EEP; appropriate NCDOT management and staff; NCDENR senior management; state and federal regulatory agency staff; FHWA division staff; private mitigation bankers; and environmental advocacy groups. Exhibit I-II illustrates an inventory of the interviews conducted by the research team by type of stakeholder.

Exhibit I-II: Inventory of Interviews by Stakeholder Type

Stakeholder Group	Interviews
CWMTF management and staff	4
CWMTF board members	2
CWMTF grantees	2
EEP management and staff	8
NCDENR senior management	1
State regulatory agency staff	1
Federal regulatory agency staff	5
NCDOT Board members, management and staff	7
FHWA Division staff	4
EEP on-call consultants/contractors/full delivery providers	3
Environmental Advocacy Organization	1
State Property Office	1
Private mitigation bankers	2
Total interviews:	**41**

4. Review other state practices.

The study team conducted detailed reviews of mitigation practices in four other states: Florida, Georgia, Virginia, and Washington. Florida, Georgia, and Virginia were selected due to their geographical proximity to North Carolina and the fact that, like North Carolina, they are experiencing rapid growth. Washington State was selected due to its legislatively mandated focus on functional replacement and the Washington State Department of Transportation's efforts to implement a watershed planning process that has some similarities to the process utilized by the EEP.

5. Assess impact of pending federal regulations.

The study team reviewed in detail and assessed the potential impact on the EEP of several pending federal regulatory efforts. This included:

- The March 2006 proposed rule-making from USACE and EPA on compensatory mitigation.
- The National Mitigation Action Plan, originally released in draft form in 2002, which has among its objectives an increased emphasis on watershed planning.
- The impact of the Supreme Court decision in 2006 in Rapanos v. United States and Carabell v. U.S. Army Corps of Engineers ("Rapanos/Carabell"), which casts doubt as to whether some waters, particularly tributaries, wetlands, ditches,

and non-perennial streams, fall within federal jurisdiction under the Clean Water Act.

6. Develop inventory of acquisitions and credits.

The study team collected and analyzed a number of data sets from NCDOT and EEP to develop a current snapshot of the inventory of acquisitions and credits. The data sets incorporated in this analysis include:

- High-quality preservation land acquisitions by NCDOT prior to EEP.
- Mitigation developed or acquired by NCDOT prior to EEP and the method of acquisition/development.
- High-quality preservation land acquisitions by EEP.
- Mitigation developed or acquired by EEP and the method of acquisition/development.
- The current NCDOT TIP and the projection of future mitigation needs based on the TIP.
- The anticipated surplus or gap in mitigation credits by cataloguing unit based on NCDOT's projected needs.

This detailed inventory of acquisitions and credits is included as Appendix A through G of this report.

7. Analyze findings.

In this phase, the team developed and documented a number of findings based on the data collected in the previous phases. This includes findings related to the operations of the EEP and the CWMTF, the surplus of credits in some watersheds, the relationship between the EEP and NCDOT, and the potential for greater organizational and programmatic synergies between the EEP and the CWMTF.

A critical part of this analysis process was the identification and detailed analysis of several alternative approaches for providing compensatory mitigation in North Carolina and for achieving programmatic synergies between the EEP and the CWMTF. The study team analyzed the following alternatives:

- The status quo in which the EEP and the CWMTF are separate programs, with the EEP carrying responsibility for providing compensatory mitigation for transportation projects.
- Maintaining the status quo organizationally with a range of policy changes and process improvements to streamline individual program operations and achieve greater programmatic synergies between the EEP and the CWMTF where appropriate.

- Merger of the EEP and the CWMTF.
- Return of responsibility for mitigation to NCDOT.
- Implementation of a privatized mitigation banking model.

8. Develop preliminary recommendations.

Based on the findings, the study team then developed a series of preliminary recommendations to address these findings. The team developed recommendations to address a number of issue areas identified in the study, including:

- The organizational and programmatic relationships between the EEP and the CWMTF.
- Steps to strengthen the relationships between the EEP and NCDOT.
- Specific policy changes and process improvement recommendations for the EEP.
- Process improvement changes at NCDOT to improve the quality of its demand forecast and to foster an improved working relationship with the EEP.
- Specific policy changes, process improvement, and technology recommendations for the CWMTF.

9. Conduct stakeholder validation.

In this phase, structured briefings on findings and preliminary recommendations were initially conducted with the co-chairs of Joint Transportation and Environmental Review and legislative staff to provide preliminary feedback to sponsors on the direction of the study. With the approval of the study sponsors, the study team then conducted structured briefings with appropriate management and staff of the EEP, the CWMTF, and NCDOT, and representatives of the USACE to validate our findings and obtain feedback on our proposed recommendations.

10. Finalize recommendations and develop implementation plan.

Based on feedback from the validation sessions, recommendations were adjusted if appropriate and an implementation plan was developed to provide guidance to the study sponsors and stakeholders on the relative timing and sequence for implementing the recommendations from the study. The findings and recommendations from the study were then incorporated into an initial and final draft of this report, and several presentations of study results were presented in different forums.

The remaining sections of this report document the study context and the findings and recommendations of this study in greater detail. These sections include:

Section II. North Carolina Programmatic Overview – This section provides an overview of the regulatory framework that establishes the requirements for mitigation for transportation

projects. It also provides an overview of the program objectives, scope, and operations of the EEP and the CWMTF. Likewise, it provides an overview of mitigation banking and describes the role of mitigation banking historically in North Carolina.

Section III. Other State Practices – This section describes compensatory mitigation practices for transportation projects in other peer states and assesses the applicability of practices used in these states to North Carolina.

Section IV. Potential Changes in Federal Regulatory Environment – This section discusses anticipated changes in federal guidance regulations and the potential impact of these regulatory changes on the operation of the EEP program.

Section V. Key Findings – This section provides an overview of the key findings of the study. This includes findings related to the operations of the EEP and the CWMTF, the analysis of the inventory of acquisitions and credits, the nature of the relationship between the EEP and the NCDOT, and the extent of current and potential organizational and programmatic synergies between the EEP and the CWMTF.

Section VI. Analysis of Organizational and Programmatic Alternatives – This section then presents an analysis of different organizational and programmatic approaches for more closely linking the EEP and the CWMFT as well as providing mitigation for transportation projects in North Carolina.

Section VII. Recommendations – Based on our findings and the organizational analysis, this section outlines a number of recommendations. This includes recommendations concerning the organizational and programmatic relationships between the EEP and the CWMTF, steps to strengthen the relationships between the EEP and the NCDOT, and specific policy changes (process improvement and technology recommendations) for both the EEP and the CWMTF.

Section VIII. Implementation Plan – This section presents a proposed implementation plan that provides a recommended timeline and sequencing for adopting the study recommendations.

Appendices- Appendix A through Appendix G provide the details of the inventory of acquisitions and credits developed by the study team.

II. North Carolina Programmatic Overview

This section provides an overview of the regulatory framework that governs compensatory mitigation and discusses the various types of compensatory mitigation. It then provides an overview of the EEP objectives and the acquisition methods utilized by the EEP to provide mitigation, as well as an overview of mitigation banking and the role mitigation banking plays in North Carolina. Finally, it provides an overview of the CWMTF program.

A. Regulatory and Policy Context for Compensatory Mitigation

1. Federal regulation under the Clean Water Act.

The primary source of federal regulatory jurisdiction over wetlands is the Federal Water Pollution Control Act, or the Clean Water Act (CWA).[2] The CWA was established to restore and maintain the chemical, physical, and biological integrity of the nation's waters, including wetlands. The CWA section that established the wetlands regulatory program, §404, was enacted in 1972. Since that time, §404 has evolved into the major federal program regulating activities to the nation's aquatic resources, including wetlands. Primary responsibility for administering the §404 permitting program lies with the U.S. Army Corps of Engineers ("USACE"). Additionally, the U.S. Environmental Protection Agency (EPA) is responsible for establishing the environmental guidelines, or §404(b)(1) guidelines, that the USACE must use to evaluate the impact of proposed projects when making permit determinations. EPA also has the authority to veto permits approved by the USACE under §404(c). Other federal agencies, such as the U.S. Fish and Wildlife Service (FWS), Natural Resources Conservation Service (NRCS), and the National Marine Fisheries Service (NMFS), have the opportunity to review and comment upon USACE permit decisions.

The §404(b)(1) guidelines, binding rules established by EPA,[3] set in motion the process—referred to as the "practical alternatives analysis"—that the USACE must undertake before issuing a §404 permit to fill a wetland.[4] A 1990 Memorandum of Agreement between the Department of the Army and EPA ("1990 MOA") establishes a three-part process—or sequencing guidelines—to help guide compensatory mitigation decisions for individual (or "standard") permits and clarifies the protocol

[2] Federal Water Pollution Control Act, 33 U.S.C. §§1251-1387.
[3] Strand, Margaret N. *Wetlands Deskbook, 2nd Edition.* Washington DC: Environmental Law Institute, 1997. 41.
[4] 40 C.F.R. §230.10(d).

for determining the type and level of mitigation required under the §404(b)(1) guidelines. The sequencing steps are: (1) avoidance of adverse impacts to the aquatic ecosystem; (2) minimization of adverse impacts through project modifications and permit conditions, if impacts cannot be avoided; and, finally, (3) compensatory mitigation for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required.[5] In other words, before a §404 permit can be issued, the USACE must determine if there is a practicable alternative that avoids impacts to wetlands. If unavoidable, impacts must be minimized. Finally, any resulting unavoidable impacts must then be mitigated.

The 1990 MOA also states that for wetlands, the USACE will "strive to achieve a goal of no overall net loss of values and functions."[6] The no-net-loss policy has become the guiding principle for much of the federal wetlands program.

State regulation under The Clean Water Act

The Clean Water Act also provides a mechanism for states to certify federal permits or licenses, including §404 permits, for conformity with state water quality provisions. Under CWA §401(a)(1), applicants to the §404 program must "provide the licensing or permitting agency a certification from the state in which the discharge originates or will originate..." Furthermore, "no license or permit shall be granted until the certification required by this section has been obtained or has been waived ... [or] has been denied by the state...."[7]

In North Carolina, this "§401 certification" provides the regulatory basis for a statewide wetland permitting program.[8] Any actions that require a federal permit, license, or approval that results in a discharge into "waters of the state," including §404 dredge and fill permits and nationwide permits, require the state's certification that proposed actions are consistent with North Carolina's water quality standards for "waters of the state." Additionally, in 2001, the state adopted similar rules pertaining

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[5] U.S. Environmental Protection Agency and U.S. Department of the Army. *Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b) (1) Guidelines.* 1990. II.C (1)-(3).

[6] U.S. Environmental Protection Agency and U.S. Department of the Army. *Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b) (1) Guidelines.* 1990. II.B.

[7] 33 U.S.C. § 1341 (a)(1).

[8] North Carolina also has a coastal permitting program, but this by and large does not require mitigation and applies only to the coastal zone.

to discharges into so-called "isolated waters" that fall outside of the jurisdiction of the Clean Water Act.[9]

The North Carolina Department of Environmental and Natural Resources (NCDENR) Division of Water Quality (DWQ) administers the §401 program. Authorized activities and exemptions are listed in the regulations. State regulations also describe the required application process, public notice and public hearing procedures, and application review and decision-making. Finally, the state has adopted its own mitigation requirements for authorized impacts.[10]

Under the federal Coastal Zone Management Act and the state Coastal Area Management Act, NCDENR's Division of Coastal Management (DCM) is the primary authority for state coastal resources, including wetlands. DCM issues permits for regulated activities and performs consistency calls on all federal permits issued in the North Carolina's 20 coastal counties.

2. State regulation of buffers.

With a goal of maintaining nutrient reduction functions, North Carolina has adopted the Nutrient Offset Program for the Neuse and Tar-Pamlico river basins and rules protecting riparian buffers within the Neuse, Catawba, Tar-Pamlico river basins and a portion of the Cape Fear.

The Nutrient Offset Program mandates nutrient reduction projects to offset exports related primarily to development activities in the Neuse and Tar-Pamlico River Basins, and along with the Buffer Rules are regulated by NCDENR's DWQ, although local governments that have been determined to meet state criteria may also assume authority to implement the buffer rules within their jurisdictions.

The Buffer Rules are designed to protect and maintain buffers for all areas within 50 feet of intermittent or perennial streams, lakes, ponds, or estuaries. Ditches, ephemeral streams, and wetlands are not jurisdictional under the state buffer rules.[11] Designated buffer areas are divided into two zones: Zone One, the inner 30 feet, is to remain undisturbed (with some exceptions); Zone Two, the outer 20 feet, must remain vegetated (with some exceptions). Specific activities are identified in the rule as "exempt," "allowable," "allowable with mitigation," or "prohibited."[12] Buffer

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[9] N.C. ADMIN. CODE tit.15A § 02H.1301.
[10] *See* N.C. ADMIN. CODE tit.15A §§ 02B and 02H.
[11] N.C. ADMIN. CODE tit.15A § 02B.0233.
[12] Examples of "exempt" activities include driveway and utility crossings of certain sizes through Zone One, and grading and re-vegetation in Zone Two. "Allowable" and "allowable with mitigation" activities require review by the division and include activities such as new ponds in drainage ways and water crossings.

mitigation rules define the application process and compensation requirements for activities identified as "allowable with mitigation."

B. Compensatory Mitigation Mechanisms

1. Mitigation methods.

Compensatory mitigation may be accomplished through four principal methods: (1) restoration, or the re-establishment of wetland and/or other aquatic resource characteristics and function(s) at a site where they have ceased to exist or exist in a substantially degraded state; (2) creation, or the establishment of a wetland or other aquatic resource where one did not formerly exist; (3) enhancement, or activities conducted in existing wetlands or other aquatic resources that increase one or more aquatic functions; or, in exceptional circumstances, (4) preservation, or the protection of ecologically important wetlands or other aquatic resources in perpetuity through the implementation of appropriate legal and physical mechanisms. Preservation may include protection of upland areas adjacent to wetlands as necessary to ensure protection and/or enhancement of the aquatic ecosystem. Because regulatory programs operate under the goal of "no net loss," preservation is generally less preferable because it does not result in a gain of wetland acres and functions. This method is often used only in conjunction with other mitigation methods.

2. Replacement of acres and functions.

Mitigation replacement ratios, also known as debiting or compensation ratios, are the "proportional requirements for replacing wetlands that are permitted for fill."[13] These ratios establish the number of acres that a permittee is required to replace, given the number of acres impacted. Federal policy recommends that permittees provide a minimum of 1 to 1 acreage replacement for compensatory mitigation. However, establishing a consistent mitigation ratio facilitates the adequate and appropriate replacement of lost wetland acreage and functions. The location, wetland type, and compensation method of the mitigation wetland can influence the ratio. For example, mitigation replacement ratios are often "tailored" to guide compensatory mitigation to particular geographic areas, to discourage impacts to particular wetland types or to large wetlands, and to discourage out-of-kind mitigation. Permittees compensating outside of the watershed of the impact may be required to compensate at higher ratios.

Replacement ratios may also be expressed as "credit ratios," which establish the number of credits (as opposed to acres) that a permittee is required to purchase in order to provide compensation for the permitted impact. Credits are a standard unit of

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[13] National Research Council. *Compensating for Wetland Losses under the Clean Water Act.* Washington, D.C.: National Academy Press, 2001. 108.

measurement for quantifying the net gain in wetland acreage or function that results from wetland restoration, enhancement, creation, or preservation that may be used to compensate for permitted impacts.

Although the 1990 MOA between EPA and the USACE articulates a national goal of "no overall net loss of values and functions," it also acknowledges the difficulty inherent in measuring and therefore replacing functions and values. As a result, the no-net-loss goal is often referred to in terms of acres and functions rather than values and functions, despite the fact that existing federal guidance encourages reliance on functional assessment methods in determining impacts and required mitigation for aquatic resources.

However, North Carolina has already taken a proactive approach toward advancing functional assessment, with the recent development of the North Carolina Wetlands Assessment Method (NC WAM), which provides a field method to determine the level of function of a wetland relative to a reference condition (where available). If adopted, NC WAM could be used toward mitigation planning and tracking functional replacement across the state. It should be noted that the state is also currently working on the NC Stream Assessment Method (NC SAM), although it will not be released for comment until 2008.

3. Compensatory mitigation "site" and "kind".

There are three primary mechanisms supported by the EPA and the USACE for permittees to meet their compensatory mitigation obligations. These are: (1) permittee-responsible mitigation; (2) purchasing credits from a mitigation bank; or (3) making a payment to an approved in-lieu fee mitigation sponsor. The federal agencies have issued a variety of guidance documents and a proposed rule to address the effectiveness of these different forms of mitigation. Compensatory mitigation performed on or adjacent to the development site is referred to as on-site mitigation. Alternatives to on-site mitigation include wetland mitigation banking, in-lieu fee mitigation, and project-specific off-site mitigation.

In-kind compensation is restoration, creation, enhancement, or preservation of wetlands similar to those being impacted (e.g., replacing forested wetlands with forested wetlands); out-of-kind compensation is restoration, creation, enhancement, or preservation of wetlands that provide different functions than those of wetlands being adversely affected by a project (e.g., replacing forested wetlands with open water wetlands).[14] Traditionally, regulatory agencies have preferred in-kind compensatory mitigation over out-of-kind mitigation; however, in cases where out-of-kind

[14] National Research Council. 2001. *Compensating for Wetland Losses under the Clean Water Act*. Washington, DC: National Academy Press

compensation is determined to be "practicable and environmentally preferable to in-kind compensation,"[15] exceptions may be determined on a project-by-project basis.

C. Mitigation Requirements in North Carolina

Federal compensatory mitigation requirements and preferences are described collectively among the §404(b)(1) guidelines, 1990 MOA, the U.S. Army Corps of Engineers Regulatory Guidance Letter No. 02-2, and guidance documents such as the 1995 *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks* and 2000 *Federal Guidance on the Use of In-Lieu Fee Arrangements for Compensatory Mitigation under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.*[16] Collectively, these documents describe regulatory requirements, guidelines, and preferences pertaining to mitigation methods, site/kind replacement, replacement ratios, and bank and in-lieu fee operations, among other criteria.

The state's water quality certification regulations also outline acceptable forms of compensatory mitigation for unavoidable losses of wetlands that are considered "waters of the state." State and federal regulators coordinate on permitting activities, and mitigation required under CWA §404 generally constitutes mitigation under state rules, unless USACE-required mitigation fails to meet state criteria. State requirements include, among other specified criteria: jurisdictional constraints; preferences for mitigation method (in order of preference: restoration, creation, enhancement, and finally, preservation); ratio requirements; and site/kind preferences, including a specified preference for the site of mitigation with respect to the river basin, physiographic province, and/or water supply watershed of the impact. The regulations also state a preference for mitigation through the state mitigation program over individual permittee-responsible mitigation.[17]

It should be noted that North Carolina does have stream mitigation guidelines that differ from the state's wetland mitigation guidelines. The NCDENR DWQ created the joint federal-state guidelines in conjunction with the U.S. Army Corps of Engineers - Wilmington District, U.S. Environmental Protection Agency - Region IV, U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), and the North Carolina Wildlife Resources Commission. The guidelines account for the

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[15] *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks.* 60 Fed. Reg. 228, 58605-58614. 1995. II. D (5).

[16] The USACE and EPA have also issued a proposed rule pertaining to compensatory mitigation, but the revised rule has not yet been issued.

[17] N.C. ADMIN. CODE tit.15A § 02H.0506 *et seq.*; N.C. ADMIN. CODE tit.15A § 02H .1305 *et seq.*

differences in impacts to fluvial systems and generally apply to non-tidal waters.[18] All mitigation providers must follow the stream mitigation guidelines to achieve mitigation credit.

North Carolina's Buffer Rules for the Neuse, Catawba, and Tar-Pamlico and portions of the Cape Fear river basins also describe mitigation requirements for regulated impacts to delineated buffer zones. Regulations outline mitigation site requirements, ratios, and permitted mitigation methods, which include payment to the Riparian Buffer Restoration Fund, donation of property, or restoration or enhancement of a non-forested riparian buffer. The rules also provide procedural guidelines for restoring or enhancing buffers, determining the amount of payment to the buffer fund, and determining the amount, location, and character of any donated property.[19]

D. North Carolina's Ecosystem Enhancement Program (EEP)

1. Program background.

The North Carolina General Assembly passed legislation in 1996 to create the Wetland Restoration Program (WRP), a state in-lieu fee program.[20] The program was designed to improve the permitting process and ecological effectiveness of compensatory mitigation by developing watershed-based restoration plans and ensuring that mitigation would be conducted in an ecosystem context. In 1998, the North Carolina Department of Environment and Natural Resources (NCDENR) entered into a Memorandum of Understanding with the U.S. Army Corps of Engineers that established operational guidelines for the WRP.

As a result of continued delays in acquiring permits for transportation projects because of problems with mitigation, in the summer of 2001, an interagency task force was organized to examine the procedures of NCDOT, NCDENR, and the USACE as they related to permitting transportation projects and associated wetland and stream mitigation. The task force found inefficiencies in the processes of the departments in developing suitable compensatory mitigation and recommended a new, innovative approach. The interagency task force recommended that North Carolina address the challenge of implementing the rapid expansion of its transportation infrastructure with environmental protection by making the state's environmental agency, not its transportation agency, responsible for providing required mitigation to compensate for the unavoidable impacts of transportation projects.

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[18] U.S. Army Corps of Engineers, *Stream Mitigation Guidelines (April 2003), available at* http://www.saw.usace.army.mil/wetlands/Mitigation/Documents/Stream/STREAM%20MITIGATION%20GUIDELINE%20TEXT.pdf.

[19] N.C. ADMIN. CODE tit.15A §§ 02B .0242 *et seq.*, .0244 *et seq.*, and .0260 *et seq.*

[20] N.C. GEN. STAT. § 143-214.9 (2005).

In July 2003, the NCDENR entered into a Memorandum of Agreement (MOA) with the USACE and NCDOT to create the Ecosystem Enhancement Program, effectively replacing the WRP. The EEP, housed within the NCDENR, not only incorporated the functions of the former WRP, but also began administering a separate program that conducts mitigation exclusively for impacts resulting from NCDOT activities.

The cornerstone of the EEP is a detailed watershed-planning process that is designed to identify high-quality, cost-effective mitigation projects that will also contribute to watershed improvement and protection and open space preservation. The EEP provides a programmatic approach to providing in-ground, functioning compensatory mitigation for the majority of permitted impacts in advance of the loss of aquatic resources. The EEP sponsors four distinct in-lieu-fee programs, each with separate authorizing instruments and financial accounts:

- Stream and Wetland In-Lieu-Fee Program (formerly the Wetland Restoration Program), which provides mitigation, as appropriate, for impacts resulting from §404 permits, §401 water quality certifications, and/or Coastal Area Management Act permits (with the exception of most NCDOT permits). The program operates according to the 1998 Memorandum of Understanding Between the North Carolina Department of Environment and Natural Resources and the United States Army Corps of Engineers, Wilmington District and rules set out in the North Carolina Administrative Code (NCAC) (Title 15A, Subchapter 02R).
- Stream and Wetland In-Lieu Fee Program for NCDOT, which provides off-site mitigation exclusively for impacts resulting from NCDOT activities. The program operates according to the 2003 Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources and North Carolina Department of Transportation and the United States Army Corps of Engineers, Wilmington District. NCDOT provides advance funding to the EEP through an approved biennial budget. Funding mechanisms are detailed in the 2004 Memorandum of Agreement Between the North Carolina Department of Environment and Natural Resources and the North Carolina Department of Transportation.
- Riparian Buffer In-Lieu Fee Program, which provides mitigation for impacts resulting from activities permitted under the state's riparian buffer rules in the Neuse, Tar-Pamlico, and Catawba River Basins as well as a portion of the Cape Fear River Basin. The program operates according to rules described in the NCAC (Title 15A, Subchapter 02B §§ .0242, .0243, .0244, .0250, and .0259).
- Nutrient Offset In-Lieu Fee Program, which provides nutrient reduction projects to offset exports related primarily to development activities in the Neuse and Tar-Pamlico River Basins (15A NCAC 02B §§ .0234 and 02B .0235). The program operates according to rules described in the NCAC (Title 15A, Subchapter 02B § .0240).

The MOA creating the EEP specified the legal authorities and responsibilities for NCDOT, NCDENR, and the USACE Wilmington District. The MOA essentially

provides the regulatory framework for the EEP's operations. In addition, a memorandum of agreement was established between NCDOT and NCDENR to further delineate the EEP's business processes. Today, educating NCDOT staff and other stakeholders about the roles and responsibilities of the EEP remains an ongoing effort.

Two advisory groups were formed to guide the EEP's operations. The Program Assessment and Consistency Group (PACG) consists of federal and state agency officials and technical professionals who review policy decisions made by the EEP management, address ongoing issues affecting the EEP's operations, evaluate program accomplishments, issues, and opportunities and help to manage required interagency process improvements. In this regard, the PACG's role is somewhat similar to the role of a mitigation banking review team (MBRT) in a traditional mitigation bank.

The Liaison Council comprises non-governmental mitigation stakeholders. The council provides recommendations on the EEP's structure, mission, and operations, and is briefed on the status of the program approximately three times a year.

The proposal to establish the EEP coincided with North Carolina Governor Mike Easley's directive to improve the overall environmental ethic of NCDOT and to strengthen communication and collaboration between NCDOT and the federal and state resource agencies it works with in implementing transportation projects. As a result, senior executives within NCDOT and NCDENR and the Wilmington district of the USACE supported the EEP concept from its inception. Today, most of the stakeholders that were interviewed by the study team assert that without this senior level buy-in and support, the significant changes required of and created by the EEP would not have been possible.

The programmatic framework and timetable to establish the EEP was developed in six weeks. FHWA provided $500,000 in initial seed money to create an EEP policies and procedures manual and begin development of a comprehensive information management system. The implementation of this management system is scheduled for the fall of 2007. To date, NCDOT has reimbursed EEP more than $175 million in compensation for mitigation provided or under development.

To help jumpstart the EEP and immediately remove mitigation from the critical path for obtaining a permit and initiating construction of transportation projects, EEP was initially given additional flexibility in the way that mitigation was provided. This included allowing the EEP to utilize high-quality preservation (HQP) lands in higher ratios, with the understanding that the required wetland and stream mitigation would be developed over a seven-year period. The goal was that, at the end of a seven-year ramp-up period, the EEP would have the actual mitigation in the ground in advance of the letting of the construction project.

This was accomplished by allowing EEP to apply HQP credits to meet the restoration requirement component of the mitigation. The remaining portion (the restoration equivalent portion) could also be used to meet mitigation requirements (this portion

was already allowed and still allowed). By allowing EEP to use HQP at a 10:1 ratio to cover a permit's requirement during the transition period, it is saying that the EEP can apply HQP to cover the entire portion of the permit's requirements --half to cover the restoration and half to cover the restoration equivalent. This ensures that the total number of credits are applied to cover the permit requirements. However, EEP still has to meet the restoration requirement by the end of the transition period.

When EEP applies restoration credits to meet the restoration requirement in the permits, any HQP applied to cover these restoration requirements would be refunded. In one way, this was helpful as preservation can be acquired more quickly than other forms of mitigation. One the other hand, it was quasi punitive in that EEP was procuring 1.5 times the amount of mitigation needed to cover the permits. However, the refunded credits will become part of the advanced mitigation that EEP is required to develop under the MOA.

2. Approaches utilized by the EEP to procure mitigation.

NCDOT annually provides the EEP with an updated mitigation demand forecast. This forecast is based on NCDOT's estimate of its mitigation requirements for projects scheduled for letting in the department's Transportation Improvement Program (TIP). EEP utilizes this demand forecast to determine the required types of mitigation as well as where and when the different types of mitigation will be needed. When the EEP determines that it will not have sufficient inventory to meet mitigation requirements, it then acquires the necessary mitigation through one or a combination of several different mechanisms. Mitigation mechanisms that the EEP has utilized to date include:

- Transfer of assets from NCDOT.
- Purchase of credits from private mitigation banks.
- Purchase of high-quality preservation lands.
- Purchasing projects from the CWMTF.
- Developing required mitigation through a design-bid-build process.
- Developing required mitigation through a full delivery process.

In addition, the EEP is evaluating the use of the design-build method and has proposed a pilot of this method on a project in the near future.

Each of these procurement methods are described briefly below.

(1) Transfer of assets from NCDOT.

Upon the initiation of the EEP, a process was developed to transfer the management of all mitigation projects under development by NCDOT to the EEP. These projects were typically transferred at the next logical milestone step in the project development

process. For example, if a project was currently in design, the design phase was managed to completion by NCDOT and then transferred to the EEP for the initiation of the construction phase.

(2) Purchase of credits from private mitigation banks.

Under this approach, the EEP purchases needed mitigation credits from an existing mitigation bank when available and practicable from a cost perspective.

(3) Purchase of high-quality preservation lands.

To meet the mitigation needs during the initial transition period, the EEP has acquired a number of high-quality preservation lands. The MOA allows the EEP to use higher ratios of these lands for mitigation during the start-up of the program, as long as the appropriate stream and wetlands restoration credits are developed within the first seven years of the program. In several situations (for example, the acquisition of Dupont Forest), the CWMTF participated in funding the acquisition of the property. This is a good example of an existing synergy point between the EEP and the CWMTF. In this situation, NCDOT, through the EEP, would receive mitigation credit for the acquisition of the high-quality preservation lands, commensurate with its share of the funding for the acquisition.

(4) Purchasing projects from the CWMTF.

The EEP has, on a few occasions, purchased projects outright from the CWMTF. This is a second example of an existing synergy between the two programs. This type of situation occurs when EEP requires mitigation in a cataloguing unit but has no existing credits available. The CWMTF, however, has provided funds to a grantee within the cataloguing unit to develop a stream restoration project. In this scenario, the EEP contacts the grantee to see if the grantee would be interested in letting the EEP buy out the grantee's project and take responsibility for completing the project. If the grantee is willing, the EEP then works with the CWMTF to buy out CWMTF's interest in the project. This is accomplished by the EEP compensating the CWMTF for its full project costs, including the amount of funding given to the grantee and the administrative cost associated with reviewing the application and managing the grant. Under this scenario, the EEP takes responsibility for completing the project and for monitoring the site according to specific regulatory requirements. The grantee has no role in completing the project. The grantee may have access to the site depending on the specific project arrangements and the conditions specified in the conservation easement.

The CWMTF staff currently develops this buy-out estimate and presents a recommendation to the CWMTF board for approval. Because this type of project buy-out arrangement has now been executed a few times, the CWMTF has now developed a clear methodology for calculating the administrative costs and determining the buy-out amount that EEP is required to pay.

It is not clear if this cost methodology results in the EEP paying more than it would have paid had it purchased a conservation easement from a property owner itself originally and then constructed the project itself. What is clear is that under this approach the EEP is reimbursing the CWMTF for the full extent of its investment in a project to comply with the CWMTF's statutory prohibition on mitigation, thus freeing up the funds from a project purchased by EEP to be utilized on additional grant(s). From an e EEP perspective, the EEP is paying an amount reasonably commensurate with what it would have paid had it constructed the project itself.

(5) Developing required mitigation through a design-bid-build process.

For mitigation under development by the EEP, the program is currently using one of two methods: design-bid-build or full delivery. Under design-bid-build, EEP secures the property through the State Property Office, then contracts for mitigation implementation in a multi-step contracting process that involves completing design, and then contracting through the State Construction Office for a construction firm to build the restoration project. The typical steps in this process are as follows:

1. The EEP uses an on-call contract of engineering firms to select a firm to perform site design. EEP's current on-call contract has approximately 20 firms, with contract caps of $750,000 per firm. Work is rotated through the firms, with an effort to balance work between the firms, while attempting where possible to leverage specialized expertise that one firm or another may have when it is required for a particular project.

2. An EEP Project Manager uses the EEP project Atlas, produced in the watershed plan that identifies priority sites for a restoration project, to gauge the interest of the property owners and screen the feasibility of conducting a restoration project on the site. If it appears feasible to develop a project on the site, EEP staff, will conduct follow-up discussions with the property owner(s) to confirm their interest in selling either all or a part of their property or allowing a conservation easement on their property (depending on the specific property need for a particular mitigation project).

3. When a willing seller has been identified and the site's feasibility has been confirmed through the initial screening process, the EEP engages the State Property Office to assist with obtaining an option on the property. This option commits the property owner to agree to sell to the State of North Carolina pending the successful completion of design activities. The option is then recorded against the property in order to protect the investment the EEP will make in designing the restoration project (typically in the range of $150,000 – $200,000).

4. To expedite this process, the acquisition of mitigation easements has been exempted from the requirement to obtain pre-approval for this acquisition from the Council of State or the General Assembly's Joint Committee on Government Operations (GovOpps). Instead, the State Property Office reports

monthly to the Secretary of the Department of Administration on any mitigation-related acquisitions. These reports are then provided to the Council of State and GovOpps.

5. Because NCDOT will seek reimbursement from FHWA for the federal share of the project, the EEP and the State Property Office are required to follow the federal Uniform Act when acquiring any property for NCDOT mitigation, which is designed to ensure that a property owner receives "just compensation" for the acquisition of his property. Just compensation is typically based on the fair market value for the property in question based on an appraisal, but it can sometimes be adjusted based on other factors. This fair market value is normally developed based on the property's value for its intended purpose (i.e., agriculture, etc.). Oftentimes, this creates a disconnect with a property owner who sees its intended purpose for the proposed transaction with the EEP as a mitigation site. If the property owner's parcel is one of the few meeting the technical needs of the EEP in a given watershed, this may give the property owner the expectation that the property is worth considerably more to the state than it will be valued at in the appraisal when assessed for its intended purpose.

6. In addition to the federal Uniform Act requirements, the EEP is also required to comply with state law that requires North Carolina state agencies to be careful stewards of the public funds in the acquisition of property. This requirement limits the extent to which EEP can offer a price above fair market value in order to close on the property. Finally, unlike with the acquisition of right-of-way for a transportation project, the state has no authority to use its powers of eminent domain to obtain property for a mitigation site. It is dependent upon being able to identify a willing seller and negotiating an agreeable price that is consistent with applicable federal and state statues and regulations.

7. The engineering firm then performs a detailed design for the site. In some situations, this design process will suggest changes in the size of the site needed for the restoration project. In a few cases, issues will also surface during the design process that suggest that the site is not a good candidate for a mitigation project and the project will be cancelled and, if appropriate, re-started at the site selection step.

8. Once design is completed, the EEP will exercise its option on the site and then take bids for the construction phase of the project. The construction project is let through the State Construction Office and is awarded to the successful contractor on a low bid basis.

9. The EEP typically retains the engineering firm that performed the design work to provide construction management services during the construction phase. In some cases, a second engineering consulting firm could be assigned these responsibilities.

10. The design firm, as part of their scope, is required to perform site monitoring for the first year after construction is completed. Monitoring for years two through five is contracted out separately.

The design-bid-build process typically takes approximately three to three and a half years to put mitigation in place from project initiation. This includes approximately one year for site selection, one to one and half years for site design and one year for construction.

(6) Developing required mitigation through the full delivery process.

The second method the EEP is currently using to develop mitigation is the full delivery process. In this approach, the EEP purchases credits from one or more private sector partners based on needs that the EEP identifies in one or more cataloguing units. While this process is essentially the acquisition of land and the associated services required to design and construct the mitigation on the selected site, the full delivery method is procured based on the concept that the EEP is acquiring a product or "widget" – an acceptable mitigation credit. . By acquiring a "product", EEP is allowed to manage the request for proposal (RFP) process and procure from the full delivery providers through the Division of Purchasing and Services who coordinates the award through the Department of Administration. The full delivery process typically involves the following steps:

1. The EEP identifies mitigation requirements that it would like to fulfill through the full delivery process.

2. The EEP develops and issues an RFP for its full delivery requirements.

3. Full delivery vendors identify potential sites within the candidate watersheds. While potential vendors may use EEP's watershed plans, our interviews with full delivery providers suggest that these firms are more likely to utilize their own geographic information system (GIS) based data analysis tools to identify technically viable sites, The full delivery providers then engage experienced real estate acquisition staff who are properly incentivized based on closing the sale of the property and winning the RFP to identify willing sellers and obtain options on properties.

4. The full delivery provider has more flexibility than the EEP does in the design-bid-build process when obtaining the property. If appropriate, the full delivery provider can offer the property owner more than fair market value for a particular site. The main constraint is the full delivery provider must factor this higher land cost into determining its overall fixed price bid and ultimately the low bidder will be selected out of the various proposals deemed technically qualified.

5. The full delivery vendor submits their proposal.

6. The EEP evaluates the full delivery proposals using a two-step process. The EEP first identifies proposals that it feels are technically viable. The EEP conducts this technical evaluation by reviewing proposals and conducting site visits of the proposed mitigation sites.

7. The EEP then opens the cost proposals of only those proposals deemed technically qualified. The EEP selects bidder based on cost, technical merit, and project size match to requested mitigation. .

8. The full delivery provider then executes its option on the properties included in its proposal. In completing the acquisition of the property, the full delivery provider works with the State Property Office to ensure that a conversation easement deeded to the state is properly recorded and filed with the appropriate county register of deeds.

9. The EEP compensates the full-delivery vendor at a series of predefined milestones throughout the life of the project. The acquisition of the site and the transfer of ownership interest in the site to the state is one of these predefined milestones.

10. The full delivery provider completes design and construction activities and delivers the completed "mitigation credits" to the EEP.

11. The full delivery provider performs monitoring of the site for the first five years after the completion of construction.

The full delivery process has been utilized extensively by the EEP during the initial build-out of the program. It is generally accepted that the full delivery approach is most appropriate in watersheds with greater mitigation needs since this technique lends itself to building larger single projects versus a number of smaller projects.

Because of the turnkey nature of the full delivery process, the EEP provides less oversight and management for the full delivery process than the design-bid-build process. This has caused some concern on the part of regulators who have asked the EEP to begin to take a more proactive role in monitoring and overseeing the execution of full delivery projects.

(7) Design-Build.

The EEP has recently proposed to pilot a design-build procurement approach. This approach has been utilized on some NCDOT projects in North Carolina in recent years. It is generally regarded to be an effective tool for reducing the elapsed time to complete a project versus the traditional design-bid-build approach because it has a single contractor selection step, after a firm has completed 30% design, which is then bid-on. It also allows in some situations for some design and construction activities to be performed in parallel where this is appropriate versus the inherent sequential process of design-bid-build where all design activities must be completed as a critical

path item before a specification can be prepared, a contract let and a contractor awarded the project.

Typically, the design-build process would involve some initial design activities to identify enough about the project to develop the specification to procure a design-build contractor. The selected design-bid contractor would then complete design and construct the project. In transportation projects, the design-bid contractor is selected on a qualifications based selection and then the price for completing the project is negotiated with the team scoring highest technically.

For the EEP, the design-build approach would likely involve the use of its existing on-call contractors to produce the 30% design, to be used for selection of the design-build contractor who would perform design, construct the mitigation and likely monitor the mitigation for the initial five years.

There are some questions concerning the approach EEP would utilize to procure the design-build approach. If it was determined that the final product, as in the full delivery process, is a "credit", a two step selection process could probably be utilized in which technically viable proposals are identified and then the costs are opened for only those proposals meeting the technical requirements, with the lowest bidder awarded the contract.

Alternatively, the EEP could use the more traditional qualifications based selection approach. However, this would require the support and involvement of the Department of Administration, unless the EEP was given the statutory authority by the General Assembly to conduct its own design-build process. NCDOT currently has this statutory authority.

E. Mitigation Banking

This section provides a brief overview of mitigation banking and describes the role that mitigation banking has played to date in North Carolina.

1. Mitigation bank defined.

A mitigation bank is a site where wetlands and/or other aquatic resources are restored, created, enhanced, or in exceptional circumstances, preserved expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources. For purposes of compensating for impacts to waters and wetlands

regulated under Section §404, use of a mitigation bank may only be authorized when the impacts are unavoidable.[21]

The roots of mitigation banking date back to the 1960s and grew in importance with the Clean Water Act in 1972 and the Endangered Species Act of 1973. In 1988, President George Bush announced a Domestic Policy Council calling for "no net loss" of wetlands. Later, President Clinton endorsed this policy identifying mitigation banks as a viable option for compensating for wetland impacts. A federal guidance implementing the Clinton Administration's Wetland Plan was published outlining strict procedures and policies to ensure that wetland functions and values are preserved and defining mitigation banking as an appropriate approach for "preserving, enhancing, restoring or creating habitat to compensate for unavoidable wetland impacts."[22]

Each mitigation bank that is established must be supported by a formal, written banking instrument, prepared by an attorney and developed in coordination with the state's Mitigation Banking Review Team (MBRT). Generally, mitigation banks must be functioning in accordance with the success criteria for each particular bank prior to the withdrawal of credits.

The following are the minimum requirements used by a Mitigation Bank Review Team (MBRT) during its initial evaluation of all mitigation bank proposals:[23]

- The proposed bank will improve the ecological conditions of the regional watershed.
- The bank has the capacity to provide viable and sustainable ecological and hydrological functions for the proposed mitigation bank service area.
- It can be effectively managed in perpetuity.
- Construction of the bank will not destroy or degrade areas with high ecological value.
- The bank has a high probability of meeting the prescribed success criteria.
- It has the capability to meet the requirements of all other applicable federal and state laws.
- Adjacent land uses will not adversely affect the perpetual viability of the mitigation bank.

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[21] Federal Guidance for the Establishment, Use and Operation of Mitigation Banks, http://www.saw.usace.army.mil/wetlands/Mitigation/definitions.html#mitigation%20bank 60 FR 228, pp. 58605-58614 (28Nov95)

[22] http://www.mitigationbank.com/

[23] http://www.saw.usace.army.mil/wetlands/Mitigation/mitbanks.html#Find%20a%20Bank!

- The bank sponsor has the capacity to meet prescribed financial responsibility requirements.

2. Role of mitigation banking in North Carolina.

Mitigation banking has not traditionally played a key role in mitigation in North Carolina. In comparison with many peer states, North Carolina has a small number of banks, although it is not uncommon for states to contain few or zero mitigation banks. Currently, there are eight active banks and three active umbrella banks (containing a total of five sites).[24]

In discussions with mitigation bankers in North Carolina and in other states, several reasons were given for the limited role that mitigation banking has played in North Carolina to date. The most significant reason is the strict service area definitions used in North Carolina. The geographic service area (GSA) of a bank is the designated area wherein a bank can reasonably be expected to provide appropriate compensation for impacts to wetland or other aquatic resources. The GSA for wetland mitigation banks in North Carolina is the eight-digit cataloguing unit (CU) or HUC within which the particular bank site is located.[25] There could be some potential for a bank to work outside its HUC but this on an exception basis at the discretion of the regulator. In some other states, for example Alabama and South Carolina, there are banks with comparatively larger service areas, ranging from several river basins to the whole state in the case of one South Carolina mitigation bank.

In addition, with the establishment of the WRP and then the EEP, it could be argued that mitigation bankers are now put in the position of having to compete against a state agency that is operating as a monopoly should they choose to enter the market in North Carolina. One Virginia banker we interviewed as part of this study, for example, stated that state-dominated management of contracts and sales in North Carolina might limit the number of entrepreneurs willing to enter the market.[26]

The EEP. However, does work with mitigation banks whenever possible. As noted in Section II.D.2, the EEP has bought credits from mitigation banks in the past and expects to utilize this as an acquisition approach whenever it is feasible in the future.

F. Clean Water Management Trust Fund

North Carolina's open spaces and natural resources have become increasingly threatened by development pressures. Between 1982 and 1997, the state witnessed an 88 percent increase

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[24] Environmental Law Institute, 2005 Status Report on Compensatory Mitigation in the United States, *available at:* http://www2.eli.org/wmb/index.htm (April 2006).
[25] http://www.saw.usace.army.mil/wetlands/Mitigation/mitbanks.html#Find%20a%20Bank!
[26] Personal Interview with Brent Fults, Earthsource Solutions, Inc., May 3, 2007.

in its lands defined as urban areas, as well as an increasing conversion rate for forest, farm and rural lands. This trend, coupled with an expected 26 percent growth in the state's population, have motivated the creation of a variety of initiatives to preserve North Carolina's open spaces, aquatic resources, wildlife, and habitats.[27]

The North Carolina Clean Water Management Trust Fund (CWMTF) was established by the General Assembly in 1996 to provide grant funding for water protection and restoration projects to local governments, state agencies, and non-profit conservation organizations.[28] The CWMTF authorizing legislation directs CWMTF-funded projects to address "water pollution problems and focus on upgrading surface water, eliminating pollution, and protecting and conserving unpolluted surface waters, including urban drinking water supplies." The CWMTF's enabling legislation specifically prohibits it from funding compensatory mitigation.

The General Assembly also intended "that moneys from the Fund also be used to build a network of riparian buffers and greenways for environmental, educational, and recreational benefits." Likewise, legislators hoped that "the results of these efforts [would] also be beneficial to wildlife and marine fisheries habitats."[29] Between 1996 and 2005, the CWMTF helped protect over 317,529 acres of land and 3,612 miles of riparian buffers.[30]

The CWMTF is an independent state agency housed within NCDENR for administrative purposes.[31] A 21-member Board of Trustees appointed by the Governor and General Assembly reviews grant applications and makes funding decisions.[32] The Commissioner of Agriculture, Chair of the Wildlife Resources Commission, Secretary of NCDENR, and Secretary of the Department of Commerce comprise the CWMTF's Advisory Council, which advises the Board of Trustees on CWMTF allocations.[33]

1. Program funding.

Appropriations from the North Carolina General Assembly fund the CWMTF. CWMTF appropriations are submitted to the General Assembly in the Governor's budget as a yearly line item. Since its launch in 1996, program funding has increased

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[27] North Carolina Million Acre Plan, *available at* http://www.enr.state.nc.us/docs/millionplan.pdf at 21 (last visited August 23, 2005).
[28] North Carolina Clean Water Management Trust Fund, *at* http://www.cwmtf.net/cwmtffactsheet.htm (updated December 2004).
[29] N.C. GEN. STAT. Art. 18 § 113A-251.
[30] 2005 Annual Report of the North Carolina Clean Water Management Trust Fund, *available at* http://www.cwmtf.net/ar2005.pdf (last visited May 9, 2007).
[31] N.C. GEN. STAT. Art. 18 § 113A-255.
[32] Board members must be knowledgeable in one of the following areas: acquisition and management of natural areas; conservation and restoration of water quality; wildlife and fisheries habitats and resources; or environmental management. N.C. GEN. STAT. Art. 18 § 113A-255.
[33] N.C. GEN. STAT. Art. 18 § 113A-259.

to $100 million annually. Between 1996 and 2005, the CWMTF awarded 781 grants for a total of $595.8 million.[34] State agencies, local governments (or other political subdivisions of the state), and non-profit conservation organizations are eligible for CWMTF grants.[35] The Board of Trustees recommends, but does not require, matching funds to receive a CWMTF grant.[36]

2. Types of projects.

The CWMTF provides grants to:

- Enhance or restore degraded waters.
- Protect unpolluted waters.
- Contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits.

Types of projects funded by the CWMTF include:

- Improvements to wastewater treatment and collection systems.
- Stormwater management.
- Repair of septic tanks and removal of straight pipes.
- Wetlands, riparian buffer and stream restoration.
- Acquisition of buffers, floodplains, wetlands, and greenways.
- Agricultural best management practices.

CWMTF has usually used a twice-yearly application cycle but has just transitioned to a single annual application cycle. For the recently completed grants application cycle (March 2007), CWMTF has received applications for projects totaling $155 million.

3. Grant evaluation.

CWMTF grants are evaluated according to criteria drafted by the Board of Trustees with input from the CWMTF staff, other state agencies, and stakeholders. The grant evaluation criteria are delineated by project type and revised annually. Proposals are scored according to their contribution toward achieving the primary objectives of the Fund, which include: restoration of degraded waters or protection of unpolluted water;

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[34] 2005 Annual Report of the North Carolina Clean Water Management Trust Fund, *available at* http://www.cwmtf.net/ar2005.pdf (last visited May 9, 2007).
[35] N.C. GEN. STAT. Art. 18 § 113A-254.
[36] Clean Water Management Trust Fund Grant Evaluation Guidelines, *available at* http://www.cwmtf.net/criteria.htm (last visited May 9, 2007).

targeted areas; special significance of waters; preservation of waters with special uses; contribution to ecological networks; consistency with NCDENR - Division of Water Quality's Basinwide Plans; measurable and enduring outcomes; innovative procedures or technologies; development of riparian greenways; public education; and leverage of matching resources, among other criteria.[37] Applicants typically provide project data, and the CWMTF field staff perform site visits for each project proposal.

[37] *Id.*

III. Other State Practices

The study team conducted detailed reviews of mitigation practices in four other states: Florida, Georgia, Virginia, and Washington. Florida, Georgia and Virginia were selected due to their geographical proximity to North Carolina and the fact that, like North Carolina, they are experiencing rapid growth. Washington State was selected due to its legislatively mandated focus on functional replacement and the Washington State Department of Transportation's efforts to implement a watershed planning process that has some similarities to the process utilized by the EEP.

This section documents the results of our research on other state practices. It includes a comparison of North Carolina with the other states that we reviewed, a discussion of the role of mitigation banking in these other states and an overview of several best management practices in regards to mitigation. It also provides some perspective on why these and other states have not actively pursued implementation of an EEP-like program in their states.

A. Comparing North Carolina with Other Peer States

Comparing mitigation practices in North Carolina to those in other states provides some context for an assessment of the state's current practice, as well as alternative mitigation scenarios. For this study, we chose to examine mitigation practices in Florida, Georgia, Virginia, and Washington. Although every state promulgates different permitting requirements, faces different regulatory challenges, and contains different types and amounts of aquatic resources, these states do share some common characteristics with North Carolina, including regions of fast growth and high transportation demand, state regulatory requirements in addition to CWA §404, and/or an abundance of aquatic resources.

Exhibit III-I below highlights key points of comparison for North Carolina and the other selected states and is followed by additional discussion of several of these points.

Exhibit III-I: Comparing Mitigation Practices in Peer States

Selected Mitigation Practice	*NC*	*FL*	*GA*	*VA*	*WA*
Programs requiring compensatory mitigation	404, 401/water quality, buffers, nutrient offset buffers	404, state "Environmental Resource Permits"	404	404, 401/water quality, tidal wetland	404, 401/water quality
Watershed-based mitigation planning/ implementation	NCEEP conducts a two-tiered, detailed watershed-planning process	Water Management Districts conduct regional planning	No	No	WSDOT "continually tries" to develop a discrete approach to watershed-based mitigation planning
Watershed-based siting requirement	2003 MOA requires mitigation within 8-digit CU	State statute requires mitigation within drainage basin; if not, permittee must conduct cumulative impacts analysis	Mitigation required within 8-digit CU, or in adjacent watershed if no mitigation opportunities available	Mitigation required within 8-digit CU, or in adjacent watershed if no mitigation opportunities available	None - proposed mitigation projects are evaluated on a case-by-case basis
• **# of 8-digit CUs** • **(avg. sq. miles/CU)**	• 58 • (928)	• N/A • (N/A)	• 52 • (1143)	• 53 • (807)	• 73 • (977)
Estimated annual DOT mitigation needs ***(Note: units reported vary across states)***	64,112 stream credits 9.0 riparian credits 51 non-riparian credits 0.5 coastal marsh credits 60.5 TOTAL wetland credits	In FY06, 2200 acres of mitigation for 104 acres of impact	667 wetland credits*, 31,513 linear feet of stream **credits ≠ acres. Rather, credits are based on function.*	Over next 6 years, VADOT projects 39,000 linear feet of stream, 130 acres non-tidal wetlands, 15 acres tidal wetlands	~20 to 50 acres

Selected Mitigation Practice	*NC*	*FL*	*GA*	*VA*	*WA*
Advance mitigation for DOT impacts	Yes	Yes	Yes, when bank credits are used (~90% of the time)	Yes, when bank credits are used (~90% of the time)	Not generally
DOT utilization of banks	N/A	~40% (DOT required by statute to purchase bank credits whenever available)	~90%	~90%	~12%
# of banks established within state, as of Dec. 2005 ***** Key: A-A = Approved-Active; A-S = Approved-Soldout; A-I = Approved-Inactive for other reason; P = Pending as of Dec. 2005; U = Umbrella Bank (i.e., may contain multiple sites)***	• A-A: 8 • A-S: 1 • A-I = 1 • P = 6 • U, A-A: 3 • U, P: 1	• A-A: 51 • A-S: 2 • P: 2	• A-A: 43 • A-S: 2 • P: 29 • U, A-A: 1	• A-A: 29 • A-S: 2 • P: 16 • U, A-A: 7 • U, A-I: 1 • U, P: 1	• A-A: 3 • A-S: 1 • P: 4 • U, A-A: 1 • U, A-I: 3 • U, P: 3
DOT project delays experienced as a result of mitigation requirements	No delays since initiation of the EEP	Yes, "occasionally"	Yes, "unable to estimate how often"	Yes, "very few, if any…less than 1% of the time"	Yes, "occasionally"

B. Utilization of Mitigation Banks

North Carolina has very few established banks and historically has not had a well-developed banking industry. According to ELI's 2005 inventory of banks, the state had eight active banks and three active umbrella banks (containing a total of five sites).[38] Furthermore, some portions of the state likely would not support a viable banking industry due to the small number and size of aquatic resource impacts.

[38] Environmental Law Institute, 2005 Status Report on Compensatory Mitigation in the United States, *available at:* http://www2.eli.org/wmb/index.htm (April 2006).

Florida, Georgia, and Virginia each utilize banking to a much greater degree. With 43 active banks as of 2005, Georgia's banking industry is very well established, and credits are available in many watersheds across the state.[39] The Georgia Department of Transportation (GDOT) has established its own banks, and prefers to use GDOT bank credits when available.[40]

Virginia also has a strong banking industry, with 29 active banks and seven active umbrella banks (containing a total of 12 sites) established across the state.[41] The Virginia Department of Transportation (VDOT) has established several of its own banks, but prefers to use private banking credits when available. VDOT officials have expressed that they do not want to be "in the mitigation business" and would prefer to purchase 100 percent of its required mitigation credits from private bankers if possible; however, certain regions of the state do not maintain a viable banking industry, and in those regions, VDOT has relied on its own banks for mitigation.[42]

Florida maintains one of the country's oldest and most active banking industries, with 51 active banks operating in the state.[43] State statute requires the consideration of mitigation banking for transportation impacts, if available;[44] however, some regions of the state have no active banks or have banks that have sold out of credits. In those cases, the regional Water Management District (WMD) often conducts project-specific mitigation. In cases where the WMD cannot identify a suitable project, the Florida Department of Transportation (FDOT) will conduct its own project-specific mitigation. In these cases, the Florida Department of Protection or a regional WMD still assumes long-term management of the site.[45]

Conversely, the State of Washington has very few established banks (three active banks and one active umbrella bank containing two sites), and the Washington State Department of Transportation (WSDOT) conducts most of its mitigation on a project-by-project basis. Like North Carolina, many regions of the state would likely not support a banking industry due to a lack of development in those areas.[46] Washington's regulatory structure may also discourage mitigation bankers from entering the state's industry. One banker reported that local jurisdictions' involvement in creating and using banks may hinder growth of the

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[39] Environmental Law Institute, 2005 Status Report on Compensatory Mitigation in the United States, *available at:* http://www2.eli.org/wmb/index.htm (April 2006).
[40] Personal Interview with Lisa Westberry, Georgia Department of Transportation, April 6, 2007.
[41] Environmental Law Institute, 2005 Status Report on Compensatory Mitigation in the United States, *available at:* http://www2.eli.org/wmb/index.htm (April 2006).
[42] Personal Interview with Earl Robb, Virginia Department of Transportation, April 5, 2007.
[43] Environmental Law Institute, 2005 Status Report on Compensatory Mitigation in the United States, *available at:* http://www2.eli.org/wmb/index.htm (April 2006).
[44] FLOR. STAT. § 373.4137.
[45] Personal Interview with Josh Boan, Florida Department of Transportation, April 5, 2007.
[46] Personal Interview with Bill Leonard, Washington Department of Transportation, April 24, 2007.

banking industry because they often do not favor mitigation banks or use other mitigation programs.[47] In addition, service areas, established by regulatory agencies, do not often appear large enough to support bank operations.[48]

C. Overview of Selected Best Practices

The federal agencies have issued a variety of guidance documents to improve the effectiveness of compensatory mitigation, including the 1990 Mitigation Memorandum of Agreement,[49] the 1995 *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks*,[50] the 2000 *Federal Guidance on the Use of In-Lieu Fee Arrangements for Compensatory Mitigation under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act*,[51] and the U.S. Army Corps of Engineers' Regulatory Guidance Letter No. 02-2.[52,53] These documents collectively describe multiple required and preferred practices for compensatory mitigation. Among others, mitigation preferences include advance mitigation, or compensatory mitigation provided in advance of project impacts, thereby reducing the temporal loss of wetland acreage or functions; and watershed-based mitigation, or mitigation that addresses the specific resource needs of particular watersheds, ideally within the context of a comprehensive watershed plan.

Using a programmatic approach to mitigation planning, both North Carolina and Florida generally achieve advance mitigation for state department of transportation impacts. Although Virginia and Georgia do not use the same programmatic approach, in theory, the utilization of bank credits provides advance mitigation because they are established prior to

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[47] Personal Interview with Eric Gleason, TRC Companies, Inc., April 23, 2007.
[48] Personal Interview with Victor Woodward, April 20, 2007.
[49] *Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b) (1) Guidelines*. (February 6, 1990).
[50] Federal Guidance for the Establishment, Use and Operation of Mitigation Banks, 60 Fed. Reg. 58,605 (1995).
[51] U.S. Department of the Army, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration. *Federal Guidance on the Use of In-lieu fee Arrangements for Compensatory Mitigation under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act*. (October 31, 2000).
[52] U.S. Army Corps of Engineers. Regulatory Guidance Letter No. 02-2. (December 24, 2002).
[53] In March 2006, EPA and the USACE issued a proposed rule on compensatory mitigation that sets out to establish "to an extent that is feasible and practical, equivalent standards for all forms of compensatory mitigation." *See:* Compensatory Mitigation for Losses of Aquatic Resources, 71 Fed. Reg. 15,520 (2006) (to be codified at 33 C.F.R. pt. 325 and 332, and 40 C.F.R. pt. 230) (proposed Mar. 28, 2006). p. 15,521. However, as of May 2007, the revised rule has not yet been issued and is not expected to be finalized for several weeks or months.

the occurrence of permitted impacts.[54] Thus, for the 90 percent of state department of transportation impacts compensated with banks in those states, advance mitigation is likely achieved. Without a prevalence of banks or a programmatic approach to mitigation similar to that of North Carolina, the State of Washington does not uniformly achieve advance mitigation. Similarly, state departments of transportation in Florida, Virginia, and Washington reported occasional project delays as a result of mitigation associated with project permits, while Georgia reported some delays but was unable to estimate the frequency of delays due to problems with mitigation.[55]

With a programmatic approach to mitigation, watershed-based planning is achieved to a higher degree in North Carolina and Florida. Both states conduct planning to identify priority projects. In North Carolina watershed planning efforts are funded by its "customers;" in other words, NCDOT funds the majority of the planning as the agency's largest customer, while private consumers of the EEP's other in-lieu fee programs (wetlands and streams, buffers, and nutrients) fund the remaining portion of planning costs. Similarly, in Florida, the mitigation planning costs are incorporated into the fee paid to the WMD per acre of mitigation. These costs cover both mitigation planning and implementation.[56]

Georgia and Virginia, which rely heavily on the use of mitigation banks, have no established watershed-based mitigation planning initiative. In Washington, after the state legislature instructed regulatory agencies to authorize "innovative mitigation measures that are timed, designed, and located in a manner to provide equal or better biological functions and values compared to traditional on-site, in-kind mitigation proposals,"[57] WSDOT has attempted to develop a watershed-based mitigation planning process, but, to date, still conducts project-specific mitigation, of which the mitigation 'site' and 'kind' are negotiated on a case-by-case basis with regulators.[58]

Four of the five states examined achieve mitigation within demarcated watershed boundaries the majority of the time, if not 100 percent of the time. In North Carolina, the EEP's MOA requires mitigation to be sited within the same 8-digit cataloguing unit.[59] In Virginia, although state regulations build in flexibility for siting by stating a preference for on-site mitigation,[60] Virginia regulators report that mitigation is always achieved within the

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[54] Environmental Law Institute, Banks and Fees: The Status of Off-Site Wetland Mitigation in the United States, *available at:* http://www2.eli.org/wmb/index.htm (2001).
[55] Georgia officials were unable to estimate project delays.
[56] FLOR. STAT. § 373.4137.
[57] WASH. REV. CODE § 90.74.
[58] Person Interview with Gretchen Lux, Washington Department of Ecology, April 20, 2007.
[59] *Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District.* (July 22, 2003).
[60] VA. ADMIN. CODE § 9-25-210-115; VA. ADMIN. CODE § 4-20-390-20 *et seq.*

same 8-digit cataloguing unit.[61] Georgia regulators typically require mitigation within the same 8-digit cataloguing unit as the permitted impact, but may negotiate siting in an adjacent watershed if no mitigation opportunities are available within the same unit of the impact—some 5 percent of permitted projects.[62] Florida laws tie mitigation siting to drainage basins by requiring a cumulative impact analysis for any mitigation proposed outside the basin of the permitted impact. However, once the cumulative impact analysis has been conducted, permittees may still choose to implement mitigation outside the basin of the permitted impact, and may work with regulators to identify suitable options. Because the size of the drainage basin varies greatly across the state, some of Florida's WMDs may allow mitigation outside the drainage basin more often than others.[63] Finally, Washington has no state regulatory tie to mitigation siting within the watershed, and WSDOT projects are negotiated on a case-by-case basis.[64]

D. Why Haven't Other States Adopted EEP-like Programs?

North Carolina's EEP has been recognized nationally both as a model for achieving high-quality compensatory mitigation and as a coordinating body among state and federal regulatory agencies and permittees, including NCDOT. In addition to providing advance mitigation and conducting watershed-based mitigation planning, the EEP also implements the following "best practices" with respect to environmental outcomes:

- Providing the USACE with information in advance on the schedule for implementation of mitigation projects.
- Assessing the ecological suitability of sites for achieving the goal and objectives of compensatory mitigation.
- Using funds collected by the program for replacing wetland functions and values and not to finance non-mitigation programs and priorities.
- Specifying a schedule for conducting the activities that will provide compensatory mitigation.
- Requiring mitigation sites to be protected in perpetuity.

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[61] Personal Interview with Allison Dunaway, Virginia Department of Environmental Quality, May 2, 2007.
[62] Personal Interview with Mike Ruth, April 23, 2007.
[63] Florida operates on a system of "drainage basins." Basins are set by rule and determined by the regional WMDs. Boundaries are based on a combination of U.S. Geological Survey hydrologic units, regional planning areas, hydrologic engineering (e.g. canals), and/or other factors. The size varies greatly, particularly from WMD to WMD. For example, South Florida WMD has hundreds of basins, mostly due to the high number of engineered water structures, other WMDs have less than ten, which are based largely on watershed units. Personal Interview with Connie Bersok, Florida Department of Environmental Protection, April 9, 2007.
[64] Person Interview with Gretchen Lux, Washington Department of Ecology, April 20, 2007.

- Accomplishing site protection using appropriate real estate arrangements.
- Conducting regular monitoring to document funds received, impacts permitted, how funds are disbursed, types of projects funded, etc.
- Specifying requirements for monitoring (i.e., specific parameters to be monitored).
- Specifying a geographic service area (i.e., the 8-digit cataloguing unit).
- Providing provisions for remedial actions and responsibilities (i.e., a contingency fund).
- Providing financial, technical, and legal provisions for long-term management and maintenance; and utilizes accounting procedures to track payments received from permittees.[65]

However, to date, no other state has established a program similar to that of the EEP. This begs the question—if the EEP is a national model, why are other states not doing it? Many state officials reported that, although the EEP serves as an interesting model, their current state practices, which developed under much different circumstances, are meeting the mitigation needs of the state adequately. Furthermore, generating the momentum and political will to support such a program seems a doubtful prospect.[66] In Florida in particular, the state is already achieving watershed planning and advance mitigation with their current model.[67] Others reported that an EEP-like program would require funding and manpower that is simply not available.[68]

Some state officials were favorable towards the idea of establishing an EEP-like program within their states, as it would allow for the state to guarantee high quality mitigation, provide a programmatic approach to watershed planning, and provide stability towards planning and siting implementation, which may sometimes be a contentious and difficult process.[69]

A recent article published by Ecosystem Marketplace, an online newsletter that covers ecosystem service markets, echoes these insights. Contributors argue that states with robust

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[65] Environmental Law Institute, The Status and Character of In-Lieu Fee Mitigation in the United States, *available at:* http://www2.eli.org/wmb/index.htm (June 2006).
[66] Personal Interview with Mike Ruth, April 23, 2007; Personal Interview with Lisa Westberry, Georgia Department of Transportation, April 26, 2007.
[67] Personal Interview with Connie Bersok, Florida Department of Environmental Protection, April 20, 2007; Personal Interview with Josh Boan, Florida Department of Transportation, April 25, 2007; Personal Interview with Sheri Lewin, Mitigation Marketing, April 20, 2007.
[68] Personal Interview with Stewart Sligh, April 26, 2007; Personal Interview with Allison Dunaway, Virginia Department of Environmental Quality, May 2, 2007.
[69] Personal Interview with Earl Robb, Virginia Department of Transportation, April 30, 2007; Personal Interview with Bill Leonard, Washington Department of Transportation, April 24, 2007.

banking markets may not have a need for the EEP model and that aligning agency and private goals and interests to initiate such a program is difficult. The article also suggests that financing future mitigation may be difficult for state departments of transportation and that the proposed rulemaking, which would have substantial impacts to EEP's operation as currently written,[70] lends uncertainty to establishing such a program. However, EEP's watershed planning, prioritization of projects, and clear performance measures are desirable from many stakeholder perspectives, and contributors also indicate that EEP's status as young program suggests it may be too early to judge how replicable it may be for other states.[71]

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[70] In March 2006, EPA and the USACE issued a proposed rule on compensatory mitigation that sets out to establish "to an extent that is feasible and practical, equivalent standards for all forms of compensatory mitigation." *See:* Compensatory Mitigation for Losses of Aquatic Resources, Fed. Reg. 15,520 (2006) (to be codified at 33 C.F.R. pt. 325 and 332, and 40 C.F.R. pt. 230) (proposed Mar. 28, 2006). p. 15,521. However, as of May 2007, the revised rule has not yet been issued and is not expected to be finalized for several weeks or months.

[71] The Katoomba Group's Ecosystem Marketplace, EM Dialogue: The Question of Statewide Mitigation Programs, *available at:* http://ecosystemmarketplace.com/pages/article.opinion.php?component_id=4929&component_version_id=7259&language_id=12 (2007).

IV. Impact of Potential Changes in Federal Regulatory Environment

This section discusses anticipated changes in the federal 404 program and the potential impact of these changes on the operation of the EEP. Specifically, the study team conducted a detailed review and assessment of the potential impact on the EEP of several pending federal actions, including:

- The March 2006 proposed rulemaking from USACE and EPA on compensatory mitigation.
- The 2002 National Mitigation Action Plan, which has among its objectives an increased emphasis on watershed planning.
- The impact of the 2006 Supreme Court decision in *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* ("*Rapanos/Carabell*"), which casts doubt as to whether some waters, particularly tributaries, wetlands, ditches, and non-perennial streams, fall within federal jurisdiction under the Clean Water Act.

Each of these items is discussed in further detail below.

A. The Proposed Mitigation Rule

In March 2006, the U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers ("USACE") issued a proposed rule on compensatory mitigation that sets out to establish "to an extent that is feasible and practical, equivalent standards for all forms of compensatory mitigation."[72] In brief, the rule as written in March 2006 includes the following measures, among others:

- Establishes standards and criteria for all mitigation methods (except in-lieu fee mitigation, which it proposes to eliminate altogether).
- Affirms mitigation sequencing (avoidance, minimization and compensatory mitigation).
- Requires the watershed approach to compensatory mitigation.
- Prescribes standards for choosing appropriate mitigation, including site selection, "in-kind" replacement, replacement ratios, the use of banks, the use of preservation, and buffer mitigation.

[72] Compensatory Mitigation for Losses of Aquatic Resources, 71 Fed. Reg. 15,520 (2006) (to be codified at 33 C.F.R. pt. 325 and 332, and 40 C.F.R. pt. 230) (proposed Mar. 28, 2006). p. 15,521.

- Sets administrative requirements and performance standards.
- Addresses mitigation banking establishment and credit withdrawal.
- Eliminates in-lieu fee (ILF) mitigation as an option for providing compensatory mitigation.[73]

As written, the proposed rule would have significant effects on the EEP.[74] First, abolishing ILF as a mitigation option would prohibit the EEP from offering this option to private individuals and public agencies seeking mitigation, including NCDOT. These parties would then either conduct the mitigation themselves or purchase bank credits where available. Because the state has many regions with no operating banks, flexibility for permittees would be greatly reduced.[75]

Secondly, the proposed rules do not authorize a programmatic approach to mitigation, except through umbrella banking instruments. Whereas the EEP's current approach allows the state to offer watershed-based mitigation planning and implementation, re-organizing into an umbrella bank would lessen the efficiency of the current program's operations by requiring an additional level of regulatory oversight involving the review and approval of each restoration project by an interagency review team.[76]

In addition, NCDOT may experience increased costs and delays as banking instruments and projects undergo regulatory review processes. Furthermore, eliminating ILF reduces mitigation options for NCDOT impacts.[77] Finally, at least initially, the state's lack of mitigation banks would likely return the burden of conducting mitigation to NCDOT, a model that has been widely recognized as both inefficient and ineffective.

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[73] Compensatory Mitigation for Losses of Aquatic Resources, 71 Fed. Reg. 15,520 (2006) (to be codified at 33 C.F.R. pt. 325 and 332, and 40 C.F.R. pt. 230) (proposed Mar. 28, 2006). p. 15,521.

[74] Letter from Michael F. Easley, Governor, State of North Carolina, to Benjamin H. Grumbles, Assistant Administrator, U.S. Environmental Protection Agency, and John Paul Woodley, Jr., Assistant Secretary of the Army (Civil Works) (June 30, 2006) (*available at* http://www.nceep.net/pages/Federal_Rule_Response_Combined.pdf).

[75] Letter from Michael F. Easley, Governor, State of North Carolina, to Benjamin H. Grumbles, Assistant Administrator, U.S. Environmental Protection Agency, and John Paul Woodley, Jr., Assistant Secretary of the Army (Civil Works) (June 30, 2006) (*available at* http://www.nceep.net/pages/Federal_Rule_Response_Combined.pdf).

[76] Letter from Michael F. Easley, Governor, State of North Carolina, to Benjamin H. Grumbles, Assistant Administrator, U.S. Environmental Protection Agency, and John Paul Woodley, Jr., Assistant Secretary of the Army (Civil Works) (June 30, 2006) (*available at* http://www.nceep.net/pages/Federal_Rule_Response_Combined.pdf).

[77] Letter from Michael F. Easley, Governor, State of North Carolina, to Benjamin H. Grumbles, Assistant Administrator, U.S. Environmental Protection Agency, and John Paul Woodley, Jr., Assistant Secretary of the Army (Civil Works) (June 30, 2006) (*available at* http://www.nceep.net/pages/Federal_Rule_Response_Combined.pdf).

However, the proposed rule also states that the agencies are "seeking comment on alternative approaches that would retain in-lieu fee programs as a separate category of mitigation with somewhat different requirements."[78] The comment period ended in June 2006. The USACE and EPA received dozens of comments from multiple agencies and organizations across the country, including a response from the State of North Carolina.[79] As of May 2007, the USACE and EPA have examined and synthesized comments, but have not yet agreed to any revisions, partially due to delays from other developments at the federal level, such as the *Rapanos/Carabell* Supreme Court decision (please refer to Section IV.C below) and re-issuance of the USACE Nationwide Permits.

The agencies will conduct the process of considering and incorporating comments over the next several weeks or months; thus, at the time of this writing, it is difficult to predict the definite effects of the rule on mitigation in North Carolina. However, because the EEP is hailed nationally as a model and held in high esteem by USACE and EPA regulators both at the regional and national levels, there exists a realistic possibility that rule revisions would allow the EEP to continue its current operation to a high degree.

B. The National Mitigation Action Plan

In response to various critiques of the effectiveness of wetland compensatory mitigation in the United States, EPA, USACE, and the Departments of Agriculture, Commerce, Interior, and Transportation released the National Wetlands Mitigation Action Plan in 2002. The plan includes 17 tasks designed to improve the ecological performance and results of compensatory mitigation, including the creation of federal guidance on "site and "kind" replacement, as well as compensatory mitigation in a watershed context. Originally planned for completion in 2005, the proposed rule and other pressing federal tasks, such as re-issuance of the 2007 Nationwide Permits, have delayed implementation of some of the action items. However, the plan is still regarded as a priority by federal agencies, and several of the action items are planned for completion once the mitigation rule and other pressing federal tasks have been completed.[80]

Although the plan is effectively "on hold" as of May 2007, it still warrants discussion for purposes of this study due to its strong focus on watershed-based mitigation. Together with the proposed rule, which also emphasizes watershed-based mitigation, the Plan indicates

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[78] Compensatory Mitigation for Losses of Aquatic Resources, 71 Fed. Reg. 15,520 (2006) (to be codified at 33 C.F.R. pt. 325 and 332, and 40 C.F.R. pt. 230) (proposed Mar. 28, 2006). p. 15,521.

[79] Letter from Michael F. Easley, Governor, State of North Carolina, to Benjamin H. Grumbles, Assistant Administrator, U.S. Environmental Protection Agency, and John Paul Woodley, Jr., Assistant Secretary of the Army (Civil Works) (June 30, 2006) (*available at* http://www.nceep.net/pages/Federal_Rule_Response_Combined.pdf).

[80] National Mitigation Action Plan Interagency Workgroup, National Mitigation Action Plan, *available at:* http://www.mitigationactionplan.gov/ (June 2006).

that momentum towards watershed-based mitigation is growing nationally. North Carolina has historically been on the leading edge of this approach and is one of the first programs in the nation to adopt a discrete watershed planning process for wetland and stream compensatory mitigation for impacts authorized under Clean Water Act §404 and the state water quality laws. Thus, it is likely that future federal guidance will continue to support the state's direction in terms of utilization of a watershed-based planning process.

C. Rapanos v. United States and Carabell v. U.S. Army Corps of Engineers

On June 19, the Supreme Court rendered a fractured decision in *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* ("*Rapanos/Carabell*"). The Court divided 4-1-4 in a decision that throws a heavy burden back on the lower courts, federal and state regulators, and citizen and watershed groups. Four justices, led by Justice Antonin Scalia, concluded in a "plurality" opinion that the Clean Water Act only protects continuously flowing open waters plus wetlands that have a "continuous surface connection" with such flowing waters. As such, the opinion cast doubt as to whether some waters, particularly tributaries, wetlands, ditches, and non-perennial streams, fall within federal jurisdiction. The fifth justice forming the majority for decision, Justice Anthony Kennedy, disagreed with the plurality reasoning, but nevertheless joined in sending the cases back to the lower court. Justice Kennedy wrote that any particular tributary or wetland that is not itself navigable must be demonstrated on a case-by-case basis to have a "significant nexus" to waters that are "navigable-in-fact." Critically, Justice Kennedy noted that the necessary nexus need not be a hydrologic connection, but can be based on some other chemical, physical, or biological relationship. Given the split decision, Justice Kennedy's opinion controls the likely scope of jurisdiction for the Clean Water Act for at least the next several years.

The full extent and impact of *Rapanos/Carabell* has not yet been fully revealed. Questions abound as to what constitutes "Waters of the United States" and how to determine a "significant nexus" with traditionally navigable waters. The USACE and EPA have each issued memos suspending enforcement and regulatory activities until they sort out what jurisdiction they believe they have. Federal guidance pertaining to the decision is expected to be released soon. However, many lower courts are already relying on the decision to determine federal jurisdiction.

While the prospect of case-by-case determinations of Clean Water Act jurisdiction will put heavy burden on federal regulators, effects in North Carolina may be minimized because state jurisdiction over "waters of the state" does not rely on federal jurisdiction. In 2001, the state adopted legislation specifically protecting so-called "isolated wetlands" that may fall outside federal jurisdiction. State rules, adopted in reaction to the *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC)* decision that cast doubt on federal jurisdiction over some intrastate isolated wetlands, would presumably also

apply to waters that may be excluded from federal jurisdiction as a result of *Rapanos/Carabell.*[81] The isolated wetlands rules state that "[i]f the U.S. Army Corps of Engineers or Natural Resources Conservation Service determine that a particular water is isolated and not regulated under Section 404 of the Clean Water Act, then discharges to that water shall be covered by [these rules]."[82] In addition, a 2002 North Carolina Court of Appeals decision made clear that "waters of the state" includes wetlands, ruling that the state had authority to adopt regulations protecting wetlands. Because the North Carolina Supreme Court declined to hear the case, the decision is final in North Carolina.[83]

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[81] N.C. ADMIN. CODE tit. 15A, r. 02H.1300; N.C. GEN. STAT. § 143-215.
[82] N.C. ADMIN. CODE tit.15A, r. 02H.1301.
[83] *See North Carolina Home Builders Association v. Environmental Management Commission*, No. COA02-99 (N.C. App. Dec. 31, 2002), *available at:* http://www.aoc.state.nc.us/www/public/coa/dsheets/020099-1.htm.

V. Key Findings

This section outlines a number of key findings identified by the study team. These findings include observations about the efficiency and effectiveness of the operations of the EEP and the CWMTF and an analysis of the causes and extent of the surplus of mitigation credits in some watersheds. Other findings include challenges and opportunities in regards to the relationship between the EEP and NCDOT and the extent of organizational and programmatic synergies between the EEP and the CWMTF.

For ease of presentation, our findings have been categorized as follows:

- Overall efficiency and effectiveness of the original NCDOT mitigation program and the EEP.
- Analysis of the inventory of acquisitions and credits.
- Efficiency and effectiveness of the EEP's watershed-based planning process.
- Effectiveness of the EEP's project delivery practices.
- On-going challenges in the organizational relationships between NCDOT and the EEP and FHWA.
- Extent of programmatic integration between the EEP and the CWMTF.
- Efficiency and effectiveness of the CWMTF's operations.

A. Overall Efficiency and Effectiveness of the Original NCDOT Mitigation Program and the EEP

This subsection presents our findings in regard to the overall efficiency and effectiveness of both the NCDOT mitigation program that was in place prior to the start of EEP and the EEP itself. Findings in this regard include:

- The NCDOT mitigation program was not effective; however, there is no doubt that learning was obtained through this program that has benefited the EEP.
- No permit has been delayed for mitigation since the initiation of the EEP, resulting in significant cost avoidance in terms of increased construction costs for NCDOT.
- The EEP has a strong focus on continuous process improvement.
- The EEP is recognized nationally as a model program.
- The EEP has credibility issues among some policy-makers in the state.

Each of these findings are described in further detail below.

1. The NCDOT mitigation program was not effective in meeting its program objectives; however, there is no doubt that learning was obtained through this program that has benefited the EEP.

NCDOT operated its own mitigation program until 2003. NCDOT utilized several different techniques to provide mitigation. NCDOT utilized project specific on-site mitigation, purchased credits from banks and established its own banks under contract with private-sector providers.

Under this program, it is estimated that approximately 40% of projects requiring mitigation experienced delays in their letting dates based on the inability to obtain a permit because of mitigation. These delays resulted in increases in the overall cost of constructing projects and affected the credibility of NCDOT with numerous policy-makers and the public when it could not meet its planned commitments to let projects.

As NCDOT management and the Board of Transportation realized the impact of delays due to mitigation, the department initiated an advance mitigation program. This program encountered a number of difficulties. One of these difficulties was the learning curve of the staff and consultants engaged by the department in terms of how to implement an advanced mitigation program. A second key difficulty was the frequent changes in priorities in the TIP.

The EEP was initiated just at the point in time where the department was likely beginning to get some of the benefit of the experience being gained by its staff. It is widely believed by stakeholders at NCDOT and the EEP that these lessons learned were beneficial to the EEP in the start-up of its operations.

2. No permit has been delayed for mitigation since the initiation of the EEP, resulting in cost savings to NCDOT of at least $6.5 million.

Whereas up to 40% of projects requiring mitigation were delayed prior to the inception of the EEP, no projects have been delayed because of mitigation since the start of the EEP. This represents a cost avoidance in terms of increased construction costs of about $6.5 million for NCDOT based on the following assumptions:

- Based on information provided by the NCDOT Fiscal section, since the inception of the EEP, approximately $1,285,297,173 worth of projects requiring some form of mitigation have been let to construction.
- Assuming 40% of these projects would have been delayed for an average of four (4) months under the previous NCDOT mitigation program, this represents a $5.3 million savings in avoidance of increased construction costs based on a 3.8% average annual change in the Federal-Aid Highway Construction Price Index since 1990. In addition, using the average annual change since 1990 is a very conservative approach since there has in reality been much more volatility in this index since the initiation of the EEP in 2003.

3. The EEP has a strong focus on continuous process improvement.

The EEP has leveraged its position as a start-up to emphasize defining and implementing standardized processes and procedures. FHWA provided the EEP with a seed grant of $500,000 to help jump start its organizational development. This effort has been led by a highly competent, hard-working staff that today continues to have continuous process improvement as a core organization value and maintains a strong focus on streamlining processes and identifying and resolving bottlenecks in its operations.

4. The EEP is recognized nationally as a model program.

EEP is highly regarded by regulatory agency staff in North Carolina and at the federal level and has been recognized nationally as an innovative and model program. It has won numerous national awards from various organizations including:

- Recognition of NCDOT and NCDENR in 2003 by the Federal Highway Administration for outstanding environmental stewardship.
- Designation of EEP by FHWA as one of 15 exemplary ecosystem initiatives nationwide.
- A national award for innovation in 2003 from the National Association of Development Organizations.
- Being selected in April 2005 by the National Association of Environmental Professionals for their National Environmental Excellence Award.
- Receiving designation in August 2005 as one of the top new initiatives in state government from the national Council of State Governments.

5. The EEP has credibility issues among some policy-makers in the state.

While the EEP has been well received nationally, the program has a number of communication and credibility issues among some policy-makers in North Carolina. At the core of these concerns are issues such as:

- The 2003 MOA establishing the EEP prohibits applying "surplus" credits between watersheds (cataloguing units), which has led to the perception that NCDOT may in effect be paying twice for the same mitigation.
- Because the cost of mitigation is now more clearly understood, concerns have arisen about the cost of providing mitigation. Under the prior NCDOT program, the cost of mitigation was buried in the total cost of constructing the project. In addition, the cost of mitigation on a per acre and per linear foot basis is also clearly increasing, with this increase more pronounced in urban areas.

- EEP communication strategies and outreach to stakeholders has not been as effective as it could be in addressing these concerns of various policy makers and other stakeholders.

B. Analysis of the Inventory of Acquisitions and Credits

This subsection summarizes key findings from the analysis of the inventory of acquisitions and credits. These findings include:

- The EEP drives its internal business planning from NCDOT's demand forecast based on the TIP; this continues to have a certain amount of volatility.
- NCDOT is becoming more accurate with estimating their mitigation needs.
- There is limited flexibility in the MOA in terms of being able to apply mitigation outside of the cataloguing unit of the permitted impact.
- The EEP was designed based on two key assumptions that are no longer to proving to be true: an increasing construction program and an increasing need for mitigation. This may be contributing to over-building of mitigation.
- There are apparent surpluses in mitigation credits in some watersheds.
- Acquisition of high quality preservation lands by NCDOT and the EEP account for a significant portion of the surplus issue.
- The genesis of the surplus issue predates the initiation of the EEP.

Each of these findings are discussed in greater detail below.

1. The EEP drives its internal business planning from NCDOT's demand forecast based on the TIP; this continues to have a certain amount of volatility.

Volatility/changes in the TIP continue to be an issue. These changes in the TIP are based on a number of factors (i.e., funding constraints, changes in policy maker priorities, etc.) and create a lack of predictability in NCDOT's demand forecast and increase the risk of the EEP developing mitigation that will not be needed.

2. NCDOT is becoming more accurate at estimating their mitigation needs.

NCDOT staff are becoming more precise in terms of developing estimates of the mitigation that will be required. This is likely both the result of more experience in developing estimates and an increased sensitivity within NCDOT about the cost impact of incorrect estimates. The new NCDOT accounting methodology that initially allocates the cost of mitigation (regardless of what project the mitigation may be used for ultimately) to the NCDOT division in which the mitigation is physically resident is also increasing management awareness and attention on the need for accurate estimates.

3. There is limited flexibility in the MOA in terms of being able to apply mitigation outside of the cataloguing unit of the permitted impact.

While the regulations express a preference to performing mitigation in the cataloguing unit of the permitted impact, the MOA operates at a more stringent standard, specifically requiring mitigation in the same eight-digit cataloguing unit in which the impact occurred. This MOA stipulation removes the flexibility NCDOT had to negotiate for some flexibility on a case-by-case basis at the time of applying for the permit.

There are some exceptions to this policy. It should be noted that EEP can still request at the permit application stage the ability to use other CUs, thought this is not normally done in practice. Likewise, regulatory agencies have enacted a policy for the Catawba 03 cataloguing unit that allows for adjacent CU usage. In addition the, Carbonton project has the ability to utilize the adjacent CU to meet its mitigation requirements.

4. The EEP was designed based on two key assumptions that are no longer proving to be true: an increasing construction program and an increasing need for mitigation. This may be contributing to over-building of mitigation if these changed assumptions are not properly reflected in NCDOT's estimates of mitigation requirements.

The NCDOT construction program is not growing in size annually as it did in the late 1990s and the early part of this decade. By definition, this means there will be less need for mitigation. At the same time, better project design from other streamlining initiatives (Merger01, etc.) may be resulting in less mitigation need (i.e., impacts avoided and/or minimized to a greater degree mean less need for compensatory mitigation).

5. There are apparent surpluses in mitigation credits in some watersheds.

Our analysis of the inventory of acquisitions and credits suggest that there is now or will be surpluses in mitigation credits in some watersheds. Surplus credits are those that currently show no forecasted need, which is different from securing excess credits at this point in time to meet forecasted needs and achieve "ahead of impact" goals. The detailed documentation of this inventory, which was constructed by the study team with the help of data provided by NCDOT and the EEP is provided in Appendix A through Appendix G of this report. Some examples of this surplus include:

- As illustrated in Appendix G, by June 2010 (Year 7 of the MOA), the EEP will have met NCDOT's forecasted needs and achieved MOA goals of having completed mitigation projects available ahead of impacts in 43 of the 54 CU's.

- By June 2013 (Year 10 of the MOA), the EEP will have instituted sufficient mitigation in 22 of the 54 hydrologic units in North Carolina (please refer to Appendix G). This means that the EEP will meet or slightly exceed NCDOT's mitigation projections for permitting needs for that mitigation type. Based on the data and notwithstanding credits needed to permit MOA Year 11 (July 2013 to June 2014), Year 12 (July 2014 to June 2015), Year 13 (July 2015 to June 2016), Year 14 (July 2016 to July 2017) and Year 15 (July 2017 to June 2018), there are:
  - Two basins that will have over 30,000 mitigation equivalents of stream
  - Seven basins that will have over 100 mitigation equivalents of riparian wetlands
  - Six basins that will have over 100 mitigation equivalents of non-riparian wetlands
  - Seven basins that will have over 100 mitigation equivalents of riparian wetlands

These thresholds for "significant surplus" were chosen based on the judgment of the study team that the surplus mitigation represented an amount of mitigation that was more than would likely be utilized by a significant new location project within a cataloguing unit.

The geographic location of these "significant surpluses" by cataloguing unit and NCDOT division are presented in Exhibit V-1 through V-III. Exhibit V-1 illustrates the significant surplus for stream restoration; Exhibit V-2 presents this information for riparian wetlands and Exhibit V-3 presents this information for non-riparian wetlands. Excessive surplus was defined at 30,000 feet for stream and 100 acres for wetlands.

- A review was conducted of the NCDOT mitigation transfers to the EEP and the EEP acquired sites against the June 2013 (Year 10 of the MOA) 'surplus.' There are likely some basins, particularly in the Neuse, Cape Fear and Pasquotank, that have 'surplus' mitigation due to NCDOT transfers. A correlation exists here although there are two basins with a surplus that are influenced by EEP acquired sites. Additionally, EEP does not actually know which sites will be used for mitigation until the Section 404/401 permit requirements are due.

The target information provided by EEP for 2013 (Year 10 of the MOA) is in mitigation equivalents. This equivalent is an estimate because the Section 404/401 permit requirements usually require two mitigation credits for each acre/foot of impact; there are some cases when the mitigation credit is one for one.

Exhibit V-1: Stream Restoration Mitigation Projected Surplus – une 2010

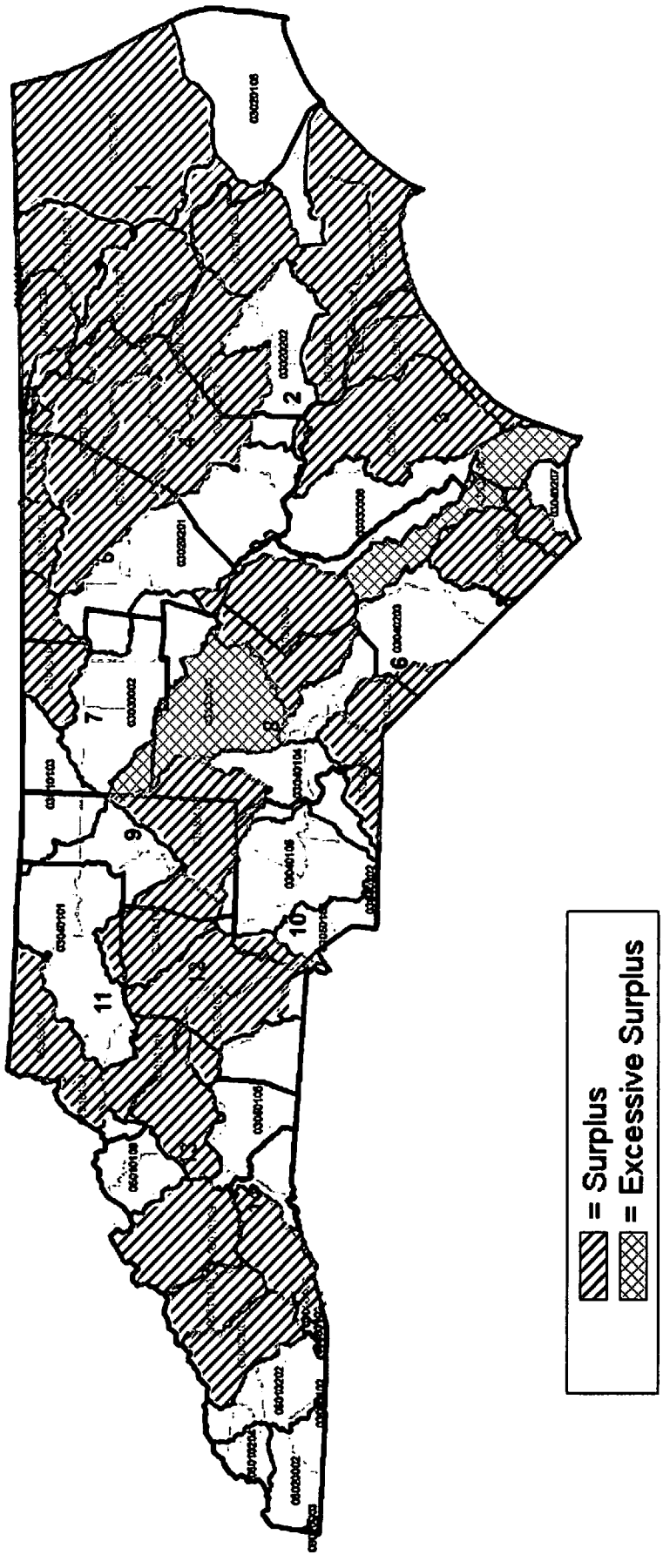


Exhibit V-2: Riparian Restoration Mitigation Projected Surplus – une 2010

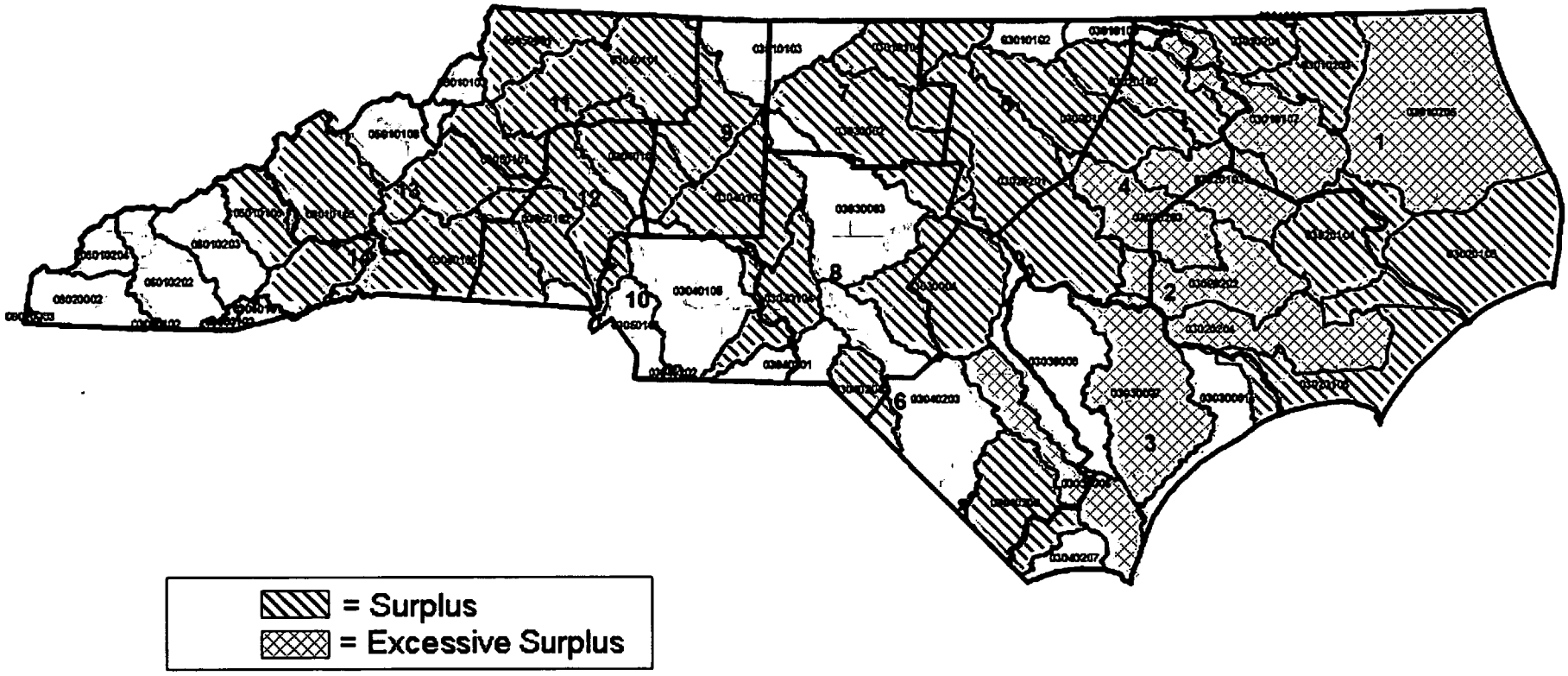
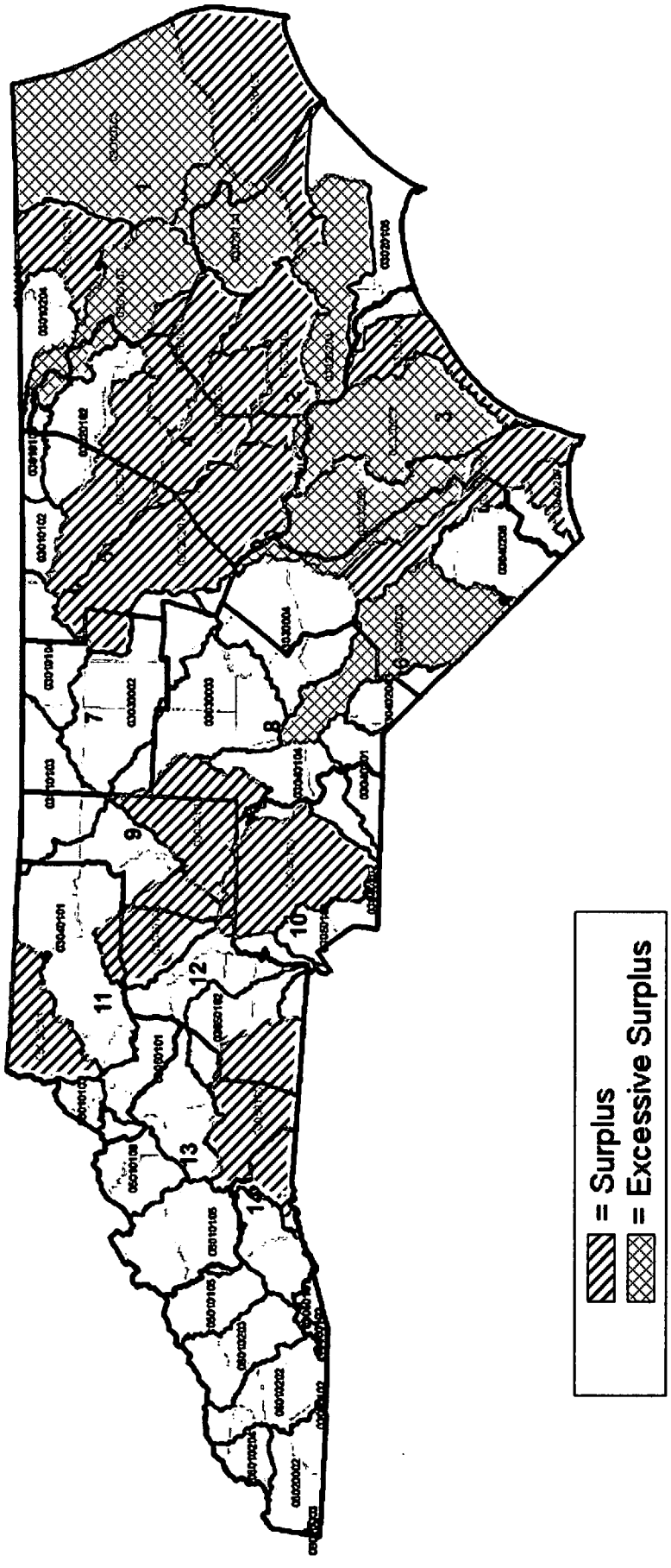


Exhibit V-3: Nonriparian Restoration Projected Surplus – une 2010



6. Acquisition of high quality preservation lands by NCDOT and the EEP account for a significant portion of the surplus issue.

As illustrated in Appendix A, high quality preservation (HQP) land costs total over $78 million between the EEP and NCDOT acquisitions. 2.1 miles of the stream tracts include uplands. . It is possible that these uplands could be re-sold and added back to the tax base; this would reduce the money spent to acquire the high quality preservation and enable more funding of transportation and/or other projects. Additional survey and mitigation work would be required to locate the buffers, create a new plat (hold mitigation in fee simple or conservation easement) to sub-divide the tract, appraise the sub-divided tract(s) and then sell the land.

7. The genesis of the surplus issue predates the initiation of the EEP.

The start of the surplus issue predates the initiation of the EEP. Upon realizing the number of permits (40% plus) that were being delayed for mitigation, the Board of Transportation and NCDOT began its own advance mitigation program in the late 1990s. However, because of extensive volatility in the TIP, limited experience in estimating mitigation requirements and a lack of experience in properly planning and executing an advance mitigation program, the NCDOT program was largely ineffective. The result was the acquisition of mitigation in a number of cataloguing units where it was not actually needed and, in some cases, a shortage of mitigation where it was actually needed.

Of special interest in this regard is NCDOT's investment in high quality mitigation lands. NCDOT, based on figures provided by NCDOT's Fiscal section (the cost numbers provided the EEP are slightly different) has invested over $39 million in high quality preservation lands. These tracts and their purchase price as reported by NCDOT are illustrated in Exhibit V-4 below.

Exhibit V-4: Inventory of NCDOT High Quality Preservation Acquisitions

Acquisition Name	Ecoregion	Amount Paid Per NCDOT Fiscal
Roquist Pocosin	Northern Outer Coastal Plain	4,135,465.14
Haw River State Park	Central Piedmont	424,592.00
White Pines/Newton	Central Piedmont	170,000.00
Davis Tract/Yadkin	Central Piedmont	241,938.00
Eno River /Poplar River	Central Piedmont	534,000.00
Eno River State Park	Central Piedmont	2,318,400.00
Duke Forest/Haw River	Central Piedmont	3,025,000.00
Little Mountain	Central Piedmont	4,180,000.00
Allen Site	Central Piedmont	565,000.00

Acquisition Name	Ecoregion	Amount Paid Per NCDOT Fiscal
Lone Mountain	Southern Piedmont	773,000.00
Rankin Tract	Southern Piedmont	3,213,095.00
Mingo Tract	Northern Mountains	7,500,000.00
South Fork of the New River	Northern Mountains	777,000.00
Lost Bridge Tract	Southern Mountains	511,600.00
Needmore Tract	Southern Mountains	7,500,000.00
Dupont Forest Site	Southwestern Mountains	4,000,000.00
Total Acquisition Cost:		**$39,869,090.14**

8. The EEP does transfer credits between the NCDOT program and the in lieu fee program. This has allowed surplus NCDOT mitigation credits to be sold to the in lieu fee program.

The EEP does sell surplus NCDOT credits to the in lieu fee (ILF) program when surplus NCDOT credits are available in cataloguing units where the ILF program has needs There has been over $13 million in surplus credits purchased by the ILF program from the NCDOT programs since this "buy sell" program was initiated in March 2005. This has generated substantial savings in the cost of mitigation to NCDOT. Similarly, the NCDOT MOA program has been able to purchase surplus credits from the ILF program which has decreased the number of new mitigation projects which are necessary. This has also created additional savings.

9. NCDOT has not allowed EEP to sell any surplus high quality preservation (HQP) land credits.

EEP has requested NCDOT to allow HQP surplus credits to be sold to the ILF program. To date, however, NCDOT has elected not to sell surplus HQP. This represents a missing revenue stream for NCDOT. It would also be a method to decrease the HQP surplus.

C. Efficiency and Effectiveness of the EEP's Watershed-Based Planning Process

This subsection describes a number of findings related to watershed planning. These findings include:

- Potential disconnects between the outputs from the watershed planning process and the actual site selection process.

- Limited synergy between DWQ's basin-wide planning process and the watershed planning process.
- Limited integration between the EEP's watershed planning process and the CWMTF's grant application and selection process.

Each of these findings are described in further detail below.

1. Potential disconnects between the outputs from the watershed planning process and the actual site selection process.

The EEP is intended to be a programmatic approach to mitigation based on a strong, proactive, watershed-based planning approach. However, the connection between the needs and opportunities defined by the watershed planning process and the realities of site selection, which involve the need to identify a willing seller, are not always evident, particularly in the full delivery model.

Watershed plans, where available, do assist with site selection. As of May 3, 2007, the EEP's Watershed Planning and Project Implementation section had delivered 31 projects identified through the local watershed plans. Furthermore, EEP's Operational Strategic Plan includes 59 additional projects identified through the local watershed planning process to be implemented over the next five years.

However, interviews with stakeholders who contract with EEP to perform design-bid-build activities suggest that the value of these plans is limited by the need to identify individuals who are willing to do business with EEP, independent of candidate sites and opportunities that may be identified by the watershed plan.

Furthermore, based on our interviews, watershed plans do not appear to be extensively utilized by full delivery providers to drive their site selection activities, even though proposers are awarded bonus points during technical evaluation when they propose projects in targeted watersheds as identified in the plans. Private sector providers who are bidding on full delivery projects utilize their own internal GIS-based tools and site selection specialists to identify and engage willing sellers. Given that the full delivery process represents the largest portion of EEP's procurement activity currently (66%), this could potentially lead to the development of mitigation sites that have little correlation to the needs identified in the watershed plans. In addition, the full delivery contracting process requires the EEP to select the lowest cost proposal deemed technically qualified. While targeted watersheds are part of the criteria in the technical evaluation, there is no explicit requirement that a full delivery provider's site must be rated highly in the local watershed plans.

2. Limited synergy between DWQ's basin-wide planning process and the EEP watershed planning process.

The EEP prepares detailed watershed-based mitigation plans for selected watersheds, while DWQ prepares basin-wide plans to help identify impaired waters. Basin-wide

water quality planning is a watershed-based approach designed to support restoring and protecting the quality of North Carolina's surface waters. Basin-wide water quality plans are prepared by DWQ for each of the 17 major river basins in the state every five years.

These concurrent water quality planning initiatives are intended to build from and share data with each other. DWQ's basin wide plans feed data and information on 303(d) (impared waters) information to EEP for use in the EEP CU screening process, and EEP plans provide detailed data from river basin restoration plans and local watershed plans back to DWQ for incorporation into DWQ basin wide plans.

However, EEP and DWQ plans do not follow the same schedule due to EEP needing river basin restoration and local watershed planning information based on NCDOT's forecasted impacts. To ensure synergy and cooperation, EEP planners and DWQ staff meet throughout the year to share data, review each others plans, participate in each others public and stakeholder meetings, and also meet twice a year to discuss participation and additional improvements.

While the coordination between EEP and DWQ on these water resource planning processes was not a primary focus of this study, the team believes that there is some obvious overlap between these two planning processes and that additional study would be appropriate to identify opportunities for economies of scale, shared staffing and other potential effiencies between these two planning processes. In addition, there are also other water resource planning processes that should be included in any detailed study of linkages and potential efficiency and economy of scale opportunities across the state's water resource planning efforts. These include the river basin plans prepared by the Division of Water Resources and other planning efforts performed by the Public Water Supply Section in Environmental Health.

3. Limited integration between the EEP's watershed planning process and the CWMTF's grant application and selection process.

There is limited integration between the EEP's detailed watershed plans and the CWMTF's grant application and selection process. Grant applicants receive bonus points on their application if their project is in an area that has a watershed plan. However, there is no specific linkage between the needs identified in the plan and the scope of the proposed application. No bonus points, for example, are given for identifying a project that addresses specific needs identified as the highest priorities in the watershed plans.

D. Effectiveness of the EEP's Project Delivery Practices

This section describes our findings related to the EEP's project delivery practices including:

- The EEP needs the capability to utilize a variety of procurement methods

- There is the potential for unintended competition between EEP and its full delivery providers
- A lower than desired cap on the on-call contracts could be affecting EEP's ability to utilize the most experienced technical resources
- The EEP's project management staff are continuing to come up the learning curve, although there continue to be gaps in project management skills and interdisciplinary experience

Each of these items are described in further detail below.

1. The EEP needs the capability to utilize a variety of procurement methods.

The EEP currently utilizes both the design-bid-build and full delivery methods and EEP is investigating the feasibility of piloting a design-bid procurement approach. Our analysis suggests that this range of delivery methods is required in order to address different types and sizes of projects that the EEP is required to deliver. Full delivery is most appropriate for larger projects, for example for a cataloguing unit with a significant amount of anticipated needs that could be addressed by one or two large projects. On the other hand, design-bid-build may be more appropriate for smaller projects where a full delivery provider might not be able to achieve their desired economies of scale.

Based on data provided by EEP, design-bid-build appears to be a more cost effective approach. Exhibit V-5 illustrates a comparison of the cost of full-delivery and design-bid-build projects completed to date. This comparison is based on 104 full-delivery projects and 45 design-bid-build projects.

Exhibit V-5: Cost Comparison between Full-Delivery and Design-Bid-Build

	Rural		Urban	
Credit Type	Full Delivery	Design-Bid-Build	Full Delivery	Design-Bid- Build
Stream ($/Stream Credit)	$264	$220	N/A	$314
Riparian Wetlands ($/wetland credit)	$38,802	$14,564	N/A	$43,569
Non-Riparian Wet	$17,845	N/A	N/A	N/A

The EEP has been utilizing the full delivery model more often as it ramps up the program since full delivery generally has a more compressed project delivery timeline than design-bid-build from project initiation to the start of construction. However, the EEP has indicated that it plans to make greater use of design-bid-build in the future. Likewise, the regulatory agencies have asked the EEP to provide additional oversight and management on the full delivery projects.

2. There is the potential for unintended competition between the EEP and its full delivery providers.

In situations where the EEP is conducting design-bid-build projects and full delivery projects in the same cataloguing unit, the EEP may be in effect competing against itself for particular sites. This puts the EEP at a disadvantage in its design-bid-build process, since it is constrained in the offers that it can make to property owners by the federal Uniform Act and state law. Full delivery providers, on the other hand, have the potential for pricing the land more aggressively to close the deal and then making adjustments elsewhere in their bid to offset the increased price they paid for the land.

Likewise, several stakeholders also identified to us a concern that in some cases the EEP excludes certain geographic areas when releasing a full delivery RFP where the EEP has already been working with property owners in these areas. The EEP excludes these geographic areas in an attempt to avoid or reduce competition between EEP and its own full delivery providers. This could put the property owner of a site reserved by the EEP, however, at a disadvantage in comparison with their neighbors who may have more flexibility in negotiating with the full delivery provider.

3. A lower than desired contract ceiling on the on-call contracts could be affecting EEP's ability to utilize the most experienced technical resources.

The EEP needs to be sure that it has access to the strongest technical resources and expertise possible for completing its design-bid-build work. The current contracting approach in which 20 firms have contracts capped at $750,000 is laudable for opening up the process to a larger number of firms. However, the contract ceiling may be affecting the EEP's ability to gain access to key technical resources. This current approach has allowed the EEP to spread the work out more uniformly. However, because the most specialized technical expertise is not necessarily uniformly distributed among all of the firms, this approach can limit the EEP's ability to obtain specialized technical expertise if a consultant's firm has reached or is about to reach its contract maximum.

4. EEP's project management staff are continuing to come up the learning curve, though there continue to be gaps in project management skills and interdisciplinary experience.

Discussions with a variety of stakeholders suggest that the EEP's project managers are continuing to grow professionally and gain experience incrementally with each project that they work on. However, there were two gaps in the knowledge of EEP staff identified by a number of different types of stakeholders:

- The extent of the project management and contract management skills of EEP Project Managers.
- The limited interdisciplinary experience and perspective of the EEP project mangers. This is typically the result of having worked in only one area such as stream design before becoming a project manager and thus having less experience about the roles and responsibilities of other team members and when to engage these team members on a project. This issue may be further exacerbated by the fact the EEP project staff do not normally perform work themselves, but instead act in a management or oversight capacity. Without having regular hands-on experience, it may be difficult for this staff to fully appreciate all of the activities being performed by the consultant staff they are supervising.

E. Organizational relationships between NCDOT, EEP and FHWA

This subsection discusses findings concerning the organizational relationship between NCDOT and the EEP and NCDOT and FHWA as it pertains to the EEP. Specifically, this section addresses the following:

- Misalignment in expectations between staff at NCDOT and the EEP concerning the relative roles and responsibilities of the two organizations.
- Delays in NCDOT submitting the initial billing to FHWA for the federal share of the cost of the EEP program.

Each of these findings is described in further detail below.

1. Misalignment in expectations between staff at NCDOT and the EEP concerning the relative roles and responsibilities of the two organizations.

While the executive management of NCDOT and NCDENR may be aligned on the relative roles and responsibilities of NCDOT and the EEP in defining the requirements for and delivering compensatory mitigation for transportation projects, there are clear organizational disconnects between individuals at the management and staff level at

NCDOT and the EEP about the role and responsibilities of the respective organizations. Some specific examples include:

- The EEP views itself as an independent entity responsible for providing permit requirements through build to order mitigation credits for NCDOT. In effect, the EEP plays the role of a contract manufacturer. A number of staff at NCDOT, on the other hand, view the EEP as simply a supplier and want to provide the same level of management oversight to the EEP as they do to engineering consultants or construction contractors.
- The current cost recovery billing methodology in which NCDOT advances the EEP funds each quarter and the EEP submits a bill at the end of the quarter reinforces this supplier relationship by providing, as is appropriate when the relationship is based on a cost recovery methodology, an extensive amount of detail concerning the EEP's operations. We were given several examples where through this detailed invoicing process NCDOT staff became aware of significant organizational changes made by the EEP that the NCDOT staff had not otherwise been informed about, such as the opening of the Asheville field office.
- There is some confusion on the part of NCDOT staff as to the point at which the EEP takes over the responsibility for and the risk of delivering the mitigation. This legal transfer of responsibility takes place at the time NCDOT identifies on its permit application that it will be using the EEP to provide the mitigation and the EEP agrees to accept this responsibility.

The tri-party MOA states that "At the time of issuance, the USACE will copy all permits or authorizations requiring utilization of the EEP program, issued to NCDOT to NCDENR EEP. Within 5 days of receipt of that permit, NCDENR will notify the USACE that NCDENR, and not the NCDOT, is responsible for providing the compensatory mitigation required by the permit, and will take all actions necessary to complete implementation of the compensatory mitigation required by such permit or authorization (p. 12), However, there is not a transfer of money and a clean "receipt" provided by the EEP to NCDOT as there is when the EEP accepts responsibility for providing mitigation for a permittee in the in-lieu fee program since NCDOT has been in effect funding the subject mitigation on an as incurred basis throughout the development process.

2. Delays in NCDOT submitting the initial billing to FHWA for the federal share of the cost of the EEP program.

The North Carolina Division Office of FHWA has been an enthusiastic supporter of EEP since its inception. As mentioned previously, the office provided a $500,000 start-up grant and has assigned a staff member as a liaison to EEP on a near full-time basis. NCDOT, as of the time of this report, however, has not yet submitted a request for federal reimbursement for the federal participating charges related to the EEP. The primary reason for this appears to be challenges that NCDOT has faced internally in

developing a methodology for allocating the costs of the EEP program to specific projects or specific divisions since the boundaries for various cataloguing units do not necessarily correspond with the boundaries for NCDOT divisions. In addition, it has required a significant effort to obtain consensus among NCDOT division engineers about this methodology.

While we recognize that NCDOT consistently receives every federal transportation dollar it is eligible for and thus has not left any money on the table because of not billing FHWA for its share of the EEP program, there is some risk in waiting too along to submit the initial bill and then addressing any business process or operational concerns that could arise through this billing process. Changes in process that might be dictated based on concerns raised by FHWA should be identified as soon as possible; as it stands, it will be now be several years following the initiation of the program before NCDOT will be seeking any reimbursement for EEP costs.

F. Programmatic Integration Between the EEP and the CWMTF

This subsection describes findings concerning the existing programmatic integration between the EEP and the CWMTF. Findings in this regard include:

- The EEP and the CWMTF have worked together in the past and continue to work together in a number of ways.
- The EEP and the CWMTF are currently implementing different strategies for site maintenance and stewardship.
- There are a number of differences in key forms used by the EEP and the CWMTF, which can lead to confusion among property owners.

Each of these items is discussed in further detail below.

1. There are a number of existing program synergies between the EEP and the CWMTF.

The EEP and the CWMTF have worked together previously on a number of initiatives. These touch points include:

- CWMTF's application for a stream restoration project requires documentation that the project has been previously submitted tothe EEP for consideration and been turned down.
- The CWMTF staff has participated on the EEP's High Quality Preservation technical team.
- The EEP EEP has bought "projects" from the CWMTF when a mitigation requirement arose in a cataloguing unit where the EEP did not have sufficient inventory but a CWMTF grantee had a project underway that could qualify for mitigation credit. Under this process, the EEP, if the CWMTF grantee is willing,

reimburses the CWMTF for the full cost of its role in the project including funds paid to the grantee and the administrative costs associated with processing the application and managing the grant.

As an example, the EEP and CWMTF have collaborated on the Trout Cove Branch restoration site, Hiwassee watershed, Clay County. The Hiwassee Watershed Coalition collaborated with EEP and CWMTF. EEP reimbursed CWMTF for CWMTF funds spent on the property. Hiwassee Watershed Coalition was awarded the funds from the reimbursement for use on new projects in the watershed. The EEP took responsibility for the management of the site and ongoing monitoring.

There are also several pending partnerships at the time of this report. EEP will only reimburse CWMTF for their expenditures on these sites if the projects prove environmentally and economically feasible. These pending partnerships include:

Exhibit V-6: Pending EEP/CWMTF Partnerships

Project	Watershed	County
Tessentee Farm	Little Tennessee	Macon
Ramah Creek	Catawba	Mecklenburg
Ripshin Branch	New	Ashe
Lewis Creek	French Broad	Henderson
Collins Tract	Dare	Pasquotank
Hanson Aggregates	Cape Fear	Chatham

- The CWMTF has partnered with NCDOT and the EEP on purchases of some of the high quality preservation lands. In terms of this process, the CWMTF has raised some concerns about the lack of visibility around how the mitigation credits from these acquisitions are being applied and whether the EEP is utilizing more mitigation credits than they should be entitled to based on the funds pooled from the different sources to complete the land acquisition. In response to this concern, the CWMTF and the EEP have suggested that in the future they would like to see these acquisitions broken into distinct parcels based on funding source. It is anticipated that this would alleviate some of the confusion around the accounting for the mitigation credits from these acquisitions.

2. The EEP and the CWMTF are currently implementing different strategies for site maintenance and stewardship.

While the CWMTF participated in the task force to define NCDENR's site maintenance and stewardship program, the Board of the CWMTF chose to initiate its own stewardship program and as of now is not participating in the NCDENR program. CWMTF implements its program by setting aside money on the front-end from the

grant application; while NCDENR has chosen to implement its program on a pay as you go basis.

3. There are a number of differences in key forms used by EEP and CWMTF, which can lead to some confusion among property owners.

Conservation easements and other documents from the two programs often have key differences. While some of these differences can clearly be attributed to differences in program scope and in some case tighter restrictions on activities that can be carried out in a conversation easement that is being used for mitigation, several stakeholders reported that these differences create confusion among property owners. From the perspective of a property owner who is doing work with both organizations, these differences are confusing since the property owner is in both cases doing business with the State of North Carolina.

G. Efficiency and Effectiveness of the CWMTF Operations

This subsection summarizes key findings concerning the effectiveness of the CWMTF operations. These findings include:

- Limited performance measurement/validation of projected benefits from the CWMTF grants.
- Minimal management systems are in place to support a program the size of the CWMTF.

Each of these items is discussed in detail below.

1. Limited performance measurement/validation of projected benefits from the CWMTF grants.

The CWMTF has no structured process for following-up on individual projects at defined intervals following implementation to evaluate the extent to which these projects met or are meeting the goals and objectives that the grantee proposed to achieve in their application. The lessons learned from these reviews could then be fed back into the grants selection process to produce improved grants applications going forward.

2. Minimal management systems are in place to support a program the size of the CWMTF.

The CWMTF has minimal management systems to support it as its program size continues to grow. This creates a risk of increased difficulty in sharing information among staff and creates the potential to create inherent inefficiencies in back room processes.

The CWMTF currently has a paper-based application process. In addition, while it has a customized server-based grants tracking system, it is only using a small part of the functionality that is available within this system. Not all staff regularly use the system or keep the information in the system up to date. In addition, the grants accounting process is being performed on stand-alone spreadsheets instead of taking advantage of capabilities that appear to be available in this in-house system.

VI. Analysis of Organizational and Programmatic Alternatives

This section provides an analysis of several different organizational and programmatic models for providing mitigation in North Carolina and for promoting integration where appropriate between the EEP and the CWMTF. The study team analyzed the following approaches:

- The status quo in which the EEP and the CWMTF are independent programs.
- Modifications to the status quo designed to improve the efficiency of the current program environment and promote enhanced programmatic synergies between the EEP and the CWMTF.
- Merger of the EEP and the CWMTF programs.
- Returning responsibility for mitigation for transportation projects to NCDOT.
- Implementing a private mitigation banking model to the extent practical.

The initial subsection of this chapter provides an overview of the evaluation criteria utilized to analyze each proposed approach. The remaining subsections document the analysis of each proposed approach.

A. Evaluation Criteria

The study team analyzed each of the proposed organizational and programmatic alternatives based on the following criteria:

- Capability to meet various programmatic goals and objectives including:
  - Providing NCDOT with required mitigation in advance of the target construction project letting date.
  - Providing high quality mitigation to fully compensate for the impacts of transportation projects on the state's aquatic resources.
  - Supporting non-NCDOT mitigation needs currently provided for by the in-lieu fee program.
  - Supporting the nutrient offset program.
  - Meeting the CWMTF's program goals to improve the overall quality of North Carolina's aquatic resources.
- Ability to effectively address issues with North Carolina's current program approach as identified and documented in Section V above.
- Cost of implementation of the proposed alternative.

- Risks associated with implementation of the proposed alternative.
- Anticipated benefits from each alternative.
- Impact of potential future developments (i.e., federal regulations, etc.).
- Consistency with best practices and guidance.

B. The Status Quo in Which the EEP and the CWMTF Are Independent Programs

This alternative involves maintaining the status quo in which the EEP and the CWMTF are separate programs, with limited program level communication and coordination between the two organizations. Under this alternative, there are limited linkages between the EEP's watershed planning process and the CWMTF's application recruitment and selection process. Likewise, in this alternative, the EEP continues to work with NCDOT on a cost recovery basis in a modified customer-supplier relationship. Because of the nature of this alternative, there are no anticipated implementation costs. The relative advantages and disadvantages of this model are outlined below.

1. Advantages.

The advantages of the status quo alternative include the following:

- Under the current EEP program, mitigation has been removed from the critical path for the delivery of transportation projects.
- The removal of mitigation from the critical path has provided cost savings in constructing transportation projects by enabling these projects to be let on schedule versus encountering cost increases because of a delay in the letting date for a project.
- The EEP's approach to mitigation is planned and programmatic based versus the more reactive mitigation approach under a project-specific mitigation model.
- This programmatic approach provides the potential for higher quality mitigation and improved environmental outcomes through a watershed-based planning approach to mitigation.
- Under this alternative, mitigation is implemented by an environmental agency instead of a transportation agency.
- NCDOT is able to better focus on its core mission of planning, designing, building, and maintaining transportation infrastructure versus having to develop expertise in the design, implementation and on-going stewardship of compensatory mitigation.
- There is extensive buy-in by the environmental resource agencies and other environmental stakeholders for the current approach in which the EEP is housed within NCDENR.

- There is also extensive buy-in by environmental stakeholders to the separate organizational structures for the EEP and the CWMTF, with a clear separation of responsibilities between the EEP's compensatory mitigation program and the CWMTF's broader voluntary grant-based program.

2. Disadvantages.

The disadvantages of the status quo alternative are as follows:

- The current structure of the EEP MOA provides limited flexibility to apply credits outside of an eight-digit cataloguing unit.
- NCDOT perceives that it has limited control over the cost of mitigation, something that is a significant expense item within its transportation project delivery process.
- There is some concern over the effectiveness of the existing watershed-based planning process given that there is not always an apparent linkage between site selection and the outcomes of the watershed planning process, especially in the case of the EEP's full delivery projects.
- There are limited linkages between the EEP's watershed planning process, DWQ's basin-wide planning process, and the CWMTF's application and grantee selection processes.
- There is a surplus of mitigation in some cataloguing units; this leads to concerns by some policy-makers about the cost effectiveness of the current approach.

C. Modifications to the Status Quo Designed to Improve the Efficiency of the Current Environment and Promote Enhanced Programmatic Synergies Between the EEP and the CWMTF

This alternative would maintain the EEP and the CWMTF as separate programs and independent organizations. However, a number of steps would be taken to improve cross-program coordination and drive programmatic linkages. Likewise, additional steps would be taken to strengthen the partnership between NCDOT and the EEP. This alternative would include the following process improvements:

- Negotiating additional flexibility into the MOA to allow the use of available mitigation credits within a river basin in situations where there are not sufficient credits in a specific cataloguing unit but there is an anticipated surplus of credits elsewhere in the same river basin.
- Negotiating a 1:1 ratio at the time of permit issuance where there is mitigation that is in the ground and deemed to be fully functional at the time of impact. Additional feet or acres may be then applied to other permitted projects with similar mitigation needs (e.g. site and kind). Over time, this will reduce the amount of mitigation that must be

implemented and substantially reduce the cost to the state of implementing compensatory mitigation.

- Establishing procedures to ensure that the EEP is involved in any potential acquisition of environmentally sensitive land by the state in order to utilize mitigation dollars as the first source of funding for any acquisitions by the state in an area where there is a need for mitigation credits and the property being acquired would be eligible for mitigation credits.
- Modifying the CWMTF's enabling legislation to provide the flexibility to use CWMTF grant funds for compensatory mitigation in some situations.
- Partnering with the CWMTF to help state or local governments or land trusts acquire any property identified by the EEP and NCDOT as surplus and a candidate to be divested.
- More effectively integrating the EEP's watershed planning process with the river basin planning process currently performed by DWQ. One alternative for accomplishing this would be by creating a joint planning group that addresses the planning needs of both organizations.
- Enhancing the watershed planning process to develop a concrete set of recommended projects to address the needs identified in the plan and to share the needs identified and the proposed projects to address these needs in the watershed plans with mitigation providers and potential CWMTF grantees.
- Involving the CWMTF in the watershed planning process and in the definition of this list of proposed projects; CWMTF would then "market" these potential projects to prospective grantees as suggested or recommended projects to be considered for submission.
- Modifying the CWMTF grant selection process to provide additional weight through substantial bonus points to prospective grantees who are proposing to address high priority needs and/or targeted projects as identified in the watershed plans.
- Increasing the emphasis on functional mitigation versus the traditional acres and feet approach and leveraging the watershed plans to implement this strategy.
- Working with regulators to establish multiple out-of-the-box mitigation pilots and tightly linking these programs to the high priority projects identified in the watershed plans.
- Implementation of a two-stage Transportation Improvement Program (TIP) including a development component that would include projects in the planning and initial design stages and a delivery component for projects in final design, letting preparation, and construction.
- Migrating from the current advanced mitigation approach to a "just-in-time" mitigation approach in which NCDOT would order mitigation from the EEP at the time it programs a project into its delivery TIP. The EEP would use information in the development TIP to target site selection activities but would not acquire an option on a

parcel or begin design activities until the project is programmed by NCDOT for construction.

- Transitioning to a per credit based fee approach for NCDOT to acquire mitigation from the EEP as the current build-out phase of the EEP program levels out.

The estimated cost of implementing this alternative is in the range of $400,000 - $500,000. This cost estimate includes:

- Any contracted assistance that may be required to design and implement an approach to more closely align the river basin and watershed planning processes and link the watershed planning process with the CWMTF grant application and selection process.
- Any support required to implement changes in processes and procedures based on additional flexibility in the MOA.
- Consulting support required to implement the two-staged TIP and manage the determination of surplus property and the sale of these parcels.

This alternative should not result in additional operational costs to DWQ and/or USACE as the EEP program would continue to act as a single point-of-contact for the regulatory community.

While we have not specifically quantified the benefits from this alternative, it is anticipated that the benefits would more than offset the costs of implementing this alternative. Anticipated benefits would include:

- Reduced costs for delivering mitigation through greater flexibility within the MOA to apply surplus mitigation within a river basin.
- Reduced costs for developing mitigation through the application of lower ratios for mitigation that is fully functional at the time of permit issuance.
- Reduced costs for developing mitigation going forward through improved forecasting of mitigation requirements.
- Potential revenue for NCDOT from the transfer of surplus EEP assets to other organizations through a partnership with the CWMTF.
- Improved environmental outcomes through more effective targeting of traditional in-kind mitigation, functional mitigation and out-of-the-box mitigation by tighter linkages to watershed planning.

The relative advantages and disadvantages of this model are outlined below.

1. Advantages.

Advantages of the modified status quo model include:

- Mitigation would remain off the critical path for the delivery of transportation projects.

- The overall cost of delivering mitigation would be reduced through additional flexibility to utilize surplus credits in one cataloguing unit in another cataloguing unit within the same river basin.
- The state would have additional flexibility in terms of acquiring mitigation through existing funding sources by having the option of utilizing CWMTF projects which meet or could meet the criteria for eligibility for mitigation credit.
- The cost of mitigation would also be reduced by the agreement of the MOA signatories to apply lower mitigation ratios at the time of permit issuance where mitigation is in the ground and fully functional in advance of the start of construction of the transportation project.
- The mitigation deployed under this model would be programmatic in nature and would be much more tightly integrated with the watershed planning process.
- The watershed planning process would be more fully aligned and integrated with DWQ's basin-wide planning process and CWMTF's grants application and selection process.
- The value received from the basin-wide and watershed planning processes would increase as these planning processes are used to help define and guide functional mitigation and out-of-the-box mitigation programs. Implementation of non-traditional mitigation approaches will also provide additional opportunities for the EEP and the CWMTF to partner in delivering projects, with the potential for significant environmental outcomes.
- The legal transfer of responsibility for mitigation from NCDOT to EEP will be more clear through the payment of a per-credit fee in which NCDOT would essentially receive a receipt for its payment similar to that obtained by customers of the in-lieu fee program today.
- The forecast of future mitigation requirements will improve through the implementation of a two-step transportation delivery program. Under this two-step program, projects are only programmed for final design and construction after enough design has been done to fully understand the scope of the project; define the project's mitigation requirements; estimate with improved precision the anticipated costs to develop the project including construction, right-of-way, mitigation and other costs; and identify the risks to successful delivery of the project.

2. Disadvantages.

Disadvantages of this modified status-quo alternative include the following:

- Re-negotiation of key aspects of the existing EEP MOA will be required. It is anticipated that this renegotiation will require significant involvement from senior executives (most likely at the Secretary level) of NCDOT and NCDENR and the Colonel of the Wilmington District of USACE.

- The transition from an advanced mitigation model to a just-in-time delivery model for mitigation introduces some risk that a project could be delayed because mitigation is not available. This approach will require tighter management and monitoring by the EEP of its project delivery process. This risk should be offset somewhat by the experience the EEP and its delivery partners are beginning to gain. This additional experience should help to make the EEP's project delivery schedules more predictable as the program matures.
- The transition from the current cost recovery approach to a per-credit fee would have to be carefully staged and managed to reduce unintended financial impacts to either NCDOT or the EEP. It is believed that this transition can take effect as the EEP program moves from its build-out phase to a more constant annual level of work in the future.
- Negotiation of ratios, flexibility of mitigation "site" and "kind," and advance mitigation could result in a temporal and spatial loss of aquatic resource function within affected watersheds.
- Measuring the functions and values of functional replacement and "out of the box" mitigation (as opposed to easily quantified replacement of acres and feet) presently remains a difficult and imprecise task and may pose a tough sell with regulatory agencies.
- Any modification of the CWMTF's current prohibition on participating in compensatory modification is likely to face opposition from environmental advocacy groups and potentially from current or former CWMTF grantees. These organizations would be concerned that removal of the CWMTF's prohibition on participating in compensatory mitigation would cause the CWMTF to select projects which would be eligible for mitigation credit at the expense of other types of projects. These organizations would also be concerned that the net impact would be less total dollars spent on environmental projects in North Carolina annually.

D. Merger of the CWMTF and the EEP

This alternative involves the organizational merger of the CWMTF and the EEP programs. For purposes of our analysis, we assumed that this merger would involve the integration of the EEP program within the CWMTF organization. While the EEP currently has significantly more employees than the CWMTF, our rationale for merging the EEP into the CWMTF was based on the benefits of providing programmatic oversight and accountability through an independent board. Such a merger would facilitate definition and implementation of a number of potential programmatic synergies such as a tighter linkage of the CWMTF application process to the EEP watershed plans and additional partnering between the EEP and the CWMTF on functional replacement and out-of-the-box mitigation strategies.

This alternative would have a number of risks and challenges associated with it. First, it would require some modification of the enabling legislation for the CWMTF to establish the merger of the organization and to clearly define the two distinct responsibilities of the

merged organization: (1) compensatory mitigation and (2) management of voluntary grant based programs to enhance and preserve the quality of aquatic resources in North Carolina. Second, a number of policies and procedures would need to be adjusted to reflect merging the EEP program, which is currently an administrative program within NCDENR, to be under the direction of the CWMTF board. Third, it would also require substantial education of the stakeholder community and the customers of both of the current programs on the benefits of the merger. Fourth, it would require modifications to the MOA to recognize the merged organization. Finally, steps would be required to ensure that the current program objectives of the CWMTF are preserved and protected as the merged organization also begins to focus on compensatory mitigation.

The estimated one-time implementation costs for executing this alternative are in the range of $200,000 - $300,000. This would include consolidation and relocation of staff, development of revised policies and procedures for the merged organization, negotiations on the modification of the MOA, and a communication program for EEP and CWMTF customers and other stakeholders in the environmental and transportation communities.

This alternative should not result in additional costs to DWQ and/or USACE as the EEP program within the merged organization would continue to act as a single point-of-contact for the regulatory community.

The relative advantages and disadvantages of this alternative are outlined below.

1. Advantages.

The anticipated advantages of the merger of the EEP and the CWMTF include:

- The EEP and the CWMTF are both environmental agencies. As such, they have similar high-level organizational goals and missions with respect to environmental outcomes.
- A consolidated organization will allow for easier achievement of programmatic synergies between the EEP and the CWMTF.
- There is the potential for improved environmental outcomes by pooling resources between the two programs.
- There is an opportunity in a consolidated organization to more closely link the CWMTF grant programs with the needs and goals identified by the watershed planning process.
- There is some potential for administrative efficiencies if the two organizations are merged; however, these efficiencies are not likely to be too significant since both organizations already rely on NCDENR for functions such as accounting, finance, and human resource management.

2. Disadvantages.

Disadvantages of the merger of the EEP and the CWMTF include:

- The EEP and the CWMTF have different delivery approaches (i.e., designer/implementer vs. grantor).
- There is limited enthusiasm among the regulatory community for a merger based on concerns over commingling funding between the EEP's compensatory mitigation program that is based on a clearly defined and strict regulatory framework and the more flexible, voluntary CWMTF program. These regulatory concerns could create difficulty in negotiating any changes to the MOA necessary to implement the consolidation of the two programs.
- There is a potential for subsidizing NCDOT mitigation with CWMTF dollars, which is not currently the legislative intent of the CWMTF program.
- Stakeholders have concerns about how the divergent governance of the two programs will be integrated post-merger.
- The CWMTF customers have concerns about unintended negative impacts to the current CWMTF program because of the impact of integrating the EEP's compensatory mitigation program.

E. Returning Responsibility for Mitigation for Transportation Projects to NCDOT

This alternative involves the transfer of responsibility for mitigation associated with transportation projects back to NCDOT. An EEP-like organization would likely remain in place to provide an in-lieu fee program, as well as to manage the nutrient program.

This alternative would be similar to the way mitigation was performed prior to the start of the EEP. NCDOT would have complete responsibility for conducting mitigation and would likely negotiate the mitigation on a project-by-project basis as part of the permitting process. Under this scenario, NCDOT would seek to provide advanced mitigation to the extent possible. To accomplish this would require improved forecasting of both project delivery schedules and mitigation requirements for each project.

NCDOT would likely provide mitigation through a combination of approaches. This would include on-site, project specific mitigation; the use of advanced mitigation developed through both design-bid-build and full delivery approaches; the development of their own mitigation banks; and the use of private mitigation banks.

The implementation of this alternative would require the transfer of environment specialist staff between EEP and NCDOT. The cost to implement this alternative including shifting of resources, adjustment of policies and procedures and other steps is estimated to be in the range of $250,000 to $300,000.

This alternative could also result in additional costs to DWQ and/or USACE as coordination would be required by these regulatory agencies with various NCDOT staff and potentially some mitigation bankers whereas the EEP program today acts as a single point-of-contact for the regulatory community.

The relative advantages and disadvantages of this alternative are outlined below.

1. Advantages.

The anticipated advantages of returning the responsibility for mitigation to NCDOT include:

- NCDOT would have direct control over mitigation expenses.
- NCDOT would have clear accountability for the timely delivery of mitigation, as well as full responsibility for managing the costs associated with delivering this mitigation.
- There would potentially be more flexibility in applying mitigation outside the impacted cataloguing unit than is currently possible under the EEP MOA through project level negotiation of issues between NCDOT staff and DWQ and USACE regulatory staff.

2. Disadvantages.

Disadvantages of returning the responsibility for mitigation to NCDOT include:

- Abandoning the EEP model and returning responsibility to NCDOT would be a difficult sell with environmental resource agencies that prefer NCDENR as an environmental agency having responsibility for mitigation program delivery.
- There is substantial risk of mitigation again becoming project focused and reactive versus the current programmatic approach. This could potentially result in a reduction in mitigation quality.
- There is a significant risk of putting mitigation back on the project delivery critical path.
- Some form of an EEP-like organization will still be needed to support the in-lieu fee and nutrient programs.

F. Implementing a Private Mitigation Banking Model to the Extent Practical

This alternative involves the implementation of a private mitigation banking model to meet NCDOT's needs for compensatory mitigation. This mitigation banking model would also likely address some private sector mitigation needs to the extent practical.

It is envisioned that mitigation banks would be appropriate in some watersheds where market demands are sufficient to make more than one bank commercially viable. Other watersheds, however, may not be commercially viable for private mitigation banks and/or might only have one bank enter the market. In these situations, NCDOT, as is the case in Virginia and Georgia, would have to either act as the "bank of last resort" or utilize on-site, project specific mitigation.

Under this alternative, an EEP-like organization would also likely be maintained, with an in-lieu fee program to meet the needs of the private sector that cannot be met by a bank due to either the small size of the need and/or the lack of a viable bank in the impacted cataloguing unit. This EEP-like organization would also likely continue to manage the nutrient offset program. EEP could also maintain responsibility for watershed planning though it is not clear exactly if or how these watershed plans could be effectively linked to the site selection of private mitigation banks. As an alternative, watershed planning could be folded into the DWQ unit that currently performs basin level planning.

A key criterion to successfully implementing a mitigation banking program would be some flexibility in the definition of the service areas for a mitigation bank. Defining the river basin versus the cataloguing unit as the service area for a mitigation bank, for example, would likely reduce some of the current barriers to entry for private mitigation bankers in North Carolina and improve the overall business case for investing in developing a mitigation bank in North Carolina.

The EEP program would continue as currently structured during a transition period of three to five years as mitigation banks come on-line in various watersheds, with responsibility for any gaps in service transitioned to NCDOT. The cost to the state of implementing a mitigation banking program is estimated to be in the range of $150,000 to $200,000, with the primary cost being development and on-going management of the transition plan including the shifting of some resources from the EEP to NCDOT to oversee the transportation mitigation program.

It is estimated that the adoption of a private mitigation banking alternative would result in a net reduction in headcount of approximately 30 staff. Some of the existing staff would be shifted to NCDOT and others to DWQ's basin-wide planning function, with some staff remaining within the EEP to manage delivery of the in-lieu fee and nutrient programs. The estimated cost savings from this alternative would be approximately $2,250,000 (based on an average fully loaded salary of $75,000 per employee).

This alternative would likely result in additional operational costs to DWQ and/or USACE as additional staff could be required to coordinate with multiple mitigation bankers and NCDOT versus the EEP program acting as a single point-of-contact for the regulatory community.

The relative advantages and disadvantages of this alternative are outlined below.

1. Advantages.

Anticipated advantages of a mitigation banking alternative include:

- There is the potential for improved accountability by tying responsibility for timely delivery and quality of mitigation to the payment of banking fees.
- Competition between mitigation bankers could lead to cost reductions in some watersheds.

2. Disadvantages.

Disadvantages of a mitigation banking alternative include:

- There is limited enthusiasm for the private mitigation banking model among regulators who have achieved operational efficiencies of their own under the EEP model by having the EEP as a single point of contact for mitigation issues.
- There are concerns among environmental stakeholders about how much emphasis would be placed on watershed planning under a mitigation banking model.
- Private mitigation banks would not be commercially viable in all watersheds, thus requiring NCDOT to develop its own mitigation banks or on-site mitigation and/or to utilize a scaled-down EEP program to provide this mitigation.
- There is a potential for an increase in the cost of mitigation in some watersheds where only one bank enters the market and/or where NCDOT or a scaled-down EEP must act as the bank of last resort.
- An EEP-like organization would still be required to provide some functions (i.e., the in-lieu fee program for watersheds where mitigation banks do not become viable and the nutrient program).

VII. Recommendations

This section outlines a number of recommendations based on the findings documented earlier in this report and the results of the analysis of various organizational and programmatic alternatives. This includes recommendations concerning the organizational and programmatic relationships between the EEP and the CWMTF, steps to strengthen the relationships between the EEP and NCDOT and specific policy changes, process improvements, and technology recommendations for both the EEP and the CWMTF.

For ease of presentation, our findings have been organized into the following subsections:

- Organizational structure.
- Surplus management.
- NCDOT/EEP partnership.
- Watershed planning.
- Functional mitigation and out-of-the-box mitigation.
- Private mitigation banking.
- EEP project delivery processes.
- CWMTF operations.
- Other recommendations.

A. Organizational Structure

This subsection presents our recommendations concerning the organizational structure of EEP and CWMTF. Our recommendations in this regard include:

- The EEP and the CWMTF should remain separate organizations.
- An acquisition review process should be established which actively involves EEP in reviewing each acquisition to assess the applicability of utilizing any proposed state land acquisition for mitigation credit.
- The General Assembly should consider removing the prohibition on CWMTF participating in compensatory mitigation.
- Additional effort should be made to leverage programmatic synergies between the EEP and the CWMTF.

These recommendations are outlined in further detail below.

1. The EEP and the CWMTF should remain separate organizations.

Our analysis suggests that there are limited benefits to merging the EEP and the CWMTF. While both agencies are focused on creating positive environmental outcomes, the EEP is responsible for delivering a compensatory mitigation program based in a fairly structured regulatory environment. The CWMTF, on the other hand, is responsible for managing a voluntary program with a substantially larger scope. Likewise, while the EEP is a delivery organization who manages the restoration of streams and wetlands, the CWMTF is a grantor agency that provides funding to other organizations that actually design and implement projects.

Similarly, there would be significant risk in terms of stakeholder buy-in and cultural change between the two organizations. The regulatory agencies who work with the EEP (DWQ and USACE) have expressed concerns about mixing compensatory mitigation with the CWMTF's voluntary program. These concerns represent a risk to implementing the merger because it would likely require modifications to the MOA to establish the merged organization.

At the same time, the CWMTF grantees whom we interviewed for this study expressed concerns about the CWMTF's core mission being affected by the integration of a compensatory mitigation program. In addition, there are a number of organizational change issues that would need to be addressed in terms of merging an agency with an independent board (CWMTF) with an agency that operates as an administrative unit with NCDENR (EEP).

2. An acquisition review process should be established which actively involves EEP in reviewing each acquisition to assess the applicability of utilizing any proposed state land acquisition for mitigation credit.

DENR should take the lead in establishing an acquisition review procedure that actively involves EEP in order to ensure that the EEP is engaged in all state land acquisitions. This will allow mitigation dollars to always be utilized as the first source of funding for any acquisitions by the state in an area where there is a need for mitigation credits and the property being acquired would be eligible for mitigation credits.

3. The General Assembly should consider removing the prohibition on CWMTF participating in compensatory mitigation.

In addition, the General Assembly should consider removing the prohibition on the CWMTF participating in compensatory mitigation. Having the option to utilize CWMTF monies for compensatory mitigation would provide the state additional flexibility and provide the potential to better leverage the state's scare financial resources. It also may allow the CWMTF and the EEP to work together more effectively in the future on land acquisitions, functional mitigation and out-of-the-box mitigation initiatives.

The elimination of the prohibition on the CWMTF participating in compensatory mitigation must be carefully balanced so as to not unduly impact the existing voluntary grants based program and/or to unfairly weigh the selection of projects in any way towards projects which are candidates for mitigation credit. To minimize the impact to the existing CWMTF program through removal of the prohibition on compensatory mitigation, it is suggested that the statue be modified to allow EEP to utilize for mitigation credit projects selected through the normal CWMTF application selection process that are determined to be eligible for mitigation credit and in a cataloguing unit where mitigation is needed. Projects would not be given additional consideration or any "bonus points" in the CWMTF grant selection process for their value as a mitigation site.

In situations where the EEP identifies that a CWMTF project could be utilized as a mitigation site, the EEP would be responsible for paying any incremental costs for the project associated with making the site meet regulatory requirements as a mitigation site. This represents a change from the current situation where the EEP buys the project from CWMTF, fully reimbursing the CWMTF for any costs incurred by the CWMTF related to the project and then takes over responsibility for completing the project and monitoring the site. This approach represents a savings to the state in that the EEP would fund only the additional incremental versus paying for the full cost of the project.

It is important to understand that not all preservation or restoration projects funded by the CWMTF would likely be eligible for mitigation credit. Currently, CWMTF projects are entirely developed as the result of applications being submitted by interested parties. While these projects are designed to achieve specific environmental outcomes, they are not always performed within the tight regulatory standards and specifications that are required of mitigation projects.

Mitigation required for permitted impacts to aquatic resources must follow a set of regulatory requirements that are prescribed at the time of permit issuance. In addition to meeting project requirements for mitigation method, size, location, design, and permanent protection, permittees must also:

- Monitor and periodically report on the performance, or "success" of a project in meeting ecological goals and criteria. Performance criteria are often expressed as "performance standards" that measure ecological functions or physical properties, e.g., attainment of the appropriate wetland hydrology, percent coverage of appropriate vegetation, and/or percent species composition. Permittees are typically required to report annually for a set period of time, e.g., five years (although requirements will vary depending on the project).
- Provide contingency funds as assurance in the event of project failure, which may require repair or remediation in order to meet prescribed performance standards.
- Provide for long-term management and maintenance of the mitigation project (i.e., beyond the reporting period). This entails ensuring the long-term

performance of mitigation sites by identifying an entity (e.g., a land trust or state agency) that will be responsible for providing maintenance services and by providing funds to cover costs associated with long-term maintenance services and/or contingency/remediation funds.

Likewise, any modification of the CWMTF's current prohibition on participating in compensatory mitigation is likely to face opposition from environmental advocacy groups and potentially from current or former CWMTF grantees. These organizations would be concerned that removal of the CWMTF's prohibition on participating in compensatory mitigation would cause the CWMTF to select projects which would be eligible for mitigation credit at the expense of other types of projects. These organizations would also be concerned that the net impact would be less total dollars spent on environmental projects in North Carolina annually.

An example of how this recommendation would work is presented below.

Example:

CWMTF awards a $500,000 grant to a land trust to perform a stream restoration project. During the project, EEP identifies a need for stream restoration credit in the same cataloguing unit where the land trust is performing the project under the CWMTF grant.

Current situation: With the grantees concurrence, the EEP buys the project from the CWMTF. The EEP refunds the CWMTF $500,000 plus CWMTF's administrative costs.

Recommended approach: The EEP would be responsible for any incremental costs associated with the restoration site. This would include cost of monitoring for five years per regulatory requirements and any other site-specific costs.

4. Additional effort should be made to leverage programmatic synergies between the EEP and the CWMTF.

While we do not recommend an actual merger of the two organizations, we believe that there are a number of programmatic synergies between the EEP and the CWMTF that should be aggressively pursued. Our recommendation represents an adaptation of the status quo model with programmatic synergies and process improvements outlined in Section VI.C. These programmatic synergies include:

- Linking the two organizations more closely through tighter integration of the EEP's watershed planning process with the CWMTF's grant application and selection process (please refer to Section VII.D.3). We envision this to include an active marketing of priority projects identified in an enhanced watershed planning process to potential CWMTF grantees in order to encourage these priority projects to be pursued. This recommendation would also involve a revision of the CWMTF application scoring process to award substantial bonus

points for grantees proposing either to implement a priority project identified in the watershed plans or to otherwise address a high priority need identified in a watershed plan.

- Developing a partnership between EEP and CWMTF to provide a mechanism to help other state agencies, local governments, or land trusts acquire EEP mitigation lands that may be declared as surplus (please refer to Section VII.B.4).
- Developing a partnership between EEP and CWMTF to jointly pursue functional replacement projects and a pilot of an out-of-the-box mitigation project (please refer to Section VII.E.2).

B. Surplus Management

This subsection presents our recommendations concerning the steps required to manage the current surplus of mitigation credits in some watersheds. Specifically, we recommend the following actions:

- Negotiate flexibility to utilize existing credits within different cataloguing units in the same river basin.
- Modify the MOA to incorporate a statement of direction that mitigation ratios will be reduced at the time of permit issuance in appropriate situations where mitigation is in the ground and functional.
- Identify the surplus credits and create an action plan for each parcel identified as surplus.
- Develop a partnership between the EEP and the CWMTF to facilitate acquisition of surplus properties.

Each of these recommendations is discussed in further detail below.

1. Negotiate flexibility to utilize existing credits within different cataloguing units in the same river basin.

NCDOT and NCDENR, as the state's two agency partners in the MOA, should work with USACE to negotiate changes to the MOA to provide for the flexibility to utilize credits in one cataloguing unit that have been determined to likely be surplus in other cataloguing units in the same river basin where there is a need for credits. This application of surplus credits, when available, should always be a prerequisite to constructing or acquiring new credits.

We believe such a modification to the MOA would be consistent with the experience we found in our surveys of practices in other states with a strong preference for having mitigation in the same watershed/cataloguing unit, but the regulator has flexibility to address situations on a case-by-case basis. In these other states, we found that mitigation is still placed in the same cataloguing unit as the impact the vast majority of

the time. We believe this would still be the case at the overall program level in North Carolina, even with the establishment of this additional flexibility for addressing the surplus mitigation.

This recommended strategy provides an essential element of flexibility to allow the three partners in the MOA to apply a level of cost containment, with minimal impact to the EEP's overall environmental stewardship goals. However, it should be noted that this approach contains some added risk for the state since regulatory staff indicate that this flexibility may also affect timely permitting if, at the time of the proposed impact, mitigation is evaluated as not meeting regulatory requirements.

The EEP staff has developed similar proposals to this recommendation in the past but there has been limited follow-up by executive management. We believe this recommendation is crucial and that it will require active involvement at the executive level at NCDENR and NCDOT in order to work with the USACE to affect its implementation. We would strongly recommend that the Secretary of NCDENR and the Secretary of NCDOT meet to agree on language that is acceptable to the two state agency partners and then personally meet with the Colonel of the Wilmington district of USACE to negotiate this item.

2. Modify the MOA to incorporate a statement of direction that mitigation ratios will be reduced in appropriate situations where mitigation is in the ground and functional.

During the course of this study, informal discussions with regulators suggested that in many situations they would likely be comfortable in reducing mitigation ratios (to either 1:1 or closer to 1:1) based on the advance mitigation actually being in the ground and functioning at the time of permit issuance. Such a strategy would present an opportunity to significantly reduce the amount of mitigation that would have to be developed and acquired in the future and consequently reduce the overall cost of providing mitigation for transportation projects on a go-forward basis.

We would recommend that as an extension of the negotiation on additional flexibility in the MOA for surplus credits that NCDENR and NCDOT also seek agreement from USACE to modify the MOA to stipulate that it is the stated intention of the three parties to the MOA that mitigation ratios will be reduced to 1:1 when the mitigation is in the ground and functioning, with some discretion for the regulator to apply this directive on a case by case basis at the time of the permit.

Codifying this directional statement in the MOA now versus just implementing this direction at some point in the future is critical. Having this as a statement of direction now will allow the EEP to build this assumption into its business planning. This will likely result in the EEP needing to develop less mitigation in future years, thus reducing the total cost of mitigation in North Carolina. If instead these ratios are just changed at some point in the future, it is quite likely that more mitigation will be

constructed now and in the next five to eight years than is actually needed, in effect adding to the surplus of mitigation.

3. Identify surplus credits and create an action plan for each parcel identified as surplus.

The EEP and NCDOT should work together to identify and designate actual surplus credits based on a review of the best available information from the TIP and other resources on when/if various projects may be constructed. In conducting this analysis, we recommend the following steps:

- NCDOT should carefully review and assess the projects in the TIP and adjust the proposed timing and amount of mitigation required. Any projects that NCDOT anticipates will not actually be built and/or built within a reasonable time frame (for example, eight years) should be removed from the analysis.
- The EEP should update their operational plan and forecast of mitigation requirements based on the updated NCDOT analysis and the anticipated impact of the recommendations above on additional flexibility for using surplus credits and the reduction in ratios for mitigation that is in the ground and functioning.
- As part of analyzing the surplus, the EEP should then consider the anticipated forecast of needs for the in lieu fee program for the next three years in each cataloguing unit and any opportunities to apply NCDOT surplus mitigation to the anticipated in lieu fee needs should be taken into consideration as part of identifying what property is actually surplus. This market forecast should be based on anticipated growth and development in each cataloguing unit and the historical orders that have been placed for mitigation in each cataloguing unit.
- The EEP should then look at existing properties to identify cases where, while the property is being used for mitigation and/or it is anticipated to be needed in the future there may be surplus parcels within the property (i.e., parcels where uplands were acquired as part of an acquisition of a property for stream restoration, etc.). While it may be appropriate to retain some of these uplands as buffers, it is believed that a number of parcels may be candidates to be identified as surplus. To complete this step will likely require detailed analysis of individual properties, including site visits.
- NCDOT and EEP should explore opportunities to sell high-quality preservation lands to the in-lieu fee program.
- The EEP should then develop a list of properties (surplus mitigation or excess parcels) that appears to be surplus for final review by the existing interagency team chartered to look at this issue. In preparing this list, EEP should identify any properties where there are special issues that will need to be considered. For example, the Croatian Banks site is a mitigation bank, so proposed decisions on this site will need to be negotiated with the Mitigation Banking Review Team and changes made to the banking instrument as required.

- The interagency team should then make a specific recommendation on each property on the list for action by NCDENR and NCDOT executive management. In making this final recommendation, it is important that the team consider whether each "surplus" property is in the best interest of the state for the property to be sold. If there is a chance that a transportation project requiring mitigation would be built in the next 10 to 15 years in a given area, careful consideration should be given to disposing of the asset. In the future, it may be very difficult to procure the same kind of acres and feet again, and the cost of acquiring and developing the mitigation in the future will likely be substantially higher than what was either originally paid for the property or its selling price. The opportunity to obtain some immediate term revenue should be carefully weighed against the cost of obtaining the same mitigation at some point in the future.

The EEP has had an interagency team addressing this surplus issue for some time. The work of this group as outlined in this recommendation needs to be moved to completion. Again, we would expect that the completion of this recommendation will require direct involvement by the Secretary of NCDENR and the Secretary of NCDOT, and we would urge that the secretaries and their senior staff engage on this issue and drive it to closure by the end of calendar year 2007.

4. Develop a partnership between the EEP and the CWMTF to facilitate acquisition of the surplus properties.

The CWMTF should partner with the EEP and NCDOT to create a program to allow other state agencies, local governments and land trusts to purchase "surplus" mitigation property. Such a program would provide a win/win situation by preserving these mitigation lands for use for environmentally sensitive purposes, while at the same time returning some funds back to NCDOT in the near-term for use in funding transportation projects. In some situations, as part of the sale, it may be appropriate to stipulate that the land trust or acquiring agency be asked to agree to give EEP an option to purchase the entire property back or potentially a conservation easement within the parcel at fair market value if it is needed in the future for compensatory mitigation. If the EEP actually exercises this option, it would essentially be buying the CWMTF out of the project as it has done in similar situations in the past.

To implement this recommendation, the following steps would be required:

- As part of the appropriation process, the General Assembly would need to stipulate that a set percentage of the CWMTF's grant funds (a minimum of 15% to a maximum of 20% is suggested) be utilized to allow eligible grantees to acquire mitigation land declared to be surplus by the EEP and NCDOT.
- The General Assembly would also need to specifically stipulate that the funds raised through the sale of this property would be transferred to the Highway Fund versus being placed into the General Fund.

C. NCDOT/EEP Partnership

This subsection presents our recommendations for strengthening the partnership between the EEP and NCDOT. These recommendations include:

- Improve the quality of the demand forecast for mitigation by implementing a two-phased Transportation Improvement Program (TIP).
- Shift from advanced mitigation to a just-in-time mitigation approach.
- Transition from an expense reimbursement methodology to a per credit fee basis.
- Initiation by NCDOT of regular billing of FHWA for the federal share of the cost of the EEP.
- Development by the EEP of a more effective management scorecard and strengthening of the EEP's overall communication outreach.

Each of these recommendations is discussed in further detail below.

1. Improve the quality of the demand forecast for mitigation by implementing a two-phased Transportation Improvement Program (TIP).

The study team recommends that NCDOT improve the quality of the demand forecast for mitigation by implementing a two-phase TIP consisting of:

- A development TIP, that contains projects that are in the feasibility study, environmental planning, and preliminary design stages of the project delivery life cycle.
- A delivery TIP consisting of projects that are in final design, letting preparation and the construction phases of the project delivery life cycle.

This two-phased TIP would require a proactive decision point prior to programming the project for construction (i.e., adding it to the delivery TIP). This decision point would require a review of project scope, an analysis of project costs including the cost of providing mitigation, and an assessment of project risk. An affirmative decision would then be required by a multi-disciplinary senior management team, after reviewing these factors to program the project for construction and to target a proposed letting date (based on both the expected availability of funding and the anticipated time required to complete design). Concurrence on this recommendation by the Board of Transportation would also be required.

The objective of the recommendation is to change NCDOT's current project delivery process so that NCDOT does not commit to delivery timelines, costs, and scope until a higher level of project development has been completed. The recommendation establishes a development component of the TIP that involves more planning and environmental screening. This process change would not advance projects into the

delivery TIP until there was agreement on the likely environmental conditions to be addressed and the mitigation and design approach to address them. The intent of the recommendation is to establish the delivery TIP as a multi-year (perhaps five-year), financially feasible project delivery plan. The plan would be annually updated and provide the delivery commitment that NCDOT and elements of the state resource agencies' performance is managed against. Once projects are in the delivery TIP, their scope, schedule, and budget would be very carefully managed and controlled.

The adoption of a two-phased TIP would substantially improve the demand forecast for mitigation by allowing NCDOT to place its order for mitigation only for projects it really intends to build because it has a solid understanding of the costs, the planned timeline for completing and letting the project, and defined funding sources. Also, because the forecast is being provided later in the project process, the estimate of required mitigation will be more precise and should take into consideration adjustments made through the Merger 01 process.

In addition to the benefits in terms of improving the forecast for mitigation, a two-phased TIP provides a tremendous amount of other benefits to NCDOT in terms of focusing department efforts on those projects that are ready to be built (those in the delivery TIP), weeding out marginal projects through the positive checkpoint to program the project for construction, and generally increasing the predictability of the project delivery process.

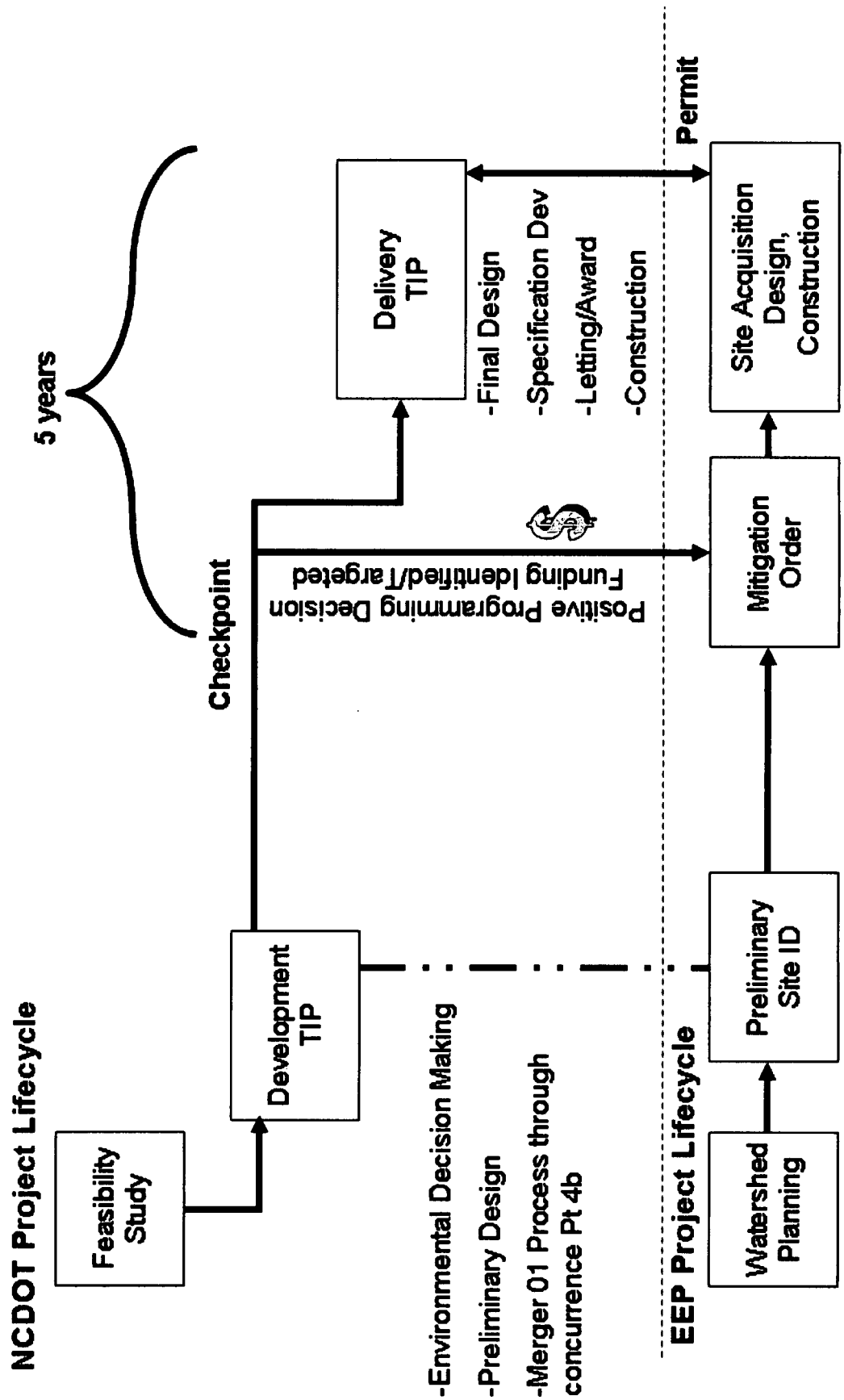
2. Shift from advanced mitigation to a just-in-time mitigation approach.

NCDOT and the EEP should shift from the current advanced mitigation approach to more of a just-in-time mitigation approach, where mitigation is ordered and work is initiated well in advance of starting construction, but only at a point where there is a firm commitment by NCDOT that the transportation project will actually be executed and where the actual requirements for mitigation are more clearly understood, because most of the collaborative decision-making in the Merger 01 process has been completed.

It is our recommendation that NCDOT should order mitigation only when a project is programmed into the delivery TIP (essentially no earlier than at the time of the completion of the draft environmental document). This will provide an improved understanding of the real needs for mitigation, a higher certainty that a project will be built, and a forecast of when it will be built.

Exhibit VII-1 illustrates the activities incorporated into the proposed two-phases of the TIP and outlines the relative timing and dependencies between the transportation lifecycle and the EEP's project lifecycle for implementing required mitigation.

Exhibit VII-1: ust-In-Time Mitigation



This approach would generally allow for approximately five years of project development time for EEP to implement the necessary mitigation. This time frame is on the outer limits of the general timeline it currently takes for EEP to complete a design-bid-build project (four and a half to five years) and a much longer time frame than it normally takes to complete a full delivery project. In addition, it is not unreasonable to expect EEP to be able to shorten the time required to complete design-bid-build projects by six months to a year, as it matures this delivery approach and both EEP and consultant staff gain more experience in delivering under this model.

Because this recommendation reduces the time the EEP will have to implement the required mitigation, we recognize that this presents a small increase in risk. However, we believe this is more than offset by the greater certainty that the transportation project will actually be built and the increased predictability the EEP will have about the mitigation actually required for the project. In addition, to mitigate against the risk of a reduced timeline, the EEP can perform some initial site selection activities as an extension of its watershed planning efforts for projects that are advancing through the development phase of the TIP.

3. Transition from an expense reimbursement methodology to a per – credit-fee basis.

NCDOT should shift from compensating the EEP on an expense reimbursement methodology to a per-credit fee basis when mitigation is ordered at the time the project is programmed for construction. We believe that this recommendation should be implemented as the current build-out of mitigation is completed and the just-in-time mitigation approach based on the two-phased TIP is initiated. However, this transition from the current cost recovery approach to a per-credit-fee basis will have to be carefully staged and managed to reduce unintended financial impacts to either NCDOT or the EEP. In addition, a rate-setting process with a procedure for annual adjustments to the rate schedule will need to be defined and incorporated within the MOA. This rate schedule could also potentially be tied to the rate schedule for the in-lieu fee program.

This per-credit-fee basis is similar in concept to the payment made at the time mitigation is ordered by participants in the in-lieu fee program. In the case of the in-lieu fee program, customers receive a receipt at the time of payment that represents a legal commitment on the part of the EEP to provide the required mitigation and a transfer of responsibility for providing this mitigation from the permit applicant to the EEP. The adoption of a per-credit-fee approach would in effect create this same clean, clear, and legal transfer of responsibility for mitigation from NCDOT to EEP at a defined snapshot point in time. It would also simplify the ongoing internal NCDOT accounting for mitigation costs (i.e., the per-credit cost would be billed directly to the project ordering the mitigation) and would simplify federal-aid billing, as the cost could be billed to FHWA at the time the expense is incurred by NCDOT.

This approach may not reduce the cost to NCDOT of acquiring the specific mitigation required for an individual project. We believe, however, that this approach will contribute to reducing the total cost of the overall mitigation program on a go forward basis. It will ensure that payment is made for mitigation credits which are specifically required for a project that is programmed for construction based on a refined estimate of the mitigation needed. In addition, this payment will be made only at the time the EEP actually begins work to acquire the needed mitigation.

4. Initiation by NCDOT of regular billing of FHWA for the federal share of the cost of the EEP.

While the study team recognizes that NCDOT is maximizing its federal transportation funds, there is some risk of failing to submit timely billings, especially for a program that is innovative in nature, such as the EEP, and that by consequence does not have a track record of established precedent for addressing billing issues that may arise.

5. Development by the EEP of a more effective management scorecard and strengthening of its overall communications outreach.

The EEP should develop an executive-level management scorecard that summarizes the status of the EEP program against a number of key metrics. EEP senior management should then utilize this management scorecard as the basis for regularly scheduled meetings with key stakeholder groups such as Environmental Review, Joint Transportation, the Environmental Management Commission and the Board of Transportation. The EEP's senior management should also make an effort to reach these stakeholders periodically in informal settings and on a 1:1 basis as required to address specific issues and concerns of individual stakeholders.

D. Watershed Planning

This subsection presents our recommendations concerning the strengthening of the watershed planning process. Our recommendations in this area include:

- Improve integration of the EEP's watershed planning with DWQ's basin-wide planning.
- Strengthen the end products resulting from the watershed planning process to define specific priority projects.
- Link the CWMTF grant application process more closely to watershed plans.

1. Improve integration of watershed planning with basin-wide planning.

Currently, DWQ conducts basin-wide planning, while EEP conducts watershed planning at the basin level and the produces more detailed.plans for specific cataloguing units where the anticipated level of impacts in a cataloguing unit merit the

time and cost of developing the detailed plan. These detailed watershed plans are then utilized as a one of several tools in site selection for mitigation projects required within a particular cataloguing unit.

The study team believes that there should be tighter linkages between these two separate planning processes being conducted by two different units with NCDENR. At the same time, we recognize that the EEP's watershed planning process is also one of its site selection tools.. This makes the issue of merging the two planning processes organizationally more complicated.

However, this issue was not a primary subject of this study, and thus, we believe that additional study is warranted by NCDENR management to investigate the feasibility of various approaches for enhancing the integration between these two planning processes. As part of this effort, the study team has identified a potential alternative:

- Establishment of a multi-disciplinary water resources planning group that, like the transportation planning organizations within state transportation agencies, would have responsibility for all water resource planning in North Carolina. This function would incorporate the basin planning be performed within DWQ and the watershed planning performed today within the EEP. This group could be partially funded by the EEP (watershed planning is funded today as an extension of the cost of implementing mitigation) and partially by a budgetary allocation from the General Assembly for water resources planning.

2. Strengthen the end-products from the watershed planning process to define specific priority projects.

This recommendation involves strengthening the watershed planning process to better articulate needs to the full delivery providers. This might include releasing a list of specific projects to meet needs identified in the watershed plans, including cost estimates and suggested timing and sequencing for these projects. This would create for water resources, in effect, an equivalent to the list of potential projects developed during the transportation planning process that provide a defined list of needs and a suggested list of priority projects that form the basis for projects to be included in the TIP. This "water improvement program" for each watershed would then be reviewed with various stakeholders and could also be integrated into the CWMTF grant application and selection process as described in Section VII.D.3 below.

3. Link the CWMTF grant application process more closely to watershed plans.

This recommendation involves integrating the CWMTF in the watershed planning process and in the definition of the list of proposed capital projects within each watershed. The CWMTF would then market these potential projects to prospective grantees in order to encourage applicants to pursue one or more of these high-priority projects. This recommendation would also involve modifying the CWMTF grant

selection process to provide additional weight through substantial bonus points to prospective grantees who are proposing to address high-priority needs and/or the targeted capital projects as identified in the enhanced watershed plans.

Implementation of this recommendation would create additional synergy between the two programs. It would also help to address concerns on the part of some stakeholders about the quality or environmental value of some projects awarded by the CWMTF.

E. Functional Mitigation and Out-of-the-Box Mitigation

This subsection provides our recommendations concerning functional mitigation and out-of-the-box mitigation. "Functional mitigation" or "functional replacement" refers to mitigating or replacing the *functions* lost as a result of a permitted impact to a wetland or stream (as opposed to mitigating or replacing the lost *acreage*). Functions are the services that the resource provides, e.g., water purification, protection from flooding, and habitat for fish and wildlife are common services provided by wetlands.

These recommendations include the following:

- Engage the EEP and the CWMTF as partners in at least two pilot functional mitigation projects.
- Create a partnership between the EEP and the CWMTF to work with the regulatory agencies to develop a pilot of an out-of-the-box mitigation project.

Each of these recommendations is described in further detail below.

1. Engage the EEP and the CWMTF as partners in at least two pilot functional mitigation projects.

The EEP is currently working on several functional mitigation initiatives. We recommend that the EEP engage the CWMTF as a partner in at least two pilot functional mitigation projects. We believe that the integration of the CWMTF as a partner in these projects may allow the EEP, by combining EEP's funds with funding through CWMTF, to implement additional elements within a project, such as some best management practices for which regulatory agencies would not typically allow mitigation credit. In this scenario, the involvement of CWMTF would allow the project to achieve enhanced environmental outcomes.

A key element in this recommendation will be the application of the North Carolina Wetlands Assessment Method (NC WAM), which provides a field method to determine the level of function of a wetland relative to a reference condition (where available). If adopted, NC WAM could be used toward mitigation planning and tracking functional replacement across the state. North Carolina is also currently working on the North Carolina Stream Assessment Method (NC SAM), although it will not be released for comment until 2008. NC SAM, when completed, will also play a key role in the full implementation of this recommendation.

2. Create a partnership between the EEP and the CWMTF to work with the regulatory agencies to develop a pilot of an out-of-the-box mitigation project.

The EEP and the CWMTF should develop a partnership for purposes of working with the regulatory agencies (i.e., USACE, DWQ, EPA) to develop a pilot of an out-of-the-box mitigation project. This project would seek to innovate on a pilot basis the application of non-traditional mitigation (i.e., replacement of a waste water plant, etc.), with the EEP and the CWMTF partnering together on the project and the EEP receiving mitigation credits based on its share of the funding, as determined through a methodology agreed to by the regulatory agencies.

The study team recognizes that this recommendation may be a difficult sell with the regulatory agencies. However, we believe it is appropriate to pursue this recommendation for a number of reasons:

- The proposed project is simply a pilot to demonstrate the efficacy of the concept and identify issues and opportunities surrounding this type of strategy.
- The application of innovative mitigation would be a direct result of needs identified in the watershed plans and as such represents the next natural progression in the integration of watershed planning into the mitigation process.
- The use of out-of-the-box mitigation approaches increases the opportunities for the EEP and the CWMTF to partner together to achieve enhanced environmental outcomes.
- The EEP is recognized nationally as both a model and an innovative program. As such, it is an appropriate choice for a learning lab to demonstrate and evaluate the application of innovative approaches.

F. Private Mitigation Banking

The EEP should implement a private mitigation banking pilot program to further evaluate the role that mitigation banking can play in providing mitigation credits for transportation projects in North Carolina. It is recommended that this pilot program be initiated in at least two watersheds for three years, with one cataloguing unit being a watershed with significant demand and the second watershed being one where less demand is anticipated and that might not be typically thought of as conducive to mitigation banking. This pilot program can take one or both of the following forms:

1. Implementation of a "modified full delivery program."

In this approach, the EEP would select one or more firms to act as their "mitigation bank" in a given watershed. EEP would agree to work exclusively with these firms and to purchase from them all credits needed in the specific watersheds for a three-

year period. Credits would be purchased at a rate schedule established as part of the contract negotiation.

Unlike in the current full delivery program, the provider would be compensated only upon delivery of the actual credit. The selected full delivery providers would be provided with the updated demand forecast on a regular basis and given the watershed plans. They would be expected to link their mitigation sites to the watershed plans to the extent practical.

A primary advantage of this approach is that it would allow a mitigation banking model to be simulated, but this could be executed and evaluated in a framework in which EEP maintains management control, thus reducing the risk of delaying the delivery of needed mitigation.

2. Transfer of responsibility to private mitigation banks.

In this approach, the EEP could exit from one or more watersheds where private mitigation banks are already in place or in development and essentially contract with these banks to provide all of the necessary credits in the particular watershed for the next three years. In this scenario, during the pilot period, the EEP could remain the single point of contact, with the EEP obtaining credits from the various banks based on the needs defined by NCDOT. Or alternatively, NCDOT could work directly with one or more mitigation banks for its needs in the watersheds which EEP has transitioned out of.

The study team believes this recommendation has a number of important benefits including:

- Expanding the use of mitigation banking within the overall EEP model is consistent with the sprit and intent of the anticipated federal rule-making that is expected, even with potential modifications from the draft rule, to place an increased emphasis on the role of mitigation banking nationally.
- Providing an opportunity for the mitigation banking community to demonstrate the expanded role they could play in providing needed credits for mitigation in North Carolina in a lower-risk pilot environment.

G. EEP Project Delivery Processes

This subsection describes recommendations related to the EEP's project delivery processes. These recommendations include:

- Avoid using the design-bid-build and full delivery processes within the same cataloguing unit.
- Increase the maximum contract amounts of the on-call engineering contracts.
- Initiate a design-build pilot.

- Strengthen internal EEP project management skills and processes.

Each of these recommendations is described in further detail below.

1. Avoid using the design-bid-build and the full delivery processes within the same cataloguing unit.

The EEP should avoid using the design-bid-build and full delivery processes within the same cataloguing unit. This should be executed only as an exception process with the approval of the Director of the EEP and upon consultation with the PAC/G.

This will allow the EEP to avoid conflicts in which the EEP competes against itself for mitigation sites by recruiting engineering firms in the design-bid-build process to search for sites in a watershed while the EEP has initiated an RFP for full delivery services in that watershed and the potential full delivery providers are also negotiating for mitigation sites. Likewise, the EEP will also avoid situations where it may disadvantage a property owner whom it has been working with by excluding a person's property from potential selection and acquisition by a full service delivery provider.

2. Increase the maximum contract amounts of the on-call engineering contracts.

The maximum contract amounts on the on-call engineering contracts should be increased from $750,000 to a minimum of $2 million per contractor. This will help the EEP to ensure that it has access to the strongest technical resources and expertise possible for completing its design-bid-build work. We would encourage the EEP to continue to spread the work over as many firms as possible, as it does today; at the same time, we want the EEP to have the flexibility to retain specific, experienced technical specialists when it is essential to completing a particular project assignment.

3. Initiate a design-build pilot.

The EEP should proceed to initiate the design-build pilot as currently planned. It should then evaluate the effectiveness of this delivery method and assess whether it should utilize this approach as a regular part of its delivery model and, if so, determine the types of project for which the design-build would be most suited.

4. Strengthen the EEP's project management processes and skills.

The EEP should implement enhanced project management procedures and processes based on the Project Management Institute's (PMI) Project Management Book of Knowledge or PMBOK ™. The EEP should also implement a project management training program, including a requirement for all project managers to obtain PMI certification within three years.

H. CWMTF Operations

This subsection describes recommendations related to the CWMTF's internal operations. These include:

- Implement a post-grant outcome measurement and tracking process.
- Implement an electronic application process linked to an enhanced grants accounting/grants management software package.

Both of these recommendations are discussed in further detail below.

1. Implement a post-grant outcome measurement and tracking process.

This recommendation involves the CWMTF implementing a structured process for following up on individual projects at intervals of three and five years following implementation, in order to assess and report on the extent to which these projects met or are meeting the goals and objectives that the grantee proposed to achieve in its application. The lessons learned from these reviews should then be fed back into the grants selection process and used to provide input to potential future applicants who are proposing similar goals and objectives on new projects. The results of this outcome measurement process can also be used as a screen to assess the viability of goals outlined by past applicants in their new applications, based on how well the applicant met his proposed goals and objectives from prior projects.

2. Implement a web-based application process linked to an enhanced grants accounting/grants management software package.

The CWMF should implement a web-based grants application process to the extent practical (some materials may require transmission via hard copy). Based on reviewing the outcome of the implementation of similar web-based functionality in other organizations, this Internet-based functionality will both streamline the application process for grantees and reduce the administrative burden on the CWMTF.

This web-based application process should be built on or integrated with the CWMTF's existing grants-tracking software. The use of this grants-tracking application should also be expanded. Based on an initial review of the application, it appears to have the basic functionality usually found in a grants management application. The CWMTF should roll out this application for use by all staff. It should also migrate the grants accounting functions to this software application, as opposed to using the existing spreadsheet tools.

In addition to these recommendations concerning aspects of the CWMTF operations, there are several other recommendations that involve coordination and collaboration between EEP and CWMTF. These recommendations have been discussed in detail elsewhere in this chapter but have been itemized here for ease of reference. These recommendations included:

- The General Assembly should consider removing the prohibition on CWMTF participating in compensatory mitigation. (please refer to Section VII.A.3)
- Linking EEP's watershed planning process with the CWMTF's grant application and selection process (please refer to Section VII.D.3). We envision this to include an active marketing of priority projects identified in an enhanced watershed planning process to potential CWMTF grantees in order to encourage these priority projects to be pursued. This recommendation would also involve a revision of the CWMTF application scoring process to award substantial bonus points for grantees proposing either to implement a priority project identified in the watershed plans or to otherwise address a high priority need identified in a watershed plan.
- Developing a partnership between EEP and CWMTF to provide a mechanism to help other state agencies, local governments, or land trusts acquire EEP mitigation lands that may be declared as surplus (please refer to Section VII.B.4).
- Developing a partnership between EEP and CWMTF to jointly pursue functional replacement projects and a pilot of an out-of-the-box mitigation project (please refer to Section VII.E.2).

I. Other Recommendations

Two additional recommendations relate to standardizing the monitoring and stewardship processes and establishing common document templates between the EEP and the CWMTF. First, we would recommend that the EEP and the CWMTF, along with other appropriate parties with NCDENR, re-engage in discussions to find a common approach to performing site stewardship versus having two different approaches. Second, we would suggest that the EEP and the CWMTF collaborate with the State Property Office in reviewing various forms, such as conservation easements, in an effort to achieve as much commonality as is possible, given that the programs have different types of restrictions on which activities can or cannot be performed within a conservation easement.

VIII. Implementation Plan

This section presents Dye Management Group, Inc.'s suggested timeline and sequencing for implementation of the recommendations. In preparing this timeline, the study team has attempted to clearly delineate between recommendations, such as renegotiating elements of the MOA to obtain additional flexibility and managing the surplus, which must be addressed immediately, and other recommendations that can be implemented either over the next two years and/or that have a logical transition point as the current mitigation build-out begins to level off.

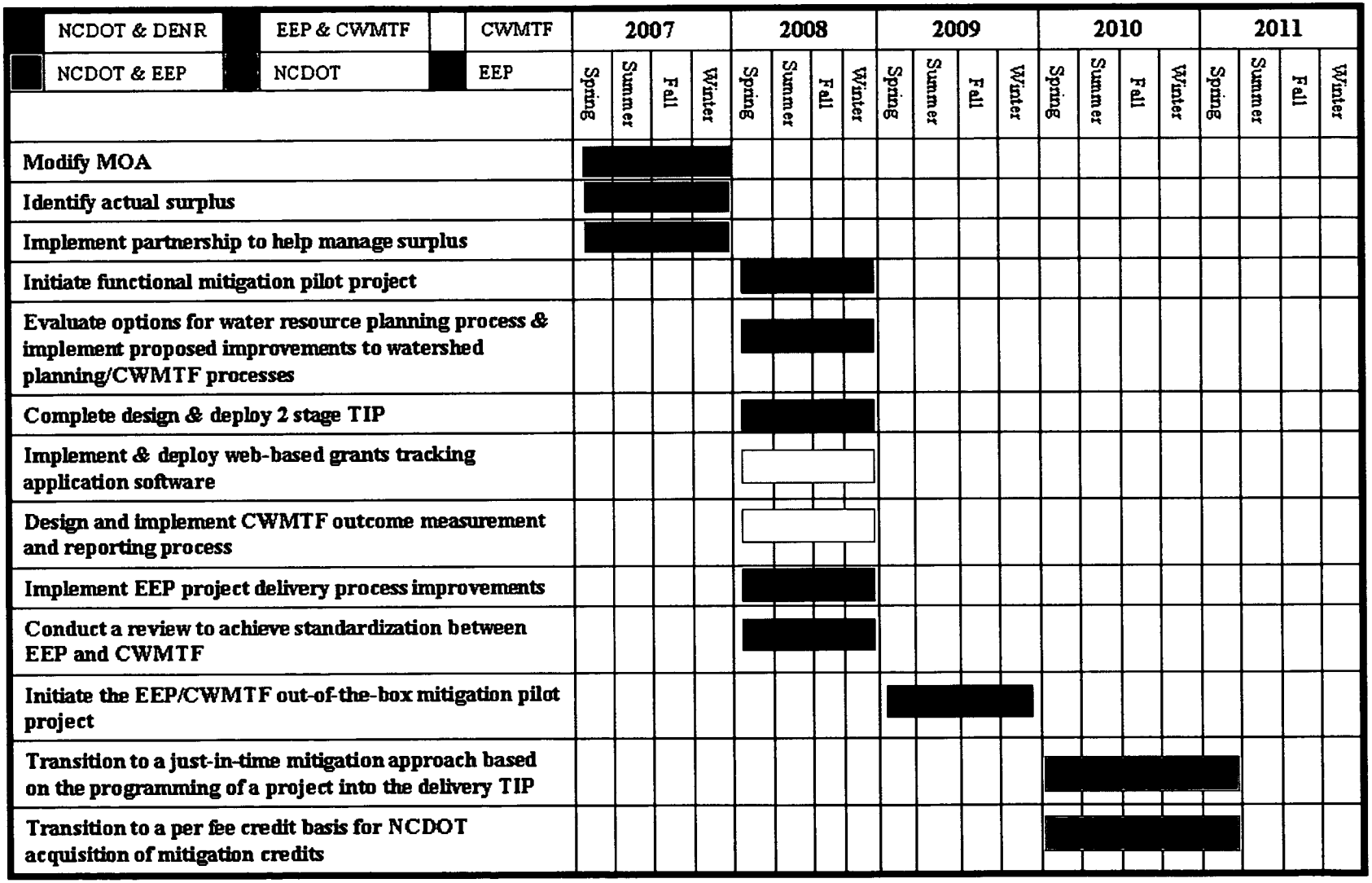
Exhibit VIII-1 provides a graphical illustration of the timeline and sequencing of our proposed recommendations. It also provides a color-coded designation of the various agencies who have ownership for implementing the different recommendations.

It is important to note that implementation of these recommendations will require:

- Ongoing senior executive engagement from the NCDOT and NCDENR management team.
- Ongoing coordination between EEP, CWMTF, NCDENR management and NCDOT
- Stakeholder support and buy-in including from the USACE and DWQ, as well as from various environmental advocacy organizations.

The specific timing for different recommendations and the rationale for this timing are discussed below.

Exhibit VIII-1: Implementation Timeline



A. Recommendations Targeted for Completion by the End of December 2007

Dye Management Group, Inc. believes that, given the extensive build-out of mitigation that is occurring, the timing for addressing recommendations related to managing the surplus and taking steps to reduce the likelihood of similar problems in the future is essential. It is critical that by the end of this calendar year, the following steps will have been accomplished:

- Modification of the MOA to provide additional flexibility in utilizing surplus credits in one cataloguing unit in other cataloguing units within the same river basin.
- Modification of the MOA to include a direction statement on lower ratios for mitigation that is in place.
- Identifying the actual surplus property, defining a plan for each property identified as surplus, and beginning the process of disposing of any assets that are to be sold.
- Implementing the partnership between EEP and CWMTF to provide a mechanism for selling surplus property.
- Establishing an acquisition review process should be established which actively involves EEP in reviewing each acquisition to assess the applicability of utilizing any proposed state land acquisition for mitigation credit.

To fully implement these recommendations, we believe that executive level involvement by the secretary of NCDENR, the secretary of NCDOT and the colonel in charge of the Wilmington district of the USACE will be required to renegotiate the MOA, and that executive leadership from NCDENR and NCDOT will also be required to address the existing surplus.

Likewise, it is suggested that these additional recommendations be implemented this calendar year:

- Initiation of regular billing of FHWA by NCDOT for the federal share of the cost of EEP should occur by the end of this calendar year.
- Development by EEP of a more effective summary management report and strengthening of the overall communication outreach.

B. Recommendations Targeted for Completion within 12 to 18 Months (December 2008)

Dye Management Group, Inc. would recommend targeting these recommendations for either implementation or, in the case of pilot projects, initiation by the end of 2008. These activities include:

- Initiating the EEP/CWMTF functional mitigation pilot project.

- Initiating the mitigation banking pilot project.
- Evaluating options for further integrating the various water resource planning processes.
- Implementing proposed improvements to the outputs from the watershed planning process and strengthening linkages with the CWMTF application process.
- Completing design and deploying the two-stage TIP.
- Implementing the web-based grants application functionality for the CWMTF and deploying the full capabilities of the CWMTF grants tracking software.
- Designing and beginning implementation of an outcome measurement and reporting process for the CWMTF.
- Implementing the various process improvements recommended for EEP's project delivery processes, including initiation of project management training, modification of contract ceilings, and initiation of a design-build pilot project.
- Conducting additional discussions and assessing approaches for standardizing stewardship processes across the EEP and the CWMTF.
- Conducting a review of various forms and templates to achieve standardization between the EEP and the CWMTF to the extent possible.

C. Recommendations Targeted for Completion within 24 to 30 Months (by December 2009)

Dye Management Group, Inc. would recommend targeting the following recommendation for initiation by the end of 2009:

- Initiating of the EEP/CWMTF out-of-the-box mitigation project. It is believed that this type of lead time will be necessary to present the concept to and gain buy-in from the various regulatory agencies, including likely discussions with Washington-based policy staff of EPA and USACE.
- Removing the prohibition on the CWMTF participating in mitigation and in place of the outright prohibition establishing a cap on the percentage of CWMTF funding which can be utilized for mitigation. This recommendation would require a statutory change by the General Assembly. CWMTF would then need to update its operational procedures to implement this change in policy direction. Likewise, this change would require planning and executing a structured communications program on the reasons for and benefits of this change. This communication program should be targeted to all impacted stakeholders.

D. Recommendations Targeted for Completion within Approximately 36 to 48 months (by June 2011)

Dye Management Group, Inc. would anticipate targeting these recommendations for approximately 36 to 48 months out (June 2011) because they are dependent on the deployment of the two-stage TIP by NCDOT. In addition, these changes will be best accomplished at a point at which the EEP's delivery of mitigation is beginning to level out. These recommendations include:

- Transition to a just-in-time mitigation approach based on the programming of a project into the delivery TIP.
- Transition to a per-credit-fee basis for NCDOT's acquisition of mitigation credits.

Appendix A: High Quality Preservation Mitigation Sites

The NCDOT and EEP purchased several tracts of land as part of the "high-quality preservation" component of mitigation projects per the MOA. Appendix A identifies the tracts of land purchased for the "high-quality preservation" effort as of May 11, 2007. An effort was made to reconcile the lists from NCDOT and EEP; however, the name given to the tract may have been changed during the purchase and/or use of credits from the site. Two sites in the list have been identified as having other mitigation value in addition to their high-quality preservation values.

Exhibit A-1: High Quality Preservation Mitigation Sites (as of 5/11/2007) – Sorted by River Basin - CU

Site Name	County	River Basin	CU	Purchasing Agency	Estimated Cost	Preservation Only?
Canal Branch (Bishop)	Anson	Yadkin	03040105	EEP	$315,560	Yes
Elks Shoals	Ashe	New	05050001	EEP	$164,606	Yes
New River Heights	Ashe	New	05050001	EEP	$381,818	Yes
Roanoke River (Cashie)	Bertie	Roanoke	03010107	EEP	$715,000	Yes
Roquist Pocosin	Bertie	Roanoke	03010107	NCDOT	$4,135,465	No
Juniper Creek IP	Brunswick	Lumber	03040206	EEP	Under Contract	Yes
Sandy Mush I & II	Buncombe/Madison	French Broad	06010105	EEP	$9,222,000	No
White Creek (Linville)	Burke	Catawba	03050101	EEP	$1,150,000	Yes
Dutch Buffalo Creek (Walker)	Cabarrus	Yadkin	03040105	EEP	$134,684	Yes
Dutch Buffalo Creek (Wickliff)	Cabarrus	Yadkin	03040105	EEP	$10,936	Yes
Mingo Tract	Caldwell	Yadkin	03040101	NCDOT	$7,533,713	Yes
Country Line Creek (Mackovich)	Caswell	Roanoke	03010104	EEP	$243,000	Yes
Hyco Lake (Bessemer)	Caswell	Roanoke	03010104	EEP	$1,002,276	Yes
Haw River (Duke Forest)	Chatham	Cape Fear	03030002	NCDOT	$2,343,000	Yes
Deep Creek (Hanson)	Chatham	Cape Fear	03030003	EEP	Under Contract	Yes
White Pines/Newton Tract	Chatham	Cape Fear	03030003	NCDOT	$170,000	Yes
Chowan River (Harrell)	Chowan	Chowan	03010203	EEP	$102,600	Yes
Broad River Greenway	Cleveland	Broad	03050105	NCDOT	Not Available	Yes
Juniper Creek IP	Columbus	Lumber	03040206	EEP	Under Contract	Yes
Big Pond Bay	Cumberland	Cape Fear	03030006	EEP	$33,333	Yes
Rhodes Pond	Cumberland	Cape Fear	03030006	NCDOT	Not Available	Yes
Davis (Yadkin River)	Davie	Yadkin	03040101	NCDOT	$241,938	Yes
Flat River (Treyburn)	Durham	Neuse	03020201	EEP	$1,843,662	Yes
Stevens Pennys Bend	Durham	Neuse	03020201	EEP	$934,200	Yes
Fishing Creek (Hall)	Edgecombe	Tar-Pamlico	03020102	EEP	$763,768	Yes
IP Lower Fishing Creek 2	Edgecombe	Tar-Pamlico	03020102	EEP	Under Contract	Yes
Allen Site	Franklin	Tar-Pamlico	03020101	NCDOT	$528,273	Yes
Cypress Creek (Langley)	Franklin	Tar-Pamlico	03020101	EEP	$148,368	Yes
Harris*	Franklin	Tar-Pamlico	03020101	NCDOT	Not Available	Yes
Little Shocco (Senter)	Franklin	Tar-Pamlico	03020101	EEP	$145,535	Yes
Swift Creek (Harper Sandy)	Franklin	Tar-Pamlico	03020101	EEP	$99,324	Yes
Swift Creek (O'Neal-Sandy)	Franklin	Tar-Pamlico	03020101	EEP	$66,600	Yes
Cedar Creek (Perry)	Franklin	Tar-Pamlico	03020102	EEP	$552,299	Yes
Fishing Creek (Gold Mine)	Franklin	Tar-Pamlico	03020102	EEP	Under Contract	Yes

Site Name	County	River Basin	CU	Purchasing Agency	Estimated Cost	Preservation Only?
Fishing Creek (Sturgis)	Franklin	Tar-Pamlico	03020102	EEP	$48,578	Yes
Little Shocco (Tomlinson)	Franklin	Tar-Pamlico	03020102	EEP	$233,850	Yes
Little Shocco (Wheless)	Franklin	Tar-Pamlico	03020102	EEP	$52,668	Yes
Sandy Creek (A & P Timber)	Franklin	Tar-Pamlico	03020102	EEP	$66,564	Yes
Sandy Creek (Faulkner)	Franklin	Tar-Pamlico	03020102	EEP	$73,058	Yes
Sandy Creek (Mullen)	Franklin	Tar-Pamlico	03020102	EEP	$84,453	Yes
Sandy Creek (Parrish)	Franklin	Tar-Pamlico	03020102	EEP	$113,652	Yes
Sandy Creek (Young)	Franklin	Tar-Pamlico	03020102	EEP	$157,806	Yes
Shocco (Alston Tracts 1-3)	Franklin	Tar-Pamlico	03020102	EEP	$1,271,832	Yes
Shocco (Capps)	Franklin	Tar-Pamlico	03020102	EEP	$77,506	Yes
Shocco Creek (Gupton)	Franklin	Tar-Pamlico	03020102	EEP	$602,828	Yes
Tar River (Hodges)	Franklin	Tar-Pamlico	03020102	EEP	$150,120	Yes
Little Shocco (O'Neal)	Franklin/Warren	Tar-Pamlico	03020102	EEP	$93,636	Yes
Rankin Gaston	Gaston	Catawba	03050101	NCDOT	$3,187,622	Yes
Tar River (Guthrie)	Granville	Tar-Pamlico	03020101	EEP	$442,160	Yes
Tar River (MacNair)	Granville	Tar-Pamlico	03020101	EEP	$716,152	Yes
Tucker (Daniels 1)	Granville	Tar-Pamlico	03020101	EEP	$72,596	Yes
Tucker (Daniels 2)	Granville	Tar-Pamlico	03020101	EEP	$8,951	Yes
Fishing Creek (Slaughter)	Granville	Tar-Pamlico	03020102	EEP	$126,900	Yes
Shelton Creek (Peterson)	Granville	Tar-Pamlico	03020102	EEP	$145,989	Yes
Shelton Creek (Thorpe II)	Granville	Tar-Pamlico	03020102	EEP	$187,920	Yes
Tar River (Averett)	Granville	Tar-Pamlico	03020102	EEP	$40,896	Yes
Tar River (B. Harris)	Granville	Tar-Pamlico	03020102	EEP	$139,752	Yes
Tar River (Betty Crews)	Granville	Tar-Pamlico	03020102	EEP	$102,635	Yes
Tar River (Roy Crews)	Granville	Tar-Pamlico	03020102	EEP	$36,252	Yes
Tar River (Dean)	Granville	Tar-Pamlico	03020102	EEP	$254,040	Yes
Tar River (Oakley)	Granville	Tar-Pamlico	03020102	EEP	$53,160	Yes
Tar River (Pitts)	Granville	Tar-Pamlico	03020102	EEP	$101,196	Yes
Tar River (Sherman 1)	Granville	Tar-Pamlico	03020102	EEP	$57,492	Yes
Tar River (Sherman 2)	Granville	Tar-Pamlico	03020102	EEP	$101,196	Yes
Tar River (Smitherman)	Granville	Tar-Pamlico	03020102	EEP	$72,972	Yes
Tar River (Winslow)	Granville	Tar-Pamlico	03020102	EEP	$132,808	Yes
Haw River (Phillips)	Guilford	Cape Fear	03030002	EEP	$424,592	Yes
Roanoke River	Halifax	Roanoke	03010107	EEP	$606,212	Yes
White Pines Hearn	Lee	Cape Fear	03030003	EEP	$407,100	Yes
Lost Bridge	Macon	Little Tennessee	06010202	NCDOT	$511,521	Yes

Site Name	County	River Basin	CU	Purchasing Agency	Estimated Cost	Preservation Only?
Lone Mountain (NM)	McDowell	Catawba	03050101	EEP	$119,676	Yes
Bruchon	Mitchell	French Broad	06010108	EEP	$164,898	Yes
Little Tablerock	Mitchell	French Broad	06010108	EEP	$960,000	Yes
Barnes Creek (Wysner Mountain)	Montgomery	Yadkin	03040103	EEP	$212,321	Yes
Uwharrie River (Bingham)	Montgomery	Yadkin	03040103	EEP	$2,248,624	Yes
Uwharrie River Bluff	Montgomery	Yadkin	03040103	EEP	$87,648	Yes
Little River (Cochran)	Montgomery	Yadkin	03040104	EEP	$70,835	Yes
Deep River (Jordan)	Moore	Cape Fear	03030003	EEP	Under Contract	Yes
Deep River (Paschal)	Moore	Cape Fear	03030003	EEP	Under Contract	Yes
Glendon Slate Creek (Paschal)	Moore	Cape Fear	03030003	EEP	Under Contract	Yes
Deep/Sandy Creek (McKean)	Moore	Lumber	03040203	EEP	$200,319	Yes
Drowning Crk (Camp McCall)	Moore	Lumber	03040203	EEP	$830,000	Yes
Drowning Creek II Rankin (Beaverdam Pines)	Moore	Lumber	03040203	EEP	$1,909,232	Yes
Drowning Creek (Forest Inv)	Moore	Lumber	03040203	EEP	$290,099	Yes
Wimberley	Moore	Lumber	03040204	EEP	$71,000	Yes
Edwards	Nash	Tar-Pamlico	03020102	EEP	$301,254	Yes
Upper Roanoke (Civil War)	Northampton	Roanoke	03010107	EEP	Under Contract	Yes
Upper Roanoke (Cypress Creek)	Northampton	Roanoke	03010107	EEP	Under Contract	Yes
Upper Roanoke (Odum/Cal)	Northampton	Roanoke	03010107	EEP	Under Contract	Yes
New Hope Creek (Penny)	Orange	Cape Fear	03030002	EEP	$120,840	Yes
Eno River (Cabe's Ford)	Orange	Cape Fear	03030003	EEP	$299,173	Yes
Camp Chestnut Ridge	Orange	Neuse	03020201	EEP	$219,954	Yes
Eno River (Poplar Ridge)	Orange	Neuse	03020201	NCDOT	$501,500	Yes
Eno River (Wilderness)	Orange	Neuse	03020201	EEP	$2,378,276	Yes
NE Cape Fear Wells Tract	Pender	Cape Fear	03030007	EEP	$252,000	Yes
Wallace Deer Club Tracts 1-2	Pender	Cape Fear	03030007	EEP	$82,500	Yes
Wallace Deer Club Tracts 3-5	Pender	Cape Fear	03030007	EEP	$697,551	Yes
Tar River (Pories)	Pitt	Tar-Pamlico	03020103	EEP	$86,164	Yes
Green River (Boyer)	Polk	Broad	03050105	EEP	$101,121	Yes
Green River (Ward)	Polk	Broad	03050105	EEP	$49,248	Yes
North Pacolet Childers	Polk	Broad	03050105	EEP	$215,000	Yes
Old Cove	Polk	Broad	03050105	EEP	$54,400	Yes
Skyuka Creek (Luthi)	Polk	Broad	03050105	EEP	$56,156	Yes
Tobey/Melrose Mountain	Polk	Broad	03050105	EEP	$321,000	Yes
Uwharrie River (Whatley)	Randolph	Yadkin	03040103	EEP	$70,670	Yes
Little River (Baker)	Randolph	Yadkin	03040104	EEP	$40,592	Yes

Site Name	County	River Basin	CU	Purchasing Agency	Estimated Cost	Preservation Only?
Little River (Lewis)	Randolph	Yadkin	03040104	EEP	$165,543	Yes
Little River (Parker)	Randolph	Yadkin	03040104	EEP	$136,000	Yes
Little River (Walbourn)	Randolph	Yadkin	03040104	EEP	$153,245	Yes
Hitchcock Creek (McDonald)	Richmond	Yadkin	03040201	EEP	$87,098	Yes
Mayo River (Gorrel)	Rockingham	Roanoke	03010103	EEP	$36,945	Yes
Mayo River (Grogan)	Rockingham	Roanoke	03010103	EEP	$187,018	Yes
Mayo River (Hickory Creek)	Rockingham	Roanoke	03010103	EEP	$177,936	Yes
Mayo River (Walker)	Rockingham	Roanoke	03010103	EEP	$32,625	Yes
Crowther North	Rowan	Yadkin	03040102	EEP	$68,455	Yes
Pickler's Bluff	Rowan	Yadkin	03040102	EEP	$84,000	Yes
Dutch Second Creek (Hill)	Rowan	Yadkin	03040103	EEP	$50,952	Yes
Lone Mountain (SM)	Rutherford	Broad	03050105	EEP	Not Available	Yes
Great Cohaire	Sampson	Cape Fear	03030006	EEP	$3,234,442	Yes
Fisher River (Fisher Peak)	Surry	Yadkin	03040101	EEP	Under Contract	Yes
Len's Knob/Little Mountain	Surry	Yadkin	03040101	NCDOT	$3,419,912	Yes
Mill Creek (Steele)	Surry	Yadkin	03040101	EEP	Under Contract	Yes
Needmore	Swain	Little Tennessee	06010202	NCDOT	$7,526,316	Yes
Dupont Forest	Transylvania	French Broad	06010105	NCDOT	$4,000,000	Yes
Swift Creek	Wake	Neuse	03020201	EEP	$166,760	Yes
Fishing Creek (Capps)	Warren	Tar-Pamlico	03020102	EEP	$147,130	Yes
Fishing Creek (Capps Farm)	Warren	Tar-Pamlico	03020102	EEP	$142,708	Yes
Fishing Creek (Capps Forest)	Warren	Tar-Pamlico	03020102	EEP	$70,394	Yes
Fishing Creek (Green)	Warren	Tar-Pamlico	03020102	EEP	$80,874	Yes
Fishing Creek (Maple Branch)	Warren	Tar-Pamlico	03020102	EEP	Under Contract	Yes
Fishing Creek (Shearin)	Warren	Tar-Pamlico	03020102	EEP	$194,867	Yes
IP Upper Fishing Creek 2	Warren	Tar-Pamlico	03020102	EEP	Under Contract	Yes
IP Upper Reedy Creek	Warren	Tar-Pamlico	03020102	EEP	Under Contract	Yes
Little Fishing	Warren	Tar-Pamlico	03020102	EEP	Under Contract	Yes
Little Shocco Speed 1	Warren	Tar-Pamlico	03020102	EEP	$178,200	Yes
Reedy Creek (Johnston)	Warren	Tar-Pamlico	03020102	EEP	$232,380	Yes
Shocco Creek (Davis)	Warren	Tar-Pamlico	03020102	EEP	$43,416	Yes
Shocco Creek (IP #1)	Warren	Tar-Pamlico	03020102	EEP	Under Contract	Yes
Shocco Creek (IP #2)	Warren	Tar-Pamlico	03020102	EEP	Under Contract	Yes
Morton Tracts-Shelton Creek	Granville			EEP	$21,204	Yes
IP/Alston Tract-Fishing Creek	Warren			EEP	$672,675	Yes
				Total Estimate Cost	$78,261,767	

Appendix B: Transfer from NCDOT Mitigation Program

Prior to the creation of the Ecosystem Enhancement Program (EEP), the North Carolina Department of Transportation and North Carolina Wetland Restoration Program (pre-cursor to EEP) divided the state of North Carolina into watershed catalog units of responsibility to provide compensatory mitigation for NCDOT Transportation Improvement Program (TIP) projects. Appendix B summarizes the mitigation generated by the NCDOT and transferred over to EEP to use for its projects. Appendix B sorts the mitigation by: river basin name; eight-digit catalog unit (CU) within the river basin; project type for how the mitigation was generated [traditional Design-Bid-Build (DBB), Full Delivery (FD) or Mitigation Bank (MB)]; and, mitigation type (stream restoration, stream enhancement, etc.). The available mitigation has been calculated by project type for the river basin and by river basin. Please note that this appendix only illustrates the river basins and catalog units that displayed activity.

Exhibit B-1: Transfer from NCDOT Mitigation Program

		8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Cape Fear		03030003	DBB	20,564	4,834	3,700	5,136	4	0	2	0	2	0	4	0	0	0	0	0
			FD	9,060	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			MB																
		03030005	DBB	0	0	0	0	18	0	0		627	0	18	0	34	0	86	0
			FD	34,005	0	0	0	403	0	25	0		0		0		0		0
			MB	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0
		03030006	DBB	1,970	700	0	0	12	0	14	0	0	0	2	0	0	0	0	0
			FD																
			MB	0	0	0	0	0	0	0	0	160	0	0	0	0	0	0	0
		03030007	DBB	0	0	0	0	12	10	25	521	50	0	107	392	0	0	0	0
			FD																
			MB																
Subtotal - Cape Fear			DBB	22,534	5,534	3,700	5,136	51	16	41	642	679	0	131	392	34	0	86	0
Subtotal - Cape Fear			FD	43,065	0	0	0	403	0	25	0	0	0	0	0	0	0	0	0
Subtotal - Cape Fear			MB	0	0	0	0	0	0	0	0	160	0	0	0	0	0	0	0
Overall total - Cape Fear				65,599	5,534	3,700	5,136	454	16	66	642	839	0	131	392	34	0	86	0
Catawba		03050102	DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			FD	21,314	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			MB	3,500	0	0	0	5	5	1	0	0	0	0	0	0	0	0	0
Subtotal - Catawba			DBB	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0

		8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Subtotal - Catawba			FD	21,314	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Catawba			MB	3,500	0	0	0	5	5	1	0	0	0	0	0	0	0	0	0
Overall total - Catawba				24,814	0	0	0	7	5	1	0	0	0	0	0	0	0	0	0
Chowan		03010203	DBB	0	1,700	0	3,300	0	0	0	15	5	0	0	10	0	0	0	0
			FD																
			MB																
Subtotal - Chowan			DBB	0	1,700	0	3,300	0	0	0	15	5	0	0	10	0	0	0	0
Subtotal - Chowan			FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Chowan			MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Chowan				0	1,700	0	3,300	0	0	0	15	5	0	0	10	0	0	0	0
French Broad		06010106	DBB	5,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			FD																
			MB																
Subtotal - French Broad			DBB	5,000	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0
Subtotal - French Broad			FD	0															

		8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Subtotal - French Broad			MB	0															
Overall total - French Broad				5,000	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0
Little Tennessee		06010202	DBB	9,000	0	0	0	3	0	0	2	0	0	0	0	0	0	0	0
			FD																
			MB																
		06010204	DBB	2,274	0	0	0	48	0	0	0	0	0	0	0	0	0	0	0
			FD																
			MB																
Subtotal - Little Tennessee			DBB	11,274	0	0	0	51	0	0	2	0	0	0	0	0	0	0	0
Subtotal - Little Tennessee			FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Little Tennessee			MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall - Little Tennessee				11,274	0	0	0	51	0	0	2	0	0	0	0	0	0	0	0
Lumber		03040203	DBB		0	0	0	150	0	0	4	697	0	0	300	0	0	0	0
			FD																
			MB																
		03040206	DBB	3,282	0	0	1,750	0	0	0	36	0	0	0	2	0	0	0	0
			FD																
			MB																

		8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Subtotal - Lumber			DBB	3,282	0	0	1,750	150	0	0	40	697	0	0	302	0	0	0	0
Subtotal - Lumber			FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Lumber			MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Lumber				3,282	0	0	1,750	150	0	0	40	697	0	0	302	0	0	0	0
Neuse		03020201	DBB	1,619	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			FD	0	0	0	0	0	0	1	18	0	0	0	0	0	0	0	0
			MB	4,289	0	0	0	9	0	0	50	35	0	0	20	0	0	0	0
		03020202	DBB	9,723	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			FD	0	0	0	0	93	0	90	255	0	0	0	0	0	0	0	0
			MB	0	0	0	0	87	0	34	299	25	0	0	125	0	0	0	0
		03020203	DBB	69	0	0	0	12	0	3	0	0	0	0	0	0	0	0	0
			FD																
			MB	10,670	0	0	0	98	0	1	386	12	0	0	146	0	0	0	0
		03020204	DBB	4,476	1,850	0	3,400	11	0	4	128	0	0	0	2	6	0	0	5
			FD																
			MB	6,416	0	0	0	80	0	100	166	1,407	0	1,984	361	0	0	0	0
Subtotal - Neuse			DBB	15,887	1,850	0	3,400	23	1	8	128	0	0	0	2	6	0	0	5
Subtotal - Neuse			FD	0	0	0	0	93	0	91	273	0	0	0	0	0	0	0	0
Subtotal - Neuse			MB	21,375	0	0	0	273	0	135	902	1,478	0	1,984	652	0	0	0	0
Overall total - Neuse				37,262	1,850	0	3,400	389	1	234	1,302	1,478	0	1,984	653	6	0	0	5

		8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
New		05050001	DBB	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0
			FD																
			MB																
Subtotal - New			DBB	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0
Subtotal - New			FD																
Subtotal - New			MB																
Overall total - New				0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0
Pasquotank		03020105	DBB	4,400	0	0	0	212	0	21	50	270	0	6	120	0	31	0	181
			FD																
			MB	0	0	0	0	0	0	0	0	564	0	0	19	0	0	0	0
Subtotal - Pasquotank			DBB	4,400	0	0	0	212	0	21	50	823	0	6	120	0	31	0	181
Subtotal - Pasquotank			FD																
Subtotal - Pasquotank			MB	0	0	0	0	0	0	0	0	11	0	0	19	0	0	0	0
Overall total - Pasquotank				4,400	0	0	0	212	0	21	50	834	0	6	139	0	31	0	181
Roanoke		03010102	DBB	0	0	5,000	12,300	0	0	0	0	0	0	0	0	0	0	0	0
			FD																
			MB																
		03010104	DBB	0	0	0	0	89	0	0	19	0	0	0	0	0	0	0	0

		8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
			FD																
			MB																
		03010107	DBB	0	0	0	500	0	0	0	557	45	0	0	3,386	0	0	0	0
			FD																
			MB																
Subtotal - Roanoke			DBB	0	0	5,000	12,800	89	0	0	576	45	0	0	3,386	0	0	0	0
Subtotal - Roanoke			FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Roanoke			MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Roanoke				0	0	5,000	12,800	89	0	0	576	45	0	0	3,386	0	0	0	0
Tar-Pamlico		03020102	DBB																
			FD	6,500	0	0	0	75	0	0	0	0	0	0	0	0	0	0	0
			MB																
		03020103	DBB	4,614	6,968	1,876	0	108	57	24	356	24	2	2	1	0	0	0	0
			FD																
			MB																
		03020104	DBB	0	0	4,107	0	1	4	0	77	223	0	0	540	3	0	0	19
			FD																
			MB																
Subtotal - Tar-Pamlico			DBB	4,614	6,968	5,983	0	109	61	24	433	247	2	2	541	3	0	0	19
Subtotal - Tar-Pamlico			FD	6,500	0	0	0	75	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Tar-Pamlico			MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Overall total - Tar-Pamlico				11,114	6,968	5,983	0	184	61	24	433	247	2	2	541	3	0	0	19
Watauga		06010103	DBB	2,800	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			FD																
			MB																
Subtotal - Watauga			DBB	2,800	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Watauga			FD																
Subtotal - Watauga			MB																
Overall total - Watauga				2,800	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
White Oak		03020106	DBB	8,332	0	0	1,280	32	0	2	2	65	0	0	152	0	0	0	0
			FD																
			MB																
Subtotal - White Oak			DBB	8,332	0	0	1,280	32	0	2	2	65	0	0	152	0	0	0	0
Subtotal - White Oak			FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - White Oak			MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - White Oak				8,332	0	0	1,280	32	0	2	2	65	0	0	152	0	0	0	0
Yadkin		03040101	DBB																
			FD																

		8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
			MB	5,225	0	0	2,376	53	20	1	0	0	0	0	0	0	0	0	0
		03040102	DBB	17,703	0	0	0	19	95	11	0	0	0	4	0	0	0	0	0
			FD																
			MB	5,500	0	0	0	0	0	0	0	9	40	5	8	0	0	0	0
		03040103	DBB	28,664	4,200	3,094	24,105	6	0	7	0	4	0	4	0	0	0	0	0
			FD	3,000	0	0	0	20	0	0	2	0	0	0	0	0	0	0	0
			MB																
		03040104	DBB	2,568	0	2,900	3,200	24	0	1	7	0	0	0	0	0	0	0	0
			FD																
			MB																
		03040105	DBB	3,116	1,190	8,500	11,400	0	0	5	0	14	0	11	9	0	0	0	0
			FD																
			MB																
		03040201	DBB																
			FD	10,667															
			MB																
Subtotal - Yadkin			DBB	52,051	5,390	14,494	38,705	49	95	24	7	18	0	19	9	0	0	0	0
Subtotal - Yadkin			FD	13,667	0	0	0	20	0	0	2	0	0	0	0	0	0	0	0
Subtotal - Yadkin			MB	10,725	0	0	2,376	53	20	1	0	9	40	5	8	0	0	0	0
Overall Total - Yadkin				76,443	5,390	14,494	41,081	122	115	24	9	27	40	24	17	0	0	0	0

Appendix C: Transfer from NCDOT Mitigation Program (Summary per Subtotal)

Appendix C provides data on the NCDOT mitigation program transfer to the EEP. Appendix C summarizes mitigation the mitigation transferred: per river basin and project type, total mitigation transferred by project type; total mitigation for each river basin for all project types; and, a total of mitigation transferred to EEP from NCDOT.

Exhibit C-1: Transfer from NCDOT Mitigation Program (Net Available as of Feb 2007)

	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Subtotal - Broad	DBB																
Subtotal - Cape Fear	DBB	22,534	5,534	3,700	5,136	51	16	41	642	679	0	131	392	34	0	86	0
Subtotal - Catawba	DBB	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Chowan	DBB	0	1,700	0	3,300	0	0	0	15	5	0	0	10	0	0	0	0
Subtotal - French Broad	DBB	5,000	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0
Subtotal - Hiawassee	DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Little Tennessee	DBB	11,274	0	0	0	51	0	0	2	0	0	0	0	0	0	0	0
Subtotal - Lumber	DBB	3,282	0	0	1,750	99	0	0	38	697	0	0	302	0	0	0	0
Subtotal - Neuse	DBB	15,887	1,850	0	3,400	23	1	8	128	0	0	0	2	6	0	0	5
Subtotal - New	DBB	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0
Subtotal - Pasquotank	DBB	4,400	0	0	0	212	0	21	50	823	0	6	120	0	31	0	181
Subtotal - Roanoke	DBB	0	0	5,000	12,800	89	0	0	576	45	0	0	3,386	0	0	0	0
Subtotal - Savannah	DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Tar-Pamlico	DBB	4,614	6,968	5,983	0	109	61	24	433	247	2	2	541	3	0	0	19
Subtotal - Watauga	DBB	2,800	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - White Oak	DBB	8,332	0	0	1,280	32	0	2	2	65	0	0	152	0	0	0	0
Subtotal - Yadkin	DBB	52,051	5,390	14,494	38,705	49	95	24	7	18	0	19	9	0	0	0	0
Subtotal	DBB	130,174	22,442	29,177	66,371	717	173	134	1,892	2,579	2	158	4,925	43	31	86	205

	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Subtotal - Broad	FD																
Subtotal - Cape Fear	FD	43,065	0	0	0	403	0	25	0	0	0	0	0	0	0	0	0
Subtotal - Catawba	FD	21,314	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Chowan	FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - French Broad	FD	0															
Subtotal - Hiawassee	FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Little Tennessee	FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Lumber	FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Neuse	FD	0	0	0	0	93	0	91	273	0	0	0	0	0	0	0	0
Subtotal - New	FD																
Subtotal - Pasquotank	FD																
Subtotal - Roanoke	FD	37,201	1,850	5,000	16,200	205	1	99	977	45	0	0	3,388	6	0	0	5
Subtotal - Savannah	FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Tar-Pamlico	FD	6,500	0	0	0	75	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Watauga	FD																
Subtotal - White Oak	FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Yadkin	FD	13,667	0	0	0	20	0	0	2	0	0	0	0	0	0	0	0
Subtotal	FD	121,747	1,850	5,000	16,200	795	1	215	1,252	45	0	0	3,388	6	0	0	5
Subtotal - Broad	MB																
Subtotal - Cape Fear	MB	0	0	0	0	0	0	0	0	160	0	0	0	0	0	0	0
Subtotal - Catawba	MB	3,500	0	0	0	5	5	1	0	0	0	0	0	0	0	0	0

	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Subtotal - Chowan	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - French Broad	MB	0															
Subtotal - Hiawassee	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Little Tennessee	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Lumber	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Neuse	MB	21,375	0	0	0	273	0	135	902	1,478	0	1,984	652	0	0	0	0
Subtotal - New	MB																
Subtotal - Pasquotank	MB	0	0	0	0	0	0	0	0	11	0	0	19	0	0	0	0
Subtotal - Roanoke	MB	62,076	1,850	5,000	16,200	575	6	326	2,152	1,523	0	1,984	4,039	6	0	0	5
Subtotal - Savannah	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Tar-Pamlico	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Watauga	MB																
Subtotal - White Oak	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Yadkin	MB	10,725	0	0	2,376	53	20	1	0	9	40	5	8	0	0	0	0
Subtotal	MB	97,676	1,850	5,000	18,576	906	31	462	3,054	3,180	40	3,974	4,718	6	0	0	5
Overall total - Broad																	
Overall total - Cape Fear		65,599	5,534	3,700	5,136	454	16	66	642	839	0	131	392	34	0	86	0
Overall total - Catawba		24,814	0	0	0	7	5	1	0	0	0	0	0	0	0	0	0
Overall total - Chowan		0	1,700	0	3,300	0	0	0	15	5	0	0	10	0	0	0	0

	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Overall total - French Broad		5,000	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0
Overall total - Hiawassee		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall - Little Tennessee		11,274	0	0	0	51	0	0	2	0	0	0	0	0	0	0	0
Overall total - Lumber		3,282	0	0	1,750	150	0	0	40	697	0	0	302	0	0	0	0
Overall total - Neuse		37,262	1,850	0	3,400	389	1	234	1,302	1,478	0	1,984	653	6	0	0	5
Overall total - New		0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0
Overall total - Pasquotank		4,400	0	0	0	212	0	21	50	834	0	6	139	0	31	0	181
Overall total - Roanoke		0	0	5,000	12,800	89	0	0	576	45	0	0	3,386	0	0	0	0
Overall total - Savannah		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Tar-Pamlico		11,114	6,968	5,983	0	184	61	24	433	247	2	2	541	3	0	0	19
Overall total - Watauga		2,800	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - White Oak		8,332	0	0	1,280	32	0	2	2	65	0	0	152	0	0	0	0
Overall Total - Yadkin		76,443	5,390	14,494	41,081	122	115	24	9	27	40	24	17	0	0	0	0
Overall totals for NCDOT transfers		250,320	22,442	29,177	68,747	1,690	199	387	3,071	4,236	42	2,147	5,604	43	31	86	205

Appendix D: EEP Available Credits (Tier 1 Sites, Excluding NCDOT Transfers) as of February 22, 2007

Appendix D summarizes the available mitigation generated by the Ecosystem Enhancement Program as of February 22, 2007. The available mitigation is presented by: river basin and eight-digit catalog unit (CU) and project type for how the mitigation was generated [traditional Design-Bid-Build (DBB), Full Delivery (FD) or Mitigation Bank (MB)]; and mitigation type (stream restoration, stream enhancement, etc.).

Exhibit D-1: EEP Available Credits (Tier 1 Sites, excluding NCDOT Transfers) – as of February 22, 2007

Total	8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Broad	3050105	DBB	8,500	5,000	0	2,500	2	0	0	0	0	0	0	0	0	0	0	0
		FD	43,163	1,410	10,076	6,064	9	0	0	0	5	0	0	0	0	0	0	0
		MB																
Subtotal - Broad		DBB	8,500	5,000	0	2,500	2	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Broad		FD	43,163	1,410	10,076	6,064	9	0	0	0	5	0	0	0	0	0	0	0
Subtotal - Broad		MB																
Overall total - Broad			51,663	6,410	10,076	8,564	11	0	0	0	5	0	0	0	0	0	0	0
Cape Fear	03030002	DBB	4,258	4,476	0	3,532	19	0	2	15	0	0	0	0	0	0	0	0
		FD	17,414	268	6,440	0	25	0	3	0	0	0	0	0	0	0	0	0
		MB																
	03030003	DBB	6,500	7,500	0	4,000	0	0	0	0	0	0	0	0	0	0	0	0
		FD	53,638															
		MB																
	03030004	DBB	3,000	0	0	0	14	0	20	0	15	0	0	0	0	0	0	0
		FD	33,625	0	800	150	29	0	40	43	13	0	0	0	0	0	0	0
		MB																
	03030005	DBB																
		FD																
		MB																
	03030006	DBB																
		FD																

Total	8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
		MB																
	03030007	DBB	580	0	1,350	0	0	0	0	0	0	0	0	0	0	0	0	0
		FD	247	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		MB																
Subtotal - Cape Fear		DBB	14,338	11,976	1,350	7,532	33	0	22	15	15	0	0	0	0	0	0	0
Subtotal - Cape Fear		FD	104,924	268	7,240	150	54	0	43	43	13	0	0	0	0	0	0	0
Subtotal - Cape Fear		MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Cape Fear			119,262	12,244	8,590	7,682	87	0	66	58	28	0	0	0	0	0	0	0
Catawba	03050101	DBB																
		FD	12,186	1,155	0	1,009	6	0	1	4	0	0	0	0	0	0	0	0
		MB																
	03050102	DBB																
		FD																
		MB																
	03050103	DBB																
		FD																
		MB																
Subtotal - Catawba		DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Catawba		FD	12,186	1,155	0	1,009	6	0	1	4	0	0	0	0	0	0	0	0
Subtotal - Catawba		MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total	8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Overall total - Catawba			12,186	1,155	0	1,009	6	0	1	4	0	0	0	0	0	0	0	0
Chowan	03010201	DBB																
		FD																
		MB																
	03010202	DBB																
		FD																
		MB																
	03010203	DBB																
		FD	8,310	0	0	0	85	0	0	0	0	0	0	0	0	0	0	0
		MB																
	03010204	DBB																
		FD	2,818	0	0	2,786	12	0	0	0	0	0	0	0	0	0	0	0
		MB																
	03010205	DBB																
		FD																
		MB																
Subtotal - Chowan		DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Chowan		FD	11,128	0	0	2,786	97	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Chowan		MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Chowan			11,128	0	0	2,786	97	0	0	0	0	0	0	0	0	0	0	0

Total	8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
French Broad	06010105	DBB	38,673	6,600	800	0	2	0	0	0	0	0	0	0	0	0	0	0
		FD																
		MB																
	06010106	DBB																
		FD	4,857	0	0	715	5	0	0	0	0	0	0	0	0	0	0	0
		MB																
	06010108	DBB	1,500	1,250	0	2,000	0	0	0	0	0	0	0	0	0	0	0	0
		FD	2,410	1,235	80	0	0	0	0	0	0	0	0	0	0	0	0	0
		MB																
Subtotal - French Broad		DBB	40,173	7,850	800	2,000	2	0	0	0	0	0	0	0	0	0	0	0
Subtotal - French Broad		FD	4,857	0	0	715	5	0	0	0	0	0	0	0	0	0	0	0
Subtotal - French Broad		MB	0															
Overall total - French Broad			45,030	7,850	800	2,715	7	0	0	0	0	0	0	0	0	0	0	0
Hiawassee	06020002	DBB																
		FD																
		MB																
	06020003	DBB																
		FD																
		MB																

Total	8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Subtotal - Hiawassee		DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Hiawassee		FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Hiawassee		MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Hiawassee			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Little Tennessee	06010202	DBB																
		FD																
		MB																
	06010203	DBB																
		FD	3,212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		MB																
	06010204	DBB																
		FD																
		MB																
Subtotal - Little Tennessee		DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Little Tennessee		FD	3,212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Little Tennessee		MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total	8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Overall total - Little Tennessee				3,212	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lumber	03040203	DBB	6,888	0	0	0	15	0	23	0	0	0	0	0	0	0	0	0
		FD	682	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		MB																
	03040204	DBB																
		FD	5,000	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
		MB																
	03040205	DBB																
		FD																
		MB																
	03040206	DBB																
		FD																
		MB																
	03040207	DBB																
		FD	0	0	0	0	0	0	0	0	72	0	0	0	0	0	0	0
		MB																
Subtotal - Lumber		DBB	6,888	0	0	0	15	0	23	0	0	0	0	0	0	0	0	0
Subtotal - Lumber		FD	5,682	0	0	0	5	0	0	0	72	0	0	0	0	0	0	0
Subtotal - Lumber		MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Lumber			12,570	0	0	0	20	0	23	0	72	0	0	0	0	0	0	0

Total	8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Neuse	03020201	DBB	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0
		FD	0	0	0	0	16.19	0.00	0.00	0.00	4.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		MB																
	03020202	DBB																
		FD																
		MB																
	03020203	DBB	1,291	2,830	0	0	0	0	5	43	0	0	0	0	0	0	0	0
		FD																
		MB																
	03020204	DBB																
		FD																
		MB																
Subtotal - Neuse		DBB	1,291	2,830	0	0	0	0	5	61	0	0	0	0	0	0	0	0
Subtotal - Neuse		FD	0	0	0	0	16	0	0	0	4	0	0	0	0	0	0	0
Subtotal - Neuse		MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Neuse			1,291	2,830	0	0	16	0	5	61	4	0	0	0	0	0	0	0
New	05050001	DBB	9,015	15,060	500	12,250	7	6	9	18	0	0	0	0	0	0	0	0
		FD																
		MB																
Subtotal - New		DBB	9,015	15,060	500	12,250	7	6	9	18	0	0	0	0	0	0	0	0
Subtotal - New		FD																

Total	8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Subtotal - New		MB																
Overall total - New			9,015	15,060	500	12,250	7	6	9	18	0	0	0	0	0	0	0	0
Pasquotank	03020105	DBB	0	2,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		FD	4,980	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		MB	4,928	0	0	0	180	0	0	0	274	0	0	0	0	0	0	0
Subtotal - Pasquotank		DBB	0	2,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Pasquotank		FD	4,980	0	0	0	16	0	0	0	16	0	0	0	0	0	0	0
Subtotal - Pasquotank		MB	4,928	0	0	0	180	0	0	0	274	0	0	0	0	0	0	0
Overall total - Pasquotank			9,908	2,500	0	0	195	0	0	0	290	0	0	0	0	0	0	0
Roanoke	03010102	DBB																
		FD																
		MB																
	03010103	DBB																
		FD	9,366	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		MB																
	03010104	DBB																
		FD	12,720	1,232	3,499	463	0	0	0	0	0	0	0	0	0	0	0	0
		MB																
	03010106	DBB																
		FD	5,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		MB																

Total	8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
	03010107	DBB																
		FD	12,847	0	0	0	56	0	0	0	82	0	0	0	0	0	0	0
		MB																
Subtotal - Roanoke		DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Roanoke		FD	39,933	1,232	3,499	463	56	0	0	0	82	0	0	0	0	0	0	0
Subtotal - Roanoke		MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Roanoke			39,933	1,232	3,499	463	56	0	0	0	82	0	0	0	0	0	0	0
Savannah	03060101	DBB																
		FD	3,310	1,600	0	3,115	0	0	0	0	0	0	0	2	0	0	0	0
		MB																
	03060102	DBB																
		FD																
		MB																
Subtotal - Savannah		DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Savannah		FD	3,310	1,600	0	3,115	0	0	0	0	0	0	0	2	0	0	0	0
Subtotal - Savannah		MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Savannah			3,310	1,600	0	3,115	0	0	0	0	0	0	0	2	0	0	0	0
Tar-Pamlico	03020101	DBB	549	2,295	0	0	0	3	0	0	0	0	0	0	0	0	0	0

Total	8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
		FD	8,238	0	0	0	6	0	5	7	16	0	1	0	0	0	0	0
		MB																
	03020102	DBB																
		FD	0	0	0	0	12	0	7	0	0	0	0	0	0	0	0	0
		MB																
	03020103	DBB																
		FD																
		MB																
	03020104	DBB																
		FD	0	0	0	0	30	0	0	0	30	0	0	0	0	0	0	0
		MB																
	03020105	DBB																
		FD	0	0	0	0	16	0	0	0	16	0	0	0	0	0	0	0
		MB																
Subtotal - Tar-Pamlico		DBB	549	2,295	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Subtotal - Tar-Pamlico		FD	8,238	0	0	0	64	0	12	7	62	0	1	0	0	0	0	0
Subtotal - Tar-Pamlico		MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Tar Pamlico			8,787	2,295	0	0	64	3	12	7	62	0	1	0	0	0	0	0
Watauga	06010103	DBB			0	0	0	0	0	0	0	0	0	0	0	0	0	0
		FD																
		MB																

Total	8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Overall - Watauga			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
White Oak	03020106	DBB																
		FD																
		MB																
	03030001	DBB	849	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		FD	8,497	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
		MB	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0
Subtotal - White Oak		DBB	849	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - White Oak		FD	8,497	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
Subtotal - White Oak		MB	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0
Overall total - White Oak			9,346	0	0	0	3	0	0	0	26	0	0	0	0	0	0	0
Yadkin	03040101	DBB	12,997	1,221	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		FD																
		MB																
	03040102	DBB																
		FD																
		MB																
	03040103	DBB	2,463	3,500	0	0	0	2	1	0	0	0	3	0	0	0	0	0
		FD																
		MB																
	03040104	DBB																
		FD																

Total	8 Digit CU	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
		MB																
	03040105	DBB																
		FD	33,076	0	1,090	580	0	0	0	0	0	0	0	0	0	0	0	0
		MB																
	03040106	DBB																
		FD																
		MB																
	03040201	DBB																
		FD	6,440	656	6,550	5,150	41	0	5	20	0	0	0	0	0	0	0	0
		MB																
	03040202	DBB																
		FD																
		MB																
Subtotal - Yadkin		DBB	15,460	4,721	0	0	0	2	1	0	0	0	3	0	0	0	0	0
Subtotal - Yadkin		FD	39,516	656	7,640	5,730	41	0	5	20	0	0	0	0	0	0	0	0
Subtotal - Yadkin		MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Yadkin			54,976	5,377	7,640	5,730	41	2	6	20	0	0	3	0	0	0	0	0

Appendix E: EEP Available Credits (Tier 1 Sites, Excluding NCDOT Transfers) as of February 22, 2007 per Basin Subtotal

Appendix E summarizes all the mitigation credits available to the Ecosystem Enhancement Program and noted indiscriminate of the mitigation source. The mitigation credit is noted by river basin and project delivery type for how the mitigation was generated [traditional Design-Bid-Build (DBB), Full Delivery (FD) or Mitigation Bank (MB)]; and mitigation type (stream restoration, stream enhancement, etc.).

Exhibit E-1: EEP Available Credits (Tier 1 Sites, excluding NCDOT Transfers) – as of February 22, 2007

Total	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Subtotal - Broad	DBB	8,500	5,000	0	2,500	2	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Cape Fear	DBB	14,338	11,976	1,350	7,532	33	0	22	15	15	0	0	0	0	0	0	0
Subtotal - Catawba	DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Chowan	DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - French Broad	DBB	40,173	7,850	800	2,000	2	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Hiawassee	DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Little Tennessee	DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Lumber	DBB	6,888	0	0	0	15	0	23	0	0	0	0	0	0	0	0	0
Subtotal - Neuse	DBB	1,291	2,830	0	0	0	0	5	61	0	0	0	0	0	0	0	0
Subtotal - New	DBB	9,015	15,060	500	12,250	7	6	9	18	0	0	0	0	0	0	0	0
Subtotal - Pasquotank	DBB	0	2,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Roanoke	DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Savannah	DBB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Tar-Pamlico	DBB	549	2,295	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Subtotal - White Oak	DBB	849	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Yadkin	DBB	15,460	4,721	0	0	0	2	1	0	0	0	3	0	0	0	0	0

Total	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Subtotal - DBB	DBB	97,063	52,232	2,650	24,282	60	11	60	94	15	0	3	0	0	0	0	0
Subtotal - Broad	FD	43,163	1,410	10,076	6,064	9	0	0	0	5	0	0	0	0	0	0	0
Subtotal - Cape Fear	FD	104,924	268	7,240	150	54	0	43	43	13	0	0	0	0	0	0	0
Subtotal - Catawba	FD	12,186	1,155	0	1,009	6	0	1	4	0	0	0	0	0	0	0	0
Subtotal - Chowan	FD	11,128	0	0	2,786	97	0	0	0	0	0	0	0	0	0	0	0
Subtotal - French Broad	FD	7,267															
Subtotal - Hiawassee	FD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Little Tennessee	FD	3,212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Lumber	FD	5,682	0	0	0	5	0	0	0	72	0	0	0	0	0	0	0
Subtotal - Neuse	FD	0	0	0	0	16	0	0	0	4	0	0	0	0	0	0	0
Subtotal - New	FD																
Subtotal - Pasquotank	FD	4,980	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Roanoke	FD	39,933	1,232	3,499	463	56	0	0	0	82	0	0	0	0	0	0	0
Subtotal - Savannah	FD	3,310	1,600	0	3,115	0	0	0	0	0	0	0	2	0	0	0	0
Subtotal - Tar-Pamlico	FD	8,238	0	0	0	64	0	12	7	62	0	1	0	0	0	0	0
Subtotal - White Oak	FD	8,497	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Yadkin	FD	39,516	656	7,640	5,730	41	0	5	20	0	0	0	0	0	0	0	0
Subtotal - FD	FD	292,036	6,321	28,455	19,317	351	0	61	74	238	0	1	2	0	0	0	0

Total	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Subtotal - Broad	MB																
Subtotal - Cape Fear	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Catawba	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Chowan	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - French Broad	MB	0															
Subtotal - Hiawassee	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Little Tennessee	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Lumber	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - MB	MB	402,192	9,809	39,594	28,625	536	0	77	101	458	0	1	3	0	0	0	0
Subtotal - Neuse	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - New	MB																
Subtotal - Pasquotank	MB	4,928	0	0	0	180	0	0	0	274	0	0	0	0	0	0	0
Subtotal - Roanoke	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Savannah	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - Tar-Pamlico	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal - White Oak	MB	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0
Subtotal - Yadkin	MB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal-MB	MB	407,120	9809	39594	28625	715.6414	0	76.67	100.6	757.823	0	1.4	3.42	0	0	0	0

Total	Project Type (DBB, FD, MB)	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Non-Riparian Restoration	Non-Riparian Creation	Non-Riparian Enhancement	Non-Riparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation
Overall total - Broad		51,663	6,410	10,076	8,564	11	0	0	0	5	0	0	0	0	0	0	0
Overall total - Cape Fear		131,784	13,046	9,340	7,682	87	0	66	58	28	0	0	0	0	0	0	0
Overall total - Catawba		12,186	1,155	0	1,009	6	0	1	4	0	0	0	0	0	0	0	0
Overall total - Chowan		11,128	0	0	2,786	97	0	0	0	0	0	0	0	0	0	0	0
Overall total - French Broad		47,440	7,850	800	2,000	2	0	0	0	0	0	0	0	0	0	0	0
Overall total - Hiawassee		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Little Tennessee		3,212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall total - Lumber		12,570	0	0	0	20	0	23	0	72	0	0	0	0	0	0	0
Overall total - Neuse		1,291	2,830	0	0	16	0	5	61	4	0	0	0	0	0	0	0
Overall total - New		9,015	15,060	500	12,250	7	6	9	18	0	0	0	0	0	0	0	0
Overall total - Pasquotank		9,908	2,500	0	0	195	0	0	0	290	0	0	0	0	0	0	0
Overall total - Roanoke		39,933	1,232	3,499	463	56	0	0	0	82	0	0	0	0	0	0	0
Overall total - Savannah		3,310	1,600	0	3,115	0	0	0	0	0	0	0	2	0	0	0	0
Overall total - Tar Pamlico		8,787	2,295	0	0	48	3	12	7	46	0	1	0	0	0	0	0
Overall total - White Oak		9,346	0	0	0	3	0	0	0	26	0	0	0	0	0	0	0
Overall total - Yadkin		54,976	5,377	7,640	5,730	41	2	6	20	0	0	3	0	0	0	0	0
Overall - EEP Tier 1 Sites		406,549	59,355	31,855	43,599	591	11	121	168	553	0	4	2	0	0	0	0

Appendix F: Anticipated NCDOT Impacts

Each February, the NCDOT submits its revised impacts to wetlands and streams for the Transportation Improvement Program. The projected impacts are divided by MOA year (fiscal year) for the impacts and then divided into the river basin of the impacts, the hydrologic unit where the impacts will occur, and the type of impact (stream, riparian wetland, non-riparian wetland and coastal marsh). For Year 10 (July 2012 to June 2013), the EEP did not have the complete impact data. Additionally, the impact data for Years 11 (July 2013 to June 2014), Year 12 (July 2014 to June 2015), Year 13 (July 2015 to June 2016), Year 14 (July 2016 to July 2017) and Year 15 (July 2017 to June 2018) of the MOA have not been identified. The EEP must institute impacts for: Year 11 (July 2013 to June 2014) and Year 13 (July 2015 to June 2016) by the end of Year 8 (June 2011); Year 12 (July 2014 to June 2015) and Year 14 (July 2016 to July 2017) by Year 9 (June 2012); and, Year 15 (July 2017 to June 2018) by Year 10 (June 2013). EEP provides NCDOT's mitigation in advance, and the MOA signed by NCDOT, NCDENR and USACE states :impacts for Year 11 (July 2013 to June 2014) and 13 (July 2015 to June 2016) must have mitigation instituted by the end of Year 8 (June 2011); impacts for Year 12 (July 2014 to June 2015) and Year 14 (July 2016 to July 2017) must have mitigation instituted by the end of Year 9 (June 2012); and, impacts for Year 15 (July 2017 to June 2018) must have mitigation instituted by the end of by Year 10 (June 2013).

Exhibit F-1: Anticipated NCDOT Impacts

Earliest MOA Year		July 2006-July 2007				July 2007-July 2008				July 2008-July 2009				July 2009-July 2010			
River Basin	CU	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh
Broad		**385**	**0.23**			**14,071**	**0.26**	**1.46**		**340**	**0.14**			**18,540**	**1.49**	**0.77**	
	03050105	385	0.23			14,071	0.26	1.46		340	0.14			18,540	1.49	0.77	
Cape Fear		**1,109**	**1.14**	**1.48**		**39,354**	**68.60**	**31.93**		**7,245**	**42.00**	**42.28**		**16,787**	**55.26**	**60.30**	
	03030002	634	0.22	0.35		17,736	15.77	7.32		3,532	1.02	0.08		13,374	12.10	19.80	
	03030003	82	0.03	0.05		4,782	0.05	0.41		963	8.22	0.05		2,240	1.82	0.05	
	03030004	80	0.11	0.18		16,471	51.38	13.45		629	1.80	0.27		80	0.57	0.29	
	03030005	195	0.15	0.29		247	0.65	7.34		45	0.15	0.15		975	40.24	39.56	
	03030006	54	0.45	0.37		54	0.19	0.34		2,012	30.70	41.49		54	0.19	0.34	
	03030007	64	0.18	0.24		64	0.56	3.07		64	0.11	0.24		64	0.36	0.26	
Catawba		**700**	**0.24**	**0.03**		**2,350**	**0.46**	**0.23**		**2,551**	**0.24**	**0.45**		**370**	**0.24**	**0.03**	
	03050101	628	0.13	0.03		1,774	0.35	0.03		2,479	0.13	0.45		298	0.13	0.03	
	03050102	50	0.10			254	0.10			50	0.10			50	0.10		
	03050103	22	0.01			322	0.01	0.20		22	0.01			22	0.01		
Chowan		**291**	**0.08**	**0.05**		**70**	**0.03**	**0.05**		**70**	**0.03**	**0.05**		**70**	**0.03**	**0.05**	
	03010203	30	0.05	0.04		30	0.02	0.04		30	0.02	0.04		30	0.02	0.04	
	03010204	261	0.03	0.01		40	0.01	0.01		40	0.01	0.01		40	0.01	0.01	
French Broad		**4,676**	**0.58**	**0.56**		**15,000**	**1.24**	**0.03**		**1,091**	**0.36**	**0.01**		**1,425**	**0.32**	**0.11**	
	06010105	511	0.11			1,251	0.11			500	0.11			735	0.11		
	06010106	995	0.01			200	0.01			361	0.14			460	0.10	0.11	
	06010108	3,170	0.46	0.56		13,549	1.12	0.03		230	0.11	0.01		230	0.11	0.01	

Earliest MOA Year		July 2006-July 2007				July 2007-July 2008				July 2008-July 2009				July 2009-July 2010			
River Basin	CU	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh
Hiwassee		**570**	**0.01**	**1.33**		**1,426**	**0.10**			**400**	**0.01**			**200**	**0.01**		
	06020002	570	0.01	1.33		1,426	0.10			400	0.01			200	0.01		
Little Tennessee		**2,133**	**0.03**			**880**	**0.03**			**1,341**	**0.20**			**32,334**	**0.03**	**1.84**	
	06010202	1,633	0.01			480	0.01			881	0.03			8,171	0.01	0.46	
	06010203	300	0.01			100	0.01			360	0.12			200	0.01		
	06010204	200	0.01			300	0.01			100	0.05			23,963	0.01	1.38	
Lumber		**1,135**	**5.52**	**2.29**		**1,145**	**1.20**	**1.21**		**1,110**	**8.83**	**8.81**		**6,555**	**8.65**	**17.15**	
	03040203	35	3.34	1.99		35	0.30	0.75		1,055	8.43	2.40		6,500	8.43	16.85	
	03040204	95	0.03	0.05		15	0.22	0.05		15	0.20	0.27		15	0.02	0.05	
	03040206	985	2.10	0.15		80	0.37	0.31		20	0.15	6.05		20	0.15	0.15	
	03040207	20	0.05	0.10		1,015	0.31	0.10		20	0.05	0.10		20	0.05	0.10	
Neuse		**11,203**	**17.92**	**10.87**	**0.01**	**9,060**	**24.31**	**23.49**	**0.01**	**660**	**0.29**	**0.57**	**0.01**	**1,145**	**21.05**	**37.08**	**0.01**
	03020201	1,508	4.75	0.84		5,888	11.33	3.03		543	0.14	0.35		451	0.08	0.35	
	03020202	9,219	12.91	7.89		2,229	2.22	9.13	0.00	25	0.05	0.06		25	0.05	0.06	
	03020203	72	0.24	0.15		192	0.08	0.15		72	0.07	0.15		72	0.40	0.15	
	03020204	404	0.03	2.00	0.01	751	10.69	11.18	0.01	20	0.03	0.01	0.01	597	20.52	36.52	0.01
New		**160**	**0.11**	**0.10**		**565**	**0.10**	**0.12**		**1,845**	**0.30**	**0.30**		**576**	**0.21**	**0.12**	
	05050001	160	0.11	0.10		565	0.10	0.12		1,845	0.30	0.30		576	0.21	0.12	
Pasquotank		**20**	**0.43**	**0.01**	**0.00**	**301**	**0.11**	**2.88**	**1.30**	**20**	**0.13**	**14.63**	**0.10**	**1,456**	**5.13**	**0.80**	**0.00**
	03010205	20	0.43	0.01	0.00	301	0.11	2.88	1.30	20	0.13	14.63	0.10	1,456	5.13	0.80	0.00

Earliest MOA Year		July 2006-July 2007				July 2007-July 2008				July 2008-July 2009				July 2009-July 2010			
River Basin	CU	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh
Roanoke		**503**	**1.20**	**0.37**		**518**	**0.63**	**0.34**		**279**	**0.46**	**0.34**		**6,340**	**2.17**	**0.34**	
	03010102	40		0.03		40	0.14	0.03		40		0.03		40		0.03	
	03010103	266	0.05			138	0.05			42	0.17			5,703	0.53		
	03010104	72	0.51	0.06		72	0.00	0.03		72	0.00	0.03		72	0.00	0.03	
	03010106	78	0.21	0.11		78	0.02	0.11		78	0.02	0.11		78	0.02	0.11	
	03010107	47	0.43	0.17		190	0.41	0.17		47	0.26	0.17		447	1.61	0.17	
Savannah		**450**	**0.02**			**0**	**0.02**			**50**	**0.02**			**50**	**0.02**		
	03060101	100	0.01			0	0.01			50	0.01			50	0.01		
	03060102	350	0.01			0	0.01			0	0.01			0	0.01		
Tar-Pamlico		**712**	**0.57**	**0.58**	**4.84**	**2,481**	**3.53**	**1.75**	**0.04**	**839**	**0.24**	**0.54**	**0.04**	**660**	**0.45**	**0.84**	**0.04**
	03020101	291	0.42	0.26		1,943	0.68	1.43		441	0.03	0.22		291	0.29	0.52	
	03020102	263	0.03	0.19		291	0.49	0.19		240	0.08	0.19		211	0.03	0.19	
	03020103	48	0.05	0.09		137	2.29	0.09		48	0.05	0.09		48	0.05	0.09	
	03020104	50	0.03	0.02	0.03	50	0.03	0.02	0.03	50	0.03	0.02	0.03	50	0.03	0.02	0.03
	03020105	60	0.04	0.02	4.81	60	0.04	0.02	0.01	60	0.04	0.02	0.01	60	0.04	0.02	0.01
Watauga		**25**	**0.10**	**0.10**		**520**	**0.10**	**0.10**		**95**	**0.10**	**0.10**		**95**	**0.10**	**0.10**	
	06010103	25	0.10	0.10		520	0.10	0.10		95	0.10	0.10		95	0.10	0.10	
White Oak		**80**	**0.13**	**0.20**	**0.03**	**103**	**0.17**	**0.20**	**0.03**	**180**	**0.32**	**0.29**	**0.03**	**6,511**	**8.58**	**56.10**	**0.03**
	03020106	40	0.08	0.10	0.03	40	0.08	0.10	0.03	40	0.08	0.10	0.03	2,226	0.99	49.35	0.03
	03030001	40	0.05	0.10		63	0.09	0.10		140	0.24	0.19		4,285	7.60	6.76	
Yadkin		**2,986**	**3.66**	**0.30**		**7,381**	**3.81**	**1.84**		**7,107**	**1.11**	**0.19**		**28,038**	**4.23**	**0.24**	
	03040101	394	0.88	0.04		381	0.29	0.04		312	0.05	0.04		26,560	3.64	0.04	
	03040102	1,350	0.01	0.01		4,029	1.75	1.60		125	0.02	0.01		125	0.02	0.01	

Earliest MOA Year		July 2006-July 2007				July 2007-July 2008				July 2008-July 2009				July 2009-July 2010			
River Basin	CU	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh
	03040103	453	1.10	0.05		76	0.07	0.03		20	0.03	0.03		20	0.03	0.03	
	03040104	433	0.03	0.03		66	0.03	0.03		66	0.03	0.03		1,124	0.43	0.08	
	03040105	328	1.63	0.12		2,801	1.65	0.10		6,556	0.96	0.04		181	0.09	0.04	
	03040201	28	0.02	0.05		28	0.02	0.05		28	0.02	0.05		28	0.02	0.05	
Grand Total		**27,138**	**31.95**	**18.27**	**4.88**	**95,225**	**104.70**	**65.63**	**1.38**	**25,223**	**54.76**	**68.56**	**0.18**	**121,152**	**107.96**	**175.87**	**0.08**

Earliest MOA Year		July 2010-July 2011				July 2011-July 2012				July 2012-July 2013							
River Basin	CU	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Total Sum of Stream	Total Sum of Riparian Wetlands	Total Sum of Non-Riparian Wetlands	Total Sum of Coastal Marsh
Broad		**150**	**0.11**			**11,376**	**0.11**			**250**	**0.11**			**45,112**	**2.45**	**2.24**	
	03050105	150	0.11			11,376	0.11			250	0.11			45,112	2.45	2.24	
Cape Fear		**28,334**	**8.34**	**27.49**		**8,053**	**8.69**	**2.10**		**417**	**0.60**	**1.04**		**101,299**	**184.62**	**166.62**	
	03030002	5,212	0.49	0.12		7,511	4.38	0.78		92	0.03	0.08		48,091	34.01	28.54	
	03030003	12,200	0.55	0.49		82	0.02	0.05		82	0.02	0.05		20,431	10.69	1.15	
	03030004	3,862	2.16	22.39		80	0.11	0.18		80	0.11	0.18		21,282	56.24	36.95	
	03030005	45	0.20	0.15		262	3.89	0.51		45	0.15	0.15		1,814	45.42	48.15	
	03030006	6,951	4.70	4.10		54	0.19	0.34		54	0.19	0.34		9,233	36.59	47.32	
	03030007	64	0.23	0.24		64	0.11	0.24		64	0.11	0.24		448	1.66	4.52	

Earliest MOA Year		July 2010-July 2011				July 2011-July 2012				July 2012-July 2013							
River Basin	CU	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Total Sum of Stream	Total Sum of Riparian Wetlands	Total Sum of Non-Riparian Wetlands	Total Sum of Coastal Marsh
Catawba		**270**	**0.24**	**0.03**		**7,392**	**3.50**	**2.06**		**370**	**0.24**	**0.03**		**14,003**	**5.15**	**2.86**	
	03050101	198	0.13	0.03		3,292	0.34	0.34		298	0.13	0.03		8,967	1.34	0.94	
	03050102	50	0.10			50	0.10			50	0.10			554	0.70		
	03050103	22	0.01			4,050	3.06	1.72		22	0.01			4,482	3.10	1.92	
Chowan		**1,645**	**39.37**	**41.56**		**70**	**0.03**	**0.05**		**70**	**0.03**	**0.05**		**2,286**	**39.60**	**41.86**	
	03010203	234	38.02	37.04		30	0.02	0.04		30	0.02	0.04		414	38.17	37.28	
	03010204	1,411	1.35	4.52		40	0.01	0.01		40	0.01	0.01		1,872	1.43	4.58	
French Broad		**8,324**	**1.75**	**0.01**		**7,068**	**0.28**	**0.01**		**930**	**0.23**	**0.01**		**38,514**	**4.74**	**0.72**	
	06010105	7,794	1.63			6,538	0.16			400	0.11			17,729	2.34		
	06010106	300	0.01			300	0.01			300	0.01			2,916	0.29	0.11	
	06010108	230	0.11	0.01		230	0.11	0.01		230	0.11	0.01		17,869	2.10	0.61	
Hiwassee		**200**	**0.01**			**200**	**0.01**			**200**	**0.01**			**3,196**	**0.16**	**1.33**	
	06020002	200	0.01			200	0.01			200	0.01			3,196	0.16	1.33	
Little Tennessee		**3,125**	**0.03**			**450**	**0.03**			**450**	**0.03**			**40,713**	**0.38**	**1.84**	
	06010202	200	0.01			200	0.01			200	0.01			11,765	0.09	0.46	
	06010203	480	0.01			200	0.01			200	0.01			1,840	0.18		
	06010204	2,445	0.01			50	0.01			50	0.01			27,108	0.11	1.38	
Lumber		**135**	**3.97**	**1.45**		**455**	**3.66**	**1.94**		**90**	**0.34**	**0.45**		**10,625**	**32.18**	**33.30**	
	03040203	35	0.12	0.15		35	0.12	0.15		35	0.12	0.15		7,730	20.87	22.44	
	03040204	60	3.65	0.05		15	0.02	0.05		15	0.02	0.05		230	4.16	0.57	
	03040206	20	0.15	0.15		20	0.15	0.15		20	0.15	0.15		1,165	3.22	7.11	
	03040207	20	0.05	1.10		385	3.37	1.59		20	0.05	0.10		1,500	3.93	3.19	

Earliest MOA Year		July 2010-July 2011				July 2011-July 2012				July 2012-July 2013							
River Basin	CU	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Total Sum of Stream	Total Sum of Riparian Wetlands	Total Sum of Non-Riparian Wetlands	Total Sum of Coastal Marsh
Neuse		**7,601**	**1.38**	**1.25**	**0.01**	**568**	**0.59**	**0.57**	**0.01**	**568**	**0.19**	**0.57**	**0.01**	**30,805**	**65.73**	**74.40**	**0.07**
	03020201	7,484	1.25	1.03		451	0.45	0.35		451	0.06	0.35		16,776	18.05	6.30	
	03020202	25	0.05	0.06		25	0.05	0.06		25	0.05	0.06		11,573	15.35	17.32	0.00
	03020203	72	0.06	0.15		72	0.06	0.15		72	0.06	0.15		624	0.97	1.05	
	03020204	20	0.03	0.01	0.01	20	0.03	0.01	0.01	20	0.03	0.01	0.01	1,832	31.36	49.74	0.07
New		**315**	**0.10**	**0.10**		**5,955**	**4.20**	**6.10**		**315**	**0.10**	**0.10**		**9,731**	**5.12**	**6.94**	
	05050001	315	0.10	0.10		5,955	4.20	6.10		315	0.10	0.10		9,731	5.12	6.94	
Pasquotank		**1,020**	**1.38**	**4.58**	**0.00**	**123**	**0.60**	**4.13**	**0.00**	**20**	**0.02**	**0.01**	**0.00**	**2,960**	**7.79**	**27.04**	**1.41**
	03010205	1,020	1.38	4.58	0.00	123	0.60	4.13	0.00	20	0.02	0.01	0.00	2,960	7.79	27.04	1.41
Roanoke		**936**	**3.35**	**0.35**		**6,968**	**3.30**	**0.66**		**279**	**0.14**	**0.34**		**15,823**	**11.24**	**2.74**	
	03010102	40		0.03		40		0.03		40		0.03		280	0.14	0.21	
	03010103	42	0.01			42	0.01			42	0.01			6,275	0.84		
	03010104	72	0.00	0.03		6,761	3.16	0.35		72	0.00	0.03		7,193	3.69	0.56	
	03010106	78	0.24	0.12		78	0.02	0.11		78	0.02	0.11		546	0.56	0.79	
	03010107	704	3.10	0.17		47	0.10	0.17		47	0.10	0.17		1,529	6.01	1.19	
Savannah		**50**	**0.02**			**50**	**0.02**			**50**	**0.02**			**700**	**0.14**		
	03060101	50	0.01			50	0.01			50	0.01			350	0.07		
	03060102	0	0.01			0	0.01			0	0.01			350	0.07		
Tar-Pamlico		**2,640**	**10.86**	**3.79**	**0.04**	**660**	**0.30**	**0.54**	**0.04**	**660**	**0.19**	**0.54**	**0.04**	**8,652**	**16.14**	**8.58**	**5.09**
	03020101	2,271	10.55	3.47		291	0.03	0.22		291	0.03	0.22		5,819	12.03	6.33	
	03020102	211	0.18	0.19		211	0.15	0.19		211	0.03	0.19		1,638	1.00	1.33	
	03020103	48	0.05	0.09		48	0.05	0.09		48	0.05	0.09		425	2.61	0.63	

Earliest MOA Year		July 2010-July 2011				July 2011-July 2012				July 2012-July 2013							
River Basin	CU	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Stream (feet)	Riparian Wetlands (acres)	Non-Riparian Wetlands (acres)	Coastal Marsh	Total Sum of Stream	Total Sum of Riparian Wetlands	Total Sum of Non-Riparian Wetlands	Total Sum of Coastal Marsh
	03020104	50	0.03	0.02	0.03	50	0.03	0.02	0.03	50	0.03	0.02	0.03	350	0.24	0.14	0.21
	03020105	60	0.04	0.02	0.01	60	0.04	0.02	0.01	60	0.04	0.02	0.01	420	0.27	0.15	4.88
Watauga		**95**	**0.10**	**0.10**		**95**	**0.10**	**0.10**		**95**	**0.10**	**0.10**		**1,020**	**0.70**	**0.70**	
	06010103	95	0.10	0.10		95	0.10	0.10		95	0.10	0.10		1,020	0.70	0.70	
White Oak		**80**	**0.13**	**0.20**	**0.03**	**80**	**0.13**	**0.20**	**0.03**	**80**	**0.13**	**0.20**	**0.03**	**7,114**	**9.59**	**57.40**	**0.21**
	03020106	40	0.08	0.10	0.03	40	0.08	0.10	0.03	40	0.08	0.10	0.03	2,466	1.47	49.95	0.21
	03030001	40	0.05	0.10		40	0.05	0.10		40	0.05	0.10		4,648	8.13	7.45	
Yadkin		**29,977**	**17.17**	**48.80**		**27,321**	**3.77**	**3.72**		**540**	**0.24**	**0.19**		**103,350**	**33.97**	**55.27**	
	03040101	215	0.05	0.04		1,461	0.18	0.19		215	0.05	0.04		29,538	5.14	0.43	
	03040102	125	0.02	0.01		125	0.02	0.01		125	0.02	0.01		6,004	1.83	1.64	
	03040103	11,887	0.63	0.52		3,178	0.17	0.03		20	0.03	0.03		15,654	2.06	0.72	
	03040104	14,142	1.45	1.02		4,087	0.03	0.78		66	0.03	0.03		19,984	2.01	1.98	
	03040105	86	0.13	0.04		18,340	3.36	2.67		86	0.09	0.04		28,378	7.90	3.03	
	03040201	3,522	14.90	47.17		130	0.02	0.05		28	0.02	0.05		3,792	15.04	47.47	
Grand Total		**84,897**	**88.31**	**129.71**	**0.08**	**76,884**	**29.31**	**22.18**	**0.08**	**5,384**	**2.70**	**3.62**	**0.08**	**435,903**	**419.67**	**483.84**	**6.78**

Appendix G: EEP Targets and Surplus Identified from June 2007 to June 2013

Using the NCDOT impacts data, the EEP makes projections of the mitigation 'targets' (i.e., mitigation needed) for a particular river basin catalog unit (CU). According to the February 2007 data that EEP provided to Dye Management, Appendix G shows the potential surplus mitigation that EEP will have generated by the end of June 2013 (end of Year 10 in the MOA) as it will have met the current expected NCDOT impact needs through Year 10. EEP will have more than instituted sufficient mitigation by the end of Year 10 (June 2013) for basins with positive numbers in the 'potential surplus' column for that mitigation type. This means that EEP will more than meet NCDOT's mitigation projections for permitting needs for that mitigation type. However, EEP must also provide for NCDOT permitting needs for Year 11 (July 2013 to June 2014), Year 12 (July 2014 to June 2015), Year 13 (July 2015 to June 2016), Year 14 (July 2016 to July 2017) and Year 15 (July 2017 to June 2018) by Year 10 (ending June 30, 2013). At the time EEP provided this information to Dye Management, the wetland and stream impacts for permitting needs for Years 11, 12, 13, 14 and 15 had not been identified, and the Year 10 data was limited. Therefore, the mitigation may not in fact be "surplus."

Exhibit G-1: 'Surplus' by une 30, 2010 (Year 7)

Basin	CU	[redacted]			Riparian Restoration Mitigation Projection	Riparian Restoration Equivalent Projection	potential surplus	Nonriparian Restoration Projection	Nonriparian Restoration Equivalent Projection	potential surplus	Coastal Marsh Restoration Projection	Coastal Marsh Restoration Equivalent Proection	potential surplus
Broad	03050105				9	-2	7	3	-2	1	0	0	0
Cape Fear	03030002				19	-17	3				0	0	0
Cape Fear	03030003	84,328	-25,541	58,787							0	0	0
Cape Fear	03030004	21,921	-18,618	3,303	-1	11	10				0	0	0
Cape Fear	03030005	35,187	-1,545	33,642	374	-28	346	569	13	581	34	43	77
Cape Fear	03030006							117	-41	76	0	0	0
Cape Fear	03030007	1,170	-276	894	24	115	140	43	126	169	0	0	0
Catawba	03050101	6,362	-6,235	127	5	1	6				0	0	0
Catawba	03050102	21,844	-529	21,315	6	0	7	0	0	0	0	0	0
Chowan	03010203	9,323	540	9,863	84	3	87	5	2	7	0	0	0
Chowan	03010204	2,425	176	2,601	12	0	12	0	0	0	0	0	0
French Broad	06010105	27,821	-3,229	24,592	4	7	11	0	0	0	0	0	0
French Broad	06010106	7,646	-2,068	5,578	5	0	5	0	0	0	0	0	0
Little Tennessee	06010203	1,480	-1,450	30	0	0	0	0	0	0	0	0	0
Lumber	03040203							566	38	604	0	0	0
Lumber	03040204	4,833	-167	4,666	4	0	4				0	0	0
Lumber	03040206	2,112	-755	1,357	-3	5	2				0	0	0
Lumber	03040207							57	-1	56	0	0	0
Neuse	03020201				15	38	54	60	-3	57	0	0	0
Neuse	03020202				163	157	320	7	8	15	0	0	0
Neuse	03020203	13,539	-408	13,131	108	89	197	17	20	37	0	0	0
Neuse	03020204	9,979	-1,772	8,207	57	56	112	1,348	1,006	2,353	6	1	7
New	05050001	5,727	-691	5,036	10	7	17	-1	2	1	0	0	0

Basin	CU	[redacted]	[redacted]	[redacted]	Riparian Restoration Mitigation Projection	Riparian Restoration Equivalent Projection	potential surplus	Nonriparian Restoration Projection	Nonriparian Restoration Equivalent Projection	potential surplus	Coastal Marsh Restoration Projection	Coastal Marsh Restoration Equivalent Proection	potential surplus
Pasquotank	03010205	13,880	-2,030	11,850	388	16	404	1,111	10	1,121	8	34	42
Roanoke	03010102	1,801	2,261	4,062	0	0	0	0	0	0	0	0	0
Roanoke	03010104	14,634	-214	14,420	88	3	91	0	0	0	0	0	0
Roanoke	03010106	4,668	-332	4,336							0	0	0
Roanoke	03010107	11,968	-631	11,337	52	100	152	124	675	799	0	0	0
Savannah	03060101	3,942	188	4,130	0	0	0	0	0	0	0	0	0
Tar-Pamlico	03020101	14,444	-3,103	11,341	6	2	8	14	-2	12	0	0	0
Tar-Pamlico	03020102	5,373	-1,128	4,245	80	3	83				0	0	0
Tar-Pamlico	03020103	7,936	-316	7,620	126	80	206	17	-1	17	0	0	0
Tar-Pamlico	03020104	6,187	-4,444	1,743	44	7	50	246	102	348	3	4	7
Tar-Pamlico	03020105				16	0	15	16	-1	15			
Watauga	06010103	2,565	-735	1,830							0	0	0
White Oak	03030001	7,474	-4,618	2,856				17	-8	8	4	0	4
White Oak	03020106	5,400	-2,090	3,310	31	0	31				0	0	0
Yadkin	03040101				55	-4	51	0	0	0	0	0	0
Yadkin	03040102	17,013	-5,813	11,200	49	4	52	20	5	25	0	0	0
Yadkin	03040103	24,055	4,180	28,235	22	2	24	0	2	2	0	0	0
Yadkin	03040104				15	-4	11	0	0	0	0	0	0
Yadkin	03040105							14	7	21	0	0	0
Yadkin	03040201	20,052	918	20,970	41	14	55	0	0	0	0	0	0
As of February 2007 data EEP provided to Dye Management, EEP will have more than sufficient mitigation at Year 7 (ending June 30, 2007) to meet NCDOT's mitigation projections for permitting needs for stream restoration, riparian wetlands and non-riparian wetlands in the "surplus' column above per that mitigation type (stream, riparian wetlands and non-riparian wetlands).													

Exhibit G-2: 'Surplus' by une 30, 2013 (Year 10)

	Basin				Riparian Restoration Mitigation Projection	Riparian Restoration Equivalent Projection	potential surplus	Nonriparian Restoration Projection	Nonriparian Restoration Equivalent Projection	potential surplus	Coastal Marsh Restoration Projection	Coastal Marsh Restoration Equivalent Projection	potential surplus
Cape Fear	03030003	71,964	-37,905	34,059									
Cape Fear	03030005	34,835	-1,897	32,938	370	-32	338	568	12	580	34	43	77
Cape Fear	03030006							113	-46	66	0	0	0
Cape Fear	03030007	978	-468	510	24	115	139	42	125	168	0	0	0
Catawba	03050102	21,694	-679	21,015	6	0	6						
Chowan	03010203	9,029	246	9,275									
Chowan	03010204				11	-1	9						
French Broad	06010105				2	5	7						
French Broad	06010106	6,746	-2,968	3,778	5	0	5						
Little Tennessee	06010204				48	0	48						
Lumber	03040203	22	-7,730	-7,708	-26	-9	-35	566	38	604			
Lumber	03040204	4,743	-257	4,486	1	-4	-3	-1	-1	-1			
Lumber	03040207							54	-3	51			
Neuse	03020201				14	36	50	58	-5	54			
Broad	03050105				9	-2	6	3	-2	1			
Neuse	03020202				163	157	320	7	8	15			
Neuse	03020203	13,323	-624	12,699	108	89	197	17	19	36			
Neuse	03020204	9,919	-1,832	8,087	57	55	112	1,348	1,006	2,353	6	1	7
Pasquotank	03010205	12,717	-3,193	9,524	386	14	400	1,103	1	1,104	8	33	41
Roanoke	03010102	1,681	2,141	3,822									
Roanoke	03010107	11,170	-1,429	9,741	49	97	146	123	675	798			
White Oak	03030001	7,354	-4,738	2,616	-5	-8	-14	16	-8	8	4	0	4

	Basin	[redacted]	Riparian Restoration Mitigation Projection	Riparian Restoration Equivalent Projection	potential surplus	Nonriparian Restoration Projection	Nonriparian Restoration Equivalent Projection	potential surplus	Coastal Marsh Restoration Projection	Coastal Marsh Restoration Equivalent Proection	potential surplus
As of February 2007 data EEP provided to Dye Management, EEP will have more than instituted sufficient mitigation at Year 10 (ending June 30, 2013) for basins with positive numbers in "potential surplus" column for that mitigation type to meet NCDOT's mitigation projections for permitting needs for that mitigation type. However, EEP must also provide for NCDOT permitting needs for Years 11, 12, 13, 14 and 15 by Year 10 (ending June 30, 2013). At the time EEP sent this spreadsheet to EEP, the wetland and stream impacts for permitting needs for Years 11, 12, 13, 14 and 15 have not been identified, and the Year 10 data is limited. Therefore, the mitigation may not in fact be "surplus"										

2007

ENVIRONMENTAL REVIEW COMMISSION

OCTOBER 31, 2007

MINUTES

Environmental Review Commission
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2007-2008 Interim

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MINUTES
ENVIRONMENTAL REVIEW COMMISSION
October 31, 2007

The Environmental Review Commission met Wednesday, October 31, 2007 at 9:30 a.m. in Room 544 of the Legislative Office Building. Co-Chairperson Charlie Albertson presided.

Members present were Co-Chairperson Albertson, Co-Chairperson Lucy Allen, Co-Co-Chairperson Pryor Gibson, Senator Stan Bingham, Senator Katie Dorsett, Senator James Forrester, Representative Pricey Harrison, Senator Eleanor Kinnaird, Representative Ruth Samuelson, Senator A.B. Swindell, Representative Edith Warren and Senator David Weinstein. Staff present were Commission Counsel George Givens, Assistant Counsel Jeffery Hudson, Assistant Counsel Jennifer McGinnis, Commission Analyst Jennifer Mundt, Research Assistant Mariah Matheson and Commission Clerk Jessica Kozma Bennett.

A meeting notice was distributed to staff, members and outside parties via regular mail and electronically and is included as an attachment in these minutes as **Exhibit A**. A reminder was sent electronically on October 29. The meeting agenda and visitor's registration sheets are attachments to these minutes and referred as **Exhibit B** and **Exhibit C**.

Co-Chairperson Albertson called the meeting to order at 9:35 a.m. and welcomed members after dealing with technical issues with the microphones. Senator Albertson then called on Commission Counsel Givens to introduce members to the staff, give the history and review current agenda of the Commission. After giving an introduction of staff and Commission history, Mr. Givens welcomed new members to the Commission, Reps. Samuelson and Womble and explained "read only" items passed to members.

Mr. Givens said the meeting would focus primarily on drought issues and added that the Commission is tasked with studying the following two issues related to solid waste: the franchising of solid waste facilities and the transportation of solid was by barges. The Commission has previously worked with both issues. Mr. Givens stated that a consultant may be retained by the Commission through the University of North Carolina at Chapel Hill's School of Government, and suggested to the Commission that Commission staff be allowed to have scoping sessions in order to develop a contract to study water resources allocation. After announcing November 27 as the date of the next meeting, Mr. Givens asked for visitors to sign in and for Commission members to fill out their reimbursement forms. Mr. Givens also noted Commission staff held a planning meeting Thursday, October 19.

Mr. Givens walked the Commission through several distributed items, including a packet of "read only" reports and a list of "Studies to be Conducted by the Environmental Review Commission" (**Exhibits D and E**). An interim manual with authorizing

legislation, membership contact information and summaries of ratified environmental and natural resources legislation was also distributed to members **(Exhibit F).**

Co-Chairperson Albertson then called on members for comments. Co-Chairperson Allen said the meeting planning was excellent and that she had received good comments on the planning of the meeting. Co-Chairperson Gibson said he suspected some issues would exceed allotted times and that water issues needed to be addressed with "realistic solutions."

Dr. David Moreau, Chairman of the Environment Management Commission, was recognized by the Co-Chairperson to report on the commission's activities from January to October of this year. Three reports were distributed to members, and are **Exhibits G, H and I** in the attachments (reports are from May, July and October of this year). Also distributed was a "Stormwater Management Program Annual Report" (**Exhibit J**).

An outline of Dr. Moreau's presentation is also included in the attachment and is marked **Exhibit K.**

Senator Weinstein asked Dr. Moreau what plans were adopted in the event that the current drought continues or worsens. Dr. Moreau said there was "adequate" authority to address issues and noted that although restricting outdoor use of water may bring a 25 percent reduction in consumption, there still is no way to control water usage in individual homes. Senator Weinstein followed up and asked what would happen if the lakes completely dried up. Dr. Moreau replied that water managers play a game against nature, and that managers face the current problem of getting timely information of what the actual risks cities are facing. He continued saying that if a municipality has 100 days of water that city is in "good shape." Down below a 60 day supply, he said, is troublesome.

Representative Allen suggested that there needs to be one comprehensive body to work with issues regarding the drought.

Co-Chairperson Albertson then recognized Thomas Reeder of the North Carolina Department of Environment and Natural Resources (NCDENR) to address implementation of stormwater runoff rules and programs. A report distributed to members is in the attachments and is marked as **Exhibit L.** Mr. Reeder told the Commission a recently compiled report given to members was created because stormwater is the number one water quality problem in North Carolina. He stated that coastal counties have had more issues with stormwater control and the existing coastal rules regarding stormwater management have proven to be less effective.

In Mr. Reeder's presentation, members saw two slides of a coastal creek, one taken in 1988 and another taken in 2005. He explained to members that the shellfish beds died out between the dates of the two photographs. Saying that the only environmental stressor in the area was low density residential development, he added that residential development was usually not a tremendous stressor. Concluding his presentation, Mr. Reeder said that 1100 acres of shellfish beds are lost to stormwater runoff, that existing rules are old and outdated, that rules differing between the State's municipalities were inconsistent and that the coastal areas needed better stormwater protections.

Mr. Reeder continued saying that the EMC had implemented a program where the State assists with an individual municipality's stormwater programs. Co-Chairperson Albertson called for questions from Commission members. Representative Allen asked of the relationship between drainage in upper basins and pollution problems. Mr. Reeder

replied that there was not a connection. Co-Chairperson Albertson said that there was not enough battle when changing rules on the coast. Mr. Givens suggested there may be a way to work on the problem during the next long session.

Co-Chairperson Albertson recognized Mr. Jim D. Simons, State geologist and Director of Land Resources for DENR to discuss the report on the Implementation of the Sedimentation Pollution Control Act of 1973. Mr. Simons opened his presentation (see **Exhibit M** in the attachments) noting that progress had occurred this year and that there were revised guidelines for erosion controls. These guidelines are online, he continued, and measures are "showing up in the field." He continued saying that four new county programs were implemented over the last year in Caldwell, Iredell, Lincoln, and Henderson counties.

Mr. Simons continued saying that the drought had affected sedimentation programs because the lack of rain has a negative effect on vegetation. Co-Chairperson Albertson asked if there were questions from Commission members. With little discussion, Co-Chairperson Albertson thanked Mr. Simon and recognized Dr. Ryan Boyles, Associate State Climatologist for the State Climate Office at North Carolina State University. Beginning his presentation (See **Exhibit N** in the attachments), Dr. Boyles explained to the Commission that the State had endured exceptional conditions with both the lack of rain and the extreme heat. In his presentation, Dr. Boyles noted that in April water reservoirs were full and that his presentation would show the evolution of the drought.

Continuing on, Dr. Boyles explained to the Commission that a typical North Carolina summer had weather pressure systems passing from Bermuda through the State. However, this summer the pressure that typically flows across North Carolina instead arrived in Texas, creating massive flooding this summer in many parts Texas. Dr. Boyles noted that weather patterns are difficult to predict unless in a close timeframe and that summer conditions are more difficult to chart than winter patterns.

Regarding winter weather patterns for the state, Dr. Boyles said that the effects of La Nina would make for a winter drier than usual and through next spring below average rainfall is expected.

Points noted during Dr. Boyle's presentation were that rainfall should be expected to be less than normal in the near future, eliminating water deficits would take 30 to 45 inches and that indicators appeared to be drier than normal. He added that problems could about next summer resulting from the current lack of precipitation but the State would see some recovery. Albeit, though, not a full recovery, he said. Co-Chairperson Albertson asked for questions and comments by the Commission. Representative Gibson asked to explain how rainfall is predicted for a season. Dr. Boyles said that precipitation is a 33/33/33 slide and the bell curve of the slide for the next summer is shifted to the dry side. Representative Gibson followed up asking if the jet stream predictions from La Nina would create warmer than usual temperatures. Dr. Boyles said that predictions would lean to the warm side but he did not have the same confidence in this forecast as with the precipitation forecast.

Co-Chairperson Albertson said that better water conservation was needed. Following, Representative Harrison asked Dr. Boyles to explain La Nina, which Dr. Boyles explained that La Nina is cooler than normal sea-surface temperatures in central and eastern tropical Pacific Ocean and impacts global weather patterns.

Mr. Givens asked Dr. Boyles to explain the prediction for a "big" year of hurricanes. Mr. Boyles said he did not "put any weight" in hurricane predictions. Senator Kinnaird commented that many hurricanes were predicted for the Carolina coast but instead veered southward. Senator Albertson thanked Dr. Boyles and recognized Mr. J. Wayne Munden, Head of Technical Services Branch for Public Water Supply Section of NCDENR to explain the State's water shortage tier system.

Mr. Munden opened his presentation and explained that the tier system was implemented in 2002 and measures the drought's effects on water systems. He continued saying that tiers are determined by regional engineers who closely watch water resources.

A document entitled "Description of Tiered Water Supply Systems" was distributed to Commission members and is an attachment to the minutes, marked **Exhibit O.**

Senator Swindell asked what happens to wildlife living close to and rely on water reservoirs. Co-Chairperson Allen asked if Mr. Munden knew how much water was pumped from streams into ponds in North Carolina. Mr. Munden replied that he did not have such information. Representative Harrison told the Commission that a city council member in her district told her that the days of supply heard often it the media did not mean exactly calendar days. Mr. Munden explained that the supply days cited were based on an average day of use, noting that a year ago Raleigh used 70 or 80 million gallons a day, but now, in the wake of water restrictions that use has dropped to 50 to 60 million gallons a day. Hence, the city supply for water may be extended from what it would have been one year ago. He added that the city determines water volume and percentage of remaining water.

Mr. Givens asked if a tier system was devised in North Carolina, which Mr. Munden acknowledged it did. Co-Chairperson Albertson thanked Mr. Munden.

Mr. Franklin Freeman, Governor Mike Easley's Senior Assistant for Governmental Affairs was recognized by Co-Chairperson Albertson to deliver the Governor's report to the Commission. Mr. Freeman began by noting that the drought was worse than a prior significant drought that occurred in the 1950s. The Governor's office, he said, responded to the early drought in Western North Carolina by having regular meetings to monitor its severity. In May, he continued, the Governor's office asked State agencies to conserve water by stopping any non-essential water use. Because of this, State cars were no longer washed and ornamental watering ceased. The drought continued moving east, he said, and by August 23 the State as a whole had gone into drought. As the drought worsened, he said, an agricultural disaster was called by the United States Department of Agriculture.

Mr. Freeman then explained that federal grants may be available for farms and smaller agricultural businesses, but that the grants are dependent on pending legislation in Congress. To date, he continued, there is no grant money to assist farmers covering losses. Mr. Freeman said that if a pending Iraqi funding bill passes, the grant money would also pass. He then revisited the timeline of the Governors' actions regarding the drought, saying that on September 7 the Governor's office sent a letter to all local officials requesting they activate local shortage response plans and implement steps for conservation. He continued that the Governor's office then requested enactment of further restrictions such as banning outdoor watering.

As of last week, Mr. Freeman reported the Governor's office challenged all citizens to cut water usage by 50 percent. If the drought worsens and continues, the Governor's office may move toward a disaster declaration. Consequences of the Governor's actions included raising our emergency response listing to Level 3, DENR creating a list of local systems including their water needs and options, and the creation of a database to track water systems on a daily and weekly basis. Local officials were also called to implement shortage plans, and DENR and local systems are working with the Department of Commerce and each other, Mr. Freeman reported.

Co-Chairperson Albertson called for questions from members. Senator Forrester asked if power plants were major water users, which Mr. Freeman replied they were but that the Governor's office talked with members of the Utility Commission and collaboration between the state and local utilities had successfully helped in conservation efforts.

Senator Bingham asked if the State required water-smart items such as low-flow showerheads in new residential construction. Mr. Freeman said he did not know.

Co-Chairperson Gibson as what, if projections hold true, would the State do to prepare for further drought; he followed asking what the legislature needed to do to prepare for the drought. He then commented that he did not feel confident in assistance from the federal government.

Mr. Freeman replied that educating residents of the State was important, and reiterated that when the drought reaches a point compromising public health or public safety the Governor would declare a disaster. Mr. Freeman continued saying he was hopeful current efforts would encourage cities and counties to ratchet down on customers, adding that the people of North Carolina would never have had an experience like this in memory. Co-Chairperson Gibson asked what consequences would happen to the State's business, especially agribusiness. He then asked that Mr. Freeman "paint a financial picture for our appropriations brothers and sisters."

Mr. Freeman replied that North Carolina was not alone in the drought, and that financial experts were needed to answer questions regarding its financial impact.

Commission Counsel Givens asked if there is legal authority to place mandatory limits on usage and did the State have to wait to have that authority. Mr. Freeman answered that he did think a wait for that authority would be necessary, and that the Governor does not have the power to ration water. However, he humorously added, the Governor does have the authority to close forests and woodlands to hunting during a drought.

Counsel Givens then asked if the Governor's office was working to develop a body of regulation, which Mr. Freeman replied that the office was working with several coordinated groups. He continued saying that there is a need to provide statewide connectivity. Representative Warren said she felt the state was far from achieving that, which Mr. Freeman agreed.

Co-Chairperson Gibson asked if the Governor could declare a disaster from a health and safety standpoint, did that empower him to do some things from an economic standpoint. Mr. Freeman said that any budgetary shortfalls the Governor has the authority to manage and move money to keep the budget balanced. A balanced budget is required by North Carolina statutes.

Mr. Freeman continued saying that the State Budget Office is working to monitor whether revenue was "slipping" on a weekly basis.

Counsel Givens commented that the State could do this until an emergency situation. He added that a judgment call needs to be made before getting to this point.

Senator Dorsett asked if there were any "creative" ways of bringing water into the State. Mr. Freeman responded that he was not aware of any new ways to bring water into North Carolina and that water laws to do so were complicated. Senator Dorsett followed up by questioning why there should not be, questioning also whether the State's Congressional delegation should be approached as well as opening conversations about solving the drought with other states. Mr. Freeman agreed that conversations with other states should ensue.

Senator Bingham readdressed the issue of water-smart items in new construction, adding that there were presently no concerns with new construction. Co-Chairperson Albertson said that he thought this should be a wake up call for each of us with the projected growth of North Carolina.

The presiding chairperson then called on Stephanie G. McGarrah, Assistant Secretary for Policy, Research and Strategic Planning for the State Department of Commerce. Ms. McGarrah was called out of sequence with the agenda due to the meeting moving slightly ahead of schedule.

Ms. McGarrah was called to report on the Status of the Commerce and Economic Task Force and she opened reporting that the task force had contacted 50 large water users across North Carolina. She continued saying that the group is currently in the process of contacting more facilities. Working with these large companies, she added, many companies have begun conservation efforts and have also given their employees additional information to conserve both at work and at home. She then noted that all county economic organizations were working to inform businesses of the drought, and that there were five State agencies working on the task force.

Co-Chairperson Albertson called for questions. Co-Chairperson Gibson asked if there could be one State-offered resource for businesses suffering from the drought, continuing there are more than 200,000 businesses in North Carolina that do not know if they are eligible for assistance. He lastly questioned if there was a database to track such information. Ms. McGarrah said that the Commerce Service Center is able to put people in contact with State agency officials dealing with the drought issue. Going through the center, she continued, puts callers in touch with Commerce, DENR and other agencies.

The meeting was recessed at 12 noon for a 45 minute lunch break.

The meeting reconvened at 12:59 p.m. Co-Chairperson Albertson recognized Department of Agriculture and Consumer Services Commissioner Steve Troxler. Commissioner Troxler began immediately discussing drought's impact on agriculture, noting that there were significant drops in production due to the drought as and a late frost that occurred earlier this year. He told the Commission that tobacco had weathered better than other crops but tobacco was still down 90 pounds per acre yield. Drought and high temperatures were to blame he continued, and poor quality is the result of blistering heat and no water to quell the dryness. The green industry, which includes tree farmers, nurseries, landscaping companies among others, experienced an $8.6 billon impact due to the drought. Revenues among the green industry, he reported, were down 40 percent and

the green labor force was also down 40 percent. Economic consequences of the drought would trickle down through business, he said.

A hand out prepared by the Commissioner's office was distributed to Commission members and is in the attachments as **Exhibit P.**

Another of the Commissioner's concerns from the drought is the impact on life stock growers, noting that meat production had already dropped 45 percent lower than in previous years. He said he feared that some herders would get out of the industry because of the drought. Up to $80 million dollars are lost due to the drought, he said, and currently there is decreased activity at cattle markets.

Commissioner Troxler continued his comments sharing what his Department had accomplished so far in dealing with the drought's consequences. For one, DACS website is now tailored with information for visitors to help deal with the drought, he reported. He continued saying that the Department had received funding from the Golden Leaf Foundation to assist growers with hay and "alternative costs," including transportation. The Commissioner also reported that an Ag Partners Program was formed to also offset costs of bringing hay to North Carolina. He said the Department will do an assessment on how many types of forage moved into North Carolina and that increased demand of hay resulting from drought conditions will affect cattle prices.

Lastly, Commissioner Troxler noted that agriculture in North Carolina had suffered three strikes: drought, record temperatures, and an early year frost. Put together, he said, the impact was just as devastating as a major hurricane.

Co-Chairperson Albertson called for questions from the Commission and Senator Bingham asked whether farmers who have already paid for fertilizers could possibly go bankrupt. Commissioner Troxler answered that it takes six months to a year for disaster money to show up at for a farmer. Farmers, he said, are pushed to manage risk before risky weather happens. He ended his response by stating that farmers unable to get through current conditions could potentially lose their businesses. The Commissioner ended his presentation pointing out that farms were equally as dry of water as municipalities.

Co-Chairperson Albertson recognized Robin W. Smith, Assistant Secretary for Environmental in DENR. Ms. Smith began her report discussing how local governments were responding to the drought, and included policy gaps between government bodies and the overall policy for local governments as well as the State.

A handout distributed to Commission members is in the attachments and is marked **Exhibit Q.**

She explained to the Commission several aspects of how statutes relate to local governments. Local governments are largely responsible to create and enforce drought restrictions, she said, and the State does have a role but only when in an emergency. Before an emergency arises the State serves local governments in an advisory, non-regulatory role. Water plans have to be updated every five years, and those updates have to include current and projected use, where water sources are and how those sources would meet increasing or decreasing demand. DENR, she continued, receives and reviews plans in conflicts such as a situation where two municipalities use the same water source. To clarify: water supply plans are for public water systems and investor-owned utilities with more than 1000 users. When in a drought, local governments make decisions on conservation and there currently is no clear way for the State to enforce

requirements. Also, according to Ms Smith, there is no way for the State to penalize local governments that ignore drought issues or even compel local governments to implement conservation measures.

But, she added, after the 2002 drought, Co-Chairperson Albertson amended statues to include a water shortage response plan in their utilities water plans. Local water plans then are compiled and become the State's water plan. In a drought, individual local governments make decisions about what levels of water conservation are necessary. Also in response to the 2002 drought, the Environmental Management Commission adopted rules for local conservation standards. Those rules are in place in case a local government does not adopt their own rules.

Co-Chairperson Albertson asked if local governments were required to have a plan, which Ms. Smith answered that they were required to have a Water Shortage Response Plan. If they do not have a plan, she said, there is a basic set of rules set by the State for that government to follow. Noting that droughts of different levels affect water systems in different ways, because of those differences local governments can better address their own needs and varying levels of vulnerability. Such vulnerability comes from several conditions beyond water levels, for example, where a municipality may draw their water varies and could yield different conditions.

Ms. Smith continued saying that the current drought concern will continue at least through the spring. She then explained the Drought Management Advisory Council, telling the Commission that the Council keeps up with weekly drought map charts, noting changes from week to week. Weekly meetings began in August. Council stakeholders include the National Weather Service, U. S. Geological Survey and State agencies. Ms. Smith noted that the Council had access to "a lot of expertise." She continued saying that DENR works with water systems with the most significant levels of risk, including Siler City and Rocky Mount, both classified as Tier 1 water systems and are in inter-connection projects to assist their extremely low water reserves. DENR staff works with the water-compromised municipalities to find the quickest and least expensive way to meet water needs. Lastly, Ms. Smith explained that the Council has weekly telephone calls with the Army Corps of Engineers and utility companies to discuss the drought. She closed saying that her Department "was busy but not in a regulatory way."

Reiterating what she and previous speakers said, Ms. Smith said the State had no authority lest the Governor declare an emergency. The Governor, she continued, has tried to increase the frequency of his message, saying that there is a statewide problem and residents of North Carolina as well as local governments need to look out for their neighbors. She said the Governor is offering local governments lots of encouragement in the event the winter fulfills its dry predictions. Cities and counties, she added, have responded positively.

Some consequences of the State and local government relationship, Smith said, have created gaps. Local decisions are driven by local conditions, she said, and that an area not afflicted by the drought may not be as quick to issue restrictions in the wake of a statewide drought. That there are no consistent statewide thresholds between municipalities, counties and regions is another issue. Watering restrictions may not be issued by region, for example, because there is no authority to do so. And this is, she said, even if several municipalities within that region are suffering from drought. Another issue is that because of current statutes, water conservation is limited to being treated as a

drought response and not for ongoing conservation. A component of this issue is the lack of regulation for privately used wells. That few water systems have fee structures encouraging conservation is another issue that could potentially be dealt with, she continued. Lastly, Ms. Smith commented that agricultural water users have to report water usage to the state but only after crossing a one million gallon threshold. Ms. Smith said the threshold was too high. The industrial threshold, she noted, is only 100,000 gallons and with such a high threshold is it difficult to accurately determine how much water is needed for farms.

Co-Chairperson Albertson asked if there were any changes that could be made. Ms. Smith said there is a need to decide what the right relationship is between State and local governments when in a time of drought. She stated that people are surprised that the State doesn't get real time reporting on water levels. Co-Chairperson Albertson asked about people putting in wells, and Ms. Smith said she believed more wells are being drilled in this drought compared to the drought of 2002.

Co-Chairperson Albertson asked whether more wells would continue to be drilled as the drought continued. Ms. Smith replied that she would not be surprised but also noted that several wells had gone dry this year.

Co-Chairperson Albertson recognized Senator Swindell who said that for several years he was a part of the Roanoke River Basin Bi-State Commission and that initially the Commission had several "great" meetings. However, he continued, the Commission was not meeting as before, and Senator Swindell encouraged the Department to contact authorities in Virginia to become active again. Counsel Givens said that the Catawba /Wateree River Basin Advisory Commission was the most active, and that South Carolina authorities asked to participate in the Yadkin/Pee Dee River Basin Advisory Commission. Counsel Givens stated it was difficult to get appointees in place and that in some cases it takes three to four years to get a Commission in place, up, and running. Senator Swindell commented that the Commission began "like a ball of fire" and that the Commission needed to be vigorous about having groups meet regularly. Counsel Givens said that this was an issue the Environmental Review Commission could look at and that legislative appointments were easier to create than non-legislative appointments.

Representative Harrison asked whether private wells should be part of water planning at the State level, and whether there was a lack of statutory authority to do so. Ms. Smith replied that there is a question about managing wells in a regulatory program. Representative Harrison followed up asking if there is any regulation to discourage wildlife extinction due to drought. Ms. Smith answered saying major federal impoundments and hydro-managed systems have mandatory release guarantees to provide a minimum flow for aquatic life. Smaller systems, however, have seen streams and ponds dry up. Representative Harrison asked if this related to only endangered species. Ms. Smith answered that it related to all wildlife concerned.

Representative Harrison followed up again saying she heard that utilities were responsible for 80 percent of water consumption. Counsel Givens commented that regarding a study of an Interbasin Transfer Bill, it would be recommended that allocation of surface waters would include all surface waters that come from groundwater. Authorizing legislation would allow the State to do that, he continued, but there would be property rights issues with private wells on private lots.

Representative Bingham said that in his district recently several poultry farms were formed, and that he heard nearby wells had depleted as a result. Ms. Smith replied that any operation requiring significant water would look at the water source in advance. However, she did say it could happen giving an example of two dry wells in Greensboro whose water was depleted from usage by a nearby golf course.

Representative Gibson asked if anything had happened with a water lawsuit in South Carolina. Ms. Smith replied that the case has been appealed to the South Carolina Supreme Court. The court has asked North Carolina to answer its complaint over a decision by the Environmental Management Commission to allow the Charlotte suburban communities of Concord and Kannapolis an additional 10 million gallons a day from its water source: the Catawba River basin. South Carolina's complaint alleges that North Carolina acted so despite South Carolina's consumption of water from the same water basin. The State's answer to the Supreme Court is requested in a month after the State asked for an extension. Representative Gibson followed up asking how the State can measure new well drilling. Ms. Smith said that a well permitting program was adopted in the 2006 session, but its effective date is not until July 1, 2008. She added that some local governments have their own independent well permitting programs.

Representative Gibson again followed up saying there is "no consistent threshold, no consistent approach, no ability to assess significant risk," and asked whether DENR is asking for additional authority to address these issues. Ms. Smith replied that is an issue that the Legislature needs to review, and whether there is currently enough authority for the State to successfully deal with local governments in a drought that affects safety and public health. Representative Gibson said he realized that we were heading for hundreds of hours of mediation in the future. Lastly, he asked Counsel Givens when the Water Resources Study would be complete, and if there was a timeline of what's coming from the study. Counsel Givens said that he did not have a date but would look into finding a date.

Representative Allen was recognized and said that the sooner staff was authorized to hold scoping meetings the sooner such reports would be underway.

Co-Chairperson Albertson recognized Jeffrey Hughes but before his presentation began Counsel Givens asked to discuss Representative Allen's previous remark. Counsel Givens noted that Representative Allen had recognized that staff needed to have approval to hold scoping sessions. A motion subsequently followed.

Representative Allen moved that the counsel be authorized to receive public comment on the scope and direction of allocation of water resources that the Commission is directed to undertake by Section 1 of S.L. 2007-518. The motion passed unanimously and Mr. Hughes began his report.

A hands-on report entitled "Water Pricing and the Drought" was distributed to members and is included in these minutes as **Exhibit R.**

Mr. Hughes said that local governments have wide latitudes in pricing water and sewer, and that modifying water and sewer rates is much easier than modifying tax rates. Because of this, he continued, local governments can use prices to encourage types of behavior. As revenue drops, he said, many local governments will have to raise water rates. Investor owned utilities are different from governments, whereas such utilities have to receive approval for rate increases from the Utilities Commission.

Mr. Hughes continued saying there were handicaps for local governments. There is a tremendous pressure on utilities, he said, and that the strong leadership the Governor has taken has helped local governments prepare to increase rates. Another obstacle is that infrastructure is highly capital intensive: if usage drops 30 percent, revenue drops 30 percent. However, expenditures remain the same and capital investments suffer. Another obstacle is that stemming from public pressure, many utilities operate a very slim margin. When a public utility is noted in the media for having too much money in the bank public outcry automatically ensues. But this, Mr. Hughes said, is the time for utilities to have a "rainy" day fund. Unfortunately, he said, most do not. Mr. Hughes continued his presentation noting variables in water supply and demand. Some homes particularly in suburban areas can use as many as 15 to 30 thousand gallons of water in one month's time. This consumption can be easily cut to between five and ten thousand, he said.

Mr. Hughes walked the Commission through a map called "Rate Structures and Pricing Signals in North Carolina" **(See Exhibit R).** The map shows consumption compared to price in municipalities across North Carolina. Historically, he said, utilities that give block rates or decreased prices also had higher consumption. He also noted what he considered a misconception: that having low water rates made for successful management of the utility. A water manager "wears water on their sleeve," he said. He continued saying that one would see mixed success no matter what people pay for water.

Local governments in North Carolina take in $1.8 billon a year in water revenues, Mr. Hughes said, continuing that pricing water was not an exact science. Saying that water consumption was not like purchasing a typical grocery item such as iced cream, rather, people are disconnected from understanding their own water consumption as well as the consumption of their respective municipality's water system. Also disconnected from understanding their water usage are those who pay for water through paying rent and those receiving water from wells. People also, he said, will receive their water bill and may not look at the bill again for weeks, until actually paying the bill. Even then, seldom are consumers given enough information to understand their personal consumption on their bill.

Mr. Hughes then presented options for utilities in the future. In the short term, he said, a positive option is to track water usage, which he said typically is not done by public utilities. The town of Cary, he said, has taken the lead in informing its residents of their water consumption. Once a consumer is educated on water usage, responses can be targeted. Consumers have a better chance of cutting discretionary use when educated on how much they are using. He does not, he continued, suggest using a block rate pricing structure. Lower rates, he said, often led to higher consumption and an inability to improve or add infrastructure. Mr. Hughes also suggested to the Commission that public utilities also set up stabilization funds to create and maintain a healthy fund balance. He added that public utilities would likely have to raise rates to offset revenue declines stemming from the drought.

Co-Chairperson Albertson asked Commission members for questions. Senator Swindell commented to the Commission of his concern to treat business fairly. Senator Swindell noted that the largest employer in Rocky Mount is also a large water user. He continued saying that he was also concerned about rate increases and how they would affect the elderly.

Mr. Hughes replied saying that when dealing with large industries there are ways to lower consumption. When working with an industry that uses 100,000 gallons, for example, one way for that company to conserve is cutting discretionary use. One benefit for the utility is that companies typically have a consistent rate of service for that industry, so any water infrastructure is well measured as well as revenues from the company. Because the industry uses a consistent amount of water compared to households, of which water consumption fluctuates because of seasons and other reasons, proportionately serving the household is more expensive than the company for the utility. He noted an industry in Rocky Mount that implemented a conservation program and now has a 25 percent reduction in usage by reusing treated water. Mr. Hughes also said that relief funds could be created to assist those economically unable to pay an increased water bill.

Co-Chairperson Albertson thanked Mr. Hughes and recognized Kimberly S. Hibbard, Associate General Counsel for the North Carolina League of Municipalities. Ms. Hibbard gave a five-minute report and began her report noting that most water systems are city- or county-owned. League representatives are trying to assist municipal officials to make informed decisions and stay in contact with pertinent contacts. In October, she said, League representatives met with agents from DENR as well as representatives from cities with a Tier 1 drought rating. The League is also creating partnerships to appropriately deal with the drought, and have had open discussions about what water supplies are available.

Eighty percent of the State's municipalities are under some kind of water restrictions, Ms. Hibbard said, and overall the League is pleased with consumers' responses. After a recent rain quelled fears among consumers, local governments realized—as the wake of the drought was far from gone—that long-term efforts were necessary. Some municipalities were responding positively to restrictions. In Charlotte, she noted, water consumption is down 25 percent.

Ms. Hibbard continued saying that towns with adequate water supply are still under restrictions because they may be called on to supply other areas. She noted that Burlington has placed restrictions and that Wilson is helping Rocky Mount supplement its water supply.

Co-Chairperson Albertson thanked Ms. Hibbard and recognized Mr. Paul Meyer, Assistant General Counsel for the North Carolina Association of County Commissioners. Mr. Meyer began noting that counties were also in the water business like municipalities, but held no where near as many public utilities as municipalities. Half the counties in North Carolina have placed water restrictions, he continued, with mandatory restrictions in the west and central North Carolina and volunteer restrictions in the less embattled east. County planners are preparing for worst-case scenarios and are looking for new water sources, Mr. Meyer said. He followed saying it was difficult to enforce restrictions as there is now no way to stop what people consume inside their homes.

Commenting on wells, Mr. Meyer said that counties are unable to regulate, and that under current statutes there is no authority over or restrictions against drilling new wells. Co-Chairperson Albertson thanked Mr. Meyer and then recognized Mr. Gary Hunt, Director of the Division of Pollution Prevention and Environmental Assistance with DENR.

Mr. Hunt began his report saying he wanted to end the day's meeting on an "up" note discussing positive conservation efforts. Citing his prior experience with the 2002 drought, Mr. Hunt began explaining the 2002 Hydro- Alluvial Cycle, where many conservation efforts successfully led to lower water usage among businesses during and after the drought. He then explained a photograph of workers in a Spaghettio production plant racing Spaghettios across a floor powered by the pressure of two-inch hoses to show reckless waste of water. He continued saying that his Division works with larger businesses to show how water use can be reduced through water audits and working cooperatively between the Division and the business.

A handout was distributed for this report and is contained in the attachments as **Exhibit S.**

Mr. Hunt continued saying that business can set up better maintenance procedures for immediate reductions in water usage, including checking for leaky plumbing, reminding workers to shut down unused pipes, hoses, etc., and noted that in working with some companies he had found some water lines running all day—everyday—despite that the company was not using the water continuously. He then noted companies are taking a larger interest in reused water, and that some companies are working with other companies to take the waste of one for reuse at another. There are issues with piping, he said, but ended his comment saying he felt it would work.

A Stewardship Initiative among high-water using companies has successfully grown since its onset, and more than 100 companies now participated with a savings of 1 billon gallons so far. Mr. Hunt then said that companies realize conserving water reduces costs but also has less impact on the environment.

Mr. Hunt's Division is also having meetings across the State, he continued, and is working with the Commerce Department to help the State's largest water users to conserve. Hits to his website have increased tremendously, he said, and Water Conservation Teams are in place and offering training with companies.

Lastly he noted that a Water Reduction Partner Program had expanded to 37 counties, and as an example said that Bumcombe County had in place a conservation measure where if a company does not employ conservation measures they pay a higher rate for water. Through the program more than 200 audits were completed for companies with a total savings of 219 gallons. The program is expanding, and the Triangle J Council of Governments had recently started participating in the program.

Co-Chairperson Albertson than recognized Ms. Erica Peterson, Executive Vice President and Chief Executive Officer of the North Carolina AgriBusiness Council, Inc. Ms. Peterson began her report thanking the Commission for the "lengthy discussion" and saying that the drought was a critical issue for agribusiness. She then said that agriculture is the State's largest business with $68 billon in revenue and employing 20 percent of the State's workers.

Ms. Peterson continued that she would focus her discussion on the consumer product side, and said that many agribusinesses are required to use a certain amount of water, creating water waste. She said that was the reverse of what she had heard in the day's discussion, and said she understood that many standards for water usage had to do with consumer safety and sanitation. But many of the rules were written years ago, she continued, and perhaps needed looking at again.

Citing a different example, Ms. Peterson said she knew of a company that was told by their water-providing municipality that the company had to successfully employ a 25 percent water reduction. The company did, and the municipality then ordered a 50 percent reduction. The company then had to haul 70 truckloads of water in a day to meet its production demands as well as those demands placed on it by the municipality, and release the water into the local reservoir only to have to draw the water back into the plant. This forced the company to pay for hauling the water in and then pay the municipality for consumption of water not produced by the municipality. She concluded her report noting that drought issues now needed to be looked at from a "regional perspective" and that the State will have continued water problems as its population grows.

Co-Chairperson Albertson called for questions and hearing none recognized Ms. Louise R. Hodges, President of the Green Industry Council. A document produced by the Green Industry Council was passed to Commission members and is marked as **Exhibit T** in the attachments.

Before Ms. Hodges began her report Commission Counsel Givens told the Commission that 10 to 12 other groups were invited to give comments and some had submitted written statements. Those statements, he continued, are distributed and are now part of the public record for the meeting. **(See Exhibits U, V, W)**

Ms. Hodges began her report defining the industry, saying the green industry included nursery, landscaping, lawn maintenance, arborists, Christmas tree and golf course businesses and has a yearly State revenue of $8.6 billon and roughly 151,000 employees. But the drought, she continued, had taken its toll: creating a 40 percent loss in revenue and a 30 percent layoff in employees. She said that the industry was a steward of conservation, and that the industry was very much in support of year-round water conservations. Anecdotally she added over-watering was common and in her experience replacing 95 percent of sod her business replaced was overly watered.

She continued saying she hoped for collaboration with the State for educational and certification programs. She also said that she had spoken with a water official in Greensboro who said that handheld shrubbery watering only accounted for two percent of that municipalities' water consumption.

She closed her report and Co-Chairperson Albertson asked of questions. Representative Harrison thanked staff for a "great" agenda. Co-Chairperson Albertson then adjourned the meeting at 2:40 p.m.

Co-Chair Charlie Albertson
Presiding

Co-Chair Lucy Allen

Jessica Kozma Bennett

Co-Chair Pryor Gibson

Exhibit A

General Assembly of North Carolina

Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

CO-CHAIRS
SENATOR CHARLES W. ALBERTSON
SENATOR DANIEL G. CLODFELTER

REPRESENTATIVE LUCY T. ALLEN
REPRESENTATIVE PRYOR A. GIBSON

MEMBERS
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SENATOR KATIE G. DORSETT
SENATOR JAMES S. FORRESTER
SENATOR ELEANOR G. KINNAIRD
SENATOR A.B. SWINDELL
SENATOR DAVID F. WEINSTEIN

REPRESENTATIVE JAMES A. HARRELL
REPRESENTATIVE PRICEY HARRISON
REPRESENTATIVE CAROLYN H. JUSTICE
REPRESENTATIVE RUTH SAMUELSON
REPRESENTATIVE EDITH W. WARREN
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JENNIFER R. F. MUNDT
COMMISSION ANALYST

MARIAH B. MATHESON
COMMISSION ASSISTANT

JESSICA BENNETT
COMMISSION CLERK

4 October 2007

TO: Members of the Environmental Review Commission
Interested Parties

FROM: George F. Givens, Commission Counsel
Jessica Bennett, Commission Clerk

RE: **Notice of Commission Meeting**
Notice of Planning Meeting
Schedule of Future Meetings
Meetings of Interested Parties (605 Working Groups)
Additional Information

COMMISSION MEETING:

The Environmental Review Commission (Commission) will meet at 9:30 a.m. Wednesday October 31 2007 in Room 544 of the Legislative Office Building in Raleigh.

At this meeting, the Commission will begin or continue studies for which the Commission is responsible, hear reports from State agencies, discuss topics to be considered at future meetings, and attend to other matters. Listed below are potential agenda topics for this meeting and for future meetings. More specific information regarding the agenda for the 31 October meeting of the Commission will be developed at the staff planning meeting discussed below. Commission Staff may publish a revised notice/draft agenda following the staff planning meeting if circumstances permit.

STUDIES

1) Issues related to the franchise of solid waste management facilities by units of local government. (S.L. 2007-550, Sec. 18)

2) Issues related to the transportation of solid waste by rail or barge, including the extent to which regulation of the transportation of solid waste by rail or barge may be preempted by federal law. (S.L. 2007-550, Sec. 18)

3) Issues related to the use of pervious surfaces for vehicle parking areas, including associated costs, impact to the environment of stormwater runoff, and practices of other states with regard to stormwater best management practices. (S.L. 2007-323, Sec. 6.22.(b))

4) Allocation of surface water resources and their availability and maintenance in the State, including issues related to the transfer of water from one river basin to another, the withdrawal of water for consumptive use, and the accuracy and tolerance of equipment used to measure the flow of water transferred from one river basin to another river basin. (S.L. 2007-518, Sec. 1.(a))

5) Preparation of a revised map entitled "Major River Basins and Sub-basins in North Carolina" as a recommended replacement for the map referenced in G.S. 143-215.22G. The revised map shall define the extent to which any river basin that encompasses any river that flows from another state into North Carolina or that flows from North Carolina into another state extends into an adjacent state. (S.L. 2007-518, Sec. 1.(b))

REPORTS *(Report due dates are indicated in parentheses)*

General/Miscellaneous:

6) Quarterly report on the activities of the Environmental Management Commission (G.S. 143B-282(b)) *(15 April, 15 July, and 15 October)*

7) Report by the Community Conservation Assistance Program Advisory Committee on the findings of its program review (S.L. 2006-78, Sec. 5) *(31 March 2007)*

8) Annual report on the One-Stop Permit Assistance Program on the number of environmental permits that took more than 90 days to issue or deny, types of permits, reasons for extended processing time, and how the time used to issue or deny the permits compared with projected time provided to the applicant by DENR *(1 October)*

9) Annual report on the findings and recommendations on the success of the express permit and certification review program (G.S. 143B-279.13(c)) *(1 March)*

10) Interim Report on the findings and recommendations of the Legislative Commission on Global Climate Change (S.L. 2006-79) *(15 January 2007)*

11) Annual report on litter enforcement, prevention, and removal efforts (G.S. 147-12(b)) *(1 March)*

Air Quality:

12) Final report on the costs and benefits of reducing emissions of NOx, particulate matter, and greenhouse gases from motor vehicles in the State and consideration of standards adopted in other states. (S.L. 2006-248, Sec. 43) *(1 April 2007)*

13) Annual report on implementation of S.L. 2002-4 (Clean Smokestacks Act) (S.L. 2002-4, Sec. 14) *(1 June)*

14) Annual report on the desirability of requiring and the feasibility of obtaining reductions in emissions of NOx and SO_2 beyond those required by the Clean Smokestacks Act (S.L. 2002-4, Sec. 11) *(1 September)*

15) Annual report on development and implementation of a plan to reduce vehicle miles traveled by State employees and vehicle emissions resulting from job-related travel, including commuting to and from work (G.S. 143-215.107C(d)) *(1 October)*

16) Annual report on development and implementation of a plan to reduce vehicle miles traveled by private sector employees and vehicle emissions resulting from job-related travel, including commuting to and from work (G.S. 143-215.107C(e)) *(1 October)*

Coastal Management:

17) Annual report on the progress in developing and implementing the Coastal Habitat Protection Plans and reports on the completion or substantial revision of each draft Coastal Habitat Protection Plan (G.S. 143B-279.8(e) and G.S. 143B-279.8(f)) *(1 September)*

18) Annual report by the Coastal Resources Commission evaluating the impacts on water quality and other environmental impacts from new urban waterfront area development (S.L. 2004-117, Sec. 4) *(1 October)*

Hazardous Waste Management:

19) Annual report on the Inactive Hazardous Sites Program (G.S. 130A-310.10) *(1 October)*

20) Annual report on implementation of the Resident Inspectors Program at commercial hazardous waste facilities (G.S. 130A-295.02(m)) *(1 October)*

21) Report of Superfund cost share fund expenditures for cleanup of sites on the National Priorities List (S.L. 1999-237(15.6)(b)) *(Floating, within 30 days of expenditure)*

22) Annual report on the North Carolina Hazardous Waste Management Plan (G.S. 130A-294(i)) *(1 October)*

23) Annual report on the Effectiveness of the Brownfields Property Reuse Act (G.S. 130A-310.40) *(1 October)*

Land Resources:

24) Annual report on the cost of implementing the Mining Act of 1971 (G.S. 74-54.1(c)) *(1 September)*

25) Annual report on implementation of the Sedimentation Pollution Control Act of 1973 (G.S. 113A-67) *(1 October)*

Parks and Recreation / Land Conservation:

26) Parks and Recreation Trust Fund Annual Report, Fiscal Year 2006-2007 (G.S. 113-44.15(c)) *(1 October)*

27) North Carolina Natural Heritage Trust Fund Award Report, Fiscal Year 2005-2006 (G.S. 113-77.9(e)) *(Semi-annually, within 30 days of each revision)*

28) Annual report on progress towards attaining the State's goal of protecting one million acres of farmland, open space, and conservation lands (G.S. 113A-241(c)) *(1 October)*

29) Annual report on implementation of the Conservation Easements Program and inventory of all conservation easements held by DENR (G.S. 113A-235(c)) *(1 October)*

30) Annual report on the activities of the North Carolina Agricultural Development and Farmland Preservation Trust Fund and Advisory Committee, the agriculture easements purchased, and agricultural projects funded during the previous year. (S.L. 2007-495, Sec. 23 *(May 1)*

Water Quality:

31) Interim report on the pilot program to streamline the process for the issuance of an improvement permit or an authorization to construct for an on-site subsurface wastewater system in certain counties by authorizing local health departments, authorized agents of DENR, and licensed soil scientists to complete soil and site evaluations in participating counties. (S.L. 2006-136, Sec. 3) *(October 1)*

32) Annual report on permitting and inspecting animal waste management systems/Animal Waste Compliance Report (G.S. 143-215.10M) *(1 October)*

33) Semiannual report on the pilot program for inspection of animal waste management systems including a comparison of the costs of conducting operations reviews and inspections under the pilot program with the costs of conducting operations and inspections under G.S. 143-215.10D and G.S. 143-215.10F *(15 October)*

34) Annual report on the compliance/enforcement of water quality laws for facilities that discharge into surface waters (G.S. 143-215.9A) *(1 October)*

35) Annual report on the Wastewater Discharge Elimination Program (S.L. 2001-452, Sec. 2.9) *(15 October)*

36) Annual report on Basinwide Water Quality Management Plans (G.S. 143-215.8B) *(1 October)*

37) Annual report on the Dry-Cleaning Solvent Cleanup Program (G.S. 143-215.104U) *(1 October)*

38) Annual report on the status of leaking petroleum underground storage tanks, the State cleanup funds, and the Groundwater Protection Loan Fund (G.S. 143-215.94M) *(1 September)*

39) Annual report by the Roanoke River Basin Bi-State Commission (G.S. 77-98) *(1 October)*

40) Annual report by the Yadkin-Pee Dee River Basin Advisory Commission (G.S. 77-117) *(1 October)*

41) Annual report on the implementation of stormwater rules and programs (G.S. 143-214.7(e)) *(1 October)*

42) Annual report by the Catawba/Wateree River Basin Advisory Commission and the Yadkin/Pee Dee River Basin Advisory Commission (G.S. 77-117) *(1 October)*

43) Annual report on the Environmental Management Commission's progress in developing and implementing nutrient management strategies for certain water supply reservoirs. (S.L. 2005-190, Sec. 4)

Water Quantity:

44) Annual report on the progress of water supply planning (G.S. 143-355(n)) *(1 September)*

45) Annual report by the Drought Management Advisory Council, including a review of drought advisories issued by the Council and any recommendations to improve coordination among local, State, and federal agencies; public water systems; and water users to improve the management and mitigation of the harmful effects of drought (G.S. 143-355.1(g)) *(1 October)*

PLANNING MEETING:

To facilitate development of the agenda for the 31 October meeting of the Commission, to begin planning for subsequent meetings of the Commission, and to receive input from interested persons regarding the work of the Commission, the Commission Counsel will hold an informal planning meeting at **10:00 a.m. on Thursday 18 October 2007 in Room 605 of the Legislative Office Building**. Persons who wish to participate in the development of the agenda for meetings of the Commission, or who are interested in any matter before the Commission, are invited to attend.

SCHEDULE OF FUTURE MEETINGS:

Below is a schedule of meetings of the Environmental Review Commission for October 2007 through May 2008. **This schedule is tentative and subject to adjustment.** For planning purposes, however, please reserve these dates. This schedule may be modified to allow for out-of-town business meetings or site visits and in the event that it becomes necessary to cancel a scheduled meeting due to hazardous weather conditions.

Please note the following:

1. Meetings of the Commission normally begin at 9:30 a.m., include a lunch break, and run until mid-afternoon. Please plan on meeting from 9:30 a.m. until at least 3:30 p.m. Meetings of the Commission are open to the public.

2. Staff planning meetings normally begin at 10:00 a.m. and adjourn by noon. Staff planning meetings are informal and are open to the public. Commission members are not expected to attend these meetings.

3. The 2008 Regular Session is scheduled to begin at 12:00 noon on Tuesday 13 May 2008. The Commission may meet shortly after the beginning of the session to complete ongoing work and to consider any legislative proposals and recommendations and may meet at other times during the legislative session.

Commission Meeting	Location	Staff Planning Meeting	Location
Wednesday 31 October 2007	544 LOB	Thursday 18 October 2007	605 LOB
Tuesday 27 November 2007	544 LOB	Thursday 15 November 2007	605 LOB
Wednesday 19 December 2007	544 LOB	Wednesday 5 December 2007	605 LOB
Wednesday 23 January 2008	544 LOB	Friday 11 January 2008	605 LOB
Thursday 14 February 2008	544 LOB	Tuesday 5 February 2008	605 LOB
Tuesday 18 March 2008	544 LOB	Friday 7 March 2008	605 LOB
Thursday 10 April 2008	544 LOB	Friday 28 March 2008	605 LOB
Friday 9 May 2008	544 LOB	Tuesday 29 April 2008	605 LOB
Wednesday 14 May 2008	544 LOB		

MEETINGS OF INTERESTED PARTIES (605 WORKING GROUPS):

The Commission Counsel will hold meetings of interested parties on specific topics as indicated below:

Underground Storage Tank Working Group
10:00 a.m. Friday 12 October 2007 – 605 Legislative Office Building

ADDITIONAL INFORMATION:

If you have questions related to the Commission, please feel free to contact the Commission Counsel or other Commission staff at (919) 733-2578.

Exhibit B

General Assembly of North Carolina

Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

CO-CHAIRS
SENATOR CHARLES W. ALBERTSON
SENATOR DANIEL G. CLODFELTER

REPRESENTATIVE LUCY T. ALLEN
REPRESENTATIVE PRYOR A. GIBSON

MEMBERS
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SENATOR KATIE G. DORSETT
SENATOR JAMES S. FORRESTER
SENATOR ELEANOR G. KINNAIRD
SENATOR A.B. SWINDELL
SENATOR DAVID F. WEINSTEIN

REPRESENTATIVE JAMES A. HARRELL
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REPRESENTATIVE RUTH SAMUELSON
REPRESENTATIVE EDITH D. WARREN
REPRESENTATIVE LARRY W. WOMBLE

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ASSISTANT COMMISSION COUNSEL

JENNIFER R. F. MUNDT
COMMISSION ANALYST

MARIAH B. MATHESON
COMMISSION ASSISTANT

JESSICA BENNETT
COMMISSION CLERK

AGENDA

9:30 a.m. Wednesday 31 October 2007
Room 544 Legislative Office Building
Raleigh, North Carolina

1. Call to order
   Senator Charles W. Albertson, Presiding

2. Introductory remarks by Cochairs. *(5 minutes)*
   Senator Charles W. Albertson
   Senator Daniel G. Clodfelter
   Representative Lucy T. Allen
   Representative Pryor A. Gibson

3. Report to the Commission and explanation of agenda items. *(20 minutes)*
   George F. Givens, Commission Counsel

4. Quarterly reports by the Environmental Management Commission (EMC) as to its operations, activities, programs, and progress for the period of January 2007 through October 2007 (G.S. 143B-282(b)). *(45 minutes)*
   David H. Moreau, Chairman
   Environmental Management Commission

5. Report by the Department of Environment and Natural Resources (DENR) regarding the implementation of stormwater runoff rules and programs (G.S. 143-214.7(e) and 15A NCAC 02H .1005). *(30 minutes)*
   Thomas A. Reeder, Chief
   Wetlands and Stormwater Branch, Surface Water Quality Section,
   Division of Water Quality, DENR

6. Report on the implementation of the Sedimentation Pollution Control Act of 1973 (G.S. 113A-67). (*20 minutes*)
   Jim D. Simons, State Geologist and
   Director, Division of Land Resources, DENR

7. Discussion of issues related to drought.

   a. Current conditions and outlook. *(10 minutes)*
      Ryan P. Boyles, Associate State Climatologist
      State Climate Office, North Carolina State University

   b. Explanation of drought terminology. *(5 minutes)*
      J. Wayne Munden, Head
      Technical Services Branch, Public Water Supply Section,
      Division of Environmental Health, DENR

   c. Report from the Governor. *(15 minutes)*
      Franklin E. Freeman, Senior Assistant for Governmental Affairs
      Office of the Governor

LUNCH BREAK *– Estimated for 12:00 p.m. to 12:45 p.m.*

   d. Report from the Commissioner of Agriculture. *(15 minutes)*
      Steven W. Troxler, Commissioner
      Department of Agriculture and Consumer Services

   e. Status on the Economic Task Force. *(10 minutes)*
      Stephanie G. McGarrah, Assistant Secretary for Policy, Research and Strategic Planning
      Department of Commerce

   f. Discussion of the powers and duties of State government agencies to respond to the drought. *(30 minutes)*
      Robin W. Smith, Assistant Secretary for Environmental Protection
      DENR

   g. Discussion on water rate structures and the drought: rate restructuring, revenue vulnerability, and the impact of water rates on water conservation across the State. *(20 minutes)*
      Jeffrey A. Hughes, Director
      Environmental Finance Center, School of Government, University of North Carolina at Chapel Hill

   h. Update from the North Carolina League of Municipalities. *(10 minutes)*
      Kimberly S. Hibbard, Associate General Counsel
      North Carolina League of Municipalities

   i. Update from the North Carolina Association of County Commissioners. *(10 minutes)*
      Paul A. Meyer, Assistant General Counsel
      North Carolina Association of County Commissioners

j. A discussion of available conservation measures. *(10 minutes)*
Gary E. Hunt, Director
Division of Pollution Prevention and Environmental Assistance, DENR

k. Comments by interested parties. *(Limited to 5 minutes each)*

i. Erica U. Peterson, Executive Vice President and Chief Executive Officer
North Carolina AgriBusiness Council, Inc.

ii. Louise R. Hodges, President
Green Industry Council

8. Commission discussion and announcements

9. Adjourn

SCHEDULE OF FUTURE MEETINGS:

Below is a schedule of meetings of the Commission for November 2007 through May 2008. This schedule is tentative and subject to adjustment.

To facilitate development of the agenda for meetings of the Commission and to receive input from interested persons regarding the future work of the Commission, the Commission Counsel holds informal public planning meetings for staff and interested parties. The schedule of these meetings is also set out below.

Commission Meeting	Location	Staff Planning Meeting	Location
Tuesday 27 November 2007	544 LOB	Thursday 15 November 2007	605 LOB
Wednesday 19 December 2007	544 LOB	Wednesday 5 December 2007	605 LOB
Wednesday 23 January 2008	544 LOB	Friday 11 January 2008	605 LOB
Thursday 14 February 2008	544 LOB	Tuesday 5 February 2008	605 LOB
Tuesday 18 March 2008	544 LOB	Friday 7 March 2008	605 LOB
Thursday 10 April 2008	544 LOB	Friday 28 March 2008	605 LOB
Friday 9 May 2008	544 LOB	Tuesday 29 April 2008	605 LOB
Wednesday 14 May 2008	544 LOB		

MEETINGS OF INTERESTED PARTIES (605 WORKING GROUPS):

The Commission Counsel will hold meetings of interested parties on specific topics as indicated below:

Underground Storage Tank Working Group
10:00 a.m. Friday 9 November 2007 – 605 Legislative Office Building

ADDITIONAL INFORMATION:

Persons having questions about the Commission meeting or other matters related to the Commission may contact Commission Counsel or other Commission staff at (919) 733-2578 or may visit the Commission's website at
http://www.ncleg.net/gascripts/DocumentSites/browseDocSite.asp?nID=12

General Assembly of North Carolina

Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

CO-CHAIRS
SENATOR CHARLES W. ALBERTSON
SENATOR DANIEL G. CLODFELTER

REPRESENTATIVE LUCY T. ALLEN
REPRESENTATIVE PRYOR A. GIBSON

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SENATOR KATIE G. DORSETT
SENATOR JAMES S. FORRESTER
SENATOR ELEANOR G. KINNAIRD
SENATOR A.B. SWINDELL
SENATOR DAVID F. WEINSTEIN

REPRESENTATIVE JAMES A. HARRELL
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REPRESENTATIVE CAROLYN H. JUSTICE
REPRESENTATIVE RUTH SAMUELSON
REPRESENTATIVE EDITH W. WARREN
REPRESENTATIVE LARRY W. WOMBLE

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ASSISTANT COMMISSION COUNSEL

JEFF W. HUDSON
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JENNIFER L. McGINNIS
ASSISTANT COMMISSION COUNSEL

JENNIFER R. F. MUNDT
COMMISSION ANALYST

MARIAH B. MATHESON
COMMISSION ASSISTANT

JESSICA BENNETT
COMMISSION CLERK

29 October 2007

TO: Members of the Environmental Review Commission
Interested Parties

FROM: George F. Givens, Commission Counsel
Jessica Bennett, Commission Clerk

RE: **Reminder of Commission Meeting**
Schedule of Future Meetings
Meetings of Interested Parties (605 Working Groups)
Additional Information

COMMISSION MEETING:

You are reminded that the Environmental Review Commission (Commission) will meet at 9:30 a.m. Wednesday October 31 2007 in Room 544 of the Legislative Office Building in Raleigh. Due to the anticipated length of this meeting, we have scheduled a 45 minute lunch break.

The agenda for this meeting will consist of:

1) The report of the Commission Counsel, including consideration of studies for which the Commission is responsible and other matters. *(20 minutes)*

2) Quarterly reports by the Environmental Management Commission (EMC) as to its operations, activities, programs, and progress for the period of January 2007 through October 2007 (G.S. 143B-282(b)). *(45 minutes)*

3) Report by the Department of Environment and Natural Resources (DENR) regarding the implementation of stormwater runoff rules and programs, including a report on the amendment of the Coastal Stormwater Rule (G.S. 143-214.7(e) and 15A NCAC 02H.1005). *(30 minutes)*

4) Report on the implementation of the Sedimentation Pollution Control Act of 1973 (G.S. 113A-67). (*20 minutes*)

5) Discussion of issues related to drought. *(Approximately 2 hours and 30 minutes)*

a. Current conditions and outlook.

b. Explanation of drought terminology.

c. Report from the Governor.

d. Report from the Commissioner of Agriculture.

e. Status on the Economic Task Force.

f. Discussion of the powers and duties of State government agencies to respond to the drought.

g. Discussion on water rate restructuring.

h. Update from the North Carolina League of Municipalities.

i. Update from the North Carolina Association of County Commissioners.

j. A discussion of available conservation measures.

SCHEDULE OF FUTURE MEETINGS:

Commission Meeting	Location	Staff Planning Meeting	Location
Tuesday 27 November 2007	544 LOB	Thursday 15 November 2007	605 LOB
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MEETINGS OF INTERESTED PARTIES (605 WORKING GROUPS):

The Commission Counsel will hold meetings of interested parties on specific topics as indicated below:

Underground Storage Tank Working Group
10:00 a.m. Monday 9 November 2007 – 605 Legislative Office Building

ADDITIONAL INFORMATION:

If you have questions related to the Commission, please feel free to contact the Commission Counsel or other Commission staff at (919) 733-2578.

EXHIBIT C
Exhibit C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — October 31, 2007
Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Don McCorquodale	Manning Fulton
John McMillan	MFG's
Andy Ellen	NCRMA
Elizabeth Dalton	NCRMA
BRUCE THOMPSON	PARKER POE
JOHN GOODMAN	NC CHAMBER
Sam Smyth	WCSR
Francis M. Mantello	DENR - DLR
James Simons	DENR - DLR
John Smyth	RSG ASSOC.
Chip Bayliss	NCMS

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — October 31, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Lu-Ann Chapman	NCIC
Thomas Moore	Edwisten & Wells
Woody Yontz	NC DWR
Julie & Jeffrey Cubeta	NC Rural Center
Wayne Munden	NC DENR - Public Water Supply
Jeryl W. Covington	Ctg. of GSO
[illegible]	SA.
Lisa Merton	NC Home Builders
Carol Eimers	TVA
Mike Gurley	Allied Waste Industries
John Palenske	NCADA

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — October 31, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Woodson	NLFB
Tommy Stevens	NCPC
Tom Fransen	DWR, DENR
John Morris	DENR, DWR
Dirk Carlton	GIC
LOUISE HODGES	GREEN INDUSTRY COUNCIL
Richard P. Lovett	Golder Associates
Michelle Nowlin	Southern Environmental Law Center
Christa Wagner	NC Sierra Club
Deb Reynolds	NC SEC WA
Chris Goudreau	NCWRC

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — October 31, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
BARRY GULLET	CHARLOTTE-MECKLENBURG UTILITIES
MAENEEN KLEIN	CHARLOTTE-MECKLENBURG UTILITIES
Russ Dubisky	IFNC
JOHN SQUIRRELL	NC League of Municipalities
ANTHONY ALLEN	NCACC
Kathy Fernald	North Carolina Utilities Commission - Public Staff
Matt Harrell	Policy Group
Fred Bone	Bone & Asso.
Jay Stam	NC Aggregates Assoc
Beth Warren	AG's Office
Kim Hibbard	NCLM
Paul Meyer	NCACC

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — October 31, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
RYAN BOYLES	NCSU CLIMATE OFFICE
RICHARD WHISNANT	UNC School of Gov't
CASANDRA WHITE	GOV. OFFICE
Steve Wall	DENR
LORI ANN HARRIS	LAHA
Dan McLawhorn	City Attorneys Office, Raleigh
Bob Stevens	NCFA
Doug Lassiter	NCSTA
SCOTT GARDNER	DUKE ENERGY
MICK GREESON	PROGRESS ENERGY
George Everett	Duke Energy

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — October 31, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Coleen H. Sullivan	NC DWQ
Leila Goodwin	Town of Cary P.O. Box 8005 Cary NC 27512-8005
RANDALL ESSICK	Waste MANAGEMENT
Amy McConkey	Smith Anderson
Bradley Bennett	NC DWQ
DONNIE REDMOND	DENR-DAQ
T REEDER	DENR-DWQ
Charles Case	Hunton & Williams
Dan Crawford	Electricities of NC
AMY PICKLE	SOUTHERN ENVIRONMENTAL LAW CENTER
Erin Kinney	NC Conservation Network

EXHIBIT C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION — October 31, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Rick Prather	Allied Waste
Dave Moreau	ENC
Tom Regan	NC Enviro Defense NC Sustainable Energy Assoc
Bill Schrum	Republic Services
Elizabeth Self	DENR
James R. Haven	Global Warming Initiatives
Deatrice Williams	CUCA
Libby Smith	Commerce
Tad Baggs	NCDENR
Erica Peterson	NC Agribusiness Council
Jeff Hughes	UNC School of Government

VISITOR REGISTRATION SHEET

Environmental Review Commission — October 31, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Leslie Kleczek	Nicholas Institute, Duke University
Susie Wallingford	Duke University,
Jill Holman	Nicholas Inst / Duke Univ
Julie Woosley	NCDENR - DPPEA
K Rogers	NC CWMTF
Dale Coop	City of Raleigh Public Utilities Dept

VISITOR REGISTRATION SHEET

Environmental Review Commission — October 31, 2007

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Jorge Seddatto	NCBEC
David McLeod	NCDACS
Mitch Peele	NC Farm Bureau
Jim Johnson	BSA
ERICA YAMAUCHI	CAPSTRAT
KEN RUDDER	NCUC-PS
Ron Brown	NC Utilities Comm.
Bill Grantmyre	Public Staff-NC Utilities Commission
Jim Lowry	NC Utility Contractors Assn
Jennifer Bumgarner	Governor's Office
Colleen Kochanek	NCGWA

Exhibit D

General Assembly of North Carolina

Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

CO-CHAIRS
SENATOR CHARLES W. ALBERTSON
SENATOR DANIEL G. CLODFELTER

REPRESENTATIVE LUCY T. ALLEN
REPRESENTATIVE PRYOR A. GIBSON

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ASSISTANT COMMISSION COUNSEL

JENNIFER R. F. MUNDT
COMMISSION ANALYST

MARIAH B. MATHESON
COMMISSION ASSISTANT

JESSICA BENNETT
COMMISSION CLERK

31 October 2007

MEMORANDUM

To: Members of the Environmental Review Commission
From: Jennifer Mundt, Commission Analyst
Re: Reports to the Commission

The following reports have been submitted by the Department of Environment and Natural Resources (DENR) to the Environmental Review Commission (Commission) since the last reports distribution on 11 June 2007. These reports are designated as a read only and are attached to this memorandum:

1) Report by the Community Conservation Assistance Program Advisory Committee on the findings of its program review. 31 March 2007. Authority: S.L. 2006-78, Sec. 5.

2) Final report on the costs and benefits of reducing emissions of NOx, particulate matter, and greenhouse gases from motor vehicles in the State and consideration of standards adopted in other states. 1 April 2007. Authority: S.L. 2006-248, Sec. 43.

3) Annual report on the cost of implementing the Mining Act of 1971. 1 September 2007. Statutory Authority: G.S. 74-54.1(c).

4) Annual report by the Department of Transportation on the development and implementation of a plan to reduce vehicle miles traveled by State employees and private sector employees and related vehicle emissions resulting from job-related travel, including commuting to and from work. 1 October 2006. Statutory Authority: G.S. 143.215.107C(d) and G.S. 143.215.107C(e).

The following reports have been submitted by the Environmental Management Commission (EMC) to the Commission and will be distributed in connection with today's ***Agenda Item #4:***

1) Quarterly report by the EMC as to its operations, activities, programs, and progress during the previous quarter. 15 April 2007. Statutory Authority: G.S. 143B-282(b).

2) Quarterly report by the EMC as to its operations, activities, programs, and progress during the previous quarter. 15 July 2007. Statutory Authority: G.S. 143B-282(b).

3) Quarterly report by the EMC as to its operations, activities, programs, and progress during the previous quarter. 15 October 2007. Statutory Authority: G.S. 143B-282(b).

The following reports have been submitted by the Department of Environment and Natural Resources to the Commission and will be distributed in connection with today's agenda as follows:

1) Annual report on the implementation of stormwater rules and programs. 1 October 2007. Statutory Authority: G.S. 143-214.7(e). ***Agenda Item #5***

2) Annual report on implementation of the Sedimentation Pollution Control Act of 1973. 1 October 2007. Statutory Authority: G.S. 113A-67. ***Agenda Item #6***

3) Annual report on the progress of water supply planning. 1 September 2007. Statutory Authority: G.S. 143-355(n). ***Agenda Item #7***

4) Annual report by the Drought Management Advisory Council, including a review of drought advisories issued by the Council and any recommendations to improve coordination among local, State, and federal agencies; public water systems; and water users to improve the management and mitigation of the harmful effects of drought. 1 October 2007. Statutory Authority: G.S. 143-355.1(g). ***Agenda Item #7***

The following reports have been received since the last reports distribution on 11 June 2007 and are being held for distribution either as read-only or for presentation at a future meeting of the Commission. If you would like a copy of one of these reports in advance of the next meeting, please contact Jennifer Mundt at (919) 733-2578 or jennifermu@ncleg.net for assistance.

1) *Final Report on the Costs and Benefits of Reducing Emissions of Oxides of Nitrogen, Particulate Matter, and Greenhouse Gases from Motor Vehicles in this State.* 1 April 2007. Authority: S.L. 2006-248, Sec. 43.

2) *Annual Report on the Implementation of S.L. 2002-4 (Clean Smokestacks Act).* 1 June 2007. Authority: S.L. 2002-4, Sec. 14.

3) *Annual report on the Parks and Recreation Trust Fund, Fiscal Year 2006-2007.* 1 October. Statutory Authority: G.S. 113-44.15(c).

4) *Semi-Annual Report on the Pilot Program for Inspection of Animal Waste Management Systems.* 15 April 2007. Authority: S.L. 2003-340, Sec. 6.2.

5) *Annual Report and Recommendations on the One-Stop Permit Assistance Program.* 1 October 2006. Statutory Authority: G.S. 143B-279.12.

6) *Annual Report on Litter Enforcement, Prevention, and Removal Efforts.* 1 March 2007. S.L. 2006-79, Sec. 15.

7) *2006 Annual Report NC Million Acre Initiative.* 1 October 2007. Statutory Authority: G.S. 113A-241(c))

Please contact George Givens, Jeff Hudson, Jennifer McGinnis, Jennifer Mundt, or Mariah Matheson at (919) 733-2578 if you have any questions or comments.

North Carolina Department of Environment and Natural Resources
Division of Soil and Water Conservation

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Manly S. Wilder, Director

TO: Senator Charles Albertson
Senator Dan Clodfelter
Representative Pryor Gibson
Chairs, Environmental Review Commission

FROM: Manly S. Wilder
Director, Division of Soil and Water Conservation
Chair, Community Conservation Assistance Program Advisory Committee

DATE: Friday, March 30, 2007

RE: Annual Report on Community Conservation Assistance Program

The Community Conservation Assistance Program (CCAP) was established through Session Law 2006-78. The program was authorized, but no funds were appropriated. As required by the legislation, a CCAP Advisory Committee was established to review the program prior to implementation and expenditure of any program funds. The legislation also requires the CCAP Advisory Committee to report the findings of its program review to the Speaker of the House of Representatives, the President Pro Tempore of the Senate, the Chairs of the Appropriations Committees of the Senate and House of Representatives, the Director of the Fiscal Research Division of the Legislative Services Office, and the Environmental Review Commission no later than March 31, 2007.

If you have any questions regarding this report, please contact me at (919) 715-6097.

Attachment

cc: Asst. Secretary Richard Rogers
Asst. Secretary Robin Smith
George F. Givens

COMMUNITY CONSERVATION ASSISTANCE PROGRAM
SL 2006-78

Status Report
March 30, 2007

As required by the enacting legislation, the Community Conservation Assistance Program Advisory Committee held meetings on Aug. 22, 2006, Dec. 13, 2006, and Feb. 28, 2007. A fourth meeting of the committee is scheduled for April 11, 2007. In addition, the N.C. Soil and Water Conservation Commission received updates on the program's progress at their bi-monthly meetings.

Under the guidelines of SL 2006-78, the Community Conservation Advisory Committee is comprised as listed below:

- Director of the Division of Soil and Water Conservation shall serve as chair.
- President of the N.C. Association of Soil and Water Conservation Districts or his designee.
- Director of the Cooperative Extension Service at N.C. State University or the director's designee.
- Executive director of the N.C. Association of County Commissioners or the executive director's designee.
- Executive director of the N.C. League of Municipalities or the executive director's designee.
- State conservationist of the Natural Resources Conservation Service, USDA, or the state conservationist's designee.
- Executive director of the N.C. Wildlife Resources Commission or the executive director's designee.
- President of the N.C. Conservation District Employees Association or the president's designee.
- President of the N.C. Association of Resource Conservation and Development Councils or the president's designee.
- Director of the Division of Water Quality or the director's designee.
- Director of the Division of Forest Resources or the director's designee.
- Director of the Division of Land Resources or the director's designee.
- Director of the Division of Coastal Management or the director's designee.
- Director of the Division of Water Resources or the director's designee.
- President of the Carolinas Land Improvement Contractors Association or the president's designee.

The following actions have been taken to implement the Community Conservation Assistance Program:

1. The advisory committee was provided with the need and background for the program by local soil and water conservation districts and the N.C. Association of Soil and Water Conservation Districts.

2. To prepare for project implementation, 14 best management practices, or BMPs, have been developed, reviewed by the N.C. Soil and Water Conservation Commission's technical review committee and approved by the commission. Additional BMPs are being developed for approval.

3. The Division of Soil and Water Conservation is preparing an implementation plan modeled after the N.C. Agriculture Cost Share Program.

4. The Community Conservation Assistance Program Advisory Committee and the N.C. Soil and Water Conservation Commission are preparing preliminary draft rules for review. Ryke Longest, special deputy attorney general and counsel to the commission, is assisting with rule development. It is expected that draft rules for the program will be presented to the N.C. Soil and Water Conservation Commission at their May 16, 2007, meeting.

5. The Division of Soil and Water Conservation is working with N.C. State University and will hold four technical training sessions across the state based on the approved BMPs.

6. Public outreach materials have been developed to help implement the program statewide.

At this time, legislation has been proposed in both the N.C. Senate and House of Representatives to fund the Community Conservation Assistance Program.

It is expected that approval for any rules may take several months to complete. As soon as the advisory committee reviews the draft rules, they will conduct a detailed analysis of how the rules will be implemented. Upon completion, this analysis will be submitted for your review.

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Air Quality

chael F. Easley, Governor

William G. Ross, Jr., Secretary
B. Keith Overcash, P.E., Director

April 5, 2007

MEMORANDUM

TO: Senator Dan Clodfelter, Co-Chair
Representative Pryor Gibson, Co-Chair
Senator Charlie Albertson, Co-Chair

FROM: for Keith Overcash, Division Director

Re: Submittal of final report, "Study of Costs and Benefits of Reducing Emissions of Oxides of Nitrogen, Particulate Matter, and Greenhouse Gases from Motor Vehicles"

Session Law 2006-248 Section 43 requires the Division of Air Quality to study the costs and benefits of reducing emissions of oxides of nitrogen, particulate matter, and greenhouse gases from motor vehicles. The attached final report evaluates the desirability and air quality benefits of adopting motor vehicle emissions standards adopted in other states. If you have specific questions or comments, please contact Mike Abraczinskas at (919) 715-3743.

Attachment:
Final Report

cc: George Givens

Mail Service Center, Raleigh, North Carolina 27699-1641
Capital Blvd., Raleigh, North Carolina 27604
Phone: 919-715-6232 / FAX 919-715-7175 / Internet: www.ncair.org

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North Carolina Division of Air Quality

Study of Costs and Benefits of Reducing Emissions of Oxides of Nitrogen, Particulate Matter, and Greenhouse Gases from Motor Vehicles

Final Report to the Environmental Review Commission and the Legislative Commission on Global Climate Change

April 5, 2007

The Requirement: Excerpted from SESSION LAW 2006-248, HOUSE BILL 1723

PART XLIII. DIVISION OF AIR QUALITY STUDY OF COSTS AND BENEFITS OF REDUCING EMISSIONS OF OXIDES OF NITROGEN, PARTICULATE MATTER, AND GREENHOUSE GASES FROM MOTOR VEHICLES. (S.B, 1006 – Clodfelter)

SECTION 43. The Division of Air Quality of the Department of Environment and Natural Resources shall study the costs and benefits of reducing emissions of oxides of nitrogen, particulate matter, and greenhouse gases from motor vehicles in this State. In particular, the Division shall evaluate the desirability and air quality benefits of adopting motor vehicle emissions standards adopted in other states. The Division of Air Quality shall submit an interim report on its findings and recommendations, including any legislative proposals, no later than January 15, 2007 and shall submit a final report no later than April 1, 2007 to the Environmental Review Commission and the Legislative Commission on Global Climate Change.

Purpose

The objective of this report is to summarize the estimated emissions benefits of adopting the California Low-Emission Vehicle II (CA LEV-II) standard in North Carolina (NC). The emissions benefits analysis includes an examination of nitrogen oxides (NOx), volatile organic carbons (VOCs), fine particles (PM2.5) and carbon dioxide (CO2). Using air quality modeling sensitivities recently conducted by the North Carolina Division of Air Quality (NCDAQ), potential ozone benefits were also estimated. Additional data was collected and analyzed to better understand the costs associated with implementing a CA LEV-II program in North Carolina.

Background

The United States Environmental Protection Agency (USEPA) has adopted national motor vehicle and fuel standards which include the Tier 2 vehicle and gasoline standard (phase-in began in 2004), and the heavy-duty diesel vehicle and fuel standard (phase-in begins in 2006 with the release of the model year 2007 heavy-duty diesel vehicles and low sulfur diesel fuel).

Beyond the federal standards, North Carolina has expanded its Inspection and Maintenance (I/M) program, which covers 48 of the State's 100 counties, to ensure that vehicle emission controls are properly working.

The federal Clean Air Act (CAA) provides the framework for regulating emissions from on-road mobile sources. The CAA set the first federal vehicle emission standards. However, because California already had vehicle emission standards when this occurred, the CAA authorized California (and only California) to continue setting its own vehicle emission standards. Therefore all new vehicles sold in the United States (U.S.) are subject to emission standards set by either the federal government or the State of California. Other states have the option to adopt the California vehicle emission standards in lieu of the federal standards. This authority was granted under Section 177 of the CAA. Section 177 also guarantees the automakers that they will not have to meet more than two regulatory regimes by explicitly prohibiting any requirements that result in a "third vehicle".

Overview of Federal Tier 2 and California LEV-II Programs

Federal Tier 2 vehicle and gasoline standards and the CA LEV-II program were each effective with model year 2004 vehicles. Both regulations set emission standards for light-duty vehicles such as passenger cars, trucks, and sport utility vehicles. Both programs are phased in over several years and become progressively more stringent providing significant emission reductions from evaporative and exhaust motor vehicle activity. The auto manufacturers have flexibility in how they meet the annual fleet average emissions standards. Tier 2 and CA LEV-II programs have the following differences:

- Federal Tier 2 program requires all light-duty fleet averages to meet the NOx standard of 0.07 grams per mile phased-in between years 2004 and 2009. CA LEV-II fleet average standards are based on non-methane organic gases (NMOG), also referred to as hydrocarbons (HC) or VOCs.
- CA LEV-II program requires a portion of the light-duty fleet to be "zero-emission vehicles" (ZEVs) which originally mandated the electric ZEVs. This requirement has been changed to allow partial credit for vehicles with advanced technologies and fall in the categories of Partial ZEVs (PZEVs) or advance technology partial ZEVs (AT-PZEVs).
- The evaporative requirements of the CA LEV-II standard appear to be more stringent than the Tier 2 standard, however the Tier 2 evaporative standard provides for evaporative system durability which USEPA indicates make the Tier 2 evaporative requirements identical to that of the CA LEV-II requirements. Additionally, in February 2006, the USEPA proposed rules that codify the approach that manufacturers are already taking for 50-state evaporative systems. The proposal requires implementation of the "California equivalent" evaporative emission standards in 2009 for lighter vehicles and 2010 for the heavier vehicles.

On-Road Mobile Source Emissions – NOx and VOC

The NCDAQ conducted a technical modeling analysis study in 2006 to begin to understand the emissions benefits of adopting CA LEV-II in North Carolina. The emissions benefits analysis included a comparison of statewide on-road mobile source NOx and VOC emissions resulting from the current federal level of control (Tier 2), and from the CA LEV-II level of control. It should be noted that the emission differences were calculated in context of the entire on-road mobile source emissions inventory. This method for comparison enabled the NCDAQ to apply the knowledge gathered in emissions/air quality modeling studies to assess the air quality (ozone) benefits that might result from the CA LEV-II emissions benefits. The details of the technical modeling study including the approach, methods and data used in estimating the benefits are described in the attached Technical Support Document "*Analysis of the California Low Emission Vehicle II Standards in NC.*" Also attached is the power point presentation given by Brock M. Nicholson, P.E., Deputy Director of the NCDAQ to the Environmental Review Commission (ERC) on May 3, 2006.

As can be seen in Table 1, the statewide NOx and VOC emissions from adopting a CA LEV-II program are lower relative to the Federal Tier 2 level of control. CA LEV-II was assumed to begin in NC in the year 2010 in this analysis. Emissions were estimated for the years 2010, 2020 and 2030. As CA LEV-II vehicles make up a more significant portion of the overall vehicle fleet with time, the CA LEV-II standards show an increasing emissions benefit (i.e., on a percentage basis) over time relative to the Tier 2 level of control.

Table 1. CA LEV-II Reductions Compared to Federal Tier 2: Entire Fleet

	2010	2020	2030
NOx	0.1%	4%	10%
VOC	0.1%	3%	6%

Figure 1 below presents the North Carolina statewide on-road mobile source NOx emissions inventory with a Tier 2 control program for years 2004, 2010, 2020, and 2030 (blue line), and also with a CA LEV-II control program for years 2010, 2020, and 2030 (magenta line). Figure 2 is a similar graph for VOC emissions. (It should be noted that the NOx and VOC emission estimates with a Tier 2 control program, assume there are no CA LEV-II compliant vehicles in North Carolina already. While NCDAQ does not have any official data, informal surveys have shown there are North Carolinians already driving CA LEV-II compliant vehicles. Therefore, the emission benefits of the CA LEV-II program shown in Table 1 and Figures 1 and 2 are likely over-estimated.)

Also noteworthy, these figures illustrate the significant reductions in on-road mobile emissions, regardless of the control program, expected over time in North Carolina. These reductions will occur despite significant estimated increases in VMT (see Figure 3).

Figure 1. Estimated NOx Emissions – Federal Tier2 vs. CA LEV-II

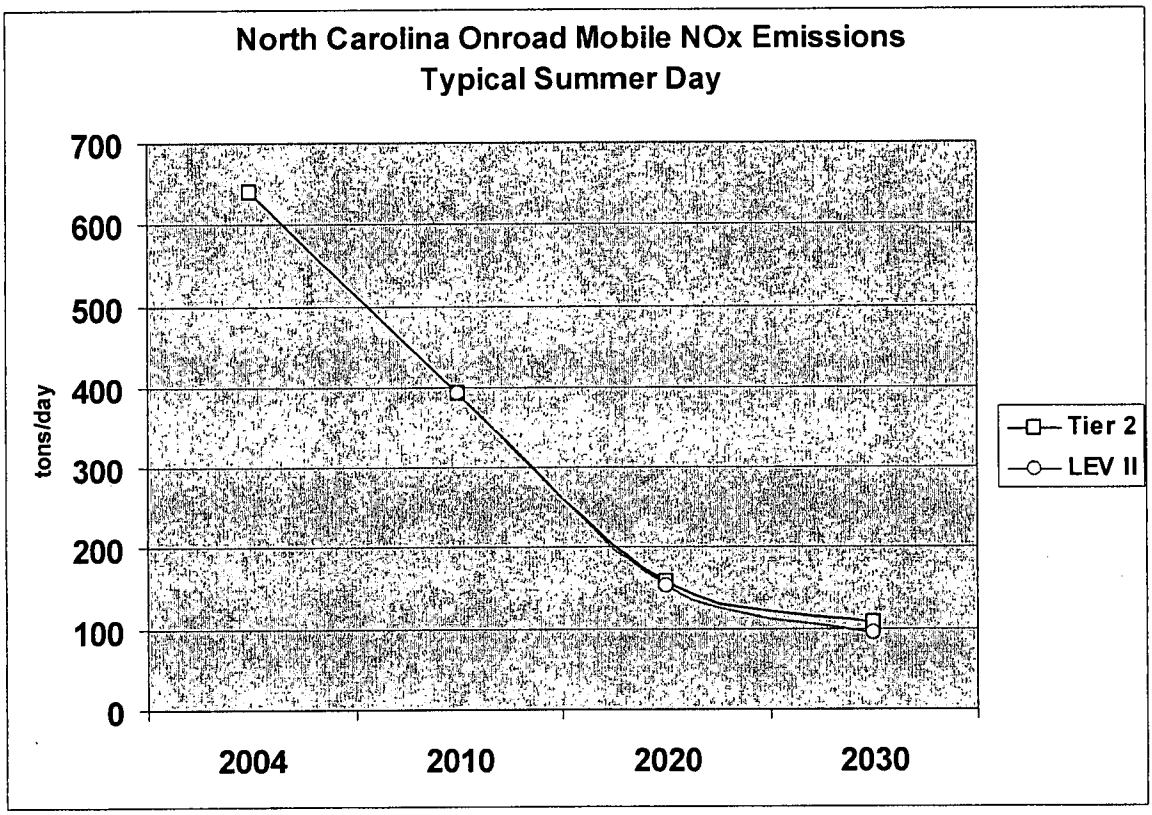


Figure 2. Estimated VOC Emissions – Federal Tier2 vs. CA LEV-II

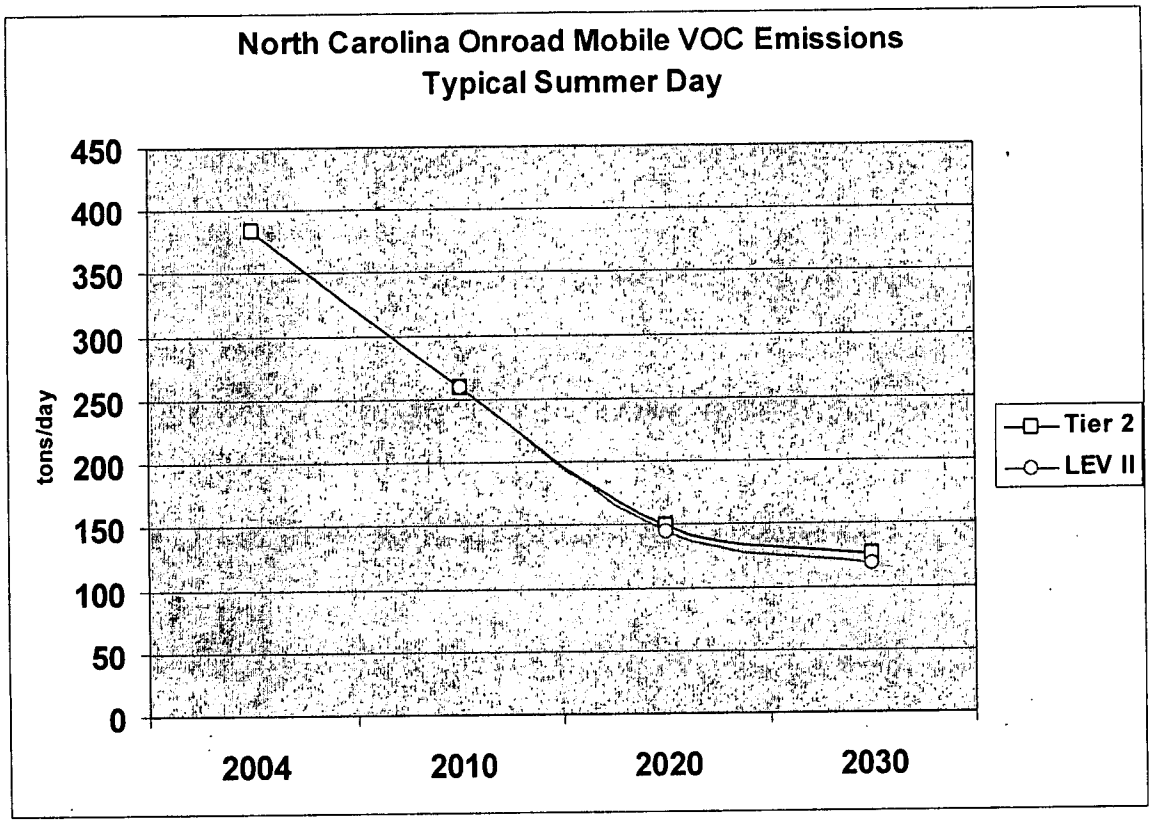
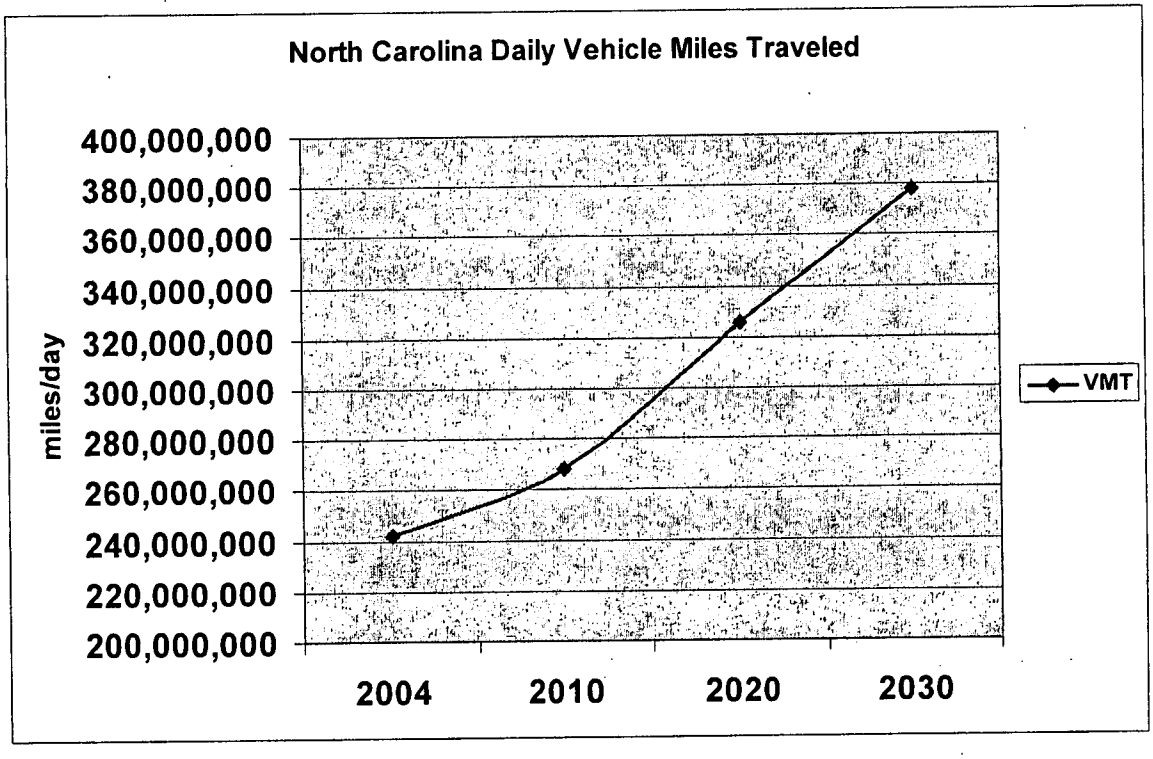


Figure 3. Estimated Vehicle Miles Traveled



Particulate Matter

Particle pollution (also known as "particulate matter") is a mixture of tiny solids and liquid droplets suspended in air. Airborne particles are the main ingredient in haze, smoke and airborne dust. Particles less than 2.5 micrometers in diameter are called "fine" particles or "PM2.5", and are of special concern because they can penetrate deeply into the lungs.

Potential particulate matter emissions impacts were not specifically evaluated in the NCDAQ modeling study for several reasons. First, based on North Carolina's 2002 PM2.5 emissions inventory, on-road mobile sources only contribute approximately 5% to the total statewide PM2.5 emissions inventory. Secondly, a study of North Carolina's vehicle registration database suggests only 0.3% of the light duty vehicles registered in NC are diesels. This is important because the PM2.5 vehicle standards are for all practical purposes only relevant to diesels, since gas vehicles easily meet the standards. Therefore the most relevant impact of adopting the CA LEV-II program might be on the sales of diesel vehicles themselves. However, major vehicle manufacturers have recently indicated their intention to develop light duty diesel vehicles that meet the CA LEV-II requirements. Overall, the impacts to particulate matter emissions would be negligible if NC adopts the CA LEV-II program.

Greenhouse Gases – Status of Pavely

The Pavley requirements of the CA LEV-II standards are designed specifically to reduce greenhouse gases (GHG) from light duty vehicles. Named after California Assembly woman Fran Pavely, it became California law in 2002, and pending a waiver from USEPA, takes effect in model year 2009. If granted the Pavely waiver from USEPA, all states that have adopted the CA LEV-II standards would automatically be subject to the Pavely component of the standard. If USEPA does not grant the waiver to California, the decision may be challenged in the Federal Court of Appeals in Washington DC.

NCDAQ is aware of several court cases involving the CA LEV-II standards and specifically the Pavely requirements in California, Vermont and Rhode Island. The Pavely requirements must survive the lawsuits and get the waiver from USEPA to be "available" to North Carolina. A decision by the Supreme Court on April 2, 2007 in Massachusetts et. al v. USEPA could have a significant impact on the issuance of such a waiver from USEPA to California. A summary of this Supreme Court decision, provided by the National Association of Clean Air Agencies (NACAA), is included with summaries of the pending cases below.

The Supreme Court issued its opinion in *Massachusetts et al v. USEPA* on April 2, 2007, concluding that USEPA has the authority to regulate greenhouse gases from new vehicles. In a 5-4 decision, the Court determined that USEPA has statutory authority to regulate greenhouse gases from new motor vehicles. Finding at the outset that the state and environmental group appellants had standing to raise the issue, the Court went on to state that "greenhouse gases fit well within the [Clean Air] Act's capacious definition of 'air pollutant.'" The Court noted that "regulating motor-vehicle emissions may not by

itself reverse global warming, [but] it does not follow that the Court lacks jurisdiction to decide whether USEPA has a duty to take steps to slow or reduce it." Moreover, USEPA's argument that it is the Department of Transportation's (DOT's) job to tighten mileage standards was rejected by the Court, which stated that DOT's mandate to promote energy efficiency does not "license USEPA to shirk its duty to protect public 'health' and 'welfare.'" Remanding the case to USEPA to "ground its reasons for action or inaction in the statute," the Court stated that USEPA can avoid promulgating regulations only if it determines that greenhouse gases do not contribute to climate change. So far, the Court stated, the agency had provided only a "laundry list of reasons not to regulate including the existence of voluntary Executive Branch programs." The appellants included: Massachusetts, California, Connecticut, Illinois, Maine, New Jersey, New Mexico, New York, Oregon, Rhode Island, Vermont, Washington, the District of Columbia, American Samoa, New York City, and Baltimore, as well as numerous environmental groups.

In California, auto industry filed a lawsuit under the California Environmental Quality Act (CEQA) challenging the Pavely requirements directly. The plaintiffs challenges are procedural, although should the plaintiff prevail, the rules could be nullified in California, which could undercut the rules in all other states that have adopted them. Recently, the federal district court judge threw out two of the auto industry's five claims against the Pavely regulations. No decisions have been issued on the other three claims.

In Maine, the Alliance of Automobile Manufacturers filed a lawsuit against the Maine Board of Environmental Protection asking that Maine's rules be stayed. The court rejected the claim on two grounds: First, Maine state law does not allow a court to issue a stay in a challenge to a rulemaking proceeding. Second, even if the court could issue a stay, the plaintiff had not demonstrated that it would suffer irreparable injury, because: 1) the rules cannot be implemented until a waiver is issued by USEPA and 2) the rules do not go into effect until 2009 anyway. Later, the case was dismissed without prejudice (meaning they can file again within one year) because they filed under the wrong administrative provisions.

In Vermont, the auto industry filed a lawsuit in federal court in November 2005. Since then, the state moved the court to dismiss the case claiming the case was not ripe. On November 30, 2006 the District Court denied the state's motion to dismiss finding that the "purely legal questions raised in this lawsuit are as well determined now as later" despite the uncertainty as to whether a determination will even be necessary given the pending EPA waiver.

Finally, in Rhode Island, the Association of International Automobile Manufacturers filed suit on February 13, 2006 in federal district court asking the court for a declaratory judgment that the Rhode Island regulations violate federal law and a preliminary injunction enjoining Rhode Island from implementing or enforcing the regulation. They also claimed that because California has not obtained a waiver for Pavely, the Clean Air Act expressly prohibits the Rhode Island from adopting and enforcing the regulations.

On April 6, 2006 the state filed a motion to dismiss claiming the case was not ripe for judicial review. The Court has not ruled on this motion.

Greenhouse Gases – Potential Emissions Benefits

The GHG emissions addressed by Pavely focus mostly on carbon dioxide (CO_2), but also include methane (CH_4), nitrous oxide (N_2O), and hydrofluorocarbon (HFC) 134a reductions as well. The purpose of the Pavely requirement is to "achieve the maximum feasible and cost effective reduction in GHG emissions from motor vehicles." The standard will require that tailpipe GHG emissions from new vehicles be reduced by 22 percent by the 2012 model year and 30 percent by the 2016 model year.

California and other opt-in states expect that automobile manufacturers will apply technological improvements to meet the Pavley requirements. Specific measures identified include discrete variable valve lift, dual cam phasing, turbo charging with engine downsizing, automated manual transmissions and cam-less valve actuation.

Costs of Vehicles

The initial purchase price of a new vehicle could increase if North Carolina adopts California's vehicle emissions standards. However, these advanced vehicles, especially those meeting the Pavely requirement, are likely to be more fuel efficient, producing savings to the consumer in fuel costs. The anticipated costs have been studied by several organizations including California's Air Resources Board (CARB). These cost ranges are summarized below.

The State of Oregon recently estimated that the CA LEV-II program would increase average vehicle cost $115 to $271. These estimates – based on a CARB Staff report (http://www.arb.ca.gov/regact/zev2003/isor.pdf) - were based on the incremental costs of ZEVs, PZEVs and AT-PZEVs in 2012.

The average fleetwide incremental costs associated with the Pavley requirement over the 2009 to 2016 phase-in period, as estimated by CARB, are as high as $1,000 per vehicle as shown in Table 2 below. CARB also found this initial increase in purchase price to be more than offset by reduced operating costs. Using the average increase in vehicle prices associated with the fully phased-in regulation (2016), and an assumed fuel price of $1.74 per gallon, CARB calculated that the increased vehicle payment minus the reduction in operating cost would result in a monthly savings of about $3.50 to $7.00. At today's higher fuel prices, the monthly savings increase.

Table 2. Potential Vehicle Cost Increase due to Pavely

Tier	Year	Average cost of control	
		PC/LDT1 (Passenger cars and small trucks/SUVs)	LDT2 (Large trucks/SUVs)
Near-term	2009	$17	$36
	2010	$58	$85
	2011	$230	$176
	2012	$367	$277
Mid-term	2013	$504	$434
	2014	$609	$581
	2015	$836	$804
	2016	$1,064	$1,029

(from: http://www.arb.ca.gov/regact/grnhsgas/fsor.pdf, pg 11)

California's Pavely emissions standards are required by law to achieve maximum feasible and cost effective GHG emissions reductions without reducing vehicle weight or banning the sale of any vehicle category such as sport utility vehicles or light duty trucks. Therefore, the estimated costs represent the cost of applying additional technology to the kinds of vehicles known today to achieve emission reductions.

During California's rulemaking process, the auto industry commented that the Pavely requirement of CA LEV-II standard would not produce an overall savings to consumers. The industry's position was based on a study by Sierra Research, which concluded that the average per-vehicle cost of technology required to comply with Pavely was $3,000 per vehicle. The report also concluded the lifetime gasoline savings would average about 1,000 gallons. CARB's response to these comments was that Sierra's research rejected promising and cost-effective emerging engine technologies as elements of a GHG regulatory compliance strategy. CARB also noted the industry assumed the use of expensive aluminum body structures and assigned higher estimated costs for vehicle components than CARB thought was appropriate. (see http://www.arb.ca.gov/regact/grnhsgas/fsor.pdf, pg 168)

Conclusions

The CA LEV-II program (assuming statewide implementation in 2010) could provide NOx reductions on the order of 0.1% in 2010, 4% in 2020 and 10% in 2030 and VOC reductions of 0.1% in 2010, 3% in 2020 and 6% in 2030 as compared to the Federal Tier 2 program already in place. It should be noted that in 2030, the estimated 10% on-road mobile NOx reduction is equivalent to only 10 tons/day of NOx reduced statewide. This is because of the overall on-road mobile NOx emissions are significantly lower by that time due primarily to the Federal Tier 2 program. NCDAQ has estimated this additional level of NOx reduction, due to CA LEV-II in these future years, will not significantly impact North Carolina's ability to attain the National Ambient Air Quality Standard for 8-hr ozone. The CA LEV-II program would have an insignificant impact on particulate matter emissions from vehicles. Greenhouse gas emissions from light duty vehicles could be reduced by an estimated 22 percent by the 2012 model year and 30 percent by

the 2016 model year if Pavely survives several lawsuits and if California is granted a waiver from USEPA.

Costs associated with the CA LEV-II program vary depending on how the program is structured. Increased costs from $115 to $271 per vehicle have been estimated for CA LEV-II vehicles. If Pavely becomes part of the program, cost increases could be as high as an additional $1,000 per vehicle. Additionally, NCDAQ has estimated that moderate staffing implications could result from enforcement of CA LEV-II and from the impact to tasks such as transportation conformity, SIP modeling and emission inventories.

North Carolina Division of Air Quality

Technical Support Document

Analysis of the California Low Emission Vehicle II Standards in NC

July 2006

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Appendices

Appendix A: Detailed Representation of MOBILE6.2 Emission Factor Post-Process
Appendix B: CA LEV-II Emission Factors
Appendix C: Tier 2 Emission Factors
Appendix D: North Carolina VMT

Disclaimer: The on-road mobile source input data (e.g. VMT) and emissions data presented herein *do not* represent North Carolina's official on-road mobile source data for purposes of State Implementation Plans or Transportation Conformity. On-road mobile source emissions presented herein were generated specifically to analyze the *relative differences* between the Federal Tier 2 and CA LEV-II standards.

Executive Summary

Introduction

The North Carolina Division of Air Quality (NCDAQ) conducted a technical emissions benefit analysis and air quality sensitivity study to evaluate whether reduced emissions from passenger cars and light-duty trucks by adoption of California Low Emission Vehicle II standards (CA LEV-II) would be realized as compared to the current Federal Tier 2 standards program.

The United States Environmental Protection Agency (USEPA) has adopted national motor vehicle and fuel standards which include the Tier 2 vehicle and gasoline standard (phase-in began in 2004), and the heavy-duty diesel vehicle and fuel standard (phase-in begins in 2006 with the release of the model year 2007 heavy-duty diesel vehicles and low sulfur diesel fuel). Beyond the federal standards, North Carolina has expanded its Inspection and Maintenance (I/M) program, which covers 48 of the State's 100 counties, to ensure that vehicle emission controls are properly working.

The federal Clean Air Act (CAA) provides the framework for regulating emissions from on-road mobile sources. The CAA set the first federal vehicle emission standards. However, because California already had vehicle emission standards when this occurred, the CAA authorized California (and only California) to continue setting its own vehicle emission standards. Therefore all new vehicles sold in the United States (U.S.) are subject to emission standards set by either the federal government or the State of California. Other states have the option to adopt the California standards in lieu of the federal standards. This authority was granted under Section 177 of the CAA. Section 177 also guarantees the automakers that they will not have to meet more than two regulatory regimes by explicitly prohibiting any requirements that result in a "third vehicle".

Overview of Federal Tier 2 and California LEV-II Programs

Federal Tier 2 vehicle and gasoline standards and the CA LEV-II program were each effective with model year 2004 vehicles. Both regulations set emission standards for light-duty vehicles such as passenger cars, trucks, and sport utility vehicles, which are programmed to phase in over several years and become progressively more stringent. Both programs provide significant emission reductions from evaporative and exhaust motor vehicle activity. The auto manufacturers have flexibility in how they meet the annual fleet average emissions standards. Tier 2 and CA LEV-II programs have the following differences:

Federal Tier 2 program requires all light-duty fleet averages to meet the Nitrogen Oxides (NOx) standard of 0.07 grams per mile phased-in between years 2004 and 2009. CA LEV-II fleet average standards are based on non-methane organic gases (NMOG), also referred to as hydrocarbons (HC) or volatile organic carbons (VOCs).
CA LEV-II program requires a portion of the light-duty fleet to be "zero-emission vehicles" (ZEVs) which originally mandated the electric ZEVs. This requirement has been changed to allow partial credit for vehicles with advanced technologies and fall in the categories of Partial ZEVs (PZEVs) or advance technology partial ZEVs (AT-PZEVs).

The evaporative requirements of the CA LEV-II standard appear to be lower than the Tier 2 standard, however the Tier 2 evaporative standard provides for evaporative system durability which USEPA indicates make the Tier 2 evaporative requirements identical to that of the CA LEV-II requirements.

Overview of Mobile Source Emissions

On-road mobile source emissions make up a significant portion of the total statewide NOx emissions. For 2002, this sector comprised approximately 45% of the North Carolina NOx inventory. This analysis looked at both NOx and VOCs emissions for all of North Carolina for a typical summer weekday. The impacts on future year ozone concentrations also were estimated. NOx and VOC emissions are both ozone precursor compounds however NOx controls are of particular importance for addressing higher 8 hour ozone levels in North Carolina due to the abundance of VOC from biogenic (natural) sources.

USEPA's MOBILE6.2 emission factor model was used to generate NOx and VOC emission factors for both regulatory scenarios, adoption of CA LEV-II starting in 2009 and the status quo of the federal Tier 2 program. The most current state and region specific data was applied including speeds, fuel parameters, vehicle age distribution and vehicle mix and ambient temperature. Motor vehicle activity - defined as vehicle miles traveled (VMT) - was matched with emission factors resulting in a typical summer day VOC and NOx emissions inventory. After a baseline mobile inventory was developed assuming purely a federal Tier 2 program in effect starting in 2004, future years mobile inventories for 2010, 2020, and 2030 were compared to this baseline inventory. The year 2004 was chosen because it represents the start year of the federal Tier 2 program. Then, the same future year mobile inventories were developed using CA LEV-II assumptions and compared to the existing Tier 2 results. Table ES-1 below shows the percent NOx and VOC emissions reduction expected if CA LEV-II standards were implemented in 2010.

Table ES-1. CA LEV-II Reductions Compared to Federal Tier 2: On-Road Mobile Emissions

	2010	2020	2030
NOx	0.1%	4%	10%
VOC	0.1%	3%	6%

Between 2004 and 2030 North Carolina will realize significant reductions in the on-road NOx mobile emissions on the order of 83%. This is primarily due to fleet turnover and the ongoing Federal Tier 2 program. It is noteworthy to mention that the reductions in NOx emissions are occurring even as the daily VMT (dVMT) is expected to increase by 57 %. See Figures ES-1 and ES-2 below for the inverse trend in NOx emissions for the onroad mobile sector emissions and how daily VMT is expected to grow in the future.

Figure ES-1. Estimated NOx Emissions – Federal Tier 2 vs. CA LEV-II

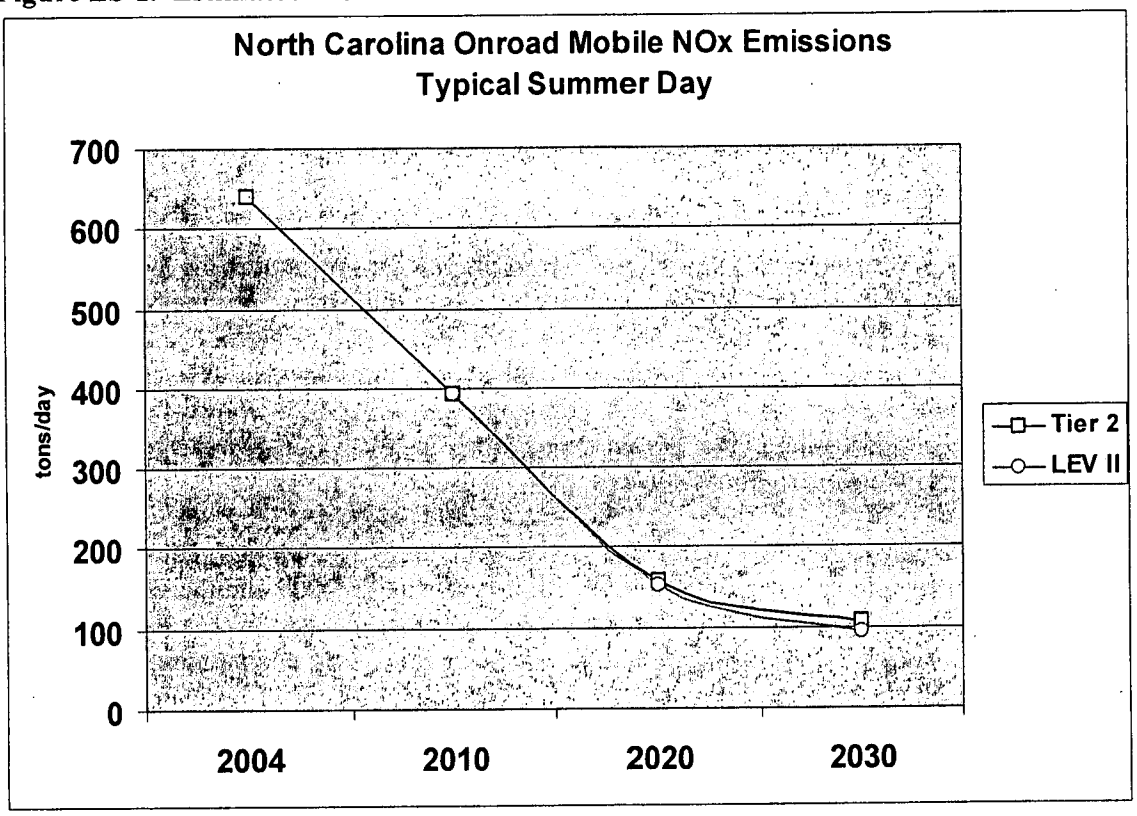
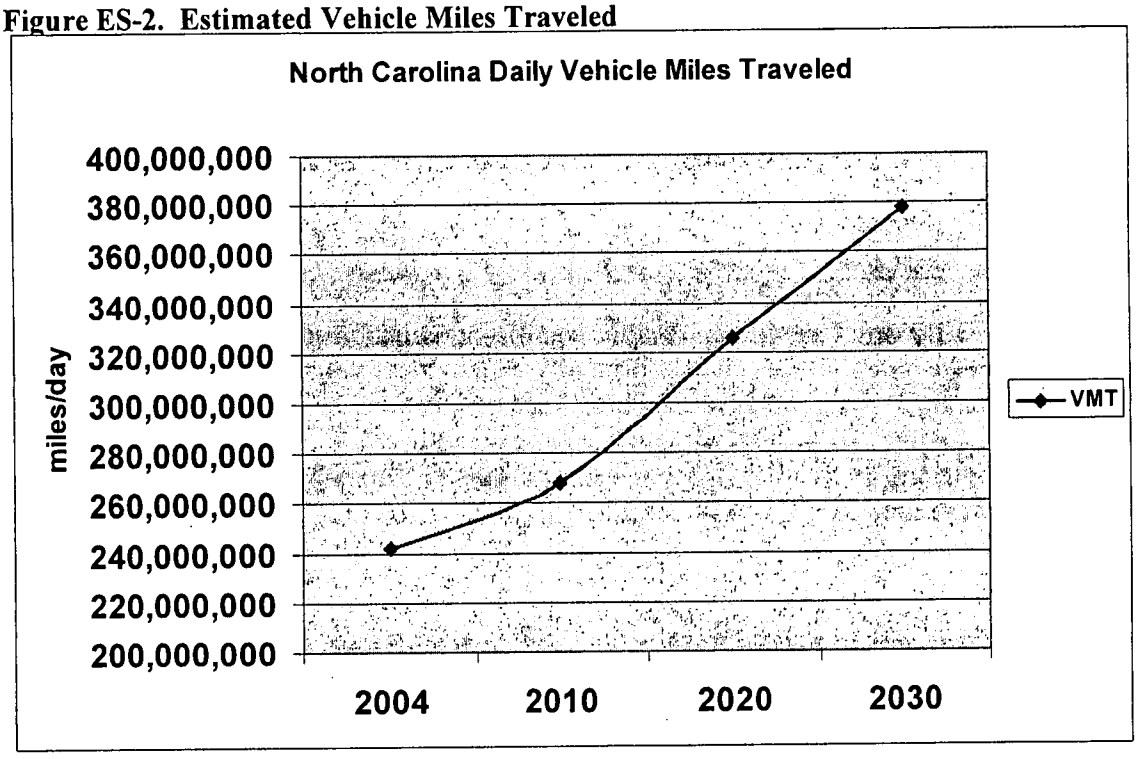


Figure ES-2. Estimated Vehicle Miles Traveled



Overview of Air Quality Impacts – Ozone Sensitivity

During the development of the 8-hour ozone State Implementation Plans (SIP) for North Carolina's nonattainment areas, the NCDAQ conducted several air quality modeling sensitivities to evaluate potential NOx control strategies to help reduce future year ozone concentrations. The emissions sensitivity used in this analysis reduced on-road mobile source NOx emissions in the Metrolina (Greater Charlotte area) 8-hour ozone nonattainment area by 10% from year 2009 emission levels. The Metrolina region was chosen because they currently show the highest ozone concentrations in North Carolina.

Results of the air quality model simulations indicated that a 10% NOx reduction in 2009 for on-road mobile source emissions was equivalent to a 10 ton/day reduction in the Metrolina region. The 10 ton/day on-road NOx reduction was then compared back to the "baseline" year 2009 emissions that included only the current federal Tier 2 level of control. Therefore these results would suggest that an additional 10% NOx reduction would basically lower the 8-hour ozone concentrations anywhere between 0.1 and 1.0 parts per billion (ppb) in year 2009.

DAQ next assessed the ozone benefits in future year 2020 with the CA LEV-II program implementation in year of 2010. The year 2020 would afford a significant fleet turnover for CA LEV-II vehicles with NOx emissions reduction on the order of 4%. A 4% NOx reduction equates to 1 ton/day in 2020 and lower 8 hour ozone levels by 0.1 ppb in the Metrolina region.

Summary of Air Quality Impacts

For the Metrolina Area...

- 2009 on-road mobile NOx ~ 100 tons/day (w/ Tier 2)
- 2020 on-road mobile NOx ~ 25 tons/day (w/Tier 2)

If a 10% NOx reduction = 10 tons/day in 2009 = 1 ppb maximum ozone benefit

Then a 4% NOx reduction = 1 ton/day in 2020 = 0.1 ppb maximum ozone benefit

DAQ concluded the 4% on-road mobile NOx reduction in year 2020 due to a CA LEV-II program would have a very limited impact on maximum 8-hour ozone.

Overview of CA LEV-II Fleet Analysis and Enforcement

Any state adopting the CA LEV-II regulation is not required to enforce measures associated with tracking vehicle sales or registration data (each auto manufacturers must comply with the fleet average NMOG emissions values). As a qualitative measure, DAQ compared several fleet demographic parameters of California versus North Carolina's fleets to estimate whether "fleet average" enforcement is critical to the program. When looking at the applicable vehicles in each state based on gross vehicle weights (GVW), North Carolina has 11% more passenger cars, 7%

fewer light-duty trucks (under 6,001 lbs.) and 6% fewer light-duty trucks (6,001-8,500 lbs.) than in California.

The second fleet demographic is vehicle age distribution expressed as a percent based on the number of vehicle within a vehicle class and model year. North Carolina has a slightly lower percentage of 1 and 2 year old passenger cars than California and equal percentages of 3-year-old passenger cars. North Carolina has a greater percentage of 4 through 12 year old passenger cars and fewer 13 to 25 year olds. Generally fleets weighted towards newer vehicles will more quickly benefit from a control program due to the acceleration toward a newer fleet.

Finally, a comparison of the fraction of VMT driven by each vehicle class in 2010 was analyzed based on USEPA guidance. California light-duty gasoline car and truck owners are projected to drive their vehicles slightly more than North Carolinians in year 2010.

Overview of Qualitative Assessment of Enforcement Options

If one generally assumes passenger vehicles are cleaner emitting vehicles than light-duty trucks, and newer vehicles generally emit less than older vehicles, then one can qualitatively assert that the light-duty gasoline vehicle fleet registered in North Carolina is cleaner than California's registered light-duty gasoline vehicle fleet. This data (i.e., especially the greater percentage of passenger cars) may be an indicator that a fleet average requirement will not be difficult to meet in North Carolina and thus a "simple certification" enforcement program might result in similar benefits, while requiring fewer state resources.

Overview of Staffing and Enforcement Resources

NCDAQ contacted several state air quality agencies including Washington State Department of Ecology, Air Quality Program to better understand staffing needs associated with implementing and enforcing a CA LEV-II program. Washington indicated both New York and Massachusetts have staffs at 2 to 3 people (not full time) on CA LEV-II tasks.

The primary point of enforcement/compliance would likely be the State's Division of Motor Vehicles (DMV) with the air quality agency staff conducting audits, monitoring program effectiveness, handling public outreach, registration, and vehicle availability issues.

Another possible resource concern considered by NCDAQ is the impact to existing tasks such as transportation conformity, SIP modeling and emission inventories. Due to more complicated mobile source emission estimation techniques involved with a CA LEV-II program, there is some concern that timelines on these core tasks could be lengthened.

Conclusions

The CA LEV-II program (assuming statewide implementation in 2010) could provide NOx reductions on the order of 0.1% in 2010, 4% in 2020 and 10% in 2030 and VOC reductions of 0.1% in 2010, 3% in 2020 and 6% in 2030 as compared to the Federal Tier 2 program already in place. It should be noted that in 2030, the estimated 10% on-road mobile NOx reduction is

equivalent to only 10 tons/day of NOx reduced statewide. This is because of the overall on-road mobile NOx emissions are significantly lower by that time. NCDAQ has estimated this level of NOx reduction in these future years will impact North Carolina's ability to attain the National Ambient Air Quality Standard for 8-hr ozone insignificantly. Additionally, moderate staffing implications could result from enforcement of CA LEV-II and from the impact to tasks such as transportation conformity, SIP modeling and emission inventories.

1. Description of Project

1.1 Purpose

The objective of this project was to estimate the emissions benefits of adopting California Low-Emission Vehicle II (CA LEV-II) standards in North Carolina (NC), as compared to the Federal Tier 2 standards already in effect. Using air quality modeling sensitivities recently conducted by the North Carolina Division of Air Quality (NCDAQ), potential ozone benefits were also estimated. Additional data was collected and analyzed to better understand the impact of implementing a fleet averaging enforcement option.

1.2 Background

On-road mobile source emissions make up a significant portion of the total statewide Nitrogen Oxides (NOx) emissions. For example, in year 2002, the NCDAQ estimated that 45% of North Carolina's NOx emissions came from on-road mobile sources. NOx and volatile organic compounds (VOC) are critical ozone precursors. Because of the generally warm and moist climate of North Carolina, vegetation abounds in many forms, and forests naturally cover much of the state. This "biogenic" sector is the most abundant source of VOCs in North Carolina and accounts for approximately 90% of the total VOCs statewide. The overwhelming abundance of biogenic VOCs makes the majority of North Carolina a NO_x limited environment for the formation of ozone. Therefore, reductions of only NOx emissions are targeted in North Carolina when aiming to reduce ozone.

Federal, State and local control programs have been implemented to help control NOx emissions from on-road mobile sources. At the state level, North Carolina has expanded its Inspection and Maintenance (I/M) program. The program now covers 48 of the State's 100 counties to ensure that vehicle emission controls are properly working.

At the federal level, the United States Environmental Protection Agency (USEPA) has adopted national motor vehicle and fuel standards. The most recent standards adopted by USEPA include the Tier 2 vehicle and gasoline standard (phase-in began in 2004)[1], and the heavy-duty diesel vehicle and fuel standard (phase-in begins in 2006 with the release of the model year 2007 heavy-duty diesel vehicles and low sulfur diesel fuel)[2].

The federal Clean Air Act (CAA) provides the framework for regulating emissions from on-road mobile sources. The CAA set the first federal vehicle emission standards. However, because California already had vehicle emission standards when this occurred, the CAA authorized California (and only California) to continue setting its own vehicle emission standards. Therefore all new vehicles sold in the United States (U.S.) are subject to emission standards set by either the federal government or the State of California. Other states have the option to adopt the California standards in lieu of the federal standards. This authority was granted under Section 177 of the CAA. Section 177 also guarantees the automakers that they will not have to meet more than two regulatory regimes by explicitly prohibiting any requirements that result in a "third vehicle".

1.3 Description of the Federal Tier 2 and California LEV-II Programs

USEPA's Tier 2 vehicle and gasoline standards, adopted in December 1999, took effect beginning with model year 2004 vehicles. Meanwhile, around the same time, the California Air Resources Board (CARB) amended their Low-Emission Vehicle (LEV) regulations to a more stringent program known as the California Low-Emission Vehicle Standard (CA LEV-II)[3]. Like Tier 2, CA LEV-II took effect beginning with model year 2004 vehicles. Both the Tier 2 and CA LEV-II regulations set emission standards for light-duty vehicles such as passenger cars, trucks, and sport utility vehicles. Both the Tier 2 and CA LEV-II standards become progressively more stringent with time and both classify vehicle types into several different groupings, setting emission standards for each grouping.

Significant emission reductions are realized from both the Tier 2 and CA LEV-II programs. The emissions are reduced through exhaust and evaporative emission standards and annual fleet average emission standards. Ultimately, auto manufacturers are given the flexibility to produce vehicles that emit both more and less than the fleet average, as long as the mathematical average is within the fleet limit.

There are several important differences between the Tier 2 and CA LEV-II programs. The federal Tier 2 program requires a total light-duty fleet NOx standard of 0.07 grams per mile, which is phased-in between years 2004 and 2009. In contrast, the CA LEV-II fleet average standards are based on non-methane organic gases (NMOG), also generally referred to as hydrocarbons (HC) or VOCs. A summary of the CA LEV-II exhaust emission standards can be found in Table 1.3-1.

Another important feature of the CA LEV-II program that differs from the Tier 2 program is the advanced technology vehicle component. This component requires a portion of the light-duty fleet to be "zero-emission vehicles" (ZEVs). Originally designed to mandate the introduction of electric ZEVs, California's ZEV requirement has been changed to allow credit for a variety of advanced automobile technologies. Partial ZEVs (PZEVs) and advance technology partial ZEVs (AT-PZEVs) meet the ZEV zero emissions evaporative standards, the individual vehicle exhaust standards, and the extended warranty and durability requirements. The ZEV component of the CA LEV-II program is discussed further in Section 2.3.3.

Finally, the evaporative requirements of the CA LEV-II standard appear to be lower than the Tier 2 standard. However, the test procedures used to determine compliance with the Tier 2 evaporative requirement has a provision requiring that evaporative system durability be demonstrated on fuels containing the maximum allowable alcohol levels, because the permeability of system components is increased with these fuels. Manufacturers are thus held to a tighter standard of durability under Tier 2, and they have indicated to USEPA that the emission control hardware required to meet the Tier 2 evaporative requirements is identical to that needed to meet the CA LEV-II requirements. NCDAQ assumed the evaporative requirements of the Tier 2 and CA LEV-II standards to be the same in this analysis.

1.4 Emission Factors

Emission factors used in this study were generated using USEPA's MOBILE6.2 model[4]. MOBILE6.2 was designed by USEPA to address a wide variety of air pollution modeling needs. The model calculates emission factors under various conditions effecting in-use emission levels (e.g., ambient temperatures, average traffic speeds) as specified by the modeler. MOBILE models have been used by USEPA to evaluate highway mobile source control strategies; by states, local and regional planning agencies to develop emission inventories and control strategies for State Implementation Plans (SIPs) under the CAA; by metropolitan planning organizations and state transportation departments for transportation planning and conformity analysis; by academic and industry investigators conducting research; and in developing environmental impact statements. Special input files and guidance were used in MOBILE6.2 to model the CA LEV-II standards. This is described in greater detail in Section 2.

Table 1.3-1 CA LEV-II Emissions Standards[3]

LEV II Exhaust Mass Emission Standards for New 2004 and Subsequent Model LEVs, ULEVs, and SULEVs in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes							
Vehicle Type	*Durability Vehicle Basis (mi)*	*Vehicle Emission Category*	*NMOG (g/mi)*	*Carbon Monoxide (g/mi)*	*Oxides of Nitrogen (g/mi)*	*Formaldehyde (mg/mi)*	*Particulates (g/mi)*
All PCs; LDTs 8500 lbs. GVW or less Vehicles in this category are tested at their loaded vehicle weight	50,000	LEV	0.075	3.4	0.05	15	n/a
		LEV, Option 1	0.075	3.4	0.07	15	n/a
		ULEV	0.040	1.7	0.05	8	n/a
	120,000	LEV	0.090	4.2	0.07	18	0.01
		LEV, Option 1	0.090	4.2	0.10	18	0.01
		ULEV	0.055	2.1	0.07	11	0.01
		SULEV	0.010	1.0	0.02	4	0.01
	150,000 (Optional)	LEV	0.090	4.2	0.07	18	0.01
		LEV, Option 1	0.090	4.2	0.10	18	0.01
		ULEV	0.055	2.1	0.07	11	0.01
		SULEV	0.010	1.0	0.02	4	0.01
MDVs 8501 - 10,000 lbs. GVW Vehicles in this category are tested at their adjusted loaded vehicle weight	120,000	LEV	0.195	6.4	0.2	32	0.12
		ULEV	0.143	6.4	0.2	16	0.06
		SULEV	0.100	3.2	0.1	8	0.06
	150,000 (Optional)	LEV	0.195	6.4	0.2	32	0.12
		ULEV	0.143	6.4	0.2	16	0.06
		SULEV	0.100	3.2	0.1	8	0.06
MDVs 10,001-14,000 lbs. GVW Vehicles in this category are tested at their adjusted loaded vehicle weight	120,000	LEV	0.230	7.3	0.4	40	0.12
		ULEV	0.167	7.3	0.4	21	0.06
		SULEV	0.117	3.7	0.2	10	0.06
	150,000 (Optional)	LEV	0.230	7.3	0.4	40	0.12
		ULEV	0.167	7.3	0.4	21	0.06
		SULEV	0.117	3.7	0.2	10	0.06

1.5 Evaluation Years

In order to evaluate the emissions benefits of adopting a CA LEV-II program over time, several years were evaluated. Baseline emissions were estimated for years 2004, 2010, 2020, and 2030 for the Tier 2 program. Emissions were estimated for years 2010, 2020, and 2030 for the CA LEV-II program. The year 2004 was picked because it represents the start year of the Tier 2 program. The year 2010 was chosen because it is assumed in this analysis to be the earliest possible start date of a CA LEV-II program in NC. The basis for determining the earliest possible start date is a requirement that manufacturers be given a two year "lead-time." This means states cannot enforce such standards until model years beginning two years after the date of adoption. "Model year" actually begins on January 2nd, of the previous calendar year. In other words, in order for a state to adopt CA LEV-II for model year 2010, the state must adopt those standards two years before January 2, 2009 (i.e., prior to January 2, 2007).

Years 2020 and 2030 were picked based on the availability of local mobile model input data, such as future projected speeds and vehicle miles traveled (VMT).

1.6 Pollutants Addressed and Spatial/Temporal Resolution

On-road mobile emissions of NOx and VOCs were estimated for the entire state of North Carolina for a typical summer weekday. The impacts on future year ozone concentrations also were estimated. This is discussed further in Section 4 and 5.

2. Approximation of CA LEV-II Standard Using MOBILE6.2

2.1 General Approach

All vehicles manufactured in the U.S. are subject to either the Federal Tier 2 or the CA LEV-II standard and as discussed earlier, states other than California have the option to adopt the CA LEV-II program in lieu of the federal standards. However, states other than California do not have the option to use the California mobile emissions model, EMFAC[5]. In order to estimate the emissions benefits of adopting CA LEV-II standards in North Carolina, the only mobile emissions modeling tool available is USEPA's MOBILE6.2. The emissions standard default for light-duty vehicles in MOBILE6.2 is the Tier 2 standard. The upcoming sections detail the approximation of the CA LEV-II program in USEPA's MOBILE6.2 model and the methodology used by NCDAQ to estimate the emissions benefits of adopting a CA LEV-II program in North Carolina.

2.2 Vehicles Subject to the CA LEV-II Standard

The CA LEV-II standard is applicable to light-duty vehicles (i.e., passenger cars), light-duty trucks up to 8,500 lbs gross vehicle weight rating (GVW), and medium-duty vehicles that are up to 14,000 lbs GVW. Because terminology about truck weight classes can be very confusing, the best way to refer to vehicle classifications is by their actual weight. In this emission analysis, NCDAQ applied CA LEV-II to only passenger cars and light-duty trucks up to 8,500 lbs GVW. The population of medium-duty trucks between 8,500 lbs and 14,000 lbs in North Carolina is very small; therefore, the impact of adopting CA LEV-II for that

vehicle class would be minimal. Light-duty vehicle classes that NCDAQ applied the CA LEV-II program, in the emissions analysis defined by USEPA, are:

LDGV - light-duty gasoline vehicles (passenger cars)
LDGT1 – trucks up to 6,000 lbs GVW + 3,750 LVW
LDGT2 – trucks up to 6,000 lbs GVW + 3,751 LVW-5,750 LVW
LDGT3 – trucks between 6,001 lbs-8,500 lbs GVW + 3,751 LVW-5,750 LVW
LDGT4 – trucks between 6,001 lbs-8,500 lbs GVW + > 5,750 LVW

where GVW = maximum fully loaded vehicle weight,
LVW = nominal empty vehicle weight + 300 lbs.

2.3 Methodology: Modeling CA LEV-II using MOBILE6.2

As stated earlier, the default emission standards in MOBILE6.2 is the Federal Tier 2 standard. In order to simulate the CA LEV-II standard, NCDAQ consulted with USEPA Region IV, the USEPA Office of Transportation, and Air Quality (OTAQ). USEPA OTAQ provided much appreciated technical support during the design phases of this project, including a revised guidance document[6] that outlines the auxiliary files necessary to approximate the CA LEV-II program in MOBILE6.2. These auxiliary files were developed by OTAQ in consultation with CARB. The additional files are:

LEVIIPH.d – phase-in percentages by exhaust certification bin, vehicle class and pollutant. NCDAQ used this file as provided by USEPA OTAQ.

LEVIIEVP.d – phase-in percentages for evaporative standards by vehicle class. NCDAQ used this file as provided by USEPA OTAQ.

LEVIIST.d – the 50,000 mile standard levels by exhaust certification bin, vehicle class and pollutant. NCDAQ used this file as provided by USEPA OTAQ.

LEVII94.d – establishes the percentage of zero emitting exhaust vehicles. NCDAQ used this file as provided by USEPA OTAQ.

In conjunction with the above auxiliary files, analysis of the CA LEV-II program in MOBILE6.2 must be performed using these four commands:

T2 EXH PHASE-IN, which provides phase-in percentages by exhaust certification bin, vehicle class, and pollutant (corresponds with the LEVIIPH.d input file).

T2 CERT, which defines the 50,000 mile standard levels by exhaust certification bin, vehicle class, and pollutant (corresponds with the LEVIIST.d input file).

T2 EVAP PHASE-IN, which provides phase-in percentages for evaporative standards by vehicle class (corresponds with the LEVIIEVP.D input file).

94+ LDG IMP, which is used only to establish the fraction of ZEVs (corresponds with the LEVII94.D).

One complicating issue associated with modeling the CA LEV-II program in MOBILE6.2 is the inability to alter the start year. Working around this model limitation requires a significant post-process of the model output to "reconstruct" composite emission factors.

Implementing the post-processing technique required NCDAQ to apply the DATABASE OUTPUT commands in MOBILE6.2. This allows the user to obtain the most disaggregated output from the model. Emission factors per emission type (e.g. running exhaust, starting exhaust and evaporative), per facility type (e.g. freeway, arterial, local, ramp, none), per model year, and per pollutant were generated. This reconstruction technique was developed and successfully tested for a "Tier 2 only" approach where the post-processed emission factor matched the composite emission factor from MOBILE6.2 descriptive output.

Generally, in order to model the impacts of implementing a CA LEV-II program in year 2010 as accurately as possible, emission factors were generated for model year vehicles prior to year 2009 with Tier 2 level of control applied (noting the Tier 2 level of control would only apply to model years 2004-2009 vehicles). Those were combined with the emission factors for model year 2010 vehicles with CA LEV-II level of control applied. This method was applied to generate a composite year 2010 emission factor for each of the light-duty vehicle classes. Please see Appendix A for a detailed representation of the emission factor reconstruction post-process methodology applied by NCDAQ.

The reconstructed composite emission factors for each of the light-duty vehicle classes were combined with the emission factors from the vehicle classes not impacted by a CA LEV-II program and the VMT fraction to get the final composite NOx and VOC emission factors for each facility or roadway scenario. This data is shown in Appendix B. Comparable sets of tables with the Tier 2 emission factors are provided in Appendix C.

NCDAQ took advantage of several opportunities to implement "efficiencies" into the complex post-processing effort. One of those was modeling the State of North Carolina in four sections: Raleigh-Durham, Charlotte-Gastonia, other areas with an I/M program, and other areas without an I/M program. This was done to simply reduce the number of model input and output files to process while still taking advantage of local data sets, such as vehicle age distributions and VMT fractions in the Raleigh-Durham and Charlotte-Gastonia areas. An additional efficiency implemented was the use of weight-average speeds to limit the facilities or road types that needed to be modeled. Rural interstates, urban interstates, and other roads were the three facilities modeled. VMT was aggregated into similar groupings. This is explained further in Section 2.3.1.6.

The MOBILE6.2 input parameters used in this study represent North Carolina's "latest planning assumptions" and are the most up-to-date data available (as of March 2006) from the North Carolina Department of Transportation (NCDOT) and the NCDAQ. This North Carolina specific data was used for the following MOBILE6.2 input parameters: speeds,

VMT fractions, Reid vapor pressure, vehicle age distribution, temperatures, inspection, and maintenance program. These input parameters and others, are discussed below.

2.3.1 MOBILE6.2 Input Parameters

2.3.1.1 Evaluation Month

MOBILE6.2 can calculate emission factors that represent a January 1st or July 1st fleet age. Emissions for this project were calculated with the July 1st setting.

2.3.1.2 Vehicle Age Distribution

The vehicle age distribution comes from annual registration data for North Carolina from the NCDOT. For this analysis the data was generated from 2004. The NCDOT provided the latest available count data based on the number of vehicle types per year from 1974 through 2004. Vehicles greater than 25 years old were combined and included as the 25th model year. NCDAQ converted the data provided by the NCDOT into the MOBILE6.2 model format using a conversion utility. The count data provided by the NCDOT was converted to fractions by dividing each count per vehicle type per year by the total number of vehicles in that classification for all years. For example, the number of 2004 light-duty vehicles was divided by the total number of light-duty vehicles for all years. Comparisons of North Carolina and California vehicle age distributions are provided in Section 5.2.

2.3.1.3 Vehicle Miles Traveled Fractions

The vehicle miles traveled fractions (i.e., VMT fraction or VMT mix) refer to the percentage of different vehicle types on each of the Federal Highway Administration road types. It is critical when estimating mobile emissions in an area, to use data that accurately reflects vehicle types traveling on each different road types. The North Carolina Highway Performance Monitoring System (HPMS) information that was used to generate the statewide VMT fractions was based on years 1999 through 2001 length based counts. This is the latest North Carolina statewide count information available. The raw count information was processed consistent with USEPA methods and guidance[7] for each year in the analysis. Comparisons of the North Carolina and California VMT fractions are provided in Section 5.3

2.3.1.4 Temperatures

For this analysis, an average July 2005 minimum and maximum temperature was calculated from data at five Automated Surface Observing System (ASOS) sites as shown in Table 2.3-1 below. The overall average minimum and maximum temperatures were used in all MOBILE6.2 input files.

Table 2.3-1 July 2005 Average Minimum and Maximum Temperatures[8]

	Average Maximum	Average Minimum
Asheville	83.2	65.5
Charlotte	89.0	70.1
Greensboro	88.2	71.5
Raleigh	92.9	71.6
Wilmington	90.1	74.5
Overall Average	**88.7**	**70.6**

2.3.1.5 Vehicle Inspection and Maintenance (I/M) Program

As discussed earlier, North Carolina has implemented a vehicle emissions inspection program, onboard diagnostics (OBDII) in 48 counties. This program covers all light-duty gasoline powered vehicles that are model year 1996 and newer. The program was phased-in to include a total of 48 counties between July 2002 and January 2006. Therefore, the years 2010, 2020, and 2030, MOBILE6.2 model runs in this analysis; incorporate all of the appropriate I/M program parameters in the 48 counties. The OBDII compliance rate used in the MOBILE6.2 input files is 95 percent. In addition to applying the appropriate I/M commands in MOBILE6.2, NCDAQ applied anti-tampering commands. This statewide program ensures that emission control equipment on any vehicle model year of 1968 and newer has not been altered.

2.3.1.6 Speed Assumptions

Emissions from motor vehicles vary with the manner in which the vehicle is operated. Vehicles traveling at 65 miles per hour (mph) emit a very different mix of pollutants than the car traveling at low speeds. Average daily annual speeds were used in this analysis for each road type. The speeds were obtained from NCDOT. The speeds for the areas other than Raleigh-Durham and Charlotte-Gastonia areas are assumed to be the Wake County off-peak speeds. This assumption is consistent with what has been recommended by NCDOT in past efforts to develop statewide mobile source emission inventories.

In the Raleigh-Durham and Charlotte-Gastonia areas, for the years 2010, 2020, and 2030 average speeds were calculated for urban and rural interstates. The speeds used in the averaging are based upon the latest available information from local travel demand models. The "other roads" speeds for the entire state represent a VMT weighted average of the non-interstate speeds from the Wake County off-peak data sets for the years 2010, 2020, and 2030. Tables 2.3-2 through 2.3-4 provide a summary of the speeds used in this analysis.

Table 2.3-2 2010 Speeds

	Rural Interstate	Urban Interstate	Other Roads
Charlotte-Gastonia	53	51	46
Raleigh-Durham	53	51	46
Other Areas	66	61	46

Table 2.3-3 2020 Speeds

	Rural Interstate	Urban Interstate	Other Roads
Charlotte-Gastonia	53	51	45
Raleigh-Durham	53	51	45
Other Areas	62	62	45

Table 2.3-4 2030 Speeds

	Rural Interstate	Urban Interstate	Other Roads
Charlotte-Gastonia	49	48	44
Raleigh-Durham	49	48	44
Other Areas	61	61	44

2.3.1.7 Reid Vapor Pressure (RVP)

Reid Vapor Pressure reflects a gasoline's volatility. Lower RVP leads to lower VOC emissions from gasoline handling and lowers vapor losses from motor vehicles. North Carolina rules require lower RVP gasoline in the most urbanized areas of the state during the summer. Therefore, an RVP of 7.8 pounds per square inch (psi) was applied in this analysis for the Raleigh-Durham and Charlotte-Gastonia areas. Due to the input file grouping explained earlier in Section 2.3, an RVP of 9.0 was applied for the "other areas."

2.3.2 Vehicle Miles Traveled

In order to calculate emissions from on-road mobile sources, emission factors were developed as discussed throughout this document. The emission factors were then multiplied by an activity level, which is average weekday vehicle miles traveled (VMT). The VMT used in this analysis was derived from the latest county-by-county HPMS data available from NCDOT. The future years were projected using a growth rate from a linear regression completed on the last 10 years of HPMS data. The same VMT was used in the generation of emissions for the Tier 2 program as the CA LEV-II program. The county specific VMT used in this analysis is provided in Appendix D for years 2010, 2020, and 2030.

2.3.3 CA LEV-II Phase-in Schedule

As mentioned earlier in Section 2.3, USEPA OTAQ provided MOBILE6.2 auxiliary files necessary to approximate the phase-in CA LEV-II program. This file represents California's

assumptions on how manufacturers would meet the fleet average standards. This is the latest available CA LEV-II phase-in schedule in MOBILE6.2 format from USEPA OTAQ.

2.3.4 Zero Emissions Vehicle (ZEV) component

The CA LEV-II standards include a zero-emission vehicle (ZEV) component. This is considered an "option" for states wishing to "opt-in" to the CA LEV-II standards. Originally designed to mandate the introduction of electric ZEVs, California's ZEV program has been changed to allow credit for a variety of advanced automobile technologies besides electric vehicles. Partial ZEVs (PZEVs) and advance technology partial ZEVs (AT-PZEVs) meet the ZEV zero emissions evaporative standards, the individual vehicle exhaust standards, and the extended warranty and durability requirements.

Generally, California's basic ZEV rule requires that a manufacturer's annual sales of light-duty vehicles must consist of a percentage of ZEVs. This requirement first applied only as a percentage of passenger cars and LDT1 trucks. This is referred to as the ZEV baseline. The ZEV baseline was applied by NCDAQ in this analysis using USEPA's latest available MOBILE6.2 ready (levii94.d) auxiliary file.

CARB recognized the ZEV requirement would be difficult to meet and established a review by a technical panel every two years. The ZEV baseline has since been expanded to include LDT2 trucks to be phased in on a later schedule. Due to the fact that ZEV technology has not developed as quickly as California had hoped, they have added flexible ways to meet the requirement. Those flexibilities are discussed elsewhere[3].

3. Results: Emissions Benefits

3.1 NOx and VOC Benefits

To begin to understand the emissions benefits of adopting CA LEV-II in North Carolina, the NCDAQ applied the approach, methods and data summarized in previous sections. The emissions benefits analysis included a comparison of statewide on-road mobile source NOx and VOC emissions resulting from the current federal level of control (Tier 2), and from the CA LEV-II level of control. It should be noted that the emission differences were calculated in context of the entire on-road mobile source emissions inventory. This method for comparison enabled the NCDAQ to apply the knowledge gathered in emissions/air quality modeling studies to assess the air quality (ozone) benefits that might result from the CA LEV-II emissions benefits. The air quality benefits analysis is presented in Section 4.

As can be seen in Table 3.1-1, the statewide NOx and VOC emissions from adopting a CA LEV-II program are lower relative to the Federal Tier 2 level of control. As discussed previously, the earliest CA LEV-II can begin is in the year 2010. Since it will take time for the CA LEV-II vehicles to become a significant portion of the overall vehicle fleet, the CA LEV-II standards show an increasing emissions benefit (i.e., on a percentage basis) over time relative to the Tier 2 level of control.

Table 3.1-1. CA LEV-II Reductions Compared to Federal Tier 2: Entire Fleet

	2010	2020	2030
NOx	0.1%	4%	10%
VOC	0.1%	3%	6%

Figure 3.1-1 below presents the North Carolina statewide on-road mobile source NOx emissions inventory with a Tier 2 control program for years 2004, 2010, 2020, and 2030 (blue line), and also with a CA LEV-II control program for years 2010, 2020, and 2030 (magenta line). Figure 3.1-2 is a similar graph for VOC emissions. (It should be noted that the NOx and VOC emission estimates with a Tier 2 control program, assume there are no CA LEV-II compliant vehicles in North Carolina already. While NCDAQ does not have any official data, informal surveys have shown there are North Carolinians already driving CA LEV-II compliant vehicles. Therefore, the emission benefits of the CA LEV-II program shown in Table 3.1.1 and Figures 3.1-1 and 3.1-2 are likely over-estimated.)

Also noteworthy, these figures illustrate the tremendous reductions in on-road mobile emissions, regardless of the control program, expected over time in North Carolina. These reductions will occur despite significant estimated increases in VMT (see Figure 3.1-3).

Figure 3.1-1. Estimated NOx Emissions – Federal Tier2 vs. CA LEV-II

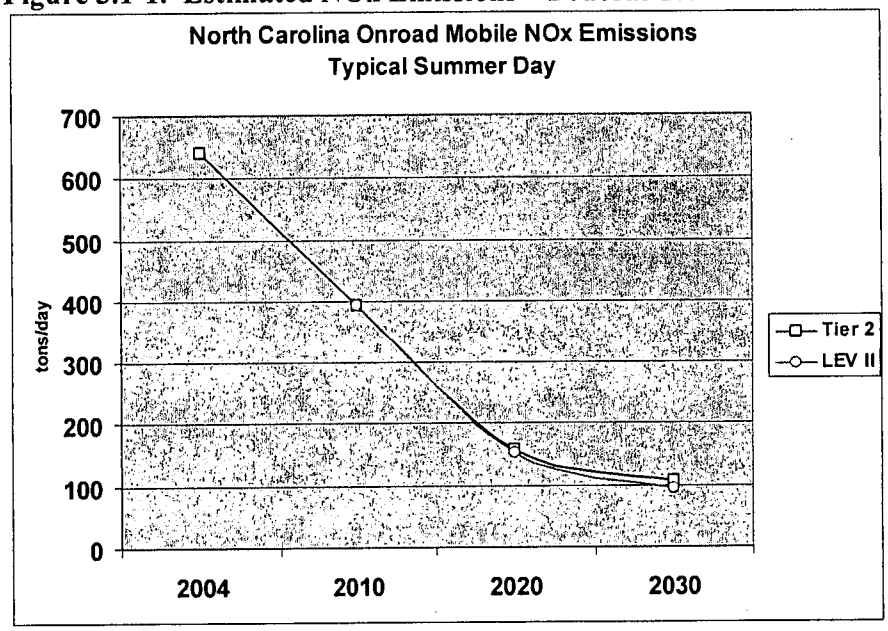


Figure 3.1-2. Estimated VOC Emissions – Federal Tier2 vs. CA LEV-II

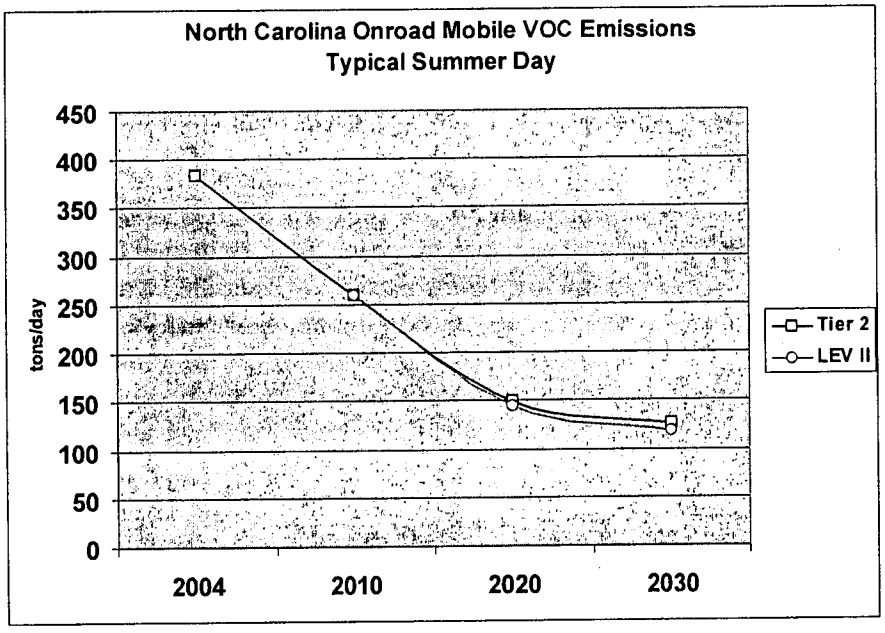
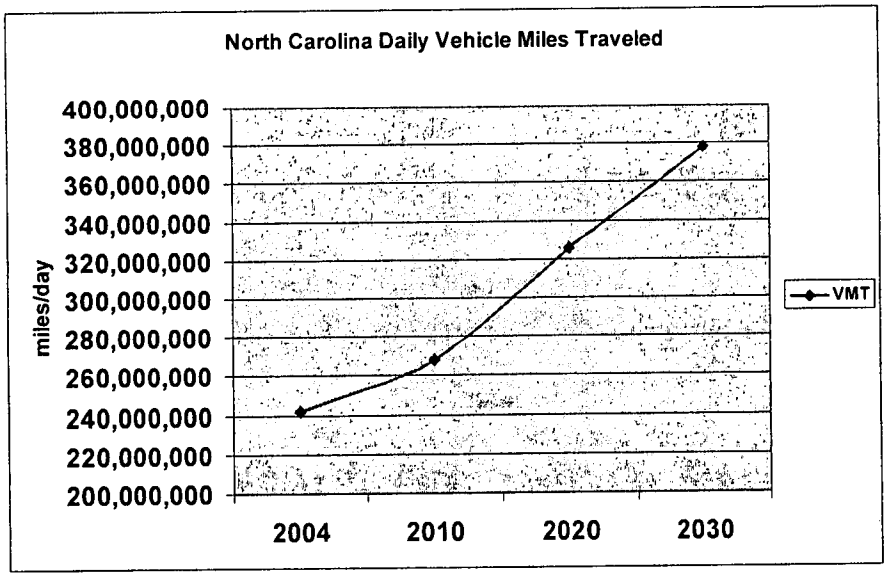


Figure 3.1-3. Estimated Vehicle Miles Traveled



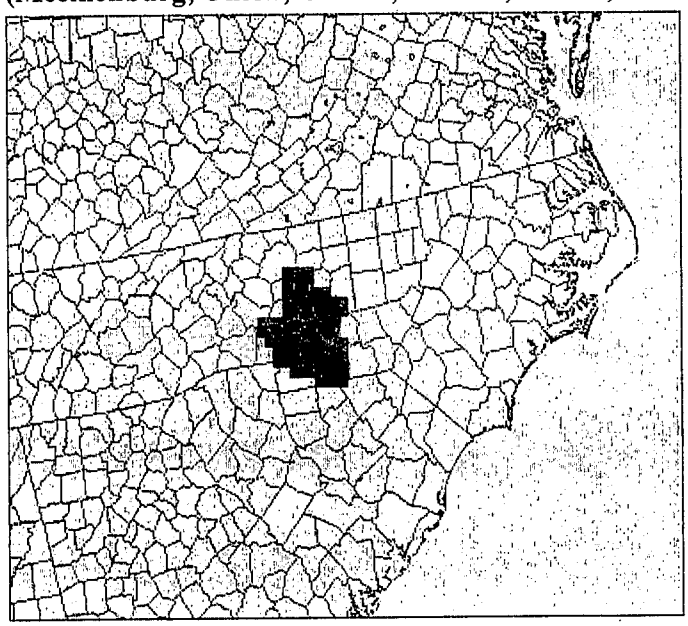
4. Results: Air Quality Impacts

4.1 Ozone Sensitivities

During the development of the 8-hour ozone SIPs for North Carolina's nonattainment areas, the NCDAQ conducted a number of modeling sensitivity tests to better understand how targeted emission reductions would impact future ozone concentrations. The modeling system used in this analysis consisted of three components: 1) the Penn State University/National Center for Atmospheric Research (PSU/NCAR) Mesoscale Model (MM5 version 3.6.1+)[9]; 2) the Sparse Matrix Operator Kernel Emissions Modeling System (SMOKE version 2.1)[10]; and, 3) the Community Multiscale Air Quality model (CMAQ version 4.4)[11,12]. Model configurations, input data, and modeling methods were consistent with those suggested by USEPA in "Guidance on the Use of Models and Other Analyses in Attainment Demonstrations for the 8-hour Ozone NAAQS" [13].

The emissions sensitivities were calculated by taking the difference between two air quality modeling simulations; one with "baseline" emissions and another with reduced emission inputs. This method is known in the modeling community as the "brute force" method[14]. Brute force sensitivity analyses have been widely used to better understand source/receptor relationships and aid in the design of control strategies for ozone[15]. The emissions sensitivity used in this analysis reduces on-road mobile source NOx emissions in the Metrolina 8-hour ozone nonattainment area, by 10% from year 2009 emission levels. The Metrolina nonattainment area was chosen because they currently have the highest ozone design values in North Carolina. The counties included in the emissions sensitivity modeling are shown in Figure 4.1-1.

Figure 4.1-1. North Carolina Counties included in the Metrolina Sensitivity (Mecklenburg, Union, Gaston, Lincoln, Iredell, Cabarrus and Rowan)



The 10% NOx reduction applied to the year 2009 on-road mobile source emissions is equivalent to a 10 ton/day reduction in this region. Again, this is a 10%, or 10 ton/day, on-road mobile source NOx reduction from the "baseline" year 2009 emissions that include the Tier 2 level of control. Air quality modeling results indicated this additional 10% NOx reduction resulted in lowering 8-hour ozone concentrations anywhere between 0.1 and 1.0 parts per billion (ppb) in year 2009. Only one of the seven modeled days resulted in changes in the maximum 8-hour ozone concentration, yielding a result as high as 1.0 ppb. This is shown in Figure 4.1-2. Only two of the seven modeled days resulted in changes as high as 0.5 ppb.

Using the CA LEV-II emission benefits analysis discussed in Section 3 above, NCDAQ assessed the 8-hour ozone benefits in year 2020, assuming a CA LEV-II program was implemented starting in year 2010. NCDAQ chose to analyze year 2020 to allow for a significant portion of the fleet to be CA LEV-II vehicles. As noted in Table 3.1-1 above, a 4% reduction of on-road mobile NOx emissions would be expected in year 2020 due to a CA LEV-II program. NCDAQ assumed the maximum ozone benefit shown in the year 2009 Metrolina sensitivity in estimating the year 2020 ozone impacts due to CA LEV-II, as shown in Table 4.1-1 below.

Table 4.1-1. Summary of Air Quality Impacts

For the Metrolina Area...

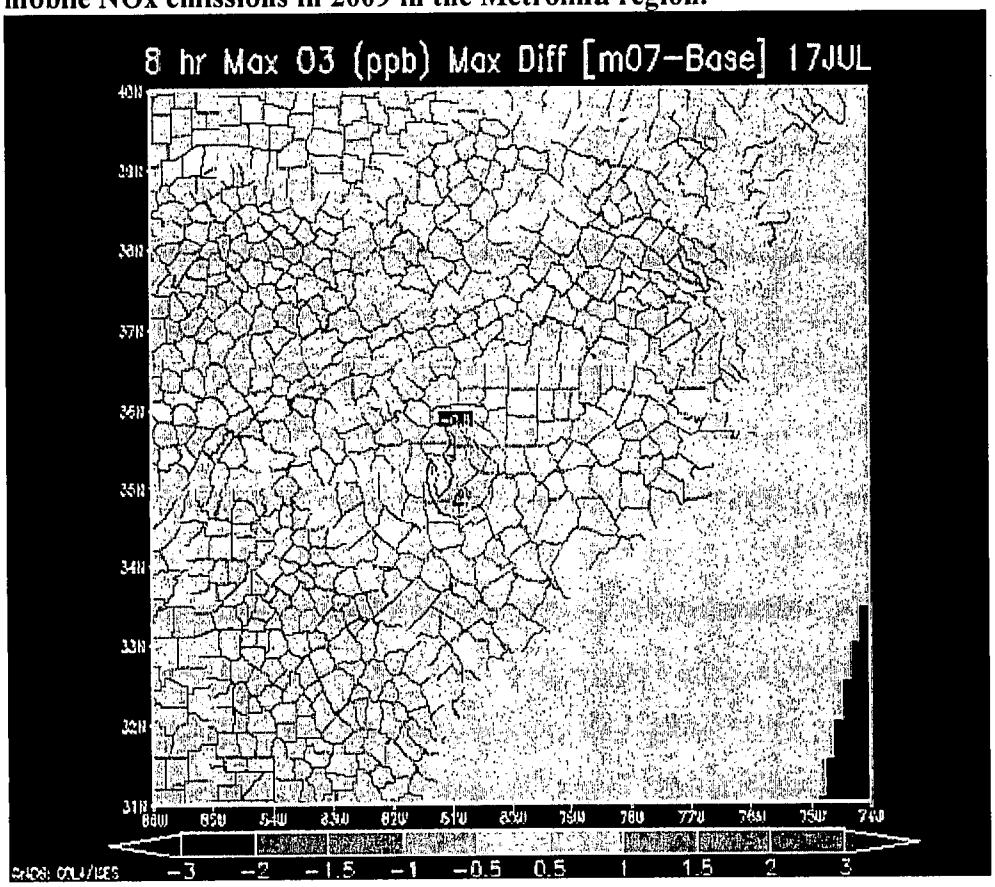
- 2009 on-road mobile NOx ~ 100 tons/day (w/ Tier 2)
- 2020 on-road mobile NOx ~ 25 tons/day (w/Tier 2)

If a 10% NOx reduction = 10 tons/day in 2009 = 1 ppb maximum ozone benefit

Then a 4% NOx reduction = 1 ton/day in 2020 = 0.1 ppb maximum ozone benefit

NCDAQ concluded the 4% on-road mobile NOx reduction in year 2020 due to a CA LEV-II program would have a very small impact on maximum 8-hour ozone concentrations (i.e., less than 0.1 ppb) in the Metrolina area. NCDAQ estimates the impact would be even less in areas where future projected ozone concentrations will be even lower.

Figure 4.1-2. Maximum 8-hour ozone reductions due to a 10% reduction of on-road mobile NOx emissions in 2009 in the Metrolina region.



5. CA LEV-II Enforcement Options – Fleet Analysis

One of the challenges put forth to NCDAQ was to assess the benefit of enforcing a fleet average requirement for the CA LEV-II control program versus simply requiring that all light-duty vehicles sold in North Carolina would have to be California certified (e.g., simple certification). A state adopting the CA LEV-II regulation is not required to undertake the additional activities associated with vehicle sales or registration enforcement.

A fleet average requirement would provide auto manufacturers the flexibility to produce vehicles that emit both more and less than the fleet average as long as their mathematical average is within the fleet average limit. This would mean state officials would work with auto manufacturers to calculate a fleet average NMOG value and check it against the applicable limits set in the rule. Details on how to offset "debits" or exceedances of the fleet average limit are discussed elsewhere[3].

While this analysis does not quantify the benefits of adopting a CA LEV-II program in North Carolina, with and without fleet averaging enforcement, several metrics were generated to

better understand North Carolina's fleet demographics and how it compares to California's fleet of light-duty vehicles. This analysis of the fleet information helped NCDAQ make some qualitative estimates on whether enforcement of a fleet average option would be needed in North Carolina.

5.1 . Fleet Comparisons (NC vs. CA)

5.1.1 Fleet Composition

Figure 5.1-1 presents a simple comparison of California's fleet per vehicle type versus the North Carolina fleet composition[16,17]. The fleet was binned into the 5 MOBILE5 vehicle classification bins for simplicity. Table 5.1-1 provides the mapping from MOBILE5 vehicle bins to MOBILE6.2 and a detailed description of vehicle weights that fall into each category. Several noteworthy fleet differences are immediately shown. North Carolina has about 11% more light-duty gasoline vehicles (i.e., passenger cars) than California, 7% fewer light-duty gasoline trucks 1 (i.e., pickup trucks and SUVs under 6,001 lbs. gross vehicle weight rating), and 6% fewer light-duty gasoline trucks 2 (i.e., pickup trucks and SUVs between 6,001-8,500 lbs gross vehicle weight rating).

Figure 5.1-1. NC and CA Composition of Fleet per Vehicle Type[16,17]

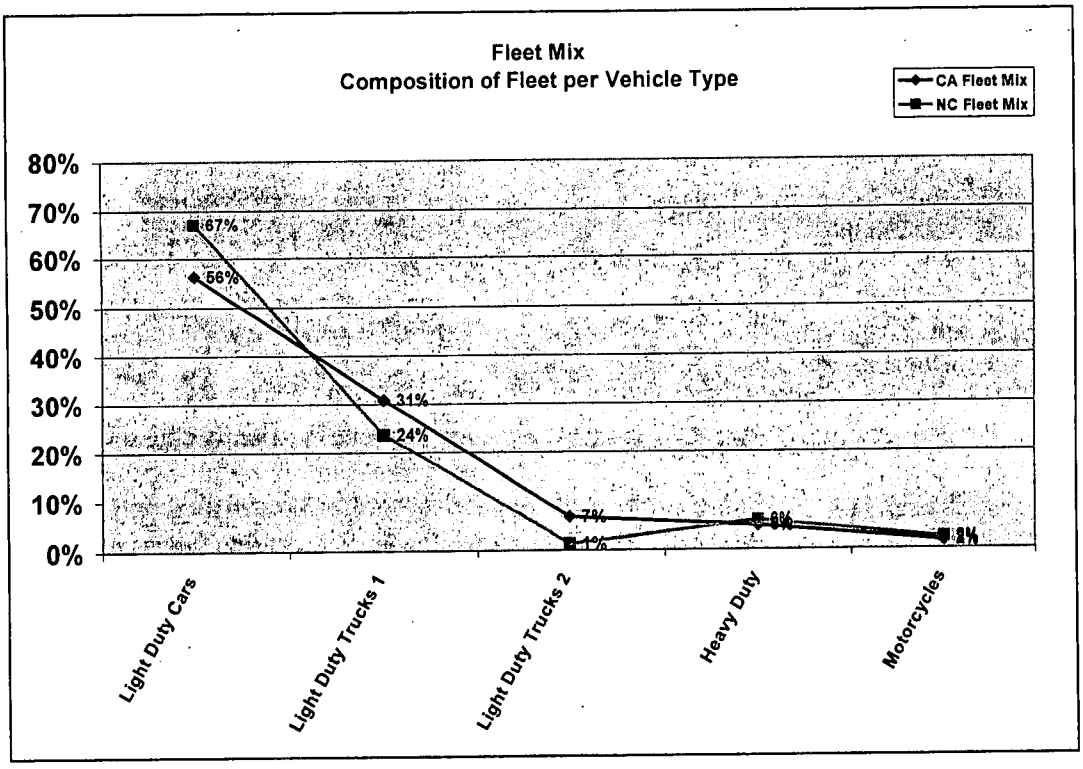


Table 5.1-1. Description of MOBILE5 and MOBILE6.2 Vehicle Classifications

MOBILE5	MOBILE6.2	Description
Light-Duty Cars	LDV	Light-Duty Vehicles (Passenger cars)
Light-Duty Trucks 1	LDT1	Light-Duty Trucks 1 (0-6,000 lbs. GVWR, 0-3750 lbs. LVW)
	LDT2	Light Duty Trucks 2 (0-6,001 lbs. GVWR, 3751-5750 lbs. LVW)
Light-Duty Trucks 2	LDT3	Light Duty Trucks 3 (6,001-8500 lbs. GVWR, 0-5750 lbs. ALVW)
	LDT4	Light Duty Trucks 4 (6,001-8500 lbs. GVWR, >5750 lbs. ALVW)
Heavy Duty Vehicles	HDV2B	Class 2b Heavy Duty Vehicles (8501-10,000 lbs. GVWR)
	HDV3	Class 3 Heavy Duty Vehicles (10,001-14,000 lbs. GVWR)
	HDV4	Class 4 Heavy Duty Vehicles (14,001-16,000 lbs. GVWR)
	HDV5	Class 5 Heavy Duty Vehicles (16,001-19,500 lbs. GVWR)
	HDV6	Class 6 Heavy Duty Vehicles (19,501-26,000 lbs. GVWR)
	HDV7	Class 7 Heavy Duty Vehicles (26,001-33,000 lbs. GVWR)
	HDV8A	Class 8a Heavy Duty Vehicles (33,001-60,000 lbs. GVWR)
	HDV8B	Class 8b Heavy Duty Vehicles (>60,000 lbs. GVWR)
	HDBS	School Buses
	HDBT	Transit and Urban Buses
Motorcycles	MC	Motorcycles (All)

5.1.2 Vehicle Age Distribution Comparison

Since light-duty gasoline vehicles (i.e., passenger cars) make up about two-thirds of North Carolina's registered fleet, NCDAQ examined the age of that vehicle class in North Carolina and California. Figure 5.1-2 shows the percent by age for passenger cars. While there is a slightly greater percentage of 1 and 2 year old passenger cars in California and equal percentages of 3 year old passenger cars, North Carolina has a greater percentage of 4 to 12 year old passenger cars and fewer 13 to 25 year olds. The yellow line on the graph represents a subset of the North Carolina statewide data for the Charlotte-Gastonia area. This subset indicates a much newer fleet of passenger vehicles in those counties. This is not unexpected however, due to Charlotte being the largest urban area in North Carolina. Generally, fleets weighted towards newer vehicles will result in quicker realization of control program benefits because of faster fleet turnover, even though the long-term benefits will be similar.

5.1.3 VMT Fraction Comparison

Finally, NCDAQ processed the California and North Carolina fleet demographic data to determine the fraction of VMT by vehicle class for the year 2010. This is often referred to as the VMT mix or VMT fraction. The methods used in determining the VMT fractions are consistent with USEPA guidance[7]. As shown in Figure 5.1-3, California light-duty gasoline car and truck owners are projected to drive their vehicles slightly more than North Carolinians in year 2010. Generally, however, there is not a great difference in the VMT fractions when using USEPA's methodology.

Figure 5.1-2. Light Duty Gasoline Vehicles, Percent by Age, NC and CA

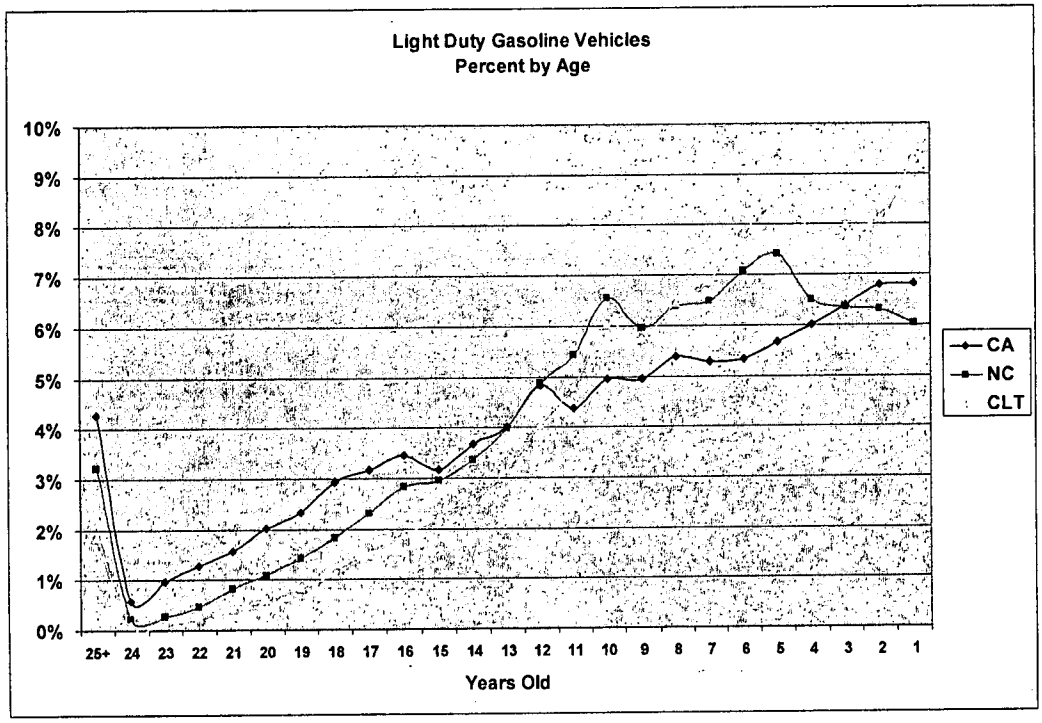
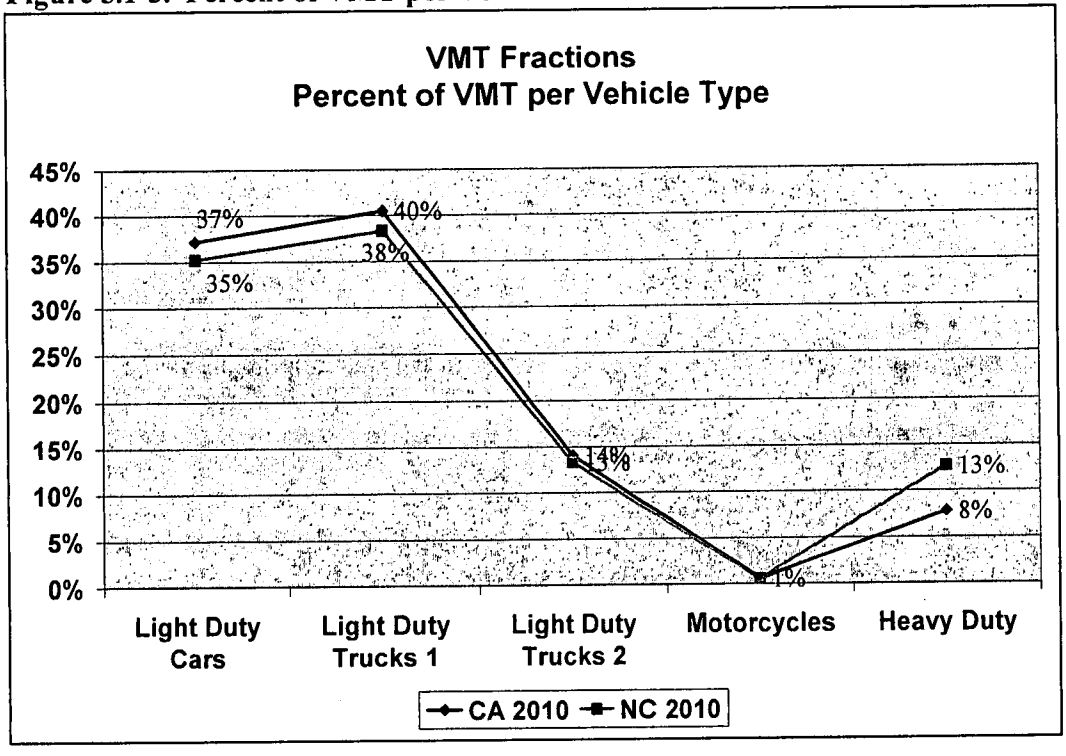


Figure 5.1-3. Percent of VMT per Vehicle



5.2 Qualitative Assessment of Enforcement Options

Based on the data summarized in Section 5.1 above, if one generally assumes passenger vehicles are cleaner emitting vehicles than light-duty trucks, and newer vehicles generally emit less than older vehicles, then one can qualitatively assert that the light-duty gasoline vehicle fleet registered in North Carolina is cleaner than California's registered light-duty gasoline vehicle fleet. This data (i.e., especially the greater percentage of passenger cars) may be an indicator that a fleet average requirement will not be difficult to meet in North Carolina and thus a "simple certification" enforcement program might result in similar benefits, while requiring fewer state resources. However, it should be noted that historical fleet demographic data would not necessarily represent future demographics, which will be impacted by short-term economic trends, long-term trends in vehicle longevity and use, and other factors such as fuel costs.

6. Staff Resource Needs

6.1 Enforcement at DMV and NCDAQ

NCDAQ collected information on state air quality agency staffing needs associated with implementing and enforcing a CA LEV-II program. Discussions with the Washington State Department of Ecology, Air Quality Program[18] revealed they had recently spoken with other states that had already adopted CA LEV-II programs to better understand staff resource needs. Washington indicated both New York and Massachusetts have staffs of two to three people (not completely full time) on CA LEV-II.

The primary point of enforcement/compliance for a CA LEV-II program would most likely be the State's Division of Motor Vehicles (DMV), while the air quality agency staff would perform audits, monitor performance of the program, handle public outreach, registration, and vehicle availability issues.

6.2 Impacts to Existing Tasks at NCDAQ

Another possible resource concern, considered by NCDAQ is the impact to existing tasks, such as transportation conformity, SIP modeling, and emission inventories. Due to the more complicated mobile source emission estimation techniques involved with a CA LEV-II program, there is some concern that timelines on these core tasks could be lengthened. This would not only impact NCDAQ, but the other groups involved in the transportation conformity process as well, such as local air quality agencies, metropolitan planning organizations, and rural planning organizations.

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Appendix A: Detailed Representation of MOBILE6.2 Emission Factor Post-Process

Definitions

POL = 1 = VOC
POL = 3 = NOx

ETYPE 1 = exhaust from running
ETYPE 2 = exhaust from start operations of light duty vehicles and motorcycles
ETYPE 3 through ETYPE 8 = evaporative emissions

FTYPE 1 = freeway
FTYPE 2 = arterial
FTYPE 3 = local
FTYPE 4 = ramp
FTYPE 5 = none (emissions independent of facility type such as start emissions and most evaporative)

Rural Interstate NOx = (ETYPE 1 + FTYPE 1) + (ETYPE 2 + FTYPE 5)

Urban Interstate NOx = (ETYPE 1 + FTYPE 1) + (ETYPE 2 + FTYPE 5)

Other roads NOx = (ETYPE 1 + FTYPE 2) + (ETYPE 2 + FTYPE 5)

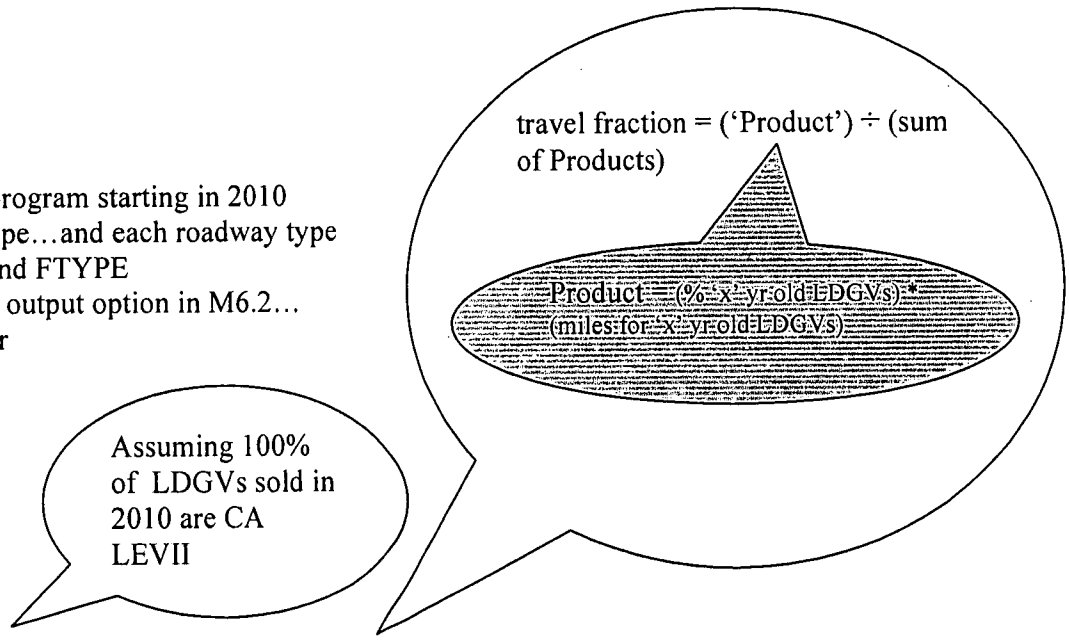
Rural Interstate VOC = (ETYPE 1 + FTYPE 1) + (ETYPE 2 + FTYPE 5) + (ETYPE 3 + FTYPE 5) + (ETYPE 4 + FTYPE 5) + (ETYPE 5 + FTYPE 5) + (ETYPE 6 + FTYPE 1) + (ETYPE 7 + FTYPE 5) + (ETYPE 8 + FTYPE 5)

Urban Interstate VOC = (ETYPE 1 + FTYPE 1) + (ETYPE 2 + FTYPE 5) + (ETYPE 3 + FTYPE 5) + (ETYPE 4 + FTYPE 5) + (ETYPE 5 + FTYPE 5) + (ETYPE 6 + FTYPE 1) + (ETYPE 7 + FTYPE 5) + (ETYPE 8 + FTYPE 5)

Other roads VOC = (ETYPE 1 + FTYPE 2) + (ETYPE 2 + FTYPE 5) + (ETYPE 3 + FTYPE 5) + (ETYPE 4 + FTYPE 5) + (ETYPE 5 + FTYPE 5) + (ETYPE 6 + FTYPE 2) + (ETYPE 7 + FTYPE 5) + (ETYPE 8 + FTYPE 5)

2010

For a CA LEV-II program starting in 2010
For each vehicle type...and each roadway type
For each ETYPE and FTYPE
Using the database output option in M6.2...
EF=emission factor



Step 1

((CA LEV II 2010 EF for 1 yr old LDGV) * (travel fraction for 1 yr old LDGVs)+
((Tier 2 2010 EF for 2 yr old LDGV) * (travel fraction for 2 yr old LDGVs)+
((Tier 2 2010 EF for 3 yr old LDGV) * (travel fraction for 3 yr old LDGVs)+
((Tier 2 2010 EF for 4 yr old LDGV) * (travel fraction for 4 yr old LDGVs)+
((Tier 2 2010 EF for 5 yr old LDGV) * (travel fraction for 5 yr old LDGVs)+
((Tier 2 2010 EF for 6 yr old LDGV) * (travel fraction for 6 yr old LDGVs)+
((Tier 2 2010 EF for 7 yr old LDGV) * (travel fraction for 7 yr old LDGVs)+
((Tier 2 2010 EF for 8 yr old LDGV) * (travel fraction for 8 yr old LDGVs)+
((Tier 2 2010 EF for 9 yr old LDGV) * (travel fraction for 9 yr old LDGVs)+
((Tier 2 2010 EF for 10 yr old LDGV) * (travel fraction for 10 yr old LDGVs)+
((Tier 2 2010 EF for 11 yr old LDGV) * (travel fraction for 11 yr old LDGVs)+
((Tier 2 2010 EF for 12 yr old LDGV) * (travel fraction for 12 yr old LDGVs)+
((Tier 2 2010 EF for 13 yr old LDGV) * (travel fraction for 13 yr old LDGVs)+
((Tier 2 2010 EF for 14 yr old LDGV) * (travel fraction for 14 yr old LDGVs)+
((Tier 2 2010 EF for 15 yr old LDGV) * (travel fraction for 15 yr old LDGVs)+
((Tier 2 2010 EF for 16 yr old LDGV) * (travel fraction for 16 yr old LDGVs)+
((Tier 2 2010 EF for 17 yr old LDGV) * (travel fraction for 17 yr old LDGVs)+
((Tier 2 2010 EF for 18 yr old LDGV) * (travel fraction for 18 yr old LDGVs)+
((Tier 2 2010 EF for 19 yr old LDGV) * (travel fraction for 19 yr old LDGVs)+
((Tier 2 2010 EF for 20 yr old LDGV) * (travel fraction for 20 yr old LDGVs)+
((Tier 2 2010 EF for 21 yr old LDGV) * (travel fraction for 21 yr old LDGVs)+
((Tier 2 2010 EF for 22 yr old LDGV) * (travel fraction for 22 yr old LDGVs)+
((Tier 2 2010 EF for 23 yr old LDGV) * (travel fraction for 23 yr old LDGVs)+
((Tier 2 2010 EF for 24 yr old LDGV) * (travel fraction for 24 yr old LDGVs)+
((Tier 2 2010 EF for 25 yr old LDGV) * (travel fraction for 25 yr old LDGVs)

= composite 2010 EF LDGV for a given pollutant, ETYPE and FTYPE

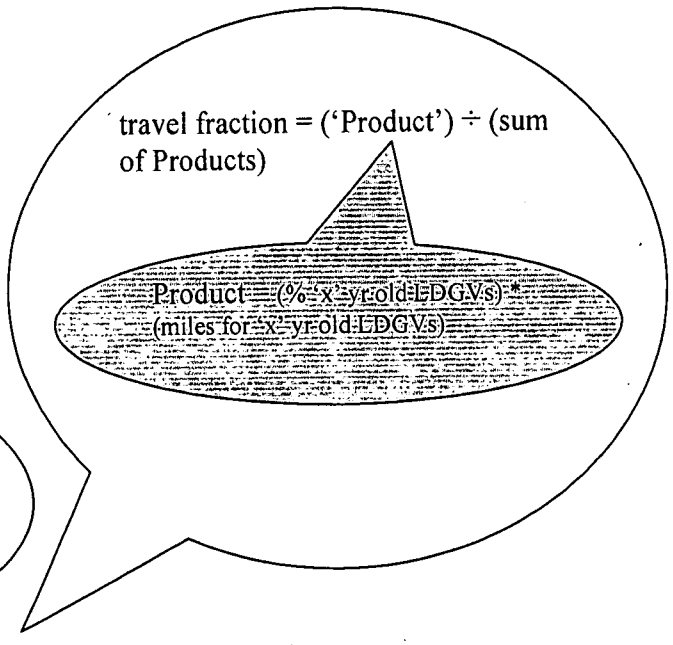
then, sum the composites for each ETYPE and FTYPE for a given pollutant

Step 2

Repeat for each roadway type and vehicle type

2020

For a CA LEV-II program starting in 2010
For each vehicle type...and each roadway type
For each ETYPE and FTYPE
Using the database output option in M6.2...
EF=emission factor



Assuming 100% of LDGVs sold in 2010 are CA LEVII

Step 1

((CA LEV II 2020 EF for 1 yr old LDGV) * (travel fraction for 1 yr old LDGVs)+
((CA LEV II 2020 EF for 2 yr old LDGV) * (travel fraction for 2 yr old LDGVs)+
((CA LEV II 2020 EF for 3 yr old LDGV) * (travel fraction for 3 yr old LDGVs)+
((CA LEV II 2020 EF for 4 yr old LDGV) * (travel fraction for 4 yr old LDGVs)+
((CA LEV II 2020 EF for 5 yr old LDGV) * (travel fraction for 5 yr old LDGVs)+
((CA LEV II 2020 EF for 6 yr old LDGV) * (travel fraction for 6 yr old LDGVs)+
((CA LEV II 2020 EF for 7 yr old LDGV) * (travel fraction for 7 yr old LDGVs)+
((CA LEV II 2020 EF for 8 yr old LDGV) * (travel fraction for 8 yr old LDGVs)+
((CA LEV II 2020 EF for 9 yr old LDGV) * (travel fraction for 9 yr old LDGVs)+
((CA LEV II 2020 EF for 10 yr old LDGV) * (travel fraction for 10 yr old LDGVs)+
((Tier 2 2020 EF for 11 yr old LDGV) * (travel fraction for 11 yr old LDGVs)+
((Tier 2 2020 EF for 12 yr old LDGV) * (travel fraction for 12 yr old LDGVs)+
((Tier 2 2020 EF for 13 yr old LDGV) * (travel fraction for 13 yr old LDGVs)+
((Tier 2 2020 EF for 14 yr old LDGV) * (travel fraction for 14 yr old LDGVs)+
((Tier 2 2020 EF for 15 yr old LDGV) * (travel fraction for 15 yr old LDGVs)+
((Tier 2 2020 EF for 16 yr old LDGV) * (travel fraction for 16 yr old LDGVs)+
((Tier 2 2020 EF for 17 yr old LDGV) * (travel fraction for 17 yr old LDGVs)+
((Tier 2 2020 EF for 18 yr old LDGV) * (travel fraction for 18 yr old LDGVs)+
((Tier 2 2020 EF for 19 yr old LDGV) * (travel fraction for 19 yr old LDGVs)+
((Tier 2 2020 EF for 20 yr old LDGV) * (travel fraction for 20 yr old LDGVs)+
((Tier 2 2020 EF for 21 yr old LDGV) * (travel fraction for 21 yr old LDGVs)+
((Tier 2 2020 EF for 22 yr old LDGV) * (travel fraction for 22 yr old LDGVs)+
((Tier 2 2020 EF for 23 yr old LDGV) * (travel fraction for 23 yr old LDGVs)+
((Tier 2 2020 EF for 24 yr old LDGV) * (travel fraction for 24 yr old LDGVs)+
((Tier 2 2020 EF for 25 yr old LDGV) * (travel fraction for 25 yr old LDGVs)

= composite 2020 EF LDGV for a given pollutant, ETYPE and FTYPE

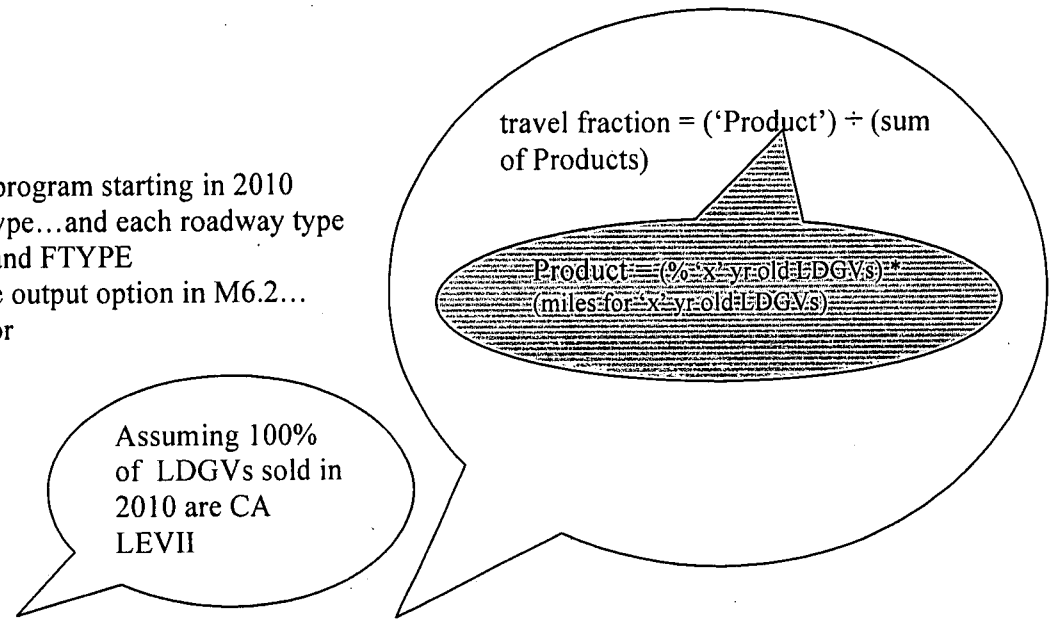
then, sum the composites for each ETYPE and FTYPE for a given pollutant

Step 2

Repeat for each roadway type and vehicle type

2030

For a CA LEV-II program starting in 2010
For each vehicle type...and each roadway type
For each ETYPE and FTYPE
Using the database output option in M6.2...
EF=emission factor



Step 1

((CA LEV II 2030 EF for 1 yr old LDGV) * (travel fraction for 1 yr old LDGVs)+
((CA LEV II 2030 EF for 2 yr old LDGV) * (travel fraction for 2 yr old LDGVs)+
((CA LEV II 2030 EF for 3 yr old LDGV) * (travel fraction for 3 yr old LDGVs)+
((CA LEV II 2030 EF for 4 yr old LDGV) * (travel fraction for 4 yr old LDGVs)+
((CA LEV II 2030 EF for 5 yr old LDGV) * (travel fraction for 5 yr old LDGVs)+
((CA LEV II 2030 EF for 6 yr old LDGV) * (travel fraction for 6 yr old LDGVs)+
((CA LEV II 2030 EF for 7 yr old LDGV) * (travel fraction for 7 yr old LDGVs)+
((CA LEV II 2030 EF for 8 yr old LDGV) * (travel fraction for 8 yr old LDGVs)+
((CA LEV II 2030 EF for 9 yr old LDGV) * (travel fraction for 9 yr old LDGVs)+
((CA LEV II 2030 EF for 10 yr old LDGV) * (travel fraction for 10 yr old LDGVs)+
((CA LEV II 2030 EF for 11 yr old LDGV) * (travel fraction for 11 yr old LDGVs)+
((CA LEV II 2030 EF for 12 yr old LDGV) * (travel fraction for 12 yr old LDGVs)+
((CA LEV II 2030 EF for 13 yr old LDGV) * (travel fraction for 13 yr old LDGVs)+
((CA LEV II 2030 EF for 14 yr old LDGV) * (travel fraction for 14 yr old LDGVs)+
((CA LEV II 2030 EF for 15 yr old LDGV) * (travel fraction for 15 yr old LDGVs)+
((CA LEV II 2030 EF for 16 yr old LDGV) * (travel fraction for 16 yr old LDGVs)+
((CA LEV II 2030 EF for 17 yr old LDGV) * (travel fraction for 17 yr old LDGVs)+
((CA LEV II 2030 EF for 18 yr old LDGV) * (travel fraction for 18 yr old LDGVs)+
((CA LEV II 2030 EF for 19 yr old LDGV) * (travel fraction for 19 yr old LDGVs)+
((CA LEV II 2030 EF for 20 yr old LDGV) * (travel fraction for 20 yr old LDGVs)+
((Tier 2 2030 EF for 21 yr old LDGV) * (travel fraction for 21 yr old LDGVs)+
((Tier 2 2030 EF for 22 yr old LDGV) * (travel fraction for 22 yr old LDGVs)+
((Tier 2 2030 EF for 23 yr old LDGV) * (travel fraction for 23 yr old LDGVs)+
((Tier 2 2030 EF for 24 yr old LDGV) * (travel fraction for 24 yr old LDGVs)+
((Tier 2 2030 EF for 25 yr old LDGV) * (travel fraction for 25 yr old LDGVs)

= composite 2030 EF LDGV for a given pollutant, ETYPE and FTYPE

then, sum the composites for each ETYPE and FTYPE for a given pollutant

Step 2

Repeat for each roadway type and vehicle type

Appendix B. CA LEV-II Emission Factors

Mecklenburg and Gaston County 2010 Emission Factors

CLT10L.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.42	0.75	0.78	0.57	0.60	0.55	0.11	0.22	0.23	2.47	0.52
Composite NOx (g/mi)	0.37	0.49	0.70	0.56	0.78	1.99	0.35	0.49	5.93	1.39	1.89

CLT10L.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.43	0.75	0.78	0.57	0.61	0.55	0.11	0.22	0.23	2.47	0.56
Composite NOx (g/mi)	0.37	0.49	0.69	0.56	0.78	1.96	0.34	0.46	5.63	1.34	1.27

CLT10L.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.44	0.77	0.80	0.58	0.62	0.57	0.12	0.23	0.23	2.49	0.60
Composite NOx (g/mi)	0.36	0.48	0.68	0.55	0.76	1.88	0.30	0.42	4.41	1.25	0.79

Mecklenburg and Gaston County 2020 Emission Factors

CLT20L.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.17	0.31	0.35	0.28	0.28	0.29	0.03	0.08	0.16	2.29	0.26
Composite NOx (g/mi)	0.11	0.18	0.25	0.22	0.27	0.44	0.05	0.10	1.04	1.39	0.41

CLT20L.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.17	0.31	0.35	0.28	0.28	0.29	0.03	0.08	0.17	2.29	0.27
Composite NOx (g/mi)	0.11	0.18	0.25	0.21	0.26	0.44	0.05	0.10	0.99	1.34	0.31

CLT20L.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.04	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.18	0.31	0.35	0.28	0.29	0.30	0.03	0.09	0.17	2.31	0.29
Composite NOx (g/mi)	0.11	0.17	0.24	0.21	0.26	0.42	0.04	0.09	0.79	1.24	0.24

Mecklenburg and Gaston County 2030 Emission Factors

CLT30L.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.14	0.20	0.25	0.21	0.21	0.24	0.02	0.05	0.16	2.20	0.20
Composite NOx (g/mi)	0.08	0.12	0.16	0.15	0.17	0.19	0.02	0.04	0.51	1.29	0.23

CLT30L.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.14	0.20	0.25	0.21	0.21	0.24	0.02	0.05	0.17	2.21	0.21
Composite NOx (g/mi)	0.08	0.12	0.16	0.15	0.17	0.19	0.02	0.04	0.51	1.28	0.18

CLT30L.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.04	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.14	0.21	0.25	0.22	0.21	0.24	0.02	0.06	0.16	2.23	0.21
Composite NOx (g/mi)	0.08	0.12	0.15	0.15	0.16	0.19	0.02	0.04	0.44	1.23	0.15

Wake and Durham County 2010 Emission Factors

RDU10L.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.41	0.68	0.71	0.55	0.59	0.61	0.11	0.22	0.23	2.59	0.50
Composite NOx (g/mi)	0.37	0.46	0.65	0.59	0.83	2.21	0.35	0.51	6.30	1.40	1.98

RDU10L.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.42	0.68	0.71	0.56	0.59	0.61	0.11	0.23	0.24	2.59	0.54
Composite NOx (g/mi)	0.37	0.46	0.64	0.59	0.83	2.18	0.34	0.49	5.99	1.35	1.31

RDU10L.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.43	0.69	0.72	0.57	0.60	0.64	0.12	0.23	0.25	2.61	0.57
Composite NOx (g/mi)	0.36	0.45	0.63	0.58	0.81	2.11	0.30	0.44	5.01	1.26	0.84

Wake and Durham County 2020 Emission Factors

RDU20L.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.17	0.27	0.31	0.26	0.27	0.31	0.03	0.08	0.17	2.37	0.25
Composite NOx (g/mi)	0.11	0.16	0.23	0.21	0.26	0.49	0.05	0.09	1.15	1.40	0.43

RDU20L.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.17	0.28	0.32	0.26	0.27	0.31	0.03	0.08	0.17	2.37	0.26
Composite NOx (g/mi)	0.11	0.16	0.23	0.21	0.25	0.49	0.05	0.09	1.09	1.35	0.32

RDU20L.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.18	0.28	0.32	0.27	0.27	0.33	0.03	0.08	0.18	2.39	0.27
Composite NOx (g/mi)	0.11	0.16	0.22	0.20	0.25	0.46	0.04	0.08	0.93	1.25	0.24

Wake and Durham County 2030 Emission Factors

RDU30L.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.14	0.19	0.23	0.21	0.21	0.25	0.02	0.05	0.16	2.29	0.20
Composite NOx (g/mi)	0.08	0.11	0.15	0.15	0.17	0.20	0.02	0.04	0.52	1.31	0.22

RDU30L.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.14	0.19	0.23	0.21	0.21	0.25	0.02	0.05	0.17	2.29	0.20
Composite NOx (g/mi)	0.08	0.11	0.15	0.15	0.17	0.19	0.02	0.04	0.51	1.29	0.18

RDU30L.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.14	0.19	0.24	0.21	0.21	0.26	0.02	0.06	0.18	2.31	0.21
Composite NOx (g/mi)	0.08	0.11	0.14	0.15	0.16	0.19	0.02	0.04	0.47	1.24	0.15

Other I/M Counties* 2010 Emission Factors

RUR10L.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.65	1.08	1.12	1.10	1.14	1.05	0.16	0.35	0.25	3.57	0.80
Composite NOx (g/mi)	0.52	0.66	0.89	0.90	1.18	2.95	0.73	1.16	11.17	1.73	3.28

RUR10L.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.66	1.10	1.13	1.12	1.16	1.06	0.16	0.35	0.25	3.30	0.86
Composite NOx (g/mi)	0.52	0.65	0.88	0.89	1.17	2.88	0.62	0.99	9.67	1.62	1.99

RUR10L.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.70	1.16	1.20	1.19	1.23	1.14	0.17	0.37	0.29	2.90	0.96
Composite NOx (g/mi)	0.49	0.61	0.83	0.85	1.12	2.60	0.42	0.66	6.01	1.27	1.08

Other I/M Counties* 2020 Emission Factors

RUR20L.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.24	0.42	0.47	0.50	0.52	0.55	0.04	0.15	0.17	3.14	0.37
Composite NOx (g/mi)	0.16	0.24	0.34	0.39	0.49	0.90	0.11	0.27	2.45	1.65	0.83

RUR20L.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.24	0.42	0.47	0.50	0.52	0.55	0.04	0.15	0.17	3.14	0.39
Composite NOx (g/mi)	0.16	0.24	0.34	0.39	0.49	0.90	0.11	0.27	2.45	1.65	0.60

RUR20L.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.26	0.44	0.48	0.53	0.54	0.60	0.04	0.16	0.19	2.68	0.42
Composite NOx (g/mi)	0.15	0.23	0.32	0.37	0.47	0.80	0.07	0.17	1.45	1.25	0.36

Other I/M Counties* 2030 Emission Factors

RUR30L.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.17	0.25	0.30	0.31	0.31	0.34	0.02	0.07	0.16	2.97	0.25
Composite NOx (g/mi)	0.10	0.15	0.19	0.23	0.25	0.24	0.03	0.07	0.91	1.62	0.35

RUR30L.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.17	0.25	0.30	0.31	0.31	0.34	0.02	0.07	0.16	2.97	0.26
Composite NOx (g/mi)	0.10	0.15	0.19	0.23	0.25	0.24	0.03	0.07	0.91	1.62	0.27

RUR30L.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.19	0.27	0.32	0.33	0.33	0.38	0.02	0.07	0.18	2.58	0.28
Composite NOx (g/mi)	0.10	0.14	0.18	0.22	0.23	0.22	0.02	0.05	0.58	1.25	0.19

* "Other I/M Counties" include all counties subject to North Carolina's I/M Program except Mecklenburg, Gaston, Wake and Durham Counties.

All Non-I/M Counties* 2010 Emission Factors

RUR10NL.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.72	1.17	1.21	1.19	1.23	1.05	0.16	0.35	0.25	3.57	0.85
Composite NOx (g/mi)	0.61	0.79	1.02	1.03	1.31	2.95	0.73	1.16	11.17	1.73	3.36

RUR10NL.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.73	1.19	1.23	1.21	1.25	1.06	0.16	0.35	0.25	3.30	0.93
Composite NOx (g/mi)	0.61	0.78	1.01	1.01	1.29	2.88	0.62	0.99	9.67	1.62	2.08

RUR10NL.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.78	1.27	1.31	1.30	1.34	1.14	0.17	0.37	0.29	2.90	1.05
Composite NOx (g/mi)	0.58	0.74	0.97	0.97	1.25	2.60	0.42	0.66	6.01	1.27	1.18

All Non-I/M Counties* 2020 Emission Factors

RUR20NL.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.34	0.57	0.63	0.65	0.67	0.55	0.04	0.15	0.17	3.14	0.46
Composite NOx (g/mi)	0.29	0.46	0.55	0.58	0.69	0.90	0.11	0.27	2.45	1.65	0.95

RUR20NL.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.34	0.57	0.63	0.65	0.67	0.55	0.04	0.15	0.17	3.14	0.50
Composite NOx (g/mi)	0.29	0.46	0.55	0.58	0.69	0.90	0.11	0.27	2.45	1.65	0.75

RUR20NL.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.37	0.61	0.66	0.70	0.72	0.60	0.04	0.16	0.19	2.68	0.56
Composite NOx (g/mi)	0.28	0.43	0.52	0.56	0.67	0.80	0.07	0.17	1.45	1.25	0.52

All Non-I/M Counties* 2030 Emission Factors

RUR30NL.in - Rural Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.26	0.40	0.46	0.46	0.46	0.34	0.02	0.07	0.16	2.97	0.34
Composite NOx (g/mi)	0.23	0.36	0.40	0.43	0.45	0.24	0.03	0.07	0.91	1.62	0.47

RUR30NL.in - Urban Interstate	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.26	0.40	0.46	0.46	0.46	0.34	0.02	0.07	0.16	2.97	0.37
Composite NOx (g/mi)	0.23	0.36	0.40	0.43	0.45	0.24	0.03	0.07	0.91	1.62	0.42

RUR30NL.in - Other roads	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.29	0.44	0.49	0.50	0.50	0.38	0.02	0.07	0.18	2.58	0.42
Composite NOx (g/mi)	0.22	0.34	0.38	0.41	0.43	0.22	0.02	0.05	0.58	1.25	0.35

"All Non-I/M Counties" include those not subject to North Carolina's I/M program.

Appendix C. Tier 2 Emission Factors

Mecklenburg and Gaston County 2010 Emission Factors

CLT10.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.42	0.75	0.78	0.57	0.60	0.55	0.11	0.22	0.23	2.47	0.52
Composite NOx (g/mi)	0.37	0.49	0.70	0.57	0.79	1.99	0.35	0.49	5.93	1.39	1.89

CLT10.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.43	0.75	0.79	0.57	0.61	0.55	0.11	0.22	0.23	2.47	0.56
Composite NOx (g/mi)	0.37	0.49	0.69	0.56	0.78	1.96	0.34	0.46	5.63	1.34	1.27

CLT10.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.44	0.77	0.80	0.58	0.62	0.57	0.12	0.23	0.23	2.49	0.60
Composite NOx (g/mi)	0.36	0.48	0.68	0.55	0.77	1.88	0.30	0.42	4.41	1.25	0.79

Mecklenburg and Gaston County 2020 Emission Factors

CLT20.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.19	0.32	0.36	0.28	0.30	0.29	0.03	0.08	0.16	2.29	0.27
Composite NOx (g/mi)	0.12	0.18	0.28	0.24	0.36	0.44	0.05	0.10	1.04	1.39	0.43

CLT20.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.19	0.32	0.36	0.28	0.30	0.29	0.03	0.08	0.17	2.29	0.28
Composite NOx (g/mi)	0.12	0.18	0.28	0.24	0.35	0.44	0.05	0.10	0.99	1.34	0.33

CLT20.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.04	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.19	0.33	0.37	0.29	0.31	0.30	0.03	0.09	0.17	2.31	0.30
Composite NOx (g/mi)	0.11	0.18	0.27	0.23	0.35	0.42	0.04	0.09	0.79	1.24	0.25

Mecklenburg and Gaston County 2030 Emission Factors

CLT30.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.16	0.23	0.27	0.22	0.23	0.24	0.02	0.05	0.16	2.20	0.22
Composite NOx (g/mi)	0.09	0.13	0.20	0.18	0.28	0.19	0.02	0.04	0.51	1.29	0.24

CLT30.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.16	0.23	0.27	0.22	0.24	0.24	0.02	0.05	0.17	2.21	0.22
Composite NOx (g/mi)	0.09	0.13	0.20	0.18	0.27	0.19	0.02	0.04	0.51	1.28	0.21

CLT30.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.04	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.16	0.23	0.27	0.22	0.24	0.24	0.02	0.06	0.16	2.23	0.23
Composite NOx (g/mi)	0.09	0.13	0.19	0.17	0.27	0.19	0.02	0.04	0.44	1.23	0.17

Wake and Durham County 2010 Emission Factors

RDU10.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.42	0.68	0.71	0.55	0.59	0.61	0.11	0.22	0.23	2.59	0.50
Composite NOx (g/mi)	0.37	0.46	0.65	0.59	0.84	2.21	0.35	0.51	6.30	1.40	1.98

RDU10.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.42	0.68	0.71	0.56	0.59	0.61	0.11	0.23	0.24	2.59	0.54
Composite NOx (g/mi)	0.37	0.46	0.65	0.59	0.83	2.18	0.34	0.49	5.99	1.35	1.31

RDU10.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.43	0.69	0.73	0.57	0.60	0.64	0.12	0.23	0.25	2.61	0.57
Composite NOx (g/mi)	0.36	0.45	0.63	0.58	0.82	2.11	0.30	0.44	5.01	1.26	0.84

Wake and Durham County 2020 Emission Factors

RDU20.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.19	0.29	0.33	0.27	0.29	0.31	0.03	0.08	0.17	2.37	0.26
Composite NOx (g/mi)	0.12	0.17	0.26	0.23	0.35	0.49	0.05	0.09	1.15	1.40	0.45

RDU20.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.19	0.29	0.33	0.27	0.29	0.31	0.03	0.08	0.17	2.37	0.27
Composite NOx (g/mi)	0.12	0.17	0.26	0.23	0.35	0.49	0.05	0.09	1.09	1.35	0.34

RDU20.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.19	0.30	0.33	0.27	0.29	0.33	0.03	0.08	0.18	2.39	0.28
Composite NOx (g/mi)	0.11	0.16	0.25	0.23	0.34	0.46	0.04	0.08	0.93	1.25	0.26

Wake and Durham County 2030 Emission Factors

RDU30.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.23	0.00	1.00
Composite VOC (g/mi)	0.16	0.21	0.25	0.21	0.23	0.25	0.02	0.05	0.16	2.29	0.21
Composite NOx (g/mi)	0.09	0.12	0.19	0.18	0.28	0.20	0.02	0.04	0.52	1.31	0.24

RDU30.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.16	0.21	0.25	0.22	0.23	0.25	0.02	0.05	0.17	2.29	0.22
Composite NOx (g/mi)	0.09	0.12	0.19	0.18	0.28	0.19	0.02	0.04	0.51	1.29	0.20

RDU30.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.16	0.22	0.25	0.22	0.23	0.26	0.02	0.06	0.18	2.31	0.22
Composite NOx (g/mi)	0.09	0.12	0.18	0.17	0.27	0.19	0.02	0.04	0.47	1.24	0.18

Other I/M Counties* 2010 Emission Factors

RUR10.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.65	1.09	1.12	1.11	1.14	1.05	0.16	0.35	0.25	3.57	0.80
Composite NOx (g/mi)	0.52	0.66	0.89	0.90	1.19	2.95	0.73	1.16	11.17	1.73	3.28

RUR10.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.66	1.10	1.13	1.12	1.16	1.06	0.16	0.35	0.25	3.30	0.87
Composite NOx (g/mi)	0.52	0.65	0.88	0.89	1.17	2.88	0.62	0.99	9.67	1.62	1.99

RUR10.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.70	1.16	1.20	1.19	1.23	1.14	0.17	0.37	0.29	2.90	0.96
Composite NOx (g/mi)	0.49	0.61	0.84	0.85	1.13	2.60	0.42	0.66	6.01	1.27	1.08

Other I/M Counties* 2020 Emission Factors

RUR20.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.26	0.43	0.48	0.51	0.54	0.55	0.04	0.15	0.17	3.14	0.38
Composite NOx (g/mi)	0.16	0.25	0.37	0.41	0.59	0.90	0.11	0.27	2.45	1.65	0.85

RUR20.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.26	0.43	0.48	0.51	0.54	0.55	0.04	0.15	0.17	3.14	0.40
Composite NOx (g/mi)	0.16	0.25	0.37	0.41	0.59	0.90	0.11	0.27	2.45	1.65	0.62

RUR20.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.28	0.45	0.50	0.53	0.56	0.60	0.04	0.16	0.19	2.68	0.43
Composite NOx (g/mi)	0.15	0.23	0.35	0.39	0.56	0.80	0.07	0.17	1.45	1.25	0.38

Other I/M Counties* 2030 Emission Factors

RUR30.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.19	0.28	0.33	0.32	0.34	0.34	0.02	0.07	0.16	2.97	0.27
Composite NOx (g/mi)	0.11	0.16	0.24	0.26	0.38	0.24	0.03	0.07	0.91	1.62	0.37

RUR30.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.19	0.28	0.33	0.32	0.34	0.34	0.02	0.07	0.16	2.97	0.28
Composite NOx (g/mi)	0.11	0.16	0.24	0.26	0.38	0.24	0.03	0.07	0.91	1.62	0.30

RUR30.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.21	0.30	0.34	0.34	0.36	0.38	0.02	0.07	0.18	2.58	0.30
Composite NOx (g/mi)	0.10	0.15	0.22	0.24	0.36	0.22	0.02	0.05	0.58	1.25	0.22

"Other I/M Counties" include all counties subject to North Carolina's I/M Program except Mecklenburg, Gaston, Wake and Durham Counties.

All Non-I/M Counties* 2010 Emission Factors

RUR10N.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.27	0.07	0.23	0.07	0.03	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.72	1.17	1.21	1.19	1.24	1.05	0.16	0.35	0.25	3.57	0.85
Composite NOx (g/mi)	0.62	0.79	1.02	1.03	1.31	2.95	0.73	1.16	11.17	1.73	3.36

RUR10N.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.33	0.08	0.28	0.08	0.04	0.05	0.00	0.00	0.13	0.01	1.00
Composite VOC (g/mi)	0.73	1.19	1.23	1.21	1.25	1.06	0.16	0.35	0.25	3.30	0.93
Composite NOx (g/mi)	0.61	0.78	1.01	1.02	1.30	2.88	0.62	0.99	9.67	1.62	2.08

RUR10N.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.37	0.09	0.31	0.09	0.04	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.78	1.27	1.31	1.30	1.34	1.14	0.17	0.37	0.29	2.90	1.05
Composite NOx (g/mi)	0.58	0.74	0.97	0.97	1.26	2.60	0.42	0.66	6.01	1.27	1.19

All Non-I/M Counties* 2020 Emission Factors

RUR20N.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.35	0.59	0.64	0.66	0.69	0.55	0.04	0.15	0.17	3.14	0.47
Composite NOx (g/mi)	0.29	0.46	0.58	0.61	0.79	0.90	0.11	0.27	2.45	1.65	0.97

RUR20N.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.35	0.59	0.64	0.66	0.69	0.55	0.04	0.15	0.17	3.14	0.51
Composite NOx (g/mi)	0.29	0.46	0.58	0.61	0.79	0.90	0.11	0.27	2.45	1.65	0.77

RUR20N.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.38	0.63	0.68	0.70	0.74	0.60	0.04	0.16	0.19	2.68	0.57
Composite NOx (g/mi)	0.28	0.44	0.55	0.58	0.75	0.80	0.07	0.17	1.45	1.25	0.54

All Non-I/M Counties* 2030 Emission Factors

RUR30N.in - Rural Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.22	0.08	0.26	0.08	0.04	0.09	0.00	0.00	0.22	0.00	1.00
Composite VOC (g/mi)	0.29	0.44	0.49	0.47	0.49	0.34	0.02	0.07	0.16	2.97	0.36
Composite NOx (g/mi)	0.24	0.38	0.45	0.46	0.59	0.24	0.03	0.07	0.91	1.62	0.49

RUR30N.in - Urban Interstate											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.26	0.10	0.32	0.10	0.04	0.05	0.00	0.00	0.13	0.00	1.00
Composite VOC (g/mi)	0.29	0.44	0.49	0.47	0.49	0.34	0.02	0.07	0.16	2.97	0.39
Composite NOx (g/mi)	0.24	0.38	0.45	0.46	0.59	0.24	0.03	0.07	0.91	1.62	0.45

RUR30N.in - Other roads											
	LDGV	LDGT1	LDGT2	LDGT3	LDGT4	HDGV	LDDV	LDDT	HDDV	MC	All Veh
VMT distribution:	0.29	0.11	0.35	0.11	0.05	0.03	0.00	0.00	0.06	0.01	1.00
Composite VOC (g/mi)	0.32	0.47	0.52	0.51	0.53	0.38	0.02	0.07	0.18	2.58	0.44
Composite NOx (g/mi)	0.23	0.36	0.42	0.43	0.56	0.22	0.02	0.05	0.58	1.25	0.38

"All Non-I/M Counties" include those not subject to North Carolina's I/M program.

Appendix D. North Carolina Average Weekday VMT

County	2010	2020	2030
ALAMANCE	4,116,020	4,919,514	5,649,963
ALEXANDER	731,687	871,200	998,030
ALLEGHANY	270,468	287,763	303,486
ANSON	938,933	1,071,290	1,191,614
ASHE	762,184	973,969	1,166,501
AVERY	555,065	595,003	631,309
BEAUFORT	1,177,361	1,202,892	1,226,102
BERTIE	810,582	885,281	953,189
BLADEN	1,247,469	1,404,262	1,546,800
BRUNSWICK	3,687,147	4,977,851	6,151,217
BUNCOMBE	6,781,129	8,097,236	9,293,698
BURKE	2,854,160	3,283,996	3,674,757
CABARRUS	4,684,304	5,879,837	6,966,685
CALDWELL	1,964,704	2,253,360	2,515,774
CAMDEN	336,441	396,006	450,156
CARTERET	1,820,883	1,971,912	2,109,210
CASWELL	680,712	796,520	901,800
CATAWBA	5,237,733	6,466,425	7,583,418
CHATHAM	2,198,483	2,904,213	3,545,787
CHEROKEE	836,654	1,019,691	1,186,088
CHOWAN	361,279	414,436	462,761
CLAY	296,626	383,240	461,981
CLEVELAND	3,063,240	3,701,262	4,281,281
COLUMBUS	2,170,683	2,751,799	3,280,085
CRAVEN	3,519,621	4,882,283	6,121,067
CUMBERLAND	8,568,496	10,016,395	11,332,667
CURRITUCK	1,401,762	2,077,586	2,691,972
DARE	1,695,108	2,015,629	2,307,011
DAVIDSON	4,766,227	5,637,268	6,429,123
DAVIE	1,497,681	1,810,677	2,095,219
DUPLIN	2,157,963	2,628,142	3,055,577
DURHAM	7,167,554	8,692,585	10,078,976
EDGECOMBE	1,772,872	2,093,447	2,384,879
FORSYTH	9,287,388	11,054,174	12,660,343
FRANKLIN	1,551,945	1,980,211	2,369,544
GASTON	6,194,506	7,694,183	9,057,526
GATES	343,251	369,860	394,050
GRAHAM	183,026	193,074	202,208
GRANVILLE	1,943,046	2,334,181	2,689,758
GREENE	657,462	789,226	909,012
GUILFORD	12,253,484	14,143,803	15,862,274
HALIFAX	1,936,468	2,039,312	2,132,806
HARNETT	2,564,706	2,971,807	3,341,898
HAYWOOD	2,583,473	3,045,305	3,465,151
HENDERSON	2,710,042	3,362,210	3,955,089
HERTFORD	565,952	569,262	572,271

HOKE	941,277	1,217,486	1,468,584
HYDE	259,938	355,006	441,432
IREDELL	5,502,505	6,678,388	7,747,373
JACKSON	1,579,508	1,978,271	2,340,783
JOHNSTON	5,955,740	7,525,220	8,952,020
JONES	562,943	632,885	696,469
LEE	1,849,101	2,283,644	2,678,682
LENOIR	1,810,371	2,027,463	2,224,819
LINCOLN	1,815,733	2,318,476	2,775,514
MACON	1,066,127	1,328,953	1,567,886
MADISON	619,995	763,833	894,595
MARTIN	1,016,465	1,182,192	1,332,854
MCDOWELL	1,849,442	2,181,853	2,484,045
MECKLENBURG	23,233,048	30,636,749	37,367,386
MITCHELL	405,428	469,602	527,943
MONTGOMERY	1,165,572	1,406,073	1,624,710
MOORE	2,373,761	2,844,462	3,272,372
NASH	3,898,666	4,387,842	4,832,548
NEW HANOVER	3,980,143	5,044,608	6,012,303
NORTHAMPTON	984,377	1,098,087	1,201,461
ONSLOW	3,915,598	5,175,865	6,321,563
ORANGE	4,317,447	5,446,241	6,472,417
PAMLICO	373,866	419,604	461,183
PASQUOTANK	816,396	994,241	1,155,918
PENDER	1,994,704	2,456,701	2,876,698
PERQUIMANS	456,035	577,222	687,392
PERSON	900,146	1,067,428	1,219,502
PITT	3,400,317	3,983,033	4,512,775
POLK	925,202	1,156,146	1,366,095
RANDOLPH	4,313,301	5,195,767	5,998,009
RICHMOND	1,647,628	2,001,787	2,323,749
ROBESON	4,636,309	5,246,393	5,801,015
ROCKINGHAM	2,640,291	2,864,919	3,069,125
ROWAN	3,873,570	4,465,386	5,003,400
RUTHERFORD	1,810,844	2,115,733	2,392,904
SAMPSON	2,203,095	2,546,108	2,857,938
SCOTLAND	1,229,827	1,382,587	1,521,461
STANLY	1,599,536	1,862,841	2,102,210
STOKES	1,117,285	1,343,434	1,549,024
SURRY	2,675,387	2,969,519	3,236,912
SWAIN	562,881	615,707	663,731
TRANSYLVANIA	893,248	1,042,179	1,177,571
TYRRELL	189,727	250,223	305,219
UNION	3,787,618	4,643,151	5,420,908
VANCE	1,531,253	1,857,697	2,154,464
WAKE	20,085,293	25,619,517	30,650,630
WARREN	717,902	861,911	992,829
WASHINGTON	448,283	483,359	515,245
WATAUGA	1,081,388	1,160,296	1,232,030
WAYNE	3,292,285	4,024,978	4,691,063

WILKES	1,993,375	2,286,565	2,553,101
WILSON	2,707,761	3,093,448	3,444,072
YADKIN	1,518,080	1,776,643	2,011,700
YANCEY	426,871	450,324	471,646

North Carolina Department of Environment and Natural Resources
Division of Air Quality

NCDAQ Analysis of CA LEV-II Vehicle Emissions Standards

Presented to the Environmental Review Commission

May 3, 2006

Brock M. Nicholson, P.E.
Deputy Director, NCDAQ

North Carolina Department of Environment and Natural Resources
Division of Air Quality

Outline

- Air Quality in North Carolina
- Review of Vehicle Standards
- CA LEV-II Project
- CA LEV-II vs. Federal Tier 2
  - NOx and VOC emissions benefits
  - Projected impacts on ambient air quality
- Fleet Averaging
  - Comparison of CA and NC fleets
- Resources
- Options/Next Steps

North Carolina Department of Environment and Natural Resources
Division of Air Quality

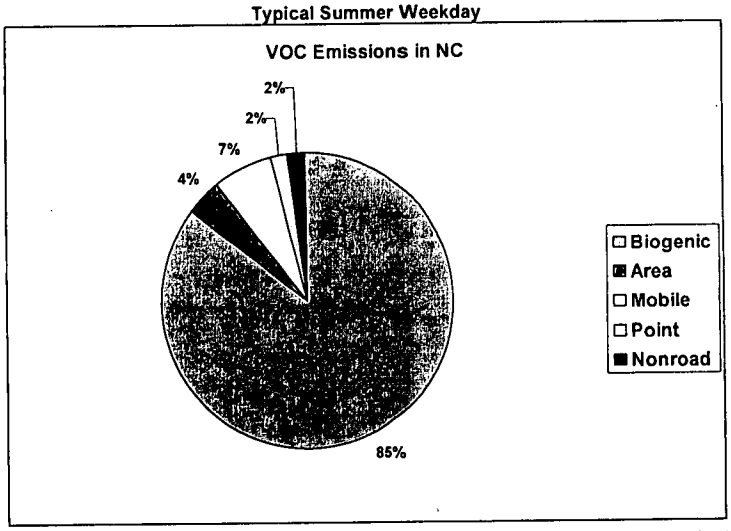
Air Quality - Ozone

- All* areas of NC are attaining the 8-hr ozone standard except the Charlotte area
  *Triangle status pending USEPA approval
- Recall... NOx + VOC + sunlight = ozone
- NOx
  - precursor pollutant of concern in NC
  - majority of VOCs come from natural sources
- On-road mobile sources contribute significantly to the total NOx emissions in NC

North Carolina Department of Environment and Natural Resources
Division of Air Quality

VOC emissions

Typical Summer Weekday



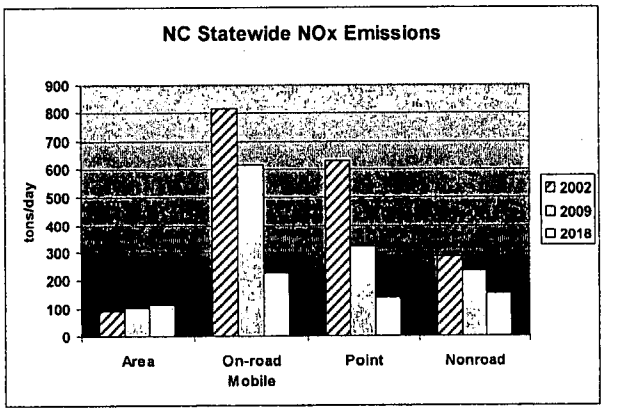
Source: NCDAQ, Association of Southeastern Integrated Planning and the Visibility Improvement State and Tribal Association of the Southeast, Version BaseF4. 2009 estimates include all controls scheduled to be in place in 2009, including, but not limited to the NC Clean Smokestacks Act (point sources), Federal Tier 2 (on-road mobile sources) and the expanded NC Inspection and Maintenance Program (on-road mobile sources)

North Carolina Department of Environment and Natural Resources

Division of Air Quality

NOx emissions

Typical Summer Weekday



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North Carolina Department of Environment and Natural Resources

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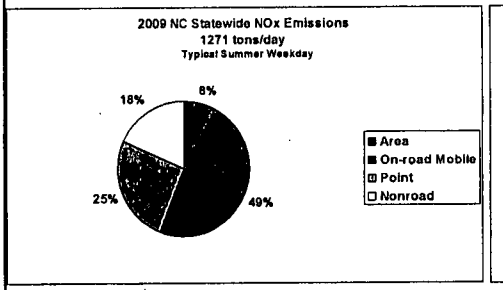
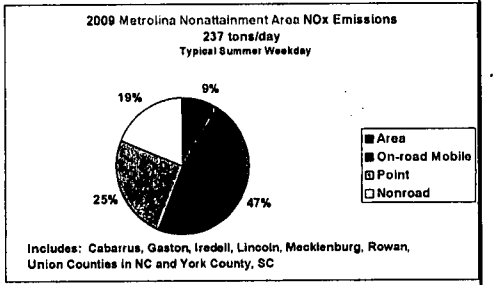
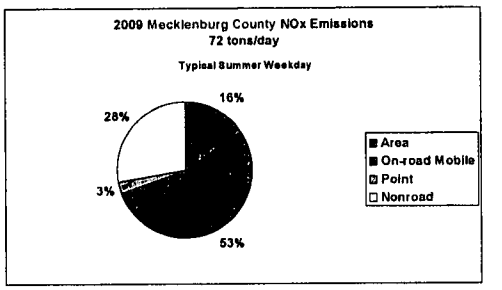




Includes: Cabarrus, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Union Counties in NC and York County, SC



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North Carolina Department of Environment and Natural Resources

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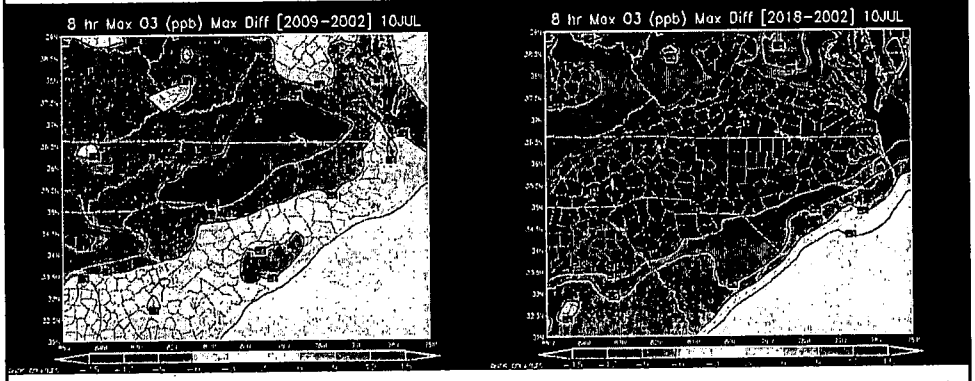
Predicted Future Air Quality

Current Federal and State Rules

Example of expected ozone reductions between 2002 and 2009

Example of expected ozone reductions between 2002 and 2018

Scales are the same on both maps.
Purple indicates 8-hour ozone reductions greater than 15 ppb.



Source: NCDAQ, Association of Southeastern Integrated Planning and the Visibility Improvement State and Tribal Association of the Southeast, Version BaseF4

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Vehicle Emissions Standards in the US

- Federal – Currently "Tier 2"
  - Adopted in 1999
  - Phased in 2004-2010
  - Fleet Average Requirement for NOx
  - Covers all States
  - Federal Clean Air Act (CAA) Section 209(a) "preempts" states from establishing separate standards
- California – Currently "CA LEV-II"
  - CAA Section 209(b) exempts California from the Sec 209(a) preemption
  - However, CA must obtain a waiver from USEPA for state standards to be effective
    - CA standards must be equal to or more stringent than the Federal standards
  - Fleet Average Requirement for VOC

Objective of this Analysis

- Estimate the NOx and VOC emissions benefits of adopting California Vehicle Emission Standards (CA LEV-II) in NC
- Apply knowledge from recent 8-hour ozone modeling studies to estimate the impacts of adopting CA LEV-II
- Compare the NC and CA vehicle fleet and age distributions to assess the need for "fleet averaging"
- Estimate State staffing resources needed if NC adopts CA LEV-II

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CA LEV-II vs. Federal Tier 2

- CA LEV-II program starts with model year 2010 vehicles
- CA LEV-II emissions estimates include:
  - Fleet averaging enforcement
  - Zero Emitting Vehicle (ZEV) component
  - Phase-in percentages by exhaust certification bin
    - Provided by USEPA in MOBILE6.2 ready format
      - Represents the California Air Resources Board (CARB) phase-in schedule
      - It represents an estimate of the mix of vehicles that manufacturers will distribute to meet the fleet average standard

CA LEV-II vs. Federal Tier 2

Emission estimates were developed using:

- USEPA motor vehicle emissions model (MOBILE6.2)
- USEPA mobile modeling guidance
- NC specific input data including:
  - Vehicle mix, vehicle age distribution, vehicle miles traveled (VMT), speeds, Inspection/Maintenance Programs (I/M), fuels, temperatures
- Federal Tier 2 estimates for 2004, 2010, 2020 and 2030
- CA LEV-II estimates for 2010, 2020 and 2030

Methods: USEPA Technical Guidance on the Use of MOBILE 6.2 for Emission Inventory Preparation, August 2004

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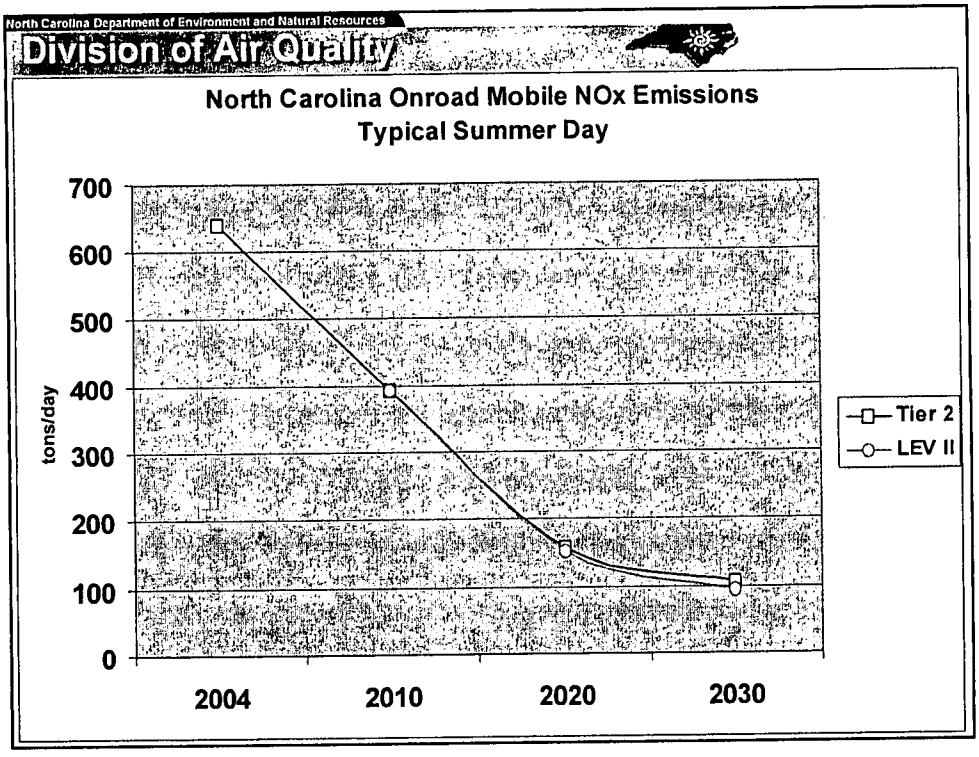

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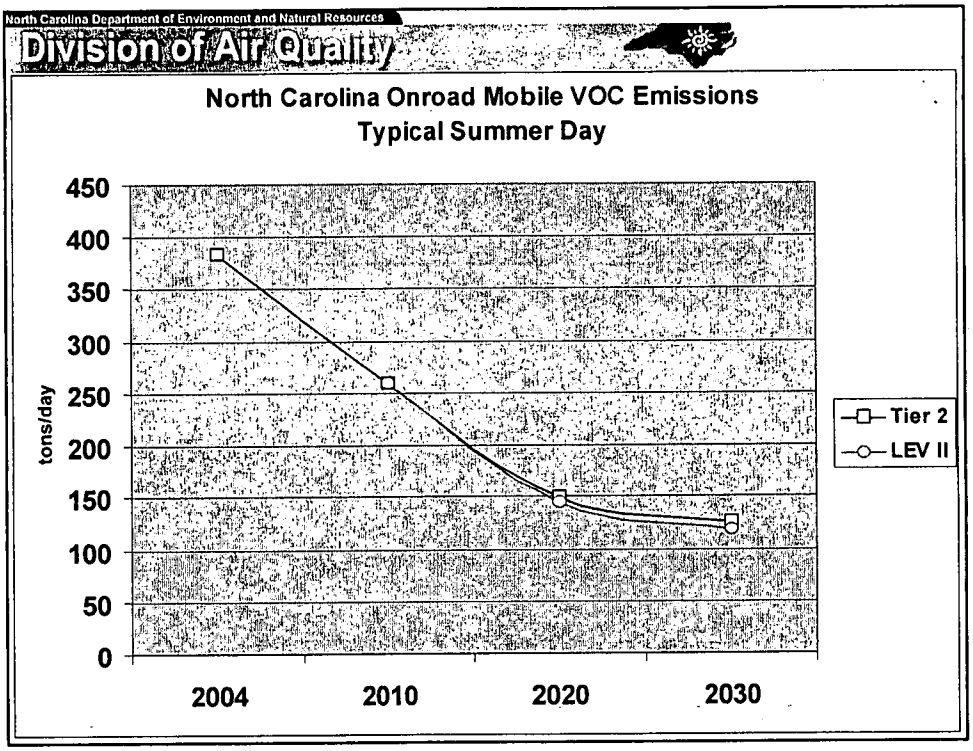

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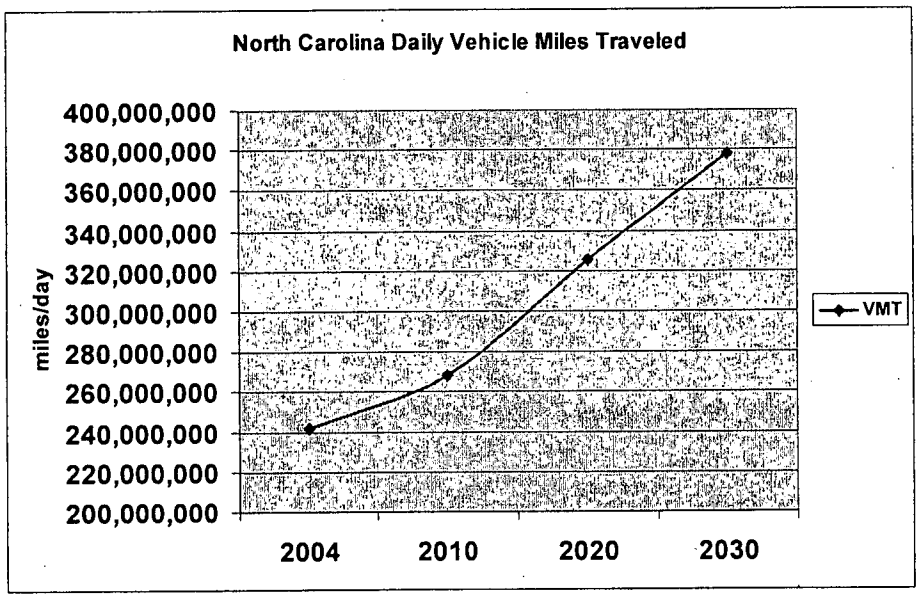

CA LEV-II vs. Federal Tier 2

Emissions Reductions Summary

- On-road mobile sources only
- CA LEV-II Program in NC starting with model year 2010

	2010	2020	2030
NOx	0.1%	4%	10%
VOC	0.1%	3%	6%

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Air Quality Modeling

- During NCDAQ's current SIP modeling...

  Air Quality modeling sensitivities were performed by NCDAQ to assess the impacts of *additional* future year NOx emissions reductions from on-road mobile sources

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Division of Air Quality

Air Quality Modeling

Future year (2009) NOx emissions from on-road mobile sources were reduced by 10% in the following counties:

Mecklenburg

Union

Gaston

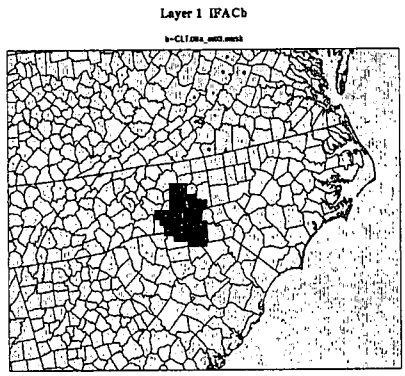
Lincoln

Iredell

Cabarrus

Rowan

The 10% NOx reduction in 2009 is equivalent to ~10 tons/day in this region



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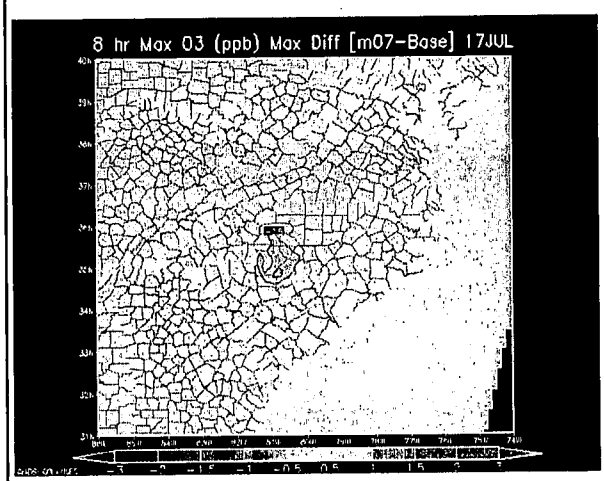
Air Quality Modeling



- 10 tons/day on-road mobile NOx reduction across the Metrolina area resulted in lowering 8-hour ozone concentrations by 0.1 to 1.0 ppb in 2009
- Only 1 of the 7 modeled days resulted in changes as high as 1.0 ppb (shown)
- Only 2 of the 7 modeled days resulted in changes as high as 0.5 ppb

Air Quality Modeling

For the Metrolina area...

2009 on-road mobile NOx ~ 100 tons/day (w/ Tier 2)

2020 on-road mobile NOx ~ 25 tons/day (w/ Tier 2)

If...

- 10% = 10 tons/day NOx in 2009 = 1 ppb max benefit

Then..

- 4 % = 1 ton/day NOx in 2020 = 0.1 ppb max benefit

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Division of Air Quality

Fleet Characteristics

- Comparison of the NC and CA vehicle fleets
  - Composition
  - Age distributions
- Assess the value of "fleet averaging" enforcement

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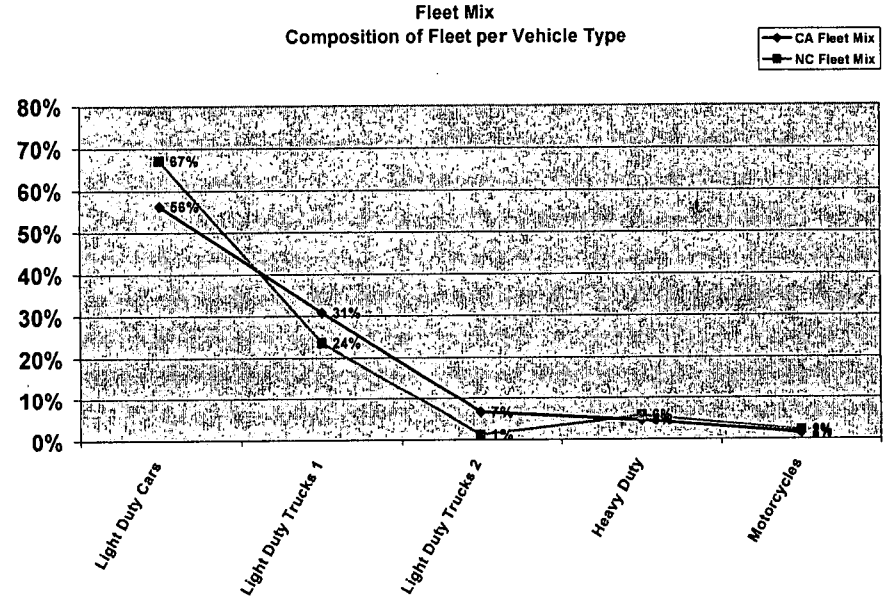
Division of Air Quality

Fleet Mix
Composition of Fleet per Vehicle Type

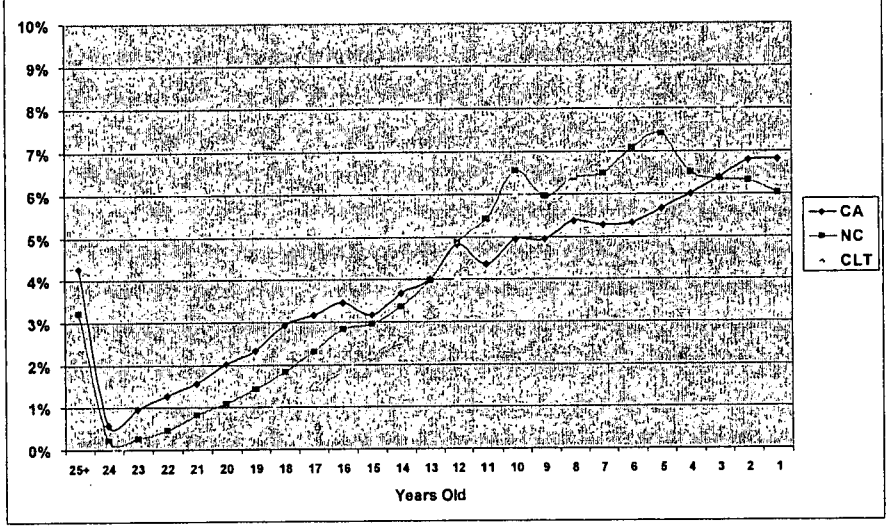


Sources: North Carolina Department of Transportation and California Air Resources Board

North Carolina Department of Environment and Natural Resources

Division of Air Quality

Light Duty Gasoline Vehicles
Percent by Age



Sources: North Carolina Department of Transportation and California Air Resources Board

Note: CLT includes Gaston and Mecklenburg Counties

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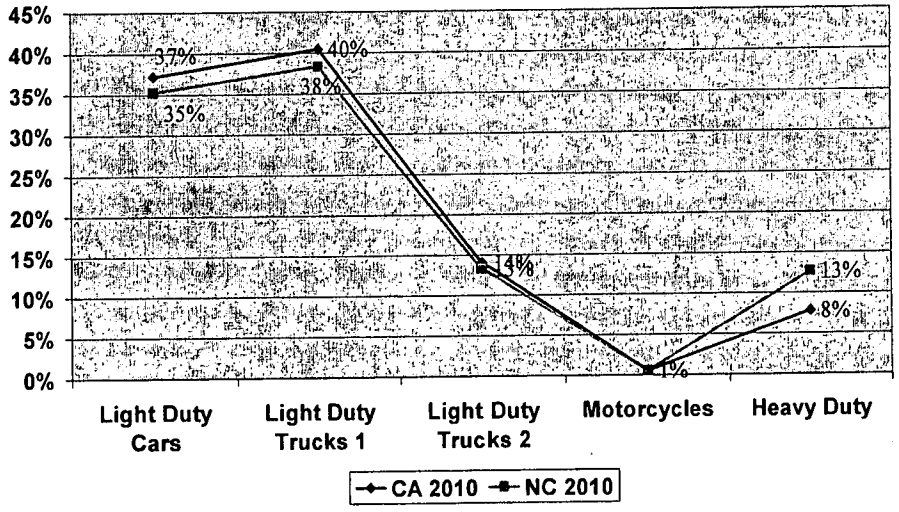
Division of Air Quality

VMT Mix
Percent of VMT per Vehicle Type



Sources: North Carolina Department of Transportation and California Air Resources Board
Methods: USEPA Technical Guidance on the Use of MOBILE 6.2 for Emission Inventory Preparation, August 2004

North Carolina Department of Environment and Natural Resources
Division of Air Quality

Staff Resources

- DAQ and DMV
  - DMV: Primary point of enforcement
  - DAQ: Audits, monitor performance of program, public outreach and troubleshoot registration issues
- Fleet average enforcement
  - *Potential* State staffing requirements with fleet average enforcement
    - Washington, 1.5 full time employees (FTEs)
    - New York, 2-3 people (not full time)
    - Massachusetts, 2-3 people (not full time)
  - Potential duties of DAQ Employees
    - Enforce compliance of fleet average requirement
    - Work with manufacturers / dealers and public on vehicle model availability issues

Source: NCDAQ, Washington State Department of Ecology-Air Quality Program

North Carolina Department of Environment and Natural Resources
Division of Air Quality

Staff Resource Impacts

- Existing Tasks:
  - Transportation conformity, SIP modeling and emissions inventories would require more time and resources due to more complicated mobile sources emissions estimation techniques
  - This would also impact Local Air Quality Agencies, Metropolitan Planning Organizations and Rural Planning Organizations involved in the transportation conformity process

Source: NCDAQ, Washington State Department of Ecology-Air Quality Program

North Carolina Department of Environment and Natural Resources
Division of Air Quality

Summary

- CA LEV-II benefits relative to Federal Tier II in future years:
  - NOx emissions would be reduced by 0.1%, 4% and 10% in 2010, 2020 and 2030, respectively
  - VOC emissions would be reduced by 0.1%, 3% and 6% in 2010, 2020 and 2030, respectively
  - Air Quality benefits: Less than 0.1 ppb ozone reduction in 2020

North Carolina Department of Environment and Natural Resources
Division of Air Quality

Summary - continued

- Air Quality: Ozone concentrations would change *less than* 0.1 ppb in 2020
- Vehicle fleet age: NC currently has a newer fleet of light duty vehicles (passenger cars) than California
- Vehicle population: NC has a greater number of light duty vehicles (passenger cars) and fewer light duty trucks (including SUVs) than California
- Implementation Resources: Other States suggest 1-2 employees needed for enforcement of fleet average requirements
- Implications for ongoing DAQ activities: More complicated emission estimation techniques would lengthen NCDAQ timelines for transportation conformity, SIP modeling and emission inventories

North Carolina Department of Environment and Natural Resources
Division of Air Quality

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NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

October 29, 2007

TO: Senator Charles W. Albertson, Co-chair Environmental Review Commission
Senator Daniel G. Clodfelter, Co-chair Environmental Review Commission
Representative Lucy T. Allen, Co-chair Environmental Review Commission
Representative Pryor Gibson, Co-chair Environmental Review Commission

FROM: William G. Ross, Secretary

RE: Annual State Water Supply Plan Report

G.S. 143-355(n) requires the Department of Environment and Natural Resources to report to the Environmental Review Commission each year on the development of the state water supply plan. Attached is this year's report. If you have any questions, please contact John Morris at 919-733-4064.

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Department of Environment and Natural Resources

Division of Water Resources

STATUS REPORT TO THE GENERAL ASSEMBLY

ON

WATER SUPPLY PLANNING

SEPTEMBER 1, 2006 THROUGH AUGUST 31, 2007

Assuring a sustainable future water supply for North Carolina is the primary mission of the Division of Water Resources (DWR or the Division). To carry out this responsibility, the Division administers several monitoring, planning and regulatory programs.

DWR, in partnership with the US Geological Survey, monitors the availability of water across the state by means of a network of monitoring wells and stream gages. DWR receives and maintains water use data from the mandatory registration of large water withdrawals.

DWR assists community water systems with the preparation of Local Water Supply Plans and prepares the North Carolina Water Supply Plan. In partnership with local governments and other water users, the Division is in the process of preparing long term water supply plans for each river basin to assure the sustainability of future water supplies.

DWR issues permits for water withdrawals in designated capacity use areas, manages applications for certification of interbasin transfers of surface water, and is the lead agency for the Department of Environment and Natural Resources in the relicensing of hydropower projects.

This status report provides an update on these water supply programs and on other related Division activities.

Water Availability Monitoring

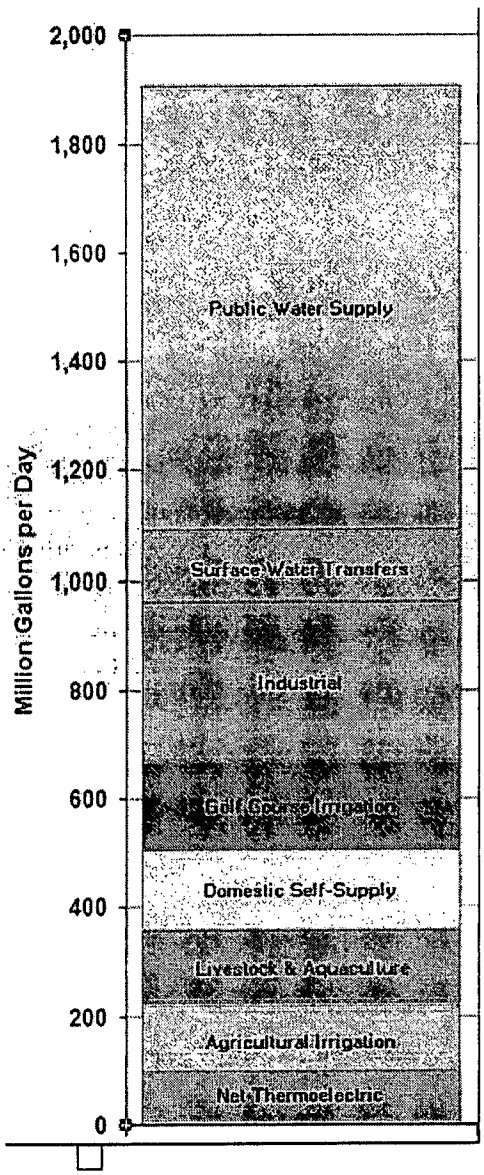
The Division maintains ground water and surface water monitoring networks both directly and in partnership with federal agencies. The data from these networks provide essential information on the condition of water resources throughout the state. North Carolina cooperates with the United States Geological Survey to maintain stream gage sites with real time data collection capabilities. Also, the Division maintains a large network of ground water monitoring wells. Data from these wells are collected quarterly. About fifty percent of these wells have data recorders that collect daily water level data. To improve the accessibility and usefulness of this data for water resource management, the Division has recently joined with the State Climate Office at NC State University, the US Army Corps of Engineers, the United States Geological Survey and others to develop a uniform database to store and disseminate water resources data.

In recent years, with the support of the General Assembly, the Division has expanded the monitoring well network in the Coastal Plain region, an area where ground water resources are being stressed by over-pumping. Twelve new wells at three monitoring stations were added over the last year to aid in management of the regional aquifer systems. The Division will expand the monitoring well network as funds permit to improve data for ground water management.

Changes to the funding formula for the monitoring stations operated cooperatively with the United States Geological Survey have resulted in the discontinuance of data

collection at some monitoring sites. Maintenance of near-real time data reporting in the monitoring system will require additional funds in the near future to upgrade existing equipment.

Water Use Monitoring
2005 Estimated
Water Withdrawals in North Carolina



The graph above shows estimated current water withdrawals by the major groups of water users compiled from data collected and estimated by Division of Water Resources and by the U.S. Geological Survey.

Knowing how much water is being withdrawn by water users across the state is vital information for effective water resources planning. Currently, water use data are collected through several programs. Units of local government that provide water to the public and other large community water systems submit water use information at least every five years in their Local Water Supply Plans. Large self-supplied water users report water use data every five years under the water withdrawal registration program. This program requires non-agricultural facilities that withdraw 100,000 gallons per day or more and agricultural operations that withdraw one million gallons per day or more to register their withdrawals and to periodically report withdrawal data to the Division.

Additional reporting requirements apply in the fifteen counties of the Central Coastal Plain Capacity Use Area. Permitted water users submit water use data to the Division monthly. Others that withdraw 10,000 gallons per day or more must annually report monthly water use.

The five year pattern of updates under the local water supply planning and water withdrawal registration programs leaves significant gaps in our historical water use data. Final adoption in March 2007 of new rules governing water use during droughts will help to fill some of these gaps. As part of these rules, beginning in 2008, water systems that have to prepare a Local Water Supply Plan under G.S. 143-355(l) and water withdrawers that have to register under G.S. 143-215.22H must report

water use data to the Division annually. To simplify the reporting process, DWR will have an online reporting program available so water systems can submit their data electronically.

Local Water Supply Plans

The General Assembly established a water supply planning program under General Statutes 143-355(l) and (m) to assure the availability of adequate supplies of good quality water to protect the public health and to support desirable economic growth. Local Water Supply Plans are required from units of local government that supply or plan to supply water to the public and from other community water systems that regularly serve 1,000 or more service connections or 3,000 or more individuals.

Local Water Supply Plans describe current water use and future water needs and assess the water system's ability to meet those needs. The plans must be adopted by the water system's local governing board and be updated at least every five years. The Division of Water Resources is responsible for reviewing Local Water Supply Plans for completeness and consistency.

The plans provide a valuable source of data for all local and regional water supply planning. Information from the local plans is available on the Division's web site www.ncwater.org. The 2002 Local Water Supply Plans are the most recent statewide updates. Of the 620 water systems from whom we expected to receive an updated plan we got draft plans from 526 by the end of 2006.

During the period covered by this report DWR began the process of staggering the submissions of Local Water Supply Plans. As a first step in the transition to staggering local plan submissions, the Division requested updated local plans from the 114 water systems that get their water from the Neuse and Roanoke river basins. Because of the statutory requirement for five-year updating, water systems in the other river basins are required to update their local plans in early 2008 based on conditions in 2007. Beginning in 2009 staggered updating will resume so that water systems in two to four of the major river basins will be updating their Local Water Supply Plans each year. Local Water Supply Plans are accessible from the Division's website at www.ncwater.org.

A revised online reporting program has simplified local plan submission for many water systems. Of the 106 water systems that had submitted their 2006 plans by August 14th, 100 of them did so online while only 6 submitted paper forms. Online submissions simplify the process, aid database development and provide the opportunity for realtime technical assistance from Division staff during plan preparation.

Session Law 2003-387, which expanded the scope of water systems required to prepare a Local Water Supply Plan, also added the requirement that water systems include a description of how they will respond to drought and other water shortage emergencies. Rules governing water use during droughts, which became effective on March 19, 2007, provide guidance on what should be included in these Water Shortage Response Plans. In addition, the rules include default water shortage response actions that must be taken by water systems that do not have a written Water Shortage Response Plan in place when the NC Drought Management Advisory Council designates their region as suffering from Extreme or Exceptional Drought conditions. Of the water systems that submitted a 2006 local plan, 75

percent included a Water Shortage Response Plan. Division staff members provide assistance with developing Water Shortage Response Plans.

North Carolina Water Supply Plan (NCWSP)

The Division uses the information from the LWSPs and other sources to develop the North Carolina Water Supply Plan (NCWSP), mandated by G.S. 143-355(m). The NCWSP presents a summary of water use by major river basin and identifies areas of concern where water availability or conflicts between users may limit the ability to meet water demands.

The 2001 NCWSP is available on the Division's web site at www.ncwater.org. The plan is based on information from the 1992 and 1997 LWSPs and 1999 water withdrawal registrations submitted pursuant to General Statute 143-215.22H. No changes were made to this document during the period covered by this report. The NCWSP will be updated to reflect information in the River Basin Water Supply Plans discussed in the next section.

River Basin Water Supply Plans

To further the legislative goal of assuring the availability of adequate supplies of water, the Division of Water Resources is developing a River Basin Water Supply Plan for each of the major river basins in the state. River basin water supply planning is a tool to support sustainable management of our river basins. This program will provide reliable, quantitative methods to plan for sustainable water use and an objective basis for management and regulatory decisions.

The River Basin Water Supply Plans provide a basin analysis of estimated future water supply demands, using a computer-based hydrologic model that characterizes water flow in a basin. The hydrologic models provide a tool to analyze the effects of future water withdrawals and wastewater discharges over the range of high and low river flows that have occurred in the basin. By projecting water needs to 2050 and evaluating these future demands with a hydrologic model, we will be able to identify areas where supplies may not be adequate to meet projected demands and where potential water use conflicts may occur. The River Basin Water Supply Plans and associated hydrologic models will give the Division, local governments and other water users a reliable, quantitative framework within which to plan for sustainable and cost-effective water sources to meet future needs.

The Division developed a Cape Fear River Basin Water Supply Plan in 2002 in conjunction with analysis of allocations of water supply storage in B. Everett Jordan Lake. This model has been updated with the technical and financial support of water users in the basin that have recognized the value of the model as a water supply planning tool. The Division has begun work to update the plan and will be meeting with basin stakeholders in October to solicit their input and support.

Hydrologic models were constructed for the Catawba and Yadkin river basins in conjunction with the relicensing of the hydropower projects on these rivers. The Division worked closely with stakeholders and with the utility companies in these basins to estimate long-term water supply needs that were then included in the modeling of management options for the future. These analyses formed the basis of settlement agreements and license applications submitted to the Federal Energy Regulatory Commission. Hydrologic models for the Neuse, Roanoke and Tar-Pamilico river basins are in the initial stages of development.

Data from the River Basin Water Supply Plans will be available to the Division of Water Quality for use in the development of their Basinwide Water Quality Plans.

Water Use During Droughts

Session Law 2002-167 (House Bill 1215) required the Environmental Management Commission (EMC) to develop administrative rules establishing minimum standards and practices for water use during drought and water emergencies. The Division coordinated the effort to develop these rules that became effective in March 2007. The rules establish minimum criteria for how a wide variety of water users are expected to prepare for and manage water use during droughts and other water shortage emergencies. To provide important drought management data, the rules require municipal and large community water systems to annually report water use data to the Division. Other large water withdrawers such as industries, power plants and agricultural operations also have to report annual water use data. This reporting requirement will provide the Division and the NC Drought Management Advisory Council with crucial information to assist drought response activities.

Central Coastal Plain Capacity Use Area

Rules creating the Central Coastal Plain Capacity Use Area (CCPCUA) and establishing a water withdrawal permitting system became effective August 1, 2002. The rules were fashioned to gradually reduce withdrawals from the endangered Black Creek and Upper Cape Fear aquifers in the fifteen designated counties. The rules require stepped reductions in withdrawals from the endangered aquifers over a sixteen-year transition period and encourage the development of alternative sustainable sources of water. Anyone wishing to withdraw more than 100,000 gallons a day of ground water must apply for and receive a permit from the Division of Water Resources. As of August 27, 2007, there were a total of 205 permitted users in the Central Coastal Plain Capacity Use Area. At that time there were ten applications for new permits and renewals under review.

The CCPCUA rules provide an initial six-year period for systems to develop plans to adjust water withdrawals and develop alternative sources. Affected water withdrawers are required to make reductions in water use from the impacted aquifers by August 2008 to meet the first of three reduction thresholds. Public water supply systems have made significant progress toward meeting these goals through development of regional water authorities and other water sharing arrangements. In addition, a new surface water intake is under development on the Neuse River in Lenoir County. Additional information on the Central Coastal Plain Capacity Use Area and the associated rules can be found on the Division's website at www.ncwater.org.

Southern Coastal Plain Capacity Use Investigation

In December 2002, the Water Allocation Committee of the EMC asked the Division to conduct a capacity use investigation of the Southern Coastal Plain area surrounding Bladen County. The study determined that there are areas in the region where ground water levels are declining due to overpumping.

The monitoring well network in this region is sparse and new wells need to be added to effectively monitor the area. Water users in Scotland, Robeson, Hoke, Bladen and Sampson counties are cooperating on studies to identify long-term water supply solutions for the region. One study shows that water users in Scotland, Hoke and western Robeson counties

can likely meet predictable demand from existing sources without causing significant reductions in ground water levels. More monitoring is needed in this area to understand how much water could be available to provide for unexpected demands such as a new industrial facility or increased agricultural irrigation.

Water users in Sampson, Bladen and eastern Robeson counties are investigating the development of a surface water treatment plant using water from the Cape Fear River to reduce ground water withdrawals from the underlying confined aquifers. The proposed intake and water treatment plant will supply water to Smithfield Foods and to some of the surrounding water systems that currently use the same impacted aquifer. The number of communities that will be connected to the new surface water supply has not been finalized.

The Lumber River Council of Governments (LRCOG) is coordinating these water supply planning activities as required by an agreement signed by the EMC, DWR and LRCOG to improve management of regional water sources. The Southern Coastal Plain Capacity Use Investigation report is available on the Division's website at www.ncwater.org.

Interbasin Transfer Certifications Many communities in North Carolina are located on or near the high ground that creates the divides between river basins. Other communities are located in the headwaters of river basins where the limited water supply availability has proven to be inadequate as the economy and population of the state has grown. In these situations, municipal water systems may need to move water between river basins. Carefully regulated interbasin transfers can be the most practical, economical and environmentally sound way to provide water and sewer service to the residents of some communities and to support the growth of the State's economy. However, the Surface Water Transfer Act must be applied in a way that will assure that the economy and resources of the source river basin are protected.

Initiating new transfers or increasing existing transfers of surface water between legislatively defined river basins is regulated by General Statute 143-215.22I. The river basin boundaries established by this statute are defined in G.S. 143-215.22G and its associated map that has been filed with the Secretary of State.

Anyone wishing to initiate a transfer of two million gallons of water a day, to increase a transfer permitted under relevant statutes prior to July 1, 1993, or to increase a transfer above their system's capacity to transfer water on July 1, 1993, such that the new transfer would be more than two million gallons a day, must obtain permission from the Environmental Management Commission.

G.S. 143-215.22G provides a list of potential impacts in the source and receiving basins that must be considered by the EMC in determining whether or not to grant a certificate. The process requires an environmental analysis and provides opportunities for public comment. If the EMC concludes, based on the findings of fact, that the benefits outweigh the detriments a certificate is issued for a specific volume of water and will include provisions to mitigate detriments. The EMC can issue a certificate for a volume other than that requested and can attach conditions to the certificate.

While many communities move water between river basins, prior to 2007 there have only been three Interbasin Transfer Certificates issued under the current legislation. Charlotte Mecklenburg Utilities has a certificate to transfer up to 33 million gallons per day from the Catawba River to the Rocky River basin. Cary, Apex, Morrisville, and Wake County jointly hold a certificate to transfer up to 24 million gallons per day from the Haw River basin to the Neuse River basin. The Piedmont Triad Regional Water Authority was issued a certificate to transfer up to 30.5 million gallons per day from the Deep River to the Haw River and Yadkin River basins.

In March 2007 the Environmental Management Commission issued an Interbasin Transfer Certificate to the Cities of Concord and Kannapolis to transfer up to 10 million gallons per day from the Catawba River Basin and 10 million gallons per day from the Yadkin River Basin to the Rocky River Basin. This decision is being challenged under the Administrative Procedures Act.

Interbasin Transfer Requests

The Greenville Utilities Commission is working with several neighboring communities to develop a regional solution to replace ground water currently being pumped from the regulated aquifers in the Central Coastal Plain Capacity Use Area. Sharing surface water to reduce ground water withdrawals will require an IBT certificate. Water systems pumping water from the regulated aquifers face an August 2008 deadline to reduce their ground water withdrawals from those aquifers.

Hydropower Facility Relicensing

The Federal Energy Regulatory Commission (FERC) licenses non-federal hydroelectric generation projects on navigable waterways. The licenses, issued for 30 to 50 years, govern how the hydroelectric projects are managed and therefore how the rivers on which they are located are affected. Upon expiration of an existing license, the licensee has to apply for a new license in order to continue operating the project. Five years prior to the expiration date of an existing license, the licensee has to file a Notice of Intent to apply for a new license. The license application is filed 24 months before the expiration of the existing license. The three years between filing the Notice of Intent and the filing of the license

application are used to compile the data needed to evaluate the impacts of a project on regional resources and to draft the application and requested provisions of the new license.

Three major projects in the Nantahala and Tuckasegee river basins have license applications that are under review by FERC. Also, three projects that include most of the major reservoirs on the Catawba and Yadkin-Pee Dee Rivers in North Carolina have licenses that expire in 2008. The licensee's applications for new licenses are currently under review and environmental analysis by FERC. DWR has worked closely with the licensees to ensure that water supply issues are given due consideration in the relicensing process. Development of river basin water supply plans for the Catawba-Wateree and Yadkin-Pee Dee river basins has been greatly facilitated by the computer models developed in conjunction with the relicensing process. In the Catawba-Wateree River Basin, the licensee funded an independent study of future water use in North Carolina and South Carolina through 2058. The results of this study were used in the analysis of alternative operating scenarios.

NCDENR
North Carolina Department of Environment and Natural Resources
Michael F. Easley, Governor
William G. Ross Jr., Secretary

October 29, 2007

MEMORANDUM

To: The Honorable Pryor Gibson, Co-Chair, Environmental Review Commission
The Honorable Daniel Clodfelter, Co-Chair, Environmental Review Commission
The Honorable Charles Albertson, Co-Chair, Environmental Review Commission
The Honorable Lucy Allen, Co-Chair, Environmental Review Commission

From: William G. Ross, Jr. WGR

Subject: Annual Mining Permit Fee Use Report

G. S. 74.54.1 (c) of The Mining Act of 1971 requires the Department of Environment and Natural Resources to report annually to the Environmental Review Commission on the mining permit fees collected and use in implementing the state's mining program.

Attached is this year's report. If you have any questions, please contact Jim Simons, Director of the Division of Land Resources at 733-3833.

Cc. Ms. Elizabeth Self
Ms. Robin Smith
Ms. Kristin Walker

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Phone: 919-733-4984 \ FAX: 919-715-3060 \ Internet: www.enr.state.nc.us/ENR/

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MINING PERMITTING PROGRAM

Fiscal Year 2006-2007

1. Monies Collected

Total fee monies of $56,127.00 were collected during fiscal year 2006-2007.

2. Monies Expended

Salaries and Benefits	$47,202.00
Purchased Services	$10,072.00
Supplies	$175.00
Other Expenses & Adjustments	$1670.00
Intragovernmental Transfer	$8.00
Total	$59,127.00

One position, an assistant mining specialist, was funded this year to assist in application review and permit issuance.

The General Assembly passed the authorization during the 2007 session to raise the mining permit fees effective August 1 to fund five additional mine inspector positions. Mine permitting activity, particularly permit renewals, is cyclic in nature because of the large number of permits issued when the program was just starting and the 10-year life of the many permits. It is anticipated that the increased revenue from the mining permit fee increase will fund one additional position this fall, and one or two additional positions in the spring of 2008.

The value of the additional mining field positions is two-fold. First, it will significantly increase the compliance monitoring effort for the permitted operations and reduce the number of the mines operating illegally without a mining permit. Secondly, the increased mining effort will help expedite mine permit application reviews by expediting field office reviews of the proposed mine sites.

Annual Report on Progress Toward SB 953 Goals

By the N.C. Department of Transportation, Public Transportation Division

ssion Law 1999-328, The Ambient Air Quality Improvement Act, established statewide goals for reducing the growth of vehicle miles traveled (VMT) in the state. The legislation directed the N.C. Department of Transportation to develop a plan to reduce VMT growth by 25 percent by July 1, 2009, focusing on job-related travel.

In April 2004, Secretary Tippett announced the completion of the Statewide Transportation Demand Management Plan. The plan was the culmination of work guided by a panel appointed by Governor Easley. From this work, guidelines were developed.

The goal of transportation demand management (TDM) is to focus on efforts to reduce demand for roadway space by influencing travel choices and the amount and timing of travel. TDM aims to encourage more walking, cycling, use of public transit, carpooling and telecommuting.

In 2004, NCDOT officially initiated funding to local TDM programs, awarding 50 percent of their administrative costs. Prior to that time, the department gave similar support for vanpool programs at Charlotte Area Transit System, Triangle Transit Authority and Piedmont Authority for Regional Transportation. New TDM programs joining that trio of systems were Cape Fear Breeze in Wilmington, University of North Carolina at Chapel Hill, N.C. State University, SmartCommute @ RTP and the City of Asheville.

Savings Resulting from the Use of Transit, Vanpools and Carpools from 2000 to 2007

1,130,419,575 = VMT

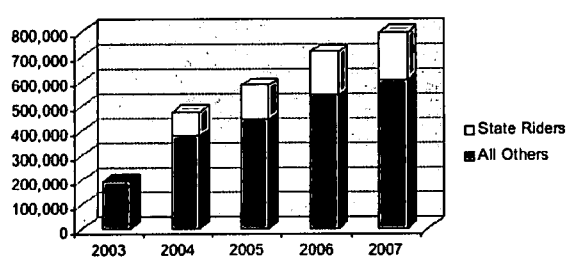
5,632,000 lbs. (2,816 tons) = NO_x

GoPass On the Go

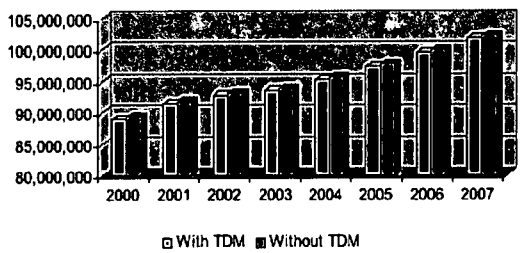
Capital Area Transit (CAT) in Raleigh introduced a fare-free program, now known as GoPass, in September 2002 for students and staff at N.C. State University. One year later, state and city employees began enjoying the benefit and were followed in fiscal year 2004-05 by Wake County workers and in 2005-06 by Meredith College students and staff. State employee ridership has increased 95 percent and total ridership has increased 212 percent over five years.

Following the success of CAT, Triangle Transit Authority began its GoPass program for state employees in October 2005 and has met with phenomenal success.

CAT GoPass Ridership



Daily Commuter Vehicle Miles Traveled

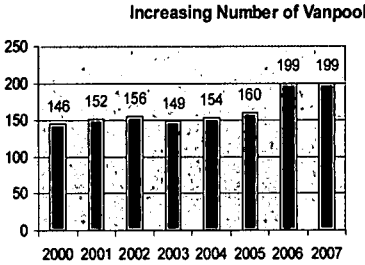


24% Reduction in Growth of Daily Commuter VMT

From 2000 to 2007, with commuter trips being accommodated in carpools, vanpools and transit, daily commuter VMT increased by 12,811,040 VMT. From 2000 to 2007, with commuter trips not being accommodated in these alternative modes, daily commuter VMT would have increased by 15,908,080 VMT, representing a 24 percent reduction in projected growth of commuter VMT.

More Vanpools, Carpools On the Road in North Carolina

Increasing Number of Vanpools



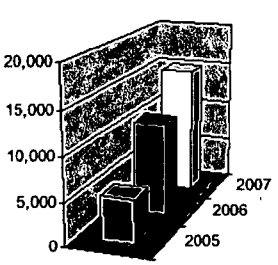
Vanpools and people interested in carpooling are increasing.

Between 2000 and 2007, the number of vanpools in North Carolina increased more than 27 percent. Vanpool programs are operated by the Charlotte Area Transit System, the Triangle Transit Authority, the Piedmont Authority for Regional Transportation and NCDOT, which contracts for service for the rural vanpool program.

The number of registrants in Share The Ride NC, the statewide Web-based rideshare matching program, grew 190 percent between 2005 and 2007.

Growth in Share The Ride NC Registrants

SHARE THE RIDE NC



North Carolina's Transportation Demand Management Programs

Program	Program Description

ASHEVILLE, CITY OF

The City of Asheville implemented its Blue Ridge Commuter Connections in FY 2006. The purpose of the program is to reduce emissions and congestion in the Asheville area by decreasing the number of single-occupant vehicles for commuter traffic into and around the city. The goals of the program for FY 2008 are to promote the Best Workplaces for Commuters Program, promote the Web-based rideshare matching software program ShareTheRideNC.org, investigate the Zipcar Program for downtown Asheville, design and promote a Commuter Club program, hire an intern to set up a commuter challenge for the 2008 Strive Not to Drive campaign, develop a TDM Web site with links to adjacent county Web sites, form a group of business leaders and government officials to provide input and guidance on the TDM work plan, and work closely with the French Broad River MPO and the local transit agency to locate park-and-ride lots.

CHARLOTTE, CITY OF

The City of Charlotte will continue to provide and promote alternate ways of commuting to the citizens who live and work in or near the Charlotte-Mecklenburg region. Activities to be undertaken in FY 2008 include promoting the Best Workplace for Commuters Program, expanding the mini-vanpool program, conducting transportation fairs to increase awareness of various transportation alternatives, increasing usage of the Charlotte Area Transit System (CATS) by bicycle riders, increasing Employee Transportation Coordinator membership, and increasing the use of vanpools in the Charlotte region. In addition, the TDM program will continue to advertise and utilize the Web-based rideshare matching program ShareTheRideNC.org for Mecklenburg County and surrounding counties. ~ The TDM program is housed at CATS and currently leases 78 vans. During FY 2006, it provided approximately 244,800 passenger trips on 80 vans, which averaged 89 miles per day, saving more than 21 million vehicle miles of travel.

N.C. STATE UNIVERSITY

The Transportation Department at N.C. State University implements travel demand management measures to maintain air quality and improve mobility options for the campus. Activities to be undertaken during FY 2008 include administering the U-Pass program; promoting the Wolftrails program and Web site through promotional items, articles in employee publications, the Technician newspaper, quarterly newsletters and brochures; participating in a spring promotional event in conjunction with Earth Day as well as Employee Appreciation Day to increase awareness of transportation options and register persons in the Web-based rideshare matching program; conducting an annual transportation survey to track commuter behavior; participating in the SmartCommute Challenge; assisting Triangle Council of Governments and other coalition partners in promoting/recruiting Best Workplaces for Commuters members; and conducting presentations to university employees to explain commute options supported by the university. NCSU will also work with TTA on the ReDefine Travel campaign to increase ridesharing and transit usage among students.

PIEDMONT AUTHORITY FOR REGIONAL TRANSPORTATION

PART receives financial support from the Cities of Greensboro, High Point and Winston-Salem. The goal of PART's Commuter Services Program is to increase the use of alternative transportation in the region by providing individuals and employers with information on transit, carpooling, vanpooling, park-and-ride lots and the Emergency Ride Home Program. PART will initiate a new hire pass program in the airport hub area and develop TDM initiatives for students at universities and colleges in the area. It will also participate in job fairs to market PART services, including the PART Express Bus service between High Point, Greensboro and Winston-Salem, and advertise the Web-based rideshare matching program ShareTheRideNC.org. It partnered with two other agencies to administer the first annual Triad Commuter Challenge and is expanding the coverage of the Emergency Ride Home Program to cover all alternative commuters instead of just vanpoolers. In addition, it will be developing a Best Workplaces for Commuters campaign. ~ PART currently leases 35 vans. During FY 2006, PART provided approximately 211,680 passenger trips on 28 vans, which averaged 64 miles each day and saved 6.7 million vehicle miles of travel.

RESEARCH TRIANGLE REGIONAL PUBLIC TRANSPORTATION AUTHORITY

TTA will continue to manage and operate the Triangle Area Rideshare Program which offers rideshare matching services, guaranteed ride home, van leasing for vanpools, and transit and park-and-ride information to employees and the general public in the three-county (Durham, Orange and Wake) and the greater Triangle area. Additional activities to be undertaken during FY 2008 include administering the statewide Web-based rideshare matching program ShareTheRideNC.org, providing assistance to employers in becoming designated as Best Workplaces for Commuters, organizing the SmartCommute Challenge, conducting Lunch and Learn events, distributing new hire packets to area employers, administering the employee commuter survey for the Durham Trip Reduction Ordinance, and promoting ridesharing and transit on campuses with the ReDefine Travel campaign. TTA will also continue promoting the GoTriangle.org Web site, which provides trip-planning information. ~ TTA currently leases 61 vans. During FY 2006, TTA provided approximately 398,602 passenger trips on 65 vans, which averaged 70 miles each day, saving 12.9 million vehicle miles of travel.

North Carolina's Transportation Demand Management Programs

Program	Program Description

SMARTCOMMUTE @ RTP

SmartCommute@rtp
The Research Triangle Park

This transportation management association, funded by the Research and Production Service Districts of Durham and Wake counties, will continue a transportation demand management program in the Research Triangle Park area with the overall goal of increasing the percentage of RTP employees using commute alternatives. Activities to be undertaken during FY 2008 include participating in the SmartCommute Challenge to encourage employees to try commute alternatives, hiring an intern to assist with the SmartCommute Challenge and on-site events, working with TTA on the Triangle Region Best Workplaces for Commuters Program, providing temporary subsidies for vanpools and transit passes for new riders of SmartCommute member employers, participating in outreach events including commuter fairs and Earth Day events, being a resource for non-SmartCommute member employers, and providing leadership and administrative support for the SmartCommute @ RTP Committee.

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

The Commuter Alternatives Program (CAP) at the University of North Carolina at Chapel Hill promotes TDM by providing information and incentives to those who do not purchase a university parking permit. CAP markets the commuter options of park-and-ride lots, transit, vanpools, carpools, walking and bicycling. Activities to be undertaken in FY 2008 include distributing CAP brochures throughout the university and nearby student apartment complexes; participating in the ReDefine Travel campaign to encourage student ridesharing, bicycling and walking; advertising university-subsidized TTA bus passes and vanpool rider fares; holding open houses with Chapel Hill Transit, TTA and Zipcar; promoting additional bus services including point-to-point shuttles; increasing marketing and assessment of the Zipcar program; and advertising the statewide rideshare matching program ShareTheRideNC.org as well as the regional trip planning program GoTriangle.org.

WILMINGTON, CITY OF

CAPE FEAR Breeze
Transportation Choices

The City of Wilmington will continue the Cape Fear Breeze Transportation Demand Management Program. The purpose of the program is to develop and promote alternatives to single-occupant vehicle use for target groups, including employers and employees, visitors and the general public. Activities to be undertaken during FY 2008 include promoting the Way2Go Club, a Web site that captures data regarding the usage of alternative modes; conducting the Second Annual Cape Fear Breeze Commuter Challenge to encourage employers, employees and the general public to take advantage of alternative methods of transportation; working with UNC-Wilmington to implement a faculty carpooling program and formalize an emergency ride home program; working with New Hanover County to implement a transit pass program as well as implement preferential carpool permits and an emergency ride home program; and promoting registration in the ShareTheRideNC.org database by creating customized employer page log-ins for new employees and registering employees using laptops during all outreach events. In addition, the program will promote the Best Workplaces for Commuters Program to employers in the region and continue to coordinate with the New Hanover Transportation Services and the Wilmington Transit Authority.

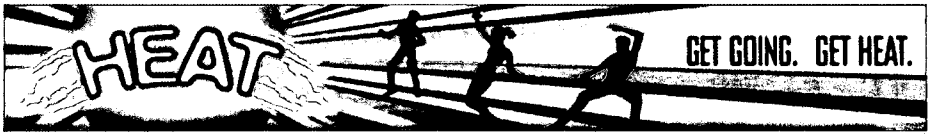
Survey Documents Success In Commute Trip Reduction

An annual Durham County employer survey has found that more employees are making commuter trips by modes other than single-occupant vehicles. In FY 2007, the figure had climbed to 17.5 percent of total commuters from 15.6 percent the previous year and 13.4 percent in 2004-05.

Sixty-eight employers, representing 67,944 employees, completed the survey administered by the Triangle Transit Authority as a part of the Durham Commute Trip Reduction Ordinance.

The program was instituted in 2000 for employers with 100 or more employees.

Mode shifts reported in the survey resulted in a reduction of an additional 50,000 vehicle miles per day, or 12.5 million vehicle miles per year.



Greensboro Students Cool It with HEAT

Since its inauguration in August 2006, Greensboro's Higher Education Area Transit (HEAT) has served over 130,000 passengers, all students enrolled in one of eight major colleges and universities in Greensboro and Jamestown. Students ride for free.

Participating schools are Bennett College, Elon University School of Law, Greensboro College, Guilford College, Guilford Technical Community College (GTCC Jamestown and Greensboro campuses), North Carolina A&T State University and the University of North Carolina at Greensboro.

HEAT, supported primarily by federal and state grants, is a partnership among the Greensboro Transit Authority, the City of Greensboro and the participating schools. More than 40 similar transportation programs for institutions of higher learning are operating around the country. HEAT decreases demand for on-campus parking, enhances air quality in Greensboro and the Triad region and reduces dependence on private vehicles for local transportation needs.

Employers Claim BWC Distinction

The Best Workplaces for Commuters (BWC) Program is a public/ private partnership that publicly recognizes employers whose outstanding commuter benefits meet the U.S. Environmental Protection Agency's National Standard of Excellence to reduce traffic and air pollution and improve health and the quality of life for commuters. The focus of the program is to increase the number of employer-based transportation programs aimed at reducing vehicle miles traveled and air pollution by identifying innovative solutions to commuter needs.

North Carolina's 58 BWC employers represent more than 91,000 employees. Six employers are located in Asheville and Charlotte, and the remaining 52 BWC employers are based in the Triangle. The state has the distinction of having more BWC state agencies – 19 – than any other state. Triangle J Council of Governments administers the Triangle BWC Program.

Best Workplaces for Commuters

TRIANGLE
2Plus, Inc.
ARCADIS, Inc.
BASF Corporation
Blue Cross and Blue Shield of North Carolina
Capital Area Transit
Cato Research
Chapel Hill District
Cisco Systems
City of Durham
City of Raleigh
Downtown Raleigh Alliance
Durham County
EMC Corporation
First Environments
GlaxoSmithKline
IBM
National Institute of Environmental Health Sciences
News and Observer
Nortel
N.C. Administrative Office of the Courts
N.C. Community College System
N.C. Department of Administration
N.C. Department of Agriculture and Consumer Services
N.C. Department of Commerce
N.C. Department of Crime Control and Public Safety
N.C. Department of Cultural Resources
N.C. Department of Environment and Natural Resources
N.C. Department of Health & Human Services
N.C. Department of Insurance
N.C. Department of Justice
N.C. Department of Juvenile Justice and Delinquency Prevention
N.C. Department of Revenue
N.C. Department of State Treasurer
N.C. Department of Transportation
N.C. General Assembly
N.C. League of Municipalities
N.C. Office of Information Technology Services
N.C. Office of the State Auditor
N.C. State University
N.C. Wildlife Resources Commission
The Redwoods Group
Research Triangle Foundation
RTI International
Syngenta Biotechnology, Inc.
Town of Carrboro
Town of Chapel Hill
Triangle J Council of Governments
Triangle Transit Authority
U.S. Environmental Protection Agency (RTP)
University of North Carolina at Chapel Hill
Wake County
Wyeth

ASHEVILLE
City of Asheville
NOAA's National Climatic Data Center
UNC-Asheville

CHARLOTTE
Charlotte Area Transit System
Duke Energy
Mecklenburg County

LYNX Is Coming

The Charlotte Area Transit System's LYNX Blue Line will initiate service Nov. 26. North Carolina's first light rail system will run 9.6 miles from Uptown Charlotte to Interstate 485/ South Boulevard. The first full year average daily ridership is projected to be 9,100. By 2025, ridership is expected to double.

More Commuters Taking the Challenge

A commuter challenge is a campaign designed to increase general public awareness of alternate commuting options through aggressive marketing and employer site visits. Campaigns have shown that about 10 percent of employees who try a commute alternative will make it a regular practice. Currently four TDM programs sponsor commuter challenges: Cape Fear Breeze, SmartCommute @ RTP, Triangle Transit Authority (TTA) and Piedmont Authority for Regional Transportation (PART). TDM programs at Charlotte Area Transit System, University of North Carolina at Chapel Hill, N.C. State University and the City of Asheville are expected to launch their campaigns in 2008.

Cape Fear Breeze conducted its first campaign in April with 298 participants. PART's first effort, Triad Commute Challenge, began May 1 and continued through Aug. 31 with more than 1,000 participants.

SmartCommute and TTA sponsored a Triangle-wide SmartCommute Challenge in 2005 and 2006. The 12,780 participants in 2006 saved 2.3 million commuting miles – the equivalent of 92 trips around the world and almost five trips to the moon.

PART Growing Its Service

The Piedmont Authority for Regional Transportation continues to expand in a 10-county area. Among its services are express buses connecting points in Winston-Salem, High Point and Greensboro and linking the Triad to points along U.S. 421 on the Mountaineer Express; Surry County; and UNC Hospitals, Duke University Medical Center and nearby medical facilities.

N.C. Public Transportation Serves 56 Million Passengers in 2006

NCDOT's Public Transportation Division is getting North Carolinians where they want to go with 101 transit systems statewide, including 83 in rural areas, 16 in urban areas and two serving urban regional areas in the Triangle and Triad. These systems provided more than 56 million passenger trips in FY 2006, operated over 2,600 vehicles and traveled 72 million miles of revenue service. Ridership in 2006 increased nearly 11 percent over 2005. Since 2001, transit ridership has increased 39 percent.

Public Transportation Passengers

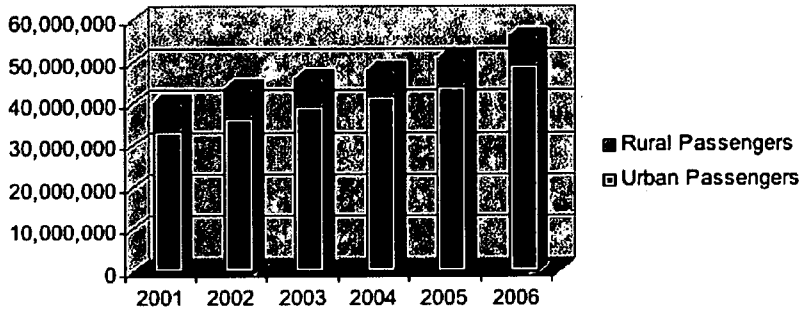


Exhibit E

2007-2008 Interim

Studies to be Conducted by the Environmental Review Commission

Organized by topics: air quality, coastal issues, environmental health, fishing, general, hazardous substances, land quality, parks and conservation, solid waste, water quality, water quantity, wetlands

Solid Waste

ERC (with the assistance of the Dept of Justice)	Report To/ Authority	Report Due
Shall study issues related to the franchise of solid waste management facilities by units of local govt and (with DOJ) study issues related to transportation of solid waste by rail or barge	General Assembly S.L. 2007-550, Sec. 18	2008 Regular Session

Water Quality

ERC	Report To/ Authority	Report Due
May study issues related to use of pervious surfaces for vehicle parking areas, including associated costs, impact of stormwater runoff, practices of other states	2008 General Assembly SL 2007-323, Sec 6.22.(b)	upon its reconvening

Water resources

Division of Water Resources, DENR in consultation with ERC	Report To/ Authority	Report Due
Shall, in consultation with the ERC, prepare a revised map entitled "Major River Basins and Sub-basins in NC" as a replacement for the map referenced in G.S. 143-215.22G. ERC shall recommend a revised map and amended definition of "river basin"	General Assembly S.L. 2007-518, Sec. 1.(b)	2008 Regular Session

ERC, with assistance from DENR	Report To/ Authority	Report Due
Shall study the allocation of surface water resources and their availablity and maintenance in the State	2008 General Assembly 2007-518, Sec. 1.(a)	Interim: may (2008 General Assembly) Final: shall (2009 General Assembly)

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

2007 Studies Bill HOUSE VERSION

GENERAL ASSEMBLY OF NORTH CAROLINA

SESSION 2007

S 4

SENATE BILL 1256

Rules and Operations of the Senate Committee Substitute Adopted 8/1/07
Third Edition Engrossed 8/1/07
House Committee Substitute Favorable 8/2/07

Short Title: 2007 Studies Bill. (Public)

Sponsors:

Referred to:

March 26, 2007

A BILL TO BE ENTITLED

AN ACT TO PROVIDE FOR STUDIES BY THE LEGISLATIVE RESEARCH COMMISSION, STATUTORY OVERSIGHT COMMITTEES AND COMMISSIONS, AND OTHER AGENCIES, COMMITTEES, AND COMMISSIONS.

The General Assembly of North Carolina enacts:

PART I. TITLE

SECTION 1. This act shall be known as "The Studies Act of 2007."

PART II. LEGISLATIVE RESEARCH COMMISSION

SECTION 2.1. The Legislative Research Commission may study the topics listed below. When applicable, the bill or resolution that originally proposed the issue or study and the name of the sponsor are listed. Unless otherwise specified, the listed bill or resolution refers to the measure introduced in the 2007 General Assembly. The Commission may consider the original bill or resolution in determining the nature, scope, and aspects of the study. The following groupings are for reference only:

(1) Criminal Law Issues:
  a. Grand Juries (S.B. 1130 – Clodfelter)
  b. Littering (S.B. 1202 – Jacumin)
  c. Expunctions (H.B. 88 – Moore)
  d. Sex offender registration (H.B. 224 – Goforth, Ray)
  e. Prerelease HIV Testing of All DOC Inmates (H. B. 1898 – Farmer-Butterfield, Wright, Womble)
  f. Illegal drug use (H.B. 2005 – Stam, Allred)

(2) State/Local Government Employee Issues:

(9) How the combined occupancy and sales tax rates in North Carolina compare with rates in other states that have a comparably ranked tourism industry.

(10) The advantages and disadvantages of establishing a uniform system for occupancy taxes and whether that system, in whole or in part, should be incorporated into the statutes.

SECTION 7.7. Sale and Use Tax and Out of State Purchases (H.B. 1994 – Stam, Allred) – The Committee may study and examine, with the appropriate agencies of neighboring states and taxpayer groups, issues associated with cross-border transactions where property is purchased in one state and used in another state. The Committee may examine the economic effects on retailers in North Carolina that make cross-border deliveries of merchandise and may recommend possible actions that might be taken to address the avoidance of sales and use tax by retailers and purchasers located near State lines and to improve compliance with, or recommend changes to, existing State laws. The Committee may also consider changes that would ease the burden on retailers that deal with cross-border issues and ways to ensure that North Carolina retailers are not placed at a disadvantage in comparison to retailers in surrounding states.

SECTION 7.8. Franchise Laws for Farm and Industrial Equipment Dealers (Cotham, Lewis) – The Committee may study issues related to franchise laws for farm and industrial equipment dealers.

SECTION 7.9. Property Tax Exclusion for Disabled Veterans (H.B. 486-McGee, Holliman, J. Harrell, Pate) – The Committee may study issues related to the granting a property tax exclusion for disabled veterans.

SECTION 7.10. Renewable Energy Tax Credit – The Committee may study issues related to the implementation of G.S. 105-129.16G – Credit for donating funds to a nonprofit organization to enable the nonprofit to acquire renewable energy property.

PART VIII. ENVIRONMENTAL REVIEW COMMISSION STUDIES

SECTION 8.1. The Environmental Review Commission may study the topics listed in this Part and report its findings, together with any recommended legislation, to the 2008 Regular Session of the 2007 General Assembly upon its convening.

SECTION 8.2. North Carolina Petroleum Underground Storage Tank Program (S.B. 1146 – Hoyle) – The Commission may study the North Carolina petroleum underground storage tank program and the problems of returning to use sites impacted by leaking underground storage tanks. If the Committee undertakes the study, the following issues shall be examined:

(1) The role of "risk-based corrective action" in protecting both public health and the environment.

(2) An assessment of whether DENR has fully utilized risk-based corrective action in the program to date and whether implements could be made to fully utilize existing financial resources in the future.

(3) An assessment of the pace of cleanup "closures", and the DENR's experience with issuing letters of "no further action required" including whether contamination is being addressed promptly and impacted parcels being made eligible for desired commercial transactions that follow appropriate remediation.

(4) An assessment of fair and equitable funding needs facing the State and the tank owning segment with an examination of solvency issues experienced in the present or expected in the future.

(5) An examination and survey of other states to determine "model solutions" to address the challenges of financing environmental cleanups following a tank release and the expedited return of impacted parcels to needed and normal real estate commerce.

SECTION 8.3. Interstate Compact To Mediate Water Supply Issues (S.B. 1360 – Allran; H.B. 960 – Gillespie, Church, Hilton, R. Warren) – The Committee may study the need to negotiate an interstate compact with adjoining states that have a river basin that drains into or from North Carolina to mediate and cooperatively resolve water supply disputes that may arise from interbasin transfers and consumptive water uses in river basins that are shared by North Carolina and those states.

SECTION 8.4. Mountain Resources (Queen) – The Committee may study:

(1) Threats to important mountain resources, such as the Great Smoky Mountains National Park, the Blue Ridge Parkway, the Appalachian Trail, Mt. Mitchell, Lake James, Hickory Nut Gorge, and Gorges State Park, and the consequences to those resources of present trends and land-use practices in the mountains.

(2) Research and information from North Carolina and other states and jurisdictions regarding state and regional approaches to coordinating provision of infrastructure for the protection of mountain resources, and the efforts to encourage quality growth to protect those resources.

(3) Strategies or tools that would be helpful to address pressures on important mountain resources and whether and how those strategies and tools should be implemented to protect important mountain resources.

(4) Determine whether tools and strategies that could be used to protect important mountain resources could be applied to protect other resources in the mountains of North Carolina, including, but not limited to, groundwater, mountain streams, steep slopes and ridgelines, natural heritage areas, recognized historic areas or sites, and farmland.

SECTION 8.5. Replacement of Incandescent Lamps (H.B. 838 – Harrison, Fisher) – The Commission shall study the feasibility and desirability of phasing out the use of various types of general service incandescent lamps and replacing them with more energy efficient forms of lighting. As a part of this study, the Commission shall consider the extent to which practical and cost-effective alternative forms of lighting, including energy efficient incandescent lighting, are available and the short- and long-term costs and benefits of replacing general service incandescent lamps with more

energy efficient forms of lighting. The Commission shall report its findings and recommendations, including any legislative proposals, to the 2008 Regular Session of the General Assembly.

SECTION 8.6. Far mers "Cap-and-Trade" Program For Greenhouse Gas (GHG) Emissions (H.B. 962 – Faison, Hill) – The Commission may study the feasibility and advisability of extending credits to the business of farming in the same manner that credits are extended to other businesses in the event North Carolina enacts or adopts by rule a market-based "Cap-and-Trade" program for greenhouse gas (GHG) emissions. As used in this section, a "Cap-and-Trade" program is any program that places a limit, the cap, on the total amount of GHG emissions that is allowed under the specific target for GHG emissions set by the State, allocates GHG emissions as credits to individual businesses so that the total credits allocated equal the cap, and allows businesses to bank credits for the future or to buy and sell credits based on whether a particular business reduced or increased its GHG emissions in a given year and the value of the credits in the marketplace. In its study, the Commission may consider all of the following:

(1) How farmers can monitor GHG emissions.

(2) What the anticipated costs are to farmers to participate in a "Cap-and-Trade" program for GHG emissions, including the costs of monitoring GHG emissions, satisfying reporting requirements, and any other costs.

(3) How farmers can reduce GHG emissions on a farm.

(4) How farmers can increase their farms' ability to act as "carbon sinks," that is, utilize the carbon-absorbing abilities of plants and trees to remove carbon dioxide from the atmosphere.

(5) If farms can act as "carbon sinks" under subdivision (4) of this section, whether the removal of carbon dioxide from the atmosphere should receive some market value under the State's "Cap-and-Trade" program.

(6) How much farmers are likely to increase their annual incomes by participating as businesses in a "Cap-and-Trade" program for GHG emissions.

(7) Any other issues the Commission considers relevant to this topic.

SECTION 8.7. Increase The Recycling Of Glass And Plastic Containers. (H.B. 1394 – Tolson, Wray, Crawford, Farmer-Butterfield) – The Commission may study ways in which the recycling of glass and plastic containers can be increased and ways in which the availability of recycled glass or plastic containers can be increased for use as batch material for the manufacturing of glass and plastic containers, and the Commission may include in this study an evaluation of the effectiveness of North Carolina recycling practices for glass and plastic and compare them to the recycling practices of other states. In its study, the Commission also may consider all of the following:

(1) Whether any businesses in North Carolina use recycled glass or plastic containers as batch material for the manufacturing of glass or plastic containers.

(2) Whether any businesses identified under subdivision (1) of this section receive adequate supplies of recycled glass or plastic containers for their manufacturing processes.

(3) Where the recycled glass or plastic containers used by any businesses identified under subdivision (1) of this section come from and how far the recycled glass or plastic containers are transported to the businesses.

(4) Whether glass and plastic containers that are discarded in North Carolina are processed and recycled so as to benefit North Carolina businesses.

(5) Whether glass and plastic containers that are discarded in North Carolina are processed and recycled in keeping with the State's solid waste management policy and the forty percent (40%) municipal solid waste reduction goal established by the State under G.S. 130A-309.04.

(6) Any other issues the Commission considers relevant to this topic.

SECTION 8.8. Study Methods Of Disposing Of Wastewater At Municipal Wastewater Treatment Systems (H.B. 1809 – Tucker, Grady, Cleveland) – The Commission may study current methods of disposing of wastewater at municipal wastewater treatment facilities, as defined in G.S. 143-215.6D, and may study the feasibility and desirability of municipal wastewater treatment facilities employing other methods of disposing of wastewater. In its study, the Commission may consider all of the following:

(1) Whether the current practice of land application of wastewater at any municipal wastewater treatment facilities requires too much land to be practicable in the long term.

(2) Whether the current practice of land application of wastewater at municipal wastewater treatment facilities is better suited to certain parts of the State or to areas of certain geological or topographical conditions.

(3) Whether there are any alternative methods of disposing of wastewater at municipal wastewater treatment systems and the costs and benefits of employing any such alternative methods either on a statewide basis or in any specific area of the State.

(4) Subject to Section 2 of this act, any other issues the Commission considers relevant to this topic.

(5) The study authorized by this section shall not address any issues regarding animal waste management systems, as defined in G.S. 143-215.10B, at swine farms, as defined in G.S. 106-802, or the land application of wastewater associated with animal waste, as defined in G.S. 143-215.10B.

SECTION 8.9. Study Use of State Gamelands along Northeast Cape Fear River and Burgaw Creek for Education and Recreation (S.B. 780 – Soles; H.B. 926 – Justice) –The Commission may study issues related to the desirability and feasibility of adapting the use of a tract of State-owned land, located in the Southeastern part of the

State on the Northeast Cape Fear River and the Burgaw Creek that is currently State gamelands, to showcase the natural environment of Southeastern North Carolina, provide environmental education opportunities for youth and adults, and provide recreational opportunities for outdoor enthusiasts. This tract is approximately 776 acres located approximately three miles east of the Town of Burgaw and consists of creek swamp, ridges, and a planted pine plantation. In particular, the Commission may consider:

(1) The desirability and feasibility of establishing hiking trails on this land.

(2) The desirability and feasibility of constructing a launch site on this land that fronts the Burgaw Creek for canoes and kayaks, thereby providing a venue for canoeing and kayaking on the Cape Fear River and Burgaw Creek for the public.

(3) The environmental educational opportunities that are available for the public at the bottomland swamps, pine plantation, and other wetlands located on this land.

(4) The potential for developing at the pineland plantation a demonstration forest to showcase best forest management practices.

(5) The potential for restricting the current use of this land as State gamelands so that the use as gamelands would be compatible with recreational, educational, and environmental uses.

(6) The potential for paying the costs, in whole or in part, of adapting the use of this land to recreational, educational, and environmental uses from the sale of timber from the pine plantation located on this land.

(7) Other possible funding sources than the funding source under subdivision (6) of this section for the costs of adapting the use of this land to recreational, educational, and environmental uses.

(8) Any other issues the Commission considers to be pertinent to its study.

SECTION 8.10. Artificial Slope Construction in Mountainous Areas (H.B. 1756 – Rapp, Haire, Fisher) – The Commission with the assistance of the Department of Environment and Natural Resources, may study issues related to safe artificial slope construction in mountainous areas. The Commission may specifically study the need for and advisability of establishing minimum statewide management requirements for safe artificial slope construction in mountainous areas of the State. The Commission may also consider issues related to the recordation of natural hazards; environmental permit conditions and limitations and land-use restrictions associated with real property located in mountainous and other areas of the State; and disclosure to prospective purchasers of real property of those hazards, conditions, and restrictions. If the Commission undertakes this study, it shall hold at least two meetings related to this in the western region of the State.

SECTION 8.11. Discarded Consumer Electronics (H.B. 1777 – Gibson) – The Commission may study issues surrounding the management of discarded consumers' desktop and notebook computers, computer monitors, computer display devices, and televisions for which a manufacturer cannot be identified or for which the

manufacturer is no longer in business and has no successor in interest. When conducting this study, the Commission may ascertain, by number of units, weight, or volume, how much of this consumer computer and television equipment has been discarded in North Carolina and may determine the threat to the environment these components of the waste stream pose. No later than May 1, 2008, the Commission shall report its findings and recommendations, including any administrative or legislative proposals, on the most efficient and economically practicable means of recovering, reusing, recycling, or disposing of these components of the waste stream.

SECTION 8.12. Ban Use of DECA Flame Retardant (Harrison) – The Commission may study issues related to banning the use of DECA flame retardant.

SECTION 8.13. Wind Permitting (Harrison) – The Commission may study methods for implementing a state level permitting system and siting requirements for commercial-scale wind energy systems that will ensure that wind energy systems are sited in an orderly manner compatible with environmental preservation, sustainable development, and the efficient use of resources. In undertaking the study, the Commission may consider procedures for environmental review of commercial-scale wind energy systems, and standards necessary to minimize impacts in the following areas: noise, visual, environmental, sensitive habitats, wildlife, public health, safety. The Commission may form a technical advisory committee to include representatives from various stakeholder groups to assist in conducting this study.

SECTION 8.14. Phase Out Lagoon and Sprayfield Systems (H.B. 1822 – Jones, Harrison) – The Commission may study issues related to phasing out lagoon and sprayfield systems.

SECTION 8.15. Hazard Disclosures in Coastal Real Estate Transactions (H.B. 1628) – The Commission may study issues related to hazard disclosures in coastal real estate transactions.

SECTION 8.16. No Mining Sand From Tidal Inlet/Delta. (H.B. 1832 – Harrison) – The Commission may study issues related to mining sand from tidal inlets and delta areas.

SECTION 8.17. Energy, Job Creation, and Venture Capital (H.B. 2028 – Brubaker, Wainwright, Daughtridge) – The Commission may study issued related to energy, job creation, and venture capital.

PART IX. JOINT LEGISLATIVE OVERSIGHT COMMITTEE ON MENTAL HEALTH, DEVELOPMENTAL DISABILITIES, AND SUBSTANCE ABUSE SERVICES STUDIES

SECTION 9.1. The Joint Legislative Oversight Committee on Mental Health, Developmental Disabilities, and Substance Abuse Services may study the topics listed in this Part and report its findings, together with any recommended legislation, to the 2008 Regular Session of the 2007 General Assembly upon its convening.

SECTION 9.2. Facilities That Provide Housing For Adults With Mental Illness In The Same Location With Adults Without Mental Illness (S.B. 1266 – Nesbitt; H.B. 691 – Insko) – The Committee may study and identify rules and laws that are

SECTION 97. The listing of the original bill or resolution in this act is for reference purposes only and shall not be deemed to have incorporated by reference any of the substantive provisions contained in the original bill or resolution.

PART XCVIII. EFFECTIVE DATE AND APPLICABILITY

SECTION 98. Except as otherwise specifically provided, this act is effective when it becomes law. If a study is authorized both in this act and in the Current Operations and Capital Improvements Appropriations Act of 2007, the study shall be implemented in accordance with the Current Operations and Capital Improvements Appropriations Act of 2007 as ratified.

2007 Studies Bill SENATE VERSION

GENERAL ASSEMBLY OF NORTH CAROLINA

SESSION 2007

S 3

SENATE BILL 1256

Rules and Operations of the Senate Committee Substitute Adopted 8/1/07
Third Edition Engrossed 8/1/07

Short Title: 2007 Studies Bill. (Public)

Sponsors:

Referred to:

March 26, 2007

A BILL TO BE ENTITLED

AN ACT TO PROVIDE FOR STUDIES BY THE LEGISLATIVE RESEARCH COMMISSION, STATUTORY OVERSIGHT COMMITTEES AND COMMISSIONS, AND OTHER AGENCIES, COMMITTEES, AND COMMISSIONS.

The General Assembly of North Carolina enacts:

PART I. TITLE

SECTION 1. This act shall be known as "The Studies Act of 2007."

PART II. LEGISLATIVE RESEARCH COMMISSION

SECTION 2.1. The Legislative Research Commission may study the topics listed below. When applicable, the bill or resolution that originally proposed the issue or study and the name of the sponsor are listed. Unless otherwise specified, the listed bill or resolution refers to the measure introduced in the 2007 General Assembly. The Commission may consider the original bill or resolution in determining the nature, scope, and aspects of the study. The following groupings are for reference only:

(1) Criminal Law Issues:
  a. Grand Juries (S.B.1130 – Clodfelter)
  b. Execution/Severely Mentally Disabled Defendants (S.B. 1075 – Kinnaird)
  c. Littering (S.B. 1202 – Jacumin)

(2) State/Local Government Employee Issues:
  a. Expenses and Financing of Parking Decks for State Employees (Rand)

(3) Health and Human Services Issues:
  a. Store-Based Retail Health Clinics (Forrester)

(3) Any other item the Committee finds relevant to this study.

SECTION 7.5. New Market Tax Credit (S.B. 1160 – Hoyle) – The Committee may study a State new market tax credit to complement the federal tax credit.

SECTION 7.6. Earned Income Tax Credit – The Committee may study earned income tax credit participation rates in North Carolina and other states.

PART VIII. ENVIRONMENTAL REVIEW COMMISSION STUDIES

SECTION 8.1. The Environmental Review Commission may study the topics listed in this Part and report its findings, together with any recommended legislation, to the 2008 Session of the General Assembly upon its convening.

SECTION 8.2. North Carolina Petroleum Underground Storage Tank Program (S.B. 1146 – Hoyle) – The Commission may study the North Carolina petroleum underground storage tank program and the problems of returning to use sites impacted by leaking underground storage tanks. If the Committee undertakes the study, the following issues shall be examined:

(1) The role of "risk-based corrective action" in protecting both public health and the environment.

(2) An assessment of whether DENR has fully utilized risk-based corrective action in the program to date and whether implements could be made to fully utilize existing financial resources in the future.

(3) An assessment of the pace of cleanup "closures", and the DENR's experience with issuing letters of "no further action required" including whether contamination is being addressed promptly and impacted parcels being made eligible for desired commercial transactions that follow appropriate remediation.

(4) An assessment of fair and equitable funding needs facing the State and the tank owning segment with an examination of solvency issues experienced in the present or expected in the future.

(5) An examination and survey of other states to determine "model solutions" to address the challenges of financing environmental cleanups following a tank release and the expedited return of impacted parcels to needed and normal real estate commerce.

SECTION 8.3. Deep River State Trail/State Parks System (S.B. 1431 – Atwater) – The Commission may study the desirability and feasibility of adding the Deep River State Trail to the State Parks System.

SECTION 8.4. Interstate Compact To Mediate Water Supply Issues (S.B. 1360 – Allran) – The Committee may study the need to negotiate an interstate compact with adjoining states that have a river basin that drains into or from North Carolina to mediate and cooperatively resolve water supply disputes that may arise from interbasin transfers and consumptive water uses in river basins that are shared by North Carolina and those states.

SECTION 8.5. State-Owned Land On Cape Fear River/Burgaw Creek (S.B. 780 – Soles) – The Committee may study issues related to the desirability and feasibility of adapting the use of a tract of State-owned land, located in the southeastern part of the State on the Northeast Cape Fear River and the Burgaw Creek that is currently State gamelands, to showcase the natural environment of Southeastern North Carolina, provide environmental education opportunities for youth and adults, and provide recreational opportunities for outdoor enthusiasts.

SECTION 8.6. Mountain Resources (Queen) – The Committee may study:

(1) Threats to important mountain resources, such as the Great Smoky Mountains National Park, the Blue Ridge Parkway, the Appalachian Trail, Mt. Mitchell, Lake James, Hickory Nut Gorge, and Gorges State Park, and the consequences to those resources of present trends and land-use practices in the mountains.

(2) Research and information from North Carolina and other states and jurisdictions regarding state and regional approaches to coordinating provision of infrastructure for the protection of mountain resources, and the efforts to encourage quality growth to protect those resources.

(3) Strategies or tools that would be helpful to address pressures on important mountain resources and whether and how those strategies and tools should be implemented to protect important mountain resources.

(4) Determine whether tools and strategies that could be used to protect important mountain resources could be applied to protect other resources in the mountains of North Carolina, including, but not limited to, groundwater, mountain streams, steep slopes and ridgelines, natural heritage areas, recognized historic areas or sites, and farmland.

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SECTION 9.2. Facilities That Provide Housing For Adults With Mental Illness In The Same Location With Adults Without Mental Illness (S.B. 1266 – Nesbitt) – The Committee may study and identify rules and laws that are necessary to regulate facilities that provide housing for adults with mental illness in the same location with adults without mental illness.

SECTION 9.3. Effectiveness Of The 1915(b) Medicaid Waiver And Of Those LMEs Operating Under A Waiver (S.B. 1266 – Nesbitt) – The Committee may study the effectiveness of the 1915(b) Medicaid waiver and of those LMEs operating under a waiver.

SECTION 34. For legislative studies authorized by this act, out-of-state travel must be authorized by the President Pro Tempore of the Senate or the Speaker of the House of Representatives, as appropriate.

PART XXXV. BILL AND RESOLUTION REFERENCES

SECTION 35. The listing of the original bill or resolution in this act is for reference purposes only and shall not be deemed to have incorporated by reference any of the substantive provisions contained in the original bill or resolution.

PART XXXVI. EFFECTIVE DATE AND APPLICABILITY

SECTION 36. Except as otherwise specifically provided, this act is effective when it becomes law. If a study is authorized both in this act and in the Current Operations and Capital Improvements Appropriations Act of 2007, the study shall be implemented in accordance with the Current Operations and Capital Improvements Appropriations Act of 2007 as ratified.

ENVIRONMENTAL REVIEW COMMISSION

2007-2008 INTERIM

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Membership and Staff of the Environmental Review Commission

Authorizing Legislation

Table of Reports to the Environmental Review Commission Required by Law

Summaries of Substantive Ratified Environment and Natural Resources Legislation

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North Carolina General Statutes
ARTICLE 12D.

Environmental Review Commission.

§ 120-70.41. Commission established.

The Environmental Review Commission is hereby established.

§ 120-70.42. Membership; cochairs; vacancies; quorum.

(a) The Environmental Review Commission shall consist of six Senators appointed by the President Pro Tempore of the Senate, six Representatives appointed by the Speaker of the House of Representatives, who shall serve at the pleasure of their appointing officer, the Chair or a Cochair of the Senate Committee on Agriculture, Environment, and Natural Resources or the equivalent committee, the Chair or a Cochair of the House of Representatives Committee on Environment and Natural Resources or the equivalent committee, the Chair or a Cochair of the Senate Committee on Appropriations – Natural and Economic Resources or the equivalent committee, and the Chair or a Cochair of the House of Representatives Committee on Appropriations – Natural and Economic Resources or the equivalent committee.

(b) The President Pro Tempore of the Senate shall designate one Senator to serve as cochair and the Speaker of the House of Representatives shall designate one Representative to serve as cochair.

(c) Except as otherwise provided in this subsection, a member of the Commission shall continue to serve for so long as the member remains a member of the General Assembly and no successor has been appointed. A member of the Commission who does not seek reelection or is not reelected to the General Assembly may complete a term of service on the Commission until the day on which a new General Assembly convenes. A member of the Commission who resigns or is removed from service in the General Assembly shall be deemed to have resigned or been removed from service on the Commission. Any vacancy that occurs on the Environmental Review Commission shall be filled in the same manner as the original appointment.

(d) A quorum of the Environmental Review Commission shall consist of nine members.

§ 120-70.43. Powers and duties.

(a) The Environmental Review Commission shall have the following powers and duties:

(1) To evaluate actions of all boards, commissions, departments, and other agencies of the State and local governments as such actions relate to the environment or protection of the environment, including but not limited to an evaluation of:

a. Benefits of each program relative to costs;

b. Achievement of program goals;

c. Use of measures by which the success or failure of a program can be measured; and

d. Conformity with legislative intent;

(2) To study on a continuing basis the organization of State government as it relates to the environment or to the protection of public health and the environment, including but not limited to:

a. Improvements in administrative structure, practices, and procedures;

b. Increased integration and coordination of programs and functions;

c. Increased efficiency in budgeting and use of resources;

d. Efficient administration of licensing, permitting, and grant programs;

e. Prompt, effective response to environmental emergencies;

f. Opportunities for effective citizen participation; and

g. Broadening of career opportunities for professional staff;

(3) To make any recommendations it deems appropriate regarding the reorganization and consolidation of environmental regulatory agencies and the recodification of statutes relating to the environment, including but not limited to:

a. Ways in which agencies may operate more efficiently and economically;

b. Ways in which agencies can provide better services to the State and to the people; and

c. Instances in which functions of agencies are duplicative, overlapping, incomplete in scope or coverage, fail to accomplish legislative objectives, or for any other reason should be redefined or redistributed;

(4) To review and evaluate changes in federal law and regulations, relevant court decisions, and changes in technology affecting the environment or protection of the environment;

(5) To review existing and proposed State law and rules affecting the environment or protection of the environment and to determine whether any modification of law or rules is in the public interest;

(6) To make reports and recommendations, including draft legislation, to the General Assembly from time to time as to any matter relating to the powers and duties set out in this section; and

(7) To undertake such additional studies as it deems appropriate or as may from time to time be requested by the President Pro Tempore of the Senate, the Speaker of the House of Representatives, either house of the General Assembly, the Legislative Research Commission, the Joint Legislative Commission on Governmental Operations, the Joint Legislative Utility Review Committee, or the Joint Select Committee on Low-Level Radioactive Waste and to make such reports and

recommendations to the General Assembly regarding such studies as it deems appropriate; provided that the Environmental Review Commission shall not undertake any study which the General Assembly has assigned to another legislative commission or committee.

(b) The Environmental Review Commission may continue the study of environmental agency consolidation and reorganization. The study of environmental agency consolidation shall include, but is not limited to:

(1) Monitoring the implementation of Session Laws 1989, c. 727;

(2) Evaluation of the organization, programs, and operation of the Department of Environment and Natural Resources;

(3) Evaluation of the organization, functions, powers, and duties of the components of the Department of Environment and Natural Resources, including boards, commissions, councils, and regional offices; and

(4) Recodification of the General Statutes relating to the environment and environmental agencies.

(c) In addition to its general powers and duties, the Environmental Review Commission shall have the following powers and duties with respect to hazardous waste management:

(1) To study the current and projected need for hazardous waste treatment, storage, and disposal capacity in the State in light of anticipated generation of hazardous waste and alternatives for hazardous waste treatment and disposal;

(2) To evaluate the potential for the development of additional hazardous waste treatment, storage, and disposal capacity by the private sector;

(3) To study the necessity for and scope of hazardous waste treatment, storage, and disposal facilities which are sited, owned, or operated by the State;

(4) To review progress in securing a volunteer county to host a hazardous waste treatment facility;

(5) To study incentives and compensation for the community which hosts, either voluntarily or involuntarily, a hazardous waste treatment facility, including any additional incentives and compensation which may be needed, whether there should be differential compensation for a volunteer county, options for use of funds by local governments, distribution of compensation among local governments, and methods of providing flexibility in the development of an incentives and compensation package for a particular local community;

(6) To review progress in developing interstate agreements for the treatment, storage, and disposal of hazardous waste;

(7) To assist in the development of cooperative, comprehensive regional approach to hazardous waste treatment and disposal;

(8),(9) Repealed by Session Laws 2001-474, s. 12.

(10) To study the capacity assurance requirement under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Pub.

L. No. 96-510, 94 Stat. 2767, 42 U.S.C. 9601 et seq., as amended, and the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613, as amended as it relates to the continued eligibility of North Carolina for remedial actions under Superfund;

(11) To study alternatives available to the State for dealing with hazardous waste and the ramifications of those alternatives; and

(12) To receive and evaluate reports of every State agency, board, and commission which has any power or duty with respect to hazardous waste management.

§ 120-70.44. Additional powers.

The Environmental Review Commission, while in the discharge of official duties, may exercise all the powers provided for under the provisions of G.S. 120-19, and G.S. 120-19.1 through G.S. 120-19.4. The Environmental Review Commission may meet at any time upon the call of either cochairman, whether or not the General Assembly is in session. The Environmental Review Commission may meet in the Legislative Building or the Legislative Office Building upon the approval of the Legislative Services Commission.

Notwithstanding any rule or resolution to the contrary, proposed legislation to implement any recommendation of the Environmental Review Commission regarding any study the Environmental Review Commission is authorized to undertake or any report authorized or required to be made by or to the Environmental Review Commission may be introduced and considered during any session of the General Assembly.

§ 120-70.45. Compensation and expenses of members.

Members of the Environmental Review Commission shall receive subsistence and travel expenses at the rates set forth in G.S. 120-3.1.

§ 120-70.46. Staffing.

The Legislative Services Officer shall assign as staff to the Environmental Review Commission professional employees of the General Assembly, as approved by the Legislative Services Commission. Clerical staff shall be assigned to the Environmental Review Commission through the offices of the Supervisor of Clerks of the Senate and Supervisor of Clerks of the House of Representatives. The expenses of employment of clerical staff shall be borne by the Environmental Review Commission.

§ 120-70.47. Funding.

From funds available to the General Assembly, the Legislative Services Commission shall allocate monies to fund the work of the Environmental Review Commission.

Status of Reports to the ERC Required by Law

Organized by topics: air quality, coastal issues, env. health, fishing, general, hazardous substances, land resources, parks and conservation, solid waste, water quality, water quantity, wetlands

Air Quality

DAQ (DENR)	Report To/ Authority	Report Due	Status*
Shall study the costs and benefits of reducing emissions of oxides of nitrogen, particulate matter, and greenhouse gases from motor vehicles in this State. Shall also consider standards adopted in other states.	ERC, LCGCC S.L. 2006-248, Sec. 43	Interim : 15 Jan 2007 Final; 1 April 2007	Jan 07, distrib 1/17/07 Apr 07 Final Report rec'd

DENR	Report To/ Authority	Report Due	Status*
Shall report on the pilot program to retrofit certain school buses in nonattainment areas	ERC, DPI, and DOT 2007-465, Sec. 4.(b)	1 Sept 2008 and 1 Sept 2009	
Cost of the Title V program	ERC, Fiscal Research GS 143-215.3A(c)	Annually (1 Nov)	Mar 00 mail 3/29/00 May 02 oral 5/21/02 Jan 04 distrib 2/24/04 Nov 04 oral 11/19/04 Nov 05 distrib 3/8/06 Dec 06 distrib 12/13/06

DENR, Utilities Commission	Report To/ Authority	Report Due	Status*
Implementation of SL 2002-4 (Clean Smokestacks)	ERC, Joint Legislative Utility Review Committee S.L. 2002-4, Section 14	Annually (1 Jun 2003)	28 Jan 03 30 May 03 distrib 2/24/04 June 04 oral 11/19/04 June 05 distrib 11/05 June 06 distrib 10/09/06 June 07

Department of Transportation (DOT)	Report To/ Authority	Report Due	Status*
Evaluation/ adjustment of region served by each Metropolitan Planning Organization	ERC, Joint Legislative Transportation Oversight Committee GS 136-202(d)	Nov 1 of each year regions evaluated and adjusted (every 5 years, including year following federal census)	Oct 04 oral 11/19/04 Jan 07 dist 1/17/07
Plan developed with DOA, Commerce, DENR to reduce VMT & vehicle emissions from private sector employee travel.	ERC, Joint Legislative Transportation Oversight Committee GS 143-215.107C(e)	Annually (Oct 1)	02/02/04 distrib 3/25/04 Included in TDM Program Oral 1/13/05 Jan 06 distrib 2/14/06 Nov 06 oral 11/15/06

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

DOT	Report To/ Authority	Report Due	Status*
Plan developed with DOA, DOT, DENR to reduce VMT & vehicle emissions from State employee travel.	ERC, Joint Legislative Transportation Oversight Committee SL 1999-328(4.6) G.S. 143-215.107C(d)	Annually (Oct 1)	Mar 02 Distrib 5/21/02 Letter distrib 02/24/04 Oral 1/13/05 Jan 06 distrib 2/14/06 Nov 06 oral 11/15/06 Oct 07, distrib 10/31/07

EMC	Report To/ Authority	Report Due	Status*
Desirability of requiring and the feasibility of obtaining reductions in emissions of oxides of nitrogen (Nox) and sulfur dioxide (SO2) beyond those required by G.S. 143-215.107D.	ERC, General Assembly SL 2002-4, Section 11; S.L. 2006-79	Annually, starting 2007 (Sep 1)	Mar 06 distrib 4/11/06

climate change

Joint Legislative Commission on Climate Change	Report To/ Authority	Report Due	Status*
Report of findings and recommendations by the Commission	General Assembly and ERC S.L. 2005-442, Sec. 11; S.L. 2006-73, Sec. 1	Interim: 15 Jan 2007 Final: 15 April 2008	

coastal issues

CRC	Report To/ Authority	Report Due	Status*
Evaluate the impacts on water quality and other environmental impacts from the new urban waterfront area development authorized by this act and evaluate the costs and benefits from the development to the area in which the development is located.	ERC S.L. 2004-117, Sec. 4	Annually (beginning 1 Oct 05). Final report due 1 Oct 2010.	

fishing

CRC, EMC, and MFC	Report To/ Authority	Report Due	Status*
Progress in developing and implementing Coastal Habitat Protection Plans	ERC, S&A GS 143B-279.8(e)	Annually (Sep 1)	Sep 01 distrib 01/30/02 Sep 03 distrib 2/06/04 Sep 04 distrib 11/18/04 Feb 06 distrib 3/8/06 Oct 06 distrib 11/15/06

DENR	Report To/ Authority	Report Due	Status*
Fish kills within the preceding year	ERC GS 143B-279.7(c)	Annually (Dec 1)	Feb 02 oral 2/21/02 Jan 04 distrib 2/24/04 Jan 05 distrib 1/13/05 Jan 06 distirb 2/14/06 Dec 06 distrib 12/13/06

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

DENR (Secretary)	Report To/ Authority	Report Due	Status*
Individual Coastal Habitat Protection Plans	ERC, S&A GS 143B-279.8(f)	30 days after complete or substantially revise draft plan	Aug 04 distrib 11/05

General

Community Conservation Assistance Program Advisory Committ	Report To/ Authority	Report Due	Status*
Findings of its program review	Speaker, President Pro Tem, Appropriations chairs, ERC, FRD S.L. 2006-78, Sec. 5	31 March 2007	Apr 07 rec'd

DENR	Report To/ Authority	Report Due	Status*
Findings on the success of the Express Review Program	Fiscal Research and ERC 143B-279.13(c)	Annually (1 March)	April 06 oral 4/11/06
Shall submit an annual report on the mercury switch removal program pursuant to citation	ERC, House and Senate NER G.S. 130A-310.57 SL 2007-142, Sec 7	Annually (1 October)	Apr 06 oral 5/3/06
Cost of State's environmental permitting program	ERC, Fiscal Research GS 143-215.3A(c)	Annually (Nov 1)	April 00 distrib
Cost of implementing the Mining Act of 1971	ERC GS 74-54.1(c)	Annually (Sep 1)	Jan 02 distrib 01/30/02 Aug 03 distrib 02/06/04 Oct 04 distrib 10/21/04 Sep 05 distrib 11/22/05 Dec 06 distrib 12/13/06
One-Stop Permit Assistance Program - # of environmental permits subject to this section that took more than 90 days to issue or deny, the types of permits those were, the reasons for the extended processing time of those permits, ...	ERC, NER subcommittees, Fiscal Research S.L. 2000-67(13.7) S.L. 2001-424 (19.6) S.L. 2004-124, Sec. 12.12	Annually (beginning 1 March 07)	29 July 2003 oral 5/05/04 Oct 04 oral 10/21/04 Dec 05 oral 12/20/05 Apr 07

DENR (Secretary)	Report To/ Authority	Report Due	Status*
State of the Environment Report	General Assembly,ERC GS 143B-279.5(a)	Feb 15 of each odd-numbered year	Feb 1, 2000

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DENR and Utilities Commission	Report To/ Authority	Report Due	Status*
Shall jointly report on the implementation of the Swine Farm Methane Capture Pilot Program including a program evaluation, and legislative proposals	ERC, Joint Legislative Utility Review Committee S.L. 2007-523, Sec. 4.(g)	Annually, beginning January 1, 2009	

Department of Administration	Report To/ Authority	Report Due	Status*
Shall submit a consolidated report on the implementation of the Sustainable Energy Efficient Buildings Program and make recommendations regarding ongoing implementation	ERC, Chairs of the Gov Ops Subcommittees, and Joint Leg Com. on S.L. 2007-546, Sec. 1.(c)	annually, November 1 beginning in 2008	
Shall monitor the development of construction or other energy efficiency standards to determine whether there is a standard that would better fulfill the intent of the Sustainable Energy Efficient Buildings Program	ERC, Chairs of the Gov Ops Subcommittees, and Joint Leg Com. on S.L. 2007-546, Sec. 1.(f)	January 1, 2009 and January 1, 2010	
Shall report its findings of the performance review of the Sustainable Energy Efficient Buildings Program	ERC, Chairs of the Gov Ops Subcommittees, and Joint Leg Com. on S.L. 2007-546, Sec. 1.(h)	Preliminary report: December 1, 2010 Final Report: December 1, 2011	
Shall report on its plan to implement an energy conservation measures program and development or revision of architectural or engineering stds consistent with an energy conservation measures program.	ERC, Joint Leg Com. On Gov Ops S.L. 2007-546, Sec. 2.1.(c)	February 1, 2008	

EMC	Report To/ Authority	Report Due	Status*
EMC operation, activities, programs, and progress (see also other reports with "EMC Quarterly Report" noted at the end of the topic line)	ERC GS 143B-282(b)	Quarterly (Jan 15, Apr 15, Jul 15, Oct 15); upon request	Apr 03 distrib 2/6/04 Jan 04 oral 2/6/04 July 04 distrib 10/21/04 Oct 04 oral 10/21/04 Jan 05 distrib 1/13/05 Apr 05 oral 11/22/05 Jul 05 oral 11/22/05 Oct 05 oral 11/22/05 Jan, April 06 oral 4/11/06 June, Oct 06 oral 10/9/06 Jan 07, oral 1/17/07

North Carolina Building Code Council	Report To/ Authority	Report Due	Status*
Shall study the extent to which hot waterlines should be insulated to achieve greater energy efficiency and shall amend the State Building Code as necessary to achieve those ends.	ERC and the 2008 Regular Session of the General Assembly S.L. 2007-542, Sec. 2	April 1, 2008	

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Soil and Water Conservation Commission (DENR)	Report To/ Authority	Report Due	Status*
Report on the Community Conservation Assistance Program, including asummary of projects that received State funding pursuant to the Program, the results of the evaluation conducted pursuant to, and a summary of the effectiveness of the Program.	ERC, FRD G.S. 143-215.74M(e)	Annually (beginning 31 January 2007)	

State Water Infrastructure Commission	Report To/ Authority	Report Due	Status*
Recommendations by the Commission	General Assembly and ERC G.S. 159G-67	Annually (1 November)	Nov 06 oral 11/15/06

Utilities Commission	Report To/ Authority	Report Due	Status*
Shall report on the actual costs of the costs allocations established pursuant to G.S. 62-133.7(h), G.S. 62-133.8(e), G.S. 62-133.8(f), G.S. 62-133.2(a2), and G.S. 62-133.2(a3) during the preceding two fiscal years	ERC, Joint Legislative Utility Review Committee, Governor S.L. 2007-397, Sec. 14	On or before 1 October in odd-numbered years beginning in October 2009.	
Shall prepare an analysis of whether rate structures, policies, and measures, including decoupling in other places should be implemented in NC.	ERC, Joint Legislative Utility Review Committee, Governor S.L. 2007-397, Sec. 4.(c)	1 September 2008	

Utilities Commission in consultation with DENR	Report To/ Authority	Report Due	Status*
Shall report on the activities taken by the Commission to implement and by the electric utilities to comply with the requirements of the REPS/EE including environmental impacts	ERC, Joint Legislative Utility Review Committee, Governor S.L. 2007-397, Sec. 2.(a)(j)	Annually (1 October) beginning in 2008	

hazardous substances

DENR	Report To/ Authority	Report Due	Status*
Implementation of the Resident Inspectors Program at commercial hazardous waste facilities	ERC GS 130A-295.02(m); SL 2006-79	Annually (Oct 1)	Oct 2002 (distrib 1/16/03) Sep 03 distrib 02/24/04 Sep 04 distrib 10/21/04 Jan 06 distrib 1/24/06 Nov 06 distrib 11/15/06
Evaluation of effectiveness of Brownfields Property Reuse Act	ERC GS 130A-310.40	Annually (Oct 1)	Feb 02 oral 2/21/02 Jan 03 oral 1/28/03 Jan 04 oral 2/24/04 Oct 04 distrib 10/21/04 Jan 06 oral 1/24/06 Dec 06 oral 1/23/07

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DENR (Division of Waste Management)	Report To/ Authority	Report Due	Status*
Implementation of comprehensive hazardous waste management plan; implementation of the comprehensive hazardous waste plan, including an evaluation of how well the State and private parties are managing and cleaning up hazardous waste.	ERC GS 130A-294(i) SL 2002-148, Sec. 4	Annually (1 Oct)	5 Oct 03 distrib 02/24/04 July 04 distrib 10/21/04 Jan 06 distrib 1/24/06 Nov 06 oral 11/15/06

DENR (Secretary)	Report To/ Authority	Report Due	Status*
Inactive Hazardous Waste Sites Program	ERC GS 130A-310.10	Annually (Oct 1)	Jan 03 oral 1/28/03 Sep 03 oral 2/24/04 Oct 04 distrib 10/21/04 Jan 06 oral 1/24/06 Nov 06 distrib 11/15/06

DENR, Office of State Budget and Management	Report To/ Authority	Report Due	Status*
Amount and source of available funds used for 10% cost share required for Superfund cleanup of NPL sites, the o&m costs associated w/ these cleanups, and the cleanup of priority inactive hazardous substance or waste sites	ERC, Gov Ops SL 1999-237(15.6)(b)	30 days after spend Superfund/ Inactive Haz Sites funds	Sep 03 distrib 2/24/04 June 04 distrib 10/21/04 May 05 distrib 11/22/05 Aug 05 distrib 11/22/05 Jan 06 oral 1/24/06

Hazardous Waste

DENR	Report To/ Authority	Report Due	Status*
Shall study the need for further regulation of hazardous waste transfer facilities, including whether to require these facilities to obtain a permit, pay permit fees, provide contingency plans, and demonstrate financial responsibility.	ERC SL 2007-107, Sec 1.8.(d)	on or before 1 Feb 2008	

Office of the Governor	Report To/ Authority	Report Due	Status*
Shall report on its efforts in seeking the advice of units of local government to determine if the criteria considered to determine whether or to what extent to preempt local ordinances pursuant to 130A-293 as amended should be further amended.	ERC SL 2007-107, Sec 1.10.(b)	on or before 1 March 2008	

Regulation of Hazardous Materials Facilities Task Force	Report To/ Authority	Report Due	Status*
Shall study issues related to TSD of haz materials and review all current fire code regs regarding the commerical TSD of haz materials to ensure the Code addresses the needs and safety of citizens.	ERC, NC Building Code Council SL 2007-107, Sec 4.1.(j)	on or before 1 April 2008	

land resources

DENR	Report To/ Authority	Report Due	Status*
Annual report and analysis of how the implementation of SPCA is affecting activities that contribute to the sedimentation of streams, rivers, lakes, and other waters of the State; shall also review effectiveness of local programs	ERC G.S. 113A-67; S.L. 2004-195, Sec. 2.1	Annually (beginning 1 Oct 05)	Dec 05 oral 12/20/05 Dec 06 oral 1/17/07

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Onsite wastewater

DENR	Report To/ Authority	Report Due	Status*
Shall evaluate whether: (i) the program resulted in a reduction in the length of time improvement permits or authorizations to construct are pending in the participating counties	ERC S.L. 2006-136, Sec. 3	Annually (beginning 1 October 2007)	

parks and conservation

DENR	Report To/ Authority	Report Due	Status*
Report on the conservation easement program + inventory of all conservation easements held by DENR	ERC GS 113A-235(c) SL 2004-195, Sec. 2.2	Annually (Oct 1)	Jan 03 oral 1/16/03 Dec 03 oral 4/22/04 Oct 04 oral 1/13/05 Mar 06 oral 3/14/06 Jan 07 oral 1/23/07

DENR (North Carolina Parks and Recreation Authority)	Report To/ Authority	Report Due	Status*
Activities and allocations from the Parks and Recreation Trust Fund from the prior fiscal year	ERC, Gov Ops, NER, Fiscal Research GS 113-44.15(c)	Annually (Oct 1) + progress (March 15)	Mar 03 distrib 03/20/03 Oct 03 oral 4/22/04 Oct 04 oral 1/13/05 Mar 05 distrib 4/22/05 Mar 06 oral 3/14/06 Oct 06/Jan07oral 1/23/07 March 07

DENR (Secretary)	Report To/ Authority	Report Due	Status*
Acquisitions made with funds from the Natural Heritage Trust Fund	ERC, NHTF Trustees, Gov Ops, NER, Fiscal Research GS 113-77.9(e)	Semiannually, within 30 days of each revision	Nov 03 oral 4/22/04 Sep 04 oral 1/13/05 Sep 05 distrib 3/14/06
Progress towards attaining the State's goal of protecting one million acres of farmland, open space, and conservation lands	ERC, Governor GS 113A-241(c) S.L. 2004-195, Sec. 2.3	Annually (Oct 1)	Jan 03 oral 1/16/03 Dec 03 oral 4/22/04 Sep 04 oral 1/13/05 Mar 06 oral 3/14/06 Jan 07 oral 1/23/07 Oct 07 hold

NC Agriculture Development and Farmland Presrvation Trust Fun	Report To/ Authority	Report Due	Status*
Shall report on the Committee's activities including agriculture easements purchased, and agriculture projects funded during the previous year.	ERC, Gov Ops Subcommittees, NER Subcommittees S.L. 2007-495, Sec. 23 (G.S. 106-744)	Annually, May 1	

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Parks and open space

Land and Water Conservation Study Committee	Report To/ Authority	Report Due	Status*
Shall report its findings and recommendations	ERC S.L. 2006-223, Sec. 11	1 Feb 2007	

solid waste

DENR	Report To/ Authority	Report Due	Status*
Solid Waste Management Annual Report (see also other reports with "SWM Annual Report" noted at the end of the topic line)	Governor, ERC GS 130A-309.06(c)	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06 May 07 oral 6/11/07
Assessment of the recycling industry and recyclable materials market (SWM Annual Report)	ERC GS 130A-309.06(c)(6)	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06 May 07 oral 6/11/07
Condition and use of funds in the Solid Waste Management Trust Fund (SWM Annual Report)	ERC GS 130A-309.12(c) GS 130A-309.06(c)(8)	Annually (Jan 15)	Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06 May 07 oral 6/11/07
Scrap Tire Disposal Account (SWM Annual Report)	ERC GS 130A-309.63(e) GS 130A-309.06(c)(10)	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06 May 07 oral 6/11/07
Management of white goods (SWM Annual Report)	ERC, Revenue Laws Study Committee GS 130A-309.85 GS 130-309.06(c)(11)	Annually (Jan 15)	Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06 May 07oral 6/11/07
Recycled materials specified or used in DOT contracts (SWM Annual Report) (DPPEA portion)	ERC, Gov Ops, Trans Oversight GS 136-28.8(g) GS 130A-309.06(c)(12)	Annually (Jan 15)	Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06 May 07oral 6/11/07
Purchase of materials and supplies with recycled content by State institutions (SWM Annual Report) (DPPEA portion)	ERC, Gov Ops GS 143-58.2(f) GS 130A-309.06(c)(13)	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 May 07 oral 6/11/07

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Shall submit a report on the recycling of discarded computer equipment in the State including an evaluation of the recycling rates, discussion of compliance and enforcement related to these requirements, and recommendations	ERC S.L. 2007-550, Sec. 16.1 (G.S. 130A-309.98)	Annually beginning April 1, 2011	

Division of Waste Management and Division of Pollution Preventi	Report To/ Authority	Report Due	Status*
Shall jointly develop a proposal for a recycling program for fluorescent lamps.	ERC S.L. 2007-550, Sec. 17	March 1, 2008	

DOT and DOA	Report To/ Authority	Report Due	Status*
Bid procedures and the purchase and use of reusable, refillable, repairable, more durable, and less toxic supplies and products (SWM Annual Report)	ERC GS 130A-309.14(a1)(3) GS 130A-309.06(c)(9) S.L. 2003-340, Sec. 1.6	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 05 oral 1/13/05 May 07 oral 6/11/07

Governor	Report To/ Authority	Report Due	Status*
Litter enforcement, prevention, and removal efforts.	ERC, JLTOC, NER Subcommittees SL 2001-512, Sec. 9 and 10 GS 147-12(b); SL 2006-79, Sec. 15	Annually (March 1)	Mar 02 oral 3/21/02 Dec 03 oral 4/20/04 Oct 04 distrib 10/21/04 Mar 06 oral 5/3/06 Mar 07 Rec'd 5/23/07

State Board of Education	Report To/ Authority	Report Due	Status*
Recycling efforts of public schools in the State	ERC, Joint Legislative Education Oversight Committee SL 2001-512, Sec. 11	Annually by Dec 15 (2003-2007)	Dec 03 distrib 04/20/04 Dec 04 distrib 1/13/05 Dec 05 distrib 3/8/06 Dec 06 distrib 12/13/06

water quality

DENR	Report To/ Authority	Report Due	Status*
Shall report on its progress in developing and implementing a new fee structure for the nutrient offset program	ERC 2007-438, Sec. 3	1 Sept 2008 and Sept 2009	1
Shall report on its progress in developing and implementing a new fee structure for the nutrient offset program	ERC S.L. 2007-438, Sec. 3	Sept 1 2008 and 1 2009	March

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water quality - general

Catawba/Wateree River Basin Advisory Commission	Report To/ Authority	Report Due	Status*
Annual report, including any recommendations.	Governor of NC, ERC, Governor of SC, SC General Assembly G.S. 77-117	Annually (1 Oct)	

Clean Water Management Trust Fund (Chair, Board of Trustees)	Report To/ Authority	Report Due	Status*
Implementation of the Clean Water Management Trust Fund; Projects awarded grants	ERC, Gov Ops, NER Subcommittees, Fiscal Research GS 113A-257	Annually (Dec 1)	Jan 03 oral 1/16/03 Dec 03 oral 4/22/04 Jan 05 oral 1/13/05 Mar 06 oral 3/14/06 Jan 07 oral 1/23/07

DENR	Report To/ Authority	Report Due	Status*
Status of permitting and inspecting animal waste management systems/ Animal Waste Compliance Report	ERC, Fiscal Research GS 143-215.10M SL 2002-148 (Sec. 6)	Annually (Oct 1)	Oct 03 oral 3/25/04 Oct 04 oral 10/21/04 Dec 05 oral 3/8/06 Nov 06 oral 11/15/06
Wastewater Discharge Elimination System program	ERC, Fiscal SL 2001-452(2.9)	Annually (15 Oct)	Dec 03 distrib 02/06/04 19 Nov 04 oral Dec 05 oral 12/20/05 Jan 07 oral 1/17/07

DENR (Division of Water Quality)	Report To/ Authority	Report Due	Status*
Compliance/ enforcement of water quality laws for facilities that discharge into surface waters	ERC, Fiscal Research GS 143-215.9A SL 2002-148(Sec. 5)	Annually (Oct 1)	Dec 03 oral 3/25/04 Oct 04 distrib 11/19/04 Sep 05 distrib 3/8/06 Nov 06 distrib 11/15/06

DENR (Divisions of Water Quality, Soil & Water Conservation)	Report To/ Authority	Report Due	Status*
Pilot program for inspection of animal waste management systems, including a comparison of the costs of conducting operations reviews and inspections under the pilot program with the costs of conductng ors and insps pursuant to 143-215.10D and 143-215.10F	ERC, Fiscal Research,NER SL 1999-329(3.3) SL 2001-254(6) SL 2002-176 (1.2)	Semiannual: 15 April and 15 Oct	Oct 03 oral 3/25/04 Oct 04 distrib 11/18/04 Dec 05 distrib 3/8/06 Oct 06 distrib 11/15/06 Apr 07 rec'd

DENR (Soil and Water Conservation Commission)	Report To/ Authority	Report Due	Status*
Effectiveness of projects funded under the Agriculture Cost-Share Program for Nonpoint Source Pollution Control	ERC, Fiscal Research GS 143-215.74(e)	Annually (Jan 31)	21 March 2002 Dec 03 distrib 2/24/04 Mar 06 distrib 3/8/06 Mar 07 distrib 3/13/07

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DENR, EMC	Report To/ Authority	Report Due	Status*
Basinwide Water Quality Management Plans	ERC GS 143-215.8B(d)	Annually (Oct 1)	Oct 03 oral 2/6/04 Oct 04 oral 10/21/04 Feb 06 distrib 2/14/04 Nov 06 distrib 11/15/06

Division of Soil and Water Conservation (DENR)	Report To/ Authority	Report Due	Status*
Shall prepare a comprehensive report on the animal waste mgt performance standards for swine farms, the Lagoon Conversion Program, and the Swine Farm Waste Management System Conversion Account	ERC S.L. 2007-523, Sec. 2.(f) G.S. 143-215.10M	Annually, beginning October 1, 2008	

EMC	Report To/ Authority	Report Due	Status*
Progress in developing and implementing wastewater collection system permit program (EMC Quarterly Report)	ERC 143-215.9B	Quarterly (Jan 15, Apr 15, Jul 15, Oct 15)	Apr 03 distrib 2/6/04 Apr 03 oral 2/24/04 April 04 oral 3/25/04 July 04 distrib 10/21/04 Oct 04 oral 10/21/04 Apr 05 oral 11/22/05 Jul 05 oral 11/22/05 Oct 05 oral 11/22/05 Jan, April 06 oral 4/11/06 June, Oct 06 oral 10/9/06 Jan 07 oral 1/17/07
Implementation of stormwater runoff rules and programs	ERC GS 143-214.7(e)	Annually (Oct 1)	Dec 03 oral 2/6/04 Update 3/25/04 Oct 04 oral 10/21/04 Oct 05 oral 11/22/05 Nov 06 distrib 11/15/06
Extent to which facilities seeking new or modified discharge permits are funded with public funds; their impact on water quality; whether there are cost-effective alt. technologies that would achieve greater water quality benefit (EMC Quarterly Report)	ERC GS 143-215.1(h)	Quarterly (Jan 15, Apr 15, Jul 15, Oct 15)	Apr 03 distrib 2/6/04 Apr 03 oral 2/24/04 April 04 oral 3/25/04 July 04 distrib 10/21/04 Oct 04 oral 10/21/04 Apr 05 oral 11/22/05 Jul 05 oral 11/22/05 Oct 05 oral 11/22/05 June, Oct 06 oral 10/9/06 Jan 07 oral 1/17/07
Findings on identification and adoption of control criteria necessary to prevent excess nutrient loading in drinking water supply reservoirs; adoption of nutrient management strategy and permanent rules; (EMC Quarterly Rpt)	ERC S.L. 2005-190, Sec. 2.(b), Sec. 3.(e) and (f)		Jan, April 06 oral 4/11/06 June, Oct 06 oral 10/9/06 Jan 07 oral 1/17/07
Progress in developing and implementing nutrient management strategies for water supply reservoirs identified in Sec. 3 of act.	ERC S.L. 2005-190, Sec. 4	Annually beginning 1 April 2006	April 06 oral 4/11/06

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

Progress in developing engineering standards to allow regional interconnection of municipal and domestic wastewater collection systems (EMC Quarterly Report)	ERC SL 1999-329(11.1)	Quarterly (Jan 15, Apr 15, Jul 15, Oct 15)	Apr 03 oral 2/24/04 April 04 oral 3/25/04 July 04 distrib 10/21/04 Oct 04 oral 10/21/04 Apr 05 oral 11/22/05 Jul 05 oral 11/22/05 Oct 05 oral 11/22/05 Jan, April 06 oral 4/11/06 June, Oct 06 oral 10/9/06 Jan 07 oral 1/17/07

Roanoke River Basin Bi-State Commission	Report To/ Authority	Report Due	Status*
Annual report, including any recommendations.	Governor of NC, ERC, Governor of VA, General Assembly of VA G.S. 77-98 S.L. 2007-495, Sec. 22	Annually, October 1	

Upper Neuse River Basin Association	Report To/ Authority	Report Due	Status*
Activities and programs to develop cooperative, comprehensive, integrated State-local watershed management plan for the Upper Neuse Rier Basin to serve as a model watershed management approach	ERC, Gov Ops, Fiscal Research SL 1998-212(14.15)	Mar 1 each year until plan is complete (begin 1999)	Oct 03 distrib 02/06/04

Water Quality Workgroup (DENR & NCSU)	Report To/ Authority	Report Due	Status*
Status of tasks: Synth current science on water quality;Identify knowledge gaps, fill with projects;Maintain water quality data website; Org & eval existing water quality databases; Prioritize knowledge gaps for $; Develop Rivernet mon syst.	ERC, NER Chairs, Chancellor of NCSU G.S. 143-215.8D	Annually (Jan 30)	Jan 02 oral 2/21/02 Present to SAENR 6/04

Yadkin/Pee-Dee River Basin Advisory Commission	Report To/ Authority	Report Due	Status*
Annual report, including any recommendations.	Governor of NC, ERC, Governor of SC, SC General Assembly G.S. 77-117	Annually (1 Oct)	

water quality - ground

DENR	Report To/ Authority	Report Due	Status*
Implementation of Pay for Performance Program (in UST report)	ERC SL 2001-442, SL 2003-340, Sec. 2	Annually 1 Sept (ending Oct 1, 2006)	21 Mar 2002 16 Jan 2003 Mar 04 oral 5/05/04 Jan 05 1/13/05 Oct 06 oral 10/9/06

DENR (Secretary)	Report To/ Authority	Report Due	Status*
Contamination, site, and fiscal information related to the Dry-Cleaning Solvent Cleanup Act of 1997	ERC GS 143-215.104U	Annually (Oct 1)	Jan 02 oral 2/21/02 Dec 03 distrib 3/25/04 Sep 04 distrib 10/25/04 Jan 06 oral 4/11/06 Nov 06 distrib 11/15/06

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

Leaking Petroleum Underground Storage Tank Cleanup Program	ERC GS 143-215.94M SL 2002-148(Sec. 7)	Annually (1 Sept)	Jan 03 oral 1/16/03 Jan 04 oral 4/22/04 Oct 04 oral 10/21/04 (no written) Oct 06 oral 10/9/06 (no written)

water quantity

DENR (Division of Water Resources)	Report To/ Authority	Report Due	Status*
Implementation of State Water Supply Plan	ERC, Gov Ops GS 143-355(n)	Annually (Sep 1)	Sep 03 oral 2/24/04 Nov 04 oral 11/19/04 Nov 05 oral 11/22/05 Oct 06 oral 10/9/06

Drought Management Advisory Council	Report To/ Authority	Report Due	Status*
Shall report on implementation of act; include review of drought advisories issued by the Council and any recommendations to improve coordination among local, State, and federal agencies; public water systems; and water users	Secretary of ENR, Governor, and ERC G.S. 143 355.1(g); S.L. 2004-195, Sec. 2.5	Annually (beginning 1 Oct 05)	Oct 05 oral 11/22/05 Oct 2006 oral 10/9/06

Water Resources

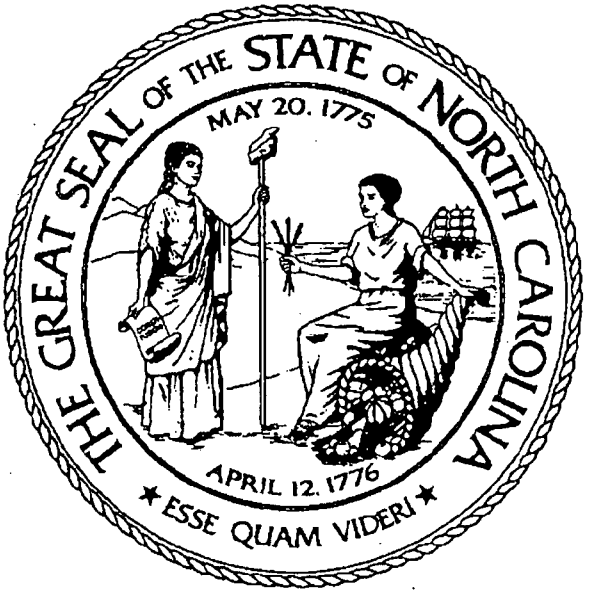
DENR in consultation with the Commission for Health Services	Report To/ Authority	Report Due	Status*
Shall report on the implementation of citiation, including purpose and amount of all expenditures from the Bernard Allen Memorial Emergency Drinking Water Fund during the prior FY, pros and cons of implementing this section, and proposals for leg. Action	ERC, House and Senate NER, Fiscal Research Division SL 2007-323, Sec 12.2.(a) G.S. 87-98(e)	Annually, beginning on 1 Oct 2008	

wetlands

DENR	Report To/ Authority	Report Due	Status*
Implementation of Ecosystem Enhancement Program and use of Ecosystem Enhancement Fund, including inventory of property and easements	ERC GS 143-214.13	Annually (Nov 1)	Dec 01 oral 01/30/02 Jan 03 oral 1/28/03 Dec 03 oral 5/5/04 Jan 04 oral 01/20/05 Dec 05 oral 12/20/05 Dec 06 oral 1/23/07

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

SUMMARIES OF SUBSTANTIVE RATIFIED ENVIRONMENT AND NATURAL RESOURCES LEGISLATION



2007 GENERAL ASSEMBLY
2007 REGULAR SESSION

Research Division
General Assembly North of North Carolina
October 2007

The following are summaries of environment and natural resources legislation enacted by the 2007 Regular Session of the General Assembly. These summaries were developed by staff members of the Research Division of the General Assembly for the Division's annual publication **SUMMARIES OF SUBSTANTIVE RATIFIED LEGISLATION**. Development of that publication is still underway. As such, the summaries included in this document are considered drafts.

This document includes numerous cross-references to other portions of the full **SUMMARIES OF SUBSTANTIVE RATIFIED LEGISLATION** that are not included in this excerpt.

We anticipate that the complete **SUMMARIES OF SUBSTANTIVE RATIFIED LEGISLATION** will be available in print format and on the Internet by November 2007. To access the online version, go to the General Assembly's homepage at: http://www.ncleg.net. Click on the "Legislative Publications" link on the right of the page. The summaries publication will be listed under "Research Division." Each summary will be hyperlinked to the final bill text, the bill history, and any applicable fiscal note.

If you would like additional information regarding any legislation summarized in this document, please contact the Research Division at (919) 733-2578.

Chapter 11
Environment and Natural Resources

George Givens (GG), Jeff Hudson (JH), Mariah Matheson (MM),
Jennifer McGinnis (JLM), Jennifer Mundt (JRM)

Enacted Legislation

Air Quality

Increase Penalties for Air Pollution

S.L. 2007-296 (HB 1646) increases the maximum per day civil penalty the Secretary of Environment and Natural Resources may assess for violations of air quality laws from $10,000 to $25,000.

This act becomes effective October 1, 2007, and applies to offenses committed on or after that date. (JRM)

School Bus Retrofits in Nonattainment Areas

S.L. 2007-465 (HB 1912) establishes a pilot program to provide funds to retrofit school buses in order to reduce diesel emissions in counties located in areas with air quality problems. The pilot program must be developed by the Department of Environment and Natural Resources (DENR) in consultation with the Departments of Public Instruction (DPI) and Transportation (DOT) and stakeholders and be administered by DENR. Local school administrative units may apply to DENR for a grant to retrofit an eligible school bus with a verified diesel emission control device. In order to qualify for grants under this program, an eligible school bus must:

- Have a model year 1994 through model year 2006 engine.
- Be registered in a county that is located in an area designated by the USEPA as having air quality problems.
- Be capable of operating on diesel fuel.
- Transport public school students.

DENR must develop grant application procedures, the criteria and priorities for selecting grant recipients and the selection of school buses for diesel retrofits, and procedures for distributing grants.

The act establishes the nonreverting School Bus Diesel Emissions Reduction Account within DENR. Funds in the Account must be distributed as grants to local school administrative units for school bus retrofits in an amount equal to 20% of the cost of purchasing a diesel retrofit for each bus selected for retrofitting and the funds must be used to match qualifying federal-aid funds.

The act requires DPI to submit to DENR information on or before August 1, 2008 on the total number of school buses eligible for grants under the program and the number of school buses that are equipped with an engine certified as meeting the USEPA standard for particulate matter. This act also requires DENR to prepare and submit an annual report on or before September 1, 2008 and September 1, 2009 to DPI and DOT and to the Environmental Review Commission on the pilot program.

The act provides that the DOT may reimburse up to $2,000,000 for the 2007-2008 fiscal year and up to $2,000,000 for the 2008-2009 fiscal year from the federal congestion mitigation

and air quality improvement program funds apportioned to the State by the United States to DENR for the costs of purchasing diesel retrofits for school buses under the pilot program. This section provides that DENR and DOT may enter into contracts that provide for the terms and methods by which DENR bills DOT for reimbursement of eligible costs.

The provisions of the act pertaining to reimbursement of federal aid funds became effective July 1, 2007. The remainder of the act became effective August 29, 2007. (JRM)

Safety/Emission Inspection Changes

S.L. 2007-503 (HB 679). See **Transportation**.

Animal Waste Management

Swine Farm Environmental Performance Standards

S.L. 2007-523 (SB 1465) makes the swine farm animal waste management system performance standards that the General Assembly enacted in 1998 permanent, establishes a program to assist in the conversion of traditional lagoon and sprayfield animal waste management systems to innovative animal waste management systems, and establishes a pilot program for the purchase of electricity by electric public utilities produced from methane captured on swine farm animal waste management systems.

Background. – In 1997, the General Assembly enacted a temporary statewide moratorium on the construction or expansion of animal waste management systems that serve swine farms. The moratorium was scheduled to expire March 1, 1999. In 1998, the General Assembly enacted legislation to provide specific performance standards for an innovative animal waste management system. In 1998, the legislation continued the moratorium on swine waste farm animal waste management systems that do not meet the performance standards, specifically the lagoon and sprayfield system described below and extended the duration of the moratorium to September 1, 1999. Since then, the General Assembly has amended and extended the moratorium several more times. Prior to S.L. 2007-523, the moratorium was set to expire September 1, 2007.

Performance Standards for Swine Farm Animal Waste Management Systems. – The act makes the swine farm animal waste management system performance standards that the General Assembly enacted in 1998 permanent. The Environmental Management Commission (EMC) may not issue or modify a permit for the construction, operation, or expansion of an animal waste management system that serves a swine farm that employs an anaerobic lagoon as the primary method of treatment and land application of waste by means of a sprayfield as the primary method of waste disposal. The EMC may issue a permit for the construction, operation, or expansion of an animal waste management system that serves a swine farm if the EMC determines that the animal waste management system will meet or exceed all of the following performance standards (the standards initially enacted in 1998):

- Eliminate the discharge of animal waste to surface water and groundwater through direct discharge, seepage, or runoff.
- Substantially eliminate atmospheric emission of ammonia.
- Substantially eliminate the emission of odor that is detectable beyond the boundaries of the parcel or tract of land on which the swine farm is located.
- Substantially eliminate the release of disease-transmitting vectors and airborne pathogens.
- Substantially eliminate nutrient and heavy metal contamination of soil and groundwater.

An animal waste management system that serves a swine farm for which a permit was issued prior to September 1, 2007 and that does not meet the performance standard requirements may continue to operate under that permit, including any renewal of the permit. Also, the EMC may modify a permit that was issued prior to September 1, 2007 for an animal waste management system that serves a swine farm to authorize the replacement of a lagoon that is a component of the animal waste management system if the EMC finds that several conditions are met, including that replacement, but not repair, of the lagoon will abate an imminent hazard.

The EMC must adopt rules to implement the performance standards. Until such rules become effective, the EMC will refer to the "Development of Environmentally Superior Technologies – Phase 3 Report: for Technology Determinations per Agreements Between the Attorney General of North Carolina and Smithfield Foods, Premium Standard Farms, and Frontline Farmers." The EMC must consult with the Animal and Poultry Waste Management Center of North Carolina State University regarding the application and modification of the performance standards.

Lagoon Conversion Program. – The act establishes the Lagoon Conversion Program (Program) to provide grants to assist in the conversion of traditional lagoon and sprayfield animal waste management systems that serve swine farms to systems that meet the new performance standards (innovative systems). Grants under the Program will be used to assist in the closure of traditional lagoon and sprayfield systems that are replaced by innovative animal waste management systems and to establish centralized waste collection and treatment systems that serve innovative animal waste management systems.

The Program will be administered by the Division of Soil and Water Conservation (Division) in the Department of Environment and Natural Resources (DENR). The Division must establish criteria for evaluating eligible innovative systems and for the selection of eligible applicants. Priority must be given to systems that are affordable, easily maintained, produce marketable by-products, reduce or eliminate the emission of ammonia and greenhouse gases, and are capable of being connected to a centralized waste collection and treatment. Priority must also be given to applicants whose participation in the program will result in the removal of animal waste management systems from floodplains; who have substantially complied with federal and State laws, regulations, and rules for the protection of the environment, natural resources, and public health; and who have a limited ability to pay for or finance an innovative swine waste management system through private or cooperative credit at reasonable rates and terms. The 2007 budget includes $2 million in funding for the Program.

Methane Capture Pilot Program. – The act establishes the Swine Farm Methane Capture Pilot Program (Pilot Program) to be administered by DENR and the North Carolina Utilities Commission (NCUC). Under the Pilot Program, each electric power supplier that serves a swine farm that is selected for participation in the Pilot Program must purchase all electricity generated by the swine farm using methane as a fuel. The total of all electric power that must be purchased from swine farms is capped at 25 megawatts. The NCUC will set the purchase price so that it will allow owners and operators of swine farms that participate in the Pilot Program to recover capital and operating costs of generating electricity from captured methane, but in no event will the purchase price exceed eighteen cents (18¢) per kilowatt hour. All costs incurred by an electric power supplier to comply with the Pilot Program will be recovered under the annual fuel adjustment.

Agreements. – S.L. 2007-523 will not affect any of the agreements between the Attorney General of North Carolina and various parties regarding the swine industry.

The Swine Farm Waste Management System Conversion Account became effective July 1, 2007. All other provisions of the act became effective September 1, 2007. The Methane Capture Pilot Program will sunset on September 1, 2017. (JH, GG)

Clarify/Extend Animal Waste Management Provisions

S.L. 2007-536 (HB 810) makes the following changes to animal waste management statutes and laws: (i) adds county employees and employees of Soil and Water Conservation Districts – who have federal engineering job approval that involves the planning, designing, or implementation of best management practices on agricultural land – to the list of practices that are not subject to the North Carolina Engineering and Land Surveying Act; (ii) extends the termination date of the pilot program for the inspection of animal waste management systems from September 1, 2007 to September 1, 2009; and (iii) clarifies the applicability of enforcement provisions.

This act became effective August 31, 2007. (JRM)

Coastal Development

Waterfront Access and Marine Industry Fund

S.L. 2007-323, Sec. 29.14(b) and (e) (HB 1473, Sec. 29.14(b) and (e)) requires the Director of the Division of Marine Fisheries in the Department of Environment and Natural Resources to establish a program to administer the Waterfront Access and the Marine Industry Fund. A maximum of $20 million in the Fund may be used to acquire waterfront properties or develop facilities for the purposes of providing public and commercial waterfront access and improving and developing these properties and facilities. The Director may consult with representatives of the commercial fishing industry and other marine industries and with State, local, or nonprofit agencies that have expertise in waterfront access issues and property acquisitions. The Director may establish a committee to review potential property acquisitions and capital and infrastructure improvements. Before expending any funds, the Division must report to the Joint Legislative Commission on Seafood and Aquaculture. The Division must also report to the Commission on the use of these funds on a quarterly basis until the funding expires.

This section became effective July 1, 2007. (JRM)

Enact Waterfront Access Study Committee Recommendations

S.L. 2007-485 (SB 646) enacts several recommendations of the Waterfront Access Study Committee.

Present-Use Value for Working Waterfronts. – The act provides that working waterfront property be taxed at its present use value rather than its true value. Working waterfront property is defined as any of the following property that has, for the most recent three-year period, produced an average gross income of at least one thousand dollars ($1,000):

- A pier that extends into coastal fishing waters and limits access to those who pay a fee.
- Real property that is adjacent to coastal fishing waters and is primarily used for a commercial fishing operation or fish processing, including adjacent land that is under improvements used for one of these purposes.

Deferred taxes are the difference between the taxes due on the property taxed at its present use and the taxes that would be due if the property were taxed at its true value. Deferred taxes for the preceding three fiscal years plus interest become due when the property no longer qualifies as working waterfront property.

Present use value taxation will be effective for taxes imposed for taxable years beginning on or after July 1, 2009.

Advisory Committee for the Coordination of Waterfront Access. – The act establishes the Advisory Committee for the Coordination of Waterfront Access within the Department of Environment and Natural Resources. The Advisory Committee will be composed of representatives of State and local government and is charged with developing a coordinated plan and recommendations for providing greater waterfront access in the State. The Advisory Committee will report its progress and any recommendations to the Joint Legislative Commission on Seafood and Aquaculture no later than October 1 of each year.

Department of Transportation to Expand Public Access to Coastal Waters. – The act directs the Department of Transportation to expand public access to coastal waters in its road project planning and construction programs. The Department will report on its progress to the Joint Legislative Commission on Seafood and Aquaculture and the Joint Legislative Transportation Oversight Committee no later than March 1 of each year.

Increase Boating and Waterway Access Funding. – The act increases certain boat numbering fees that are held in the Wildlife Resource Commission's Boating and Waterway Account. Prior to S.L. 2007-485, the fee for numbering a boat was $10. The act requires a $15 fee for a one-year period and a $40 fee for a three-year period. The act also provides that interest and other investment income earned by the Account accrue to the Account.

The increase in boat numbering fees becomes effective January 1, 2008.

Waiver of Fees from CAMA Emergency Permits. – The Secretary of Environment and Natural Resources may issue special emergency Coastal Area Management Act building permits when life or structural property is in imminent danger as a result of a storm, sudden failure of a man-made structure, or similar occurrence. S.L. 2007-485 provides that the fees associated with such a permit will be waived.

Study Construction and Repair in Regulated Flood Zones. – The act directs the Division of Emergency Management in the Department of Crime Control and Public Safety to study ways to facilitate construction and repair of water dependent structures in regulated flood zones. The Division will report on the results of the study and any recommendations to the Joint Legislative Commission on Seafood and Aquaculture by March 1, 2008.

Except as otherwise noted, this act became effective August 30, 2007. (JH)

Fisheries

Brunswick Menhaden Restrictions

S.L. 2007-320 (HB 1017) makes it unlawful to take menhaden or Atlantic thread herring with a purse seine net within three nautical miles of the shoreline of Brunswick County from May 1 through October 31. Violation of this prohibition is a Class A1 misdemeanor.

This act became effective August 29, 2007 and applies to offenses committed on or after that date. (JH)

Miscellaneous

Department of Environment and Natural Resource's Embargo Authority for Food or Drink

S.L. 2007-7 (HB 124). See **Health and Human Services**.

Oyster Shells/Highway Beautification

S.L. 2007-84 (SB 1453). See **Transportation**.

Mercury Switch Removal Program Amendments

S.L. 2007-142 (HB 1758) substantially rewrites the laws governing the removal of mercury switches from end-of-life vehicles that were enacted in 2005 in order to make it feasible to implement the mercury switch removal program and to allow the program to be implemented under the Memorandum of Understanding to establish the National Vehicle Mercury Switch Recovery Program.:

Definitions. – The act adds new definitions for the terms "inaccessible," when used in connection with mercury switch, "mercury recovery performance ratio," "vehicle manufacturer," "vehicle crusher," and "vehicle dismantler" and amends the definition for the term "end of life vehicle."

Removal of Mercury Switches from End-of-Life Vehicles. – All vehicle crushers, vehicle dismantlers, vehicle recyclers, and scrap vehicle processing facilities must remove accessible mercury switches before destroying an end-of-life vehicle. If an end-of-life vehicle is conveyed to another crusher, dismantler, recycler, or processing facility without removing all accessible mercury switches, the receiving entity must agree to accept the vehicle and the responsibility for the proper removal of all accessible mercury switches. The act requires the person removing the switch to mark the vehicle to indicate that all accessible mercury switches have been removed and certify to any person to whom the vehicle is conveyed, in a form acceptable to the Department of Environment and Natural Resources (DENR), that all accessible mercury switches have been removed from the vehicle. The act also requires vehicle manufacturers to work with DENR to develop, implement, and to bear the cost of the mercury switch collection system in accordance with the National Vehicle Mercury Switch Removal Program (NVMSRP).

Mercury Switch Removal Account. – This act renames the Mercury Pollution Prevention Account as the Mercury Switch Removal Account and provides that vehicle crushers, vehicle dismantlers, vehicle recyclers, and scrap vehicle processing facilities may be reimbursed from the Account for costs incurred in implementing the mercury switch removal program. Requests for reimbursement must be made and verified against information posted by the vehicle manufacturers in accordance with either the NVMSRP or against other information that verifies the reimbursement request to the satisfaction of DENR. Persons who seek reimbursement shall maintain relevant records for at least three years.

Enforcement of Violations. – The act makes the penalty for knowingly destroying a vehicle that contains an accessible mercury switch or willfully failing to remove a mercury switch when required to do so a Class 1 misdemeanor. Making a false report or a fraudulent claim for reimbursement is a Class 2 misdemeanor carrying a maximum fine of $10,000. Other violations may be enforced by an administrative or civil action.

Annual Report. –DENR is required to submit a report on the mercury switch removal program to the Environmental Review Commission and the Senate and House Appropriations Subcommittees on Natural and Economic Resources by October 1 of each year beginning in 2008. The report must include a description of: (i) the mercury recovery performance ratio achieved by the program; (ii) the mercury switch collection system; (iii) recommendations or alternative actions necessary to achieve a mercury recovery performance ratio of at least 0.90 of the national mercury recovery; (iv) the number of mercury switches collected; (v) and costs required to implement the program, including receipts and disbursements from the Account.

The provisions of the act that pertain to definitions and the annual report became effective June 29, 2007. The provisions that amend the program for removal mercury switches from end-of-life vehicles, the Mercury Switch Removal Account, and changes in the enforcement

of violations became effective July 1, 2007, and apply to violations that occur on or after that date. This act sunsets December 31, 2017. (JRM)

Commercial and Noncommercial Leaking Petroleum Underground Storage Tank Program Administrative Costs

S.L. 2007-323, Secs. 12.1.(a) and 12.1.(b) (HB 1473, Secs. 12.1.(a) and 12.1.(b)) amend the Commercial and Noncommercial Leaking Petroleum Underground Storage Tank Cleanup Funds to provide that both Funds may be used to support the administrative functions of the program for underground storage tanks up to the amounts allowed by law, which amounts may be changed from time to time. In the case of a legislated increase or decrease in salaries and benefits, the administrative allowance existing at the time of the increase or decrease must be correspondingly increased or decreased by an amount equal to the legislated increase or decrease in salaries and benefits.

These sections became effective July 1, 2007. (JRM)

North Carolina Green Business Fund

S.L. 2007-323, Secs. 13.2.(a) through 13.2.(d) (HB 1473, Secs. 13.2.(a) through 13.2.(d)). See **Business and Commerce.**

Erosion and Sedimentation Control Plan Fee Increase

S.L. 2007-323, Secs. 30.1.(a) and 30.1.(b) (HB 1473, Secs. 30.1.(a) and 30.1.(b)). See **Finance.**

Modify Tax Credit for Constructing Renewable Fuel Facilities

S.L. 2007-323, Sec. 31.9.(a) and 31.9.(b) (HB 1473, Secs. 31.9.(a) and 31.9.(b)). See **Finance.**

Amend Wildlife Resources Management Laws

S.L. 2007-401 (SB 1464). See **Agriculture and Wildlife.**

Amend Environmental Laws/Environmental Technical Corrections 2007

S.L. 2007-495 (SB 844) makes clarifying, conforming, and technical amendments to various environmental and natural resources laws and amends various environmental and natural resources laws and reporting requirements as follows:

- Provides that as an alternative to submission of a plat, a site plan may be submitted with the application for a private drinking water well construction permit in situations where the well is proposed to be located on a site on which a regulated wastewater system is located or is proposed to be located.
- Clarifies that in order for a well contractor to renew his or her certification, the applicant must provide proof of having completed any professional development hours as may be required by rules of the Well Contractors Certification Commission.

- Provides an additional statutory exception for transplanting oysters from public grounds to private beds when seed clams and seed oysters are a certain size and originate from an aquaculture operation permitted by the Secretary of Environment and Natural Resources.
- Extends the terms of members of the Advisory Commission for the North Carolina State Museum of Natural Sciences from two years to four years and provides that members appointed by the Governor may not serve more than three consecutive four-year terms.
- Extends the exemption from continuing education requirements for 2 years from September 1, 2008 to September 1, 2010 for well contractors who: (i) are 70 years old or more; (ii) have engaged in well contractor activity for more than 20 years; (iii) have no record of having violated any provision of the Well Construction Act, Well Contractors Certification, or order issued pursuant to or rule adopted under these laws in the previous 10 years; (iv) and meet all other requirements for Well Contractors Certification.
- Amends certain laws governing the regulation of coastal fisheries to remove the Environmental Review Commission (ERC) from the list of entities responsible for reviewing draft Fishery Management Plans prepared by the Department of Environment and Natural Resources (DENR).
- Clarifies that the Roanoke River Basin Bi-State Commission must submit its annual report on or before October 1 of each year.
- Adds the ERC to the list of entities to which the North Carolina Agricultural Development and Farmland Preservation Trust Fund Advisory Committee must report on its activities, agriculture easements purchased, and agricultural projects funded during the previous year as required by law.
- Provides that DENR must submit annual reports on or before October 1 of each year on the cost of the hazardous waste management program as required by law.

This act became effective August 30, 2007. (JRM, GG)

Amend Dry-Cleaning Solvent Cleanup Act

S.L. 2007-530 (SB 1362) makes the following amendments the Dry-Cleaning Solvent Cleanup Act (Act):

- Modifies language throughout the Act to clarify that all site assessment and cleanup procedures will be performed by private contractors hired by the Environmental Management Commission (EMC). These changes clarify that the State is responsible for hiring private contractors and awarding of contracts pursuant to the Act.
- Amends the existing co-payment scheme to provide for a one-time $1,000 application fee effective September 1, 2007.
- Effective retroactively to August 1, 2001, revises the financial responsibility requirements payment schedule as follows:
  - Dry-cleaning facilities owned by persons who employ fewer than 5 full-time employees: 1% of the costs of assessment or remediation, but not exceeding $1,000,000.
  - (i) Dry-cleaning facilities owned by persons who employ at least 5 but fewer than 10 full-time employees, and (ii) abandoned dry-cleaning facility sites: 1.5% of the costs of assessment or remediation, but not exceeding $1,000,000.
  - (i) Dry-cleaning facilities owned by persons who employ 10 or more full-time employees, and (ii) wholesale distribution facilities: 2% of the costs of assessment or remediation, but not exceeding $1,000,000.
- Authorizes the Department of Environment and Natural Resources to use up to 1% of the balance in the Dry-Cleaning Solvent Fund (Fund) in each fiscal year for

investigation of inactive hazardous substance disposal sites that the Department believes to be contaminated by dry-cleaning solvent.

- Effective retroactively to January 1, 2007, the act increases the amount per year that may be disbursed for a site from the Fund as follows:
  - For assessment or remediation response costs incurred in connection with any individual dry-cleaning solvent assessment agreement, the maximum amount is increased from $200,000 to $500,000 per year.
  - For assessment and remediation costs incurred in connection with a certified facility or an abandoned site that poses an imminent hazard, the maximum amount is increased from $400,000 to $1 million per year.
- Provides the EMC with discretion to reject petitions made by operators who are not in compliance with minimum management practices for handling of solvents or operators who are delinquent in paying solvent taxes.
- Adds "implementing" the Act to the actions for which the State or its agents are immune from liability, effective retroactively to January 1, 1998.
- Authorizes the EMC to adopt temporary rules to establish a risk-based approach applicable to the assessment, prioritization, and remediation of dry-cleaning solvent contamination, in certain circumstances, provided the temporary rules are adopted in accordance with the Administrative Procedure Act.

Except as otherwise noted, this act became effective August 31, 2007. (JRM)

Parks and Public Spaces

State Nature & Historic Preserve Additions & Removals

S.L. 2007-307 (HB 1724) dedicates and accepts certain properties as part of the State Nature and Historic Preserve (Preserve), and removes certain lands from the Preserve.

The act adds the following units to the Preserve (each is a new unit of the State Parks System authorized since the last dedication of State property in 2003): Carvers Creek State Park, Chimney Rock State Park, Haw River State Park, Lower Haw River State Natural Area, Mayo River State Park, Mountain Bog State Natural Area, and Sandy Run Savannas State Natural Area.

The act changes the designation of Dismal Swamp and Elk Knob State Natural Areas to State Parks.

The act excepts or deletes previous exceptions from the Preserve as follows:

- Concerning Crowders Mountain State Park:
  - Deletes language from the statute that excepted a tract from the Preserve and authorized the State to sell the tract to adjacent landowners with the proceeds used for other land acquisition at the park. This transaction was completed, the tract is no longer part of the park, and thus the language was deleted
  - Adds language to the statute to except a small triangle of land containing approximately 0.54 acres that is across a road from the remainder of the park. The isolated triangle is of no further use or benefit to the park, and thus the tract was removed from the Preserve and the State Parks System.
- Concerning Stone Mountain State Park: The act deletes language from the statute that excepted a tract located within the park from the Preserve and authorized the State to exchange a portion of the land for property owned by the National Park Service in order to improve the boundaries of the State park and the Blue Ridge Parkway. The exchange was completed, the tract is no longer part of the park, and thus the language was deleted.
- Concerning South Mountains State Park: The act deletes existing language from the statute that excepted from the Preserve the following tracts located within the park:

- Two tracts excepted in order to allow for an exchange of a right-of-way with the Department of Transportation for the realignment of SR 1904.
- A 0.33 acre tract excepted in order to allow the tract to be transferred to the Walker Top Baptist Church to be used for church purposes.

These transactions have been completed, the tracts are no longer part of the park, and thus the language was deleted.

- Concerning Lake James State Park: The act adds language to the statute to except from the Preserve two tracts located within the park as follows:
  - The first clause authorizes the State to grant Duke Energy Corporation a temporary road easement across park property in order to allow trucks to transport fill material to facilitate the Catawba Dam Embankment Seismic Stability Improvements Project (fill material will come from Duke Energy property, not from the park). The tract must be removed from the Preserve because property in the Preserve may not be used for such a purpose under Section 5 of Article XIV of the Constitution of North Carolina. Because the easement is temporary, however, the tract will remain in the State Parks System. The easement will be terminated upon completion of the project, and the tract added back into the Preserve.
  - The second clause removes a tract of land from the Preserve and the State Parks System and authorizes the State to grant an easement to an adjacent landowner in order to extinguish a prescriptive easement that the landowner currently uses that interferes with management of the park.

This act became effective July 28, 2007. (JLM)

Conservation Tax Credit Modifications

S.L. 2007-309 (HB 463). See **Finance.**

Deep River State Trail/Parks Authority Members

S.L. 2007-437 (SB 1431) authorizes the Department of Environment and Natural Resources (DENR) to add Deep River State Trail to the State Parks System, and to acquire and manage lands and easements for the purpose of establishing the Deep River State Park and adding it to the State Parks System. The act also directs DENR to promote, encourage, and facilitate the establishment of connecting trail segments by other federal, State, local, and private landowners. As envisioned by the State Parks System, the Deep River State Trail would emerge as a land-based and paddle trail with access and recreation facilities along the river and its tributaries – beginning at the river's headwaters near High Point and Jamestown in Guilford County and extending through Randolph, Moore, and Chatham counties to the confluence of the Deep River and the Haw River near Moncure in Lee County.

In addition, the act increases the membership of the North Carolina Parks and Recreation Authority from 11 members to 15 members. Of the four additional members, two are to be appointed by the Governor, one by the General Assembly upon the recommendation of the Speaker of the House of Representatives, and one by the General Assembly upon the recommendation of the President Pro Tempore of the Senate.

This act became effective August 23, 2007. (JLM)

Renewable/Alternative Energy and Energy Efficiency

Facilitate Distribution of E-Blend Fuel

S.L. 2007-82 (SB 567). See **Transportation**.

Use of Solar Collectors

S.L. 2007-279 (SB 670). See **Local Government**.

Building Permit Reductions/Rebates

S.L. 2007-381 (SB 581). See **Local Government**.

Promote Renewable Energy/Baseload Generation

S.L. 2007-397 (SB 3) establishes a Renewable Energy and Energy Efficiency Portfolio Standard (REPS), amends the provisions for recovery of various costs by electric utilities, provides for the phaseout of the tax on the sale of energy to farmers and manufacturers, and provides a tax credit for certain renewable energy property.

Establish Renewable Energy and Energy Efficiency Portfolio Standard. – The following REPS provisions become effective January 1, 2008. The cost recovery provisions under the REPS apply only to costs that are incurred on and after January 1, 2008.

S.L. 2007-397 defines "renewable energy resource" as a solar electric, solar thermal, wind, hydropower, geothermal, or ocean current or wave energy resource; a biomass resource, including agricultural waste, animal waste, wood waste, spent pulping liquors, combustible residues, combustible liquids, combustible gases, energy crops, or landfill methane; waste heat derived from a renewable energy resource and used to produce electricity or useful, measurable thermal energy at a retail electric customer's facility; or hydrogen derived from a renewable energy resource. "Renewable energy resource" does not include peat, a fossil fuel, or nuclear energy resource.

S.L. 2007-397 establishes a REPS in North Carolina as follows:

Electric Public Utilities. – Each electric public utility (investor-owned public utility that sells electric power to retail electric customers) in the State must meet the REPS according to the following schedule:

Calendar Year	REPS Requirement
2012	3% of 2011 North Carolina retail sales
2015	6% of 2014 North Carolina retail sales
2018	10% of 2017 North Carolina retail sales
2021 and thereafter	12.5% of 2020 North Carolina retail sales

Electric Membership Corporations and Municipalities. – Each electric membership corporation and municipality that sells electric power to retail electric customers in the State must meet the REPS according to the following schedule:

Calendar Year	REPS Requirement
2012	3% of 2011 North Carolina retail sales
2015	6% of 2014 North Carolina retail sales
2018 and thereafter	10% of 2017 North Carolina retail sales

Use of Solar Energy Resources. – For calendar year 2018 and each calendar year thereafter, at least 0.2% of the total electric power in kilowatt-hours sold to retail electric

customers in the State must be supplied by a combination of new solar electric facilities and new metered solar thermal energy facilities that use solar hot water, solar absorption cooling, solar dehumidification, solar thermally driven refrigeration, or solar industrial process heat. Electric power suppliers must comply with these requirements according to the following schedule:

Calendar Year	Requirement for Solar Energy Resources
2010	0.02%
2012	0.07%
2015	0.14%
2018	0.20%

Use of Swine Waste Resources. – For calendar year 2018 and each calendar year thereafter, at least 0.2% of the total electric power in kilowatt-hours sold to retail electric customers in the State must be supplied by swine waste. Electric power suppliers must comply with these requirements according to the following schedule:

Calendar Year	Requirement for Swine Waste Resources
2012	0.07%
2015	0.14%
2018	0.20%

Use of Poultry Waste Resources. – For calendar year 2014 and each calendar year thereafter, at least 900,000 megawatt-hours of the total electric power sold to retail electric customers in the State must be supplied by poultry waste. Electric power suppliers must comply with these requirements according to the following schedule:

Calendar Year	Requirement for Poultry Waste Resources
2012	170,000 megawatt-hours
2013	700,000 megawatt-hours
2014	900,000 megawatt-hours

Cost Cap. – The recovery of costs that would be incurred by an electric power supplier to comply with the REPS requirements could not exceed an amount equal to the per-customer annual charges in the following schedule:

Customer Class	2008-2011	2012-2014	2015 and thereafter
Residential per account	$10.00	$12.00	$34.00
Commercial per account	$50.00	$150.00	$150.00
Industrial per account	$500.00	$1,000.00	$1,000.00

Adoption of Rules by the Utilities Commission. – The Utilities Commission (Commission) must adopt rules to implement the REPS requirements that specifically:

- Provide for the monitoring of compliance with and enforcement of the REPS requirements.
- Include a procedure to modify or delay the REPS requirements in whole or in part if the Commission determines that it is in the public interest to do so and the public utility demonstrates that it has made a reasonable effort to meet the REPS requirements.
- Ensure that energy credited toward compliance with the provisions of S.L. 2007-397 not be credited toward any other purpose.
- Establish standards for interconnection of renewable energy facilities and other non-utility owned generation with a generation capacity of 10 megawatts or less to a public utility's electric distribution system.
- Ensure that the owner and operator of each renewable energy facility that delivers electric power to an electric power supplier is in substantial compliance with all federal and state laws, regulations, and rules for the protection of the environment and conservation of natural resources.

- Consider whether it is in the public interest to adopt rules for electric public utilities for net metering of renewable energy facilities with a generation capacity of one megawatt or less.
- Track and account for renewable energy certificates.

Reports, Evaluation, and Analysis. – No later than October 1 of each year, beginning October 1, 2008, the Commission must submit a report on the activities taken by the Commission to implement and by electric power suppliers to comply with the REPS requirements to the Governor, the Environmental Review Commission (ERC), and the Joint Legislative Utility Review Committee.

The Environmental Management Commission (EMC) may establish a procedure for evaluating renewable energy technologies; establish standards to ensure that renewable energy technologies do not harm the environment, natural resources, cultural resources, or public health, safety, or welfare of the State; and, to the extent that there is not an environmental regulatory program, establish a regulatory program to implement these protective standards.

No later than September 1, 2008, the Commission must prepare and submit an analysis of whether rate structures, policies, and measures, including decoupling, in place in other states and countries that promote a mix of generation involving renewable energy sources and demand reduction should be implemented in North Carolina to the Governor, the Environmental Review Commission, and the Joint Legislative Utility Review Committee.

No later than October 1 of odd-numbered years, beginning October 1, 2009, the Commission must submit to the Governor, the ERC, and the Joint Legislative Utility Review Committee a report on the actual results of the costs allocation established by S.L. 2007-397.

Federal Action. – S.L. 2007-397 provides that if the federal government imposes requirements similar to the REPS requirements on electric power suppliers in the State, the Commission will determine the applicability of federal and State requirements so as to apply the more stringent requirements. The Commission would adopt rules to establish a procedure as an alternative to the procedure set out in G.S. 62-133 to annually adjust the rates of electric public utilities to allow timely recovery of all reasonable costs of compliance with the federal and State requirements.

Demand-Side Management and Energy Efficiency Measures. – S.L. 2007-397 defines "demand-side management" as activities, programs, or initiatives undertaken by an electric power supplier or its customers to shift the timing of electricity use from peak to nonpeak demand periods. "Demand-side management" includes, but is not limited to, load management, electric system equipment and operating controls, direct load control, and interruptible load. S.L. 2007-397 defines "energy efficiency measure" as an equipment, physical, or program change implemented after January 1, 2007 that results in less energy used to perform the same function. "Energy efficiency measure" includes, but is not limited to, energy produced from a combined heat and power system that uses non-renewable energy resources. "Energy efficiency measure" does not include demand-side management.

S.L. 2007-397 directs electric power suppliers to implement demand-side management and energy efficiency measures to establish the least cost mix of demand reduction and generation measures that meet the electricity needs of its customers. An electric power supplier may petition the Commission to approve an annual rider to its rates to recover all reasonable and prudent costs incurred for adoption and implementation of demand-side management and energy efficiency measures adopted and implemented after January 1, 2007. The Commission must assign the costs of measures only to the class of customers that directly benefit from the measures. No costs of demand-side management or energy efficiency programs would be assigned to an industrial customer that has or will implement its own demand-side management and energy efficiency measures. Recoverable costs would include, but not be limited to, all capital costs, including cost of capital and depreciation expenses, administrative costs, implementation costs, incentive payments to program participants, and operating costs.

The demand-side management and energy efficiency measures provisions became effective August 20, 2007. The cost recovery provisions for demand-side management and energy efficiency measures apply only to costs that are incurred on and after August 20, 2007.

Amend Cost Recovery Procedures for Electric Power Suppliers. – The following cost recovery provisions become effective January 1, 2008.

Recovery of Additional Costs under the Annual Fuel Charge. – S.L. 2007-397 shifts the recovery of certain costs incurred by an electric public utility from recovery through the rate base to recovery through the annual fuel charge adjustment. The new costs that are recoverable under this provision are:

- The cost of ammonia, lime, limestone, urea, dibasic acid, sorbents, and catalysts consumed in reducing or treating emissions. These costs will be adjusted for gains or losses resulting from the sale of by-products produced in the generation process.
- The total delivered non-capacity related costs, including all related transmission charges, of all purchases of electric power by the electric public utility.
- The capacity costs associated with purchases of electric power from qualifying cogeneration facilities and qualifying small power production facilities.
- Except for those costs recovered pursuant to the new REPS requirement statute, the total delivered costs of purchases of power from renewable energy facilities and new renewable energy facilities pursuant to the REPS requirement or any similar federal requirement.
- Cost recoverable under the fuel charge would be adjusted for gains or losses resulting from the sale of fuel, and other fuel related costs components.

The fuel clause amendments apply only to fuel and fuel related costs incurred on and after January 1, 2008.

Ongoing Review of Construction Costs and Inclusion of Construction Costs in Rates. – Prior to S.L. 2007-397, an electric public utility was responsible for bearing the construction costs of a generating facility until the facility began operation. In the first general rate case after the facility went into service, if the Commission found the facility to be used and useful, the total facility costs, excluding any imprudently incurred costs, were included in rates charged to customers. There was one exception to this system of construction cost recovery; prudently incurred expenses for construction work in progress may have been included in the rate base if the Commission finds that it was in the public interest and necessary to the utility's financial stability. If a facility was abandoned before it is completed, the Commission could authorize the electric public utility to recover the costs of the incomplete facility, excluding any imprudently incurred costs, by amortizing these costs over a period of years, with no return on the unamortized balance.

S.L. 2007-397 alters these procedures for construction cost recovery as follows:

- A certificate for the construction of a coal or nuclear facility will be granted only if the applicant demonstrates and the Commission finds that energy efficiency measures, demand side management, renewable energy resource generation, combined heat and power generation, or any combination of these, will not create a more cost-effective and reliable generation system and that the construction and operation of such a facility is in the public interest.
- Once a construction certificate has been granted by the Commission, a public utility may not cancel construction of a generating facility without receiving approval from the Commission. If the Commission finds that completion of the generating facility is no longer in the public interest, the Commission may modify or revoke the certificate.
- A public utility must submit an annual progress report on construction to the Commission, including any revisions in the cost estimate for the construction. The Commission may conduct an ongoing review of construction of the facility. If the Commission disapproves any part of the revised cost estimate or finds that the incurrence of the cost of that portion of the construction of the facility then under

review was unreasonable or imprudent, the Commission may modify or revoke the certificate.

- The public utility will recover through rates in a general rate case the actual costs it has incurred in constructing a generating facility in reliance on a construction certificate as provided below, unless new evidence is discovered (i) that could not have been discovered by due diligence at an earlier time and (ii) that reasonably tends to show that a previous determination by the Commission that a material item of cost had been just and reasonable and prudently incurred was erroneous.
  - Whether under construction or completed, if the construction of the facility:
    - Has been subject to ongoing review, the reasonable and prudent costs of construction approved by the Commission during the ongoing review will be included in the public utility's rate base.
    - Has not been subject to ongoing review, the costs of construction will be included in the public utility's rate base if the Commission finds that the incurrence of these costs is reasonable and prudent.
  - If the construction of a facility is cancelled and the facility:
    - Has been subject to ongoing review, the public utility will recover through rates in a general rate case the costs of construction approved by the Commission during the ongoing review that were actually incurred prior to cancellation, amortized over a reasonable time as determined by the Commission. The public utility will have the burden of proof to demonstrate that the material item of cost was in fact just and reasonable and prudently incurred. In the general rate case, the Commission will make any adjustment that may be required.
    - Has not been subject to ongoing review, the public utility will recover through rates in a general rate case the costs of construction that were actually incurred prior to cancellation and are found by the Commission to be reasonable and prudent, amortized over a reasonable time as determined by the Commission. In the general rate case, the Commission will make any adjustment that may be required.

The public utility has the burden of proof to demonstrate that the material item of cost was in fact just and reasonable and prudently incurred.

Recovery of Construction Costs for Out-of-State Electric Generating Facilities and Project Development Costs for Nuclear Facilities. – S.L. 2007-397 provides that upon petition by a public utility, the Commission would determine the need for and, if need is established, approve an estimate of the construction costs and construction schedule for an electric generating facility in another state. The construction cost estimate and the recovery of costs through a general rate case will be governed by the provisions that apply to facilities built in the State.

S.L. 2007-397 also provides for the treatment of project development costs for a nuclear facility as follows:

- S.L. 2007-397 defines "project development costs" as all capital costs associated with a potential nuclear electric generating facility, including the costs of evaluation, design, engineering, environmental analysis and permitting, early site permitting, combined operating license permitting, initial site preparation costs, and allowance for funds used during construction associated with such costs.
- A public utility may request that the Commission review the public utility's decision to incur project development costs for the construction of a nuclear electric generating facility. The Commission will approve the public utility's decision to incur project development costs if the public utility demonstrates by a preponderance of evidence that the decision to incur project development costs is reasonable and prudent.
- All reasonable and prudent project development costs, as determined by the Commission, incurred for the potential nuclear electric generating facility will be included in the public utility's rate base and will be fully recoverable through rates in

a general rate case If the public utility is allowed to cancel the project, the Commission will permit the public utility to recover all reasonable and prudently incurred project development costs in a general rate case amortized over a period equal to the period during which the costs were incurred, or five years, whichever is greater.

Recovery of Construction Work in Progress. – S.L. 2007-397 changes the standard by which the Commission may include construction work in progress in rates. Prior to S.L. 2007-397, construction work in progress could only be included if the Commission determined that inclusion is in the public interest and necessary to the financial stability of the utility. S.L. 2007-397 allows inclusion of construction work in progress if the construction is subject to ongoing review and Commission determines that expenditures are reasonable and prudent.

Adjust the public utility and electric membership corporation regulatory fees. – S.L. 2007-397 provides that the percentage rate to be used in calculating the public utility regulatory fee under G.S. 62-302(b)(2) is 0.12% for each public utility's North Carolina jurisdictional revenues earned during each quarter that begins on or after July 1, 2007. S.L. 2007-397 (SB 3) also provides that the electric membership corporation regulatory fee imposed under G.S. 62-302(b1) for the 2007-2008 fiscal year is $200,000. The adjustment in the public utility and electric membership corporation regulatory fees became effective July 1, 2007.

Phase out of sales taxes paid by farmers and manufacturers on electricity, piped natural gas, and other fuels. – S.L. 2007-397 phases out the current sales tax rate of 2.83% on sales of electricity to manufacturing industries and manufacturing plants for use in connection with their operation and to farmers to be used by them for farming purposes as follows:

- Effective October 1, 2007, reduces the rate from 2.83% to 1.8%.
- Effective July 1, 2008, reduces the rate from 1.8% to 1.4%.
- Effective July 1, 2009, reduces the rate from 1.4% to 0.8%.
- Effective July 1, 2010, exempts these sales from tax.

S.L. 2007-397 phases out the tax imposed on piped natural gas received by a manufacturer for use in connection with the operation of the manufacturing facility and on piped natural gas received by a farmer to be used for any farming purpose, other than preparing food, heating dwellings, and other household purposes. The phase out occurs from October 1, 2007 through July 1, 2010.

S.L. 2007-397 phases out the privilege tax imposed on a manufacturing industry or plant that purchases fuel to operate the industry or plant by reducing the tax rate as follows:

- Effective October 1, 2007, reduces the rate from 1% to 0.7%
- Effective July 1, 2008, reduces the rate from 0.7% to 0.5%
- Effective July 1, 2009, reduces the rate from 0.5% to 0.3%,
- Effective July 1, 2010, reduces the rate from 0.3% to 0.0%.

Establish renewable energy tax credit. – G.S. 105-129.16A provides a tax credit for investing in renewable energy property. This tax credit is not used by a nonprofit corporation that invests in renewable energy property because the nonprofit organization does not owe any tax. S.L. 2007-397 allows this tax credit to a taxpayer that makes an eligible contribution to a nonprofit organization organized under section 501(c)(3) of the Internal Revenue Code. An eligible contribution is a contribution designated by the taxpayer to be used for investing in renewable energy property and used by the nonprofit organization for investing in renewable energy property.

Renewable energy property includes the following machinery and equipment or real property:

- Biomass equipment that uses renewable biomass resources for biofuel production of ethanol, methanol, and biodiesel; anaerobic biogas production of methane utilizing agricultural and animal waste or garbage; or commercial thermal or electrical generation from renewable energy crops or wood waste materials. Renewable biomass resources are organic matters produced by terrestrial and aquatic plants and

animals, such as standing vegetation, forestry and agricultural residues, landfill wastes, and animal wastes.

- Hydroelectric generators
- Solar energy equipment
- Wind equipment

The tax credit is effective for taxable years beginning on or after January 1, 2008.

Severability Clause. – S.L. 2007-397 provides that if any section or provision of the act is declared unconstitutional or invalid by the courts, the unconstitutional or invalid section or provision does not affect the validity of S.L. 2007-397 as a whole or any part of S.L. 2007-397 other than the unconstitutional or invalid part. (JH, GG)

State Diesel Vehicles' Warranties/B-20 Fuel

S.L. 2007-420 (SB 1277). See **Transportation**.

Diesel School Buses to Use Minimum B-20 Fuel

S.L. 2007-423 (SB 1452) requires that certain school buses used to transport school children in North Carolina that are capable of using diesel fuel be capable of using diesel fuel with a minimum biodiesel fuel concentration of B-20 (defined as a blend of 20% biodiesel fuel and 80% petroleum-based diesel fuel). The act also requires that at least 2% of the total volume of fuel purchased annually for these buses be a minimum blend of B-20, to the extent that biodiesel fuel is available and compatible with the vehicles being used. This act applies to buses purchased by the State Board of Education, buses purchased by local boards of education, and buses purchased by private companies that contract to transport public school children.

This act becomes effective June 1, 2008, and applies to vehicles transferred or purchased on or after that date. (JRM)

Community Colleges/Participate in Energy Loan Program

S.L. 2007-476 (HB 177). See **Education**.

Conserve Energy/Insulate Hot Water Plumbing

S.L. 2007-542 (HB 1702) provides that the North Carolina Building Code Council (Council) may consider adopting rules concerning energy efficiency that require all hot water plumbing pipes that are larger than ¼ inch to be insulated. This act requires the Council to study the extent to which hot waterlines should be insulated to achieve greater energy efficiency and to amend the North Carolina State Building Code as necessary to achieve those ends. The Council must report its findings and actions to the Environmental Review Commission and the 2008 General Assembly on or before April 1, 2008.

The provision of the act that requires the Council to report its findings became effective August 31, 2007. The provision of the act that authorizes the Council to consider adopting rules concerning energy efficiency becomes effective January 1, 2008, and applies to all new construction for which permits are issued on or after that date. (JRM)

Energy Conservation in State Buildings

S.L. 2007-546 (SB 668) promotes the conservation of energy and water use in State, university, and community college buildings. The act requires new State, university, and community college buildings and major renovations of these buildings to be designed,

constructed, and certified in accordance with specified energy and water efficient construction standards and prohibits the State from purchasing buildings that did not meet applicable energy efficiency standards at the time of construction or renovation. New terms defined in this act include:

- ASHRAE means the American Society of Heating, Refrigerating and Air Conditioning Engineers.
- Major facility means a construction project, funded in whole or in part by the State, larger than 20,000 gross square feet of occupied or conditioned space or a building renovation project when the cost is greater than 50% of the insurance value and the project is larger than 20,000 gross square feet of occupied or conditioned space.

Sustainable Energy Efficient Buildings Program. – The act establishes the Sustainable Energy Efficient Buildings Program (Program) to require all major facility projects to be designed, constructed, and certified to at least 30% greater energy efficiency standards than ASHRAE 90.1-2004, and all major renovations to be at least 20% greater energy efficiency than ASHRAE 90.1-2004. Water systems must be designed and constructed to use 20% less potable water than the indoor water use baseline after meeting the 2006 North Carolina Plumbing Code. Outdoor potable water or harvested ground water consumption must be reduced by 50% over conventional means. These provisions apply only to major facility projects that have not yet entered the schematic design phase. Public agencies must monitor and document ongoing operating savings and report annually to the State Construction Office of the Department of Administration (Department) on these savings. If the average building energy or water consumption over 2 years following beneficial occupancy is 85% or less than the performance goals established by the applicable standards, the designer, owner agency, contractor, Construction Manager at Risk, and commissioning agent must investigate, determine the cause of the shortfall, and recommend corrections or modifications to meet the performance goals. The required reports on ongoing operating savings and any report from the State Building Commission regarding the ASHRAE 90.1-2004 standard are to be consolidated by the Department into one report by November 1 of each year beginning in 2008 and submitted to the General Government Appropriations Subcommittees of the Senate and the House of Representatives, the Environmental Review Commission, and the Joint Legislative Commission on Governmental Operations. This consolidated report must include recommendations on the ongoing implementation of the Program, including a discussion of incentives and disincentives related to implementing the Program.

The act establishes guidelines for administering the Program and authorizes the Department to develop and issue policies and technical guidelines to implement the Program for public agencies. Public agencies may hold a preproposal conference for prospective bidders to discuss the standards. The Department must also create a sustainable, energy efficient buildings advisory committee to provide advice on the implementation of the Program, including recommendations regarding an education and training process for the Program and water and energy efficiency requirements. After reviewing the committee's recommendations, the Department must develop levels of education and training requirements suitable for each of the following positions: (i) the chief financial officer of a public agency; (ii) the facility manager of each public agency responsible for the payment of the agency's utilities; (iii) the capital projects coordinator of a public agency and; (iv) architects and mechanical design engineers involved in the design of projects under the Program.

The act provides that when the Department, public agency, and the design team determine that the ASHRAE 90.1-2004 standard is not practicable for a major facility project, the State Building Commission (Commission) must determine if the standard is not practicable and, if not, which standard is practicable for the design and construction for that major facility project. If ASHRAE 90.1-2004 is not followed, the public agency and the Commission must include this information and the reasons to the Department in the required Program report. This act also requires the Department to determine whether other standards would better fulfill the intent of the Program. The Department is also specifically charged with following the development of

improved energy standards by ASHRAE and whether these standards or any other standard is adopted by the State Building Code Council. The Department must report to the General Government Appropriations Subcommittees of the Senate and the House of Representatives, the Environmental Review Commission, and the Joint Legislative Commission on Governmental Operations on the result of its monitoring no later than January 1, 2009 and again on or before January 1, 2010.

The act requires the Department to conduct a performance review of the Program's costs, savings, impacts on employee productivity, and effectiveness and to submit a preliminary report no later than December 1, 2010 and a final report no later than December 1, 2011 to the General Government Appropriations Subcommittees of the Senate and the House of Representatives, the Environmental Review Commission, and the Joint Legislative Commission on Governmental Operations. S.L. 2007-546 prohibits State agencies from purchasing any building, or a building that has had a major renovation, that was not designed and constructed to meet energy efficiency standards of a comparable State building or renovation of a State building in effect at the time the building was constructed or renovated. This prohibition does not apply to the purchase of a building having historic, architectural, or cultural significance or to buildings acquired by devise or bequest.

Implementation of Energy Conservation Measures. – The act requires the Department to administer and oversee the implementation of a program fully implementing the energy conservation measures in each State, university, and community college building no later than December 31, 2009. "Energy conversation measure" means a facility alteration, training, or services related to the operation of a facility, when the alteration, training, or services provide anticipated energy savings. Energy conservation measures that would be implemented under this act include:

- Lighting system changes
- Water system changes
- Review of heating, ventilation, and air-conditioning (HVAC) replacement equipment and training to ensure installation of programmable automated HVAC building systems is done properly
- Review of minor motorized equipment subject to replacement to ensure replacement equipment has premium efficiency motors and
- The following retrofits that require no significant expenditure of funds:
  - Disconnection of drink vending machine lamps
  - Use of power save features on office equipment
  - Purchase of Energy Star equipment and appliances

Develop/Update Standards. – The act requires the Department to develop or revise its architectural and engineering standards by February 1, 2008 to provide assistance in determining which energy conservation measures are best suited to the unique characteristics of each building. The Department must report to the Joint Legislative Commission on Governmental Operations and the Environmental Review Commission on its progress no later than February 1, 2008.

The requirements for the implementation of energy, water, or other utility conservation measures under this act do not apply for properties eligible for, nominated to, or entered on the National Register of Historic Places, pursuant to the National Historic Preservation Act of 1966.

Authority and Duties of State Agencies. – The act amends the statutes governing the authority and duties of State agencies to require the Department to develop a comprehensive program to manage energy, water, and other utility use and update the program annually. The energy consumption per gross square foot for all State buildings in total must be reduced by 20% by 2010 and 30% by 2015 compared to the 2003-2004 baseline. State agencies and universities must annually implement and update a management plan that is consistent with the State's program under this section. Each community college must submit an annual written report to the State Energy Office on its utility and consumption costs.

The Department, as part of the existing Facilities Condition and Assessment Program, must develop an energy audit and a procedure for conducting energy audits. Every five years, the Department must conduct an energy audit for each State agency or university facility. When conducting an energy audit, the Department must identify and recommend any State or institution of higher learning facility as suitable for building commissioning to reduce energy consumption or suitable for the installation of an energy savings measure pursuant to a guaranteed energy savings contract. The Department may adopt architectural and engineering standards to meet this requirement.

The act requires the Department to establish and train an additional team to examine existing facilities of State agencies and State institutions of higher learning to identify and recommend energy conservation maintenance and operating procedures designed to reduce energy consumption, to conduct energy audits, and to identify facilities that are suitable for the installation of an energy savings measure under the Facilities Condition and Assessment Program.

Life-Cycle Cost Analysis. – The act amends laws to require a life-cycle cost analysis to commence at the schematic phase of the construction or renovation project and be updated or amended at the design development phase and the construction document phase. The State agency, university, or community college must submit the life-cycle cost analysis to the Department for certification at the schematic phase and again when it is updated or amended as needed.

The provisions of the act concerning the Sustainable Energy Efficient Buildings Program became effective October 1, 2008 and expire October 1, 2010. These provisions apply to contracts for the design of major facility projects that are entered into on or after October 1, 2008. The provisions of this act concerning life-cycle cost analysis apply to life-cycle cost analyses commenced, and contracts entered into for life-cycle cost analyses, on or after December 1, 2007. All other provisions of this act became effective August 31, 2007. (JRM, JH)

Solid/Hazardous Waste

Hazardous Materials Task Force Recommendations

S.L. 2007-107 (HB 36) makes the following changes to statutes governing hazardous waste to improve the oversight of hazardous waste facilities as recommended by the Governor's Hazardous Materials Task Force:

- Imposes additional requirements applicable to hazardous waste facilities as follows:
  - Requires applicants for permits for commercial hazardous waste facilities to demonstrate financial responsibility for corrective action and for screening for potential off-site migration of contamination in the event of a release of hazardous waste or hazardous waste constituents into the environment. The provision also: (i) clarifies the methods by which an applicant or permit holder can establish financial assurance; (ii) clarifies who, in addition to an applicant or permit holder, is a guarantor of payment for closure, etc.; (iii) provides that assets used to meet financial assurance requirements must be in a form readily accessible to the Department of Environment and Natural Resources (DENR), and inaccessible to the permit holder except as approved by the Department; and, (iv) authorizes DENR to submit an applicants filings pertaining to financial responsibility to the State Treasurer for review and recommendations. This section became effective October 1, 2007.
  - Requires applicants for permits for hazardous waste facilities to seek input from local government and emergency response agencies on their contingency plans for the facilities. This section became effective June 26, 2007.

- Requires operators of commercial hazardous waste facilities to maintain certain information at an off-site location and make the information accessible to DENR, local government, and emergency response agencies that have a role under contingency plans. This section becomes effective October 1, 2007.
- Requires an applicant for a permit for a commercial hazardous waste facility to notify persons who reside or own property located within one-fourth mile of the proposed facility that an application has been filed, requires permit holders to provide periodic notice to these persons that includes information concerning the emergency response plan for the facility, and requires that documentation of these notices be provided to DENR. This section became effective October 1, 2007.
- Requires DENR to consider, when determining the frequency of inspections at commercial hazardous waste facilities, changes in sensitive land use or population density that occurred during the previous year in the area located within one-fourth mile of any property boundary of such facilities. This section became effective June 26, 2007.
- Requires commercial hazardous waste facilities to provide security and surveillance at the facility 24 hours a day, 7 days a week in order to monitor site conditions and to control entry to the site of the facility. This section became effective October 1, 2007.
- Requires permits for commercial hazardous waste facilities to be subject to renewal at least every five years. This section became effective June 26, 2007.
- Authorizes DENR to regulate facilities at which hazardous waste is stored for more than 24 hours but less than 10 days and directs DENR to study the need for further regulation of these facilities. This section became effective October 1, 2007.
- Requires commercial hazardous waste facilities to install and maintain on-site wind monitors. This section became effective October 1, 2007.
- Provides that a local zoning or land-use ordinance is presumed to be valid and enforceable to the extent the zoning or land-use ordinance imposes requirements, restrictions, or conditions that are generally applicable to development and requires the Office of the Governor to seek the advice of local units of government regarding the adequacy of current criteria the Secretary of Environment and Natural Resources must consider when deciding whether to preempt these local ordinances. This section became effective June 26, 2007.

➢ Authorizes State Medical Assistance Teams and the Epidemiology Section of the Division of Public Health of the Department of Health and Human Services (DHHS) to seek reimbursement for all reasonable deployment costs incurred in response to the release of hazardous material or hazardous waste into the environment. The act also directs the Department of Crime Control and Public Safety and DHHS to jointly study potential sources of permanent funding for the State Medical Assistance Teams.

➢ Clarifies that municipal 911 data has the same confidentiality as county 911 data and that data contained in a reverse 911 emergency notification system is confidential.

➢ Establishes a task force to review the State Building Code with respect to the regulation of facilities that store, treat, or dispose of hazardous materials. This section became effective July 1, 2007.

➢ Requires DENR to establish a digital information exchange system for a hazardous chemicals inventory database. This section became effective July 1, 2007.

➢ Requires DHHS to develop a model plan for public health response to events with a potential for chemical, biological, or radiological contamination. This section became effective July 1, 2007.

➢ Authorizes the Board of Governors of The University of North Carolina to establish an Institute for Disaster Studies and authorizes The University of North Carolina to study

the emission and transport of pollutants at fires at commercial hazardous waste facilities and the health and economic impacts of such fires. This section became effective July 1, 2007.

- Makes clarifying, conforming, and technical changes to statutes governing hazardous waste.

Except as otherwise noted, the provisions of this act became effective June 26, 2007. (JLM, GG)

Solid Waste Management Authority Property

S.L. 2007-131 (HB 1456). See **Local Government**.

Solid Waste Management Act of 2007

S.L. 2007-550 (SB 1492) as amended by S.L. 2007-543 (SB 6):

- Clarifies the circumstances under which the Department of Environment and Natural Resources (DENR) must deny a permit application for a solid waste management facility. This section became effective August 1, 2007 and applies to any application for a permit for a facility that is pending on that date.
- Provides that solid waste management permits are not transferable without the approval of DENR. This section became effective August 1, 2007.
- Increases the maximum penalties that may be imposed for nonhazardous and hazardous solid waste violations. This section became effective August 1, 2007, and applies to violations that occur on or after that date.
- Amends financial responsibility requirements for applicants and permit holders for solid waste management facilities as follows:
  - Adds definitions for "financial assurance," "financial qualification," and "financial responsibility." "Financial responsibility" encompasses both financial assurance and financial qualification.
  - With regard to financial responsibility, requires a permit holder to: (i) maintain financial responsibility in order to continue to hold a permit; (ii) provide any information requested by DENR concerning maintenance of financial responsibility; and, (iii) notify DENR of any significant change in information that might affect financial responsibility. Based upon review of information provided, DENR may require a permit holder to reestablish financial responsibility and may modify or revoke a permit, or require issuance of a new permit.
  - "Financial qualification" refers to the ability of an applicant or permit holder to pay the costs of proper design, construction, operation, and maintenance of the facility. With regard to financial qualification, authorizes DENR, in its sole discretion, to require an applicant to:
    - Demonstrate its financial qualification for the design, construction, operation, and maintenance of a facility. If DENR requires a demonstration of financial qualification, the applicant or permit holder: (i) must provide an audited, certified financial statement; (ii) may do so through a combination of cash deposits, insurance, and binding loan commitments from a financial institution licensed to do business in the State and rated AAA by Standard & Poor's, Moody's Investor Service, or Fitch, Inc. If assets of a parent, subsidiary, or other affiliate of the applicant or a permit holder, or a joint venturer with a direct or indirect interest in the applicant or permit holder, are proposed to be used to demonstrate its financial qualification, then the party whose assets are to be used must be designated as a joint permittee with the applicant on the permit of the facility.

- Provide cost estimates for site investigation; land acquisition, including financing terms and land ownership; design; construction of each five-year phase, if applicable; operation; maintenance; closure, and post-closure monitoring and maintenance of the facility to DENR.

- "Financial assurance" refers to the ability of an applicant or permit holder to pay the costs of assessment and remediation in the event of a release of pollutants from a facility, closure of the facility in accordance with all applicable requirements, and post-closure monitoring and maintenance of the facility. With regard to financial assurance:
  - Requires an applicant and permit holder to establish financial assurance by a method or combination of methods that will ensure that sufficient funds for closure, post-closure maintenance and monitoring, and any corrective action that DENR may require, will be available during the active life of the facility, at closure, and for any post-closure period of time that DENR may require.
  - The applicant or permit holder may establish financial assurance through insurance, irrevocable letters of credit, trusts, surety bonds, or any other financial device, or any combination of the foregoing shown to provide protection equivalent to the financial protection that would be provided by insurance if insurance were the only mechanism used.
  - Assets used to meet financial assurance requirements must be in a form readily accessible to DENR, and inaccessible to the permit holder except as approved by DENR.
  - Requires that the owner or operator of a sanitary landfill establish financial assurance sufficient to cover a minimum of $3 million in costs for potential assessment and corrective action at the facility, and gives DENR discretion to require financial assurance in a higher amount or increase the amount at any time based upon the types of waste disposed in the landfill, the projected amount of waste to be disposed in the landfill, the location of the landfill, potential receptors of releases from the landfill, and inflation. This provision applies to the owner or operator of a sanitary landfill when the permit is next subject to renewal after August 1, 2009.
  - Authorizes the Commission for Health Services to adopt rules to allow a unit of local government or solid waste management authority to meet the financial responsibility requirements by either a local government financial test or a capital reserve fund requirement.
- Except as otherwise noted, these provisions concerning financial responsibility became effective August 1, 2007 and apply to any application for a permit for a solid waste management facility that is pending on that date.

➢ Clarifies and expands the scope of environmental compliance review requirements. This section became effective August 1, 2007 and applies to any application for a permit for a solid waste management facility that is pending on that date.

➢ Clarifies that a parent, subsidiary, or other affiliate of the applicant or parent, including any person with a direct or indirect interest in the applicant (other than a minority shareholder of a publicly traded corporation who has no involvement in the management or control of the corporation) is subject to financial responsibility and environmental compliance review. This provision became effective August 1, 2007 and applies to any application for a permit for a solid waste management facility that is pending on that date.

➢ Provides for siting of combustion products landfills in areas that have been formerly used for the storage or disposal of combustion products from coal-fired generating units at the same facility that generated the combustion products, and technical requirements, including a double liner system, for these landfills. This section became effective August 1, 2007. Any permit issued for a combustion products

landfill as described in this section will, for purposes of this provision, be considered to have been permitted on property described in a solid waste management facility permit that is in effect on August 1, 2007.

- Specifies additional technical requirements for solid waste management facilities. The act requires:
  - DENR to conduct a study of environmental impacts (EIS) from the proposed facility, and require the applicant to pay all costs incurred by DENR in connection with the study.
  - A buffer of at least 200 feet between any perennial stream or wetland and the nearest waste disposal unit of a sanitary landfill, except in certain circumstances.
  - A sanitary landfill for the disposal of construction and demolition debris to be constructed with a liner system that consists of a flexible membrane liner over two feet of soil of specified permeability.
  - A sanitary landfill to be constructed so that the post-settlement bottom elevation of the liner system, or the post-settlement bottom elevation of the waste if no liner system is required, is a minimum of four feet above both the seasonal high groundwater table and the bedrock datum plane contours.
  - With respect to any sanitary landfill for which a liner is required, additional requirements for testing of geomembrane base liner systems for leaks and damage, and design and maintenance of leachate collection systems, lines, and pipes.
  - A permit holder for a sanitary landfill to develop and implement a waste screening plan to ensure compliance with State laws and rules, and any applicable local ordinances, that prohibit the disposal of certain items in landfills.

The act prohibits:

- Construction of a waste disposal unit of a sanitary landfill in: a 100-year floodplain, except as authorized by variance, or a wetland, except in certain circumstances.
- Construction of a waste disposal unit of a sanitary landfill if, at the earlier of (i) the acquisition by the applicant or permit holder of the land or of an option to purchase the land on which the waste disposal unit will be located, (ii) the application by the applicant or permit holder for a franchise agreement, or (iii) at the time of the application for a permit, any portion of the proposed waste disposal unit would be located within five miles of the outermost boundary of a National Wildlife Refuge, one mile of the outermost boundary of a State gameland, or two miles of the outermost boundary of a component of the State Parks System. This provision (i) became effective August 1, 2007, and applies to any application for a permit for a solid waste management facility that is submitted on or after that date; and (ii) applies to any application for a permit for a solid waste management facility that is pending on August 1, 2007 on the basis of the boundaries of an applicable National Wildlife Refuge, State gameland, or component of the State Parks System as of August 1, 2007.
- Issuance of a permit for a sanitary landfill that authorizes: (i) a capacity of more than 55 million cubic yards of waste; (ii) a disposal area of more than 350 acres; and (iii) a maximum height, including the cap and cover vegetation, of more than 250 feet above the mean natural elevation of the disposal area.

This section pertaining to additional technical requirements for solid waste management facilities became effective August 1, 2007 and, with certain exceptions as set forth in the act, applies to any application for a permit for a solid waste management facility that is pending on that date.

- Requires that applicants for a permit for a sanitary landfill or for a transfer station conduct a traffic study of the impacts of the proposed facility. This section became effective August 1, 2007 and, with certain exceptions as set forth in the act, applies

to any application for a permit for a solid waste management facility that is pending on that date.

- Clarifies the circumstances under which a unit of local government may collect a solid waste availability fee. This section became effective August 1, 2007.
- Authorizes units of local government to hire landfill liaisons. This section became effective August 1, 2007.
- Establishes a schedule of fees applicable to permits for solid waste management facilities to support the solid waste management program. Requires DENR to issue a draft permit decision on an application for a permit subject to a fee within one year after DENR determines the application is complete. This section became effective on August 1, 2007 and applies to any application for a permit for a solid waste management facility that is pending on that date, except that during the period August 1, 2007 through August 1, 2008 DENR must determine whether an application or a permit for a solid waste management facility is complete within 270 days after DENR receives the application for the permit.
- Establishes a solid waste disposal tax of $2.00 per ton of waste to be imposed on the disposal of municipal solid waste in landfills in the State and on the transfer of municipal solid waste for disposal outside the State in order to provide funds for: (i) 50% for the assessment and remediation of pre-1983 landfills; (ii) 18.75% to cities in the State on a per capita basis and 18.75% to counties in the State on a per capita basis, to be used by a unit of local government solely for solid waste management programs and services. Under this provision, persons who reside within a city would not be counted in the population of the county or counties in which the city is located; and (iii) 12.5% grants to State agencies and units of local government to initiate or enhance local recycling programs and to provide for the management of difficult to manage solid waste, including abandoned mobile homes and household hazardous waste.

  One designated use of the funds is remediation of pre-1983 landfills ("orphan" landfills). The act requires the Secretary of Environment and Natural Resources to assess these landfills, determine their priority for remediation, and to develop and implement a remedial action plan for each landfill that requires remediation. The act provides that with regard to these landfills, the Secretary may not seek cost recovery: (i) from a local government for assessment and remedial action performed; and (ii) from any other potentially responsible party if the Secretary develops and implements a remedial action for the site. If any potentially responsible party fails to cooperate with the assessment and implementation of control and mitigation measures, the Secretary may seek cost recovery for assessment and remedial action. The Secretary will develop and implement a remedial action plan only if funds are available to pay the cost of implementation.

  This section becomes effective July 1, 2008.
- Enacts provisions related to the recycling of discarded computer equipment. The act:
  - Requires each manufacturer of computer equipment sold in the State to:
    - Register with DENR.
    - Pay a $10,000 initial registration fee and a $1,000 annual renewal registration fee. The proceeds of the fees will be credited to the Computer Equipment Management Account, a non-reverting account established within DENR. A manufacturer of computer equipment that sells 1,000 items of computer equipment or less per year is exempt from the requirement to pay these fees. This provision becomes effective January 1, 2009.
    - Submit a plan to DENR for the recycling or reuse of computer equipment produced by the manufacturer and discarded by households in the State. This provision becomes effective October 1, 2009.

- Pay all costs associated with the development and implementation of its plan. This provision becomes effective January 1, 2009.
- Submit a report to the Department by January 31 of each year. This provision becomes effective February 1, 2011.

- Requires computers sold in the State to include a label identifying the manufacturer. This provision becomes effective January 1, 2009.
- Allows manufacturers to participate in collective recovery plans with other manufacturers. This provision becomes effective January 1, 2009.
- Prohibits manufacturers not in compliance with requirements from selling computer equipment to the State and to political subdivisions of the State. This provision becomes effective July 1, 2009.
- Requires DENR to: (i) develop and maintain a list of manufacturers in compliance with the applicable provisions; (ii) develop and implement a public education program on recycling of discarded computer equipment and provide technical assistance to local governments and manufacturers; and (iii) submit a report on the recycling of discarded computer equipment to the Environmental Review Commission no later than April 1st of each year. This section becomes effective January 1, 2009.
- Requires computer equipment collectors that participate in the program to ensure that discarded computer equipment is consolidated at central locations, properly stored, and either held for pickup by a manufacturer or delivered to a facility designated by a manufacturer. This section becomes effective January 1, 2010.

➢ Directs DENR to develop a proposal for a recycling program for fluorescent lamps.

➢ Directs the ERC to study issues related to the franchise of solid waste management facilities by units of local government and issues related to transportation of solid waste by rail or barge.

➢ Provides that an applicant for a permit for a sanitary landfill may be eligible for reimbursement of the reasonable costs of preparation of a permit application incurred prior to August 1, 2006 if the permit would be denied as a result of the required setbacks for solid waste management facilities from National Wildlife Refuges, State gamelands, and components of the State Parks System.

The provision includes a statement of purpose and intent that provides that, notwithstanding that an applicant for a permit does not have a reasonable expectation that the law governing the permit will remain unchanged and that the applicant acquires no vested right by virtue of having made an application, the General Assembly finds that it is in the public interest to provide for the potential compensation of certain applicants who submitted an application for a permit for a solid waste management facility prior to August 1, 2006 and whose application would be denied as a result of the required setbacks for solid waste management facilities from National Wildlife Refuges, State gamelands, and components of the State Parks System.

To be eligible for reimbursement under this provision, the applicant must submit a request to DENR for reimbursement no later than December 31, 2007 that demonstrates all of the following:

- The application for a permit to construct a sanitary landfill was submitted to DENR on or before August 1, 2006.
- The applicant obtained a landfill franchise from the local government with jurisdiction over the site of the proposed landfill on or before August 1, 2006.
- DENR did not grant the permit application in whole or in part.
- DENR did not deny the permit application before August 1, 2007.
- The applicant did not withdraw the permit application before August 1, 2007.

- That the applicant had a reasonable expectation that the application for a permit would have been approved but for the enactment of the required setbacks for solid waste management facilities from National Wildlife Refuges, State gamelands, and components of the State Parks System.

The costs eligible for reimbursement are those that are necessary for the preparation of the permit application and that are reasonably incurred. These costs may include site studies, facility plans, construction and engineering plans, construction quality assurance plans, geologic and hydrologic investigations, operation plans, wildlife or wildlife management studies, closure and post-closure plans, information required by DENR to satisfy financial assurance and financial responsibility requirements, and other information required by DENR in the permit review. These costs may also include the reasonable fees of environmental consultants, engineers, geologists, other professionals whose services were necessary to prepare the permit application or to respond to information requests from DENR, and legal costs to obtain a landfill franchise or other approval from the local government with jurisdiction over the site of the proposed sanitary landfill.

Costs not eligible for reimbursement include the costs of acquiring interests in land for construction of the proposed sanitary landfill, or legal or lobbying costs incurred in attempting to influence an administrative or legislative body.

DENR must review a request for reimbursement and notify the applicant and the Secretary of Revenue of the costs approved for reimbursement under this provision. The Secretary of Revenue must reimburse the approved costs from the proceeds of the solid waste disposal tax subject to availability of funds.

The act also provides that an applicant for a permit for a sanitary landfill who accepts reimbursement of costs under this section waives the right to seek reimbursement of those costs under any other provision of law, and requires that, prior to receiving any reimbursement, the applicant must execute a covenant not to sue the State of North Carolina or any political subdivision of the State for any costs as described in the act.

These provisions pertaining to reimbursement of applicants for permits for sanitary landfills became effective August 31, 2007.

- Provides that if any section or provision of the act is declared unconstitutional or invalid by the courts, the unconstitutional or invalid section or provision would not affect the validity of the act as a whole or any part of the act other than the part declared to be unconstitutional or invalid

Except as otherwise noted, the provisions of this act became effective August 31, 2007. (JLM, GG)

Water Quality/Quantity/Groundwater

Clean Water Grants

S.L. 2007-185 (HB 1370) provides that a planning grant or technical assistance grant made by the Clean Water Management Trust Fund for a regional wastewater collection system or a regional wastewater treatment works is not subject to the high-unit-cost threshold. High-unit-cost projects result in an estimated average household user fee for water and sewer service in the area served by the project in excess of the high-unit-cost threshold. High-unit-cost threshold is defined as either 1.5% of the median household income in an area that receives both water and sewer service or ¾% of the median household income in an area that receives only water or only sewer service.

This act became effective July 5, 2007, and applies to applications for planning grants and technical assistance grants received by the Clean Water Management Trust Fund on or after January 1, 2007. (JRM)

Limit Impervious Surfaces for Vehicle Parking

S.L. 2007-323, Sec. 6.22(a) (HB 1473, Sec. 6.22(a)) amends stormwater runoff rules and programs by requiring that any area designed for use as a vehicle parking area, except for covered vehicle parking areas or multilevel vehicle parking areas, not exceed 80% built-upon area, as defined in S.L. 2006-246. The remaining area designed for use as a vehicle parking area must meet:

- Design requirements for a permeable pavement system, as determined in guidance documents prepared by the Department of Environment and Natural Resources (Department) or
- Other design requirements for stormwater management approved by the Department, including, but not limited to, the use of (i) grass and other pervious surfaces and (ii) bioretention ponds, cisterns, and other water retention devices.

This section becomes effective October 1, 2008 and applies to any area designed to be used for vehicular parking for which an application for a building permit, a request for a zoning reclassification, or a subdivision plat is filed in the city or county in which the area is located on or after that date. (JRM)

Bernard Allen Memorial Emergency Drinking Water Fund

S.L. 2007-323, Sec. 12.2.(a) and 12.2.(b) (HB 1473, Sec. 12.2.(a) and 12.2.(b)) makes clarifying and substantive amendments to the Emergency Drinking Water Fund (Fund). The Fund is renamed the "Bernard Allen Memorial Emergency Drinking Water Fund" under the control and direction of the Department of Environment and Natural Resources (Department). The Fund is a nonreverting, interest-bearing fund consisting of monies appropriated by the General Assembly or made available to the Fund from any other source and investment interest credited to the Fund. Improved springs are added to the sources of drinking water covered by the Fund. The Fund may be used by the Department to pay the costs of testing private drinking water wells and improved springs for suspected contamination up to once every three years and for the provision of alternative drinking water supplies to persons whose drinking water well or improved spring is contaminated. Alternative drinking water supply includes the repair or replacement of a contaminated well or the connection to a public water supply.

The Fund may not be used for the provision of:

- Alternative water supply to households with incomes greater than 300% of the federal poverty level.
- Alternative drinking water supplies unless the concentration of one or more contaminants in the private drinking water well or improved spring exceeds the Maximum Contaminant Level, or the federal drinking water action level as defined in the Code of Federal Regulations.
- Temporary water supplies in any calendar quarter until all needs for permanent replacement water supplies that have been identified in that calendar quarter have been met through hookups to public water supplies, repair, or replacement of contaminated wells. The provision of permanent replacement water supplies must be given preference over the provision of temporary water supplies.

The Department, in consultation with the Commission for Health Services and local health departments, must report no later than October 1 of each year, beginning in 2008, to the Environmental Review Commission, the House of Representatives and Senate Appropriations Subcommittees on Natural and Economic Resources, and the Fiscal Research Division on the

implementation of these sections. The report must include the purpose and amount of all expenditures from the Fund during the prior fiscal year, a discussion of the benefits and deficiencies of the Fund, and may include recommendations for any legislative action.

This section became effective July 1, 2007 (JRM)

Nutrient Offset Program Transition

S.L. 2007-438 (HB 859) provides for the transition of the Nutrient Offset Payment Program from a fee-based program to a program based on the actual costs of providing nutrient offsets.

Background. – During the 1999 Regular Session, the General Assembly established the Riparian Buffer Protection Program to provide alternatives for persons who would otherwise be required to maintain riparian buffers. The General Assembly also directed the Environmental Management Commission (EMC) to establish a schedule of compensatory mitigation fees for the program. In January 2006, the EMC adopted a revised schedule of compensatory mitigation fees. There were a number of concerns expressed about the amount of increase in these nutrient offset payment fees. In response, the General Assembly enacted legislation during the 2006 Short Session to establish temporary nutrient offset payment fees in lieu of the fee schedule adopted by the EMC and directed the Environmental Review Commission (ERC) to study issues related to the nutrient offset payment program. The ERC entered into a contract with Research Triangle Institute, International (RTI), to provide consultant services for a study of the costs associated with providing nutrient controls adequate to offset point source and nonpoint source discharges of nitrogen and other nutrients. The ERC received the final report from RTI in June of 2007. In the final report RTI recommended:

- A nutrient offset payment factor for nitrogen in the Neuse River Basin of $25.77 per pound of nitrogen.
- A nutrient offset payment factor for nitrogen in the Tar-Pamlico River Basin of $19.70 per pound of nitrogen.
- A nutrient offset payment factor for phosphorous in the Tar-Pamlico River Basin of $26.02 per tenth of a pound of phosphorus.
- That a 10% fee be added to the nutrient offset payments to cover the costs of program administration.

S.L. 2007-438. – Establishes the following nutrient offset payment fees:

- For nitrogen in the Neuse River Basin, $28.35 per pound of nitrogen.
- For nitrogen in the Tar-Pamlico River Basin, $21.67 per pound of nitrogen.
- For phosphorous in the Tar-Pamlico River Basin, ($28.62) per tenth of a pound of phosphorous.

This fee schedule will expire September 1, 2009.

S.L. 2007-438 requires the Department of Environment and Natural Resources (DENR) to develop and implement a plan to transition the nutrient offset program from a fee-based program to a program based on the actual costs of providing nutrient credits no later than September 1, 2009. DENR will report on its progress in developing and implementing the new fee structure to the ERC on September 1, 2008 and March 1, 2009.

S.L. 2007-438 provides that nutrient offset credits may be obtained through nutrient offset projects provided by organizations that are not affiliated with DENR. This act also provides that nutrient offset projects must be located within the same eight digit Cataloging Unit, designated by the United States Geological Survey, in which the associated nutrient loading takes place.

This act became effective September 1, 2007 and applies to all nutrient offset payments. (JH, GG)

Amend Interbasin Transfer Laws

S.L. 2007-518 (HB 820) repeals the existing process and establishes a new process for applying for a certificate for an interbasin transfer and for determining whether such a certificate should be issued.

Study. – The Environmental Review Commission (ERC), with the assistance of the Department of Environment and Natural Resources (DENR), will study the allocation of surface water resources and their availability and maintenance in the State, including issues related to the transfer of water from one river basin to another and the withdrawal of water for consumptive use. The ERC may submit an interim report to the 2008 Regular Session of the General Assembly and will submit a final report of its findings and recommendations, including any legislative proposals, to the 2009 General Assembly.

The Division of Water Resources of DENR, in consultation with the ERC, will prepare a new river basin map that defines the extent to which river basins in North Carolina extend into adjacent states.

Certificate Required. – A person is required to obtain a certificate from the Environmental Management Commission (Commission) in order to transfer 2 million gallons of water or more per day from one river basin to another. A petition to extend or renew a certificate is treated as a new petition.

Notice of Intent to File a Petition. – An applicant must prepare a notice of intent to file a petition that includes a nontechnical description of the applicant's request and identifies the proposed water source. Within 90 days of filing the notice of intent, the applicant must hold at least one public meeting in the source river basin upstream from the proposed point of withdrawal, at least one public meeting in the source river basin downstream from the proposed point of withdrawal, and at least one public meeting in the receiving river basin to provide information to interested parties and the public regarding the nature and extent of the proposed transfer and to receive comment on the scope of the environmental documents. The applicant must provide at least 30 days notice of the public meetings by publishing notice in the North Carolina Register; by publishing notice in a newspaper of general circulation in many of the potentially affected areas in North Carolina and adjacent states; and by giving notice by first class mail to potentially affected state and local governments, water users in North Carolina and adjacent states, and persons who have requested notice.

Environmental Documents and Public Hearing. – An environmental assessment must be prepared for every petition for a certificate for an interbasin transfer and an environmental impact statement must be prepared for every petition for a certificate for an interbasin transfer from one major river basin to another. An environmental impact statement must include a comprehensive analysis of the impacts that would occur in the source river basin and the receiving river basin if the petition for a certificate is granted. The environmental impact statement must also include an evaluation of alternatives to the proposed interbasin transfer and a description of measures to mitigate any adverse impacts that may arise from the proposed interbasin transfer.

Within 30 days of the completion of the draft environmental impact document, the Commission will hold a public hearing on it. Notice of the hearing on the draft environmental document will be given as provided for notice of intent to file a petition, except that notice will be given in the Environmental Bulletin rather than the North Carolina Register. The Commission may not act on the petition until the Commission determines that the environmental document is complete and adequate.

Petition. – An applicant for a certificate must petition the Commission. The petition must be in writing and contain information on the nature and extent of the transfer, including: a description of the facilities to be used to transfer the water; a description of the proposed uses of the water to be transferred; a description of water quality in the source and receiving river basins; a description of the water conservation measures used by the applicant; a description of all sources of water within the receiving river basin; a description of existing, planned, or

reasonably foreseeable water transfers and withdrawals from the source river basin; a demonstration that the proposed transfer would not impair existing uses of water within the source river basin; the applicant's future water supply needs and the present and reasonably foreseeable future needs of other uses within the river basin, the applicant's water supply plan, and any other information deemed necessary by the Commission.

Settlement Discussions. – Upon the request of the applicant, any interested party, or DENR, or upon its own motion, the Commission may appoint a mediation officer. The mediation officer must make a reasonable effort to initiate settlement discussions between the applicant and all other interested parties.

Draft Determination and Public Hearing on the Draft Determination. – Within 90 days after the Commission determines that the environmental document is adequate or the applicant submits its petition for a certificate, whichever occurs later, the Commission will issue a draft determination on whether to grant the certificate. The draft determination will be based on the same criteria and include the same conditions and limitations, findings of fact, and conclusions of law that would be required in a final determination. Notice of the draft determination will be given as provided for notice of intent to file a petition. Within 60 days of the issuance of the draft determination, the Commission will hold a public hearing on the draft determination. At least one hearing will be held in the affected area of the source river basin and at least one hearing will be held in the affected area of the receiving river basin. The Commission will give at least 30 days' written notice of the public hearing as provided for notice of intent to file a petition.

Final Determination: Factors to be Considered. – In determining whether a certificate may be issued for the transfer, the Commission will specifically consider a number of factors, including: the necessity and reasonableness of the amount of surface water proposed to be transferred and its proposed uses; the present and reasonably foreseeable future detrimental effects on the source river basin; the cumulative effect on the source major river basin of existing and projected water transfer or consumptive water uses; the present and reasonably foreseeable beneficial and detrimental effects on the receiving river basin; all reasonable alternatives to the proposed transfer; and any other facts and circumstances that the Commission finds reasonably necessary to implement the interbasin transfer law.

Final Determination: Information to be Considered. – In determining whether a certificate may be issued for the transfer, the Commission will consider the petition, the environmental document, all oral and written comment submitted, the water quality of the source river basin and the receiving river basin, and any other information that the Commission determines to be relevant and useful.

Final Determination: Burden and Standard of Proof; Specific Findings. – The Commission will grant a certificate for a water transfer if the Commission finds that the applicant has established by a preponderance of the evidence that: the benefits of the proposed transfer outweigh the detriments of the proposed transfer; the detriments have been or will be mitigated to the maximum degree practicable; the amount of the transfer does not exceed the amount of the projected shortfall under the applicant's water supply plan after first taking into account all other sources of water that are available to the applicant; and there are no reasonable alternatives to the proposed transfer.

Final Determination: Certificate Conditions and Limitations. – The Commission may grant the certificate in whole or in part, or deny the certificate. The Commission may impose any conditions or limitations on a certificate that the Commission finds necessary. The certificate must include a number of conditions, including: a water conservation plan; a drought management plan; the maximum amount of water that may be transferred on a daily basis; a provision that the Commission may amend the certificate under certain conditions; a provision that the Commission shall amend the certificate under certain conditions, a requirement that the certificate holder report on the quantity of water transferred during each calendar quarter, and a provision that prohibits the resale of transferred water except under certain conditions.

Statement of Policy. – It is the public policy of the State to maintain, protect, and enhance water quality within North Carolina; that the reasonably foreseeable future water needs in the receiving river basin are subordinate to the reasonably foreseeable future water needs in the source river basin; and that the cumulative impact of transfers from a source river basin would not result in a violation of the State and federal antidegradation policies.

Severability Clause. – If any section or provision of S.L. 2007-518 is declared unconstitutional or invalid by the courts, the unconstitutional or invalid section or provision would not affect the validity of the bill as a whole or any part of S.L. 2007-518 other than the part declared to be unconstitutional or invalid

The effective date of S.L. 2007-518, as amended by S.L. 2007-484 (SB 613), Sec 43.7C, is set out below:

S.L. 2007-518 (HB 820) became effective August 31, 2007. Generally, it applies to any petition for a certificate for an interbasin transfer for which preparation of an environmental assessment or an environmental impact statement has begun on or after that date. For a petition for a certificate for an interbasin transfer to supplement ground water supplies in the fifteen counties designated as the Central Coastal Plain Capacity Use Area, S.L. 2007-518 becomes effective January 1, 2011. Prior to January 1, 2011, a petition for a certificate for such an interbasin transfer would be considered and acted upon by the Commission pursuant to the procedures and standards set out in G.S. 143 215.22I on July 1, 2007. (JH, GG)

Promote Innovative Water Protection Efforts

S.L. 2007-549 (SB 1468) authorizes the use of monies in the Clean Water Management Trust Fund to finance projects to clean up or prevent surface water pollution to also be used to finance innovative efforts, including pilot projects, to improve stormwater management, to reduce pollutants entering the State's waterways, to improve water quality, and to research alternative solutions to the State's water quality problems.

This act became effective August 31, 2007. (JRM)

Various Transportation Changes/Study

S.L. 2007-551 (HB 1005). See **Transportation.**

Studies

New/Independent Studies/Commissions

Hazardous Materials Task Force Recommendations

S.L. 2007-107, Sec. 4.1. (HB 36, Sec. Sec. 4.1.) establishes the Regulation of Hazardous Materials Facilities Task Force to study issues related to the treatment, storage, and disposal of hazardous materials and review all current fire code regulations regarding the commercial treatment, storage, and disposal of hazardous materials to ensure that the State Building Code addresses the needs and safety of the citizens of the State. The Task Force must submit a report of its findings and recommendations, including legislative proposals, to the 2008 Regular Session of the 2007 General Assembly, the Governor, the North Carolina Building Code Council, and the Environmental Review Commission on or before April 1, 2008. The Task Force will terminate upon filing its report. This section became effective June 26, 2007.

In addition, Sec. 5.3.(b) of the act authorizes the Board of Governors of The University of North Carolina to establish an Institute for Disaster Studies. This provision became effective July 1, 2007. (JLM)

Referrals to Existing Commissions/Committees

Limit Impervious Surfaces for Vehicle Parking

S.L. 2007-323, Sec. 6.22.(b) (HB 1473, Sec. 6.22.(b)) provides that the Environmental Review Commission (ERC) may study issues related to the use of pervious surfaces for vehicle parking areas, including the costs associated with the use of pervious surfaces, the impact to the environment of stormwater runoff, and the practices of other states with regard to stormwater best management practices. The ERC may report its findings and recommendations, including any legislative proposals, to the 2007 Regular Session of the General Assembly when it reconvenes in 2008.

This section became effective July 1, 2007. (JRM)

Amend Interbasin Transfer Laws

S.L. 2007-518, Sec. 1.(a) (HB 820, Sec. 1.(a)) directs the Environmental Review Commission (ERC), with the assistance of the Department of Environment and Natural Resources (DENR), to study the allocation of surface water resources and their availability and maintenance in the State, including issues related to the transfer of water from one river basin to another and the withdrawal of water for consumptive use. The ERC may submit an interim report to the 2008 Regular Session of the General Assembly and will submit a final report of its findings and recommendations, including any legislative proposals, to the 2009 General Assembly.

This section became effective August 31, 2007. (JH)

Solid Waste Management Act of 2007

S.L. 2007-550, Sec. 18 (SB 1492, Sec. 18) directs the Environmental Review Commission to: (i) study issues related to the franchise of solid waste management facilities by units of local government; (ii) study, with the assistance of the Department of Justice, issues related to the transportation of solid waste by rail or barge, including the extent to which regulation of the transportation of solid waste by rail or barge by state governments may be preempted by federal law. The ERC must report its findings and recommendations, including any legislative proposals, to the 2008 Regular Session of the General Assembly.

This section became effective August 31, 2007. (JLM)

Referrals to Departments, Agencies, Etc.

Hazardous Materials Task Force Recommendations

S.L. 2007-107, Sec. 1.8.(d) (HB 36, Sec. Sec. 1.8.(d)) directs the Department of Environment and Natural Resources to study the need for further regulation of hazardous waste transfer facilities, including whether to require these facilities to obtain a permit under Part 2 of Article 9 of Chapter 130A of the General Statutes, pay permit fees, provide contingency plans, and demonstrate financial responsibility. DENR must report its findings and recommendations,

including any legislative proposals, to the Environmental Review Commission on or before February 15, 2008. This section became effective October 1, 2007

In addition, Sec. 5.3.(b) of the act authorizes The University of North Carolina to study the emission and transport of pollutants at fires at commercial hazardous waste facilities and the health and economic impacts of such fires. This provision became effective July 1, 2007. (JLM)

Advisability of Adding Deep River State Trail to State Parks System

S.L. 2007-323, Sec. 12.9 (HB 1473, Sec. 12.9) requires the Division of Parks and Recreation (Division) of the Department of Environment and Natural Resources to study the advisability of the General Assembly authorizing the addition of the Deep River State Trail to the State Parks System. The Division must consider the costs over the next five years of land acquisition, park development, and park operations. The Department must report the results of this study to the Joint Legislative Commission on Governmental Operations by March 1, 2008.

This section became effective July 1, 2007. (JRM)

Promote Renewable Energy/Baseload Generation

S.L. 2007-397, Secs. 4.(c) and 14 (SB 3, Secs. 4.(c) and 14) requires the following studies:

- Section 4.(c) provides that no later than September 1, 2008, the Utilities Commission must prepare and submit an analysis of whether rate structures, policies, and measures, including decoupling, in place in other states and countries that promote a mix of generation involving renewable energy sources and demand reduction should be implemented in North Carolina to the Governor, the Environmental Review Commission, and the Joint Legislative Utility Review Committee. This section becomes effective August 20, 2007.
- Section 14 provides that no later than October 1 of odd-numbered years, beginning October 1, 2009, the Utilities Commission must submit to the Governor, the Environmental Review Commission, and the Joint Legislative Utility Review Committee a report on the actual results of the costs allocation established by S.L. 2007-397 (SB 3). This section became effective August 20, 2007. (JH)

Amend Interbasin Transfer Laws

S.L. 2007-518, Sec. 1.(b) (HB 820, Sec. 1.(b)) directs the Division of Water Resources of the Department of Environment and Natural Resources, in consultation with the Environmental Review Commission, to prepare a new river basin map that defines the extent to which river basins in North Carolina extend into adjacent states.

This section became effective August 31, 2007. (JH)

Major Pending Legislation

Electronics Recycling

The Solid Waste Management Act of 2007 (S.L. 2007-550, SB 1492) enacted provisions related to the recycling of discarded computer equipment. The act did not, however, provide for recycling of other electronic devices such as televisions. House Bill 1777 (Second Edition) would

establish a program for the recovery of televisions (as well as other electronic devices) for reuse or recycling. (JLM)

Underground Storage Tanks

House Bill 1010 (First Edition) and Senate Bill 1554 (First Edition) would address funding and administration of the Leaking Petroleum Underground Storage Tank (UST) Cleanup Program, including provisions as follows: (1) provide additional funds for the cleanup of releases and discharges of petroleum from USTs by increasing the fees paid by owners and operators of commercial USTs, (2) provide for expedited assessment and cleanup of releases and discharges from petroleum USTs by requiring DENR to establish a pilot program to evaluate the use of site-specific cleanup standards, (3) provide for various studies and reports, and (4) to make other improvements to the UST program. (JLM)

Steep Slope Legislation

Recently, several counties in the western part of the State have considered or adopted ordinances to regulate development on steep slopes. Concerns over the safety of development on mountain slopes arose after deaths and property damage caused by landslides resulting from Hurricanes Frances and Ivan in western North Carolina in September 2004. Stakeholder groups in western North Carolina expressed interest in enactment of statewide legislation to consistently regulate site-planning, design, and construction of artificial slopes in mountainous areas in order to promote safe and stable development on steep slopes.

House Bill 1756 (First Edition) would (1) require local governments to adopt ordinances to regulate site planning, design, and construction of artificial slopes in mountainous areas to promote safe and stable slopes for development and to reduce the likelihood of slope failures on developed or disturbed land, in order to protect human safety and property; (2) direct the Sedimentation Control Commission to assist local governments in development and implementation of safe slope construction programs; and (3) provide for disclosure of landslide hazards to purchasers of properties located in areas vulnerable to landslides as indicated on maps prepared by the North Carolina Geological Survey. (JLM)

Exhibit G

QUARTERLY REPORT

TO THE

ENVIRONMENTAL REVIEW COMMISSION

ON

ENVIRONMENTAL MANAGEMENT COMMISSION ACTIVITIES

April 2007

YEAR 2006-2007 THIRD QUARTER REPORT TO ERC IN ACCORDANCE WITH § 143B-282(b)

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III. SUMMARIES OF ENVIRONMENTAL MANAGEMENT COMMISSION (EMC) ACTIONS

I. SESSION LAW 2005-190 (with revisions from SL 2006-259) REPORTING REQUIREMENTS

Based upon Section 2. (b) of Session Law 2005-190, the Environmental Management Commission (EMC) continues to assess and identify nutrient control strategies and criteria necessary to prevent excess nutrient loading in each drinking water supply reservoir. In compliance with the goals of the Section, the Division of Water Quality received US EPA approval of a plan of action evaluating the current surface water quality standards to determine if adequate nutrient criteria controls are in place to prevent nutrient impairments in North Carolina lakes. Approval to continue with development of additional or revised lake nutrient criteria was mutually agreed with the US EPA on June 27, 2006.

Monitoring is continuing in Falls Lake and the Falls Lake watershed and has been extended to September 2007. This extension will cover another growing season to accommodate the collection of adequate chlorophyll *a* data.

Modeling tasks associated with this project have also progressed. Work has begun on three of the models to be developed of Falls Lake and the reservoir watershed. As of September 1, 2006, DWQ has a fully executed contract with NC State University to perform hydrodynamic and water quality modeling of Falls Lake. DWQ staff have begun to process data and information for another model, the watershed loading model.

Although Session Law 2006-259 technically corrected the target date for the EMC to develop a nutrient management strategy for the Falls Lake Reservoir from July 1, 2008 to July 1, 2009, the target date for the EMC to adopt the rules to implement the nutrient management strategy by the same date (July 1, 2009) does not consider timing for rule adoption in accordance with the Administrative Procedures Act, General Statutes 150B. The inaccurate date will not interfere with the EMC's goal, however.

The ninth Falls Lake Reservoir Technical Advisory meeting was held on November 1, 2006 at the TJCOG offices. A review of monitoring data collected in 2005 was presented to concerned stakeholders by Peter Caldwell of the Division of Water Quality's (DWQ) Modeling and Total Maximum Daily Load (TMDL) Unit. Summaries of the current status of the watershed loading model were presented by Narayan Rajbhandari of the DWQ's Modeling and TMDL Unit, and the lake hydrodynamic model and lake water quality model were presented by Jing Lin of the Marine Earth and Atmospheric Science Department at N.C. State University. Staff are continuing to work on calibration of the watershed loading model and the lake nutrient response model.

The next scheduled Falls Reservoir Technical Advisory meeting is scheduled for May 15, 2007, 9:30 am at the North Durham Reclamation Facility.

Section 4 of Session Law 2005-190 and amendments in Session Law 2006-259 require the Environmental Management Commission to report its progress in developing and implementing nutrient management strategies for drinking water supply reservoirs meeting certain criteria to the Environmental Review Commission by April 1 of each year beginning April 1, 2006. The B. Everett Jordan Reservoir fits these criteria. The following is an update on the progress made.

In January 2006, the Environmental Management Commission deferred proceeding to public comment with draft rules for Jordan Reservoir, and directed staff to address outstanding stakeholder issues with the draft rules. Issues included the modeling basis for strategy goals, point source timelines and costs, and existing development load reduction requirements and costs. Over the course of 2006, staff conducted over thirty stakeholder meetings, both technical and general. As a result, revisions have been made to the draft rules reflecting discussions over the last year and a fiscal note summarizing the estimated total costs of the rules has also been completed.

In March 2007, Division staff obtained Environmental Management Commission approval to initiate the formal public comment period for the draft rules. Public notice is expected to be published within the next quarter and will include a two month public comment period. Staff intends to hold several public hearings within the Jordan Reservoir watershed during the public comment period. Under this schedule, the Commission would adopt rules in time to reach the 2008 session of the General Assembly, if required.

TMDL Update:

The Jordan Reservoir draft TMDL went out for public review originally in 2005. The draft TMDL was based on the chlorophyll-a standard impairment of the Upper New Hope Arm of the reservoir. Since that time, the 2006 federal 303(d) listed adjoining waters as impaired. Specifically, the Lower New Hope Arm and the Haw River Arm of the lake are now listed as impaired based on the chlorophyll-a standard, and the Haw River Arm is also listed as impaired based on the pH standard. To respond to these newest impairment listings, a new version of the TMDL document has been drafted and placed on public review beginning April 1, 2007 through May 15, 2007. The TMDL is now a phased TMDL; Phase I (out for public review) addresses the chlorophyll-a impairment of the reservoir and a future Phase II will address the pH impairment of the Haw River Arm. Other modifications to the recently available draft TMDL document include incorporation of comments received from the US EPA as well as other miscellaneous updates and corrections. The draft TMDL is available on the following website: http://h2o.enr.state.nc.us/tmdl.

II. STANDING COMMITTEE MEETINGS

i. WATER ALLOCATION COMMITTEE
The Water Allocation Committee did not meet during this quarter.

ii. WATER QUALITY COMMITTEE
The Water Quality Committee conducted business in January and March 2007.

iii. GROUNDWATER COMMITTEE
The Groundwater Committee did not meet this quarter.

iv. AIR QUALITY COMMITTEE
The Air Quality Committee conducted business in January and March 2007.

v. STEERING COMMITTEE
The Steering Committee did not meet during this quarter.

vi. NPDES COMMITTEE
The NPDES Committee conducted business in January, February, and March 2007.

III. SUMMARIES OF ENVIRONMENTAL MANAGEMENT COMMISSION (EMC) ACTIONS

Agenda Item: Request by the Cities of Concord and Kannapolis for Interbasin Transfer Certification

Explanation: The Commission is responsible for Interbasin Transfer (IBT) certifications according to N.C. General Statutes §143-215.22I. The Cities of Concord and Kannapolis are requesting permission to transfer an average of 22 million gallons per day (MGD) of water from the Catawba River and Yadkin River Basins for use in the Rocky River Basin. The Cities are requesting permission to transfer up to a maximum of 10 MGD from the Yadkin River Basin with the remainder of up to a maximum of 36 MGD to come from the Catawba River Basin. Two public hearings were held in June 2005 in Charlotte and Albemarle. Two additional public meetings were held in September 2006 in Valdese and Charlotte.

The materials under review for this request includes three documents sent to EMC members on Dec. 11, 2007. They are:

1) The Hearing Officer's Report, including recommendations to the EMC (December 2006),
2) The Interbasin Transfer Petition (November 2004) with a July 2006 supplement, and
3) The Revised Final Environmental Impact Statement (November 2006) including public comments on the petition, draft, and final environmental impact statements.

Recommendation: Having reviewed and considered the comments received during the public review process and the requirements set forth in North Carolina General Statute §143-215.22I, the Hearing Officers recommend that the Environmental Management Commission grant the cities of Concord and Kannapolis a 10 million gallon per day maximum transfer from the Catawba River Basin to the Rocky River Basin and a 10 million gallon per daymaximum transfer from the Yadkin River Basin to the Rocky River Basin with conditions.

EMC ACTION:
The EMC approved an interbasin transfer for Concord and Kannapolis of 10 mgd (million gallons per day) from the Catawba River Basin and 10 mgd from the Yadkin River Basin.

Agenda Item: Request to Proceed to Public Hearing on VOC and NOx Reasonable Available Control Technology to Incorporate Contingency Provisions

Explanation: The Environmental Management Commission is requested to approve one or more public hearings on the amendments to rules to incorporate contingency provisions for reasonable control technology (RACT) for volatile organic compounds (VOC) and nitrogen oxides (NOx) for the Charlotte nonattainment area for ozone.

The US Environmental Protection Agency requires a pre-adopted contingency plan to be part of the State Implementation Plan (SIP) before it will approve an ozone nonattainment area plan. The purpose of the contingency plan is to apply additional controls quickly, without rulemaking, on sources if the nonattainment area plan fails to achieve compliance with the ambient are quality standard.

To satisfy this requirement, the NOx and VOC RACT rules are proposed to be amended to apply them to facilities whose potential emissions are between 50 and 100 tons per year. (Facilities whose emissions of NOx are greater than 100 tons per year are already required to apply RACT.) For NOx, this requires amending the applicability rule, 15A NACA 2D .1402, and the compliance schedule rule, 15A NCAC 2D .1403. For VOC, it requires amending the applicability rule, 15A NACA 2D .0902, and possibly the compliance schedule rule, .0909.

The NOx RACT requirements would be implemented when EPA notifies the State that its State Implementation Plan (SIP) for the Charlotte ozone nonattainment area failed to bring the area into compliance. However, VOC RACT would not be applied unless the area receives a "serious" designation.

Recommendation: The Director recommends that the Commission authorize a public hearing(s) on these amendments and that the Chairman appoint a member(s) of the Commission to serve hearing officer(s).

EMC ACTION: The EMC approved the request to proceed to public hearing on the proposed amendments.

Agenda Item: Request to Proceed to Public Hearing on Amendments to, Adoption of, and Repeal of Various Air Quality Rules

Explanation: The Environmental Management Commission is requested to approve one or more public hearings on proposed amendments to the control of nitrogen dioxide and nitrogen oxide rules, new source performance standard rule, fugitive dust rule, certification of leak tightness tester rule, open burning rules, banking applicability rule, permitting rules; proposed adoption of the other solid waste incinerator rule and a new open burning rule; and proposed repeal of automobile tailpipe emission standards rule and initial Title V permit application submittal rule.

The control of nitrogen dioxide and nitrogen oxides rule, 15A NCAC 2D .0519, is proposed to be amended to remove the requirements for nitric acid plants and boilers covered under new source performance standards or the nitrogen oxide standard for new generating units, large boiler, or large internal combustion engine standards. The standards in 15A NCAC 2D .0519 are not needed for these categories of sources. Currently, there are no nitric acid plants in North Carolina, and any new nitric acid plants will have to comply with the new source performance standard, which is more restrictive. Likewise, new combustion sources for which there is a new source performance standard will have to comply with that standard, which is more restrictive.

The new source performance standard rule, 15A NCAC 2D .0524, is proposed to be amended to add additional guidelines to the list of subparts in 40 CFR Part 60 that are not incorporated by reference into this rule. The guidelines apply to the states and not to industry. The Commission has adopted or is in the process of adopting rules based on these guidelines.

The fugitive dust rule, 15A NCAC 2D .0540, is proposed to be amended to extend it to both process and non-process fugitive dust emissions and to all required to have an air permit or subject to an air quality requirement. Currently, this rule applies only to non-process fugitive dust emissions from hot mix asphalt plants, mica and feldspar processing plants, lightweight aggregate processes, and sand, gravel, and crushed stone operations. It would not apply to non-production military base operations; land disturbing activities, such as clearing, grading, or digging; or public roads, public parking, timber harvesting, or crop production.

The rule for certification of leak tightness testers, 15A NCAC 2D .0960 is proposed to be amended to remove obsolete and unnecessary requirements.

The automobile tailpipe emission standards , 15A NCAC 2D .1004, is proposed to be repealed. The General Statutes eliminated tailpipe emissions testing on January 1, 2006. On-board diagnostic testing has completely replaced tailpipe emission testing.

The other solid waste rule, 15A NCAC 2D .1211, is a proposed new rule to control emissions from incinerators at institutions such as universities and military bases. This rule is based on the EPA guidelines for other solid waste incinerators. The incinerator definitions rule is proposed to be amended to add several definitions related to the new other solid waste incinerator rule. The air curtain burner rule, 15A NCAC 2D .1904, is proposed to be amended to reference the new

source performance standards for other solid waste incinerators and municipal waste combustors. Several rules are also proposed to be amended to reference the new rule: these rules are control of visible emissions rule, 15A NCAC 2D .0521, the incinerator purpose and scope rule, 15A NCAC 2D .1201, and the other incinerator rule, 15A NCAC 2D .1208.

Three open burning rules are proposed for amendment and a new open burning rule is proposed to clarify the number of violations when multiple piles of land cleaning debris being burned on the same site fail to meet the setback or other requirements of the permissible open burning without an air quality permit rule. 15A NCAC 2D .1903, and to require prescribed forest burns to comply with the Division of Forest Resource's smoke management program. The purpose and scope rule of the open burning section is rewritten to make it read more like open burning is prohibited instead of allowed. Two definitions are proposed to be added to the open burning definition rule, 15A NCAC 02D .1902. The permissible open burning without an air quality permit rule is proposed to be amended to clarify conditions under which a regional supervisor may not approve a waiver for reducing the setback requirements. It is also proposed to be amended to require prescribed forest burns to follow the smoke management plan outlined in the Division of Forest Resource's smoke management program. A new rule, 15A NCAC 2D .1907, is proposed to make clear that a single episode of open burning may result in multiple violations and multiple civil penalties.

The banking applicability and eligibility rule, 15A NCAC 2D .2303, is proposed to be amended to make it agree with other banking rules. Other banking rules allow banking of emission reductions that occur outside a nonattainment area. The language in the applicability and eligibility rule that restricts banking to nonattainment areas is being removed.

The permit exemption rule, 15A NCAC 2Q .0102, is proposed to be amended to exempt some storage tanks used to store ethanol-based fuels and to exempt portable generators regulated by rules adopted under Title II of the Federal Clean Air Act.

The initial Title V permit application submittal rule, 15A NCAC 2Q .0506, is proposed to be repealed. This rule established a schedule by which existing facilities required to have a Title V permit were to submit their initial Title V permit application. This rule is no longer needed as the deadline in the schedule has long passed.

Recommendation: The Director recommends that the Commission authorize a public hearing(s) on these amendments and that the Chairman appoint a member(s) of the Commission to serve hearing officer(s).

EMC ACTION: The EMC approved the request to proceed to public hearing on the proposed amendments, new rules, and repeals.

Agenda Item: Hearing Officer's Report on VOC and NOx Reasonable Available Control Technology

Explanation: On October 4, 2006, Mr. Steve Weber held a public hearing on the amendments to rules to extend the applicability of reasonable control technology (RACT) rules for volatile organic compounds (VOC) and nitrogen oxides (NOx) to all the counties in the Charlotte nonattainment area for ozone.

The applicability rules for VOC RACT (15A NCAC 02D .0902) and for NOx RACT (15A NCAC 02D .1402) are proposed to be amended to require facilities with the potential to emit 100 tons per year or more of VOC or NOx to comply with the RACT requirements for VOC or NOx if they are in the Charlotte nonattainment area for ozone. Counties covered are Cabarrus, Gaston, Lincoln, Mecklenburg, Rowan, and Union. Also, Davidson and Coddle Creek Townships in Iredell County are covered.

The compliance schedule rules (15A NCAC 02D .0909 and .1403) are proposed to be amended to add compliance schedules for the facilities to comply with the RACT requirements.

These rule changes are being proposed to meet EPA requirements for a complete State Implementation Plan (SIP) submittal for the Charlotte ozone nonattainment SIP.

Two people commented on these rules. As a result of these comments the compliance date to implement RACT was changed from October 2009 to April 2009 to comply with the 8-hour ozone Phase 2 Implementation rule. Several comments where related to the use of "rules in this Section," "of this Section," and "of this Rule" as causing some confusion. The terminology is required by codification of rules. Two paragraph references were changed.

Recommendation: The hearing officer recommends that the Commission adopt the proposed amended rules presented in Chapter II of the hearing record.

EMC ACTION: The EMC adopted the proposed amendments.

Agenda Item: Request for Approval to Proceed to Rulemaking with a of Notice of Text and Hearing for Proposed Risk-Based Rules to Address Contaminated Sites in the Dry-Cleaning Solvent Cleanup Program

Explanation: The Dry-Cleaning Solvent Cleanup Act of 1997 established a funded, voluntary program to address contamination resulting from dry-cleaning facilities, wholesale distribution facilities and abandoned sites. Section 143-215.104D of the Act states that "the Commission shall adopt rules establishing a risk-based approach applicable to the assessment, prioritization, and remediation of drycleaning solvent contamination". The rules shall address, at a minimum:

1. Criteria and methods for determining remediation requirements, including the level of remediation necessary to assure adequate protection of public health and the environment.
2. The circumstances under which information specific to the dry-cleaning solvent contamination site should be considered and required.
3. The circumstances under which restrictions on the future use of any remediated dry-cleaning solvent contamination site should be considered and required as a means of achieving and maintaining an adequate level of protection for public health and the environment.
4. Strategies for the assessment and remediation of drycleaning solvent contamination, including presumptive remedial responses sufficient to provide an adequate level of protection as described in item one above.

The Act states that the rules adopted by the Commission shall be applicable to all dry-cleaning facilities, wholesale distribution facilities and abandoned dry-cleaning facilities in the State and shall, to the maximum extent practicable, be cost-effective and technically feasible while protecting public health and the environment.

The DSCA Program brings before you today, the proposed risk-based rules to accomplish the goals set out in the Act. These rules were developed with extensive *input and cooperation from a large group of stakeholders that have been involved in the DSCA Program since its inception.*

It is essential that the DSCA program implement risk-based rules as quickly as possible. The DSCA program has hired independent contractors who are currently performing assessment activities at prioritized sites certified into the program. However, until risk-based cleanup levels are established, the DSCA program cannot issue "no further action" letters to sites that can be closed or determine appropriate remedial actions based on site-specific target cleanup levels determined through application of the riskbased rules.

Prior to drafting the proposed rules, a review of comparable risk-based programs across the country was completed. The majority of risk-based corrective action programs that have been implemented in various states across the country are generally based on the American Society for Testing and Materials (ASTM) Risk-Based Corrective Action (RBCA) guidelines published in November 2000. Prior to this ASTM RBCA standard, there was an ASTM RBCA standard for petroleum release sites published in 1995 that was also used as a framework for many risk-based

programs. The ASTM RBCA guidelines establish procedures for conducting a tiered approach to risk assessment.

This ASTM framework was used as the basis for the DSCA proposed risk-based rules. The first tier is a screening process with calculated look-up tables that provide concentrations protective of public health and the environment for different exposure scenarios (i.e. residential, non-residential, construction worker) and various media pathways (e.g. inhalation of vapors from groundwater, dermal contact with groundwater, ingestion of soil). The second tier allows the calculation of sitespecific target cleanup levels using prescribed models and input parameters along with site-specific data and information that are protective of public health and the environment. If necessary, a third tier may be conducted that allows site-specific cleanup levels to be calculated using various models and assumptions that are scientifically sound and agreed upon by the specific program requesting the risk assessment.

Currently, the only risk-based program in the Department of Environment and Natural Resources is in the Underground Storage Tank (UST) program. The DSCA program examined the UST risk-based approach to determine if any components of that program could be applied to the DSCA risk-based approach. The approach used in the UST program is not a typical risk-based approach since it is not a tiered approach and does not allow the determination of site-specific target cleanup levels based on site-specific conditions that may be appropriate for determining the level of remediation that will be required. The calculation of site-specific cleanup levels is an integral part of the ASTM RBCA guidelines and most, if not all, of the risk-based programs implemented in other states. Therefore, the proposed DSCA risk-based rules more closely follow the ASTM RBCA guidelines since this process is widely accepted in the scientific and regulatory community and is the most appropriate use of limited finances in a funded program that must address as many sites as possible that enter the program.

1. In addition to the proposed rules, there were several components of a risk-based program that have also been developed to support the implementation of the rules. These components are:
2. Technical guidance documents.
3. Tool kits or spreadsheet systems to calculate risk and site-specific target cleanup levels.
4. A standardized reporting format for assessment and risk reports.
5. Training to regulators, consultants and interested parties regarding any developed rules, guidance, tool kits or spreadsheet systems to complete risk assessments in accordance with the requirements of the DSCA program.

Development of a risk-based program as described above requires multiple personnel with various areas of expertise such as rule and guidance writing, risk calculations, modeling, database and spreadsheet development. Such personnel must also have the time necessary to focus solely on this project. Due to these requirements, most states with risk-based programs have hired outside contractors with expertise in assisting regulatory agencies with developing risk-based corrective action programs. To assist the DSCA program with development of the riskbased program, a contract was entered into with The RAM Group, Inc. The principal of the RAM Group, Inc. is Dr. Atul Salhotra. Dr. Salhotra is a nationally recognized expert in the field of risk assessment and was one of the original certified ASTM risk-based corrective action

trainers. Dr. Salhotra has assisted eleven states (Idaho, Alabama, Nebraska, Kansas, Oklahoma, Missouri, Louisiana, New York, New Mexico, Colorado, and Tennessee) in the development of risk-based corrective action programs and has provided support and training for risk-based programs in over twenty-six states. Dr. Salhotra and The RAM Group Inc.'s involvement in the development of the DSCA risk-based program provided:

- expertise in developing risk-based programs in other states that allowed a knowledge of what has worked and what has not worked in the past;
- personnel with various types of experience that the DSCA program did not have;
- the dedication of many RAM Group employees to accomplish the task in a shorter time frame than DSCA personnel could have done alone;
- the opportunity for DSCA personnel to continue to address other program issues while The RAM Group, Inc. completed aspects of the risk-based program; and
- expertise necessary to address comments and concerns from the DSCA program stakeholders and interested parties. This expertise will continue to be used throughout the rule-making process.

The proposed risk-based rules are based on scientifically sound, widely-accepted risk assessment protocols with the input of nationally recognized experts in the field of risk assessment and numerous stakeholders and interested parties and meet the requirements of the Act.

Recommendation: That the Environmental Management Commission approve DWM's request to proceed to rulemaking with a Notice of Text and hearing for proposed risk-based rules to address contaminated sites in the DSCA program.

EMC ACTION:
The EMC approved sending the rules out for public notice and hearing.

Agenda Item: Request for Approval of the Final Watauga River Basinwide Water Quality Plan

Explanation: The Watauga River Basinwide Water Quality Plan is in its third cycle of basinwide water quality plans that the Division of Water Quality is preparing for all 17 river basins across the state.

In September 2006, the draft basinwide plan was approved by the Water Quality Committee (WQC) to be released for public review and comment. The draft plan included language developed during an in-depth interim review process, which involved NCDENR agencies, the Soil and Water Conservation Districts, representatives of the Natural Resources Conservation Service (NRCS), the regional council of governments, and several local watershed groups. Staff received written and verbal comments from both state and local agencies during the public review phase. Revisions were made and information was added to or clarified in the draft plan. Copies of the revised plan were sent to EMC members in the EMC package.

The Basinwide Water Quality Plan is a planning document that will guide the Division's actions in this river basin over the next five years and beyond. The management actions are based on existing rules and policies. Therefore, approval and endorsement of this plan by the Commission would affirm that the management actions set forth in this plan are consistent with the rules adopted by the Commission and with the decision-making policies under which the Division has acted in the past.

Recommendation: Staff recommends that the *Watauga River Basinwide Water Quality Plan* be approved and endorsed by the Commission as a guide to water quality program management and implementation by the Division of Water Quality as it carries out its Water Quality Program duties and responsibilities in the Watauga River basin.

EMC ACTION: The EMC approved the Watauga River Basinwide Water Quality Plan.

Agenda Item: Request for Approval of the Hearing Officer's Report on the Proposed Reclassifications of the North Fork First Broad River in Rutherford County (Broad River Basin) to Class Outstanding Resource Waters (ORW), and Two Segments of the Broad River in Cleveland, Polk, and Rutherford Counties (Broad River Basin) to Class Water Supply IV (WS-IV) and WS-IV CA (Critical Area)

Explanation: •North Fork First Broad River

A request for a High Quality Waters (HQW) reclassification of the North Fork First Broad River was submitted by an organization known as The Concerned Citizens of Rutherford County, as well as by two individuals, Mr. and Mrs. Rob McComas. Because the requests mentioned that the area including these waters "...contains an impressive array of high quality natural communities, rare animal populations..." and "...several rare or unusual benthic macroinvertebrate species...", as well as excellent water quality as confirmed by studies conducted by DWQ in 2004 and 2005, DWQ staff determined the ORW classification to be more suitable for recognizing and protecting existing uses.

If reclassified, regulations that affect development and wastewater discharges would apply. There are no current or planned discharges in the proposed area, and no plans for development in the proposed area. However, DOT staff know of one DOT planned activity in the proposed watershed in the next several years, one road that may be paved. Additional erosion control devices would be needed in order for the paving project to meet ORW requirements.

- Broad River

McGill Associates, P.A. and the Town of Forest City ("Town") requested that portions of the Broad River be reclassified to WS-IV CA and WS-IV [Protected Area (PA)]. The reclassification is needed in order to construct a potable water supply intake. The Division of Environmental Health (DEH) granted the Town approval for use of these waters as a potable water source. The waters to be reclassified meet water supply water standards according to 2004 DWQ studies.

Willis Engineers and the City of Shelby ("City") requested that additional portions of the Broad River be reclassified to WS-IV CA and WS-IV (PA). The reason for the reclassification is to allow for a City "raw water supply pipe line", which is currently under construction, and "...intended for use in withdrawal of water from the Broad River under conditions where the current City supply of the First Broad River is inadequate." DEH granted the City approval for emergency use of this water source. The waters to be reclassified meet water supply water standards according to 2004 DWQ studies.

If reclassified, development and wastewater discharge restrictions will apply in the proposed water supply watersheds. There are facilities that hold wastewater discharge permits in these areas, but none of these facilities will most likely be affected by the proposed reclassifications. In addition, there are not any known planned dischargers and developments in these areas that will likely be affected by the proposed reclassifications. DOT staff stated that there are several bridge replacement projects and one road widening project planned to occur in the next several years in these areas. Additional stormwater control devices would be needed in order for such

projects to meet the proposed reclassifications' requirements. Cleveland, Polk, and Rutherford Counties as well as Boiling Springs, Mooresboro, and Lattimore are the local governments with jurisdiction in these areas, and each of these entities supports the proposed water supply reclassification/s within their jurisdiction. These local governments would need to develop or modify water supply watershed protection ordinances within 270 days after the reclassification effective date. However, please note that when a reclassification is anticipated to not become effective before waters are to be used as a potable water supply source, DWQ staff recommends that local governments create or modify water supply watershed protection ordinances before these waters are utilized as a potable water supply source.

In November 2005 and January 2006, the Water Quality Committee and the Commission, respectively, approved the request to proceed with rule-making for the proposed reclassifications. A public hearing was held in September 2006 in Spindale. Two speakers made comments, only addressed the proposed North Fork First Broad River reclassification, and were in favor of it.

During the comment period, one letter was received from a person in support of the three proposed reclassifications. No additional letters were received for the water supply proposals. However, an additional 526 distinct letters, including six template letters, addressing only the proposed North Fork First Broad River reclassification were received and support this proposal. 533 additional letters were received that were replicates of the template letters. The Report of Proceedings sent to the members of the EMC includes further details on these proposed reclassifications.

Recommendation: Staff recommends that the proposed reclassifications be approved by the Commission. If reclassified as proposed, and approved by the RRC in February 2007, the effective date for these reclassifications will be March 1, 2007.

EMC ACTION: The EMC approved the above reclassifications of surface waters.

Agenda Item: Request to Correct Cross-Reference in Best Available Retrofit Technology Rule

Explanation: The Environmental Management Commission is requested to approve correction of a cross-reference error in the recently adopted Best Available Retrofit Technology (BART) rule.

The recently adopted 15A NCAC 02D .0543, Best Available Retrofit Technology rule, contains a cross-reference error in paragraph (f). The paragraph specifically refers to a list of six items in paragraph (d) which are actually listed in paragraph (e). The reference is an obvious typographical error. The Administrative Procedures Act contains provisions in G.S. 150B-21.5 (a) (5) for correcting such typographical errors without going through public hearing. The Director proposes that this provision be used to correct this obvious cross-reference error.

Recommendation: The Director recommends that the Commission authorize correction of the cross-reference error using the provisions of the Administrative Procedures Act in 150B-21.5.

EMC ACTION: The EMC adopted the proposed amendment.

Agenda Item: Request to Adopt Hearing Officer's Recommendations On Proposed Changes to the Surface Water Quality Standards and Classifications Rules for the Triennial Review

Explanation: The Triennial Review is required under the Federal Clean Water Act to review and revise water quality standards and classifications. The proposed recalculation of numerical standards in 15A NCAC 02B is based on revised federal methodology for calculating human health protection criteria. The updated methodology revised the pollutants' toxicological risk assessments, including new or revised reference doses (RfD) and cancer potency factors. These recalculations integrated an updated national default freshwater/estuarine fish consumption rate (17.5 g/day) and, where applicable, relative source contribution (RSC) values obtained from US EPA. The water quality recreational use bacteria standard for saline coastal waters is proposed for revision in direct response to the Beaches Environmental Assessment and Coastal Health (BEACH) Act of 2000. Additionally, standards are proposed for revisions due to US EPA updates to Aquatic Life Water Quality Criteria and to further clarify existing standards.

Public hearings were held across the state in July 2006. Numerous comments were received in opposition to the proposed revision to the Cadmium standard. Comments were primarily related to NPDES and Pre-Treatment permitting issues, as well as analytical concerns. Comments on the remainder of the proposed rule changes were received and the majority of those comments support the proposed changes. A careful and comprehensive review of all the submitted written and oral comments is included in the Hearing Officer's Report.

The standard changes recommended for adoption are summarized below in the order in which they appear in rule:

- Language changes to include prohibition of mixing zones for point source dischargers in SB and SA waters.
- Proposed changes to factors affecting human health criteria calculations, including:
- Update "Dietary Intake" to the US EPA Relative Source Contribution (RSC) language and clarify applicability and use of RSC;
- Change the NC Fish Consumption Rate (FCR) of 6.5 g/person/day to the national default fish consumption rate of 17.5 g/person/day;
- Update standards with revised Cancer Potency Factors including revisions to 15 existing carcinogen standards applicable to Class C waters, removal of Beryllium from the carcinogen classification based on current science, addition of Tetrachloroethylene as a known carcinogen, and revisions to 12 existing carcinogen standards applicable to all Class WS waters.
- Proposed changes to aquatic life protective standards for Tributyltin.
- Clarification to narrative language for Temperature to clearly denote that a listing of thermal variances will be available for public access.
- Proposed changes to the recreational use bacterial indicators for Saltwaters, resulting in dual indicators for Class SA waters.

Based on the new data provided during the public hearing process, the Division staff recommends, at this time, a further review of the Cadmium standard proposal. All the submitted comments regarding water quality and thermal variances will be forwarded to the NPDES

Permitting Unit of DWQ for further review and consideration by appropriate parties at the time of the next scheduled renewal of these variances.

Recommendation: That the Commission adopt the changes to the surface water quality standards and amend rules in 15A NCAC 02B as proposed in the Hearing Officer's Report.

EMC ACTION: The EMC approved the surface water standards amendments.

Agenda Item: Request to Proceed to Formal Comment Period with Draft Nutrient Rules for the Jordan Reservoir Watershed

Explanation: Staff will request approval to initiate the formal public comment and hearing process on a nutrient strategy for the Jordan Reservoir watershed. An ad hoc session of the Commission in January 2006 directed staff to address outstanding stakeholder issues. Issues included the modeling basis for strategy goals, point source timelines and costs, and existing development load reduction requirements and costs. Revisions have been made to most of the rules and reflect discussion that has taken place over the last year. Staff will summarize the recent stakeholder process, the revised rules, estimates of costs to affected parties, and a rulemaking schedule.

Recommendation: That the Commission approve staff's request to proceed with the formal public comment period for the set of rules that comprise the Jordan nutrient strategy.

EMC ACTION: The EMC approved sending the draft rules out to public hearing for comments.

Agenda Item: Request to Adopt Hearing Officer's Recommendation to Reclassify Portions of the Catawba River in Burke County to "Trout" Waters

Explanation: A request to reclassify three segments of the Catawba River to "Trout" waters was received in a formal petition from the Southern Environmental Law Center on behalf of three petitioners: The Table Rock Chapter of Trout Unlimited, The Catawba Riverkeeper Foundation and American Rivers. Formal petitions require a recommendation to be based on the information submitted with the petition. Originally, the EMC denied the petition, but a court disagreed with the EMC's decision and ordered the EMC to reverse its action. Therefore, the EMC commenced rulemaking as petitioned. The petition documented the presence of reproducing trout in a portion of the river beginning approximately one mile downstream of the Linville Dam but did not include data documenting the presence of reproducing trout in the river above that. The tributary streams to the Catawba River are also not included in this proposed reclassification. The practice of stocking trout and management of cold-water releases from the Linville Dam are at least two factors contributing to the establishment of reproducing trout in the waters of the Catawba River. Staff has developed rule language to recognize and protect the existing use of this specific trout population in these specific waters. The Hearing Officer's Report is attached and includes the proposed rule language as was presented at public hearing.

Recommendation: That the Commission approve the reclassification and amend Rule 15A NCAC 2B .0308 as proposed in the Hearing Officer's Report.

EMC ACTION: The EMC approved the surface water reclassification to trout waters, as proposed by the Hearing Officer.

Agenda Item: Request for Approval of the Final Hiwassee, Little Tennessee, and Savannah River Basinwide Water Quality Plans

Explanation: The Hiwassee, Little Tennessee, and Savannah River Basinwide Water Quality Plans are in their third cycle of basinwide water quality plans that the Division of Water Quality is preparing for all 17 river basins across the state. In November 2006, the draft basinwide plans were approved by the Water Quality Committee (WQC) to be released for public review and comment. The draft plan included language developed during an in-depth interim review process, which involved NCDENR agencies, the Soil and Water Conservation Districts, representatives of the Natural Resources Conservation Service (NRCS), the regional council of governments, and several local watershed groups. Staff received written and verbal comments from both state and local agencies during the public review phase. Revisions were made and information was added to or clarified in the draft plan. Copies of the revised plan were sent to EMC members in the EMC package.

The Basinwide Water Quality Plan is a planning document that will guide the Division's actions in these river basins over the next five years and beyond. The management actions are based on existing rules and policies. Therefore, approval and endorsement of this plan by the Commission would affirm that the management actions set forth in this plan are consistent with the rules adopted by the Commission and with the decision-making policies under which the Division has acted in the past.

Recommendation: That the Commission approve the river basin plans.

EMC ACTION: These basin plans were approved.

Exhibit H

QUARTERLY REPORT

TO THE

ENVIRONMENTAL REVIEW COMMISSION

ON

ENVIRONMENTAL MANAGEMENT COMMISSION ACTIVITIES

JULY 2007

YEAR 2006-2007 FOURTH QUARTER REPORT TO ERC IN ACCORDANCE WITH § 143B-282(b)

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III. SUMMARIES OF ENVIRONMENTAL MANAGEMENT COMMISSION (EMC) ACTIONS

I. SESSION LAW 2005-190 REPORTING REQUIREMENTS

Based upon Section 2. (b) of Session Law 2005-190, the Environmental Management Commission continues to assess and identify nutrient control strategies and criteria necessary to prevent excess nutrient loading in each drinking water supply reservoir. In compliance with the goals of the Section, the Division of Water Quality received US EPA approval of a plan of action evaluating the current surface water quality standards to determine if adequate nutrient criteria controls are in place to prevent nutrient impairments in North Carolina lakes. Approval to continue with development of additional or revised lake nutrient criteria was granted by the US EPA on June 27, 2006.

Monitoring is continuing as scheduled in Falls Lake and the Falls Lake watershed and has been extended to September 2007. This extension will cover another growing season to accommodate the collection of adequate chlorophyll *a* data

Modeling tasks associated with this project have also progressed. At present, the watershed loading model is being calibrated for flow and temperature. Upon successful flow and temperature calibration and validation, work will begin to calibrate the model for TSS and nutrients. The lake hydrodynamic model is currently being calibrated for lake level and temperature. Upon successful calibration and validation, the model will then be calibrated for TSS. The lake nutrient response model calibration will follow.

Although Session Law 2006-259 technically corrected the target date for the EMC to develop a nutrient management strategy for the Falls Lake Reservoir from July 1, 2008 to July 1, 2009, the target date for the EMC to adopt the rules to implement the nutrient management strategy by the same date (July 1, 2009) does not allow rulemaking and rule adoption in accordance with the Administrative Procedures Act, General Statutes 150B. The inaccurate date will not interfere with the EMC's goal, however, to be technically correct, the Session Law should be corrected.

The tenth Falls Lake Reservoir Technical Advisory Committee meeting was held on May 15, 2007 at the North Durham WRF. A review of monitoring data collected in 2006 was presented to concerned stakeholders by Peter Caldwell of the Modeling and TMDL Unit, as well as summaries of the current status of the watershed loading model (presented by Narayan Rajbhandari of the Modeling and TMDL Unit), and the lake hydrodynamic model and lake water quality model (presented by Jing Lin of the Marine Earth and Atmospheric Science Department at N.C. State University).

The next scheduled Falls Reservoir Technical Advisory meeting is scheduled for November 15, 2007, 9:30 am at the TJCOG facility.

II. STANDING COMMITTEE MEETINGS

i. **WATER ALLOCATION COMMITTEE**
The Water Allocation Committee conducted business in May 2007.

ii. **WATER QUALITY COMMITTEE**
The Water Quality Committee conducted business in May 2007.

iii. **GROUNDWATER COMMITTEE**
The Groundwater Committee conducted business in May 2007.

iv. **AIR QUALITY COMMITTEE**
The Air Quality Committee conducted business in May 2007.

v. **STEERING COMMITTEE**
The Steering Committee did not meet during this quarter.

vi. **NPDES COMMITTEE**
The NPDES Committee conducted business in May 2007.

III. SUMMARIES OF ENVIRONMENTAL MANAGEMENT COMMISSION ACTIONS

Agenda Item: Hearing Officer's Report on Contingency RACT Requirements for the Charlotte Ozone Nonattainment Area

Explanation: On March 14, 2007, Mr. Steven Weber held a public hearing on proposed amendments to NOx RACT rules, VOC RACT rules, and the Annual Emissions Reporting rule.

The US Environmental Protection Agency requires a pre-adopted contingency plan to be part of the State Implementation Plan (SIP) before it will approve an ozone nonattainment area plan. The purpose of the contingency plan is to apply additional controls quickly, without rulemaking, on sources if the nonattainment area plan fails to achieve compliance with the ambient are quality standard.

To satisfy this requirement, the NOx and VOC RACT rules are proposed to be amended to apply them to facilities whose potential emissions are between 50 and 100 tons per year. (Facilities whose emissions of NOx are greater than 100 tons per year are already required to apply RACT.) For NOx, this requires amending the applicability rule, 15A NACA 2D .1402, and the compliance schedule rule, 15A NCAC 2D .1403. For VOC, it requires amending the applicability rule, 15A NACA 2D .0902, and the compliance schedule rule, .0909.

The NOx RACT requirements would be implemented when EPA notifies the State that its State Implementation Plan (SIP) for the Charlotte ozone nonattainment area failed to bring the area into compliance. However, VOC RACT would not be applied unless the area receives a "serious" designation.

Annual Emissions Reporting, 15A NCAC 2Q .0207, is proposed for amendment to require sources in the Charlotte ozone nonattainment area whose actual emissions of volatile organic compounds or nitrogen oxides are 25 tons and less than 100 tons per year to report those emissions annually. The inclusion of minor source emissions in the modeling assessments assures that reasonable further progress will be attained with the implementation of RACT for major sources.

One person commented on these rules. The commenter suggested that the substitution of "source" for "facility" in four paragraphs would improve rule clarity. The recommended substitutions have been made.

Recommendation: The Hearing Officer recommends that the Commission adopt the proposed rules as presented in Chapter II of the hearing record.

EMC ACTION: The EMC adopted the proposed amendments.

Agenda Item: Hearing Officer's Report on Miscellaneous Air Quality Rules

Explanation: On March 14, 2007, Mr. Steven Weber held a public hearing on proposed amendments to the control of nitrogen dioxide and nitrogen oxide rules, new source performance standard rule, fugitive dust rule, certification of leak tightness tester rule, open burning rules, banking applicability rule, permitting rules; proposed adoption of the other solid waste incinerator rule and a new open burning rule; and proposed repeal of automobile tailpipe emission standards rule and initial Title V permit application submittal rule.

The control of nitrogen dioxide and nitrogen oxides rule, 15A NCAC 2D .0519, is proposed to be amended to remove the requirements for nitric acid plants and boilers covered under new source performance standards or the nitrogen oxide standard for new generating units, large boiler, or large internal combustion engine standards. The standards in 15A NCAC 2D .0519 are not needed for these categories of sources. Currently, there are no nitric acid plants in North Carolina, and any new nitric acid plants will have to comply with the new source performance standard, which is more restrictive. Likewise, new combustion sources for which there is a new source performance standard will have to comply with that standard, which is more restrictive.

The new source performance standard rule, 15A NCAC 2D .0524, is proposed to be amended to add additional guidelines to the list of subparts in 40 CFR Part 60 that are not incorporated by reference into this rule. The guidelines apply to the states and not to industry. The Commission has adopted or is in the process of adopting rules based on these guidelines.

The fugitive dust rule, 15A NCAC 2D .0540, is proposed to be amended to extend it to both process and non-process fugitive dust emissions and to all required to have an air permit or subject to an air quality requirement. Currently, this rule applies only to non-process fugitive dust emissions from hot mix asphalt plants, mica and feldspar processing plants, lightweight aggregate processes, and sand, gravel, and crushed stone operations. It would not apply to non-production military base operations; land disturbing activities, such as clearing, grading, or digging; or public roads, public parking, timber harvesting, or crop production.

The rule for certification of leak tightness testers, 15A NCAC 2D .0960 is proposed to be amended to remove obsolete and unnecessary requirements.

The automobile tailpipe emission standards, 15A NCAC 2D .1004, is proposed to be repealed. The General Statutes eliminated tailpipe emissions testing on January 1, 2006. On-board diagnostic testing has completely replaced tailpipe emission testing.

The other solid waste rule, 15A NCAC 2D .1211, is a proposed new rule to control emissions from incinerators at institutions such as universities and military bases. This rule is based on the EPA guidelines for other solid waste incinerators. The incinerator definitions rule is proposed to be amended to add several definitions related to the new other solid waste incinerator rule. The air curtain burner rule, 15 A NCAC 2D .1904 , is proposed to be amended to reference the new source performance standards for other solid waste incinerators and municipal waste combustors.

Several rules are also proposed to be amended to reference the new rule: these rules are control of visible emissions rule, 15A NCAC 2D .0521, the incinerator purpose and scope rule, 15A NCAC 2D .1201, and the other incinerator rule, 15A NCAC 2D .1208.

Three open burning rules are proposed for amendment and a new open burning rule is proposed to clarify the number of violations when multiple piles of land cleaning debris being burned on the same site fail to meet the setback or other requirements of the permissible open burning without an air quality permit rule. The purpose and scope rule, 15A NCAC 2D .1901, of the open burning section is rewritten to make it read more like open burning is prohibited instead of allowed. Two definitions are proposed to be added to the open burning definition rule, 15A NCAC 02D .1902. The permissible open burning without an air quality permit rule, 15A NCAC 02D .1903, is proposed to be amended to clarify conditions under which a regional supervisor may not approve a waiver for reducing the setback requirements. It is also proposed to be amended to require prescribed forest burns to follow the smoke management plan outlined in the Division of Forest Resource's smoke management program. A new rule, 15A NCAC 2D .1907, is proposed to make clear that a single episode of open burning may result in multiple violations and multiple civil penalties.

The banking applicability and eligibility rule, 15A NCAC 2D .2303, is proposed to be amended to make it agree with other banking rules. Other banking rules allow banking of emission reductions that occur outside a nonattainment area. The language in the applicability and eligibility rule that restricts banking to nonattainment areas is being removed.

The permit exemption rule, 15A NCAC 2Q .0102, is proposed to be amended to exempt some storage tanks used to store ethanol-based fuels and to exempt portable generators regulated by rules adopted under Title II of the Federal Clean Air Act.

The initial Title V permit application submittal rule, 15A NCAC 2Q .0506, is proposed to be repealed. This rule established a schedule by which existing facilities required to have a Title V permit were to submit their initial Title V permit application. This rule is no longer needed as the deadline in the schedule has long passed.

One person commented on these rules. The commenter expressed concern about the fugitive dust rule, 15A NCAC 2D .0540. He is concerned that dust samples collected in the neighborhood of a rock quarry might actually come State maintained road paved with aggregate from the rock quarry. This rule is complaint driven. A DAQ inspector will be making visual observations and is expected to distinguish if the dust is generated from the rock quarry or the State maintained road. No additional changes to the rule are recommended.

Recommendation: The Hearing Officer recommends that the Commission adopt the proposed rules as presented in Chapter II of the hearing record.

EMC ACTION: The EMC adopted the proposed amendments, adoptions, and repeal.

Agenda Item: 07-20 Request Approval to Proceed to Public Notice and Comment with the Proposed Amendments to the State Coastal Stormwater Rules, 15A NCAC 02H .1005

Explanation: In January 2007 the Water Quality Committee (WQC) authorized the Division of Water Quality to proceed with proposed revisions to 15A NCAC 02H .1005, the Coastal Counties Stormwater Rule. The proposed, revised rule is attached. These revisions would apply requirements similar to the new coastal Phase 2 stormwater control requirements, which were established in Session Law 2006-246, to all of the 20 Coastal Counties.

Recommendation: That the Environmental Management Commission approve the request to proceed to Public Notice and Hearing with the proposed amendments to 15A NCAC 02H .1005.

EMC ACTION: The EMC approved sending the proposed rules to public hearing and notice.

Agenda Item: Request to Proceed to Public Hearing with the Proposed Reclassifications for:

- Horsepasture River in Jackson and Transylvania Counties (Savannah River Drainage Area) to Class ORW and "+",
- Big Laurel Creek and Spring Creek in Madison County (French Broad River Basin) to Class HQW,
- Boylston Creek in Transylvania and Henderson Counties and Fines Creek in Haywood County (French Broad River Basin) to Class Tr, and

Explanation: Horsepasture River (Jackson and Transylvania Counties, Savannah River Drainage Area)

A request for an Outstanding Resource Waters (ORW) reclassification of the Horsepasture River was submitted by the Sierra Club. Water quality studies that were conducted in 2006 indicated that only the lower 4.6 miles of the river fully meet the state's criteria for the ORW designation. However, the entire river's watershed is recognized for its exceptional State and national ecological significance via (a) fish species that are considered by the state as significantly rare, of concern, and/or proposed as threatened, (b) state and federal designations of natural, wild, scenic, and/or recreational that are assigned to various portions of the river, (c) natural heritage areas, and (d) national and state forest, park, and/or gamelands. Therefore, in addition to providing the ORW designation to the 4.6-mile segment of Horsepasture River, it is proposed that the ORW special protection measures, or management strategy, be applied throughout the entire watershed to protect the excellent downstream waters. Thus, the 4.6-mile segment is proposed to receive both the ORW classification and the ORW management strategy, and the remainder of the watershed is proposed to receive the ORW management strategy, as symbolized by the "+", but not the ORW classification.

If reclassified, regulations that affect new wastewater discharges, proposed expansions of existing wastewater discharges, new development, and NC Department of Transportation (DOT) projects would apply. There are no known plans for new development, new dischargers, or expansions of existing dischargers in the proposed ORW area. However, NCDOT staff have determined that there is one proposed road project that would be impacted by the proposal, and as a result, this project would require use of Best Management Practices (BMPs) associated with stormwater control.

Big Laurel Creek and Spring Creek (Madison County, French Broad River Basin)

Based on review of available data for this area, including results of DWQ studies conducted in 2006, DWQ staff determined the HQW classification to be suitable for recognizing existing uses and the excellent water quality in these waters. However, it is important to note that data from the NC Natural Heritage Program (NHP) revealed that aquatic species carrying a variety of federal and state designations were observed in these waters 10+ years ago. Studies are currently being conducted by DENR aquatic biologists to determine if one or more of these species is/are still present in these watersheds. If these studies do reveal that there is/are aquatic species that carry federal and/or state designations within these watersheds, then these waters may meet the ORW classification's criteria, and therefore, the possibility of pursuing the ORW classification

would be investigated. The WQC directed staff to present both ORW and HQW options during the hearing process to determine the most appropriate fit during the reclassification process, enabling staff to utilize the most recent data when available.

If reclassified, regulations that affect several activities and operations, including new development, NC DOT projects, new wastewater discharges, and proposed expansions of existing wastewater dischargers, would apply. In the area to be reclassified, there is no known proposed development and no known plans for new or expanded discharges that would be impacted by the proposal. However, there may be one proposed NC DOT bridge replacement project that would be impacted by the proposal, and as a result, this project would require use of BMPs associated with stormwater control.

Boylston Creek (Transylvania and Henderson Counties, French Broad River Basin)

In July 2006 DWQ received a request from the North Carolina Wildlife Resources Commission (WRC) to reclassify the segment of Boylston Creek, from its source in Transylvania County to SR 1323 in Henderson County, and the tributaries (Sutton Creek, Osborne Branch, Woody Branch, Sam Branch, Dog Creek, Betty Branch, Goldmine Branch, Polecat Branch, and Long Branch) to that segment from Class C to Class C Tr. These waters are located in the upper Boylston Creek watershed. The WRC found brook trout representing several age classes in Sutton Creek and Osborne Branch in 2005 and brook trout in Woody Branch and rainbow trout in Dog Creek in 2006. Western Carolina University also found brook trout representing multiple ages in the watershed in 2005. Current North Carolina surface water quality standards list Trout waters as a designated use of a waterbody in the state that is to be protected for natural trout propagation and survival of stocked trout. These standards also define Trout waters as waters that have conditions that shall sustain and allow for trout propagation and survival of stocked trout on a year-round basis. A 2006 fish sampling conducted in the upper Boylston Creek watershed by DWQ confirms that brook trout and rainbow trout do reside and reproduce (indicated by multiple age classes) within the upper Boylston Creek watershed.

If the EMC assigns the Trout waters designation to these waters, statutes additional restrictions will apply: North Carolina Sedimentation and Pollution Control Act, General Statutes 113A-57(1) requires land-disturbing activities to provide an undisturbed buffer zone 25 feet wide or of sufficient width to confine visible siltation within the twenty-five percent (25%) of buffer zone nearest the land-disturbing activity, whichever is greater; there are no National Pollutant Discharge Elimination System wastewater discharge permits or animal operation permits in this watershed, but any new dischargers would be required to meet the standards applicable to protect trout waters.

Fines Creek (Haywood County, French Broad River Basin)

In May 2005 DWQ received a request from Ms. Tracy Perkins to reclassify Fines Creek and its tributaries (Sally Branch, Orchard Branch, Phillips Branch, Sugar Cove Branch, Turkey Creek, Wesley Creek, Mooney Branch, Jacks Branch, Haynes Branch, Raccoon Branch, Shingle Branch, Gibson Branch, Morgan Creek, Cove Creek, Buckeye Cove Branch, Turkey Cove Branch, Poplar Cove Branch, James Branch, Martin Creek, and Toms Branch), all of which are

located in Haywood County, from Class C to Class C Tr. Her reason for this proposed reclassification is to "prevent further erosion of Fines Creek for the betterment of trout and creek banks" as well as " to establish regulation". Current North Carolina surface water quality standards list Trout waters as a designated use of a waterbody in the state that is to be protected for natural trout propagation and survival of stocked trout. These standards also define Trout waters as waters that have conditions that shall sustain and allow for trout propagation and survival of stocked trout on a year-round basis. Fish community data collected in 1997 and 2002 by DWQ and in 2005 by the University of Tennessee show that the Fines Creek watershed is supporting wild trout on a year-round basis and rainbow and brown trout propagation.

If the EMC assigns the Trout waters designation to these waters, statutes additional restrictions will apply: North Carolina Sedimentation and Pollution Control Act, General Statutes 113A-57(1) requires land-disturbing activities to provide an undisturbed buffer zone 25 feet wide or of sufficient width to confine visible siltation within the twenty-five percent (25%) of buffer zone nearest the land-disturbing activity, whichever is greater; there are no National Pollutant Discharge Elimination System wastewater discharge permits or animal operation permits in this watershed, but any new dischargers would be required to meet the standards applicable to protect trout waters.

Maps and more detailed information for each of these proposed reclassifications are included in the agenda item package. The Water Quality Committee (WQC) approved these requests at their March 2007 meeting. In addition, the WQC requested at their March 2007 meeting that the proposed reclassification of Lake Wright be presented to the May 2007 Water Allocation Committee prior to presentation at the May 2007 Environmental Management Commission (EMC) meeting. The proposed effective dates for these reclassifications range from March 1, 2008 through May 1, 2008.

Recommendation: The Director and staff recommend that the EMC grant staff permission to proceed to public hearings for the above-mentioned proposed reclassifications.

EMC ACTION: The EMC approved for staff to send the above reclassifications out to public hearing.

Agenda Item: Request for Approval of the Final White Oak River Basinwide Water Quality Plan

Explanation: The *White Oak River Basinwide Water Quality Plan* is in its third cycle of basinwide water quality plans that the Division of Water Quality is preparing for all 17 river basins across the state.

In January 2007, the draft basinwide plan was approved by the Water Quality Committee (WQC) to be released for public review and comment. The draft plan included language developed during an in-depth interim review process, which involved NCDENR agencies, the Soil and Water Conservation Districts and several local watershed groups. Staff received written and verbal comments from both state and local agencies during the public review phase. Revisions were made and information was added to or clarified in the draft plan. Copies of the revised plan were sent to EMC members in the EMC package. The Basinwide Water Quality Plan is a planning document that will guide the Division's actions in this river basin over the next five years and beyond. The management actions are based on existing rules and policies. Therefore, approval and endorsement of this plan by the Commission would affirm that the management actions set forth in this plan are consistent with the rules adopted by the Commission and with the decision-making policies under which the Division has acted in the past.

Recommendation: Staff recommends that the *White Oak River Basinwide Water Quality Plan* be approved and endorsed by the Commission as a guide to water quality program management and implementation by the Division of Water Quality as it carries out its Water Quality Program duties and responsibilities in the White Oak River basin.

EMC ACTION: The EMC approved the Basin Plan.

Exhibit I

QUARTERLY REPORT

TO THE

ENVIRONMENTAL REVIEW COMMISSION

ON

ENVIRONMENTAL MANAGEMENT COMMISSION ACTIVITIES

OCT 2007

YEAR 2006-2007 FOURTH QUARTER REPORT TO ERC IN ACCORDANCE WITH § 143B-282(b)

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III. SUMMARIES OF ENVIRONMENTAL MANAGEMENT COMMISSION (EMC) ACTIONS

I. SESSION LAW 2005-190 REPORTING REQUIREMENTS

Based upon Section 2. (b) of Session Law 2005-190, the Environmental Management Commission continues to assess and identify nutrient control strategies and criteria necessary to prevent excess nutrient loading in each drinking water supply reservoir. In compliance with the goals of the Section, the Division of Water Quality received US EPA approval of a plan of action evaluating the current surface water quality standards to determine if adequate nutrient criteria controls are in place to prevent nutrient impairments in North Carolina lakes. Approval to continue with development of additional or revised lake nutrient criteria was granted by the US EPA on June 27, 2006.

Monitoring for Falls Lake and the Falls Lake watershed was completed in September 2007. The data collected from 2005 – 2007 will be used to calibrate and validate the lake nutrient response model as well as the watershed loading model.

Modeling tasks associated with this project have also progressed. At present, the watershed loading model has been calibrated for flow and temperature, and calibration for TSS is underway. Upon successful calibration for these parameters, work will begin to calibrate the model for nutrients. The lake hydrodynamic model has been calibrated for lake level and temperature, and calibration for TSS is underway. The lake nutrient response model calibration will follow.

Although Session Law 2006-259 technically corrected the target date for the EMC to develop a nutrient management strategy for the Falls Lake Reservoir from July 1, 2008 to July 1, 2009, the target date for the EMC to adopt the rules to implement the nutrient management strategy by the same date (July 1, 2009) does not allow rulemaking procedure in accordance with the Administrative Procedures Act, General Statutes 150B.

The tenth Falls Lake Reservoir Technical Advisory Committee meeting was held on May 15, 2007 at the North Durham WRF. A review of monitoring data collected in 2006 was presented to concerned stakeholders by Peter Caldwell of the Modeling and TMDL Unit, as well as summaries of the current status of the watershed loading model (presented by Narayan Rajbhandari of the Modeling and TMDL Unit), and the lake hydrodynamic model and lake water quality model (presented by Jing Lin of the Marine Earth and Atmospheric Science Department at N.C. State University).

The next scheduled Falls Reservoir Technical Advisory meeting is scheduled for November 15, 2007, 9:30 am at the TJCOG facility.

Section 4 of Session Law 2005-190 amended SL 2006-259 Report:

Section 4 of Session Law 2005-190 and amendments in Session Law 2006-259 require the Environmental Management Commission to report its progress in developing and implementing nutrient management strategies for drinking water supply reservoirs meeting certain criteria to the Environmental Review Commission by April 1 of each year beginning April 1, 2006. The B. Everett Jordan Reservoir fits these criteria. The following is an update on the progress made.

In January 2006, the Environmental Management Commission deferred proceeding to public comment with draft rules for Jordan Reservoir, and directed staff to address outstanding stakeholder issues with the draft rules. Issues included the modeling basis for strategy goals, point source timelines and costs, and existing development load reduction requirements and costs. Over the course of 2006, staff conducted over thirty stakeholder meetings, both technical and general. As a result, revisions have been made to the draft rules reflecting discussions over the last year and a fiscal note summarizing the estimated total costs of the rules has also been completed.

In March 2007, Division staff obtained Environmental Management Commission approval to initiate the formal public comment period for the draft rules. The public comment period ran from June 15 – September 15, 2007 and included three public hearings held in Carrboro and Elon. The five hearing officers, all EMC members, are currently deliberating over rule changes based on the comments received. The rules are scheduled to appear before the EMC for adoption in January 2008 to reach the 2008 session of the General Assembly, if required.

Total Maximum Daily Load (TMDL) Update:

The Final Jordan Reservoir TMDL was approved by EPA in September 2007. This TMDL is a phased TMDL; Phase I (now final) addresses the chlorophyll-a impairment of the reservoir and a future Phase II will address the pH impairment of the Haw River Arm. The final Phase I TMDL document is available on the following website: http://h2o.enr.state.nc.us/tmdl.

II. STANDING COMMITTEE MEETINGS

i. **WATER ALLOCATION COMMITTEE**
The Water Allocation Committee conducted business in Sep 2007.

ii. **WATER QUALITY COMMITTEE**
The Water Quality Committee conducted business in July & Sep 2007.

iii. **GROUNDWATER COMMITTEE**
The Groundwater Committee conducted business in July & Sep 2007.

iv. **AIR QUALITY COMMITTEE**
The Air Quality Committee conducted business in July & Sep 2007.

v. **STEERING COMMITTEE**
The Steering Committee did not meet during this quarter.

vi. **NPDES COMMITTEE**
The NPDES Committee did not meet during this quarter

III. SUMMARIES OF ENVIRONMENTAL MANAGEMENT COMMISSION (EMC) ACTIONS

Correct one rule terminology objection by the Rules Review Commission (RRC) in 15A NCAC 02D .1211, Other Solid Waste Incineration Units

On March 14, 2007, Mr. Steven Weber held a public hearing that included amendments to solid waste incinerators. The EMC approved the amendments on May 11, 2007. The RRC reviewed the approved rules and has objected to the use of some language in the rule as unclear or ambiguous. The RRC staff found Subparagraph (e)(2) requires the owner or operator of an OSWI to meet emission standards by July 1, 2010 or "completed." It is not clear what is meant by "completed." This objection can be resolved by removing the words "*or completed, whichever comes earlier,*" without significantly changing the rule.

The Director of the Division of Air Quality recommends that the Commission adopt the new amendment change to 15A NCAC 02D .1211, Other Solid Waste Incineration Units.

EMC Action: EMC approved the rule correction.

Hearing Officer's Report and Request for Adoption of Dry-Cleaning Solvent Cleanup Act Risk-Based Rules

On January 11, 2007, the Environmental Management Commission granted approval to proceed with a Notice of Text and hearing for proposed risk-based rules to address contaminated sites in the Dry-Cleaning Solvent Cleanup Act Program.

The purpose of the proposed risk-based rules is to satisfy the requirement in the Dry-Cleaning Solvent Cleanup Act of 1997 that states that "the Commission shall adopt rules establishing a risk-based approach applicable to the assessment, prioritization, and remediation of dry-cleaning solvent contamination". In satisfying this requirement, the risk-based rules provide a framework for the Dry-Cleaning Solvent Cleanup Act Program to determine appropriate remedial actions based on site-specific target cleanup levels which protect human health and safety.

Very few comments were received during the public comment period and two public hearings held in May 2007. In general, comments were positive and support the risk-based rules. Only a few dissenting comments were received and will be specifically addressed in the Hearing Officer's report.

Overall, there has been a generally positive response to the proposed risk-based rules since they are necessary to address the growing number of contaminated dry-cleaning sites with the limited funds available, while protecting human health and safety.

Recommendation:
That the Environmental Management Commission adopt the risk-based rules for the Dry-Cleaning Solvent Cleanup Act Program.

EMC Action: EMC approved the rules.

Correct one rule terminology objection by the Rules Review Commission (RRC) in 15A NCAC 02D .0540, Particulates From Fugitive Dust Emission Sources

On March 14, 2007, Mr. Steven Weber held a public hearing that included amendments to a fugitive dust rule. The EMC approved the amendments on May 11, 2007. The RRC reviewed the approved rules and objected to the use of some terminology in the rule as unclear or ambiguous.

The RRC staff found that the definition, *"Substantive complaints" means complaints that are verified with physical evidence acceptable to the Division*, does not include what standards the Division is to use in determining that physical evidence is acceptable.

This objection can be resolved by removing the words "*acceptable to the Division*" without significantly changing the rule.

Further, the RRC found that it is not clear what standards the Division will use in determining that modeling is acceptable. The current subparagraph states; "The Director may require that the owner or operator of a facility covered by Paragraph (c) of this Rule, develop and submit a fugitive dust control plan as described in Paragraph (f) of this Rule if ambient air quality measurements or *dispersion modeling acceptable to the* Division show violation or a potential for a violation of an ambient air quality standard for particulates in 15A NCAC 02D .0400."

This objection can be resolved by removing the words "*acceptable to the Division*" and by adding "*as provided in 15A NCAC 02D .1106(e)*" without significantly changing the rule.

Recommendation: The Director of the Division of Air Quality recommends that the Commission adopt the new amendment changes to 15A NCAC 02D .0540, Particulates from Fugitive Dust Emission Sources.

EMC Action: EMC approved the rule correction.

Request for Delegation under Section 10 of the Phase 2 Stormwater Provisions (SessionLaw 2006-246) for Gaston County

Section 10 of Session Law 2006-246 authorizes local jurisdictions such as Gaston County, to "establish a joint program and to enter into any agreements that are necessary for the proper administration and enforcement" of a stormwater management program that meets the post-construction requirements of the Phase II National Pollutant Discharge Elimination System program. Such post-construction programs will involve the issuance of a stormwater permit for development activity disturbing one acre or more, after reviewing and approving stormwater management plans, maintaining records and annual reports on permitted BMPs, and conducting inspections and enforcement of the stormwater regulations.SL2006-246 can be found at: http://h2o.enr.state.nc.us/su/documents/SL2006-246.pdf. Gaston County has requested delegation under this program.

Recommendation: The Division recommends approval of Gaston County's request for delegation of authority to administer and enforce the post-construction stormwater control standards for new development and redevelopment in all of the unincorporated areas of Guilford County, including the long-term maintenance inspection duties. In addition, the Division requests that the EMC authorize DWQ to approve interlocal agreements as they are executed between Gaston County and county incorporated jurisdictions to implement this program upon receipt of their required documentation.

EMC Action: EMC approved the delegation.

Request for Approval of a Universal Stormwater Management Program Local Ordinance for the Town of Kure Beach

15A NCAC 2H .1020, the Universal Stormwater Management Program Rule, states that local governments that wish to implement the Universal Stormwater Management Program (USMP) within their local jurisdictions must do so by adopting a local ordinance that meets the minimum requirements of 15A NCAC 2H .1020. The USMP Rule further states that these local ordinances shall be approved by the Environmental Management Commission (EMC) if the Commission determines that the requirements in the local ordinance equal or exceed the mandatory provisions of the USMP Rule.

The Town of Kure Breach desires to adopt the Universal Stormwater Management Program within its jurisdiction. Accordingly, the town has adopted an appropriate local ordinance and submitted this ordinance to DWQ Staff for review. DWQ Staff has determined that this local ordinance does meet or exceed the minimum requirements of the USMP Rule. Kure Beach desires to have an effective date of September 1, 2007, for the implementation of the USMP within its jurisdiction.

Recommendation: That the EMC approve the implementation of the USMP within Kure Beach's jurisdiction with an effective date of September 1, 2007.

EMC Action: EMC approved the Kure Beach Universal Stormwater Management Program Ordinance.

Request for Delegation to the Water Quality Committee for Approval of Universal Stormwater Management Program Local Ordinances

15A NCAC 2H .1020, the Universal Stormwater Management Program Rule, states that local governments that wish to implement the Universal Stormwater Management Program (USMP) within their local jurisdictions must do so by adopting a local ordinance that meets the minimum requirements of 15A NCAC 2H .1020. The USMP Rule further states that these local ordinances shall be approved by the Environmental Management Commission (EMC) if the Commission determines that the requirements in the local ordinance equal or exceed the mandatory provisions of the USMP Rule.

DWQ Staff proposes that the EMC delegate the approval of future USMP local ordinances to the Water Quality Committee (WQC). This delegation would make the USMP approval process similar to the current practices of the Water Supply Watershed Program, in which the WQC is delegated the authority to approve local water supply ordinances.

Recommendation: That the EMC approve the delegation to the Water Quality Committee of the authority to approve future Universal Stormwater Management Program local ordinances.

EMC Action: EMC approved the delegation of the Universal Stormwater Management Program and also delegated Water Supply Watershed Protection Ordinances and Phase II Stormwater Delegations to the Director of Division of Water Quality.

Request for an Interpretive Ruling on Use of Soil Survey Maps for Implementation of Neuse and Tar-Pamlico Buffers

The Neuse and Tar-Pamlico Riparian Buffer Protection Rules (15A NCAC 2B .0233 and .0259, respectively) protect 50 foot wide buffers along intermittent and perennial streams, lakes, ponds and estuaries in these river basins as long as the surface water body is "approximately shown on either the most recent version of the soil survey map prepared by the Natural Resources Conservation Service of the United States Department of Agriculture or the most recent version of the 1:24,000 scale (7.5 minute) quadrangle topographic map prepared by the United States Geologic Survey (USGS). Riparian buffers adjacent to surface waters that do not appear on either of these maps shall not be subject to this Rule." (15A NCAC 2B .0233 (3) and .0259 (3)) (see attached rules). This provision was adopted to make land development and design predictable for the agricultural, silvicultural and development communities since both maps could be examined and an initial determination made concerning the presence of streams for project design purposes. The Neuse Buffer Stakeholder Committee took a careful look at the accuracy of both maps before recommending that the Environmental Management Commission use these two maps. The NRCS maps were (and are) paper-bound copies in county soil survey publications which depict soil polygons as well as streams in a particular county and are of various dates printed on aerial photos.

The Natural Resources Conservation Service (NRCS) has recently made available a Web Soil Survey for several counties in the Neuse and Tar-Pamlico River basins. Unfortunately, these maps do not show the streams that are depicted on the paper-bound copies of the county soil surveys. Instead, they appear to show streams shown on the 1:100,000 scale topographic map. These streams are provided only to assist in site location and this information is not intended to depict the actual stream network. For instance in a presentation to the Water Quality Committee on January 3, 2006, DWQ staff reported that for a particular area in northeast Raleigh, the USGS (1:24,000 scale) showed 15,060 feet of streams, the paper-bound NRCS soil map showed 31,680 feet of streams while the Web Soil Survey only showed 10,960 feet of streams.

The EMC heard an OAH case (Ray Carpenter versus NC DENR – Division of Water Quality) on January 11, 2007 and adopted as the final agency decision the Administrative Law Judge's decision holding that the paper-bound version of the Wake County Soil Survey Map is the version of the soil map that is referred to in the Neuse River riparian buffer rules. That holding concurred with DWQ's position. In an affidavit for that OAH case, NRCS staff stated that "The 1970 published Wake County Soil Survey map remains the official version of the Wake County Soil Survey map." In that case, the Administrative Law Judge agreed with NRCS staff and stated that "The partial transfer of data from that map onto more recent aerial photography does not constitute a more recent version of the Wake County soil survey map for the purposes of the Rule."

Recommendation: Therefore, DWQ staff request that the Environmental Management Commission issue an interpretive ruling affirming that the paper-bound versions of the NRCS soil surveys that were in place at the time that these maps were first referenced in the Neuse Buffer Rule (July 1997) are to be used for the Neuse and Tar-Pamlico Buffer Rules and

any other EMC Rules or EMC programs that refer to the NRCS Maps for stream location and identification purposes unless an updated version of these maps is available that depicts, at a minimum, an equal or greater amount of linear feet of streams that was shown on the paper-bound version of the map that was in place at the time the Neuse or Tar-Pamlico Buffer Rule was originally adopted.

EMC ACTION: The EMC Approved the staff recommendation.

Hearing Officer's Recommendation for the Adoption of Amendments to 15A NCAC 02N, Criteria and Standards Applicable to Underground Storage Tanks

On November 7, 2006, the EMC granted approval for the Division of Waste Management (Division) to proceed to public hearing with proposed amendments to 15A NCAC 02N. The proposed amendments affect underground storage tank (UST) systems installed or replaced on or after November 1, 2007 and establish new installation and monitoring requirements including secondary containment. The proposed amendments were published in the North Carolina Register on March 1, 2007. On March 19, 2007 and March 27, 2007, Mr. Kenneth Waldroup held public hearings in Raleigh and Winston-Salem respectively. The Public comment period closed on April 30, 2007. The Division received one oral comment and 28 written comments.

The comments showed general support of the secondary containment requirements. Some comments included concerns about cost [i.e., requiring full under dispenser containment when only one piece of equipment (e.g., product meter) within a dispenser is replaced. Only allowing third parties to perform certain required tests instead of allowing trained in-house personnel conduct the testing]. Other comments questioned the Division's authority to require manufacturers to train or certify installers of their equipment. Last, some comments were more broad in scope and expressed concern that the rules were not stringent enough (i.e., existing UST systems were not being required to be upgraded with secondary containment. The setback between UST systems and public water supply wells should be greater than the current 100 feet. There is not enough oversight by the Division of tank owners and operators to ensure compliance with the rules]. Appropriate changes and revisions were made to the proposed rules based on many of the comments. All of the comments received were considered and responses provided.

Recommendation: The Hearing Officer recommends that the Commission adopt the amendments to 15A NCAC 02N as proposed.

EMC Action: EMC approved the rules.

Request for Approval of 2007 to 2009 DWQ/EMC Implementation Plan for the Coastal Habitat Protection Plan (CHPP)

DWQ staff presented the major DWQ/EMC action items in the proposed CHPP Implementation Plan for 2007 – 2009 and requested approval for this course of action. The draft CHPP is available online at: draft CHPP 2007-2009 Implementation Plan (all agencies)

EMC Action: EMC approved the implementation plan for the CHPP.

Request to Confirm Recommendation to Re-appointment Two Members to the Water Pollution Control System Operators Certification Commission

It is recommended that Mr. Wayne Hollowell and, Mr. Gregory E. Young be reappointed as members of the Water Pollution Control System Operators Certification Commission. All current terms expire June 30, 2007. The new terms will be effective immediately and expire June 30, 2010.

Mr. Hollowell is Director of Water Resources for the City of Rocky Mount, NC. Mr. Hollowell fills the requirements for a member who is employed as a water pollution control facility operator, water pollution control system superintendent or water and sewer superintendent or director, or equivalent with a North Carolina municipality.

Mr. Young is Town Manager for the Town of Boone, NC. He fills the requirement for a member to be employed as manager of a North Carolina municipality having a population of more than 10,000 as of the most recent Federal census.

It is also noted that Mr. Chester Lowder of North Carolina Farm Bureau has been reappointed by the Commissioner of Agriculture to represent the animal industry on the WPCSOCC.

Recommendation: It is recommended by the Water Pollution Control System Operators Certification Commission that the above outlined information be confirmed by the EMC.

EMC Action: EMC approved the re-appointment of the Commissioners.

Proceed to rulemaking with Rules Governing Permitting and Inspection of Private Drinking Water Wells

In July, 2006 the General Assembly ratified House Bill 2873, which became Session Law 2006-202. That law amends G.S. 87-87 to require the Environmental Management Commission to adopt rules governing the permitting and inspection by local health departments of private drinking water wells pursuant to G.S. 87-97 effective July 1, 2008.

The purpose of the proposed rules is to provide better protection of North Carolina's groundwater resources by having all local health departments assure that private drinking water wells meet the construction and setback requirements adopted by the Environmental Management Commission. The Division of Water Quality and Division of Environmental Health met with stakeholders from the well drilling industry and local health departments to develop proposed rules to be administered through local health departments by the Division of Environmental Health, On-site Water Protection Section.

Because the effective date is rapidly approaching and DEH must train personnel in all 100 counties on the rules to be enforced, we are asking that the EMC Groundwater Committee and EMC dispense with the usual 30-day waiting period and allow the proposed rules to be published in September. This will permit the rules to be adopted in December and rulemaking proceedings to be concluded by the end of February, in time for training to be completed.

Recommendation: The Division of Environmental Health recommends the Commission approve initiating rulemaking proceedings in September to allow the Division to publish the proposed text of rules 15A NCAC 02C .0301 through .0308 in the North Carolina Register, to take public comments on the proposed rules, and to bring the rules before the Commission for adoption later this year.

EMC ACTION: EMC approved sending the proposed rules to public notice and hearing.

Hearing Officers' Recommendations for the Adoption of Revisions to the Schedule of Fees for the Ecosystem Enhancement Program (15A NCAC 2R .0101, .0201, .0203, .0401 and .0402)

In November of 2006, the Environmental Management Commission approved staff's request to proceed to public notice and hearings regarding proposed revisions to the Ecosystem Enhancement Program's schedule of fees regarding compensatory mitigation. Public hearings on the proposed revisions were held on January 8, 9 and 11 in New Bern, Raleigh and Morganton respectively. The public comment period for the proposed revisions ended on February 15, 2007.

The revisions proposed included the establishment of fee categories (urban, rural and coastal) to reflect higher engineering, construction and land acquisition costs experienced by EEP when implementing restoration projects in urban and coastal areas of the state. The proposals included fee increases for streams, riparian wetlands and non-riparian wetlands to reflect actual costs of satisfying compensatory mitigation requirements for these resource types.

Substantive comments received questioned the proposed fee category definitions and expressed concern for increasing mitigation costs. The Hearing Officers carefully considered all comments and determined that two alternate rule proposals should be put forth for consideration. In March 2007 additional proposals were published in the North Carolina Register and comments were received until May 15. The additional two alternatives were: a) to maintain a single statewide fee (consistent with the current system but with higher fees); and b) to establish a two-tiered system defined by 8-digit hydrologic units that would assess higher fees in some areas of the state where a variety of factors increase project costs.

Detailed descriptions of all alternatives proposed and all comments received have been mailed to Commission members in advance of EMC consideration.

Recommendation: The majority recommendation of the hearing officers is that the Commission adopt the proposed rule option that sets forth a two-tiered fee system where fees are separated by hydrologic unit boundaries. A minority opinion will be registered in support of maintaining a single statewide fee (while raising existing fees).

EMC Action: EMC approved the rules.

Request to Proceed to Public Hearing on Clean Air Interstate Rule (CAIR) Amendments

The Environmental Management Commission is requested to approve one or more public hearings on amendments to the Clean Air Interstate Rules.

15A NCAC 02D .2400, Clean Air Interstate Rules, are proposed for amendment to address concerns raised by EPA during its review of North Carolina's submittal for state implementation plan (SIP) approval. North Carolina's CAIR rules became effective July 1, 2006. DAQ submitted the final CAIR rules to US EPA Region 4 for SIP approval August 7, 2006. In May 2007 EPA provided comments raising concerns regarding approvability of the rules into North Carolina's SIP.

EPA commented that the applicability language in 15A NCAC 02D .2401 needs to be revised to cover the full universe of potential NOx SIP call sources not otherwise covered under CAIR. Because EPA would no longer operate a separate banking and trading program for NOx SIP call sources, those NOx SIP call sources not otherwise covered by CAIR were brought into the CAIR banking and trading program as allowed under the federal rule.-Applicability language from the old NOx SIP call rule is proposed to be added to ensure any new NOx SIP call sources will be covered.

EPA also noted that the total of the allocations to sources and the new source growth allowances is one greater than the total allocated to the state. This error is the result of rounding in establishing the allocations. To correct the error, 15A NCAC 02D .2412 is proposed to be amended to remove one ton from the new source growth pool.

In addition EPA commented that the rules did not adequately reference the provisions that state an allowance is not a property right and it can be terminated or limited. 15A NCAC 02D .2403, .2404, and .2405 are proposed to be amended to explicitly reference the appropriate subparagraphs.

Several other minor wording and referencing changes are being made at EPA's request. In addition, updating of several facility names that have changed since the rule was adopted is also proposed.

Recommendation: The Director recommends that the Commission authorize one or more public hearings on these rules and that the Chairman appoint one or more members of the Commission to serve as hearing officer.

EMC ACTION: EMC approved sending the proposed rules to public notice and hearing.

Request to Proceed to Public Hearing on Prevention of Significant Deterioration and Nonattainment New Source Review Rule Amendments

The Environmental Management Commission is requested to approve one or more public hearings on amendments to the Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR) Rules.

15A NCAC 02D .0530, Prevention of Significant Deterioration, and 15A NCAC 02D. 0531, Sources in Nonattainment Areas, are proposed for amendment to formally incorporate NOx as a precursor to ozone and the use of PM10 as a surrogate for PM2.5. In late April 2007 EPA notified DAQ that its PSD and NSR rules submittals reference an older version of the federal requirements and need to be updated to be approvable. The changes to the federal rule occurred as part of the final eight-hour ozone implementation rule published November 29, 2005. The Division has in practice been treating NOx as a precursor to ozone in its permitting program since 1995 and using PM10 as a surrogate for PM2.5. The amendments are proposed to address these deficiencies identified by EPA.

These rules are also proposed to be amended to remove references to the pollution control project and clean unit test provisions for consistency with the federal regulations. These provisions were vacated by the D.C. Circuit Court in June of 2005. EPA amended the federal NSR and PSD regulations on June 13, 2007 to remove these provisions. Incorporating these housekeeping changes at this time with the other amendments will help avoid confusion that might be created by having the same rule undergoing multiple changes on an overlapping schedule.

Recommendation: The Director recommends that the Commission authorize one or more public hearings on these rules and that the Chairman appoint one or more members of the Commission to serve as hearing officers.

EMC ACTION: EMC approved sending the proposed rules to public notice and hearing.

Request to Proceed to Public Hearing on the Adoption of and Amendments to Various Rules

The Environmental Management Commission (EMC) is requested to approve one or more public hearings to consider the adoption of and amendments to various air quality rules.

The proposed new rule section consolidates all the compliance EPA testing methods and procedures into one section. These methods and procedures have been removed from existing rules and updated. Rules that had EPA methods and procedures removed are amended to reflect that action.

The proposed repeal of seven rules and modification of eight rules are to repeal the NOx SIP Rules and to remove reference to non-existent rules. EPA is discontinuing the emissions banking and trading program and the Clean Air Interstate Rule (CAIR) will effectively replace these rules.

The proposed adoption of emergency generator exemption rule will reduce a burden on the permitting and inspections process without any reduction to the air quality.

The rule concerning portable crushers is proposed for modification to change the term "portable" to "temporary" for rule clarity, require permit exemption compliance with MACT Subpart IIII, and add the criteria that "temporary" does not apply to a facility required to have a mining permit issued by the Division of Land Resources.

The rules for toxic air pollutant guidelines and annual emission rates requiring a permit are proposed for modification to reflect an increase in the acceptable ambient level (AAL) for 1,3 butadiene, with a decrease in the annual emission rate for 1,3 butadiene requiring a permit. The North Carolina Scientific Advisory Board found that the risk assessments were overstated.

The rule for changes not requiring permit revisions is proposed to be modified to exempt CAIR and CAMR permittees from the written notification requirement prior to trading allowances to avoid confusion in CAIR and CAMR trading program.

The rule on the national emission standards for hazardous air pollutants is proposed for amendment to correct the cross-references to another rule.

Two rules are proposed to be amended to differentiate large and small Municipal Waste Combustors. Two additional incinerator rules are proposed for amendment to clarify that small municipal waste combustors are not regulated under the Other Incinerator rule and that opacity for small municipal waste combustors is not regulated under the Visible Emissions rule.

Recommendation:The Director recommends that the Commission authorize a public hearing(s) on these items and that the Chairman appoint a member(s) of the Commission to serve as hearing officer(s).

EMC ACTION: EMC approved sending the proposed rules to public notice and hearing.

Request to Proceed to Public Hearing on the Amendments to Title V Fee Modifications

The Environmental Management Commission (EMC) is requested to approve one or more public hearings to consider amendments to Title V fees.

The rule that implements Title V fee modifications increases annual Title V permit tonnage fees to ensure that adequate permit fees are raised to maintain an effective Title V program. A related rule modification places a hold on consumer price index (CPI) inflation adjustment until 2012.

Recommendation: The Director recommends that the Commission authorize a public hearing(s) on these items and that the Chairman appoint a member(s) of the Commission to serve as hearing officer(s).

EMC ACTION: EMC approved sending the proposed rules to public notice and hearing.

Request Designation of Henderson, Tarboro, Washington, and Emerald Isle as Phase 2 Municipalities

This is a continuation of an Agenda Item from the May EMC Meeting. At that meeting the EMC designated Mooresville, Kings Mountain, Morehead City, and Atlantic Beach as new Phase 2 municipalities. However, the EMC deferred its final decision on the designation of Henderson, Tarboro, Washington and Emerald Isle pending the receipt of an Advisory Opinion from the Attorney General's Office regarding whether the Commission was provided with the discretion under Section 5 of Session Law 2006-246 (SL 2006-246) to not designate a municipality that the EMC determined had met the specified designation criteria. That Advisory Opinion has been provided by the Attorney General's Office under separate cover.

Recommendation: That the Environmental Management Commission review the Advisory Opinion provided by the Attorney General's Office and render a final decision regarding the designation of Henderson, Tarboro, Washington, and Emerald Isle as new Phase 2 municipalities.

EMC ACTION: EMC approved the designations.

Request for Approval of the Final Chowan River and Pasquotank River Basinwide Water Quality Plans

The *Chowan River and Pasquotank River Basinwide Water Quality Plans* are in their third cycle of basinwide water quality plans that the Division of Water Quality is preparing for all 17 river basins across the state.

In May 2007, the draft basinwide plans were approved by the Water Quality Committee (WQC) to be released for public review and comment. The draft plans included language developed during an in-depth interim review process, which involved NCDENR agencies, the Soil and Water Conservation Districts and several local watershed groups. Staff received written and verbal comments from both state and local agencies during the public review phase. Revisions were made and information was added to or clarified in the draft plans. Copies of the revised plans were sent to EMC members in the EMC package.

The Basinwide Water Quality Plans are planning documents that will guide the Division's actions in these river basins over the next five years and beyond. The management actions are based on existing rules and policies. Therefore, approval and endorsement of these plans by the Commission would affirm that the management actions set forth in these plans are consistent with the rules adopted by the Commission and with the decision-making policies under which the Division has acted in the past.

Recommendation: Staff recommends that the *Chowan River and Pasquotank River Basinwide Water Quality Plans* be approved and endorsed by the Commission as a guide to water quality program management and implementation by the Division of Water Quality as it carries out its Water Quality Program duties and responsibilities within the basins.

EMC ACTION: EMC approved these two River Basin Plans.

Request to Adopt Hearing Officer's Recommendation to Reclassify 33 Wetlands as "Unique Wetlands" (UWL)

The North Carolina Division of Water Quality Wetlands Unit submitted a request to the EMC to undergo rulemaking to reclassify thirty-three wetlands as a Unique Wetland (UWL). The EMC considers UWLs as wetlands of *exceptional state or national ecological significance, which require special protection to maintain existing uses.* North Carolina Natural Heritage Program datasets document the presence of factors that contribute to exceptional, ecological significance of these wetlands such as state or federally listed threatened or endangered species or high-quality natural communities. The proposed UWL wetlands are on state or federal lands or on land trust property. They are located in eleven North Carolina river basins – Little Tennessee, French Broad, Watauga, New, Yadkin-Pee Dee, Lumber, Cape Fear, White Oak, Roanoke, Tar-Pamlico, and Pasquotank. The rules on these eleven river basins are proposed to be amended to recognize the exceptional ecological significance of these specific wetland sites as UWLs. If reclassified, the wetlands will be protected under existing EMC rules as Class UWL wetlands. The Hearing Officer's Report is attached and includes the proposed rule language that was presented at the public hearings.

Recommendation: The Hearing Officer and staff recommends that the EMC approve the reclassification by amending Rules 2B .0303, 2B .0304, 2B .0305, 2B .0307, 2B .0309, 2B .0310, 2B .0311, 2B .0312, 2B .0313, 2B .0316, 2B .0317 as proposed in the Hearing Officer's Report.

EMC ACTION: The EMC approved the reclassifications of these 33 unique wetlands.

Request for Approval of the Hearing Officer's Report on the Proposed Reclassification of Deep Creek in Durham and Person Counties (Neuse River Basin) to Class Outstanding Resource Waters (ORW)

From a 2005 review of available data for Deep Creek (Durham and Person Counties, Neuse River Basin), DWQ staff determined the ORW classification to be suitable for recognizing existing uses. DWQ staff determined that the subject waters meet Class ORW criteria because these waters: (a) are a fish community site serving as a regional reference site because of high quality instream and riparian habitat characteristics, (b) support a very diverse fish community, (c) include a portion of the North Carolina Natural Heritage Program's Flat River Aquatic Habitat, a state-significant site that is home to rare and endangered mussels, and (d) have excellent water quality, as confirmed by the most current (2005) good benthic and excellent fish community ratings.

If reclassified, regulations that affect new development projects, new and expansions of wastewater discharges, and new DOT projects would apply. There is no proposed development that would be impacted by the proposal, and no plans for new or expanded discharges. NCDOT staff have determined that there is one planned DOT project in the subject area that would be impacted by the proposal, and this project would require additional stormwater control devices in order to meet the proposed reclassification's requirements.

In September 2006 and November 2006, the Water Quality Committee and the Commission, respectively, approved the request to proceed with rule-making for the proposed reclassification. A public hearing was held in May 2007 in Timberlake. One speaker made comments, and was in favor of the proposed reclassification.

During the comment period, three letters were received from persons in support of the proposed reclassification, and one template letter used by two landowners was received against the proposed reclassification. The Report of Proceedings sent to the members of the EMC includes further details on the proposed reclassification.

Recommendation: Staff recommends that the proposed reclassification be approved by the Commission. If reclassified as proposed, and approved by the RRC in October 2007, the effective date for this reclassification will be November 1, 2007.

EMC ACTION: The EMC approved the reclassification to Outstanding Resource Waters.

Request Approval to Proceed to Public Hearing with the Site-Specific Endangered Species Management Strategy for the Goose Creek Watershed

Rule 15A NCAC 2B .0110 requires the development of site-specific management strategies for waters providing habitat for federally-listed threatened and endangered aquatic animal species. The Goose Creek watershed in the Yadkin Pee-Dee River Basin provides habitat for a federally endangered freshwater mussel species, the Carolina heelsplitter (*Lasmigona decorata*). DWQ has worked with a number of agencies over several years to collect recommendations on protecting this species.

The draft rule language, as written, incorporates the lessons learned from previous, extensive buffer rule development for nutrient management purposes and proposes 50-foot wide buffers in the watershed. Secondly, DWQ has incorporated into the proposed rule the lessons learned from more recent, and equally extensive, stormwater management resolutions and has proposed stringent stormwater control on new, ½ acre disturbed areas. Thirdly, requirements in the proposed rule would control impervious surfaces in floodplains and would prevent new, impervious surfaces up to 200 feet from streams. Fourth, the proposed rules prohibit any additional NPDES wastewater discharge. Fifth, the rule is proposed to recognize if ammonia toxicity occurs to the mussel species, actions would be required by any party causing such toxicity. DWQ has set forth in the proposed rule a holistic approach for the watershed, recognizing that important partnerships are necessarily to achieve successful protective measures. The proposed rule is a combination of buffer management, stormwater management, and site-specific measures with the goal of restoring and protecting the water quality in the watershed for the endangered mussel species.

At the July 11, 2007, the WQC approved sending the rules to both the September 12th WQC and September 13th, 2007, EMC consecutive meetings for approval to go to hearing. The July WQC approved the draft rule language as written but to include modifications that were discussed at the July WQC meeting. The currently proposed draft rule, including the modifications discussed at the July WQC, is attached. The modifications that are included are:

1. Clarified existing uses are exempt from new buffer requirements;
2. Clarified that installation of non-electric utility lines within the 50-foot buffer require installation methods such as directional boring, micro-tunneling or bore and jack techniques;
3. Clarified that "allowable" uses in the proposed table of buffer uses are really "potentially allowable" that require permission; and,
4. Clarified that the proposed control on ammonia is an adaptive management strategy and that if any activity, including those that are elsewhere in the draft rule, is documented to cause ammonia toxicity to the mussels, that activity would be subject to additional preventive measures.

The WQC also included in their motion in July that an alternative and several options for the rules should simultaneously be sent to public hearing. The alternative (A) and options (B – D) that the WQC requests comment on are:

A. An alternative for 100 foot undisturbed buffers on intermittent streams and 200 foot undisturbed buffers on perennial streams.

B. An option to allow non-electric utility line installations, such as sanitary sewers, parallel to streams within the proposed 50-foot buffers. If allowed in the inner 30 feet of the buffer, non-electric utility line installations would require appropriate mitigation. Allow perpendicular crossings of non-electric utility lines to impact greater than 150 linear feet with appropriate mitigation.

C. An option to collect comment on what the appropriate mitigation multiplier would be if mitigation were allowed.

D. An option to include rule language requiring the existing NPDES wastewater permit holders to connect to sanitary sewers when sanitary sewers are available.

Recommendation: The DWQ staff recommended that the EMC approve sending the draft rule language to public hearing. Following public hearing, the DWQ would return to the EMC with a Hearing Officer Report of Proceedings and recommendation on the proposed rule.

EMC ACTION: The EMC approved sending the rule text alternatives out to public hearing to simultaneously receive comment on all of the options.

Request to Consider a Special Order by Consent for the City of Wilmington

The City of Wilmington, in New Hanover County has requested a Special Order by Consent (SOC) EMC SOC WQ S07-006, for Permit number WQCS00012. Currently, the City of Wilmington operates a 12 MGD and an 8 MGD wastewater treatment works that discharges treated wastewater to the Cape Fear River, Class "SC" waters of this State in the Caper Fear River Basin. The City of Wilmington is unable to consistently comply with the permit conditions set forth in Permit number WQCS00012. This Order, if issued, will allow the facility to become compliant with aforementioned permit conditions. Compliance will require, but is not limited to, preparation of plans and specifications for upgrades, and/or new construction of additional treatment and/or collection system components to facilitate compliance. This Order contains a detailed schedule for compliance and stipulated penalties for failing to meet interim requirements. This Order will expire 90 days after completion of the detailed compliance schedule contained within the SOC.

A public hearing has been scheduled concerning the proposed Special Order by Consent to take place on August 30, 2007 at 7:00 pm at Kenan Auditorium on the campus of UNCW 601 S. College Rd, Wilmington, NC

Recommendation: It is the Staff's sincere belief that entry into this Special Order by Consent will result in long-term benefit to waters of the State, thus we recommend the Order by entered in to and place into full force and effect at the earliest possible date.

EMC ACTION: The EMC approved the Special Order of Consent.

Stormwater Management Program Annual Report

In Accordance With G.S. 143-214.7(e)
October 2007

The Environmental Management Commission (EMC), through the N.C. Department of Environment and Natural Resources and the N.C. Division of Water Quality (DWQ), implements state and federal programs to control the water quality impacts of stormwater runoff from development activities and urban and developing areas. These programs include the federal National Pollutant Discharge Elimination System (NPDES) program for stormwater discharges that requires permits for point source discharges of stormwater from industrial activities and from certain urbanizing and developing areas. In addition the EMC and DWQ implement state stormwater permitting programs that are designed to control stormwater runoff from new development and redevelopment activities occurring near sensitive waters (Water Supply Watersheds, High Quality and Outstanding Resource Waters, Nutrient Sensitive Waters, Coastal Waters).

The Division continues to implement regular permit activities within both the NPDES and state stormwater program areas. Previous reports have outlined changes that have been occurring in the program, especially through the Phase II program. Under the NPDES program DWQ issues permits that regulate stormwater discharge from individual industrial and construction activities as well as comprehensive stormwater permits issued to municipal, state and federal entities for control of stormwater within their jurisdictional areas. The state stormwater program requires stormwater permits for new development and redevelopment and is implemented through a combination of state and local government administration with state oversight. As programs have changed DWQ has recognized the need for more technical resource for the implementation of the program. Major efforts have included:

- A comprehensive update of the Division's Stormwater Guidance Manual. The updated manual and other support information can be downloaded from the Division's website at: http://h2o.enr.state.nc.us/su/bmp_forms.htm
- Development of an online Mapping Tool. Working with NC Center For Geographic Information and Analysis the DWQ has establish an interactive web-based mapping system to help development activities determine whether they are covered by the post-construction permitting program or other Stormwater permitting requirements. This system can be accessed at: http://h2o.enr.state.nc.us/su/msi_maps.htm
- Finalization of the Universal Stormwater Management Program (USMP). The EMC and DWQ have finalized the development of a voluntary stormwater management effort, the USMP, that allows local governments to consolidate some of their current stormwater programs under one set of requirements. One local government has adopted this program. For more information see: http://h2o.enr.state.nc.us/su/usmp.htm

Previous reports have outlined ongoing activities associated with implementation of the phase II municipal (MS4) NPDES stormwater program. This program is implemented under S.L. 2006-246 and continues to be a major emphasis. Permits under this program currently regulate 107 entities across the state. A number of other entities have received waivers or been exempted in accordance with SL 2006-246. The Session Law also established a process for considering other entities for "designation" under the MS4 program. The EMC and DWQ have reviewed several

River Basins in this process and six additional entities have been designated and are required to submit applications for permit coverage.

Along with the MS4 program, the state began implementing the post-construction program outlined in the Session Law in areas adjacent to regulated entities in July of 2007. Information on the implementation of this program can be found at: http://h2o.enr.state.nc.us/su/msi_post-construction.htm. Two counties (Guilford and Gaston) have requested and received delegation to implement the post-construction provisions within their jurisdiction, including some municipal areas. The Division has participated in a large number of meetings and workshops across the state to share information about the stormwater programs, especially those related to phase II implementation. This includes four workshops coordinated by DENR. Workshops and meetings have included participation from local governments, the development community, the environmental community and from the consulting industry.

Another major initiative has been the response to stormwater program studies that have been discussed in previous reports and in presentations to the ERC. Specifically the EMC has worked with the Division to address results of reviews of the state's current coastal stormwater program. Proposed rule changes for this program have been developed submitted for public review and comment. Four public hearings were held on the proposed changes and the hearing officers are reviewing comments and considering modifications at this time. It is anticipated that the hearing officers will present their recommendations to the full EMC in early 2008. The proposed rules include provisions that would strengthen the existing coastal stormwater measures across the twenty coastal counties. These changes would be similar to the phase II stormwater measures applicable to the coastal areas.

In the industrial permitting program the Division has recently reissued six general stormwater permits covering a variety of industrial activities. These permits allow for continued stormwater permit coverage for around 1,100 industrial facilities across the state. Eight other stormwater general permits will be up for renewal over the coming year.

Quarterly Reports
April, July and October 2007

- Session Law 2005-190
  - Plan of action approved by EPA
  - Monitoring of Falls Lake extended through September 2007
  - Modeling has progressed:
    - Temperature and flow
    - Total suspended solids
    - Nutrient response\
  - Management strategy by July 2009

Exhibit K

Total Max. Day Load (TMDL) for Jordan Lake

- Originally sent out for public review 2005
- Adjoining water listed as impaired 2006
- Phase I addresses Chlorophyll-a - new version out to public review in April
- Phase II will address pH

Other Water Quality

- Coastal Stormwater Rules sent to public hearing
- Several stream reclassifications
- Basinwide plans approved for White Oak, Watauga, and Hiiwassee/Little Tennessee/Savannah
- Approved Jordan Lake Nutrient Rule to go to public hearing

Other Water Quality

- Approved implementation plan for Coastal Habitat Protection Plan
- Site-specific endangered Species Management Strategy for Goose Creek sent to public hearing
- Several delegations of stormwater programs to local governments

Air Quality

- Numerous minor corrections and modifications to bring rules up to date
- Approved VOC and NOx Reasonably Available Control Technology
- Sent RACT Contingency Requirements for Charlotte Ozone Nonattainment to hearing in April; approved in July
- Amendments to Clean Air Interstate Rule sent to public hearing

Air Quality

- Amendments to PSD and New Source Review sent to public hearing
- Title V fees sent to public hearing

Other Actions

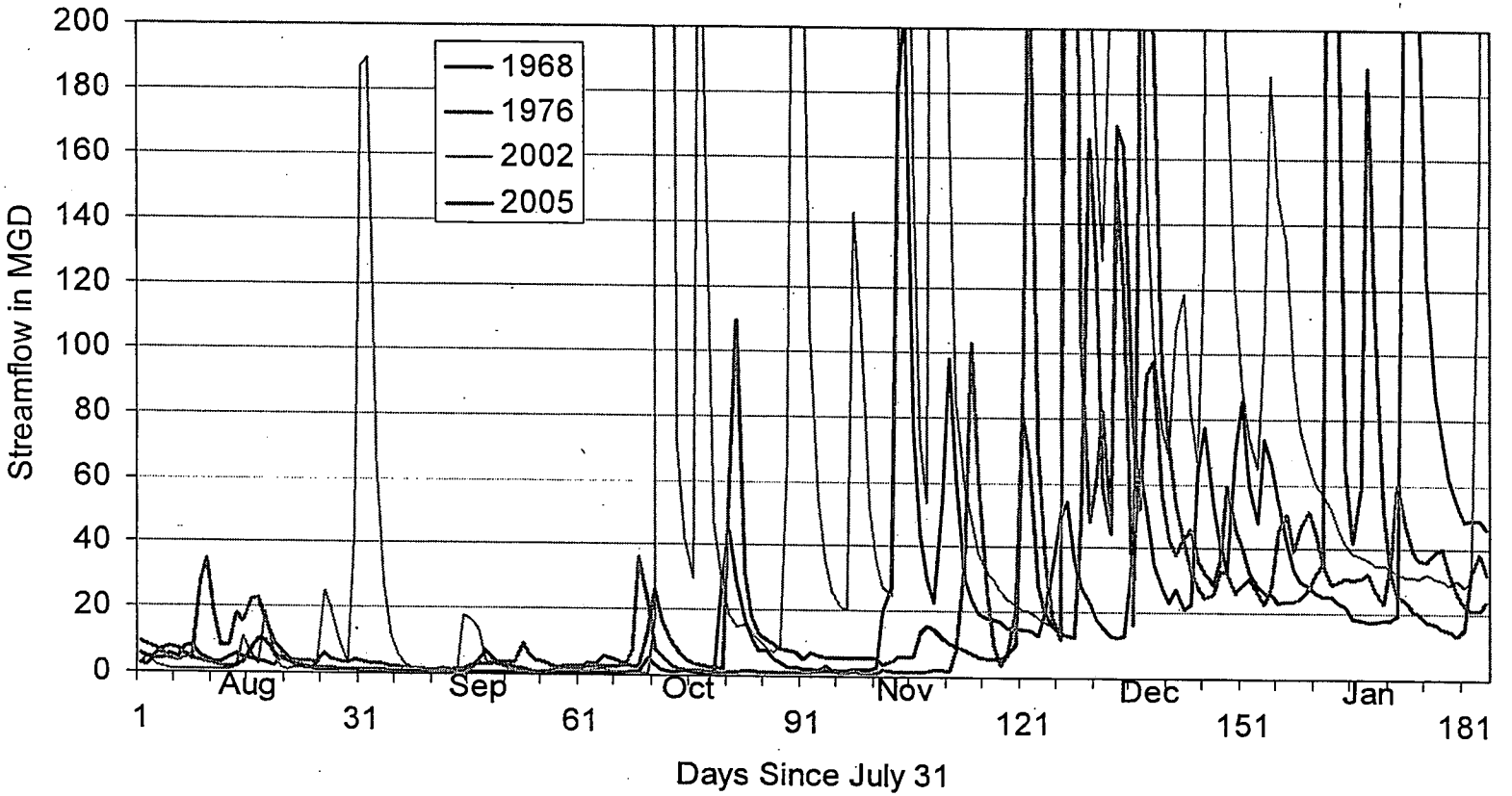
- Rulemaking initiated on permitting and inspection of private wells
- Adopted revisions to fees for Ecosystem Enhancement Program
- Sent dry-cleaning solvent cleanup risk-based rules to public hearing in July and approved rules in October
- Issued IBT certificate to Concord-Kannapolis

Risk Assessment for Typical Piedmont Water Supply

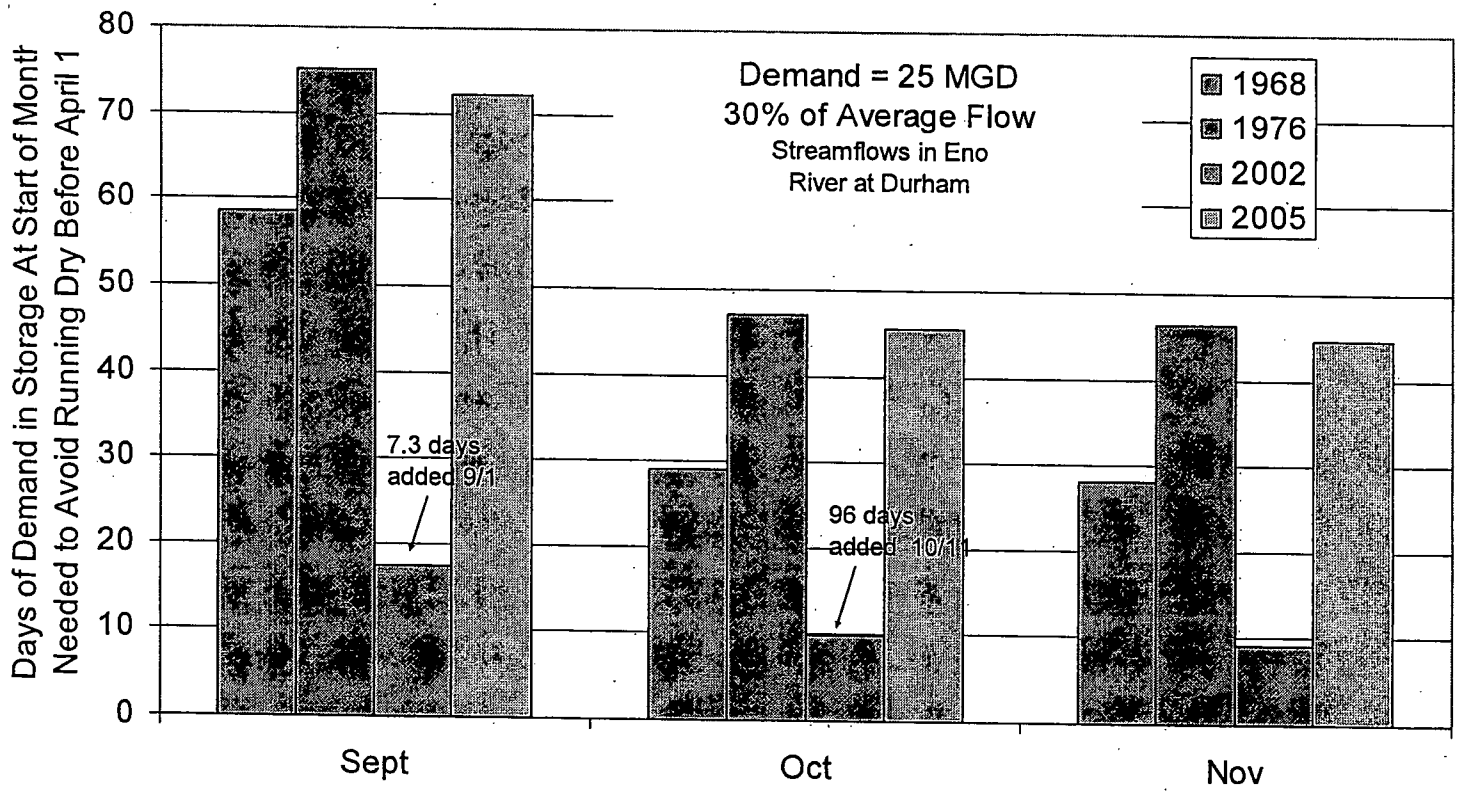
- Using Streamflow Records for Eno River at Durham 1963-2006
- Average 43-year flow = 82.9 million gallons per day (MGD)
- Case 1: Withdrawal = 25 MGD, 30 % of average annual flow.
- Case 2: Withdrawal = 33 MGD, 40 % of average annual flow.
- Four worst droughts in record: 1968, 1976, 2002, and 2005

Amount of storage Needed to Avoid Going Dry Before April 1

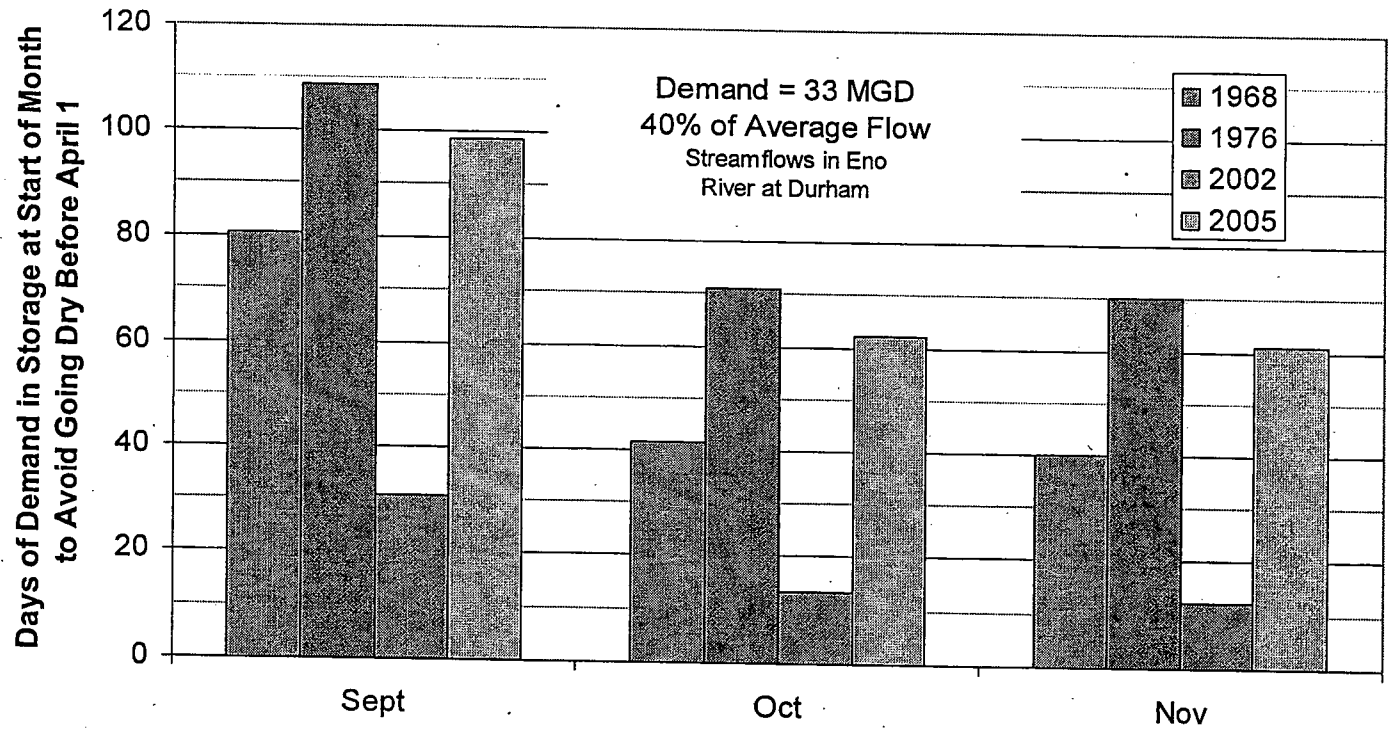
- How much do you have to have in your account at the start of any month so that you will not overdraft your account before next April 1 when you can expect large deposits.
- You are making daily deposits (streamflow inputs) and withdrawals on a daily basis.


1968
1976
2002
2005
Streamflow in MGD
200
180
160
140
120
100
80
60
40
20
0
Aug
Sep
Oct
Nov
Dec
Jan
1
31
61
91
121
151
181
Days Since July 31

Case 1: Withdrawal = 25 MGD



Case 2: Withdrawal = 33 MGD



2007 Stormwater Programs Annual Report

Environmental Review Commission
October 31, 2007

Overview

- Update on State Stormwater Programs
- Proposed Amendments to Coastal SW Rules

Why is Stormwater so important?

- The pollution associated with stormwater run-off is the number one water quality problem in North Carolina.

Stormwater Programs Update

- New Municipal Phase 2 Designations
  - Mooresville, Kings Mountain, Morehead City,
  - Atlantic Beach, Washington, Henderson
- New State Phase 2 Permit – Effective July 1
  - Effective in MSIs & Unincorporated Areas
- New Stormwater BMP Manual Released
- New Stormwater Online Map Viewer

Amendments to Coastal Stormwater Rule

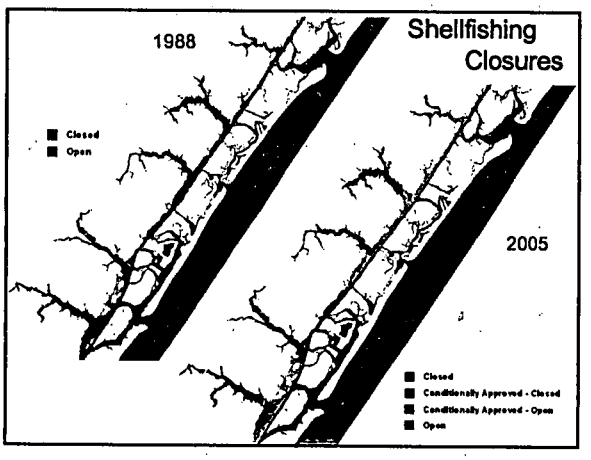
- EMC has proposed amendments to the Coastal Stormwater Rule for the 20 CAMA Counties.
- Rule citation: 15A NCAC 2H .1005.
- Public Comment period closed on Oct 15.

Why did the EMC propose changing these rules?

- DWQ study that the existing rules were not effectively protecting water quality.

Overview of DWQ Study

- Based on review of:
  - Statewide shellfish closure data
  - Statewide development trends
  - Effectiveness of rules in developing watersheds
  - Conversations with DMF, DCM, & others
- Review of available scientific literature
- Review of latest information on watershed protection
- NOT based on single study.
- NOT based on only one part of the Coast.



Study Conclusions

- Existing rules not protecting shellfishing use.
- 90% of closures due to stormwater runoff.
- Closure of additional 1200 acres in 2006.
- Coastal rules need to be updated & improved.
  - Non-coastal stormwater programs more protective.
- No evidence submitted to refute DWQ findings.

What is the EMC proposing?

- Extend Phase 2 Controls to all 20 Coastal Counties.
- Controls contained in Session Law 2006-246.
- Currently implemented in Brunswick, New Hanover, & Onslow Counties.

What is the EMC proposing?

Within ½ mile & draining to shellfishing (SA) waters

	Proposed		Existing
Low Density	12%		25%
Control Req.- High Density	1-yr, 24-hr storm		Runoff from 1.5" of rain.

What is the EMC proposing?

Not within ½ mile and draining to shellfish waters.

	Proposed		Existing
Low Density (BUA)	24%		30%
Control Req.- High Density	Runoff from 1.5" of rain.		Runoff from 1.0" of rain.

What else is open for consideration?

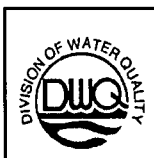
- Modify Threshold for Coverage
  - Current threshold: 1 acre or CAMA Major
  - Rule changes may lower threshold to 10,000 sq ft.
- Expand setback from 30 to 50 feet.
- Wetlands & Impervious Surface Calculations.
  - Rule changes may prohibit use of coastal wetlands or all wetlands in impervious surface calculations.

What happens next?

- Four Public Hearings already conducted.
- Public comment period closed on October 15.
- Final EMC decision in Jan 2008.
- Rule changes reviewed by Rules Review Comm.
- Legislative review.
- Changes could become effective Aug 1, 2008.

Other Option Available

- Universal Stormwater Management Program
- Optional program – Effective: January 2007.
- Allows for local control of stormwater program.
- Supersedes State programs within jurisdiction.



For Further Information or
Comment Contact:

Tom Reeder
E-mail: tom.reeder@ncmail.net
919-733-5083 extension 528

Exhibit M

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

October 30, 2007

MEMORANDUM

To: The Honorable Pryor Gibson, Co-Chair, Environmental Review Commission
The Honorable Daniel Clodfelter, Co-Chair, Environmental Review Commission
The Honorable Charles Albertson, Co-Chair, Environmental Review Commission
The Honorable Lucy Allen, Co-Chair, Environmental Review Commission

From: William G. Ross, Jr. WGRj

Subject: Annual Sedimentation Program Report

G.S. 1 13A-67 of the Sedimentation Pollution Control Act of 1973 requires the Department of Environment and Natural Resources to report annually to the Environmental Review Commission on the implementation of the Act.

Attached is this year's report. If you have any questions, please contact Mell Nevils with the Division of Land Resources at 733-4574.

Cc. Ms. Elizabeth Self
Ms. Robin Smith
Ms. Kristin Walker

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Report to the Environmental Review Commission On the Implementation of the Sedimentation Pollution Control Act By the Department of Environment and Natural Resources Division of Land Resources, Land Quality Section

October 1, 2007

§ 113A-67. Annual report. The Department shall report to the Environmental Review Commission on the implementation of this Article on or before 1 October of each year. The Department shall include in the report an analysis of how the implementation of the Sedimentation Pollution Control Act of 1973 is affecting activities that contribute to the sedimentation of streams, rivers, lakes, and other waters of the State. The report shall also include a review of the effectiveness of local erosion and sedimentation control programs.

The following information is submitted to fulfill this reporting requirement.

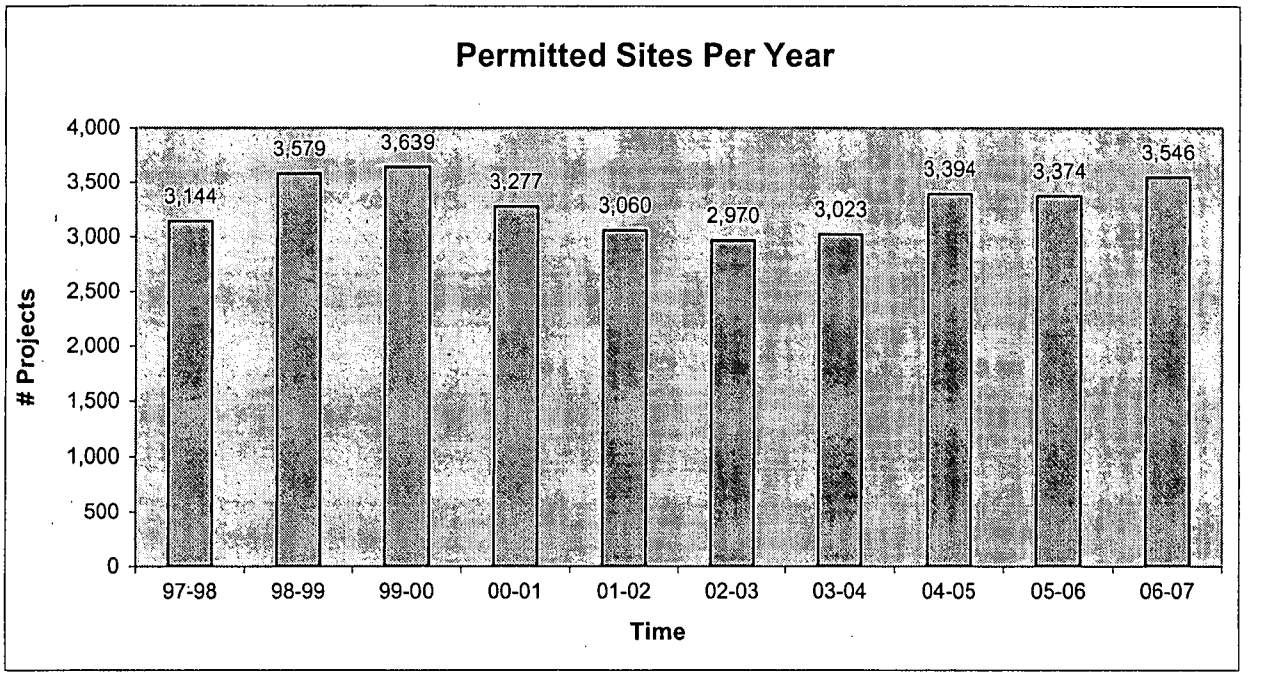
Executive Summary

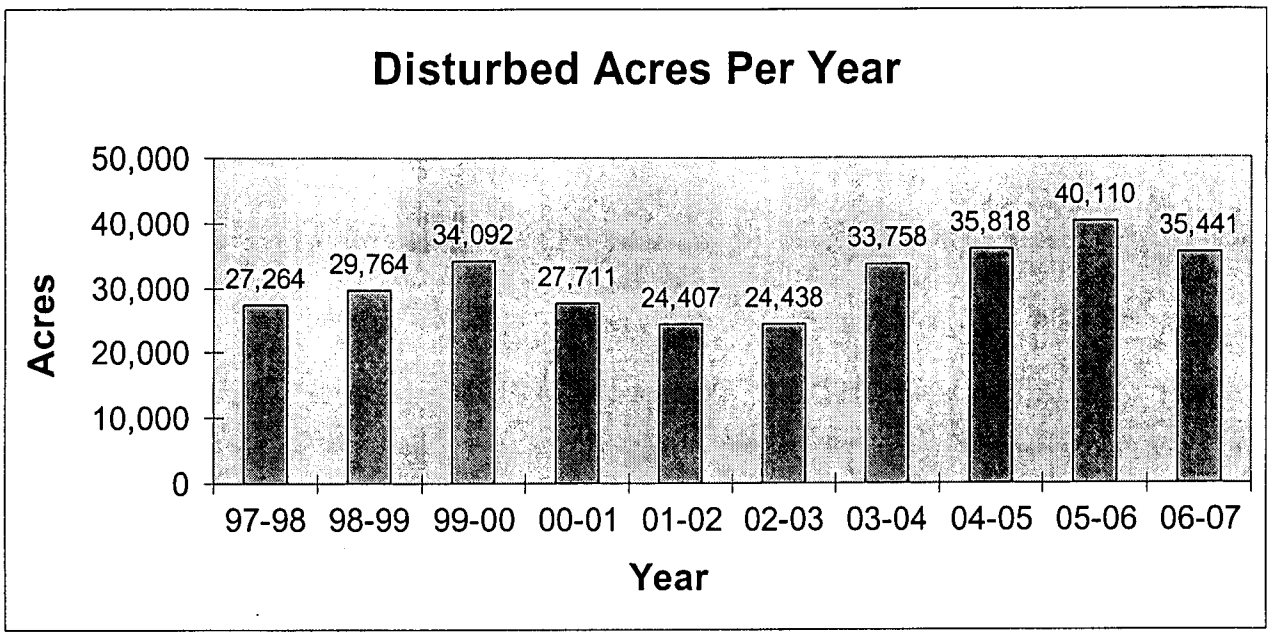
Land disturbing activities for development in North Carolina remained at a very high level this past year as illustrated by the charts below. Much of the land disturbing activity was within the sensitive areas of the mountain and coastal regions, as well as near lakes or other waterways throughout the State. In addition to plan approval and compliance activities, the Sedimentation Program introduced the improved erosion and sedimentation control methods from the program's recently revised *Erosion and Sedimentation Control Planning and Design Manual* to design and local government professionals at training workshops. These new measures are increasingly being utilized at construction sites. The delegation of four additional erosion and sedimentation control programs this year will improve the coverage of the State for compliance inspections and should improve the control of erosion and sedimentation in those areas. The statutory increase in plan review fees this past session will also improve compliance coverage by funding seven additional inspector positions. However, the current high level of development, particularly in environmentally sensitive areas, continues to challenge the efforts of the program. Additionally, while the current drought conditions for most of the State have reduced erosion in the short term, the drought's adverse impact on trying to establish permanent vegetation at disturbed areas will make it more difficult to control erosion on these sites in the long term.

Background

Sedimentation is the number one pollutant in the State of North Carolina and in the United States. More stream miles are impaired by sediment than any other pollutant. When the Sedimentation Pollution Control Act became law in 1973, the words of the Preamble proved prophetic. *"The sedimentation of streams, lakes and other waters of this State constitute a major pollution problem. Sedimentation occurs from the erosion or depositing of soil and other materials into the waters,*

principally from construction sites and road maintenance. The continued development of this State will result in an intensification of pollution through sedimentation unless timely and appropriate action is taken. Control of erosion and sedimentation is deemed vital to the public interest and necessary to the public health and welfare, and expenditures of funds for erosion and sedimentation control programs shall be deemed for a public purpose". The number of new projects under State jurisdiction increased slightly from 3,374 last year to 3,546 this year. The actual area of land-disturbance covered by these approved erosion and sedimentation control plans decreased to 35,441 acres for the 2006-2007 Fiscal Year from the record last year of 40,110 acres. However, this total does not include areas administered by local governments, which have increased since the last report. These figures also do not include land disturbed by the Department of Transportation.





Implementation

The Division of Land Resources, Land Quality Section, administers the SPCA within the Department of Environment and Natural Resources. The Sedimentation Control Commission has also delegated administration of the SPCA to 50 county or municipal governments. These local program delegations do not include land-disturbing activities conducted by local, State or United States government or persons with the power of eminent domain (e.g. public utilities), which remain under jurisdiction of the Land Quality Section. The Sedimentation Control Commission delegated program authority to Iredell, Lincoln, Henderson and Caldwell Counties in 2007.

The Land Quality Section has 54 full time equivalent positions (FTE) to handle the administration, plan review, inspection and enforcement of the sedimentation program. In addition, there are 5.25 FTE positions funded through the Express Review program. Most of the personnel are located in the Department's seven regional offices, where they conduct inspections and review erosion and sedimentation control plans.

Regional activities for the 2006-2007 Fiscal Year include:

5,270 erosion and sedimentation control plan reviews;
13,189 sedimentation site inspections;
658 notices of violation;
67 enforcement case referrals.

The Land Quality Section Program collaborates closely with the Division of Water Quality's Stormwater Management Program in permitting, inspection and enforcement activities. The Land Quality Section issues the required stormwater permits for construction activities in conjunction with the erosion and sedimentation control plan approval, and performs the compliance inspections for these sites. Any enforcement actions involving stormwater management violations are carefully

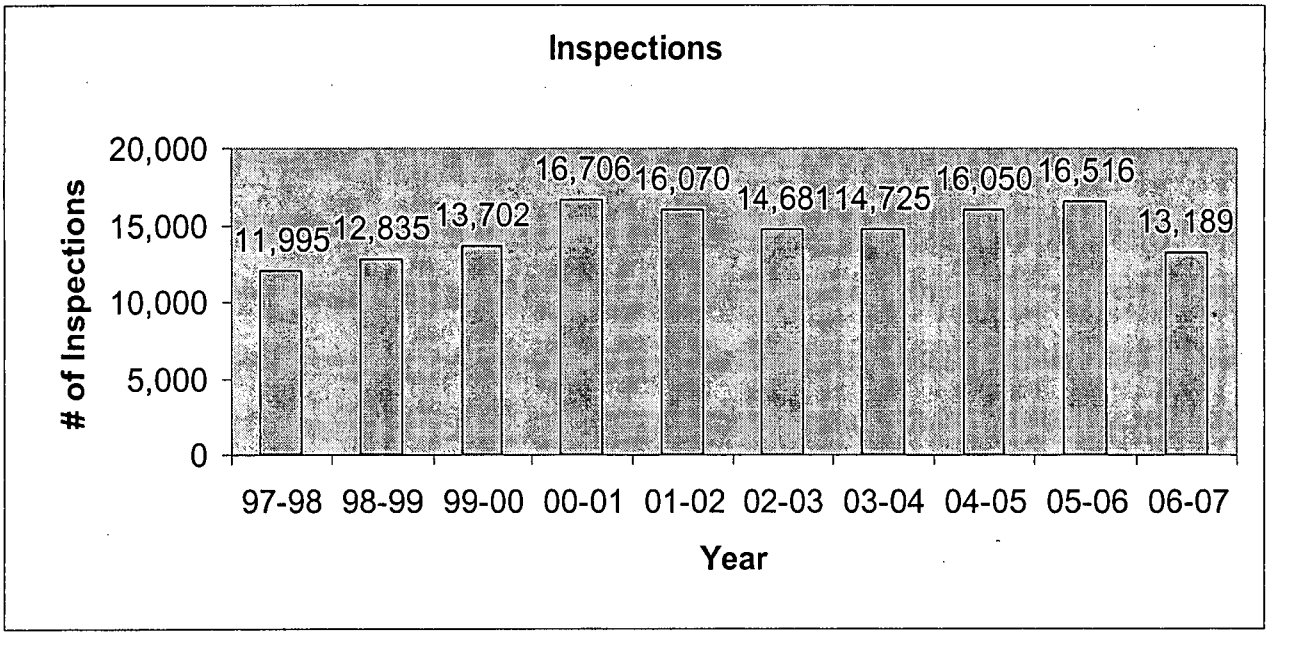
coordinated between the Land Quality Section and the Division of Water Quality to avoid overlap and to ensure the most effective enforcement.

Plan Approval

The SPCA requires a review of the required erosion and sedimentation control plan within 30 days of first submittal or 15 days of resubmittal. Over 90% of the plans are reviewed with 25 days of first submittal and 10 days of resubmittal. However, an Express Permitting program for erosion and sedimentation control plans provides for plan review within three days for an additional fee and is now available at all regional offices. During the 2006-2007 Fiscal Year, 530 Express Permit reviews were performed, ranging from 50 per year in Asheville and Mooresville to 113 in Wilmington.

Inspection

Land disturbing activities should be frequently inspected because of the dynamic change that can occur on a construction site in a short time. Not only can new areas be affected, but also existing erosion and sedimentation control measures can fail from lack of maintenance or be accidentally destroyed by construction equipment. The failure of existing measures can release previously trapped sediment into waterways. Regional staff completed 13,189 sedimentation inspection reports in the 2006-2007 Fiscal Year.



Enforcement

The Division of Land Resources documents compliance or non-compliance with the SPCA with sedimentation inspection reports. Most violations are resolved by sending an inspection report to the

responsible party and requesting correction of the deficiencies. Of the 13,189 inspections conducted during the 2006-2007 Fiscal Year, 658 (5%) resulted in a Notice of Violation. The Notices of Violation led to 67 requests from the regional offices for additional enforcement action (10% of NOV's issued).

Local Programs

Four additional local sedimentation programs have been delegated this year – Henderson County, Caldwell County, Lincoln County and Iredell County. Each of these counties has considerable ongoing development. This brings the total of delegated programs to 26 municipal, 22 county and two joint city/county programs. Well administered, local government sedimentation programs offer the advantages of inspecting sites more often than the State program, being more geographically accessible to their constituents, and incorporating plan reviews with planning, zoning and building approvals.

The Sedimentation Control Commission encourages local governments to administer a delegated erosion and sedimentation control program by providing a model ordinance, cost share funding for start-up and technical assistance. Once a program is delegated to a local government, the Land Quality Section provides periodic oversight to ensure that the local programs are meeting the standards for the State program. State personnel informally assist and advise the local staff on problematic sites. A review of each local program is scheduled at least every two years. Land Quality and the Attorney General's Office review the city or county ordinance to ensure that it is as stringent as State law and rules. The Land Quality Regional Engineer and Sediment Specialist and/or their assistants meet with the local program staff during the review. A detailed report is provided back to the local government, noting strengths, deficiencies and corrective actions. A summary report is presented to the Sedimentation Control Commission at its quarterly meetings. The Commission then takes action to continue the delegation, place the program on probation, or give 30 days' notice that the Commission will assume administration and enforcement of the program.

Database Management

Records of erosion and sedimentation control plan reviews and inspections are kept in diverse separate databases in each regional office, complicating statewide data gathering. Land Quality and Information Technology Services continue to work together to develop an online data management and word processing system that will be used by all offices. Plan reviews, fee receipts, inspections, complaints, notices of violation, local program activity, and NC DOT inspections will be tracked in a single database. The data entry and storage applications have been developed. Report and document generation capabilities have not been completed.

Training

Training efforts focused on the implementation of the improved methods of erosion and sedimentation control outlined in the *Erosion and Sedimentation Control Planning and Design*

Manual. Revision is currently underway of the *Field Manual* for contractors. It is being revised to reflect changes adopted last year in the *Erosion and Sedimentation Control Planning and Design Manual.* Four workshops were held for design professionals, along with the annual workshop for local programs. The Clear Water Contractor training modules were revised using an EPA 319 grant, and have been renamed the "Green Dozer" training.

Statutory Amendments

The plan review fee was increased from $50 per acre to $65 per acre in the budget adopted by the General Assembly for the 2007-2008 Fiscal Year. This fee increase will allow the creation of seven additional positions in the regional offices. In addition to compliance activities, this position will provide training to the other field inspectors and assist with problem sites.

Regulatory Issues

Trout Stream Buffer Zone

Background Information From Last Year's Report

G.S. 113A-57(1) requires a buffer zone along a lake or natural watercourse of sufficient width to confine visible siltation within the twenty-five percent (25%) of the buffer zone nearest the land-disturbing activity. Waters that have been classified as trout waters by the Environmental Management Commission shall have an undisturbed buffer zone 25 feet wide or of sufficient width to confine visible siltation within the twenty-five percent (25%) of the buffer zone nearest the land-disturbing activity, whichever is greater. Provided, however, that the Sedimentation Control Commission may approve plans which include land-disturbing activity along trout waters when the duration of said disturbance would be temporary and the extent of said disturbance would be minimal.

In a third party appeal of the issuance of such a variance, an administrative law judge granted a summary judgment in January 2006 that essentially ruled that the terms "temporary and minimal" applied to impacts during and after the construction phase whether or not those impacts may cause or contribute to sedimentation. This interpretation would mean that the effect of almost any land disturbing activity resulting in a permanent change in natural cover or topography would not be "temporary and minimal," and hence, no variance could be allowed. Consequently, the Division ceased to issue variances from land disturbing activity that created permanent changes in cover or topography within trout stream buffer areas, pending legal resolution.

Legislative efforts during the 2006 session to better define the terms "temporary and minimal" disturbance within trout stream buffers were unsuccessful. The Sedimentation Control Commission made a final agency decision during their November 16, 2006 meeting overruling the administrative law judge's January 2006 ruling. Pending further legal review of the contested case, the Sedimentation Control Commission directed the Division to return to the Division's earlier practices in applying the "temporary and minimal" variance standard to impacts that may cause or contribute

to sedimentation in the review of request for variances for land disturbing activities within trout buffers. In addition, the Sedimentation Control Commission declared that a project could meet the "temporary and minimal" variance standard when a project redisturbs an area so that the project ultimately reduces sedimentation and the impacts in the trout buffer are first avoided, then minimized, then restored to native vegetation characteristic of an undisturbed buffer as soon as practical after the completion of construction.

Update

The decision of the Sedimentation Control Commission has been appealed by the third party to Superior Court, and remains in litigation.

North Carolina Drought Status and Outlook

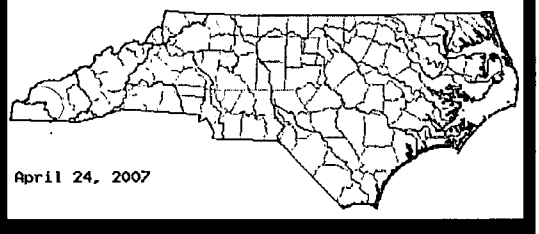
Ryan Boyles
State Climate Office of North Carolina
North Carolina State University

Environmental Review Commission
Raleigh, NC
October 31, 2007

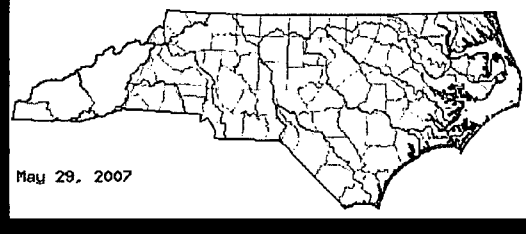
About the State Climate Office

- Statewide public resource for weather and climate information and services
  - Extension of research to community applications
  - Research on NC weather and climate
  - Outreach
  - Education
- UNC Public Service Center

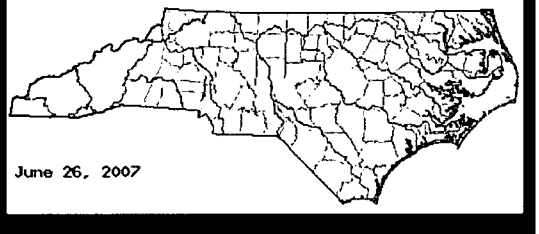
2007 Drought Evolution



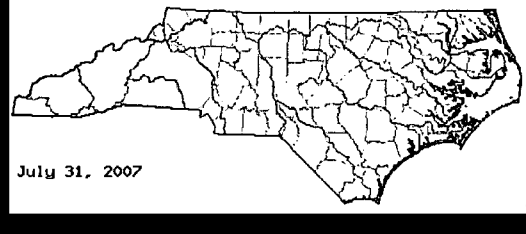
2007 Drought Evolution

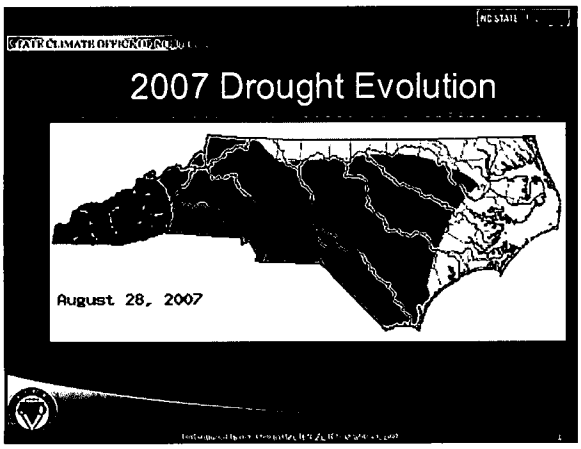


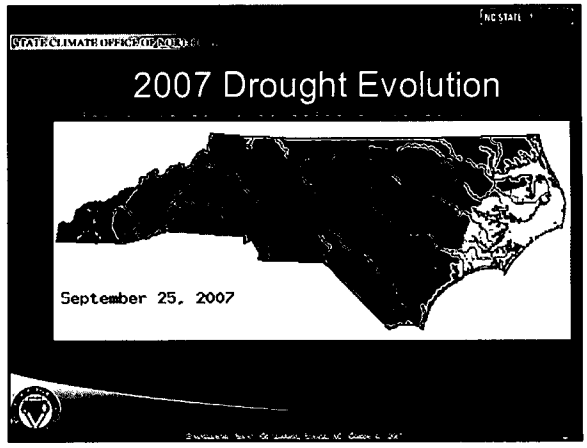
2007 Drought Evolution

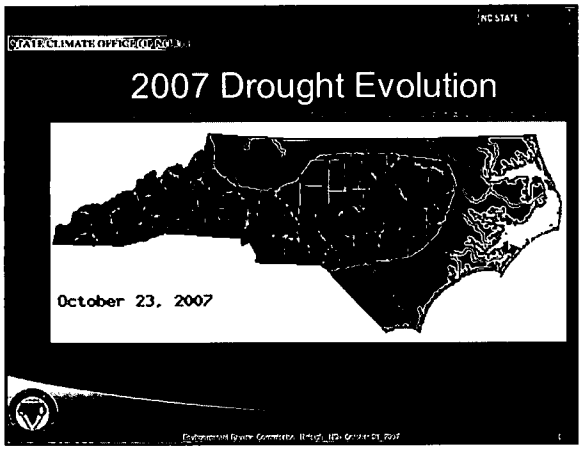


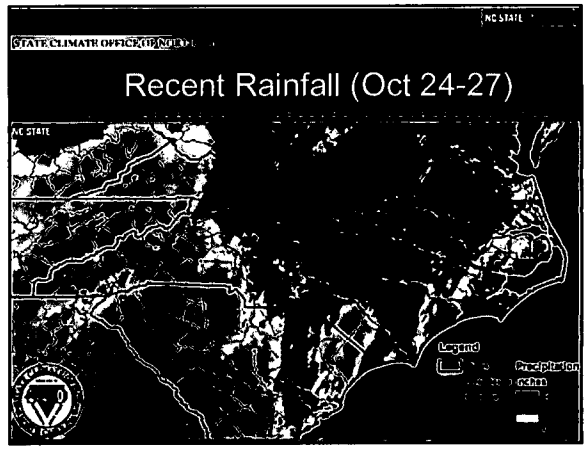
2007 Drought Evolution

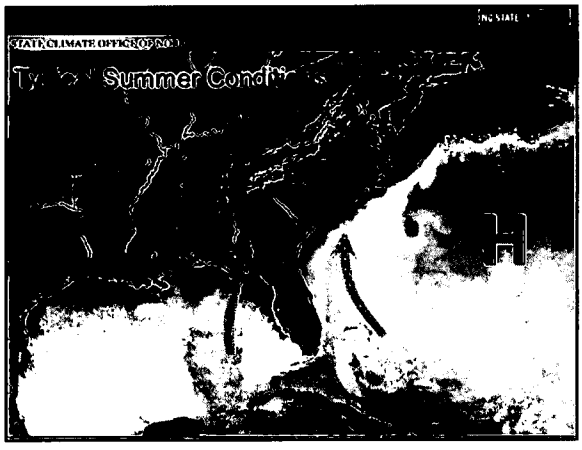


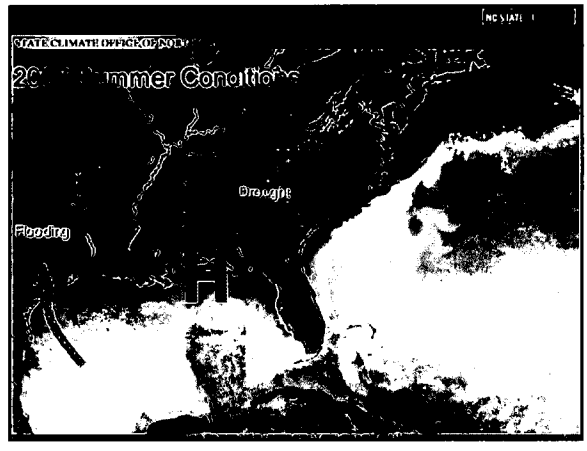

2007 Drought Evolution
August 28, 2007

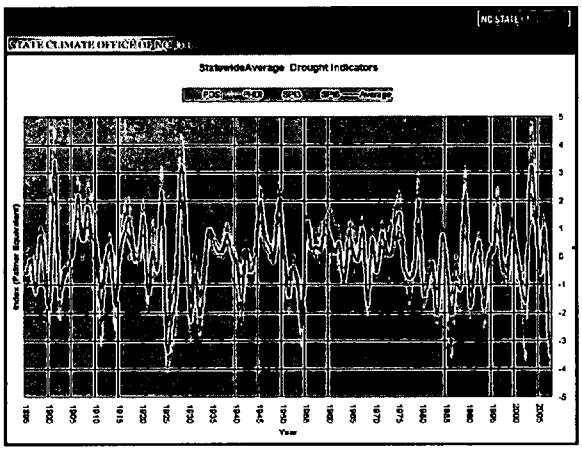

2007 Drought Evolution
September 25, 2007

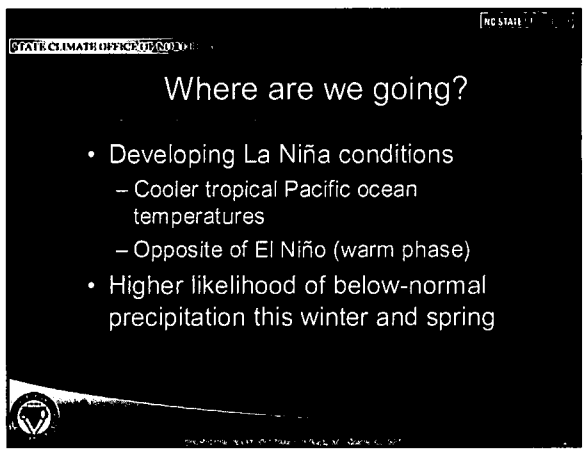

2007 Drought Evolution
October 23, 2007

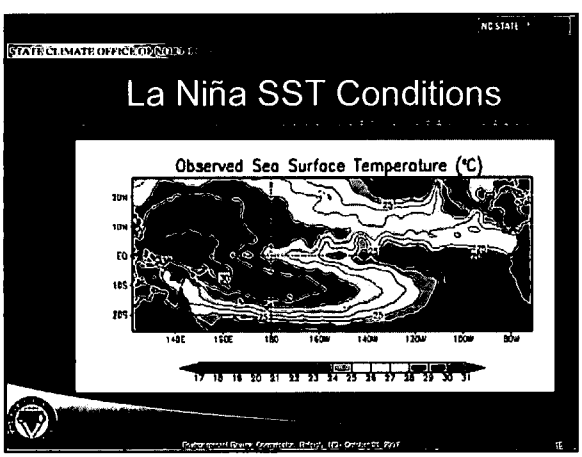

Recent Rainfall (Oct 24-27)
Legend

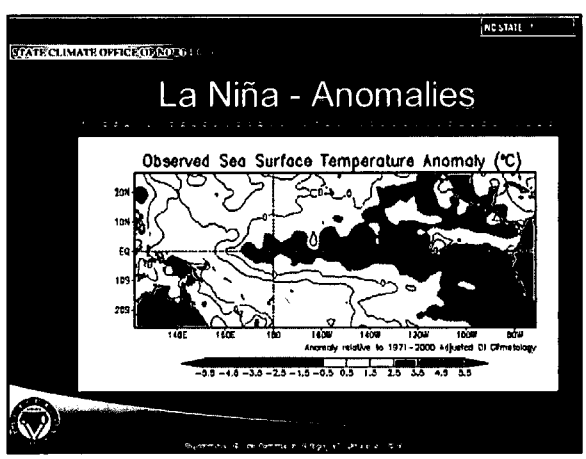


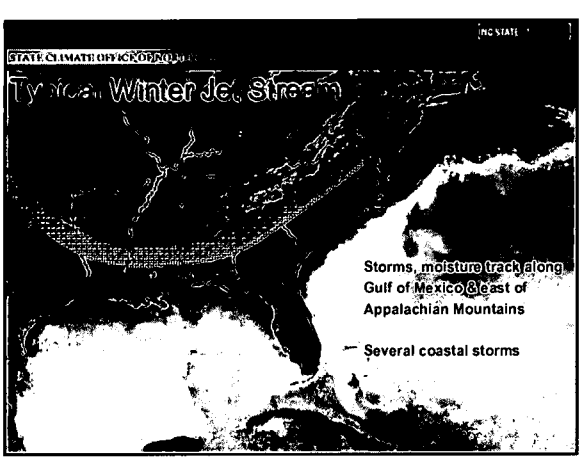

Drought
Flooding

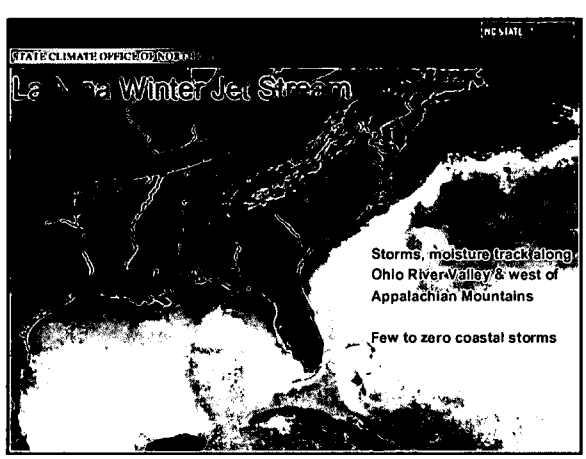

NC STATE
STATE CLIMATE OFFICE OF NC
Statewide Average Drought Indicators

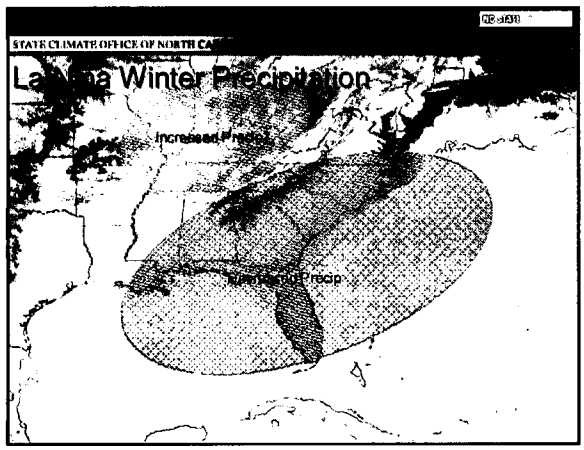

NC STATE
STATE CLIMATE OFFICE OF NC
Where are we going?
• Developing La Niña conditions
– Cooler tropical Pacific ocean temperatures
– Opposite of El Niño (warm phase)
• Higher likelihood of below-normal precipitation this winter and spring

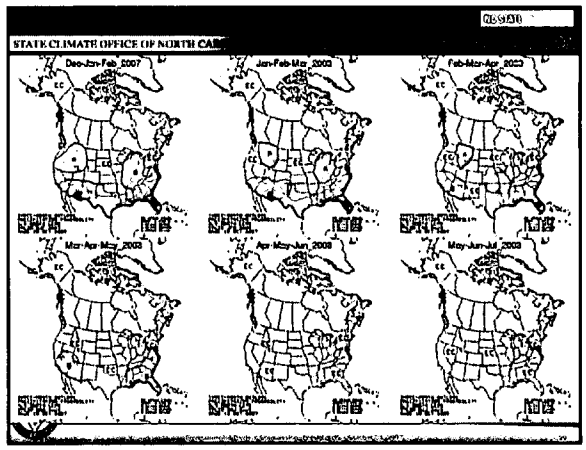

NC STATE
STATE CLIMATE OFFICE OF NC
La Niña SST Conditions
Observed Sea Surface Temperature (°C)

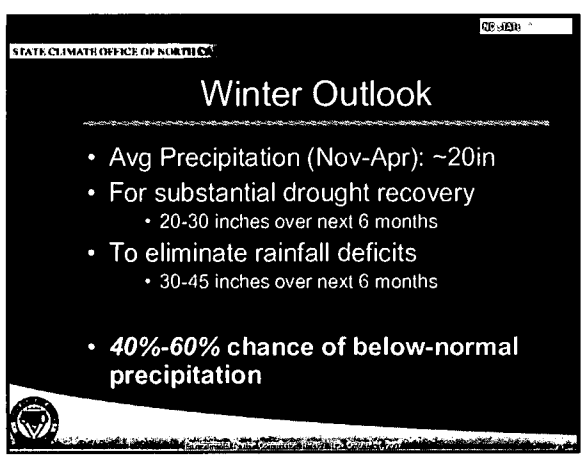

NC STATE
STATE CLIMATE OFFICE OF NC
La Niña - Anomalies
Observed Sea Surface Temperature Anomaly (°C)

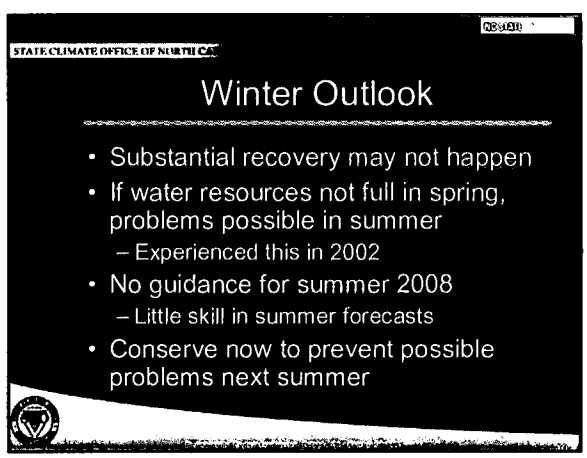

NC STATE
STATE CLIMATE OFFICE OF NC
Typical Winter Jet Stream
Storms, moisture track along Gulf of Mexico & east of Appalachian Mountains
Several coastal storms

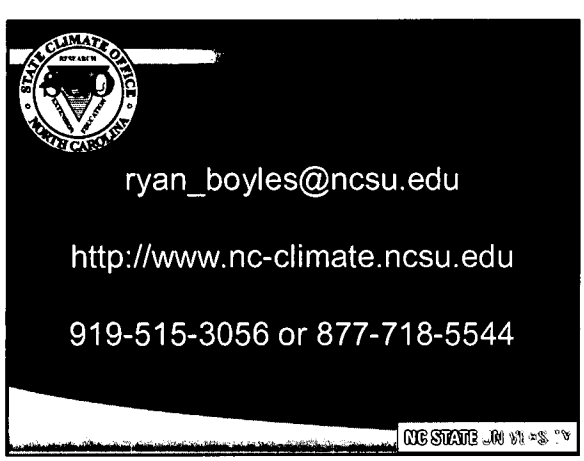

NC STATE
STATE CLIMATE OFFICE OF NC
La Niña Winter Jet Stream
Storms, moisture track along Ohio River Valley & west of Appalachian Mountains
Few to zero coastal storms

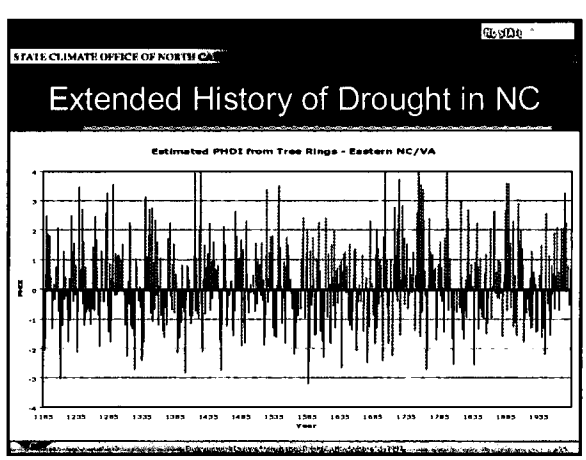

STATE CLIMATE OFFICE OF NORTH CA
La Niña Winter Precipitation


STATE CLIMATE OFFICE OF NORTH CAR


STATE CLIMATE OFFICE OF NORTH CA
Winter Outlook
• Avg Precipitation (Nov-Apr): ~20in
• For substantial drought recovery
• 20-30 inches over next 6 months
• To eliminate rainfall deficits
• 30-45 inches over next 6 months
• 40%-60% chance of below-normal precipitation


STATE CLIMATE OFFICE OF NORTH CA
Winter Outlook
• Substantial recovery may not happen
• If water resources not full in spring, problems possible in summer
– Experienced this in 2002
• No guidance for summer 2008
– Little skill in summer forecasts
• Conserve now to prevent possible problems next summer


STATE CLIMATE OFFICE
NORTH CAROLINA
ryan_boyles@ncsu.edu
http://www.nc-climate.ncsu.edu
919-515-3056 or 877-718-5544


STATE CLIMATE OFFICE OF NORTH CA
Extended History of Drought in NC
Estimated PHDI from Tree Rings - Eastern NC/VA

Description of Tiered Water Supply Systems

J. Wayne Munden, Head
Technical Services Branch, Public Water Supply Section
Division of Environmental Health, DENR

Tier-1: water supply systems are considered to be in a crisis mode (or) have less than 100 days of present supply remaining (or) are likely to be in a crisis if conditions persist because they lack interconnections for emergency water supply

Tier-2: systems are not in crisis now but could be within the next few months.

Tier-3: systems are not yet in a vulnerable position but are subject to change as the drought continues.

This ranking is a subjective assessment based on best professional judgment and experience of PWS field staff coupled usually with recent communication with the systems. The Tier list is an on-going working document and is subject to change at any time.

NEWS RELEASE

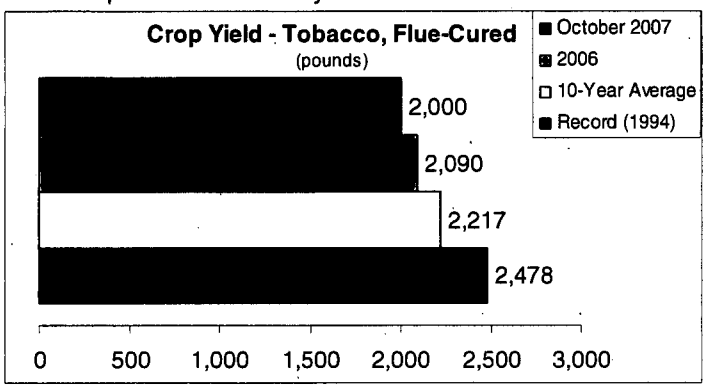
Released: October 12, 2007

USDA, NASS
North Carolina
Field Office
PO Box 27767
Raleigh, NC 27611
Phone (919) 856-4394
E-mail: ncagstat@ncmail.net

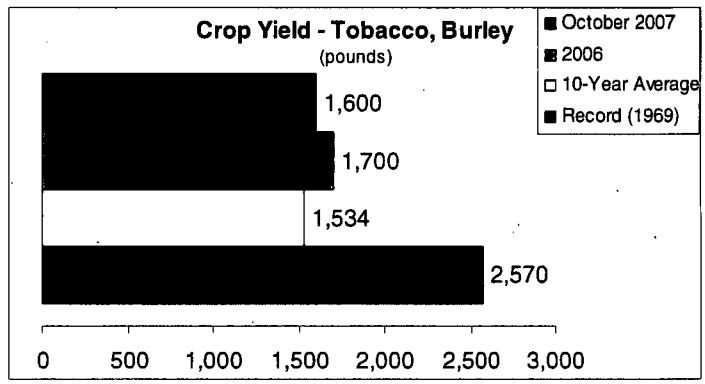
Exhibit P

NC CROP PRODUCTION IMPACTED BY WEATHER CONDITIONS

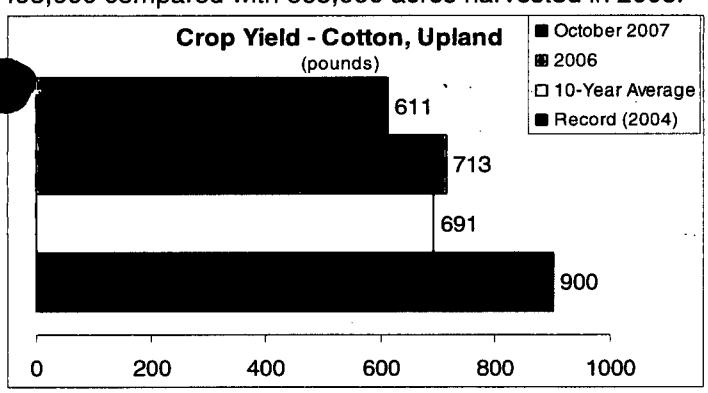
Flue-cured tobacco production is forecast at 330 million pounds, 2% above the 324 million pounds produced in 2006. Acres for harvest are estimated at 165,000, up 10,000 acres from last year. Yield per acre is forecast at 2,000 pounds, down 90 pounds from last year.



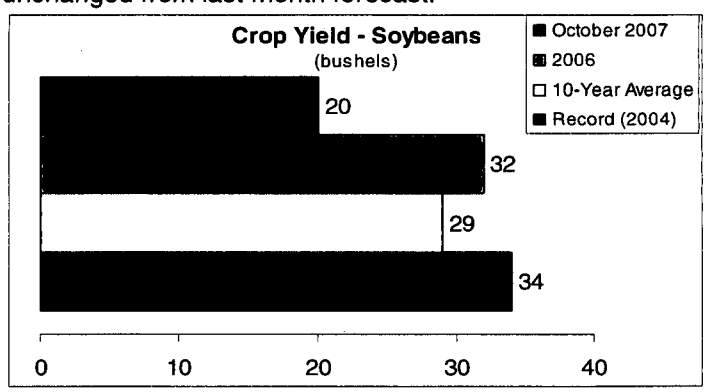
Burley tobacco production is forecast at 6.4 million pounds, down slightly from 2006 production of 6.46 million. Yield is forecast at 1,600 pounds per acre, 100 pounds less than last year's crop. Area for harvest is forecast at 4,000 acres, 200 acres more than was harvested in 2006.



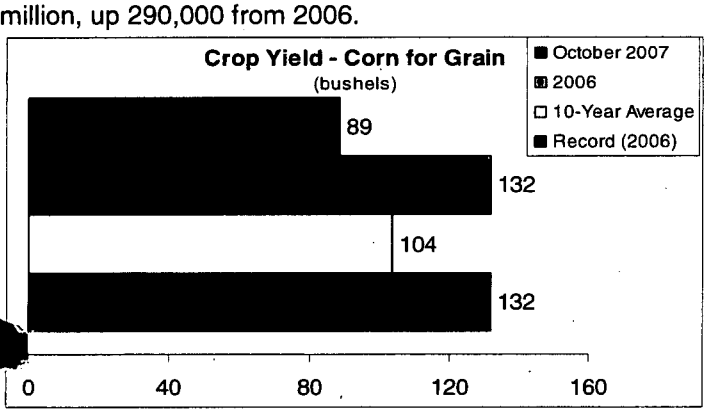
Cotton production is forecast to total 630,000 bales, unchanged from last month's forecast and down 51% from last year's production of 1.285 million bales. The yield forecast at 611 lbs per acre remained unchanged from September's forecast. Harvested acres are expected to total 495,000 compared with 865,000 acres harvested in 2006.



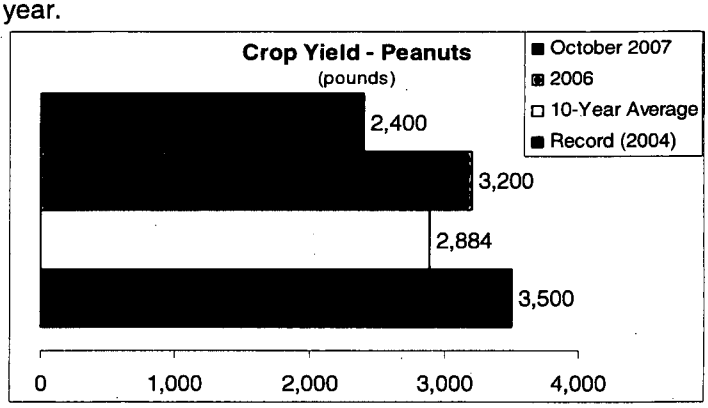
Soybean yield is forecast to average 20 bushels per acre, down 2 bushels per acre from last month's forecast and down 12 bushels from last year. Production is forecast to total 27.4 million bushels; down 37% from last year. Harvested area is projected to 1.37 million acres, unchanged from last month forecast.



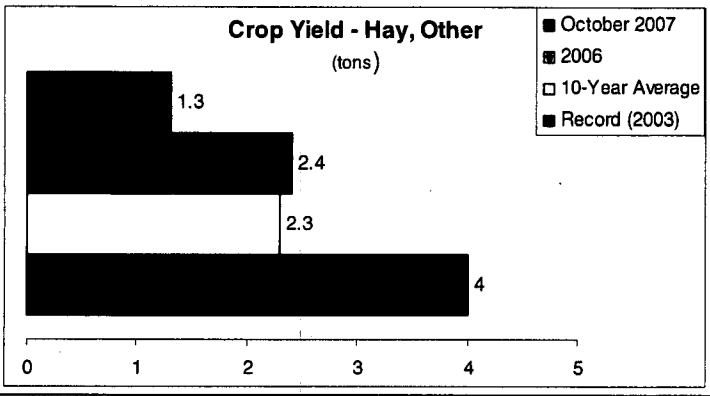
Corn for grain yield is forecast 89 bushels per acre unchanged from last month and down from last years record high of 132 bushels per acre. Production is forecast to total 91.67 million bushels; 6% less than last year. Harvested acres are unchanged from last month's forecast at 1.03 million, up 290,000 from 2006.



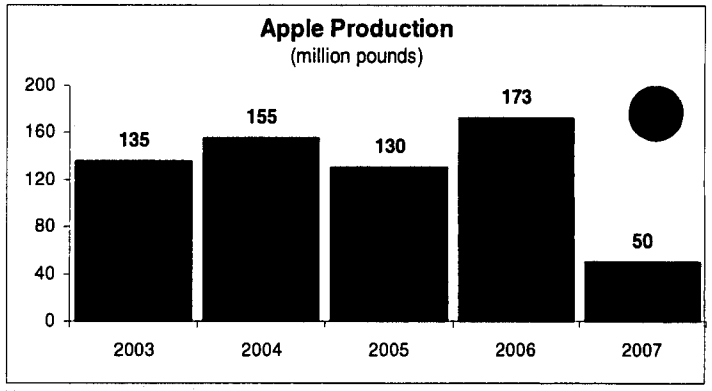
Peanut production is forecast at 220.8 million pounds, up 4% from last month and down 18% from last year's production. Harvested area is projected at 92,000 acres. Yield per acre is forecast at 2,400 pounds, up 100 pounds from last month and down 800 pounds per acre from last year.



Other hay yields are forecast at 1.3 tons per acre, down from Augusts' forecast of 2.0 tons per acre. Production is expected to total 897 thousand tons, 45% below the 2006 tonnage.



Apple production expectations remained the same as the August forecast, 50 million pounds. The freeze in early April and the persistent drought are the main contributors.



September 2007 Crop Weather: Dry weather and above normal temperatures dominated the month of September resulting in soil moisture levels being rated mostly very poor and poor. Many crops are being negatively affected by the continued drought and above normal temperatures. By month's end, harvest progress for corn for grain, sorghum, sweetpotatoes and burley tobacco were above the five year averages. Apples, peanuts, corn for silage and hay were inline with the 5-year average and flue-cured tobacco was slightly behind the 5 year average.

U.S. flue-cured tobacco production is expected to total 456 million pounds, down less than 1 % from the previous forecast but 2 % above 2006. **U.S. burley tobacco** production is expected to total 192 million pounds, down 3 % from the September forecast and 12 % below a year ago. **U.S. corn for grain** production is forecast at 13.3 billion bushels, up slightly from last month and 26% above 2006. . **U.S. cotton** production is forecast at 18.2 million 480-pound bales, up 2 % from last month but down 16 % from last year's 21.6 million bales. **U.S. soybean** production is forecast at 2.60 billion bushels, down less than 1% from the September forecast and down 19% from last year's record high. **U.S. peanut** is forecast at 3.42 billion pounds, down 1 % from last year's crop.

CROP ACRES, YIELD AND PRODUCTION, OCTOBER 1, 2007

CROPS	UNIT	NORTH CAROLINA						
		ACRES HARVESTED		YIELD		PRODUCTION		PERCENT CHANGE
		2006	2007	2006	2007	2006	2007	
		Thousands				Thousands		+/-
Corn for Grain	Bu.	740	1,030	132	89	97,680	91,670	-6
Cotton: Upland [1]	Lb.	865	495	713	611	1,285	630	-51
Hay: Other	Ton	680	690	2.4	1.3	1,632	897	-45
Peanuts	Lb.	84	92	3,200	2,400	268,800	220,800	-18
Soybeans for Beans	Bu.	1,360	1,370	32	20	43,520	27,400	-37
Tobacco: Flue-cured	Lb.	155	165	2,090	2,000	323,950	330,000	+2
Tobacco: Burley	Lb.	3.8	4.0	1,700	1,600	6,460	6,400	-1
		Actual Acres						
FRUITS:								
Apples [2]	Lb.	6,800	[3]	25,400	[3]	173,000	50,000	-71
Pecans	Lb.	[4]	[4]	[4]	[4]	500	600	+20
		UNITED STATES						
		Thousands				Millions		
Corn for Grain	Bu.	70,648	86,071	149.1	154.7	10,534.9	13,318.1	+26
Cotton: All [1]	Lb.	12,731.5	10,543.0	814	826	21.6	18.2	-16
Hay: All	Ton	60,807	61,789	2.33	2.39	141.7	148.0	+4
Peanuts	Lb.	1,210	1,190	2,863	2,873	3,464.3	3,419.3	-1
Soybeans for Beans	Bu.	74,602	62,818	42.7	41.4	3,188.3	2,598.0	-19
Tobacco: Flue-cured	Lb.	213.1	225.0	2,095	2,024	446.5	455.5	+2
Tobacco: Burley	Lb.	103.6	105.2	2,095	1,826	217.1	192.1	-12
FRUITS:								
Apples [2]	Lb.	378,860	[3]	26,000	[3]	9,931.7	9,254.7	-7
Pecans	Lb.	[4]	[4]	[4]	[4]	206.3	319.6	+55

[1] Production in 480-lb. net weight bales. [2]Total production. [3] To be released January, 2007. [4] Not estimated.

Dee Webb
Agricultural Statistician

Steve Troxler
Commissioner

Herb Vander[illegible]

U.S. Department of Agriculture / N.C. Department of Agriculture and Consumer Services
Internet Address: http://www.ncagr.com/stat

Exhibit Q

North Carolina

Drought Management Advisory Council

Activities Report - 2007

Oct. 1, 2007

North Carolina Division of Water Resources

Department of Environment and Natural Resources

North Carolina Drought Management Advisory Council

Annual Report-2007

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Introduction

This is the third report of the North Carolina Drought Management Advisory Council on the implementation of North Carolina General Statute 143-355.1, which created the council in 2003. The General Assembly amended this statute in 2004, adding a new section requiring an annual report: "(g) The Council shall report on the implementation of this section to the Secretary, the Governor, and the Environmental Review Commission no later than 1 October of each year. The report shall include a review of drought advisories issued by the Council and any recommendations to improve coordination among local, State, and federal agencies; public water systems; and water users to improve the management and mitigation of the harmful effects of drought. (2003-387, s. 2; 2004 195, s. 2.5.)"

Drought Management Advisory Council

The Drought Monitoring Council was an interagency coordination and information exchange body created in 1992. The council did a creditable job of monitoring and coordinating drought responses in 2002 and increased public awareness of its functions and its effectiveness. The General Assembly recognized the Drought Monitoring Council's leadership and performance by giving it an official statutory base and by changing its name to Drought Management Advisory Council (DMAC), reflecting the broader role of the council, which goes beyond monitoring of drought conditions.

North Carolina General Statute 143.355.1., ratified July 17, 2003, assigns the DMAC an important new role, the need for which became evident in 2002. A number of local governments indicated that it would be helpful to have official, objective drought status advisories, to give them a reliable basis for their management responses. The new statute assigns this role to the DMAC and specifies that the drought advisories are to be based on technical data and are to be crafted to fit varying conditions in different parts of the state. This system will avoid the

problems that some states have experienced in declaring drought warnings statewide, when conditions did not warrant it in all parts of the state.

Section 1 of this Act also makes drought response provisions mandatory in local government water supply plans and extends this planning responsibility to all community water systems that serve 1,000 or more connections or 3,000 or more individuals.

The intent of the new statute is for the DMAC to continue with essentially the same membership and functions that the Drought Monitoring Council previously exercised, but with new statutory authority and a new responsibility for providing a system of drought advisories when needed. Most importantly, the operations of the DMAC will carry on the same role as the Drought Monitoring Council did in support of the North Carolina Emergency Operations Plan.

Monitoring Drought Conditions

The U.S. Drought Monitor of North Carolina (www.ncwater.org) is the reference for drought classifications and response actions in the state. The drought monitor is a map identifying general drought areas, labeling droughts by intensity, with D1 being the least intense and D4 being the most intense. D0 signifies drought watch areas either drying out and possibly heading for drought, or recovering from drought but not yet back to normal, suffering long-term impacts such as low reservoir levels or minimum streamflow for the time of year.

The Technical Drought Advisory Team a sub group of the Council, participates each Tuesday in a telecom to gather and feed information to the National Drought Monitor author about local drought conditions in North Carolina. The team includes DMAC representatives and National Weather Service offices located in Tennessee, South Carolina and Virginia. The Drought Monitor is published on Thursday morning of each week.

Council Meetings

The DMAC chairman called for meetings of the council on Mar. 7, June 7, Aug. 21, and Sept. 27, 2007 at the Archdale Building in Raleigh. Average attendance was about 40 representatives. The total number of people in attendance at the Sept. 27, DMAC meeting was 69, including 10 representatives from the media. These included WRAL, WUNC public radio, WTVD (ABC 11), WGHP (Fox 8), NBC 17, the North Carolina News Network, Freedom Newspapers, Wake Weekly, Star News, and the Fayetteville Observer.

Items on the meeting agenda included assessment and forecast reports about the seasonal drought outlook and the impact of drought on streamflow and ground water levels, lake and reservoir levels, and agriculture, forestry and public water systems.

Press Releases

Press releases were sent out after each DMAC meeting. A total of 24 press releases were issued concerning drought conditions and drought advisories issued.

On-Going Drought Assessment and Drought Coordination 2007

The technical team of the Drought Management Advisory Council continued to hold a weekly conference call on Tuesdays to assess drought conditions in 2007. The information they produce goes to the weekly update of the drought status map, which comes out on Thursdays.

The Water Sources Task Force was activated in August and is now joining the DMAC technical team on the weekly conference call.

The Water Sources Task Force is part of the NC Emergency Response Plan and brings a few additional agencies to the table with capabilities for drought response and evaluation of water supply. The Public Water Supply Section and the Division of Water Resources have established a list that ranks local water systems in three tiers of drought vulnerability. At the weekly conference call, the participants update

and review the drought vulnerability tier list and identify communities needing assistance.

Tier-1: systems are considered to be in a crisis mode (or) have less than 100 days of present supply remaining (or) are likely to be in a crisis if conditions persist because they lack interconnections for emergency water supply

Tier-2: systems are not in crisis now but could be within the next few months.

Tier-3: systems are not yet in a vulnerable position but are subject to change as the drought continues.

This ranking is a subjective assessment based on best professional judgment and experience of PWSS field staff coupled usually with recent communication with the systems.

The Water Sources Task Force is having meetings with all of the Tier-1 systems to help in identifying a near-term water supply solution and funding to obtain an emergency supply of potable water.

The Task Force is currently working with and helping Rocky Mount and Siler City, Tier-1 systems, to expedite plans/construction necessary to obtain an emergency water supply.

The DMAC is working with the NC League of Municipalities to have three Regional Drought Meetings in the state planned for Greensboro, Raleigh, and Asheville to inform all water systems on drought conditions and on responses that are needed.

River Basin Management

The DMAC and the Water Sources Task Force is participating in weekly conference calls with managers of major reservoirs, including the Corps of Engineers private power companies, and TVA, to review specific drought conditions in each basin and to discuss changes needed in reservoir management to conserve stored water. These conference calls have resulted in significant adjustments in reservoir release policies, with a resulting increase in the conservation of stored water and a reduction in our risk of depleting reservoirs. These changes are made with the participation of the Division of Water Quality, the U.S. Army Corps of Engineers, and the Wildlife Resources Commission. River basins with on-going telecoms include the Neuse, Catawba, Roanoke, Yadkin, Cape Fear, and Tennessee Valley.

In September, the Division of Water Resources sent a message to public water system managers statewide, reminding them of the necessity to monitor water supply and demand carefully and of the requirement to mandate water use restrictions as indicated by their local water supply plans. Also, letters were sent to golf courses concerning water use registration requirements. These messages followed a press release by Governor Easley asking for local water conservation actions to avoid a state government mandate for mandatory water use restrictions.

Drought Advisories Issued

The DMAC issued official drought advisories based on data adjusted for varying conditions in different parts of the state to provide local governments with a reliable basis for managing drought response in their region. The advisory was updated each week (www.ncdrought.org) to reflect drought classifications on the weekly U.S. Drought Monitor of North Carolina.

In April, severe drought conditions developed in the southern mountains. Exceptional drought conditions moved eastward to central NC during the first week of October 2007 and were depicted in 55 counties; with 31, 11, and 3 counties

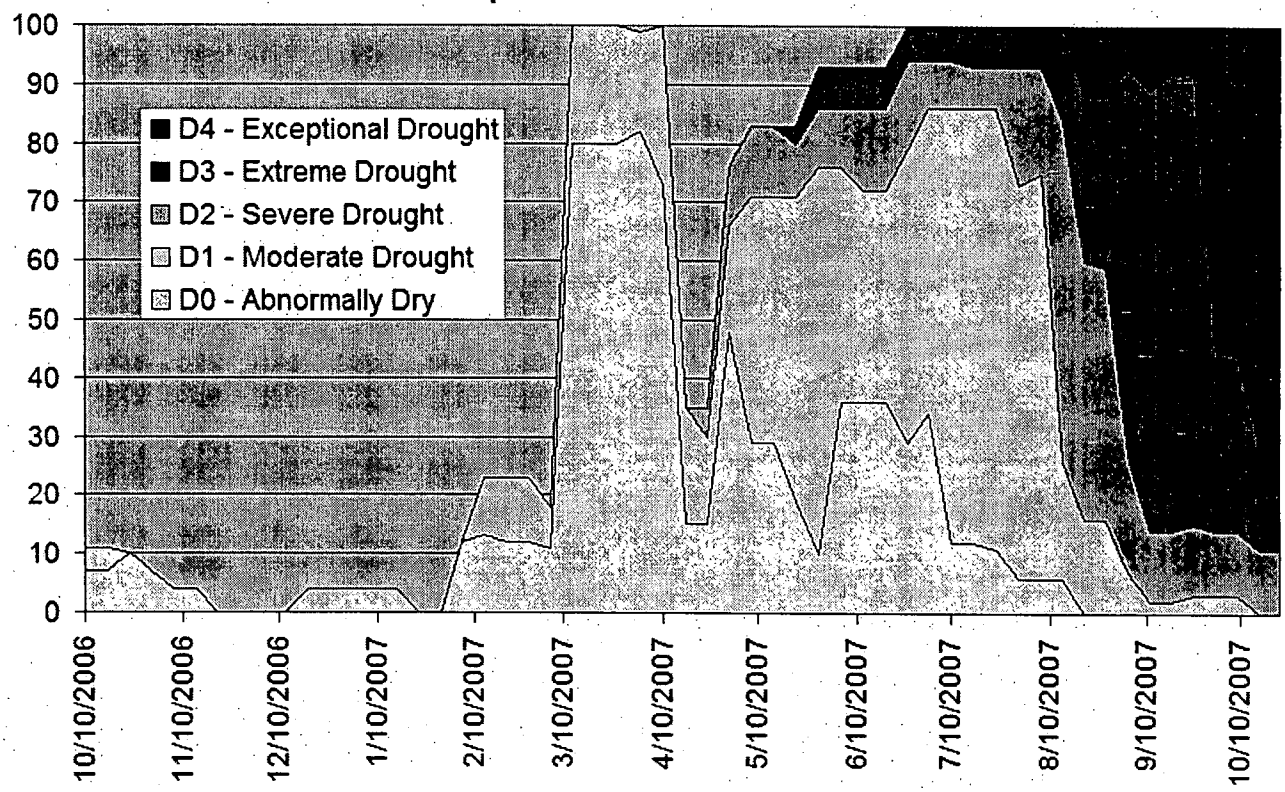
having extreme, severe and moderate drought conditions respectively. Figure 1 summarizes the number of counties each week under drought advisories as issued by the DMAC.

The USGS reported record low water levels in May for North Carolina rivers in Western NC and in August 2007 reported the lowest streamflows in more than 110 years for some North Carolina rivers as drought conditions worsened.

The drought advisory requests the implementation of drought response actions until further notice for all water users located in or dependent upon water resources from the areas of the state experiencing drought. The highest drought classification applies to the entire county, if any portion of the county is depicted on the U.S. Drought Monitor of North Carolina as having those conditions. Counties under the current advisory and requested drought response actions are updated each Thursday and listed (www.ncdrought.org) by drought classification.

Since mid June, all 100 counties in the state had some level of drought classification. Figure 1 summarizes the number of counties each week under drought advisories as issued by the DMAC.

Figure 1. County Summary with Drought Advisories issued September 2006 -- October 2007



Water System Water Conservation Status

The Division of Water Resources and the Public Water Supply Section (PWSS) regional offices are working together to make possible this reporting and data available on the Web on the status of water conservation requirements by public water systems. This on-line database provides a consistent way to document and track impacts to public water supply systems. The system is operational and in use, and tracks the more than 600 water systems throughout the state. This information can be accessed at:

www.ncwater.org/Drought_Monitoring/reporting/displaystate.php.

The number of water systems that called for water use restrictions is displayed in Figure 2.

Figure 2. Water Systems Calling for Water Conservation due to Drought --2007

Week 2007	E	M	V	Total	Week 2007	E	M	V	Total
1-May		1	5	6	31-Jul		8	31	39
8-May		1	6	7	7-Aug		8	37	45
15-May		1	6	7	14-Aug		16	36	52
22-May		2	6	8	21-Aug		19	53	72
29-May		5	6	11	28-Aug		36	68	104
5-Jun		7	16	23	4-Sep		48	67	115
12-Jun		8	20	28	11-Sep		66	62	128
19-Jun		9	23	32	18-Sep		72	67	139
26-Jun		9	23	32	25-Sep		82	78	160
3-Jul		9	23	32	2-Oct		83	80	163
10-Jul		8	29	37	9-Oct		86	88	174
17-Jul		8	31	39	16-Oct		94	108	202
24-Jul		8	31	39	23-Oct	1	110	125	236

E = emergency M = mandatory V = Volunteer

Improving Coordination and Drought Depiction

DMAC Web Site

The DMAC Web site (www.ncdrought.org) depicts the U.S. Drought Monitor for North Carolina that is updated and released on Thursday 8:30 a.m. EST each week. The data cutoff for each week is Tuesday 7:30 a.m. EST. The weekly release can include drought advisories issued by the DMAC for all water users located in or dependent on water resources from the areas of the state experiencing drought conditions. Advisories are color-coded and range from Abnormally Dry (D0) to Exceptional Drought (D4).

The U.S. Drought Monitor establishes a baseline for hydrological and agricultural drought conditions; North Carolina is fortunate in that it has the DMAC to work closely with the U.S. Drought Monitor to adjust designations to better reflect North Carolina's local conditions.

The DMAC Web site also has a number of tabs that link to available resources of information, some with real-time data about current conditions, news, information about the DMAC, contact information and education about drought, archives (N.C. monitor) and water conservation tips.

Drought Indicator Wells

Drought indicator wells are a network of wells that monitor the effects of droughts and other climate variability on ground water levels in the surficial aquifers (water table). The Division of Water Resources has a goal of increasing the number and geographic distribution of drought indicator wells. DWR currently has 45 actively monitored wells in the network and has a short-term goal of adding two wells to that network this fiscal year. The long-term goal is to have a minimum of 60 drought indicator wells. This will allow a much more complete assessment of impending or actual drought conditions in each of the major river basins of the state.

River Basin Drought Management Plans

As part of the relicensing of hydropower projects in the Catawba-Wateree and Yadkin-Pee Dee river basins, procedures have been established and tested for adjusting operations during periods of low-inflow to conserve the limited water supply during the 2007 drought. The Low-Inflow Protocol (LIP) provides trigger points and procedures for how the projects will be operated as well as water withdrawal reduction measures and goals for other water users during periods of low-inflow.

Efforts are currently underway with stakeholders in the Neuse River Basin to work together with the Division of Water Resources to fund and develop a drought management model for the basin.

The Division of Water Resources is working with the U.S. Army Corps of Engineers and stakeholders on updating drought management plans on Falls and Jordan Reservoirs.

Water Resources Information

The Division of Water Resources is working together with the N.C. State Climate Office, the U.S. Army Corps of Engineers, the N.C. Ground Water Management Section, and the U.S. Geological Survey and have developed a water resources information, storage, analysis, and retrieval system (WRISARS). This program will provide a single archive of historical and on-the-spot data about hydrology (including stream flow, groundwater and reservoir data), weather and climate, and water use in North Carolina. Products are now available for public use at (http://www.ncwater.org/wrisars/index.php).

Exhibit R

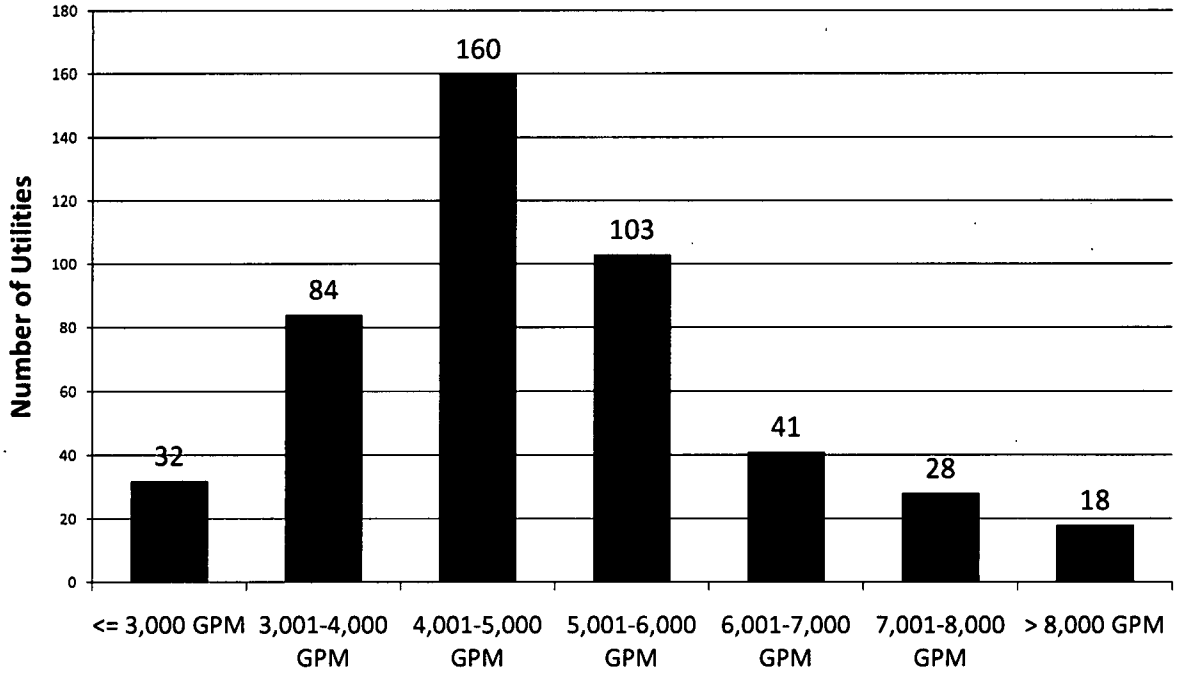
Water Pricing and the Drought

Jeff Hughes
jhughes@sog.unc.edu

Environmental Finance Center
University of North Carolina at Chapel Hill
919 843-4956
www.efc.unc.edu

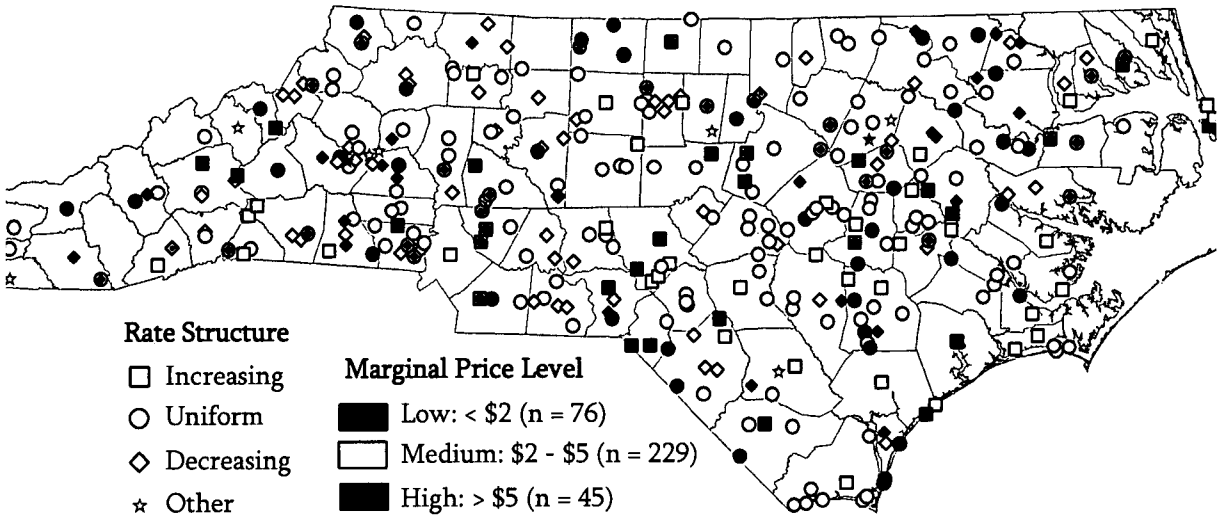
UNC
SCHOOL OF GOVERNMENT
ENVIRONMENTAL FINANCE CENTER

Average Residential Consumption in 2002
Among 466 Utilities

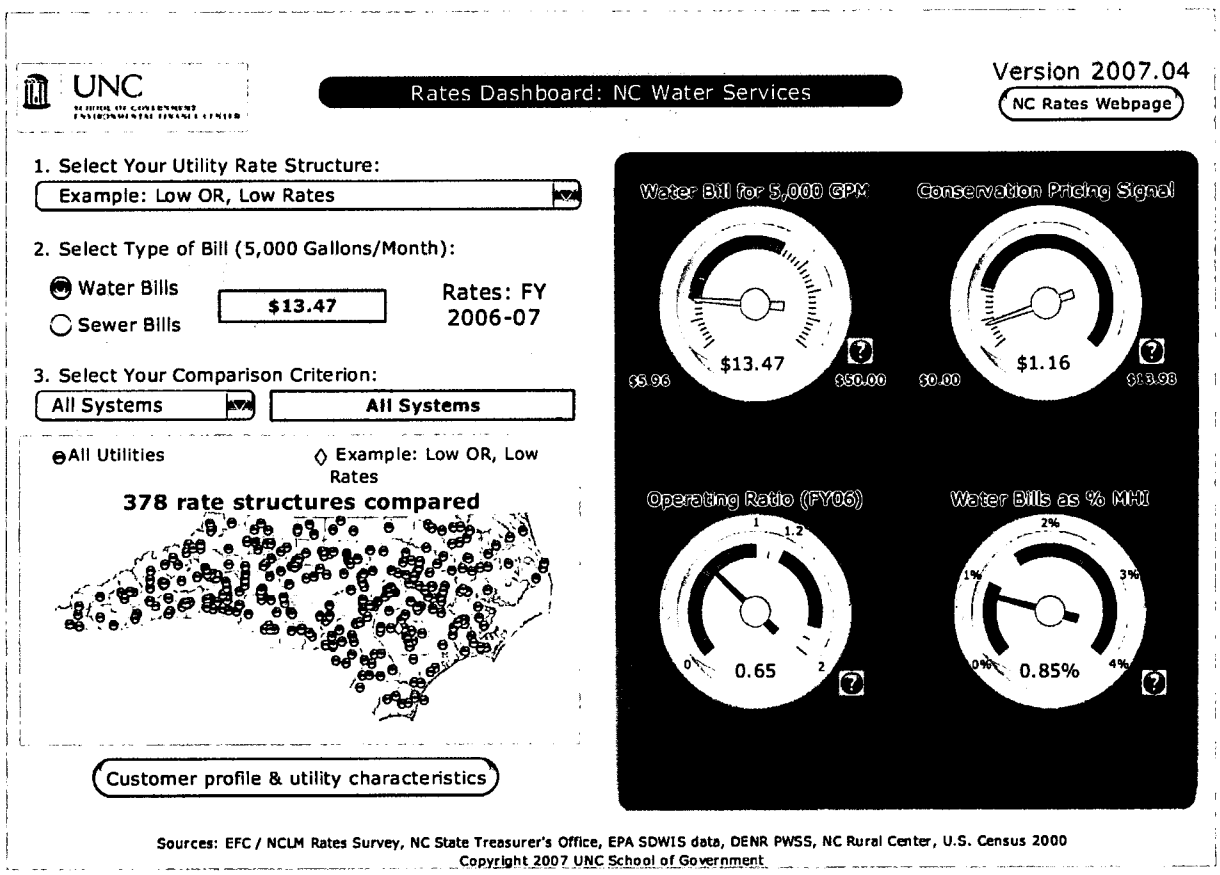


Source: Data collected by DWR, NCDENR Local Water Supply Plans

Rate Structures and Pricing Signals Across North Carolina



Source: 2007 NCLM/SOG Rate Survey, Price is $/1,000 for Customer using 14,000 gal./mo.



Considerations

- Sudden usage reductions often lead to significant revenue reductions but only modest cost reductions
- Relationship between usage and price may be difficult to predict
- Some utility rates are artificially low
- A utility's starting point will influence difficulty of meeting uniform reduction targets
- Current billing practices often limit the ability of price to influence demand
  - Time lag
  - Disconnections between usage and payment
- One size does not fit all

Short Term Options

- Expand usage monitoring
- Expand customer usage research
- Increase volume charges
- Increase base charges
- Increase enforcement of usage restriction penalties

Medium Term Options

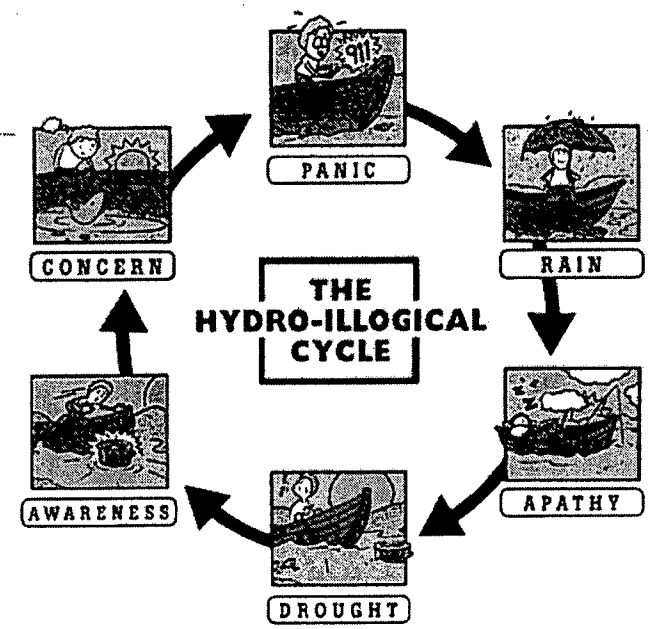
- Move towards "full cost" pricing by limiting artificially low rates
- Expand pricing and consumption information included on bills
- Move to monthly billing
- Consider alternative rate structures (seasonal, water budget, uniform block, increasing block)
- Establish emergency assistance fund for water services customers

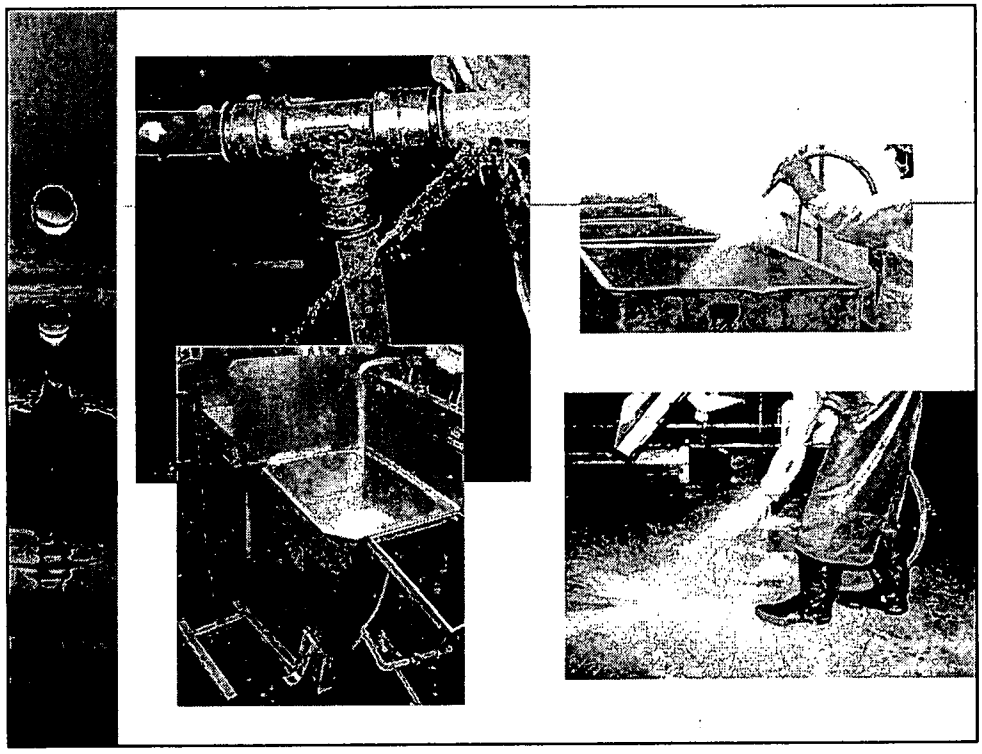
Longer Term Options

- Invest in meter technology
- Invest in reuse systems
- Fund credit program for installation of water efficiency devices/fixtures
- Fully funded capital improvement programs (CIPs) with significant conservation, efficiency, and rehabilitation investments
- Establish rate stabilization fund
- Maintain significant undesignated reserves (utility fund balance)

Water Conservation
The Other Water Source

Gary Hunt
Division of Pollution Prevention and
Environmental Assistance

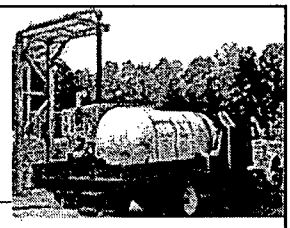




Top Water Efficiency Measures

- Recycle process water
- Improve maintenance to replace misc. parts
- Use domestic water efficiency measures
- Change operational practices
- Adjust cooling tower blowdown
- Reuse of condensate water
- Adjust equipment
- Repair leaks
- Install spray nozzles
- Install/replace automatic shut-offs
- Reduce dishwasher loads
- Turn off equipment when not in use

Use of Reclaimed Water
An Opportunity



- Reclaimed water can be used for landscape irrigation, dust control, soil compaction, non-potable industrial process, cooling
- Many Cities already using reclaimed water: Raleigh, Cary, Wilson, Johnson Co.
- DWQ is expediting permit approval process for reclaimed water use
- Many municipalities and industries may be able to meet the requirements for reclaimed water with few modifications

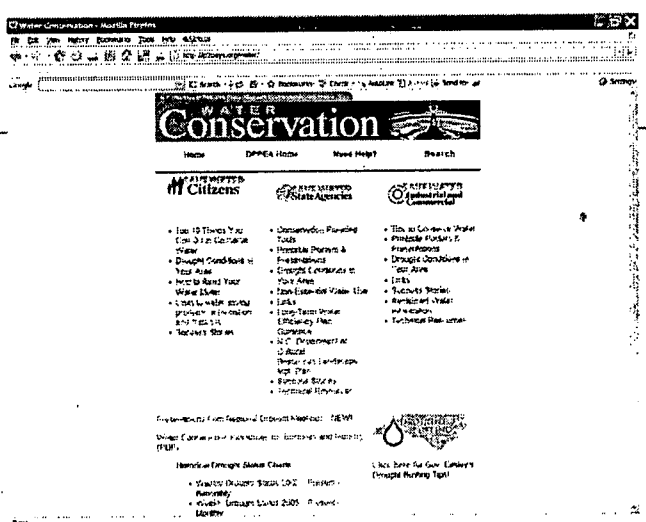
Environmental Stewardship Initiative

Members reduced water use by over one billion gallons (2003-2006)

NC Environmental Stewardship Initiative

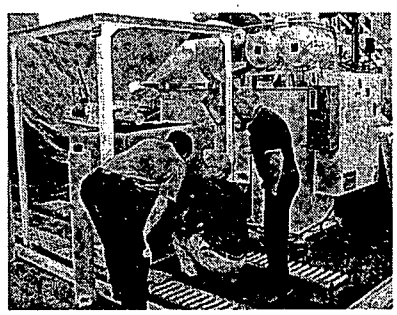
Current Water Conservation Activities

- Regional Drought Meetings
- Working with Department of Commerce
- Expanded technical information on website
- Water conservation teams
- Technical assistance
- Workshops/outreach



WWW.p2pays.org/water

Waste Reduction Partners



Services: Water Efficiency, Energy Auditing, Solid Waste Reduction, EMS, and Pollution Prevention Technical Assistance

Approach: Innovative, Efficient, Cost Saving Strategies

Staff: Team of Retired, Volunteer and staff Engineers, Scientists, and Architects

Clients: Business, Industry, Institutions

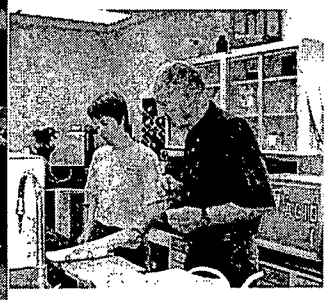
Service Area: 37 Western NC Counties (expanding statewide)

Confidential - Non-regulatory - No-cost services

WRP Demand-side Management Achievements

- 241 Water Efficiency Assessments
- 219 MGY Water Savings
- Approx. savings: $1.11 Million/year

Next Steps: Central WRP



- Partnership with Triangle J COG
- 2-yr Start-up grant from State Energy Office
- Provide 17,300 hour of technical assistance
- Focus on energy conservation and solid waste reduction
- Need permanent funding

Final Thoughts

- Networking and support for local water conservation specialists
- Conservation key part of long term planning efforts
- Technical support and training for business and industrial facilities
- Incentives for conservation
- Increased public awareness
- Research and innovations

"When the well is dry, we know the worth of water"

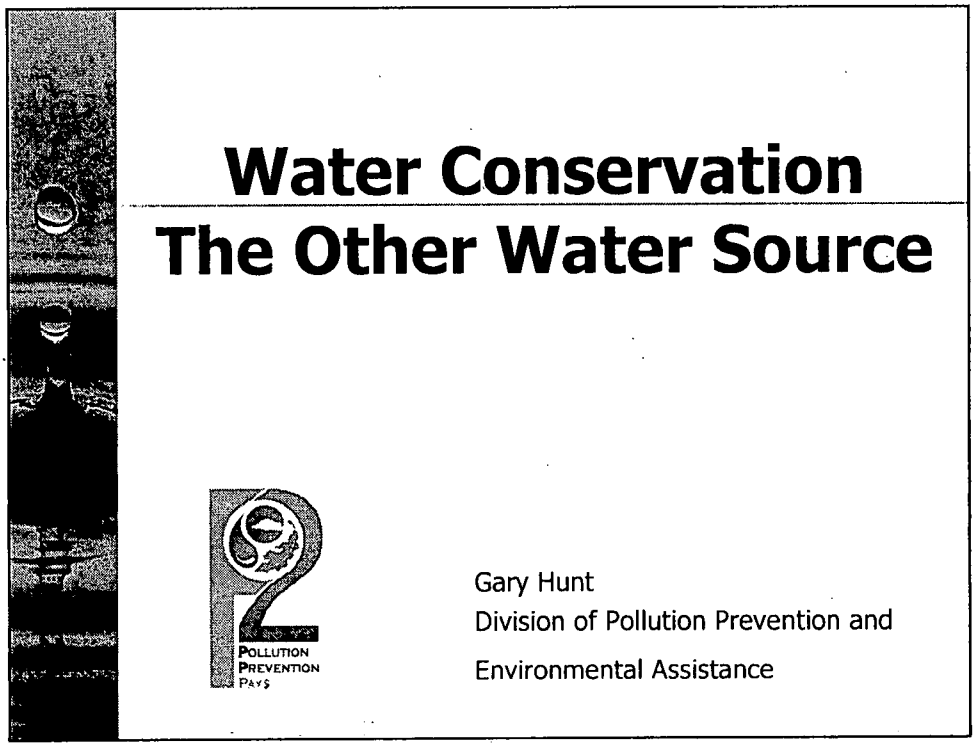
Benjamin Franklin

NC Division of Pollution Prevention and Environmental Assistance

POLLUTION PREVENTION PAYS

- Web site: www.p2pays.org
- 800-763-0136
- gary.hunt@ncmail.net

Serving NC Businesses, Industries and Government Agencies since 1984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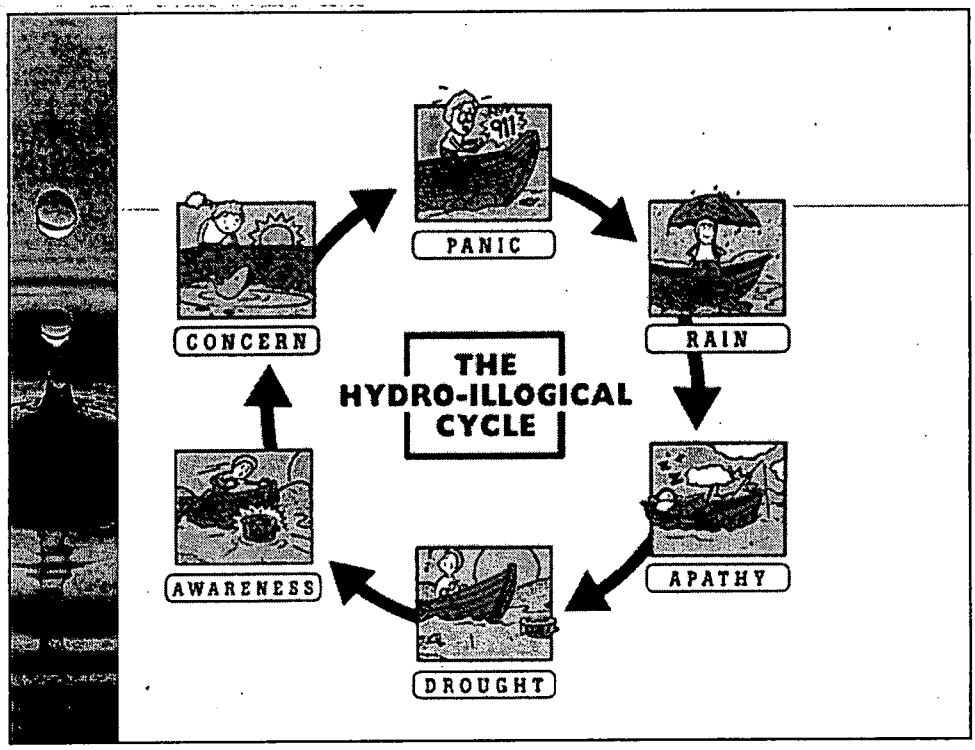
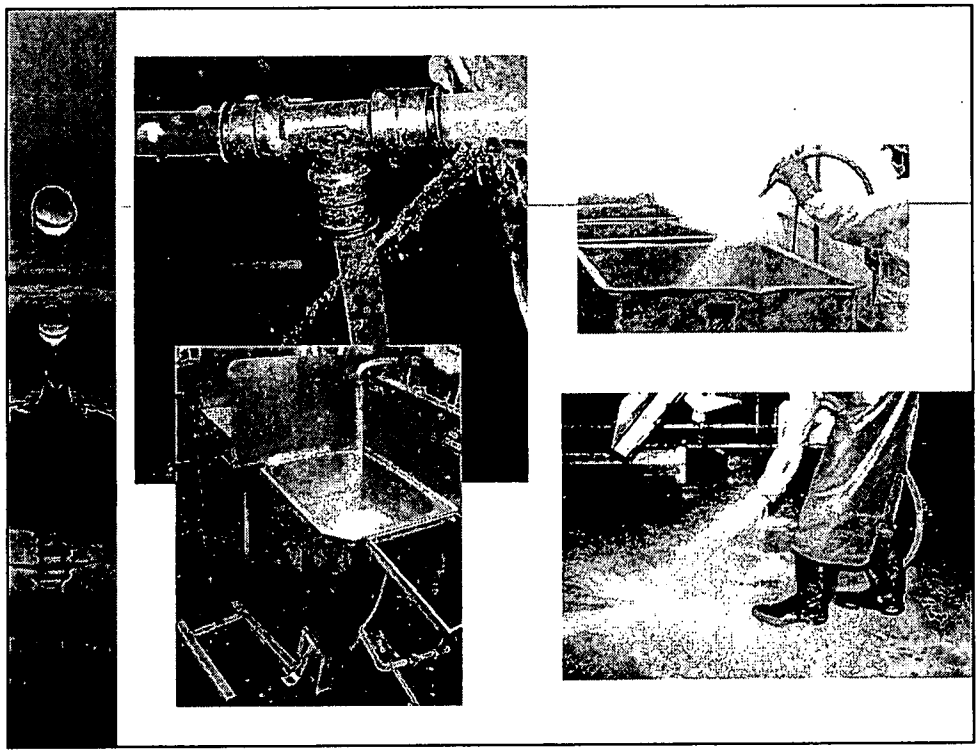

THE HYDRO-ILLOGICAL CYCLE
PANIC
RAIN
APATHY
DROUGHT
AWARENESS
CONCERN



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- Many municipalities and industries may be able to meet the requirements for reclaimed water with few modifications

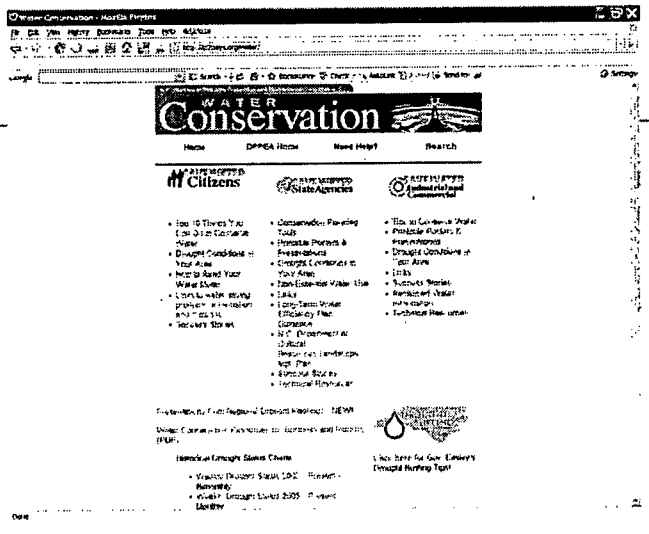
Environmental Stewardship Initiative

Members reduced water use by over one billion gallons (2003-2006)

NC Environmental Stewardship Initiative

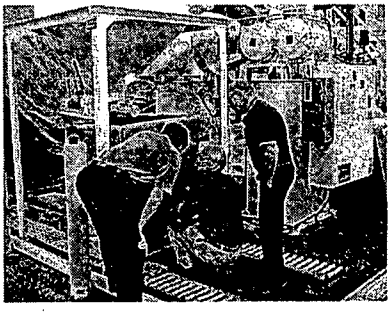
Current Water Conservation Activities

- Regional Drought Meetings
- Working with Department of Commerce
- Expanded technical information on website
- Water conservation teams
- Technical assistance
- Workshops/outreach



WWW.p2pays.org/water

Waste Reduction Partners



Services: Water Efficiency, Energy Auditing, Solid Waste Reduction, EMS, and Pollution Prevention Technical Assistance

Approach: Innovative, Efficient, Cost Saving Strategies

Staff: Team of Retired, Volunteer and staff Engineers, Scientists, and Architects

Clients: Business, Industry, Institutions

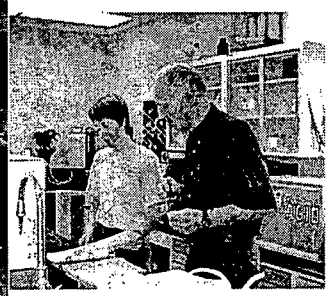
Service Area: 37 Western NC Counties (expanding statewide)

Confidential - Non-regulatory - No-cost services

WRP Demand-side Management Achievements

- 241 Water Efficiency Assessments
- 219 MGY Water Savings
- Approx. savings: $1.11 Million/year

Next Steps: Central WRP



- Partnership with Triangle J COG
- 2-yr Start-up grant from State Energy Office
- Provide 17,300 hour of technical assistance
- Focus on energy conservation and solid waste reduction
- Need permanent funding

Final Thoughts

- Networking and support for local water conservation specialists
- Conservation key part of long term planning efforts
- Technical support and training for business and industrial facilities
- Incentives for conservation
- Increased public awareness
- Research and innovations

"When the well is dry, we know the worth of water"

Benjamin Franklin

NC Division of Pollution Prevention and Environmental Assistance

POLLUTION PREVENTION PAYS

- Web site: www.p2pays.org
- 800-763-0136
- gary.hunt@ncmail.net

Serving NC Businesses, Industries and Government Agencies since 1984

Exhibit T

North Carolina Green Industry

Economic Impact Survey 200

North Carolina
Department of Agriculture
and Consumer Services

January 3, 2007

The industry described as the North Carolina green industry represents a significant and diversified component of our state's economy. The data presented in this study provides the first comprehensive analysis of the economic impact of the entire green industry.

Today the green industry in North Carolina is comprised of nursery stock growers, golf courses, sod producers, commercial flower growers, Christmas tree growers, landscape architects, landscape designers, landscape contractors, landscape and grounds management contractors, lawn care contractors, tree care contractors, irrigation contractors, independent retail garden centers, big box garden centers and allied suppliers.

The dynamic nature of the North Carolina green industry is reflected in the $8.6 Billion dollars spent in 2005 on the purchase of green industry products and services as well as the 151,982 people employed by the industry statewide.

The information documented by the graphs, charts and conclusions stated in this study clearly illustrate the economic value of this diverse and vibrant industry in North Carolina, the green industry.

Steven W. Troxler

Steve Troxler
Commissioner of Agriculture

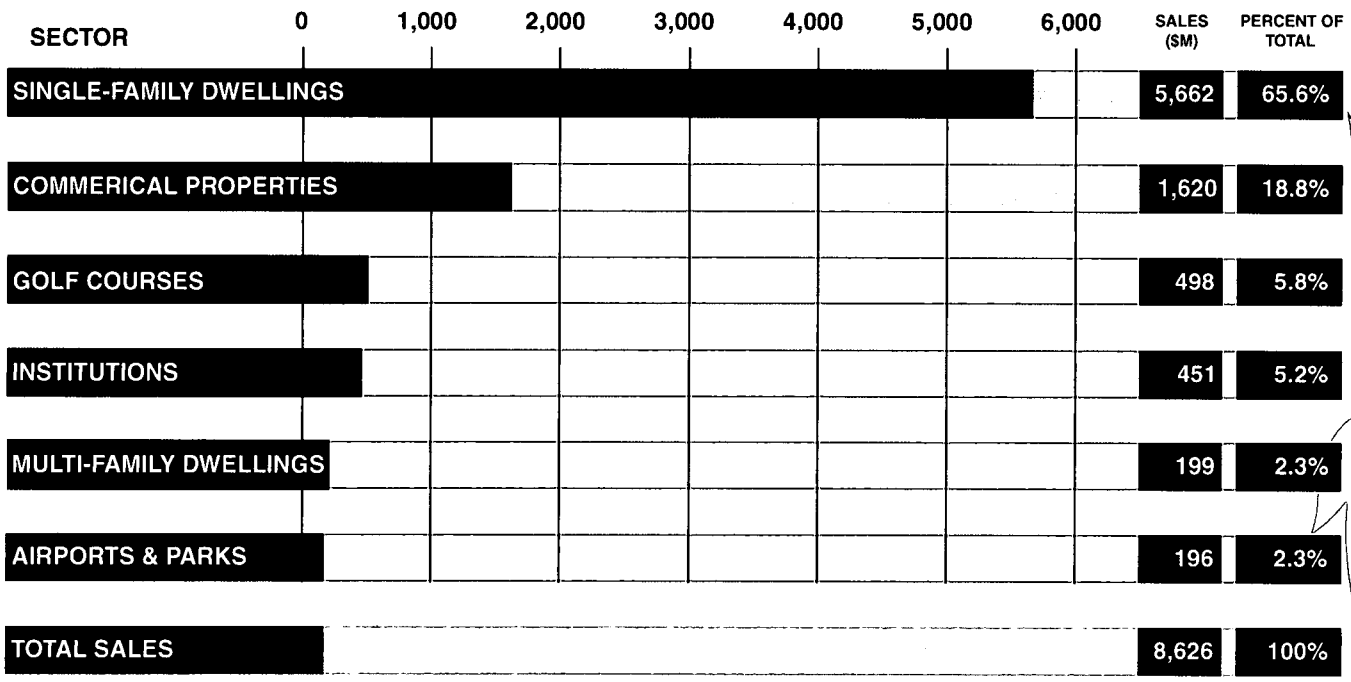
Acknowledgements

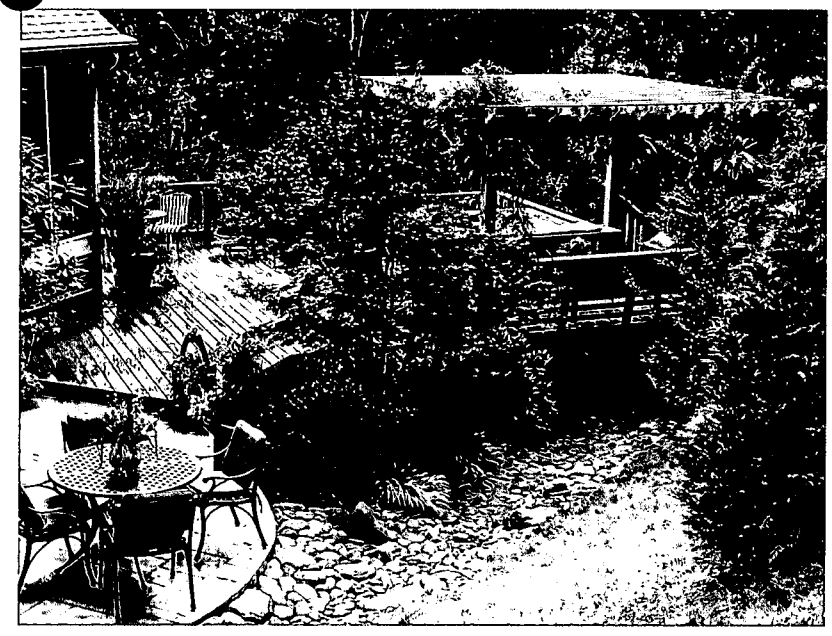
Information included in this publication, unless otherwise noted, references statistics from *Economic Impact of the North Carolina Green Industry* by Charles D. Safley, Professor and Extension Economist, and Michael L. Waldon, William Neal Reynolds Distinguished Professor and Extension Economist, Department of Agricultural and Resource Economics, North Carolina State University. The study was funded by the North Carolina General Assembly. Data collected and compiled by the Agricultural Statistics Division of the NCDA & CS in cooperation with USDA/NASS.

2,000 copies of this public document were printed at a cost of $803.90 or $.40 per copy.

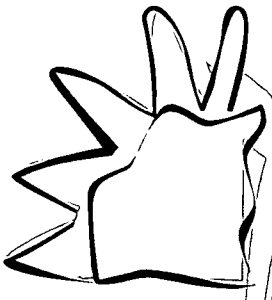
Total Economic Impact

North Carolina's Green Industry 2005 Total Economic Impact on the States Economy was more than $8.6 billion.





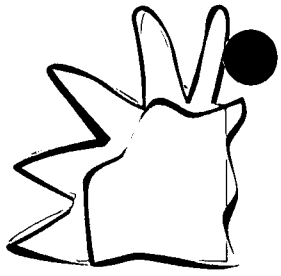
There were more than 3.4 million single family dwellings on over 4.7 million acres of property.



TOTAL ECONOMIC IMPACT OF NORTH CAROLINA'S GREEN INDUSTRY:

$8.6 Billion

Arborists, Landscapers & Lawncare experts spent an average of $149,298 on labor expense.



Employment Impact

North Carolina Green Industry, 2005 Employment

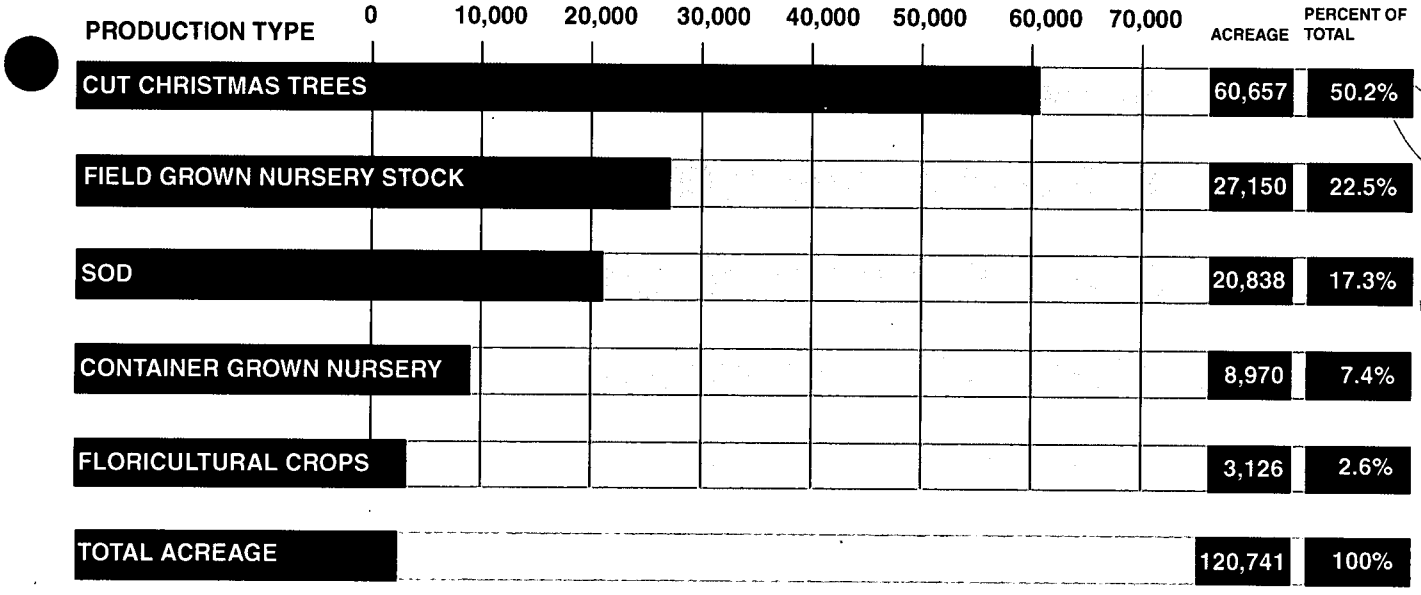
Sector	Full-Time Employment	Part-Time Employment	Total Full- and Part-Time Employment
Nursery, Floriculture & Christmas Tree Growers	12,885	21,196	34,081
Sod Producers	776	484	1,260
Retail Garden Centers	4,632	4,261	8,893
Florists	3,546	4,226	7,772
Arborists, Landscapers & Landscape designers	32,272	14,008	46,280
Landscape Architects	13,006	4,692	17,698
Irrigation Companies	6,014	2,792	8,806
Golf Courses	4,913	3,462	8,375
Institutions	9,747	5,699	15,446
Airports and Parks	2,256	1,115	3,371
Total	90,047	61,935	151,982

TOTAL EMPLOYMENT IMPACT FOR NORTH CAROLINA'S GREEN INDUSTRY IN PRODUCING SECTORS:

151,982 Employees

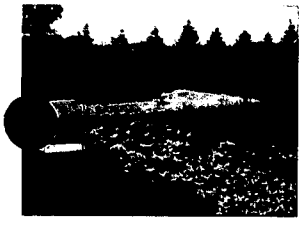
TOTAL ACREAGE

North Carolina Production Acreage in 2005: 120,741 acres

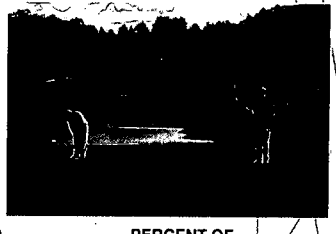


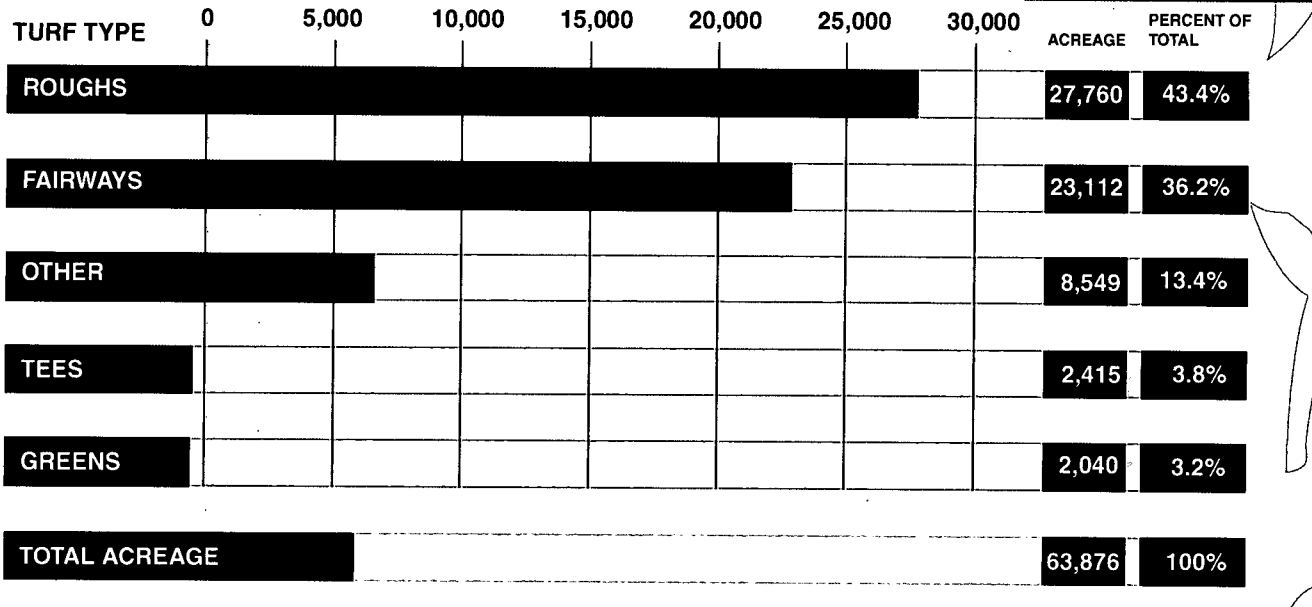
TOTAL FOR NORTH CAROLINA'S PRODUCTION ACREAGE :

120,741 ACRES



Over 17.2 million rounds of golf were played on North Carolina's 605 golf courses in 2005.



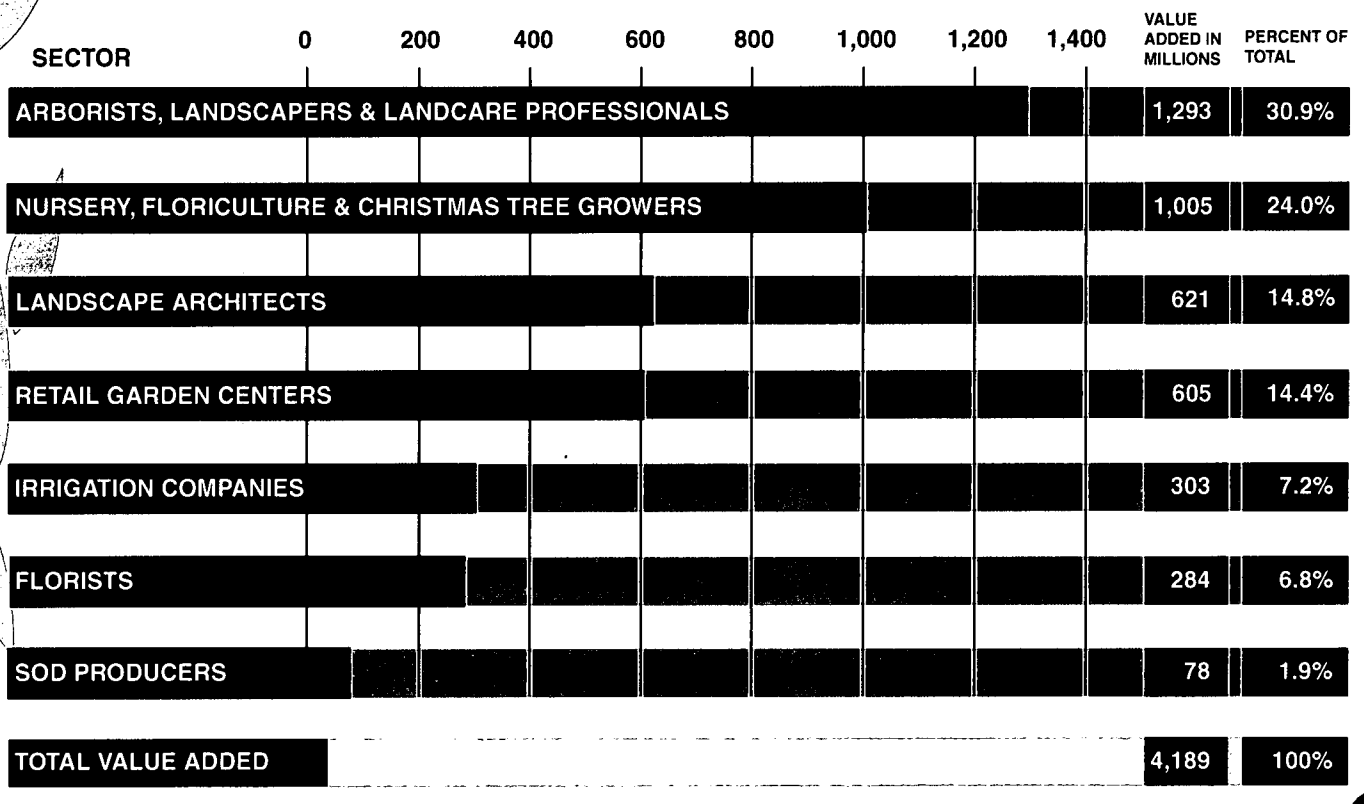


TOTAL FOR NORTH CAROLINA'S GOLF COURSE ACREAGE :

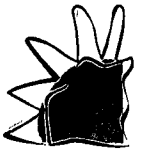
63,876 ACRES

North Carolina Green Industry

Total Value Added of Production in North Carolina was more than $4.1 billion.



Plant sales at North Carolina garden centers, both independent and mass merchants exceeded $322.4 million in 2005.

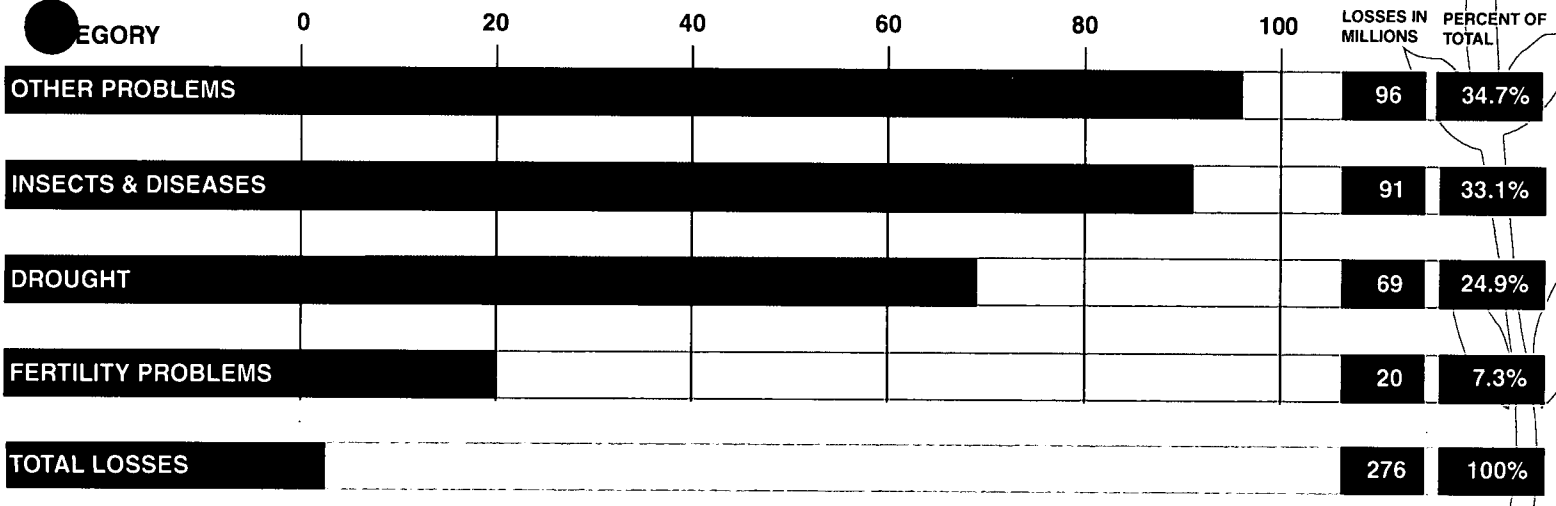


TOTAL VALUE ADDED OF PRODUCTION IN NORTH CAROLINA:

$4.1 Billion

North Carolina Green Industry

Total Economic Losses for both Producer and Consumer Sectors



TOTAL ECONOMIC LOSSES FOR BOTH PRODUCER AND CONSUMER SECTORS IN NORTH CAROLINA:

$276 MILLION (TOTAL LOSSES)

Total Gross Sales by North Carolina Florists exceeded $256.6 million in 2005.

Average Homeowner expenditures for all Lawn and Landscape Services was $838 in 2005.

Total Gross Sales by North Carolina Arborists, Landscapers, and Lawn Care Professionals was $1.2 billion in 2005

Gross Sales by North Carolina Landscape Architects and Designers totaled $574.2 million in 2005.

Over 2.9 million North Carolina homeowners spent an average of $718 for green goods, equipment, and supplies in 2005.

Over 2,936 owners of commercial multi-family residences or apartment complexes spent an average of $10,321 for green goods, equipment, and supplies in 2005.

Green Industry Council
PO Box 1383 Apex, NC 27502

Progress Energy

Progress Energy Carolinas
Drought Update for the NC Environmental Review Commission
October 31, 2007

- As a result of past droughts, most notably the 2000 - 2002 drought, Progress Energy has developed multi-stage drought contingency plans for its generating plants. These plans include procedures for managing lake levels while providing for required minimum downstream flows, preparations for acquiring alternate means of cooling water, and steps for coordinating water usage with federal, state and local governmental agencies.

- Progress Energy has been closely monitoring drought conditions. We will continue to evaluate our drought contingency plans and implement them as needed.

- To date, the drought has moderately impacted our operations, but has not limited our ability to generate at our fossil or nuclear plants. Most of the water used at these types of generating facilities is for plant cooling. While some water used in that process is lost due to evaporation, the majority of the water used is returned to the water body. With the onset of cooler temperatures, the amount of water lost to evaporation is reduced.

- The drought has affected our hydroelectric generation. While these hydro plants are an important portion of our generation mix, they comprise less than 2 percent of our total supply resources.

- Progress Energy operates its system of power plants as a fleet. Should the water levels continue to drop, requiring reduced generation at some facilities, we can rely on our other plants or we can purchase power as needed to continue to provide for our customers' electricity needs. We have a balanced portfolio of resources, fuel sources and technologies, as well as interconnections with our neighboring utilities to promote reliability in a number of contingencies.

- When customers conserve electricity, they also are helping us conserve water and other natural resources. Learn more at www.savethewatts.com.

Hydro Impacts

- Since early summer, Progress Energy has managed its hydroelectric generation to ensure minimal impacts to lake levels. Our hydroelectric generation has been reduced by nearly 30 percent.

- Progress Energy is a member of the Yadkin/Pee Dee River Drought Team. This team includes representatives from federal and state regulatory agencies, several N.C. power companies and community organizations. The team has

adopted measures to help protect this important resource in a way that benefits all users.

- Progress Energy has voluntarily reduced generation and adjusted the operating schedule of its Tillery Plant. We are currently leveling and supplementing flows downstream of the plant in order to supply a dependable daily water supply for downstream industry and public water systems.

Corporate Facilities

- In both regional and corporate facilities, we are following local government mandates for limiting irrigation and other water use.

- We have shut off the irrigation systems for all of our regional facilities.

- Irrigation at the Progress Energy headquarters building on Wilmington St. in Raleigh was shut off several weeks ago.

For more information please contact Kathy Hawkins at 919-546-3027.

Duke Energy

NEWS RELEASE

Duke Energy Corporation
P.O. Box 1009
Charlotte, NC 28201-1009

Oct. 30, 2007

CONTACT: Marilyn Lineberger
Phone: 704/382-6848
24-Hour: 704/382-8333

Recent Rainfall Helps; Yet Drought Situation Remains Serious

CHARLOTTE, N.C. – In the Catawba-Wateree River basin, Duke Energy currently estimates that without substantial additional rainfall, Stage 4 drought conditions which call for tougher water restrictions may be declared in six to 10 weeks – between mid-December 2007 and mid-January 2008. The estimate was extended based upon last week's rainfall.

Stage 4 does not mean the remaining supply of water in the basin is depleted. Rather, water suppliers would likely place additional restrictions on water use. Additional rainfall and greater water conservation could help further delay the onset of Stage 4.

Last week's rainfall amounts ranging from 1-3 inches across the Catawba-Wateree River basin began replenishing the region's water supply for essential drinking water, electricity and industrial needs.

Estimated Remaining Water Supply in Basin

Predicting the time until the remaining useable storage will be fully depleted is difficult due to a number of variables. The key variables are:

- Evaporation -- The rate at which water evaporates from the surface of the river and its 11 reservoirs. (This rate has fallen significantly and should

continue to drop through the winter.)

- Conservation – Continued water and energy conservation has and will continue to be important.
- Rainfall – While the rainfall received during the past week is helpful, the region needs a significant amount of rainfall over the next several months to help the area recover completely from the drought situation.

Through the use of water modeling, Duke Energy has determined a worst case scenario for estimating when the usable water storage in the basin will be depleted. In that scenario, assuming a storage decline of 2 percent per week, which is the average weekly storage loss rate for the period from Aug. 27 through Oct. 19, and assuming the same rainfall/drought conditions seen in recent months, the most shallow water intakes and equipment on the lakes could begin to be impacted by the middle of March 2008.

"Although this scenario is extremely unlikely to occur, the long-term forecast through February 2008 is for drier than normal weather," said Steve Jester, hydro licensing and lake services vice president. "According to the Climate Prediction Center, there is only a 10 percent or less probability the extreme lack of rainfall experienced in the past several months will continue. However, it's important to understand that each of us needs to continue to conserve until more rainfall like we saw last week reaches our region."

While this worst case scenario would not mean that the Catawba-Wateree reservoirs would be dry, it does mean the most shallow water intakes in the basin could be at risk at that time and contingency plans would need to be implemented to ensure essential needs are met.

- more -

Duke Energy Actions

Since April, Duke Energy has reduced hydroelectric operations by more than 50 percent in order to save water. Hydroelectric, coal and nuclear plants on the Catawba lakes generate approximately 9,000 megawatts of electricity for Duke Energy's customers in the Carolinas.

Duke Energy built 11 lakes on the Catawba to help provide vital electricity to more than 2.2 million customers in the Carolinas.

"Duke Energy is committed to being a good steward of the lakes it built," Jester said. "Besides providing water for drinking and other purposes, these lakes contribute other essential services to communities in the region, including drought management.

"In the Catawba-Wateree River basin, we're fortunate to have 11 dams to help manage the flow of water. Many free flowing creeks and streams have already dried up," Jester said.

In addition, Duke Energy has worked for months with 24 major public water system operators as part of a drought management team. The team has shared extensive data about the drought situation and coordinated efforts to conserve water in the basin. This regional approach has resulted in more than 20 percent water savings through conservation efforts.

Major Water Suppliers' Next Steps

As part of the regional approach to ensuring water remains available for essential water use, owners of water intakes in the Catawba-Wateree River basin are finalizing contingency planning in order to protect the water supply.

- more –

Residents should contact their local water supplier with any questions about their drinking water.

Conservation

By reducing our individual water use we can help buy more time until needed rainfall can arrive in the region. Since power plants use water in their operations, it's important to conserve both water and electricity.

Visit Duke Energy's Carolinas Drought Information website – https://www.duke-energy.com/lakes/carolinas-drought-info.asp – for the latest information about water and energy conservation tips, lake levels and boat ramp closings.

Duke Energy's Carolinas' operations include nuclear, coal-fired, natural gas and hydroelectric generation. That diverse fuel mix provides nearly 21,000 megawatts of safe, reliable and competitively priced electricity to more than 2.3 million electric customers in a 24,000-square-mile service area of North Carolina and South Carolina.

Duke Energy, one of the largest electric power companies in the United States, supplies and delivers energy to approximately 4 million U.S. customers. The company has approximately 37,000 megawatts of electric generating capacity in the Midwest and the Carolinas, and natural gas distribution services in Ohio and Kentucky. In addition, Duke Energy has more than 4,000 megawatts of electric generation in Latin America, and is a joint-venture partner in a U.S. real estate company.

Headquartered in Charlotte, N.C., Duke Energy is a Fortune 500 company traded on the New York Stock Exchange under the symbol DUK. More information about the company is available on the Internet at: www.duke-energy.com.

###

Drought Update – Duke Energy Carolinas/Catawba Wateree Project

- Over a period of many years, Duke Energy built a system of lakes and reservoirs on the Catawba Wateree system to provide vital electricity for its 2.2 million customers in the Carolinas.

- Hydroelectric, coal and nuclear plants on the Catawba lakes generate 9,000 megawatts of electricity used by Duke's customers in the Carolinas.

- Duke Energy is committed to being a good steward of the lakes it built. Although built originally for power production, the lakes also provide other essential services in the region, including water supplies and drought management, water for industrial uses, protection of aquatic life and recreation.

- A key benefit of the reservoirs on the river system is their ability to buffer the effects of drought. In the Catawba-Wateree River basin, we're fortunate to have 11 dams to help manage the flow of water. Many free flowing creeks and streams have dried up.

- On Oct. 5, 2007, the United States Drought Monitor declared the region in an exceptional drought condition, the highest drought classification. Year to date, the area has only received 57% of long-term average rainfall, resulting in a 16-inch deficit for this time of year.

- We are in a more severe rainfall deficit this year than any of the years during the drought of record -- 1998 – 2002. Our current remaining usable storage (40%) is lower than the lowest point (47%) we saw during the 1998 – 2002 drought.

- Duke Energy has established a Catawba-Wateree Drought Management Advisory Group (CW-DMAG) which communicates at least weekly via conference call or meeting and more frequently via e-mails and phone calls. This group includes Duke Energy and 24 major public water system operators along the river system. This regional approach has resulted in more than 20% water savings through conservation efforts compared to normal use.

- During the week of Oct. 26, 2007, rainfall resulted in a 3% increase in useable storage in the basin. This was the first increase we have seen in months. Last week Duke reported that available storage was around 37%. Target for this time of year is about 70.5%.

- Weather forecasts indicate little or no rainfall in the near term, and meteorologists are predicting continued dry conditions. If these forecasts are right, lake levels will continue to decline – and stricter water restrictions will be necessary.

- Duke Energy is evaluating power plant operations and power purchase options to ensure we can provide uninterrupted electrical service for as long as possible.

- Although stringent water management and public conservation have delayed the need for additional water restrictions, Duke Energy estimates that without additional widespread rainfall, the triggers will be met in the basin for more restricted water use (Stage 4) in mid-Dec to mid-Jan.

- Stage 4 does not mean we'll be out of water – it means it is time to enact further water use restrictions to conserve water in the river for essential uses.

- In this stage, additional water use restrictions are implemented by public water utilities and would likely include restrictions for businesses and commercial users of water.

- Entering Stage 4 does mean that less time is remaining until the usable supply of water in the basin is depleted (i.e., when the most shallow intakes become uncovered.)

- Beginning, Oct. 30, 2007, Duke Energy plans to provide weekly updated estimates for Stage 4 timeframe. Although highly unlikely to occur, Duke Energy will announce worst case scenario for estimated range of days for the remaining usable storage in the Catawba-Wateree River basin on 10/30/07.

- By reducing our individual water use we can help buy more time until needed rainfall can arrive in the region. Since power plants use water in their operations, it's important to conserve both water and electricity.

- Duke Energy and major public water suppliers are developing contingency plans in the event that declining lake levels begin to uncover intakes. The plans are designed to mitigate effects to the region's drinking water and electricity supply.

- Continued conservation by communities and individuals is essential. We must all work together to get through this.

- Visit Duke Energy's Carolinas Drought Information website -- https://www.duke-energy.com/lakes/carolinas-drought-info.asp -- for the latest information about water and energy conservation tips, lake levels and boat ramp closings. Those with watercraft in the lakes who haven't taken appropriate action for storage should consider doing so. Extreme caution should be used if on Catawba-area lakes.

From Michael Thompson
Manager State Affairs, NC
Dominion

As the NC drought conditions relate to Dominion:

Low stream flows and water levels in the Kerr Reservoir affect Dominion's Lake Gaston and Roanoke Rapids Lake hydroelectric stations. Dominion is maintaining stream flows with minimum release at the present time.

Note New E-mail: Michael.Thompson@dom.com

2007

ENVIRONMENTAL REVIEW COMMISSION

NOVEMBER 27, 2007

MINUTES

MINUTES
ENVIRONMENTAL REVIEW COMMISSION
November 27, 2007

The Environmental Review Commission met Wednesday, November 27, 2008 at 9:30 a.m. in Room 544 of the Legislative Office Building. Co-Chairperson Lucy Allen presided.

Members present were Co-Chairperson Lucy Allen, Co-Chairperson Dan Clodfelter, Co-Chairperson Charlie Albertson, Co-Co-Chairperson Pryor Gibson, Senator Stan Bingham, Senator Katie Dorsett, Senator James Forrester, Representative Jim Harrell, Representative Carolyn Justice, Representative Pricey Harrison, Senator Eleanor Kinnaird, Representative Ruth Samuelson, Representative Edith Warren and Rep. Larry Womble. Staff members present were Commission Counsel George Givens, Assistant Counsel Jeffery Hudson, Assistant Counsel Jennifer McGinnis, Commission Analyst Jennifer Mundt, Research Assistant Mariah Matheson and Commission Clerk Jessica Kozma Bennett.

A meeting notice was distributed to staff, members and outside parties via regular mail and electronically and is included as an attachment in these minutes as **Exhibit A**. A reminder was sent electronically on November 26. The meeting agenda and visitor's registration sheets are attachments to these minutes and referred as **Exhibit B** and **Exhibit C**.

Rep. Allen called the meeting to order shortly after 9:30 a.m. and recognized her co-chairs Senator Albertson, Co-Chairperson Clodfelter and Representative Gibson. She then recognized Commission Counsel George Givens and asked for comments from co-chairs. Co-Chairman Clodfelter noted that the day's agenda was long. A new member, Representative Larry Womble, was recognized by Co-Chairwoman Allen and he introduced himself from District 71 in Winston-Salem. Co-Chairwoman Allen then reiterated the length of the meeting agenda and asked members to hold questions until after the meeting, if possible.

Mr. Givens thanked Chairwoman Allen and asked members to note a packet of "read only" reports distributed to members. These are included the minutes as **Exhibit D.** One report, "Annual report on the status of leaking underground storage tanks, the State cleanup funds and the Groundwater Protection Loan Fund, was included in the read only reports but was mistakenly recorded. Mr. Givens noted that the "leaking underground storage tanks" report was listed but indeed the physical report was not included in the "read only" packet.

Mr. Givens noted that on the agenda there was a presentation concerning the drought that followed after an extensive series of drought presentations at the October meeting. He continued saying that one speaker on today's agenda, Mr. Marc Thigpen, was invited on behalf of a request by Co-Chair Albertson (Agenda Item 6). He continued noting that there were three water reports on the day's agenda, and asked members to pay

attention to the last report for Item 7, an update on the implementation of the Lagoon Conversion Program and the Swine Methane Capture Pilot Program, adding that the program was authorized by Senate Bill 1465.

Mr. Givens noted several other items on the agenda including item 8, a report on the Catawba/Wateree River Basin Advisory Commission. He told members that there are two other river bi-state commissions and that there is a need simplify the membership selection process and gaining funding for public members, allowing the commissions to function more effectively. Continuing, he noted Item 9 of the agenda regarding pervious pavement legislation mandated in the 2007 Appropriations Act. Mr. Givens said that effective date was not until August 2008 and that discussion of the legislation would continue over several meetings. Mr. Givens then explained that Item 10 of the agenda, the Ecosystem Enhancement Program was added due to a fee increase. This increase, he added, was approved by the Rules Review Commission but received ten letters of objection and as a result will probably come before the 2008 Regular Session.

Mr. Givens continued to explain the agenda noting each item. He then told the Commission that as was authorized at the October ERC meeting, scoping sessions for a proposed water allocation study have been scheduled. At the time of this meeting, three cities, Charlotte, Asheville and Greenville were selected and dates also selected. He added that a meeting in Raleigh was likely as well as a meeting in Wilmington. The meetings are planned for public response to a draft contract between the State and the University of North Carolina at Chapel Hill School of Government. A meeting concerning the construction of artificial slopes follows the Asheville scoping session and is scheduled for January 10.

He continued explaining the agenda and noted for the record that a planning meeting was held at 10 a.m., Thursday, November 15 in room 605 of the Legislative Office Building.

Closing his comments, Co-Chair Allen thanked Counsel and recognized that Rep. Edith Warren was now in attendance. Rep. Samuelson asked if locations were selected for the scoping sessions in Charlotte, Greenville and Asheville. Mr. Givens replied that specific locations had not been decided upon but it was expected that locations would be selected within the upcoming week. Co-Chair Allen then called on the next item, newly appointed staff with the North Carolina Department of Natural Resources, and recognized DENR Secretary William G. Ross.

Mr. Ross thanked Co-Chair began introducing Richard Rogers, who recently was promoted to head the Clean Water Management Trust Fund. He previously worked as Assistant Secretary of Natural Resources. Replacing Rogers is Manly Wilder, who previously worked as director for the Department's Division of Soil and Water Conservation. And replacing him, he continued, is Pat Harris, who was promoted within the Department. He said that his new appointees represented a "wealth of experience and leadership." After discussing his appointees a bit more, the Chairperson moved to Item Five, an update on current drought conditions and recognized Thomas C. Fransen, Chief of the River Basin Management Section with the DENR Division of Water Resources. A copy of his presentation is included in the attachments and is labeled **Exhibit E.**

Co-Chairperson Allen thanked Mr. Ross for his comments and then recognized Mr. Thomas Fransen, Chief of the River Basin Management Section with the Division of Water Resources (DENR) to address the Commission on current drought conditions. Mr.

Fransen began his presentation by noting that his primary job this year was to coordinate with reservoir operators. He then said he would report previous and current drought conditions.

Showing a map from January 2007, Mr. Fransen pointed out that there was no drought. By August 21, however, the entire State had some level of drought, he continued, and added that October 23 had the worst levels. Water levels for the last 30 days were at 77 percent of normal capacity. For a 180-day perspective, the State has lower water levels than a previous drought in 1954. Mr. Fransen continued saying that he participated in a conference call every week to determine a national drought map and that he had been in discussion with officials from public water systems. His office is tracking 628 water systems, he said, and then showed consumption levels following the Governor's request for residents to conserve water. Water use had dropped, however, a recent rain created a backslide in consumption, a backslide created through false hopes that the drought had indeed ended. Drought conditions would continue through the next quarter, he said, adding that there would be rain, but not enough to stabilize water levels.

Mr. Fransen concluded his presentation and Co-Chairperson Allen thanked him. Robin Smith, Assistant Secretary for Environment with DENR was then recognized by the Co-Chairperson. Ms. Smith began saying that she would update the Commission on activities since the last ERC meeting. Her office is largely working with water systems categorized as Tier 1, the most vulnerable water supply systems. Health and Water Resources officials are meeting with staff from each public water system to determine what alternative supplies may be available. She continued saying that her office had specifically worked with some systems to expedite permitting and funding of water-related infrastructure projects, noting projects in Siler City, Sanford, Rocky Mount and Goldsboro. The expediting has allowed Siler City to connect with Chatham County water lines, Goldsboro into the Wayne County public system, and Rocky Mount into the City of Wilson system. She then noted that the City of Raleigh is reducing its water consumption from Falls Lake and is supplementing the deficit with water from Lake Wheeler and Lake Benson.

Moving to her next topic, Ms. Smith said that at the last meeting she discussed gaps in drought management. One gap she has recently discovered, she continued, is the "obvious lack of current information of water use" from public water systems. Until the Governor's call to conserve water, systems had no requirements to report usage.

To remedy this, Ms. Smith suggested creating and maintaining an electronic system and database that could receive all usage information. She said that one was not put in place before because there had been no regulatory concern to do so.

In calling for questions from Commission members, Co-Chairperson Clodfelter asked about oversight of intake construction and levels, and cited high intakes on the Catawba River. Sen. Clodfelter then asked if the State needed "assist or compel" the relocation of intakes. Mr. Fransen said a pending study would look at that issue. Ms. Smith added that many impoundments are often licensed for energy uses or managed by the Army Corps of Engineers, in such impoundments federal approval is needed for any changes. Co-Chairperson Clodfelter followed up saying that the State "need(s) to leave impoundments on the table." Mr. Givens added that placement of intakes is a matter of regulatory concern. Ms Smith replied that she was not sure of the answer but would

assume that Mr. Givens comment is correct. Mr. Givens then added that there would later be legal and engineering considerations.

Senator Forrester asked Ms. Smith if DENR had guidelines for restructured well water. Ms. Smith replied that private wells were a current issue for DENR because of the State's lack of regulatory authority, Co-Chairperson Allen asked about car washes using well water and if the State had any authority over such businesses. Co-Chairperson Gibson then said he would like to meet with staff and added that he felt that during the upcoming 2008 session, legislators will deal with the issue of regulating drinking wells.

Co-Chairperson Gibson noted that he was concerned with the economic impact that drought will have. Representative Harrison asked about the PCS Phosphate Plant in Aurora and if the State had yet addressed a water rights issue. Ms. Smith replied that she did not know. Representative Samuelson asked if using a private well impacted other surface waters, of which Ms. Smith replied it did. Representative Allen thanked Mr. Fransen and Ms. Smith.

Mr. Marc Thigpen was then recognized by Co-Chairperson Allen. Mr. Thigpen is owner of Thigpen Farms in Duplin County and is an advocate of global positioning systems used in fertilizing farms and golf courses. Mr. Thigpen opened saying he was here to "educate the committee" on the potential of nutrient management in global agriculture. He said that water quality was essential for the future of farming. When Mr. Thigpen began using nutrient management on his farm, he witnessed a 30 percent reduction in fertilizer costs after the first year, and was one of possibly only five growers using nutrient management across the State. Mr. Thigpen also noted higher yields because of nutrient management.

He continued saying he realized that he could take nutrient management to a higher level: golf courses. At this point in his presentation Mr. Thigpen showed a series of golf course photos. His presentation is included in the minutes as **Exhibit F.** He noted that benefits for both golf courses and farms include optimum growth performance and good environmental stewardship. He continued and discussed his business' successful projects using nutrient management the State.

As his slide presentation continued, he showed a slide of Eagle Point Golf Course and application maps from 2004. Ending his presentation, Mr. Thigpen said "precision farming is the future ... it will be worldwide ... it will be global." Lastly, Mr. Thigpen noted that Co-Chairperson Albertson's farm was now under nutrient management.

Co-Chairperson Allen then called on Mr. Manly Wilder, Assistant Secretary for Natural Resources from DENR to discuss precision farming under the Agriculture Cost Share Program. Mr. Wilder began noting the precision farming would be agriculture's future.

Mr. Manly's office determined a need to look at precision farming a few years before and DENR sat up experiment station in Eastern North Carolina. Three conservation districts, Beaufort, Hyde and Pitt have asked to participate in the program, he said, and said that nutrient management was much more applicable in the larger fields of Eastern North Carolina.

Co-Chairperson Albertson thanked Mr. Thigpen and Mr. Wilder. She then recognized Mr. Paul E. Rawls to discuss an annual report on water quality law compliance and enforcement for water discharging facilities. Mr. Rawls is Chief of the

Surface Water Protection Section with the Division of Water Quality (DENR). A copy of his presentation is included in the minutes as **Exhibit G.**

Opening his presentation Mr. Rawls noted that there are 1319 individual permitted facilities in North Carolina. Of those, 296 are municipal facilities and 1023 are private. Some communities had interconnecting facilities, he said, adding that the number of facilities declined especially because of closings in the textile industry. As for inspecting these facilities, in 2007 there were 1293 inspections with 613 various enforcements. Total civil penalties levied were $844,181, with $587,144 collected.

In showing a slide with penalty assessment, Mr. Rawls said that assessment trends remained steady and his office had a 93 percent compliance rate.

For the future, a letter was mailed May 31 to all collection systems. The letter informed facility managers that as of June 1, oversight would be "ramped up," including more frequent notices of violation.

Mr. Todd A. Bennett was then recognized to present to the Commission an "Animal Feeding Operations Compliance and Inspection Report." A copy of this report is included in the minutes as **Exhibit H.** Mr. Bennett began his presentation noting permitting actions during the past fiscal year of 2006-2007, including 46 swine permits, nine cattle permits, one poultry permit and zero horse permits. He added that most permits were issued because of "changes of ownership and operations," and seldom are there permits for new operations or expansions.

In addressing the number of inspections, he said required inspections slightly dropped from 2500 to 2486. Closing operations and rescinding permits add to the drop, he said, and began discussing what issues were determined from inspections. The most noted issues among inspections were inadequate freeboard and evidence of over-applications. This accounted for a majority of violations, some 187 and 143 respectively.

Mr. Wilder and Patricia K. Harris, Director of the Division of Soil and Water Conservation (DENR) were recognized by the Co-Chairperson to give an update on the implementation of the Lagoon Conversion Program and the Swine Methane Capture Pilot Program (**Exhibit I**). Mr. Wilder's title is noted previously in these minutes.

Mr. Wilder began saying that authorizing legislation for the program was "landmark legislation for its impact on the environment." He said he was pleased with the cooperation among participating parties, the State, environmental groups, North Carolina State University and others, and noted that the program was a "tremendous effort" and "making excellent progress."

Ms. Harris confirmed Mr. Wilder's comments by saying that the program was making good progress and that the proposed rule could be adopted in early 2009. She then directed Commission members to look at a flow chart included in Exhibit J describing the process of program application, selection, funding and implementation. Tax credits and markets for value added products are currently being looked at, she said.

Representative Justice thanked Senator Albertson for bringing such legislation forward, saying that the program was something for the General Assembly to be proud of.

Mr. Fransen was then again recognized by Co-Chairperson Allen to discuss a report on the Catawba/Wateree River Basin Advisory Commission. Mr. Fransen's title is given previously in the minutes. Mr. Fransen began saying that he was happy to discuss something other than the drought.

The advisory commission, he said, was very active and leading the State in managing resources. He then reviewed a handout included in the minutes as **Exhibit J.** At the commission's January 5, 2007 meeting, a report was given on water use permitting legislation currently under consideration in the South Carolina General Assembly. The commission also adopted a resolution urging the North Carolina Environmental Management Commission to delay action on a proposed interbasin transfer from the Catawba basin as a water source for Concord and Kannapolis. At a second meeting held April 27, 2007, the commission reviewed the status of water management bill at both general assemblies. During that same meeting the commission discussed relicensing Duke Energy reservoirs in the basin. At their last meeting October 5, 2007 the commission updated members of a bill being considered in South Carolina to establish a statewide water use permitting system.

Co-Chairperson Clodfelter said that the next meeting, to be held in January, will focus on establishing parameters for interstate water allocation. He added that there is a good interest in reaching consensus agreement and that his personal hope is for recommendations that make a possible outline. All working with the river basin commission hope for resolution rather than litigation, he said.

Mr. Thomas A. Reeder was then recognized to present and comment on the use of pervious pavement for vehicle parking. This is required from Section 6.22 of Session Law 2007-323. A copy of his presentation is included in the minutes as **Exhibit K.** Mr. Reeder began noting that the legislation applies statewide and affects all new uncovered residential and commercial parking areas. Its requirements include that 20 percent of parking areas must be permeable pavement or the runoff from 20 percent of that area must go into a stormwater management system. He then gave an example of a depleted stream near a shopping center to show the impact of impervious pavement.

Mr. Reeder noted that gravel was not considered permeable because it can become compacted. He then explained that permeable pavement included either porous asphalt or porous concrete and ended his comments saying that permeable pavement could help reduce impacts from the drought.

Speaking of her concerns with the legislation, Ms. Elizabeth Dalton, director of government relations for the North Carolina Retail Merchants Association was recognized. Ms. Dalton began saying she understood the need to reduce stormwater runoff, but that she did not see any reason why the legislation should not apply to churches, schools, day cares and other facilities considered neither commercial or residential. She continued saying that there could be limitations for use, particularly with stores that have deliveries and stores with people loading purchases into vehicles. Also of concern, she noted is that there are very few contractors in the State qualified to install such pavement.

Mr. Duane Coen, Engineering Manager for Lowe's Companies was then recognized. He began saying that "Lowe's is committed to being a responsible corporate citizen." His company implements stormwater prevention programs at their stores in the western hemisphere. Stores control and treat runoff by using lots of standard systems and some surface retention. In limited areas stores have rainwater harvesting and reuse, and in some other areas green roofs are included in construction plans. He also noted that to his knowledge there were only two or three contractors qualified to install such pavement.

A last speaker on the subject, Mr. Todd Simmons of Freeland and Kauffman was recognized. Mr. Simmons said he works with national retailers and now better understands the legislation. His concerns included water quality and inconsistent application of the regulation. He added that he was glad officials at DENR would allow alternative suggestions. Co-Chairperson Allen asked for questions.

Representative Samuelson asked Mr. Coen if Lowe's stormwater management systems are meeting the 20 percent reduction in runoff. Mr. Coen said they were not. Representative Gibson said that an immediate workgroup of building code professionals, residents from East and West need to meet. He followed saying he wanted to know "where rule making is going with this."

Senator Dorsett asked if existing parking areas were grandfathered. Mr. Reeder replied that they were. Monitoring, enforcement and implementation were currently the most relevant issues, he said, and his division was working to come up with a methodology allowing outreach with local governments.

Senator Dorsett asked if cooperation will begin October 1, 2008. Mr. Reeder replied that he hoped to work with local governments during the summer. Co-Chairperson Clodfelter asked about areas with heavy clay such as Charlotte, in areas of which permeable pavement cannot be installed.

Mr. Reeder was thanked by the Co-Chairperson. Mr. William D. Gilmore, director of the Ecosystem Enhancement Program (EEP) (DENR) and Mr. Wilder were recognized to present a report on the EEP program and discuss an in-lieu fee for the program. Mr. Wilder presented two other items on the day's agenda.

Mr. Gilmore began saying that the program was "receiving accomplishments" including national and state recognition, participation in the Top 50 Innovative Government Program through Harvard University's Kennedy School of Government, a year of mitigation with the Department of Transportation, and being named the state Natural Resources Agency of the Year. He thanked fellow employees and began to explain the program. The EEP report is included in the minutes as **Exhibit L.** Mr. Gilmore discussed the EEP's four programs, the Memorandum of Agreement (MOA) Stream and Wetland Program for NCDOT, the MOU Stream and Wetland Program, the Riparian Buffer Program and the Nutrient Offset program. He then reviewed funds included on pages three and four of his report. He then covered his Executive Summary found on pages I and II of his report.

Mr. Manly told Commission members that the in-lieu fee program allows military bases, school systems and the like to pay EEP. EEP, in turn satisfies the responsibility of mitigation, allowing development to ensue. As a totally fee-based program, costs for stream restoration ran seventy dollars more than what fees charged ($223 per linear foot charge compared to a $293 actual cost). Program costs have increased, he said, because of increases in design, land and construction costs. EMC approved a two-tier fee process, but the approval will come before the legislature for review as has received more than 10 objections.

Mr. Manly concluded that the EMC and the program are taking a guarded approach in accepting new mitigation.

Co-Chairperson Allen recognized Mr. William E. Holman, Emeritus Chair of the State Water Infrastructure Commission to present a report by that commission on its activities and findings.

Mr. Holman began with "quick refreshers" noting that the commission was created in 2005, and the commission's purpose is to identify the State's water infrastructure needs and develop a plan to meet needs as well as monitor implementation of that plan. He also noted federal funding for State infrastructure projects.

In 2007, the commission decided to focus efforts on regional collaboration and partnerships, and found that although there is some general encouragement, there is no state policy to make that happen. A copy of Mr. Holman's report is included in the minutes as **Exhibit M.**

Continuing to discuss regional collaborations, Mr. Holman noted that most regional efforts organize in response to local needs and that state funding is the only way to recognize the value of regional collaborations. Mr. Holman then reviewed water and sewer regionalization, included in Exhibit N. For water, 48 percent produce for own use, purchase none and sell none and 26 percent purchase all water. For sewer, 71 percent treat either their own sewage or treat their own and other systems sewage and 29 percent have sewage treated by others.

Mr. Holman reviewed benefits of regional collaborations, including reducing the numbers of treatment plants regulated by the State, making better tolerance of emergencies. Barriers included funding and higher per unit costs in smaller regions, "emotional" barriers and regulatory barriers.

Other barriers include imperfections in systems, such as lots of leaks or a lack of sound fiscal management. Also, he noted, are systems unable to collaborate due to topography and distance between systems.

Mr. Holman then reviewed nine recommendations included in Exhibit N and concluded his discussion noting the importance of working through drought issues.

Senator Kinnaird commented that some years ago another senator filed a collaboration bill that provoked "emotional" issues between systems.

Jean Crews-Klein, commission staff, said the commission had discussed the relationship between regional water planning and the Interbasin Transfer Act.

Co-Chairperson Allen recognized Co-Chairperson Clodfelter. Co-Chairperson Clodfelter asked to read a finding by the North Carolina General Assembly. In reading, he read "findings by the North Carolina General Assembly (show) the existing pattern of public water supply development in North Carolina is dominated by small systems serving few customers. Of the 1782 public water systems on record, according to the Department of Health and Human Services, 80 percent were serving less than 1000 people each. These systems are underfinanced, inadequately designed and maintained, difficult to coordinate with regional systems and in general inferior to larger systems serving larger communities."

Senator Clodfelter continued reading the findings that called for county-wide or regional systems for better quality and drought control. He then stopped reading and gave the date of the report: 1971. Senator Clodfelter continued saying that the recommendations he heard at the meeting were "tepid after 36 years." A time for encouragement, education and explaining had long since passed, and that the General Assembly did recognize a need and had not yet addressed it. He ended saying he hoped to get more aggressive about recommendations.

Due to time constraints, Item 12 was moved from the agenda and will be taken up at the December meeting.

The meeting was adjourned at 1:42 p.m.

Co-Chair Lucy Allen
Presiding

Co-Chair Charlie Albertson

Jessica Kozma Bennett

Co-Chair Pryor Gibson

Exhibit A

General Assembly of North Carolina

Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

CO-CHAIRS
SENATOR CHARLES W. ALBERTSON
SENATOR DANIEL G. CLODFELTER

REPRESENTATIVE LUCY T. ALLEN
REPRESENTATIVE PRYOR A. GIBSON

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COMMISSION ASSISTANT

JESSICA BENNETT
COMMISSION CLERK

9 November 2007

TO: Members of the Environmental Review Commission
Interested Parties

FROM: George F. Givens, Commission Counsel
Jessica Bennett, Commission Clerk

RE: **Notice of Commission Meeting**
Notice of Planning Meeting
Schedule of Future Meetings
Meetings of Interested Parties (605 Working Groups)
Additional Information

COMMISSION MEETING:

The Environmental Review Commission (Commission) will meet at 9:30 a.m. Tuesday 27 November 2007 in Room 544 of the Legislative Office Building in Raleigh.

At this meeting, the Commission will begin or continue studies for which the Commission is responsible, hear reports from State agencies, discuss topics to be considered at future meetings, and attend to other matters. Listed below are potential agenda topics for this meeting and for future meetings. More specific information regarding the agenda for the 27 November meeting of the Commission will be developed at the staff planning meeting discussed below. Commission Staff may publish a revised notice/draft agenda following the staff planning meeting if circumstances permit.

STUDIES

1) Issues related to the franchise of solid waste management facilities by units of local government. (S.L. 2007-550, Sec. 18)

2) Issues related to the transportation of solid waste by rail or barge, including the extent to which regulation of the transportation of solid waste by rail or barge may be preempted by federal law. (S.L. 2007-550, Sec. 18)

3) Issues related to the use of pervious surfaces for vehicle parking areas, including associated costs, impact to the environment of stormwater runoff, and practices of other states with regard to stormwater best management practices. (S.L. 2007-323, Sec. 6.22.(b))

4) Allocation of surface water resources and their availability and maintenance in the State, including issues related to the transfer of water from one river basin to another, the withdrawal of water for consumptive use, and the accuracy and tolerance of equipment used to measure the flow of water transferred from one river basin to another river basin. (S.L. 2007-518, Sec. 1.(a))

5) Preparation of a revised map entitled "Major River Basins and Sub-basins in North Carolina" as a recommended replacement for the map referenced in G.S. 143-215.22G. The revised map shall define the extent to which any river basin that encompasses any river that flows from another state into North Carolina or that flows from North Carolina into another state extends into an adjacent state. (S.L. 2007-518, Sec. 1.(b))

REPORTS *(Report due dates are indicated in parentheses)*

General/Miscellaneous:

6) Annual report on the One-Stop Permit Assistance Program on the number of environmental permits that took more than 90 days to issue or deny, types of permits, reasons for extended processing time, and how the time used to issue or deny the permits compared with projected time provided to the applicant by DENR. (143B-279.12(e)) *(1 October)*

7) Annual report on the findings and recommendations on the success of the express permit and certification review program. (G.S. 143B-279.13(c)) *(1 March)*

8) Annual report on litter enforcement, prevention, and removal efforts. (G.S. 147-12(b)) *(1 March)*

9) Annual report on the evaluation and adjustment of the boundaries of the area served by each Metropolitan Planning Organization. (G.S. 136-202(d)) *(1 November)*

10) Annual report on the cost of the State's environmental permitting program (G.S. 143-215.3A(c)) *(1 November)*

Air Quality:

11) Annual report on the cost of the Title V program. (G.S. 143-215.3A(c)) *(1 November)*

12) Annual report on implementation of S.L. 2002-4 (Clean Smokestacks Act). (S.L. 2002-4, Sec. 14) *(1 June)*

13) Annual report on the desirability of requiring and feasibility of obtaining reductions in emissions of NOx and SO2 beyond those required by the Clean Smokestacks Act. (S.L. 2002-4, Sec. 11) *(1 September)*

Coastal Management:

14) Annual report on the progress in developing and implementing the Coastal Habitat Protection Plans and reports on the completion or substantial revision of each draft Coastal Habitat Protection Plan. (G.S. 143B-279.8(e) and G.S. 143B-279.8(f)) *(1 September)*

15) Annual report by the Coastal Resources Commission evaluating the impacts on water quality and other environmental impacts from new urban waterfront area development. (S.L. 2004-117, Sec. 4) *(1 October)*

Hazardous Waste Management:

16) Annual report on the Inactive Hazardous Sites Program. (G.S. 130A-310.10) *(1 October)*

17) Annual report on implementation of the Resident Inspectors Program at commercial hazardous waste facilities. (G.S. 130A-295.02(m)) *(1 October)*

18) Report of Superfund cost share fund expenditures for cleanup of sites on the National Priorities List. (S.L. 1999-237(15.6)(b)) *(Floating, within 30 days of expenditure)*

19) Annual report on the North Carolina Hazardous Waste Management Plan. (G.S. 130A-294(i)) *(1 October)*

20) Annual report on the Effectiveness of the Brownfields Property Reuse Act. (G.S. 130A-310.40) *(1 October)*

Parks and Recreation / Land Conservation:

21) Parks and Recreation Trust Fund Annual Report, Fiscal Year 2003-2004. (G.S. 113-44.15(c)) *(1 October)*

22) North Carolina Natural Heritage Trust Fund Award Report, Fiscal Year 2005-2006. (G.S. 113-77.9(e)) *(Semi-annually, within 30 days of each revision)*

23) Annual report on progress towards attaining the State's goal of protecting one million acres of farmland, open space, and conservation lands. (G.S. 113A-241(c)) *(1 October)*

24) Annual report on implementation of the Conservation Easements Program and inventory of all conservation easements held by DENR. (G.S. 113A-235(c)) *(1 October)*

25) Annual report on the activities of the North Carolina Agricultural Development and Farmland Preservation Trust Fund and Advisory Committee, the agriculture easements purchased, and agricultural projects funded during the previous year. (S.L. 2007-495, Sec. 23 *(May 1)*

Water Quality:

26) Interim report on the pilot program to streamline the process for the issuance of an improvement permit or an authorization to construct for an on-site subsurface wastewater system in certain counties by authorizing local health departments, authorized agents of DENR, and licensed soil scientists to complete soil and site evaluations in participating counties. (S.L. 2006-136, Sec. 3) *(October 1)*

27) Annual report on permitting and inspecting animal waste management systems/Animal Waste Compliance Report. (G.S. 143-215.10M) *(1 October)*

28) Semiannual report on the pilot program for inspection of animal waste management systems including a comparison of the costs of conducting operations reviews and inspections under the pilot program with the costs of conducting operations and inspections under G.S. 143-215.10D and G.S. 143-215.10F. *(15 October)*

29) Annual report on the compliance/enforcement of water quality laws for facilities that discharge into surface waters. (G.S. 143-215.9A) *(1 October)*

30) Annual report on the Wastewater Discharge Elimination Program. (S.L. 2001-452, Sec. 2.9) *(15 October)*

31) Annual report on Basinwide Water Quality Management Plans. (G.S. 143-215.8B) *(1 October)*

32) Annual report on the Dry-Cleaning Solvent Cleanup Program. (G.S. 143-215.104U) *(1 October)*

33) Annual report on the status of leaking petroleum underground storage tanks, the State cleanup funds, and the Groundwater Protection Loan Fund. (G.S. 143-215.94M) *(1 September)*

34) Annual report by the Roanoke River Basin Bi-State Commission. (G.S. 77-98) *(1 October)*

35) Annual report by the Yadkin-Pee Dee River Basin Advisory Commission. (G.S. 77-117) *(1 October)*

36) Annual report by the Catawba/Wateree River Basin Advisory Commission and the Yadkin/Pee Dee River Basin Advisory Commission. (G.S. 77-117) *(1 October)*

37) Implementation of the Ecosystem Enhancement Program and use of the Ecosystem Enhancement Fund, including inventory of property and easements. (G.S. 143-214.13) *(1 November)*

Water Quantity:

38) Annual report by the State Water Infrastructure Commission on its activities and findings, includes any recommendations of the Commission that require action by the General Assembly to implement. (G.S. 159G-67) *(1 November)*

PLANNING MEETING:

To facilitate development of the agenda for the 27 November meeting of the Commission, to begin planning for subsequent meetings of the Commission, and to receive input from interested persons regarding the work of the Commission, the Commission Counsel will hold an informal planning meeting at **10:00 a.m. on Thursday 15 November 2007 in Room 605 of the Legislative Office Building**. Persons who wish to participate in the development of the agenda for meetings of the Commission, or who are interested in any matter before the Commission, are invited to attend.

SCHEDULE OF FUTURE MEETINGS:

Below is a schedule of meetings of the Environmental Review Commission for December 2007 through May 2008. **This schedule is tentative and subject to adjustment.** For planning purposes, however, please reserve these dates. This schedule may be modified to allow for out-of-town business meetings or site visits and in the event that it becomes necessary to cancel a scheduled meeting due to hazardous weather conditions.

Please note the following:

1. Meetings of the Commission normally begin at 9:30 a.m., include a lunch break, and run until mid-afternoon. Please plan on meeting from 9:30 a.m. until at least 3:30 p.m. Meetings of the Commission are open to the public.

2. Staff planning meetings normally begin at 10:00 a.m. and adjourn by noon. Staff planning meetings are informal and are open to the public. Commission members are not expected to attend these meetings.

3. The 2008 Regular Session is scheduled to begin at 12:00 noon on Tuesday 13 May 2008. The Commission may meet shortly after the beginning of the session to complete ongoing work and to consider any legislative proposals and recommendations and may meet at other times during the legislative session.

Commission Meeting	Location	Staff Planning Meeting	Location
Wednesday 19 December 2007	544 LOB	Wednesday 5 December 2007	605 LOB
Wednesday 23 January 2008	544 LOB	Friday 11 January 2008	605 LOB
Thursday 14 February 2008	544 LOB	Tuesday 5 February 2008	605 LOB
Tuesday 18 March 2008	544 LOB	Friday 7 March 2008	605 LOB
Thursday 10 April 2008	544 LOB	Friday 28 March 2008	605 LOB
Friday 9 May 2008	544 LOB	Tuesday 29 April 2008	605 LOB
Wednesday 14 May 2008	544 LOB		

MEETINGS OF INTERESTED PARTIES (605 WORKING GROUPS):

The Commission Counsel will hold meetings of interested parties on specific topics as indicated below:

Underground Storage Tank Working Group
2:00 p.m. Monday 17 December 2007 – 605 Legislative Office Building

ADDITIONAL INFORMATION:

If you have questions related to the Commission, please feel free to contact the Commission Counsel or other Commission staff at (919) 733-2578.

Exhibit B

General Assembly of North Carolina

Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

CO-CHAIRS
SENATOR CHARLES W. ALBERTSON
SENATOR DANIEL G. CLODFELTER

REPRESENTATIVE LUCY T. ALLEN
REPRESENTATIVE PRYOR A. GIBSON

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MARIAH B. MATHESON
COMMISSION ASSISTANT

JESSICA BENNETT
COMMISSION CLERK

AGENDA

9:30 a.m. Tuesday 27 November 2007
Room 544 Legislative Office Building
Raleigh, North Carolina

1. Call to order
   Representative Lucy T. Allen, Presiding

2. Introductory remarks by Cochairs *(5 minutes)*
   Representative Lucy T. Allen
   Representative Pryor A. Gibson
   Senator Charles W. Albertson
   Senator Daniel G. Clodfelter

3. Report to the Commission and explanation of agenda items *(10 minutes)*
   George F. Givens, Commission Counsel

4. Introduction of newly appointed staff in the Department of Environment and Natural Resources *(5 minutes)*
   William G. Ross, Jr., Secretary
   DENR

5. Update on current drought conditions in light of conservation efforts and recent rain events; process for development of recommendations to improve future responses to drought conditions *(30 minutes)*
   Thomas C. Fransen, Chief
   River Basin Management Section, Division of Water Resources, DENR

   Robin W. Smith, Assistant Secretary for Environment
   DENR

Duane A. Coen, Engineering Manager *(10 minutes)*
Lowe's Companies, Inc.

Todd Simmons, PE *(10 minutes)*
Freeland & Kauffman, Inc.

10. Report on the Implementation of the Ecosystem Enhancement Program and use of the Ecosystem Enhancement Fund, including inventory of property and easements and a discussion of the in-lieu fee program (G.S. 143-214.13) (*20 minutes*)
    William D. Gilmore, Director
    Ecosystem Enhancement Program, DENR

    Manly S. Wilder, Assistant Secretary for Natural Resources
    DENR

11. Annual report by the State Water Infrastructure Commission on its activities and findings, including any recommendations of the Commission that require action by the General Assembly to implement (G.S. 159G-67) (*20 minutes*)
    William E. Holman, Emeritus Chair
    State Water Infrastructure Commission

12. Hazardous waste management (*30 minutes*)
    Annual report on the implementation of the resident inspectors program for commercial hazardous waste facilities including implementation of the amendments to the program made by S.L. 2007-107 (G.S. 130A-295.02(m)) *(10 minutes)*
    Elizabeth W. Cannon, Chief
    Hazardous Waste Section
    Division of Waste Management, DENR

    Annual report on the Inactive Hazardous Sites Program including discussion of the reorganization of contaminated sites program in the Department (G.S. 130A-310.10) *(10 minutes)*
    Dexter R. Matthews, Director
    Division of Waste Management, DENR

    Report on the effectiveness of the Brownfields Property Reuse Act (G.S. 130A-310.40) *(10 minutes)*
    Dexter R. Matthews, Director
    Division of Waste Management, DENR

13. Commission discussion and announcements

14. Adjourn

6. Discussion of precision farming using the Global Positioning Systems (GPS) to control the application of fertilizers *(30 minutes)*

   Marc Thigpen, Owner
   Thigpen Farms, Duplin County

   Discussion of precision farming using GPS under the Agriculture Cost Share Program

   Manly S. Wilder, Assistant Secretary for Natural Resources
   DENR

7. Water quality reports *(30 minutes)*

   Annual report on compliance with and enforcement of water quality laws for facilities that discharge into surface waters (G.S. 143-215.9A) *(10 minutes)*

   Paul E. Rawls, Chief
   Surface Water Protection Section, Division of Water Quality, DENR

   Annual report on permitting and inspecting animal waste management systems (Animal Waste Compliance Report) (G.S. 143-215.10M) *(10 minutes)*

   Todd A. Bennett, Supervisor
   Animal Feeding Operation Unit, Aquifer Protection Section,
   Division of Water Quality, DENR

   Update on the implementation of the Lagoon Conversion Program and the Swine Farm Methane Capture Pilot Program (Section 2 and Section 4 of S.L. 2007-523) *(10 minutes)*

   Manly S. Wilder, Assistant Secretary for Natural Resources
   DENR

   Patricia K. Harris, Director
   Division of Soil and Water Conservation, DENR

8. Report on the Catawba/Wateree River Basin Advisory Commission (G.S. 77-117) *(10 minutes)*

   Thomas C. Fransen, Chief
   River Basin Management Section, Division of Water Resources, DENR

9. Presentation and comment on the use of pervious pavement for vehicle parking areas as required by Section 6.22.(a) of S.L. 2007-323 *(35 minutes)*

   Thomas A. Reeder, Chief *(10 minutes)*
   Wetlands and Stormwater Branch, Surface Water Quality Section,
   Division of Water Quality, DENR

   Elizabeth Dalton, Director *(5 minutes)*
   Government Relations, North Carolina Retail Merchants Association

Exhibit C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION November 27, 2007

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Bill Ross	NC DENR
Bruce Thompson	Parker Poe
Don McCorquodale	Manning Fulton
Lori Ann Harris	EA/A
Paul Rawls	NC DENR DWQ
Todd Bennett	NC DENR - DWQ
Todd Simmons	Freeland & Kauffman, Inc. Greenville, SC
Dan Crawford	Electricities of NC
Jim Kuszaj	MCIC
Steve Wall	DENR
Jeff Manning	DENR - DWQ

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION November 27, 2007

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
John Preyer	NC Environmental Restoration 1101 Haynes St Raleigh 27604 / Assoc.
DAVID COOK	LOWES COMPANIES, INC.
Jay Stem	NC Aggregates Assoc
Mandy Wilder	DENR
Pat Harris	DENR
Amy Simes	DENR
Amy Picke	Southern Environmental Law Center
Jonin Shaw	Self
Tom Fransen	DENR - DWR
Robin Smith	DENR
Sharon Strauld	SED
Beth Warren	AGO

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION November 27, 2007

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NAME	FIRM OR AGENCY AND ADDRESS
William Brent	Cemca 1801 J.N. Pease, Chm. 28262
Jean Cleveland	State Water Infrastructure Com.
Tom Benn	NC Envited Def NC Sustainable Energy Assoc
T Reeder	NC DWQ
Scott Mooney	Insider
Doug Hunt	NC Petroleum & Convenience Marketers
Nancy Thompson	Weyerhaeuser
Tad Boggs	NCDENR
Jim Stanfill	NCDENR-EEP

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION November 27, 2007

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Elizabeth Self	DENR
Christa Wagner	NC Sierra Club
BILL GILMORE	DENR-EEP
DONNIE REDMOND	DENR DAQ
Fred Bon	Bon Asso.
David Knight	TNC
Vernon Cox	DSWC
Jim Lowry	NCVCA
Jennifer Bumgarner	Gov's Office
Sara McKay	Gov office
Lene Winn	NCSEA

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION November 27, 2007

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Bill Laxton	DENR Dep Sec.
Leslie Kleczek	Nicholas Institute, Duke
Richard Rogers	DENR.
[illegible] Holmes	Nicholas Inst / Duke Univ
Donna Greene	Hunton & Williams
Susanne Klimek	DENR EEP
Barbara Satter	DENR EEP
Elizabeth Taylor	Smith Moore
Patrick Buffkin	Nelson Mullins
Susanne Steeb	NCRUT

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION November 27, 2007

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John Pollard	VCAPPA
Gayle Wilson	Orange County & SWANA
Preston Howard	MCIC
Andy Ellen	NCRMAF
Mary Maclean Asbill	Kilpatrick Stockton
[illegible] Taylor	DCDPI
Ben Matthews	NC DPI
Kathy Hawks	Progress Energy
JOHN M. GARDNER	RSG ENGINEERS; RALEIGH
Leanne Mabre	DENR
MICK GREESON	PROGRESS ENERGY

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION November 27, 2007

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
DAVID BARNES	Poyner + Spruill
Lee-Ann C	DEIC
Gordon McKeithan	NC Conservation Network
Emily Atkinson	Capstrat
Thomas Moore	Edwards : Wells
Roger Knight	Wyrick Robbins Yates & Ponton
Wendy Kelly	DENR
Cathy Cralle Jones	Law Office of Bryan Brice
Amy McConkey	Smith Anderson
[illegible]	Poyner + Spruill
Dagwood Bumstead	Schultz

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION November 27, 2007

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Anthony Allison	NCFB
Dewitt Hawes	NC Dept of Ag - ADEP/Vest
Doug Lassiter	NC Septic Tank Assoc
Russ Dubisky	IFNC
Elizabeth Dutton	NCRMA
Amy Fullbright	Hunton& Williams
Lisa Martin	NC Home Builders
Angie Whitener	NC Pork Council
John Goodman	NC Chamber
Sandy Sands	WCSR
Jennifer Wills	Wake County Govt.

Exhibit D

General Assembly of North Carolina

Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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REPRESENTATIVE LARRY W. WOMBLE

GEORGE F. GIVENS
COMMISSION COUNSEL
545 LEGISLATIVE OFFICE BUILDING
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JENNIFER L. McGINNIS
ASSISTANT COMMISSION COUNSEL

JENNIFER R. F. MUNDT
COMMISSION ANALYST

MARIAH B. MATHESON
COMMISSION ASSISTANT

JESSICA BENNETT
COMMISSION CLERK

27 November 2007

MEMORANDUM

To: Members of the Environmental Review Commission
From: Jennifer Mundt, Commission Analyst
Re: Reports to the Commission

The following reports have been submitted by the Department of Environment and Natural Resources (DENR) to the Environmental Review Commission (Commission) since the last reports distribution on 31 October 2007. These reports are designated as read only and are attached to this memorandum:

1) Annual report on the implementation of S.L. 2002-4 (Clean Smokestacks Act). 1 June 2007. Authority: S.L. 2002-4, Sec. 14.

2) Annual report on the desirability of requiring and feasibility of obtaining reductions in emissions of NO_x and SO_2 beyond those required by the Clean Smokestacks Act. 1 September 2007. Authority: S.L. 2002-4, Sec. 11.

3) Annual report on the North Carolina Hazardous Waste Management Plan. 1 October 2007. Statutory Authority: G.S. 130A-294(i).

4) Semiannual reports on the pilot program for inspection of animal waste management systems. 15 April 2007 and 15 October 2007. Authority: S.L. 2007-536, Sec. 2.(a).

The following reports have been submitted by the Department of Environment and Natural Resources to the Commission and will be distributed in connection with today's agenda as follows:

1) Annual report on the compliance/enforcement of water quality laws for facilities that discharge into surface waters. 1 October 2007. Statutory Authority: G.S. 143-215.9A. ***Agenda Item #7***

2) Annual report on permitting and inspecting animal waste management systems/Animal Waste Compliance Report. 1 October 2007. Statutory Authority: G.S. 143-215.10M. ***Agenda Item #7***

3) Annual report on the implementation of the Ecosystem Enhancement Program and the use of the Ecosystem Enhancement Fund, including inventory of property and easements. 1 November 2007. Statutory Authority: G.S. 143-214.13. ***Agenda Item #10***

4) Annual report on the implementation of the resident inspectors program at commercial hazardous waste facilities. 1 October 2007. Statutory Authority: G.S. 130A-295.02(m)). ***Agenda Item #12***

5) Annual report on the Inactive Hazardous Sites Program. 1 October 2007. Statutory Authority: G.S. 130A-310.10. ***Agenda Item #12***

6) Annual report on the effectiveness of the Brownfields Property Reuse Act. 1 October 2007. Statutory Authority: G.S. 130A-310.40. ***Agenda Item #12***

The following report has been submitted by the State Water Infrastructure Commission (SWIC) and is being distributed in connection with today's ***Agenda Item #11*** as follows:

1) Annual report the activities and findings of the SWIC, including any recommendations of the Commission that require action by the General Assembly to implement. 1 November 2007. Statutory Authority: G.S. 159G-67.

The following reports have been received and are being held for distribution either as read-only or for presentation at a future meeting of the Commission. If you would like a copy of one of these reports in advance of the next meeting, please contact Jennifer Mundt at (919) 733-2578 or jennifermu@ncleg.net for assistance.

1) *Annual report on the Parks and Recreation Trust Fund, Fiscal Year 2006-2007.* 1 October. Statutory Authority: G.S. 113-44.15(c).

2) *Annual Report and Recommendations on the One-Stop Permit Assistance Program.* 1 October 2006. Statutory Authority: G.S. 143B-279.12.

3) *Annual Report on Litter Enforcement, Prevention, and Removal Efforts.* 1 March 2007. S.L. 2006-79, Sec. 15.

4) *2006 Annual Report NC Million Acre Initiative.* 1 October 2007. Statutory Authority: G.S. 113A-241(c)).

5) *Annual report on the status of leaking underground storage tanks, the State cleanup funds and the Groundwater Protection Loan Fund.* 1 September 2007. Statutory Authority: G.S. 143-215.94M.

Please contact George Givens, Jeff Hudson, Jennifer McGinnis, Jennifer Mundt, or Mariah Matheson at (919) 733-2578 if you have any questions or comments.

ENVIRONMENTAL MANAGEMENT COMMISSION

NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

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Charles Peterson
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November 8, 2007

The Honorable Charles W. Albertson, Co-Chair
The Honorable Daniel G. Clodfelter, Co-Chair
The Honorable Lucy T. Allen, Co-Chair
The Honorable Pryor A. Gibson, Co-Chair
Environmental Review Commission

Subject: Emissions Reductions Beyond the Clean Smokestacks Act

Dear Senator Albertson, Senator Clodfelter, Representative Allen, Representative Gibson:

SL2002-4 Section 11 (attached) requires the Environmental Management Commission study the desirability of requiring and the feasibility of obtaining reductions in emissions of oxides of nitrogen (NO_x) and sulfur dioxide (SO_2) beyond those required by the Clean Smokestacks Act. It also requires the EMC to report its findings and recommendations to the General Assembly and the Environmental Review Commission annually.

Since the Clean Smokestacks Act was passed in June 2002, significant Federal regulatory changes have occurred. Specifically, the Clean Air Interstate Rule (CAIR) requires North Carolina's neighboring states to achieve major reductions in NO_x and SO_2 -- reductions that require installation of state-of-the-art control equipment. Although there may be questions about the timing and emissions reductions of CAIR, the Division of Air Quality (DAQ) believes CAIR will ultimately provide major benefits to North Carolina's air quality.

The Clean Smokestacks Act already required that state-of-the-art control equipment be installed on many units in North Carolina. CAIR annual NO_x and SO_2 emissions budgets are even lower than those set by the Clean Smokestacks Act. This could result in even more units in North Carolina having state-of-the-art control equipment applied.

Given the recent action by the Federal government regarding power plant emissions, it is recommended that the study as to whether or not further State action is required be deferred until an evaluation is made of the progress of North Carolina and its neighbors in complying with CAIR. The EMC would propose that the reporting begin on December 1, 2013. This will give the

specified electric generation facilities in North Carolina time to implement their control strategies and will also give the DAQ time to quantify the air quality impacts. Requiring reporting prior to the complete implementation of these control strategies will provide little new or beneficial information. Furthermore, the evolution of new control technologies is fairly long term and it is recommended that the frequency of the reporting thereafter be on a three-year basis.

Sincerely,

David Moreau, PhD.
Chair, EMC

Attachment

Cc: Keith Overcash, DAQ
Brock Nicholson, DAQ
Donnie Redmond, DAQ
Elizabeth Self, DENR

GENERAL ASSEMBLY OF NORTH CAROLINA

SESSION 2001

SESSION LAW 2002-4
SENATE BILL 1078

AN ACT TO IMPROVE AIR QUALITY IN THE STATE BY IMPOSING LIMITS ON THE EMISSION OF CERTAIN POLLUTANTS FROM CERTAIN FACILITIES THAT BURN COAL TO GENERATE ELECTRICITY AND TO PROVIDE FOR RECOVERY BY ELECTRIC UTILITIES OF THE COSTS OF ACHIEVING COMPLIANCE WITH THOSE LIMITS.

The General Assembly of North Carolina enacts: ...

SECTION 11. The Environmental Management Commission shall study the desirability of requiring and the feasibility of obtaining reductions in emissions of oxides of nitrogen (NOx) and sulfur dioxide (SO2) beyond those required by G.S. 143-215.107D, as enacted by Section 1 of this act. The Environmental Management Commission shall consider the availability of emissions reduction technologies, increased cost to consumers of electric power, reliability of electric power supply, actions to reduce emissions of oxides of nitrogen (NOx) and sulfur dioxide (SO2) taken by states and other entities whose emissions negatively impact air quality in North Carolina or whose failure to achieve comparable reductions would place the economy of North Carolina at a competitive disadvantage, and the effects that these reductions would have on public health, the environment, and natural resources, including visibility. In its conduct of this study, the Environmental Management Commission may consult with the Utilities Commission and the Public Staff. The Environmental Management Commission shall report its findings and recommendations to the General Assembly and the Environmental Review Commission annually beginning 1 September 2005. ...

In the General Assembly read three times and ratified this the 19th day of June, 2002.

(Note: The initial reporting date was changed to 1 September 2007 by Senate Bill 1590, Section 12, Session 2005.)

HAZARDOUS WASTE MANAGEMENT

2007 REPORT

Presented to

The Environmental Review Commission

October 1, 2007

NCDENR

North Carolina Department of
Environment and Natural Resources

North Carolina Department of Environment and Natural Resources

Michael F. Easley
Governor

William G. Ross Jr.
Secretary
Department of Environment and Natural Resources

Dexter R. Matthews
Director
Division of Waste Management

DENR
Division of Waste Management
Hazardous Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646
(919) 508-8400

INTRODUCTION

The State of North Carolina requires that the Department of Environment and Natural Resources (DENR) develop a comprehensive hazardous waste management plan every two years. The first plan was completed in July 1, 1990; the latest plan was completed in 2006. Beginning October 1, 2003, the Department was also required to submit an annual report on the hazardous waste management plan per GS 130A – 294(i). This report includes an evaluation of hazardous waste management in North Carolina and identifies DENR's activities and recommendations in the following areas: improving waste management, cleaning up of hazardous waste, reducing the amount of waste generated, minimizing the amount of hazardous waste which must be disposed, and maximizing resource recovery, reuse, and conservation.

This report includes North Carolina data from the Environmental Protection Agency's (EPA) 2005 "Biennial Report of Hazardous Waste Generation" (2005 BR). Large Quantity Generators (LQGs) and Treatment, Storage, and Disposal Facilities (TSDFs) are required to provide EPA with information on their waste management activities on a biennial basis. The 2005 BR was posted to the website in early 2006 and can be found at http://www.epa.gov/epaoswer/hazwaste/data/br05/index.htm. Data for the 2007 BR will be due by April 1, 2008.

NORTH CAROLINA HAZARDOUS WASTE SECTION

The Hazardous Waste Section was authorized by EPA in 1980 to implement the Resource Conservation and Recovery Act (RCRA) in North Carolina in lieu of the EPA. Continuing developments in the hazardous waste program nationwide have required the Section to continually apply for authorization in program areas, such as case development audits (criminal and administrative investigations), corrective action, and alternatives to permitting and emission monitoring. The Hazardous Waste Section (HWS) has a staff of 51 people working in three branches: Compliance Branch, Facility Management Branch and Programs Branch. Collectively, the duties include, but are not limited to, the following areas:

- Regulate the management of hazardous waste by generators, transporters, treatment, storage, disposal and recyclers facilities;
- Educate the hazardous waste community by providing technical assistance through individual consultations and seminars that encourage waste reduction, sound recycling, safe management practices and proper disposal (as a last resort);
- Issue permits specifying requirements that each hazardous waste treatment, storage, recycling or disposal facility must meet;
- Provide a continuing compliance presence at commercial hazardous waste management facilities through the HWS Resident Inspector Program;

- Conduct compliance inspections and, in coordination with the North Carolina Office of the Attorney General, take enforcement actions against violators;
- Require groundwater assessments, facility investigations and corrective measures at facilities where hazardous wastes have been released into the environment and
- Ensure section staff receives necessary training and professional development opportunities to continually improve their job performance.

Information on most of the activities above is captured in the national hazardous waste database, Resource Conservation and Recovery Act Information (RCRAInfo). The database is managed by the EPA, and most of the data is entered by authorized state programs. RCRAInfo contains comprehensive information on all facilities that generate or manage hazardous waste within a state, as well as all the HWS activities affecting these facilities. Data from RCRAInfo will be used to provide information to the Department's Facility Identification Template for States database (FITS) and the Departmental Decision Support System.

To view regulatory information for specific hazardous waste sites, visit http://www.epa.gov/enviro/. For details about the Division of Waste Management and the Hazardous Waste Section, visit http://www.wastenotnc.org/.

HAZARDOUS WASTE GENERATION, MANAGEMENT AND CLEANUP

In 2005, 431 North Carolina large quantity generators (LQGs)[1] reported generating 373,208 tons of hazardous waste[2]. Of the 431 LQGs, the top 10 facilities generated 369,600 tons, or 99 percent, of the total quantity of hazardous waste generated by North Carolina's large quantity generators. In 2003, 439 LQGs generated 78,817 tons of hazardous waste, while the top 10 facilities generated 43,610 tons.

Although only LQGs and TSDFs are required to report their hazardous waste generation and management amounts, it is important to note that North Carolina also has 1,823 small quantity generators and 4,498 conditionally exempt small quantity generators[3]. These facilities are not required to report the amount of hazardous waste they generate because they are typically small businesses for whom periodic reporting could be overly burdensome. However, these facilities collectively generate a significant amount of hazardous waste that must be

[1] Large Quantity Generators are defined as facilities that generate 1,000 kg (2,200 lbs.) or more of hazardous waste in a calendar month.

[2] The large increase in waste generated in 2005 was due to a change in reporting procedures by a single generator.

[3] Small Quantity Generators are defined as facilities that generate between 100 kg and 1,000 kg (220 lbs. to 2,200 lbs.) per calendar month. Conditionally Exempt Small Quantity Generators generate less than 100 kg (220 lbs. per calendar month.

managed properly and in compliance with all applicable rules. Significant resources are devoted to compliance and enforcement activities, technical assistance and outreach at these facilities.

Between October 2006 and September 2007, approximately 402 tons and 22,000 gallons of mismanaged hazardous waste were brought into compliance or properly disposed through the Compliance Program.

North Carolina has 31 facilities in the permitting workload universe and 60 facilities in the post-closure workload universe. Approximately 93 percent of these facilities are permitted, under an order or other approved control for management or remediation of their hazardous waste. There are 109 facilities that are subject to RCRA Corrective Action. Progress in the Corrective Action Program is tracked through environmental indicators. Currently, 100 percent of high priority corrective action sites have human exposures under control and 82 percent of high priority corrective action sites have groundwater migration under control.

NORTH CAROLINA HAZARDOUS WASTE REDUCTION INITIATIVES

HAZARDOUS WASTE REDUCTION INITIATIVES

A. Commitment to Hazardous Waste Minimization

The HWS continues to work with EPA Region 4 to solicit participants in the National Partnership for Environmental Priorities. This voluntary program fosters partnerships between government and industry to reduce hazardous waste -- especially waste containing any of the 30 chemicals known to be highly toxic. Partners who make significant progress in waste reduction receive national recognition for their achievements.

The North Carolina Hazardous Waste Section has also committed to the following:

- Incorporate pollution prevention training (based on targeted priority chemical waste streams) into annual generator workshops, industry meetings and enforcement settlement negotiations;
- Review facility requests for alternative management practices for hazardous waste (use/reuse, substitution, reclassification and delisting), and
- Support intervention projects to reduce/eliminate the presence of priority chemicals via partnerships with other agencies.

B. Environmental Stewardship Initiative

DENR's Environmental Stewardship Initiative promotes and encourages superior

environmental performance by North Carolina's regulated community. This voluntary program stimulates the development and implementation of programs that use pollution prevention and innovative approaches to meet and exceed regulatory requirements. There are three levels of participation. "Environmental Partners" is for organizations interested in developing a systematic approach to improving their environmental performance. The "Rising Steward" level is designed for those organizations that have a mature environmental management program. The "Environmental Steward" level is for organizations that already display a commitment to exemplary environmental performance beyond what is required by law. All participants must set environmental performance goals that include pollution prevention and are required to report annually on progress towards these goals and net pollution reductions.

This important program not only recognizes outstanding environmental performance at the "Steward" level, but provides encouragement and assistance to foster improved environmental performance by North Carolina organizations. Coaches (technical staff) are assigned to each participant to provide technical assistance on pollution prevention and develop an environmental management system. Networking opportunities allow participants to learn from each other and share success stories. This program seeks to reduce the impact on the environment beyond measures required by any permit or rule, producing a better environment, conserving natural resources and resulting in long-term economic benefits.

For more information about the program, visit http://www.p2pays.org/esi/.

C. Mercury Switch Removal

The HWS implemented a program which encourages the removal and recycling of mercury-containing convenience light switches from scrap automobiles known as "end of life" vehicles. Initially enacted in 2005 and revised and updated in 2007 by the General Assembly, this program requires auto recyclers and scrap metal processors to remove the switches before the vehicles are crushed, shredded, and recycled into the manufacture of steel. The vehicle recyclers and scrap metal processors will receive $5.00 for each switch that is removed, collected, and sent for recycling. Removal of the switches prior to recycling greatly reduces mercury emissions during the steel-making process.

D. North Carolina School Chemical Cleanout and Maintenance Project

The HWS has received a grant from EPA for a pilot program to remove chemicals from public schools throughout North Carolina and to provide technical assistance, training and educational guidance on proper chemical management. Training materials will be developed for school personnel in the areas of progressive laboratory and maintenance chemical management, GreenChemistry, MicroChemistry and other preventative approaches for future

chemical management. Workshops will be provided in strategic locations in the state to allow for the best attendance.

E. Other Activities

The HWS will continue to support safe hazardous waste management in North Carolina by:

- Supporting opportunities for waste minimization and recycling and supporting annual generator workshops that help educate the largest generators on hazardous waste regulations and the expectations of hazardous waste inspectors;
- Seeking to establish a hazardous waste generator security deposit to fund the cleanup of abandoned generator sites that do not meet acceptable environmental standards;
- Continuing to seek EPA authorization to maintain HWS's authority to implement newly promulgated regulations and standards;
- Improving the quality of hazardous waste data for hazardous waste trend analysis and sound decision-making; and
- Participating in EPA's rulemaking projects such as those involving standards for the recycling of used industrial rags and wipes, tailored waste management requirements for academic laboratories, revisions to the regulatory standards for materials that are recycled, and other regulatory proposals.

The 2007 North Carolina State Legislature enacted House Bill 36 which creates additional notification and regulatory requirements primarily for North Carolina Commercial TSDFs. It also requires North Carolina Transfer Facilities to register with the Department to obtain a hazardous waste Transfer Facility identification number and requires that Transfer Facilities notify the Department of every hazardous waste transporter that makes use of its facility. A report is due to the Environmental Review Commission on February 15, 2008, on whether further regulation of these facilities is warranted.

North Carolina Department of Environment and Natural Resources
Division of Soil and Water Conservation

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Manly S. Wilder, Director

NCDENR

TO: Senator Charles Albertson
Senator Dan Clodfelter
Representative Pryor Gibson
Chairs, Environmental Review Commission

FROM: Manly S. Wilder
Director, Division of Soil and Water Conservation

DATE: Tuesday, April 10, 2007

RE: Annual Report on Pilot Program for Inspections of Animal Waste Management Systems

SECTION 12.7. (b) Section 3.3 of S.L. 1999-329, as amended by Section 6 of S.L. 2001-254, Section 1.2 of S.L. 2002-176, and Section 6.2 of S.L. 2003-340, requires the Department of Environment and Natural Resources, in consultation with both the Division of Water Quality and the Division of Soil and Water Conservation, to submit semiannual interim reports no later than April 15 and October 15 of each year beginning October 15, 1999, to the Environmental Review Commission, the Fiscal Research Division, and the Appropriations Subcommittees on Natural and Economic Resources in both the Senate and the House of Representatives.

If you have any questions regarding this report, please contact Patricia Harris, technical engineer with the N.C. Division of Soil and Water Conservation's Operation Review Team, at (252) 946-6481.

Attachment

cc: Asst. Secretary Richard Rogers
Asst. Secretary Robin Smith
George F. Givens

Pilot Program for Inspections of Animal Waste Management Systems

2007 Annual Report
For Calendar Year 2006

N.C. Division of Soil and Water Conservation

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APPENDIX 14

EXECUTIVE SUMMARY

From 1999 through 2006, the pilot program has collected data from 2,720 documented site visit reports to 167 permitted animal operations in Brunswick, Columbus, Jones and Pender Counties. The Division of Soil and Water Conservation (DSWC) staff has used this data to study and better understand the factors that influence compliance and affect the potential for environmental impact by animal waste management systems. For 2006, DSWC experienced or observed the following:

- Weather had a significant negative influence on overall compliance by pilot farms in the second half of 2006. (p. 9, p.11)
- The percentage of pilot farms categorized into the potential *low impact* category decreased from 96% in 2005 to 92% in 2006. (Fig. B, p.10)
- A higher percentage of noncompliance incidents were noted on pilot farms versus non-pilot farms in the 28 eastern counties of North Carolina. (p. 8)
- Pilot farms are more likely to report noncompliance. (p. 8)
- Overall, the percentage of farms documented with "immediate threat" problems such as waste discharges to state surface waters and waste levels within structural freeboard is greater for pilot farms versus non-pilot farms in the 28 eastern counties. (p. 9)
- Fourteen farms were categorized as potential high impact to the environment due to documented noncompliance performance. Eight of these farms are new to the program and located in Pender County. Five of the six remaining farms had documented non-compliance histories as potential high impact farms prior to 2006. (p. 10)
- DSWC *per-visit* costs continue to be less for pilot farms when compared to non-pilot farms. (Tab. 4, p.12)
- DSWC *per-farm* costs are higher for pilot farms than non-pilot farms due to increased frequency of site visits. (Tab. 4, p.12)

BACKGROUND

The objective of the Animal Waste Management Inspection Pilot (hereinafter the pilot), and in accordance with Section 12.7(b) of S.L. 2005-276, is to determine how DSWC staff can respond more quickly and effectively, with technical assistance, to complaints and problems to help farms achieve compliance with environmental regulations. In addition, the program allows Department of Environment and Natural Resources (DENR) staff to test approaches for earlier identification of problems, and to target DENR's resources for expediting corrective actions.

The pilot differs from the state's traditional animal inspections program in that DSWC staff conducts annual *routine* compliance inspections, in addition to performing *routine* operation reviews of all permitted livestock operations in Brunswick, Columbus, Jones and Pender counties. DWQ staff provides regulatory oversight, performs compliance audits with DSWC staff of "targeted" potential high environmental impact farms, responds to DSWC referrals and conducts additional compliance inspections for further investigation and enforcement actions as warranted.

Currently there are 166 swine farms and one horse farm in the pilot area with 95 farms operating under a National Pollutant Discharge Elimination System (NPDES) general permit and 72 farms operating under a State Non-discharge (State) general permit. This number of farms in the pilot area increased by 37% from 2005, due to the inclusion of Pender County into the program.

The pilot program is currently scheduled to end September 1, 2007.

Precipitation

As stated in earlier pilot reports, annual precipitation amounts and events have the biggest impact on compliance performance by farms in the pilot program area. Animal waste management systems, including anaerobic lagoons and waste storage ponds, are generally designed to store one 25-year, 24-hour storm event (ranges 7 to 8 inches in pilot area); 180 days of excess rainfall over evaporation based on historical averages; wash water and animal waste. Heavy precipitation amounts greater than historical average, and/or periods of prolonged precipitation can drastically decrease the storage capacity of the waste system. In addition, the waste system's capacity to land apply waste to receiving crops is also diminished due to wet or frozen soil conditions, wind, and/or availability of adequate crops to utilize the nutrients in the waste.

2006 proved challenging for pilot farms in the coastal counties because precipitation during the first half of the year was 4¾ inches *below* normal, while precipitation during the second half was 10½ inches *above* normal. Overall, pilot counties received two-thirds of its annual precipitation amount from July through December. Based on

historical averages, the pilot area would expect to receive only 55% of its annual precipitation during the second half of the calendar year.

Figure A reflects the uneven monthly precipitation distribution for 2006 within the pilot counties. (See the ***Appendix*** at the end of the report for monthly and annual climate data results.) Higher than normal precipitation received in September was a direct result of Tropical Storm Ernesto as reported in the *2006 Semiannual ERC Report.* Otherwise, North Carolina was fortunate in that the state did not experience a direct hit from a hurricane in 2006, despite earlier predictions.

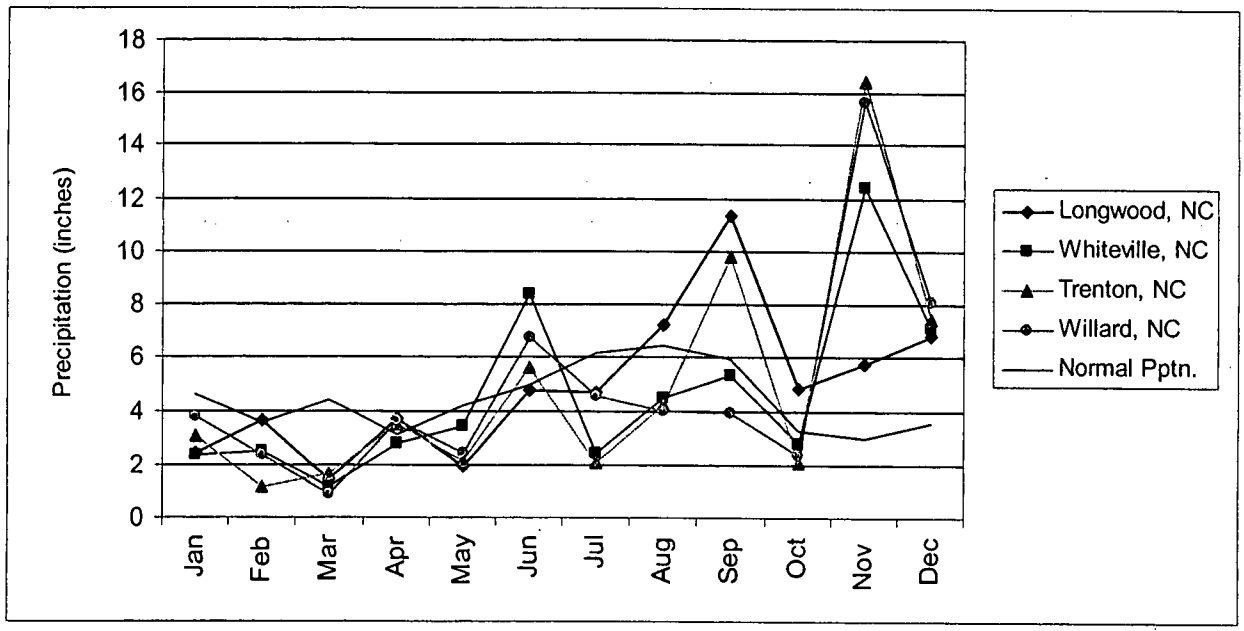

Figure A. 2006 monthly precipitation amounts measured at weather stations located within the four pilot counties. The normal monthly precipitation for the these weather stations is a statistically adjusted 30-year average officially published by the National Oceanic and Atmospheric Administration every ten years. *Source: State Climate Office of North Carolina.*

Based on earlier pilot reports, one could anticipate noncompliance trends of specific operational indicators would increase during the second half of 2006, based on climatic conditions and precipitation amounts.

Categorizing Farms into Environmental Impact Groups

For 2006, DSWC staff continued to use the environmental scale, first described in the May 21, 2002 Addendum ERC Report, and modified in 2005 (due to implementation of the DWQ's *Basinwide Implementation Management System* database known as BIMS) to separate pilot animal operations based on their compliance performance and relative potential for environmental impact. DSWC, DWQ and Soil and Water Conservation District (SWCD) field staff continued to use one standard inspection form with the

collected data entered into BIMS. The pilot's operational indicators and problem parameters were queried and assessed from these documented site visits.

Table 1 lists the operational indicators used to assess animal waste management systems' performance on the pilot farms, with assigned points to reflect the degree of "immediate" or "potential" threat a specific compliance deficiency would have to the environment. The 15 indicators and relative point values remain unchanged from last annual pilot program report.

Operational Indicators	Point Value
Offsite discharge	20
Structural integrity compromised	18
Waste in structural freeboard range	16
Hydraulic overloading	15
Nitrogen over-applied ≥ 10%	12
Waste level in storm storage	11
Irrigation system maintenance deficiency	11
Structural maintenance deficiency	10
Receiving crop inconsistent with waste plan	10
Irrigation records deficient	10
Lagoon level records deficient	9
Nitrogen over-applied <10%	8
Receiving crop/sprayfield needs improvement	8
Waste analysis deficient	8
Soil analysis deficient	7

Table 1. Operational indicators observed and recorded by DSWC and DWQ staff during site inspections. Items in italics represent "immediate threat" indicators.

As in previous years, pilot farms were scored by the noncompliance points received for those operational indicators noted during each site visit, and ranked by the total points received for all site visits in 2006. The farms were then categorized into three potential impact groupings based on their total noncompliance scores. See ***Table 2.*** Point ranges for these groupings were determined from farm performance in 2000, and remains unchanged through 2006.

Potential Impact Group	Noncompliance points
Low environmental impact	0 – 12 points per year
Medium environmental impact	13 – 30 points per year
High environmental impact	31 or more points per year

Table 2. Potential environmental impact groupings and corresponding noncompliance point ranges.

Using the pilot's established inspection protocol, farms in the low and medium environmental impact groups were determined to be responsive to technical assistance and subject to continued *routine* operation reviews and compliance inspections by DSWC staff in 2007. Farms scoring in the high impact group are subject to a joint audit by DSWC and DWQ staff for more comprehensive evaluations. If an audit reveals that the farm is noncompliant with regulations and poses a high potential for environmental impact, DWQ staff assumes full responsibility for the routine inspection of this operation until an acceptable level of compliance is achieved.

DSWC staff feels this is the best approach to inspection because both divisions can apply their respective technical and regulatory resources more effectively and efficiently based on lessons learned from the pilot program. By working together in the pilot, DSWC and DWQ staff has improved communications between the divisions and between DENR and individual livestock producers. Participants continue to voice support for the program and cite consistency, improved communication and focused technical assistance as program benefits needed for compliance.

2006 PROGRAM FINDINGS

Base Data for Pilot

2006 activity, both in and out of the pilot area, is reflected in the following data queried from BIMS:

- Statewide, 2,496 animal operations were subject to permitting and inspection.
- Statewide, DENR staff conducted 5,059 site visits (2,631 by DSWC & SWCD and 2,428 by DWQ).
- In the pilot area of Brunswick, Columbus, Jones and Pender counties, 167 animal operations were subject to permitting and inspection.
- In the pilot area, DENR staff conducted 413 site visits (385 by DSWC and 28 by DWQ).

Compliance Trends

For this report, DSWC examined various reporting tools to determine if pilot farms have better compliance trends than for all farms located within the 28 eastern counties covered by DENR's Washington and Wilmington regional staff.

First, DSWC queried all incident reports logged into the BIMS database between January 1, 2006 through December 31, 2006 for all farms located within DENR's Washington and Wilmington regions. A total of 294 incident reports for animal operations were logged with 28% of the reports originating from pilot farms primarily in Jones and Pender Counties. DSWC staff feels the higher percentage of incidents in the pilot counties is not caused by increased noncompliance but by a combination of the following:

- Direct rainfall and flooding impacts of Tropical Storm Ernesto on August 31 and September 1. (See 2006 Semiannual Pilot Program Report to ERC.)
- Consistency of information and expectations between producers and DSWC staff. Pilot farms are more likely to report noncompliance (82% of the 2006 pilot farm incidents were in the "reported noncompliance" category).
- Better awareness of potential problems by DSWC staff due to increased site visits.
- Heightened surveillance by DSWC staff in pilot area.
- Improved, consistent and uniform approach by DSWC and DWQ staff when dealing with noncompliance performance.

81% of the 294 incident reports in the DENR's Washington and Wilmington regions noted noncompliance started during the second half of 2006, and directly correlates with the 2006 precipitation distribution pattern.

Next, DSWC compared 2006 site visit findings between pilot and non-pilot farms located within the DENR Washington and Wilmington regions. Based on site visit reports in BIMS and the DWQ Year-To-Date Data Report dated 3.7.07, the following items were observed:

- Onsite discharges noted in 1% of pilot farm reports versus 0.4% of non-pilot farm reports.
- Discharges reaching surface waters noted in 1% of pilot farm reports versus 0.1% of non-pilot farm reports.
- Inadequate freeboard noted in 15% of pilot farm reports versus 3% of non-pilot farm reports.
- Freeboard noted less than one foot (within structural freeboard) noted in 4% of pilot farm reports versus 0.8% of non-pilot farm reports.

It should be noted that duplications are included in the pilot area site visit findings because when DSWC and DWQ staff inspects a farm jointly, each division is required to enter a report into BIMS for the same site visit. This double reporting causes noted deficiencies to be counted and scored twice, thus increasing the rate of occurrence for any given operational indictor.

Farm Performance Within the Pilot Program Area

In ***Figure B***, pilot farms are grouped by their environmental impact scores, and shown as a percentage of the total number of pilot farms in operation within a given year.

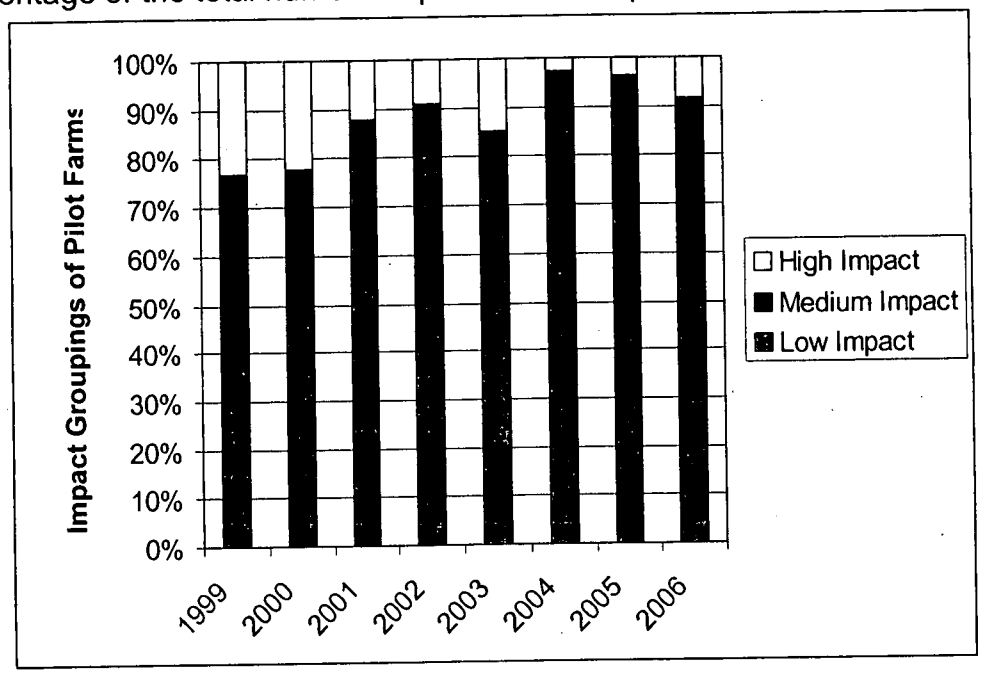

Figure B. Pilot farms grouped into environmental impact categories.

In 2006, 92% of the pilot farms were categorized in either the low or medium impact groups. This is a 4% decrease from 2005 findings and is contributed to the addition of Pender County and above-average precipitation amounts ranging from 3+ inches in Brunswick to almost 6 inches in Jones County. See appendix for additional precipitation information.

Based on 2006 compliance performance, 14 farms were identified as potential high impact farms. Of the six farms identified in Columbus and Jones counties, five farms had been identified as potential high impact in previous years. The remaining eight farms are located in Pender County and do not have previous environmental impact ratings within the pilot program. The 14 potential high impact farms are scheduled for compliance audits by DSWC and DWQ staff during the first half of 2007.

As previously mentioned, noncompliance trends were noted primarily in the second half of 2006 due to climatic impacts. This observation is evident in several "immediate threat" and "potential threat" operational indicators listed in Table 3 comparing the "Frequency of Occurrence" for a DENR inspector to find a specific operational indicator during a site visit to a pilot farm.

Operational Indicator	Jan-June	July-Dec
Offsite discharge	0	1%
Structural integrity compromised	0	3%
Waste in structural freeboard range	0	4%
Hydraulic overloading or ponding	0	3%
Nitrogen over-applied ≥ 10%	0	0
Waste level in storm storage	2%	9%
Irrigation system maintenance deficiency	0	0
Structural maintenance deficiency	3%	3%
Receiving crop inconsistent with waste plan	0.5%	0.5%
Irrigation records deficient	0.2%	0.2%
Waste level records deficient	1%	3%
Receiving crop/application field deficient	3%	4%
Waste analysis deficient	0.5%	0
Soil analysis deficient	1%	0

Table 3. "Frequency of Occurrence" for finding an operational indicator on a pilot farm during either the first or second half of the 2006 calendar year. Items in italics represent "immediate threat" indicators.

Focus Group Activities

Local Focus Groups did not meet during the 2006 calendar year. DSWC resources were redirected towards implementing the pilot program in Pender County while maintaining the program in Brunswick, Columbus and Jones counties. DSWC employed and provided training for an additional Environmental Specialist to work with the livestock producers in Pender County. This employee is a technical specialist designated by the Soil and Water Conservation Commission as required by § 143-215.10D.

COST & LABOR COMPARISONS

Cost and labor comparisons are reported for DSWC operation review staff only and based on an operating cost of $28.15 per hour in 2006, up from the 2005 cost of $26.93 per hour. DSWC's hourly operating cost is the same for pilot and non-pilot farms alike. As previously reported, differences between pilot versus non-pilot costs arise as a result of the frequency and duration of site visits.

Table 4 reflects key cost and labor comparisons. The DSWC's *per-visit costs continue to remain less* for pilot farms than non-pilot farms. Conversely, DSWC's *per-farm costs continue to be higher* in the pilot program, and are a direct function of the higher frequency of site visits made to pilot farms.

Pilot Farms	Non-pilot farms
$162 per DSWC visit	$210 per DSWC visit
2.3 visits per farm	1 visit per farm
13.3 hours total per farm	7.6 hours total per farm
$375 per farm	$214 per farm

Table 4. Key Comparisons for 2006

2006 MONTHLY CLIMATE DATA RESULTS (SUM OF DAILY PRECIPITATION)
Information Provided by the State Climate Office of North Carolina
Compiled February 20, 2007

NAME	STATION	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sums	Deviation
Longwood, NC	315116	Actual	2.44	3.59	1.45	3.70	1.89	4.73	4.65	7.21	11.31	4.83	5.77	6.80	58.37	3.43
(Brunswick Co.)		Normal	4.66	3.57	4.14	3.06	4.09	5.21	5.76	7.42	6.73	3.45	3.06	3.79	54.94	
Whiteville, NC	319357	Actual	2.36	2.51	1.13	2.73	3.41	8.35	2.42	4.48	5.31	2.76	12.37	7.12	54.95	4.73
(Columbus Co.)		Normal	4.37	3.41	4.49	2.94	4.54	4.69	5.64	5.65	5.44	2.99	2.79	3.27	50.22	
Trenton, NC	318706	Actual	3.08	1.15	1.61	3.45	2.14	5.59	2.08	4.19	9.77	2.02	16.46	7.45	58.99	5.97
(Jones Co.)		Normal	4.77	3.57	4.41	3.48	4.12	4.89	6.22	6.12	5.51	3.36	2.93	3.64	53.02	
Willard, NC	319423	Actual	3.75	2.32	0.83	3.63	2.41	6.73	4.54	3.98	3.88	2.37	15.69	8.08	58.21	4.01
(Pender Co.)		Normal	4.49	3.53	4.43	3.06	4.10	5.14	7.12	6.54	6.22	3.16	2.99	3.42	54.20	

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor
William G. Ross Jr., Secretary

TO: Senator Charles Albertson
Representative Lucy Allen
Senator Dan Clodfelter
Representative Pryor Gibson
Chairs, Environmental Review Commission

FROM: Manly S. Wilder
Asst. Secretary for Natural Resources
Acting Director, Division of Soil and Water Conservation

DATE: Monday, Oct. 15, 2007

RE: Annual Report on Pilot Program for Inspections of Animal Waste Management Systems

SECTION 12.7. (b) Section 3.3 of S.L. 1999-329, as amended by Section 6 of S.L. 2001-254, Section 1.2 of S.L. 2002-176, Section 6.2 of S.L. 2003-340 and Section 2 (a) of S.L. 2007-536, requires the Department of Environment and Natural Resources, in consultation with both the Division of Water Quality and the Division of Soil and Water Conservation, to submit semiannual interim reports no later than April 15 and October 15 of each year beginning Oct. 15, 1999, to the Environmental Review Commission, the Fiscal Research Division, and the Appropriations Subcommittees on Natural and Economic Resources in both the Senate and the House of Representatives.

If you have any questions regarding this report, please contact Patricia Harris, technical engineer with the N.C. Division of Soil and Water Conservation's Operation Review Team, at (252) 946-6481.

Attachment

cc: Asst. Secretary Robin Smith
George F. Givens

REPORT TO THE ENVIRONMENTAL REVIEW COMMISSIONAND FISCAL RESEARCH DIVISION OF THE NORTH CAROLINA GENERAL ASSEMBLY ON THE PILOT PROGRAM FOR INSPECTIONS OF ANIMAL WASTE MANAGEMENT SYSTEMS

SEMIANNUAL REPORT FOR CALENDAR YEAR 2007

INTRODUCTION

In accordance with Section 12.7(b) of S.L. 2005-276, the objective of the Animal Waste Management Inspection Pilot (hereinafter referred to as the pilot) is to determine how Division of Soil and Water Conservation (DSWC) staff can respond to complaints and problems more quickly and effectively with technical assistance to help farms achieve compliance with environmental regulations. In addition, the program allows the Department of Environment and Natural Resources (DENR) staff to test approaches for earlier identification of problems and to target DENR's resources for expediting corrective actions.

The pilot program started in 1997 with Columbus and Jones counties. It was expanded in 1999 to include Brunswick County and in 2005 to include Pender County. Through House Bill 810, the General Assembly this year extended the pilot program to a termination date of Sept. 1, 2009.

The pilot differs from the state's traditional animal inspections program in that DSWC staff conducts annual *routine* compliance inspections, in addition to performing *routine* operation reviews of all permitted livestock operations in the pilot counties. Division of Water Quality (DWQ) staff provides regulatory oversight, performs compliance audits with DSWC staff of "targeted" potential high environmental impact farms, responds to DSWC referrals and conducts additional compliance inspections for further investigation and enforcement actions as warranted.

There are 166 active swine farms and one horse farm in the pilot area of Brunswick, Columbus, Jones and Pender counties. Previously, it was reported that 95 of these farms were operating with coverage under National Pollutant Discharge Elimination System (NPDES) permits. In response to the 2005 2nd-Circuit Court of Appeals ruling in *Waterkeeper et al. v. the Environmental Protection Agency (EPA),* the federal agency began revising its NPDES regulations. Based on the ruling and guidance from EPA, DWQ allowed producers with expiring NPDES permits to choose between NPDES permits or State Non-Discharge General permits. This caused the number of pilot farms operating under NPDES permits to drop from 95 to one in 2007. The remaining 166 farms will operate under State Non-Discharge General permits.

PRECIPITATION

Annual precipitation amounts and events have the biggest impact on compliance performance by farms in the Pilot Program area. Animal waste management systems, including anaerobic lagoons and waste storage ponds, are generally designed to store one 25-year, 24-hour storm event (ranges 7 to 8 inches in pilot area); 180 days of excess rainfall over evaporation based on historical averages; wash water and animal waste. Heavy precipitation amounts greater than historical average and/or periods of prolonged precipitation can drastically decrease the storage capacity of the waste system. In addition, a system's capacity to land-apply waste to receiving crops is also diminished due to wet or frozen soil conditions, wind, and/or limited availability of adequate crops to utilize the nutrients in the waste.

Despite the fact that the pilot area received two-thirds of its actual annual precipitation during the last half of 2006, the first half of 2007 was fairly uneventful based on actual versus normal precipitation amounts recorded at selected weather stations as reflected in ***Figure A***.

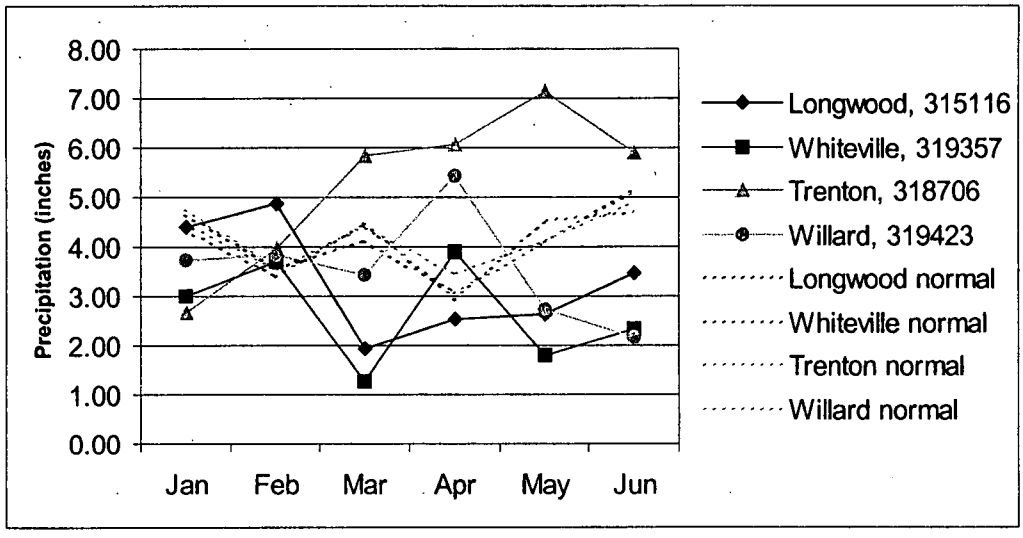

Figure A. January - June 2007 monthly normal and actual precipitation amounts measured at weather stations located within the four pilot counties. *Source: North Carolina State Climate Office - CRONOS Database.*

ENVIROMENTAL IMPACT GROUPS

DSWC staff continued to use the environmental scale first described in the May 21, 2002 Addendum ERC Report to separate pilot animal operations based on compliance performance and relative potential for environmental impact. Data was gathered through DENR's standard inspection form and entered into DWQ's Basinwide Implementation Management Systems (BIMS) database. The pilot's operational indicators and problem parameters were then queried and assessed from these documented site visits.

Table 1 lists the operational indicators used to assess animal waste management systems' performance on the pilot farms, with assigned points to reflect the degree of "immediate" or "potential" threat a specific compliance deficiency would have to the environment. The program is based on the following 15 indicators with relative point values remaining constant since 2002.

Operational Indicators	Point Value
Offsite discharge	20
Structural integrity compromised	18
Waste in structural freeboard range	16
Hydraulic overloading	15
Nitrogen over-applied ≥ 10%	12
Waste level in storm storage	11
Irrigation system maintenance deficiency	11
Structural maintenance deficiency	10
Receiving crop inconsistent with waste plan	10
Irrigation records deficient	10
Lagoon level records deficient	9
Nitrogen over-applied <10%	8
Receiving crop/sprayfield needs improvement	8
Waste analysis deficient	8
Soil analysis deficient	7

Table 1. Operational indicators and related point values used by DENR staff to evaluate farm's potential impact to environment. Items in italics represent "immediate threat" indicators.

Pilot farms were scored by the noncompliance points received for those operational indicators noted during each site visit and ranked by the total points received for all site visits in 2006. The farms were then categorized into three potential impact groupings based on their total noncompliance scores. (See ***Table 2.***) Point ranges for these groupings were initially determined from farm performance in 2000 and remained unchanged through 2006.

Potential Impact Group	Noncompliance points
Low environmental impact	0 – 12 points per year
Medium environmental impact	13 – 30 points per year
High environmental impact	31 or more points per year

Table 2. Potential environmental impact groupings and corresponding noncompliance point ranges.

Farms in the low and medium environmental impact groups were determined to be responsive to technical assistance and subject to continued *routine* operation reviews and compliance inspections by DSWC staff in 2007. Farms scoring in

the high impact group were subject to a joint audit by DSWC and DWQ staff for more comprehensive evaluations. As in previous years, if an audit reveals that the farm is noncompliant with regulations and poses a high potential for environmental impact, DWQ staff assumes full responsibility for the routine inspection of this operation until an acceptable level of compliance is achieved.

At the end of 2006, 14 farms were determined to have gross scores of 31 or more points, thus placing them in the high environmental impact group. Scores were then adjusted to reflect the removal of duplicate points for identical operational parameters noted in more than one site visit, a thorough review of each farm's compliance history and noted compliance trends of concern. The remaining12 farms were "targeted" for compliance audits by DENR teams of DSWC and DWQ field staff during the first half of 2007. These farms were located in Jones and Pender counties.

The audits revealed some problems with the facilities, notably high waste levels in January 2007 caused by the above normal rainfall received in November 2006. Three of the six freeboard violations noted waste levels within the structural freeboard of the waste structures. Other noted deficiencies included five receiving crops needing improvement (due to wet conditions in 2006), three missing soils reports, one minor onsite discharge and one structural maintenance deficiency. After the audits, the DENR teams evaluated the findings and agreed that the "targeted" farms had made the necessary improvements to return to routine operation reviews and compliance inspections by DSWC staff.

2007 PROGRAM FINDINGS

Pilot Base Data

2007 activity from January 1 through June 30, both in and out of the pilot area, is reflected in the following data that was either queried from DWQ's Basinwide Implementation Management Systems (BIMS) database or presented in DWQ's Quarterly Data Reports:

- Statewide, 2,486 animal operations were subject to permitting and inspection.
- Statewide, DENR staff conducted 2,141 site visits (1,136 by DSWC and Soil and Water Conservation Districts, and 1,005 by DWQ).
- Within the pilot area, 167 animal operations were subject to permitting and inspection.
- Within the pilot area, DENR staff conducted 201 site visits (184 by DSWC and 17 by DWQ).

Farm Performance

Within the pilot area, the frequency of occurrence for several of the program's operational indicators were considerably higher during the first half of 2007 when compared to the first half of 2006. We believe this to be a direct result of the above normal precipitation in November of 2006. (See ***Table 2.***) Increases in indicators such as *waste in structural freeboard range*, *waste level in storm storage* and *receiving crop/application field deficient* all substantiate this claim.

Operational Indicator (%) for Jan-June	2006	2007
Offsite discharge	0	0.5
Structural integrity compromised	0	0
Waste in structural freeboard range	0	1.5
Hydraulic overloading or ponding	0	0.5
Nitrogen over-applied ≥ 10%	0	0
Waste level in storm storage	2	5.5
Irrigation system maintenance deficiency	0	0
Structural maintenance deficiency	3	1
Receiving crop inconsistent with waste plan	0.5	0.5
Irrigation records deficient	0.2	0.5
Waste level records deficient	1	2.5
Receiving crop/application field deficient	3	**10**
Waste analysis deficient	0.5	2
Soil analysis deficient	1	7

Table 2. "Frequency of Occurrence" as a percentage for finding an operational indicator on a pilot farm during the first half of 2006 and the first half of 2007. Items in italics represent "immediate threat" indicators.

It should be noted that duplications are included in the pilot area site visit findings because when DSWC and DWQ staff inspects a farm jointly, each division is required to enter a report into BIMS for the same site visit. This double reporting causes noted deficiencies to be counted and scored twice, thus increasing the rate of occurrence for any given operational indicator.

Producer Surveys

DSWC staff feels the Pilot Program continues to be well received by the producers in the pilot counties despite the higher intensity of scrutiny. Earlier Pilot Reports included comments such as:

- *"Evaluations from both the operation reviews and compliance inspections were very positive with 94% of the total responses either strongly agreeing or agreeing that working with one agency would help minimize confusion and increase compliance..."* - 1998 Final ERC Pilot Report
- *"It was noted that anecdotal testimony from some participating farmers suggests a favorable reception to the Pilot Program..."* - 2005 Annual ERC Pilot Report
- *"...over 75% of the producers expressed their support."* (for expansion of the Pilot Program into Pender County) - 2006 Annual ERC Pilot Report

To better determine the effectiveness of the overall DSWC's operation review program, as well as the impact of the pilot on livestock producers, DSWC conducted a "snap shot" survey of all producers located within the pilot area and all producers located in non-pilot counties that received a routine operation review during the period of July 16 through Aug. 17, 2007. The survey is attached as ***Appendix A***.

At the end of August 2007, 177 surveys were completed and returned with 80 completed by producers located in pilot counties and 97 from other counties. Independent and contract producers completed 84% of the total number of surveys. Survey results are as follow:

I. Producer evaluation of the DSWC inspector, both in and out of the pilot area, reveals very high marks for field staff's thoroughness, knowledge, professionalism and timely response to requests. The following percentages are combined for "agree" or "strongly agree" responses:

a. Conducted thorough operations review/compliance inspection - 99%
b. Provided adequate time for inspection, questions an assistance - 99%
c. Good working knowledge of rules, regulations and permit requirements - 100%
d. Good working knowledge of managing lagoon and waste system - 100%
e. Good working knowledge of the irrigation and land applications system - 99%
f. Good working knowledge of crop, hay and pasture management - 98%
g. Conducted himself/herself in a professional and courteous manner - 99%
h. Responded to requests in a timely manner - 96%

II. The impact of the statewide operation review program on producers, both in and out of the pilot area, indicate DSWC site visits are meeting the overall program objective of providing technical assistance. This is reflected in items a-e listed below. Items f and g are separated into *pilot* and *other* due to the range of responses between survey groups. The following percentages are combined for "agree" or "strongly agree" responses:

a. Producer has better understanding of rules, regulations and permit requirements - 94%
b. Program helped producer to better manage animal waste system - 92%
c. Program helped producer to achieve compliance with rules & regulations - 92%
d. Producer more comfortable communicating with DENR staff because of program - 92%
e. Producer able to address problems before they become violations because of program - 97%
f. There is no difference between a DWQ & Soil and Water inspection (pilot) - 42%
g. There is no difference between a DWQ & Soil and Water inspection (other) - 68%

III. Producers in the pilot area expressed a strong desire for the continuation of the Pilot Program through the survey. The following percentages are for producers located in the pilot area only:

a. Producer would like the pilot program to continue in their respective county - 99% agree/strongly agree, with 85% responding as strongly agree.
b. Producer would like pilot program to expand into other counties - 81% agree/strongly agree.
c. Producer thinks pilot program should end - 95% disagree/strongly disagree.

IV. Producers, both in and out of the pilot area, show an interest in new technologies for animal waste management that do not use anaerobic lagoons and sprayfields. The following percentages are combined for "agree" or "strongly agree" responses:

a. Producer would like to learn more about new waste management systems that do not use anaerobic lagoons and sprayfields - 76%
b. Producer would like more information on financial assistance to convert to new waste management technology - 69%
c. Producer not interested in converting to new technology - 23% agree/strongly agree however 34% had no opinion

V. Less than half of the producers, both in and out of the pilot area, utilize computers and the Internet for record-keeping needs. The following percentages are combined for "agree" or "strongly agree" responses:

a. Producer uses computerized record keeping on a regular basis - 39%
b. Producer uses the Internet to download waste and soils reports - 47%
c. Producer uses the Internet to download record-keeping forms - 48%
d. Producer would like more training on computers for record-keeping needs - 46%

VI. Producers give DSWC's overall program an "A." Based on a grade point average (GPA) of "A" equals 4 points, producers rated the following:

a. Producers give Pilot Program an "A" with a 3.64 GPA
b. Producers give DSWC's Operation Review Program a "B" with a 2.68 GPA

VII. General comments about the Pilot Program have been very positive. Based on comments received from producers located within the pilot area, DSWC is responding quickly and effectively with technical assistance to help producers identify problems earlier and to achieve compliance with environmental regulations. Comments include:

a. "My (DSWC) inspector has been very helpful in helping me identify and correct potential problems before they become violations."
b. "I like the consistency of having one agency doing my inspections."

c. *"(DSWC) and the other specialists have done a great job helping us... everyone has been very professional, and has worked within guidelines to give us 'common-sense' and 'attainable' solutions that have, and are having, a great positive impact on my farm. Keep up the good work and we'll keep learning."*
d. *"Program has been a great guide for managing and improving my farm. Inspectors are very knowledgeable and helpful. I have been greatly educated and hope to continue working with program and inspectors."*
e. *"Inspector is always helpful, answers my questions we may have, and conducts inspections with an eye to helping correct anything we may need and praising a good job done."*
f. *"Soil and Water has put forth a very strong effort to ensure that potential problems are identified before they become problems and to follow up..."*
g. *"They [DSWC] have helped me stay more abreast of issues before they become problems, which helps me to get--and stay--in compliance."*
h. *Very good program. Soil and Water personnel are more knowledgeable and solution-oriented... [They] offer ways to head off problems..."*
i. *"I like the Soil and Water inspection better... [They] communicate easier when you are used to working with the same inspector."*
j. *"...[the] communication line is open for follow-up assistance immediately when I need it."*
k. *"I appreciate the survey.... The program works very well and it would be a shame to discontinue it. The Soil and Water personnel that visit my farm and conduct inspections are knowledgeable and solution oriented."*

VIII. Additional training needs were compiled from the survey and attached as ***Appendix B.*** This information will be shared with various agency personnel to provide needed educational materials and opportunities for improved animal waste management.

CONCLUSIONS

From 1999 through June 30, 2007, the Pilot Program has collected data from 2,921 documented site visits to 167 permitted animal operations in Brunswick, Columbus, Jones and Pender counties. DSWC staff continues to use the data to study and better understand the factors that influence compliance and affect the potential for environmental impact by conventional animal waste management systems. For the first half of 2007, DSWC experienced or observed the following:

- Through House Bill 810, the General Assembly this year extended the Pilot Program to a termination date of Sept. 1, 2009.

- The number of pilot farms operating under NPDES permits dropped from 95 to one in 2007, with the remaining 166 farms currently operating under state Non-Discharge General permits.

- The first half of 2007 was fairly uneventful based on actual versus normal precipitation amounts recorded at selected weather stations within the pilot counties.

- Twelve farms were identified as having a high potential for environmental impact and were "targeted" for compliance audits by DENR teams of DSWC and DWQ field staff during the first half of 2007.

- The frequency of occurrence for several of the program's operational indicators were considerably higher during the first half of 2007 when compared to the first half of 2006. This is believed to be a direct result of the above normal precipitation received in November of 2006.

- The producer survey reveals very high marks for the DSWC field staff's inspection thoroughness, knowledge, professionalism and timely response to requests.

- The impact of the statewide operation review program on producers, both in and out of the pilot area, indicate DSWC site visits are meeting the overall program objective of providing technical assistance.

- Producers in the pilot area expressed a strong desire for the continuation of the Pilot Program.

- Producers, both in and out of the pilot area, show an interest in new technologies for animal waste management that do not use anaerobic lagoons and sprayfields.

- Based on survey responses, less than half of the producers, both in and out of the pilot area, utilize computers and the Internet for record keeping needs.

- Overall, producers give the Pilot Program an "A."

- Based on survey comments received from producers located within the pilot area, DSWC is responding quickly and effectively with technical assistance to help producers identify problems earlier and to achieve compliance with environmental regulations.

APPENDIX A

PRODUCER SURVEY - SOIL & WATER CONSERVATION'S PILOT AND OPERATION REVIEW PROGRAMS

Thank you for completing form and returning to David Harrison, DSWC, 1614 Mail Service Center, Raleigh NC 27699-1614

My livestock operation(s) is located in (circle county): Brunswick Columbus Jones Pender Other

My farm's corporate structure is (circle): Company Farm Contract Grower Independent

Soil and Water Inspector	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	Not Applicable
Conducted thorough operation reviews and compliance inspections.	1	2	3	4	5	NA
Provided adequate time for inspection, questions and assistance.	1	2	3	4	5	NA
Has a good working knowledge of rules, regulations and permit requirements.	1	2	3	4	5	NA
Has a good working knowledge of managing the lagoon and waste system.	1	2	3	4	5	NA
Has a good working knowledge of the irrigation/waste application system	1	2	3	4	5	NA
Has a good working knowledge of crop, hay and pasture management.	1	2	3	4	5	NA
Conducted himself/herself in a professional and courteous manner.	1	2	3	4	5	NA
Responded to requests in a timely manner	1	2	3	4	5	NA

Meeting Overall Program Objectives						
I have a better understanding of rules, regulations and permit requirements because of the program.	1	2	3	4	5	NA
The program has helped me to better manage my farm's animal waste management system.	1	2	3	4	5	NA
The program helped me to achieve compliance with rules and regulations.	1	2	3	4	5	NA
I feel more comfortable communicating with Soil & Water, DWQ and other agency staff because of this program.	1	2	3	4	5	NA
I've been able to address problems before they became violations through this program.	1	2	3	4	5	NA
There is no difference between a DWQ and Soil & Water Conservation inspection.	1	2	3	4	5	NA

Future of the Pilot Program (Brunswick, Columbus, Jones & Pender Counties)						
I would like for the program to continue in my county.	1	2	3	4	5	NA
I think the program should be expanded into other counties.	1	2	3	4	5	NA
I think the program should end.	1	2	3	4	5	NA

More on Back

APPENDIX A

New Technologies for Animal Waste Management	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	Not Applicable
I would like to learn more about the new animal waste management technologies that do not use anaerobic lagoons and sprayfields.	1	2	3	4	5	NA
I would like more information on possible financial assistance to convert to a new technology.	1	2	3	4	5	NA
I am not interested in converting to a new technology.	1	2	3	4	5	NA

Computers and the Internet						
I use computerized recordkeeping on a regular basis.	1	2	3	4	5	NA
I use the Internet to download my waste and soils reports.	1	2	3	4	5	NA
I use the Internet to download record keeping forms.	1	2	3	4	5	NA
I would like more training on using the computer for my record keeping needs.	1	2	3	4	5	NA

Overall Program Rating - I would give the program the following grade:	A	B	C	D	F

Comments:

I would like additional training in the following areas (circle):

Managing a healthy lagoon Lagoon additives - do they work? Marker calibration Partial/full lagoon covers Managing mortality (e.g. composting)

Sludge removal/lagoon closure Sludge management techniques Performing sludge surveys New improved seeded Bermuda varieties

Calibrating land application equipment Irrigation design/installation Irrigation operating improvement Hose drag systems (e.g. Aerways)

Organizing records Computerizing records Basic waste application recordkeeping Environmental Management Systems (EMS)

Balancing phosphorus Carbon credit trading Restoring riparian areas/wetlands Restoring/preserving wildlife habitat Farmland Preservation

Crop management Forage management Weed management Pasture management Water management (surface/subsurface drainage)

Water conservation practices (in house) Swine Buyout Program in Floodplain Conservation Easement programs Vermicycling

APPENDIX

PRODUCER SURVEY - additional training requested in following topics:

	PILOT COUNTIES	OTHER COUNTIES
LAGOONS/MORTALITY		
MANAGING A HEALTHY LAGOON	16	16
LAGOON ADDITIVES - DO THEY WORK?	33	34
MARKER CALIBRATION	2	2
PARTIAL/FULL LAGOON COVERS	25	9
MANAGING MORTALITY (E.G. COMPOSTING)	4	9
SLUDGE REMOVAL/LAGOON CLOSURE	16	7
SLUDGE MANAGEMENT TECHNIQUES	29	25
PERFORMING SLUDGE SURVEYS	7	4
LAND APPLICATION		
NEW IMPROVED SEEDED BERMUDA VARIETIES	31	22
CALIBRATING LAND APPLICATION EQUIPMENT	5	4
IRRIGATION DESIGN/INSTALLATION	2	2
IRRIGATION OPERATING IMPROVEMENT	6	4
HOSE DRAG SYSTEMS (E.G. AERWAYS)	6	4
RECORD KEEPING		
ORGANIZING RECORDS	5	4
COMPUTERIZING RECORDS	9	14
BASIC WASTE APPLICATION RECORD KEEPING		
ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS)		3
BALANCING PHOSPHORUS	7	2
CARBON CREDIT TRADING	11	5
MANAGEMENT/PROGRAMS		
RESTORING RIPARIAN AREAS/WETLANDS	1	2
RESTORING /PRESERVING WILDLIFE HABITAT	11	6
FARMLAND PRESERVATION	12	4
CROP MANAGEMENT	9	5
FORAGE MANAGEMENT	15	11
WEED MANAGEMENT	26	20
PASTURE MANAGEMENT	22	16
WATER MANAGEMENT (SURFACE/SUBSURFACE DR	8	2
WATER CONSERVATION PRACTICES (IN HOUSE)	7	10
SWINE BUYOUT PROGRAM IN FLOODPLAIN	8	3
CONSERVATION EASEMENT PROGRAMS	4	4
VERMICYCLING	2	4

9/26/2007

General Assembly of North Carolina

Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

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COMMISSION ASSISTANT

JESSICA BENNETT
COMMISSION CLERK

26 November 2007

TO: Members of the Environmental Review Commission
Interested Parties

FROM: George F. Givens, Commission Counsel
Jessica Bennett, Commission Clerk

RE: **Reminder of Commission Meeting**
Schedule of Future Meetings
Meetings of Interested Parties (605 Working Groups)
Additional Information

COMMISSION MEETING:

You are reminded that the Environmental Review Commission (Commission) will meet at 9:30 a.m. Tuesday 27 November 2007 in Room 544 of the Legislative Office Building in Raleigh.

The agenda for this meeting shall consist of:

1. Introduction of newly appointed staff in the Department of Environment and Natural Resources *(5 minutes)*

2. Update on current drought conditions in light of conservation efforts and recent rain events; process for development of recommendations to improve future responses to drought conditions *(30 minutes)*

3. Discussion of precision farming using the Global Positioning Systems (GPS) to control the application of fertilizers *(30 minutes)*

4. Annual report on compliance with and enforcement of water quality laws for facilities that discharge into surface waters (G.S. 143-215.9A) (*10 minutes*)

5. Annual report on permitting and inspecting animal waste management systems (Animal Waste Compliance Report) (G.S. 143-215.10M) *(10 minutes)*

6. Update on the implementation of the Lagoon Conversion Program and the Swine Farm Methane Capture Pilot Program (Section 2 and Section 4 of S.L. 2007-523) *(10 minutes)*

7. Annual report by the Catawba/Wateree River Basin Advisory Commission (G.S. 77-117) *(10 minutes)*

8. Presentation and comment on the use of pervious pavement for vehicle parking areas as required by Section 6.22.(a) of S.L. 2007-323 (*35 minutes*)

9. Report on the Implementation of the Ecosystem Enhancement Program and use of the Ecosystem Enhancement Fund, including inventory of property and easements and a discussion of the in-lieu fee program (G.S. 143-214.13) (*20 minutes*)

10. Annual report by the State Water Infrastructure Commission on its activities and findings, including any recommendations of the Commission that require action by the General Assembly to implement (G.S. 159G-67) (*20 minutes*)

11. Annual report on the implementation of the resident inspectors program for commercial hazardous waste facilities including implementation of the amendments to the program made by S.L. 2007-107 (G.S. 130A-295.02(m)) *(10 minutes)*

12. Annual report on the Inactive Hazardous Sites Program including discussion of the reorganization of contaminated sites program in the Department (G.S. 130A-310.10) *(10 minutes)*

13. Report on the effectiveness of the Brownfields Property Reuse Act (G.S. 130A-310.40) *(10 minutes)*

SCHEDULE OF FUTURE MEETINGS:

Below is a schedule of meetings of the Commission for December 2007 through May 2008. **This schedule is tentative and subject to adjustment.** In particular, the March meeting may take place over two days at a location outside Raleigh in order to focus on parks and recreation matters.

To facilitate development of the agenda for meetings of the Commission and to receive input from interested persons regarding the future work of the Commission, the Commission Counsel holds informal public planning meetings for staff and interested parties. The schedule of these meetings is also set out below.

Commission Meeting	Location	Staff Planning Meeting	Location
Wednesday 19 December 2007	544 LOB	Wednesday 5 December 2007	605 LOB
Wednesday 23 January 2008	544 LOB	Friday 11 January 2008	605 LOB
Thursday 14 February 2008	544 LOB	Tuesday 5 February 2008	605 LOB
Tuesday 18 March 2008	544 LOB	Friday 7 March 2008	605 LOB
Thursday 10 April 2008	544 LOB	Friday 28 March 2008	605 LOB
Friday 9 May 2008	544 LOB	Tuesday 29 April 2008	605 LOB
Wednesday 14 May 2008	544 LOB		

MEETINGS OF INTERESTED PARTIES:

The Commission Counsel will hold meetings of interested parties on specific topics as indicated below:

Underground Storage Tank Working Group

2:00 p.m. Monday 17 December 2007 – 605 Legislative Office Building

Public meetings on the scope and direction of the study of allocation of water resources

4:00 p.m. to 7:00 p.m. Thursday 20 December 2007 – Charlotte
4:00 p.m. to 7:00 p.m. Friday 4 January 2008 – Greenville
4:00 p.m. to 7:00 p.m. Wednesday 9 January 2008 – Asheville

Public meeting on the study of issues related to construction on artificial slopes

4:00 p.m. to 7:00 p.m. Thursday 10 January 2008 – Asheville

ADDITIONAL INFORMATION:

Persons having questions about the Commission meeting or other matters related to the Commission may contact Commission Counsel or other Commission staff at (919) 733-2578 or may visit the Commission's website at:
http://www.ncleg.net/gascripts/DocumentSites/browseDocSite.asp?nID=12

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JESSICA BENNETT
COMMISSION CLERK

9 November 2007

TO: Members of the Environmental Review Commission
Interested Parties

FROM: George F. Givens, Commission Counsel
Jessica Bennett, Commission Clerk

RE: **Notice of Commission Meeting**
Notice of Planning Meeting
Schedule of Future Meetings
Meetings of Interested Parties (605 Working Groups)
Additional Information

COMMISSION MEETING:

The Environmental Review Commission (Commission) will meet at 9:30 a.m. Tuesday 27 November 2007 in Room 544 of the Legislative Office Building in Raleigh.

At this meeting, the Commission will begin or continue studies for which the Commission is responsible, hear reports from State agencies, discuss topics to be considered at future meetings, and attend to other matters. Listed below are potential agenda topics for this meeting and for future meetings. More specific information regarding the agenda for the 27 November meeting of the Commission will be developed at the staff planning meeting discussed below. Commission Staff may publish a revised notice/draft agenda following the staff planning meeting if circumstances permit.

STUDIES

1) Issues related to the franchise of solid waste management facilities by units of local government. (S.L. 2007-550, Sec. 18) *Deferred until January.*

2) Issues related to the transportation of solid waste by rail or barge, including the extent to which regulation of the transportation of solid waste by rail or barge may be preempted by federal law. (S.L. 2007-550, Sec. 18) *Deferred until January.*

3) Issues related to the use of pervious surfaces for vehicle parking areas, including associated costs, impact to the environment of stormwater runoff, and practices of other states with regard to stormwater best management practices. (S.L. 2007-323, Sec. 6.22.(b)) *May have in November, will have comments from homebuilders and retailers.*

4) Allocation of surface water resources and their availability and maintenance in the State, including issues related to the transfer of water from one river basin to another, the withdrawal of water for consumptive use, and the accuracy and tolerance of equipment used to measure the flow of water transferred from one river basin to another river basin. (S.L. 2007-518, Sec. 1.(a))

Currently planning how to succeed. Plan to contract with the School of Government for several aspects of the study. Want to have as much input as possible including a series of scoping meetings. There may be opportunity for comments at the November or December meeting if can prepare in time.

5) Preparation of a revised map entitled "Major River Basins and Sub-basins in North Carolina" as a recommended replacement for the map referenced in G.S. 143-215.22G. The revised map shall define the extent to which any river basin that encompasses any river that flows from another state into North Carolina or that flows from North Carolina into another state extends into an adjacent state. (S.L. 2007-518, Sec. 1.(b)) *Ready in November.*

REPORTS *(Report due dates are indicated in parentheses)*

General/Miscellaneous:

6) Annual report on the One-Stop Permit Assistance Program on the number of environmental permits that took more than 90 days to issue or deny, types of permits, reasons for extended processing time, and how the time used to issue or deny the permits compared with projected time provided to the applicant by DENR. (143B-279.12(e)) *(1 October) Reported in conjunction with Item 7. Deferred due to illness.*

7) Annual report on the findings and recommendations on the success of the express permit and certification review program. (G.S. 143B-279.13(c)) *(1 March) See item Six.*

8) Annual report on litter enforcement, prevention, and removal efforts. (G.S. 147-12(b)) *(1 March) Report is in. Deferred until January.*

9) Annual report on the evaluation and adjustment of the boundaries of the area served by each Metropolitan Planning Organization. (G.S. 136-202(d)) *(1 November) No reports filed since 2000.*

10) Annual report on the cost of the State's environmental permitting program (G.S. 143-215.3A(c)) *(1 November) Deferred until December.*

Air Quality:

11) Annual report on the cost of the Title V program. (G.S. 143-215.3A(c)) *(1 November)*

12) Annual report on implementation of S.L. 2002-4 (Clean Smokestacks Act). (S.L. 2002-4, Sec. 14) *(1 June) Read only.*

13) Annual report on the desirability of requiring and feasibility of obtaining reductions in emissions of NOx and SO2 beyond those required by the Clean Smokestacks Act. (S.L. 2002-4, Sec. 11) *(1 September) Deferred.*

Coastal Management:

14) Annual report on the progress in developing and implementing the Coastal Habitat Protection Plans and reports on the completion or substantial revision of each draft Coastal Habitat Protection Plan. (G.S. 143B-279.8(e) and G.S. 143B-279.8(f)) *(1 September) Deferred. Jennifer Mundt to review.*

15) Annual report by the Coastal Resources Commission evaluating the impacts on water quality and other environmental impacts from new urban waterfront area development. (S.L. 2004-117, Sec. 4) *(1 October) Deferred*

Hazardous Waste Management:

16) Annual report on the Inactive Hazardous Sites Program. (G.S. 130A-310.10) *(1 October) Report done last year. Oral report. 30 minutes.*

17) Annual report on implementation of the Resident Inspectors Program at commercial hazardous waste facilities. (G.S. 130A-295.02(m)) *(1 October) Scheduled for November meeting. Oral. Part of Item 16.*

18) Report of Superfund cost share fund expenditures for cleanup of sites on the National Priorities List. (S.L. 1999-237(15.6)(b)) *(Floating, within 30 days of expenditure) Nothing.*

19) Annual report on the North Carolina Hazardous Waste Management Plan. (G.S. 130A-294(i)) *(1 October) Read only.*

20) Annual report on the Effectiveness of the Brownfields Property Reuse Act. (G.S. 130A-310.40) *(1 October) Oral report.*

Parks and Recreation / Land Conservation:

Items 21 through 25: Need to figure when to have Parks and Recreation people to the meeting. Deferred tentatively until March.

21) Parks and Recreation Trust Fund Annual Report, Fiscal Year 2003-2004. (G.S. 113-44.15(c)) *(1 October)*

22) North Carolina Natural Heritage Trust Fund Award Report, Fiscal Year 2005-2006. (G.S. 113-77.9(e)) *(Semi-annually, within 30 days of each revision)*

23) Annual report on progress towards attaining the State's goal of protecting one million acres of farmland, open space, and conservation lands. (G.S. 113A-241(c)) *(1 October)*

24) Annual report on implementation of the Conservation Easements Program and inventory of all conservation easements held by DENR. (G.S. 113A-235(c)) *(1 October)*

25) Annual report on the activities of the North Carolina Agricultural Development and Farmland Preservation Trust Fund and Advisory Committee, the agriculture easements purchased, and agricultural projects funded during the previous year. (S.L. 2007-495, Sec. 23 *(May 1)*

Water Quality:

26) Interim report on the pilot program to streamline the process for the issuance of an improvement permit or an authorization to construct for an on-site subsurface wastewater system in certain counties by authorizing local health departments, authorized agents of DENR, and licensed soil scientists to complete soil and site evaluations in participating counties. (S.L. 2006-136, Sec. 3) *(October 1) Deferred until December. Both reports ready. Deferred because of manger's retreat.*

27) Annual report on permitting and inspecting animal waste management systems/Animal Waste Compliance Report. (G.S. 143-215.10M) *(1 October) Items 27 and 30 to be presented in November. 20 minutes needed for both items.*

28) Semiannual report on the pilot program for inspection of animal waste management systems including a comparison of the costs of conducting operations reviews and inspections under the pilot program with the costs of conducting operations and inspections under G.S. 143-215.10D and G.S. 143-215.10F. *(15 October) Read only.*

29) Annual report on the compliance/enforcement of water quality laws for facilities that discharge into surface waters. (G.S. 143-215.9A) *(1 October) Scheduled for November.*

30) Annual report on the Wastewater Discharge Elimination Program. (S.L. 2001-452, Sec. 2.9) *(15 October) Deferred until December. Will also want to hear an update on House Bill 1465.*

31) Annual report on Basinwide Water Quality Management Plans. (G.S. 143-215.8B) *(1 October) Reports are ready but hold until ready to hear more.*

32) Annual report on the Dry-Cleaning Solvent Cleanup Program. (G.S. 143-215.104U) *(1 October) Hold. New rules implemented this year.*

33) Annual report on the status of leaking petroleum underground storage tanks, the State cleanup funds, and the Groundwater Protection Loan Fund. (G.S. 143-215.94M) *(1 September) Read only.*

34) Annual report by the Roanoke River Basin Bi-State Commission. (G.S. 77-98) *(*

35) Annual report by the Yadkin-Pee Dee River Basin Advisory Commission. (G.S. 77-117) *(1 October) Does not think there is a report.*

36) Annual report by the Catawba/Wateree River Basin Advisory Commission and the Yadkin/Pee Dee River Basin Advisory Commission. (G.S. 77-117) *(1 October) Oral report. 10 minutes. No written report.*

37) Implementation of the Ecosystem Enhancement Program and use of the Ecosystem Enhancement Fund, including inventory of property and easements. (G.S. 143-214.13) *(1 November) 20 minute presentation. Mainly policy.*

Water Quantity:

38) Annual report by the State Water Infrastructure Commission on its activities and findings, includes any recommendations of the Commission that require action by the General Assembly to implement. (G.S. 159G-67) *(1 November)*

PLANNING MEETING:

To facilitate development of the agenda for the 27 November meeting of the Commission, to begin planning for subsequent meetings of the Commission, and to receive input from interested persons regarding the work of the Commission, the Commission Counsel will hold an informal planning meeting at **10:00 a.m. on Thursday 15 November 2007 in Room 605 of the Legislative Office Building**. Persons who wish to participate in the development of the agenda for meetings of the Commission, or who are interested in any matter before the Commission, are invited to attend.

SCHEDULE OF FUTURE MEETINGS:

Below is a schedule of meetings of the Environmental Review Commission for December 2007 through May 2008. **This schedule is tentative and subject to adjustment.** For planning purposes, however, please reserve these dates. This schedule may be modified to allow for out-of-town business meetings or site visits and in the event that it becomes necessary to cancel a scheduled meeting due to hazardous weather conditions.

Please note the following:

1. Meetings of the Commission normally begin at 9:30 a.m., include a lunch break, and run until mid-afternoon. Please plan on meeting from 9:30 a.m. until at least 3:30 p.m. Meetings of the Commission are open to the public.

2. Staff planning meetings normally begin at 10:00 a.m. and adjourn by noon. Staff planning meetings are informal and are open to the public. Commission members are not expected to attend these meetings.

3. The 2008 Regular Session is scheduled to begin at 12:00 noon on Tuesday 13 May 2008. The Commission may meet shortly after the beginning of the session to complete ongoing work and to consider any legislative proposals and recommendations and may meet at other times during the legislative session.

Commission Meeting	Location	Staff Planning Meeting	Location
Wednesday 19 December 2007	544 LOB	Wednesday 5 December 2007	605 LOB
Wednesday 23 January 2008	544 LOB	Friday 11 January 2008	605 LOB
Thursday 14 February 2008	544 LOB	Tuesday 5 February 2008	605 LOB
Tuesday 18 March 2008	544 LOB	Friday 7 March 2008	605 LOB
Thursday 10 April 2008	544 LOB	Friday 28 March 2008	605 LOB
Friday 9 May 2008	544 LOB	Tuesday 29 April 2008	605 LOB
Wednesday 14 May 2008	544 LOB		

MEETINGS OF INTERESTED PARTIES (605 WORKING GROUPS):

The Commission Counsel will hold meetings of interested parties on specific topics as indicated below:

Underground Storage Tank Working Group
2:00 p.m. Monday 17 December 2007 – 605 Legislative Office Building

ADDITIONAL INFORMATION:

If you have questions related to the Commission, please feel free to contact the Commission Counsel or other Commission staff at (919) 733-2578.

2007-2008 Interim

Studies to be Conducted by the Environmental Review Commission

Organized by topics: air quality, coastal issues, environmental health, fishing, general, hazardous substances, land quality, parks and conservation, solid waste, water quality, water quantity, wetlands

Solid Waste

ERC (with the assistance of the Dept of Justice)	Report To/ Authority	Report Due
Shall study issues related to the franchise of solid waste management facilities by units of local govt and (with DOJ) study issues related to transportation of solid waste by rail or barge	General Assembly S.L. 2007-550, Sec. 18	2008 Regular Session

Water Quality

ERC	Report To/ Authority	Report Due
May study issues related to use of pervious surfaces for vehicle parking areas, including associated costs, impact of stormwater runoff, practices of other states	2008 General Assembly SL 2007-323, Sec 6.22.(b)	upon its reconvening

Water resources

Division of Water Resources, DENR in consultation with ERC	Report To/ Authority	Report Due
Shall, in consultation with the ERC, prepare a revised map entitled "Major River Basins and Sub-basins in NC" as a replacement for the map referenced in G.S. 143-215.22G. ERC shall recommend a revised map and amended definition of "river basin"	General Assembly S.L. 2007-518, Sec. 1.(b)	2008 Regular Session

ERC, with assistance from DENR	Report To/ Authority	Report Due
Shall study the allocation of surface water resources and their availablity and maintenance in the State	2008 General Assembly 2007-518, Sec. 1.(a)	Interim: may (2008 General Assembly) Final: shall (2009 General Assembly)

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

2007 Studies Bill HOUSE VERSION

GENERAL ASSEMBLY OF NORTH CAROLINA

SESSION 2007

S 4

SENATE BILL 1256

Rules and Operations of the Senate Committee Substitute Adopted 8/1/07
Third Edition Engrossed 8/1/07
House Committee Substitute Favorable 8/2/07

Short Title: 2007 Studies Bill. (Public)

Sponsors:

Referred to:

March 26, 2007

A BILL TO BE ENTITLED

AN ACT TO PROVIDE FOR STUDIES BY THE LEGISLATIVE RESEARCH COMMISSION, STATUTORY OVERSIGHT COMMITTEES AND COMMISSIONS, AND OTHER AGENCIES, COMMITTEES, AND COMMISSIONS.

The General Assembly of North Carolina enacts:

PART I. TITLE

SECTION 1. This act shall be known as "The Studies Act of 2007."

PART II. LEGISLATIVE RESEARCH COMMISSION

SECTION 2.1. The Legislative Research Commission may study the topics listed below. When applicable, the bill or resolution that originally proposed the issue or study and the name of the sponsor are listed. Unless otherwise specified, the listed bill or resolution refers to the measure introduced in the 2007 General Assembly. The Commission may consider the original bill or resolution in determining the nature, scope, and aspects of the study. The following groupings are for reference only:

(1) Criminal Law Issues:
  a. Grand Juries (S.B. 1130 – Clodfelter)
  b. Littering (S.B. 1202 – Jacumin)
  c. Expunctions (H.B. 88 – Moore)
  d. Sex offender registration (H.B. 224 – Goforth, Ray)
  e. Prerelease HIV Testing of All DOC Inmates (H. B. 1898 – Farmer-Butterfield, Wright, Womble)
  f. Illegal drug use (H.B. 2005 – Stam, Allred)

(2) State/Local Government Employee Issues:

(9) How the combined occupancy and sales tax rates in North Carolina compare with rates in other states that have a comparably ranked tourism industry.

(10) The advantages and disadvantages of establishing a uniform system for occupancy taxes and whether that system, in whole or in part, should be incorporated into the statutes.

SECTION 7.7. Sale and Use Tax and Out of State Purchases (H.B. 1994 – Stam, Allred) – The Committee may study and examine, with the appropriate agencies of neighboring states and taxpayer groups, issues associated with cross-border transactions where property is purchased in one state and used in another state. The Committee may examine the economic effects on retailers in North Carolina that make cross-border deliveries of merchandise and may recommend possible actions that might be taken to address the avoidance of sales and use tax by retailers and purchasers located near State lines and to improve compliance with, or recommend changes to, existing State laws. The Committee may also consider changes that would ease the burden on retailers that deal with cross-border issues and ways to ensure that North Carolina retailers are not placed at a disadvantage in comparison to retailers in surrounding states.

SECTION 7.8. Franchise Laws for Farm and Industrial Equipment Dealers (Cotham, Lewis) – The Committee may study issues related to franchise laws for farm and industrial equipment dealers.

SECTION 7.9. Property Tax Exclusion for Disabled Veterans (H.B. 486-McGee, Holliman, J. Harrell, Pate) – The Committee may study issues related to the granting a property tax exclusion for disabled veterans.

SECTION 7.10. Renewable Energy Tax Credit – The Committee may study issues related to the implementation of G.S. 105-129.16G – Credit for donating funds to a nonprofit organization to enable the nonprofit to acquire renewable energy property.

PART VIII. ENVIRONMENTAL REVIEW COMMISSION STUDIES

SECTION 8.1. The Environmental Review Commission may study the topics listed in this Part and report its findings, together with any recommended legislation, to the 2008 Regular Session of the 2007 General Assembly upon its convening.

SECTION 8.2. North Carolina Petroleum Underground Storage Tank Program (S.B. 1146 – Hoyle) – The Commission may study the North Carolina petroleum underground storage tank program and the problems of returning to use sites impacted by leaking underground storage tanks. If the Committee undertakes the study, the following issues shall be examined:

(1) The role of "risk-based corrective action" in protecting both public health and the environment.

(2) An assessment of whether DENR has fully utilized risk-based corrective action in the program to date and whether implements could be made to fully utilize existing financial resources in the future.

(3) An assessment of the pace of cleanup "closures", and the DENR's experience with issuing letters of "no further action required" including whether contamination is being addressed promptly and impacted parcels being made eligible for desired commercial transactions that follow appropriate remediation.

(4) An assessment of fair and equitable funding needs facing the State and the tank owning segment with an examination of solvency issues experienced in the present or expected in the future.

(5) An examination and survey of other states to determine "model solutions" to address the challenges of financing environmental cleanups following a tank release and the expedited return of impacted parcels to needed and normal real estate commerce.

SECTION 8.3. Interstate Compact To Mediate Water Supply Issues (S.B. 1360 – Allran; H.B. 960 – Gillespie, Church, Hilton, R. Warren) – The Committee may study the need to negotiate an interstate compact with adjoining states that have a river basin that drains into or from North Carolina to mediate and cooperatively resolve water supply disputes that may arise from interbasin transfers and consumptive water uses in river basins that are shared by North Carolina and those states.

SECTION 8.4. Mountain Resources (Queen) – The Committee may study:

(1) Threats to important mountain resources, such as the Great Smoky Mountains National Park, the Blue Ridge Parkway, the Appalachian Trail, Mt. Mitchell, Lake James, Hickory Nut Gorge, and Gorges State Park, and the consequences to those resources of present trends and land-use practices in the mountains.

(2) Research and information from North Carolina and other states and jurisdictions regarding state and regional approaches to coordinating provision of infrastructure for the protection of mountain resources, and the efforts to encourage quality growth to protect those resources.

(3) Strategies or tools that would be helpful to address pressures on important mountain resources and whether and how those strategies and tools should be implemented to protect important mountain resources.

(4) Determine whether tools and strategies that could be used to protect important mountain resources could be applied to protect other resources in the mountains of North Carolina, including, but not limited to, groundwater, mountain streams, steep slopes and ridgelines, natural heritage areas, recognized historic areas or sites, and farmland.

SECTION 8.5. Replacement of Incandescent Lamps (H.B. 838 – Harrison, Fisher) – The Commission shall study the feasibility and desirability of phasing out the use of various types of general service incandescent lamps and replacing them with more energy efficient forms of lighting. As a part of this study, the Commission shall consider the extent to which practical and cost-effective alternative forms of lighting, including energy efficient incandescent lighting, are available and the short- and long-term costs and benefits of replacing general service incandescent lamps with more

energy efficient forms of lighting. The Commission shall report its findings and recommendations, including any legislative proposals, to the 2008 Regular Session of the General Assembly.

SECTION 8.6. Far mers "Cap-and-Trade" Program For Greenhouse Gas (GHG) Emissions (H.B. 962 – Faison, Hill) – The Commission may study the feasibility and advisability of extending credits to the business of farming in the same manner that credits are extended to other businesses in the event North Carolina enacts or adopts by rule a market-based "Cap-and-Trade" program for greenhouse gas (GHG) emissions. As used in this section, a "Cap-and-Trade" program is any program that places a limit, the cap, on the total amount of GHG emissions that is allowed under the specific target for GHG emissions set by the State, allocates GHG emissions as credits to individual businesses so that the total credits allocated equal the cap, and allows businesses to bank credits for the future or to buy and sell credits based on whether a particular business reduced or increased its GHG emissions in a given year and the value of the credits in the marketplace. In its study, the Commission may consider all of the following:

(1) How farmers can monitor GHG emissions.

(2) What the anticipated costs are to farmers to participate in a "Cap-and-Trade" program for GHG emissions, including the costs of monitoring GHG emissions, satisfying reporting requirements, and any other costs.

(3) How farmers can reduce GHG emissions on a farm.

(4) How farmers can increase their farms' ability to act as "carbon sinks," that is, utilize the carbon-absorbing abilities of plants and trees to remove carbon dioxide from the atmosphere.

(5) If farms can act as "carbon sinks" under subdivision (4) of this section, whether the removal of carbon dioxide from the atmosphere should receive some market value under the State's "Cap-and-Trade" program.

(6) How much farmers are likely to increase their annual incomes by participating as businesses in a "Cap-and-Trade" program for GHG emissions.

(7) Any other issues the Commission considers relevant to this topic.

SECTION 8.7. Increase The Recycling Of Glass And Plastic Containers. (H.B. 1394 – Tolson, Wray, Crawford, Farmer-Butterfield) – The Commission may study ways in which the recycling of glass and plastic containers can be increased and ways in which the availability of recycled glass or plastic containers can be increased for use as batch material for the manufacturing of glass and plastic containers, and the Commission may include in this study an evaluation of the effectiveness of North Carolina recycling practices for glass and plastic and compare them to the recycling practices of other states. In its study, the Commission also may consider all of the following:

(1) Whether any businesses in North Carolina use recycled glass or plastic containers as batch material for the manufacturing of glass or plastic containers.

(2) Whether any businesses identified under subdivision (1) of this section receive adequate supplies of recycled glass or plastic containers for their manufacturing processes.

(3) Where the recycled glass or plastic containers used by any businesses identified under subdivision (1) of this section come from and how far the recycled glass or plastic containers are transported to the businesses.

(4) Whether glass and plastic containers that are discarded in North Carolina are processed and recycled so as to benefit North Carolina businesses.

(5) Whether glass and plastic containers that are discarded in North Carolina are processed and recycled in keeping with the State's solid waste management policy and the forty percent (40%) municipal solid waste reduction goal established by the State under G.S. 130A-309.04.

(6) Any other issues the Commission considers relevant to this topic.

SECTION 8.8. Study Methods Of Disposing Of Wastewater At Municipal Wastewater Treatment Systems (H.B. 1809 – Tucker, Grady, Cleveland) – The Commission may study current methods of disposing of wastewater at municipal wastewater treatment facilities, as defined in G.S. 143-215.6D, and may study the feasibility and desirability of municipal wastewater treatment facilities employing other methods of disposing of wastewater. In its study, the Commission may consider all of the following:

(1) Whether the current practice of land application of wastewater at any municipal wastewater treatment facilities requires too much land to be practicable in the long term.

(2) Whether the current practice of land application of wastewater at municipal wastewater treatment facilities is better suited to certain parts of the State or to areas of certain geological or topographical conditions.

(3) Whether there are any alternative methods of disposing of wastewater at municipal wastewater treatment systems and the costs and benefits of employing any such alternative methods either on a statewide basis or in any specific area of the State.

(4) Subject to Section 2 of this act, any other issues the Commission considers relevant to this topic.

(5) The study authorized by this section shall not address any issues regarding animal waste management systems, as defined in G.S. 143-215.10B, at swine farms, as defined in G.S. 106-802, or the land application of wastewater associated with animal waste, as defined in G.S. 143-215.10B.

SECTION 8.9. Study Use of State Gamelands along Northeast Cape Fear River and Burgaw Creek for Education and Recreation (S.B. 780 – Soles; H.B. 926 – Justice) –The Commission may study issues related to the desirability and feasibility of adapting the use of a tract of State-owned land, located in the Southeastern part of the

State on the Northeast Cape Fear River and the Burgaw Creek that is currently State gamelands, to showcase the natural environment of Southeastern North Carolina, provide environmental education opportunities for youth and adults, and provide recreational opportunities for outdoor enthusiasts. This tract is approximately 776 acres located approximately three miles east of the Town of Burgaw and consists of creek swamp, ridges, and a planted pine plantation. In particular, the Commission may consider:

(1) The desirability and feasibility of establishing hiking trails on this land.

(2) The desirability and feasibility of constructing a launch site on this land that fronts the Burgaw Creek for canoes and kayaks, thereby providing a venue for canoeing and kayaking on the Cape Fear River and Burgaw Creek for the public.

(3) The environmental educational opportunities that are available for the public at the bottomland swamps, pine plantation, and other wetlands located on this land.

(4) The potential for developing at the pineland plantation a demonstration forest to showcase best forest management practices.

(5) The potential for restricting the current use of this land as State gamelands so that the use as gamelands would be compatible with recreational, educational, and environmental uses.

(6) The potential for paying the costs, in whole or in part, of adapting the use of this land to recreational, educational, and environmental uses from the sale of timber from the pine plantation located on this land.

(7) Other possible funding sources than the funding source under subdivision (6) of this section for the costs of adapting the use of this land to recreational, educational, and environmental uses.

(8) Any other issues the Commission considers to be pertinent to its study.

SECTION 8.10. Artificial Slope Construction in Mountainous Areas (H.B. 1756 – Rapp, Haire, Fisher) – The Commission with the assistance of the Department of Environment and Natural Resources, may study issues related to safe artificial slope construction in mountainous areas. The Commission may specifically study the need for and advisability of establishing minimum statewide management requirements for safe artificial slope construction in mountainous areas of the State. The Commission may also consider issues related to the recordation of natural hazards; environmental permit conditions and limitations and land-use restrictions associated with real property located in mountainous and other areas of the State; and disclosure to prospective purchasers of real property of those hazards, conditions, and restrictions. If the Commission undertakes this study, it shall hold at least two meetings related to this in the western region of the State.

SECTION 8.11. Discarded Consumer Electronics (H.B. 1777 – Gibson) – The Commission may study issues surrounding the management of discarded consumers' desktop and notebook computers, computer monitors, computer display devices, and televisions for which a manufacturer cannot be identified or for which the

manufacturer is no longer in business and has no successor in interest. When conducting this study, the Commission may ascertain, by number of units, weight, or volume, how much of this consumer computer and television equipment has been discarded in North Carolina and may determine the threat to the environment these components of the waste stream pose. No later than May 1, 2008, the Commission shall report its findings and recommendations, including any administrative or legislative proposals, on the most efficient and economically practicable means of recovering, reusing, recycling, or disposing of these components of the waste stream.

SECTION 8.12. Ban Use of DECA Flame Retardant (Harrison) – The Commission may study issues related to banning the use of DECA flame retardant.

SECTION 8.13. Wind Permitting (Harrison) – The Commission may study methods for implementing a state level permitting system and siting requirements for commercial-scale wind energy systems that will ensure that wind energy systems are sited in an orderly manner compatible with environmental preservation, sustainable development, and the efficient use of resources. In undertaking the study, the Commission may consider procedures for environmental review of commercial-scale wind energy systems, and standards necessary to minimize impacts in the following areas: noise, visual, environmental, sensitive habitats, wildlife, public health, safety. The Commission may form a technical advisory committee to include representatives from various stakeholder groups to assist in conducting this study.

SECTION 8.14. Phase Out Lagoon and Sprayfield Systems (H.B. 1822 – Jones, Harrison) – The Commission may study issues related to phasing out lagoon and sprayfield systems.

SECTION 8.15. Hazard Disclosures in Coastal Real Estate Transactions (H.B. 1628) – The Commission may study issues related to hazard disclosures in coastal real estate transactions.

SECTION 8.16. No Mining Sand From Tidal Inlet/Delta. (H.B. 1832 – Harrison) – The Commission may study issues related to mining sand from tidal inlets and delta areas.

SECTION 8.17. Energy, Job Creation, and Venture Capital (H.B. 2028 – Brubaker, Wainwright, Daughtridge) – The Commission may study issued related to energy, job creation, and venture capital.

PART IX. JOINT LEGISLATIVE OVERSIGHT COMMITTEE ON MENTAL HEALTH, DEVELOPMENTAL DISABILITIES, AND SUBSTANCE ABUSE SERVICES STUDIES

SECTION 9.1. The Joint Legislative Oversight Committee on Mental Health, Developmental Disabilities, and Substance Abuse Services may study the topics listed in this Part and report its findings, together with any recommended legislation, to the 2008 Regular Session of the 2007 General Assembly upon its convening.

SECTION 9.2. Facilities That Provide Housing For Adults With Mental Illness In The Same Location With Adults Without Mental Illness (S.B. 1266 – Nesbitt; H.B. 691 – Insko) – The Committee may study and identify rules and laws that are

SECTION 97. The listing of the original bill or resolution in this act is for reference purposes only and shall not be deemed to have incorporated by reference any of the substantive provisions contained in the original bill or resolution.

PART XCVIII. EFFECTIVE DATE AND APPLICABILITY

SECTION 98. Except as otherwise specifically provided, this act is effective when it becomes law. If a study is authorized both in this act and in the Current Operations and Capital Improvements Appropriations Act of 2007, the study shall be implemented in accordance with the Current Operations and Capital Improvements Appropriations Act of 2007 as ratified.

2007 Studies Bill SENATE VERSION

GENERAL ASSEMBLY OF NORTH CAROLINA

SESSION 2007

S 3

SENATE BILL 1256

Rules and Operations of the Senate Committee Substitute Adopted 8/1/07
Third Edition Engrossed 8/1/07

Short Title: 2007 Studies Bill. (Public)

Sponsors:

Referred to:

March 26, 2007

A BILL TO BE ENTITLED

AN ACT TO PROVIDE FOR STUDIES BY THE LEGISLATIVE RESEARCH COMMISSION, STATUTORY OVERSIGHT COMMITTEES AND COMMISSIONS, AND OTHER AGENCIES, COMMITTEES, AND COMMISSIONS.

The General Assembly of North Carolina enacts:

PART I. TITLE

SECTION 1. This act shall be known as "The Studies Act of 2007."

PART II. LEGISLATIVE RESEARCH COMMISSION

SECTION 2.1. The Legislative Research Commission may study the topics listed below. When applicable, the bill or resolution that originally proposed the issue or study and the name of the sponsor are listed. Unless otherwise specified, the listed bill or resolution refers to the measure introduced in the 2007 General Assembly. The Commission may consider the original bill or resolution in determining the nature, scope, and aspects of the study. The following groupings are for reference only:

(1) Criminal Law Issues:
  a. Grand Juries (S.B.1130 – Clodfelter)
  b. Execution/Severely Mentally Disabled Defendants (S.B. 1075 – Kinnaird)
  c. Littering (S.B. 1202 – Jacumin)

(2) State/Local Government Employee Issues:
  a. Expenses and Financing of Parking Decks for State Employees (Rand)

(3) Health and Human Services Issues:
  a. Store-Based Retail Health Clinics (Forrester)

(3) Any other item the Committee finds relevant to this study.

SECTION 7.5. New Market Tax Credit (S.B. 1160 – Hoyle) – The Committee may study a State new market tax credit to complement the federal tax credit.

SECTION 7.6. Earned Income Tax Credit – The Committee may study earned income tax credit participation rates in North Carolina and other states.

PART VIII. ENVIRONMENTAL REVIEW COMMISSION STUDIES

SECTION 8.1. The Environmental Review Commission may study the topics listed in this Part and report its findings, together with any recommended legislation, to the 2008 Session of the General Assembly upon its convening.

SECTION 8.2. North Carolina Petroleum Underground Storage Tank Program (S.B. 1146 – Hoyle) – The Commission may study the North Carolina petroleum underground storage tank program and the problems of returning to use sites impacted by leaking underground storage tanks. If the Committee undertakes the study, the following issues shall be examined:

(1) The role of "risk-based corrective action" in protecting both public health and the environment.

(2) An assessment of whether DENR has fully utilized risk-based corrective action in the program to date and whether implements could be made to fully utilize existing financial resources in the future.

(3) An assessment of the pace of cleanup "closures", and the DENR's experience with issuing letters of "no further action required" including whether contamination is being addressed promptly and impacted parcels being made eligible for desired commercial transactions that follow appropriate remediation.

(4) An assessment of fair and equitable funding needs facing the State and the tank owning segment with an examination of solvency issues experienced in the present or expected in the future.

(5) An examination and survey of other states to determine "model solutions" to address the challenges of financing environmental cleanups following a tank release and the expedited return of impacted parcels to needed and normal real estate commerce.

SECTION 8.3. Deep River State Trail/State Parks System (S.B. 1431 – Atwater) – The Commission may study the desirability and feasibility of adding the Deep River State Trail to the State Parks System.

SECTION 8.4. Interstate Compact To Mediate Water Supply Issues (S.B. 1360 – Allran) – The Committee may study the need to negotiate an interstate compact with adjoining states that have a river basin that drains into or from North Carolina to mediate and cooperatively resolve water supply disputes that may arise from interbasin transfers and consumptive water uses in river basins that are shared by North Carolina and those states.

SECTION 8.5. State-Owned Land On Cape Fear River/Burgaw Creek (S.B. 780 – Soles) – The Committee may study issues related to the desirability and feasibility of adapting the use of a tract of State-owned land, located in the southeastern part of the State on the Northeast Cape Fear River and the Burgaw Creek that is currently State gamelands, to showcase the natural environment of Southeastern North Carolina, provide environmental education opportunities for youth and adults, and provide recreational opportunities for outdoor enthusiasts.

SECTION 8.6. Mountain Resources (Queen) – The Committee may study:

(1) Threats to important mountain resources, such as the Great Smoky Mountains National Park, the Blue Ridge Parkway, the Appalachian Trail, Mt. Mitchell, Lake James, Hickory Nut Gorge, and Gorges State Park, and the consequences to those resources of present trends and land-use practices in the mountains.

(2) Research and information from North Carolina and other states and jurisdictions regarding state and regional approaches to coordinating provision of infrastructure for the protection of mountain resources, and the efforts to encourage quality growth to protect those resources.

(3) Strategies or tools that would be helpful to address pressures on important mountain resources and whether and how those strategies and tools should be implemented to protect important mountain resources.

(4) Determine whether tools and strategies that could be used to protect important mountain resources could be applied to protect other resources in the mountains of North Carolina, including, but not limited to, groundwater, mountain streams, steep slopes and ridgelines, natural heritage areas, recognized historic areas or sites, and farmland.

PART IX. JOINT LEGISLATIVE OVERSIGHT COMMITTEE ON MENTAL HEALTH, DEVELOPMENTAL DISABILITIES, AND SUBSTANCE ABUSE SERVICES STUDIES

SECTION 9.1. The Joint Legislative Oversight Committee on Mental Health, Developmental Disabilities, and Substance Abuse Services may study the topics listed in this Part and report its findings, together with any recommended legislation, to the 2008 Regular Session of the 2007 General Assembly upon its convening.

SECTION 9.2. Facilities That Provide Housing For Adults With Mental Illness In The Same Location With Adults Without Mental Illness (S.B. 1266 – Nesbitt) – The Committee may study and identify rules and laws that are necessary to regulate facilities that provide housing for adults with mental illness in the same location with adults without mental illness.

SECTION 9.3. Effectiveness Of The 1915(b) Medicaid Waiver And Of Those LMEs Operating Under A Waiver (S.B. 1266 – Nesbitt) – The Committee may study the effectiveness of the 1915(b) Medicaid waiver and of those LMEs operating under a waiver.

SECTION 34. For legislative studies authorized by this act, out-of-state travel must be authorized by the President Pro Tempore of the Senate or the Speaker of the House of Representatives, as appropriate.

PART XXXV. BILL AND RESOLUTION REFERENCES

SECTION 35. The listing of the original bill or resolution in this act is for reference purposes only and shall not be deemed to have incorporated by reference any of the substantive provisions contained in the original bill or resolution.

PART XXXVI. EFFECTIVE DATE AND APPLICABILITY

SECTION 36. Except as otherwise specifically provided, this act is effective when it becomes law. If a study is authorized both in this act and in the Current Operations and Capital Improvements Appropriations Act of 2007, the study shall be implemented in accordance with the Current Operations and Capital Improvements Appropriations Act of 2007 as ratified.

Status of Reports to the ERC Required by Law

Organized by topics: air quality, coastal issues, env. health, fishing, general, hazardous substances, land resources, parks and conservation, solid waste, water quality, water quantity, wetlands

Air Quality

DAQ (DENR)	Report To/ Authority	Report Due	Status*
Shall study the costs and benefits of reducing emissions of oxides of nitrogen, particulate matter, and greenhouse gases from motor vehicles in this State. Shall also consider standards adopted in other states.	ERC, LCGCC S.L. 2006-248, Sec. 43	Interim : 15 Jan 2007 Final; 1 April 2007	Jan 07, distrib 1/17/07 Apr 07 Final Report distrib 10/31/07

DENR	Report To/ Authority	Report Due	Status*
Shall report on the pilot program to retrofit certain school buses in nonattainment areas	ERC, DPI, and DOT 2007-465, Sec. 4.(b)	1 Sept 2008 and 1 Sept 2009	
Cost of the Title V program	ERC, Fiscal Research GS 143-215.3A(c)	Annually (1 Nov)	Mar 00 mail 3/29/00 May 02 oral 5/21/02 Jan 04 distrib 2/24/04 Nov 04 oral 11/19/04 Nov 05 distrib 3/8/06 Dec 06 distrib 12/13/06

DENR, Utilities Commission	Report To/ Authority	Report Due	Status*
Implementation of SL 2002-4 (Clean Smokestacks)	ERC, Joint Legislative Utility Review Committee S.L. 2002-4, Section 14	Annually (1 Jun 2003)	28 Jan 03 30 May 03 distrib 2/24/04 June 04 oral 11/19/04 June 05 distrib 11/05 June 06 distrib 10/09/06 June 07

Department of Transportation (DOT)	Report To/ Authority	Report Due	Status*
Evaluation/ adjustment of region served by each Metropolitan Planning Organization	ERC, Joint Legislative Transportation Oversight Committee GS 136-202(d)	Nov 1 of each year regions evaluated and adjusted (every 5 years, including year following federal census)	Oct 04 oral 11/19/04 Jan 07 dist 1/17/07
Plan developed with DOA, Commerce, DENR to reduce VMT & vehicle emissions from private sector employee travel.	ERC, Joint Legislative Transportation Oversight Committee GS 143-215.107C(e)	Annually (Oct 1)	02/02/04 distrib 3/25/04 Included in TDM Program Oral 1/13/05 Jan 06 distrib 2/14/06 Nov 06 oral 11/15/06 Oct 07 distrib 10/31/07

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

DOT	Report To/ Authority	Report Due	Status*
Plan developed with DOA, DOT, DENR to reduce VMT & vehicle emissions from State employee travel.	ERC, Joint Legislative Transportation Oversight Committee SL 1999-328(4.6) G.S. 143-215.107C(d)	Annually (Oct 1)	Mar 02 Distrib 5/21/02 Letter distrib 02/24/04 Oral 1/13/05 Jan 06 distrib 2/14/06 Nov 06 oral 11/15/06 Oct 07 distrib 10/31/07

EMC	Report To/ Authority	Report Due	Status*
Desirability of requiring and the feasibility of obtaining reductions in emissions of oxides of nitrogen (Nox) and sulfur dioxide (SO2) beyond those required by G.S. 143-215.107D.	ERC, General Assembly SL 2002-4, Section 11; S.L. 2006-79	Annually, starting 2007 (Sep 1)	Mar 06 distrib 4/11/06

climate change

Joint Legislative Commission on Climate Change	Report To/ Authority	Report Due	Status*
Report of findings and recommendations by the Commission	General Assembly and ERC S.L. 2005-442, Sec. 11; S.L. 2006- 73, Sec. 1	Interim: 15 Jan 2007 Final: 15 April 2008	

coastal issues

CRC	Report To/ Authority	Report Due	Status*
Evaluate the impacts on water quality and other environmental impacts from the new urban waterfront area development authorized by this act and evaluate the costs and benefits from the development to the area in which the development is located.	ERC S.L. 2004-117, Sec. 4	Annually (beginning 1 Oct 05). Final report due 1 Oct 2010.	

fishing

CRC, EMC, and MFC	Report To/ Authority	Report Due	Status*
Progress in developing and implementing Coastal Habitat Protection Plans	ERC, S&A GS 143B-279.8(e)	Annually (Sep 1)	Sep 01 distrib 01/30/02 Sep 03 distrib 2/06/04 Sep 04 distrib 11/18/04 Feb 06 distrib 3/8/06 Oct 06 distrib 11/15/06

DENR	Report To/ Authority	Report Due	Status*
Fish kills within the preceding year	ERC GS 143B-279.7(c)	Annually (Dec 1)	Feb 02 oral 2/21/02 Jan 04 distrib 2/24/04 Jan 05 distrib 1/13/05 Jan 06 distrib 2/14/06 Dec 06 distrib 12/13/06

* "oral" indicates oral report was given to ERC or S+A; "mail" indicates the report was mailed to members; "in" indicates that the report has been received but not yet distributed.

DENR (Secretary)	Report To/ Authority	Report Due	Status*
Individual Coastal Habitat Protection Plans	ERC, S&A GS 143B-279.8(f)	30 days after complete or substantially revise draft plan	Aug 04 distrib 11/05

General

Community Conservation Assistance Program Advisory Committ	Report To/ Authority	Report Due	Status*
Findings of its program review	Speaker, President Pro Tem, Appropriations chairs, ERC, FRD S.L. 2006-78, Sec. 5	31 March 2007	Apr 07 distrib 10/31/07

DENR	Report To/ Authority	Report Due	Status*
Findings on the success of the Express Review Program	Fiscal Research and ERC 143B-279.13(c)	Annually (1 March)	April 06 oral 4/11/06 Oct 07
Shall submit an annual report on the mercury switch removal program pursuant to citation	ERC, House and Senate NER G.S. 130A-310.57 SL 2007-142, Sec 7	Annually (1 October)	Apr 06 oral 5/3/06
Cost of State's environmental permitting program	ERC, Fiscal Research GS 143-215.3A(c)	Annually (Nov 1)	April 00 distrib
Cost of implementing the Mining Act of 1971	ERC GS 74-54.1(c)	Annually (Sep 1)	Jan 02 distrib 01/30/02 Aug 03 distrib 02/06/04 Oct 04 distrib 10/21/04 Sep 05 distrib 11/22/05 Dec 06 distrib 12/13/06 Oct 07 distrib 10/31/07
One-Stop Permit Assistance Program - # of environmental permits subject to this section that took more than 90 days to issue or deny, the types of permits those were, the reasons for the extended processing time of those permits, ...	ERC, NER subcommittees, Fiscal Research S.L. 2000-67(13.7) S.L. 2001-424 (19.6) S.L. 2004-124, Sec. 12.12	Annually (beginning 1 March 07)	29 July 2003 oral 5/05/04 Oct 04 oral 10/21/04 Dec 05 oral 12/20/05 Oct 07

DENR (Secretary)	Report To/ Authority	Report Due	Status*
State of the Environment Report	General Assembly,ERC GS 143B-279.5(a)	Feb 15 of each odd-numbered year	Feb 1, 2000

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DENR and Utilities Commission	Report To/ Authority	Report Due	Status*
Shall jointly report on the implementation of the Swine Farm Methane Capture Pilot Program including a program evaluation, and legislative proposals	ERC, Joint Legislative Utility Review Committee S.L. 2007-523, Sec. 4.(g)	Annually, beginning January 1, 2009	

Department of Administration	Report To/ Authority	Report Due	Status*
Shall submit a consolidated report on the implementation of the Sustainable Energy Efficient Buildings Program and make recommendations regarding ongoing implementation	ERC, Chairs of the Gov Ops Subcommittees, and Joint Leg Com. on S.L. 2007-546, Sec. 1.(c)	annually, November 1 beginning in 2008	
Shall monitor the development of construction or other energy efficiency standards to determine whether there is a standard that would better fulfill the intent of the Sustainable Energy Efficient Buildings Program	ERC, Chairs of the Gov Ops Subcommittees, and Joint Leg Com. on S.L. 2007-546, Sec. 1.(f)	January 1, 2009 and January 1, 2010	
Shall report its findings of the performance review of the Sustainable Energy Efficient Buildings Program	ERC, Chairs of the Gov Ops Subcommittees, and Joint Leg Com. on S.L. 2007-546, Sec. 1.(h)	Preliminary report: December 1, 2010 Final Report: December 1, 2011	
Shall report on its plan to implement an energy conservation measures program and development or revision of architectural or engineering stds consistent with an energy conservation measures program.	ERC, Joint Leg Com. On Gov Ops S.L. 2007-546, Sec. 2.1.(c)	February 1, 2008	

EMC	Report To/ Authority	Report Due	Status*
EMC operation, activities, programs, and progress (see also other reports with "EMC Quarterly Report" noted at the end of the topic line)	ERC GS 143B-282(b)	Quarterly (Jan 15, Apr 15, Jul 15, Oct 15); upon request	Jan, April 06 oral 4/11/06 June, Oct 06 oral 10/9/06 Jan 07, oral 1/17/07 Apr, Jul, Oct 07, Oral 10/31/07

North Carolina Building Code Council	Report To/ Authority	Report Due	Status*
Shall study the extent to which hot waterlines should be insulated to achieve greater energy efficiency and shall amend the State Building Code as necessary to achieve those ends.	ERC and the 2008 Regular Session of the General Assembly S.L. 2007-542, Sec. 2	April 1, 2008	

Soil and Water Conservation Commission (DENR)	Report To/ Authority	Report Due	Status*
Report on the Community Conservation Assistance Program, including asummary of projects that received State funding pursuant to the Program, the results of the evaluation conducted pursuant to, and a summary of the effectiveness of the Program.	ERC, FRD G.S. 143-215.74M(e)	Annually (beginning 31 January 2007)	

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State Water Infrastructure Commission	Report To/ Authority	Report Due	Status*
Recommendations by the Commission	General Assembly and ERC G.S. 159G-67	Annually (1 November)	Nov 06 oral 11/15/06 Nov 07

Utilities Commission	Report To/ Authority	Report Due	Status*
Shall report on the actual costs of the costs allocations established pursuant to G.S. 62-133.7(h), G.S. 62-133.8(e), G.S. 62-133.8(f), G.S. 62-133.2(a2), and G.S. 62-133.2(a3) during the preceding two fiscal years	ERC, Joint Legislative Utility Review Committee, Governor S.L. 2007-397, Sec. 14	On or before 1 October in odd-numbered years beginning in October 2009.	
Shall prepare an analysis of whether rate structures, policies, and measures, including decoupling in other places should be implemented in NC.	ERC, Joint Legislative Utility Review Committee, Governor S.L. 2007-397, Sec. 4.(c)	1 September 2008	

Utilities Commission in consultation with DENR	Report To/ Authority	Report Due	Status*
Shall report on the activities taken by the Commission to implement and by the electric utilities to comply with the requirements of the REPS/EE including environmental impacts	ERC, Joint Legislative Utility Review Committee, Governor S.L. 2007-397, Sec. 2.(a)(j)	Annually (1 October) beginning in 2008	

hazardous substances

DENR	Report To/ Authority	Report Due	Status*
Implementation of the Resident Inspectors Program at commercial hazardous waste facilities	ERC GS 130A-295.02(m); SL 2006-79	Annually (Oct 1)	Oct 2002 (distrib 1/16/03) Sep 03 distrib 02/24/04 Sep 04 distrib 10/21/04 Jan 06 distrib 1/24/06 Nov 06 distrib 11/15/06
Evaluation of effectiveness of Brownfields Property Reuse Act	ERC GS 130A-310.40	Annually (Oct 1)	Feb 02 oral 2/21/02 Jan 03 oral 1/28/03 Jan 04 oral 2/24/04 Oct 04 distrib 10/21/04 Jan 06 oral 1/24/06 Dec 06 oral 1/23/07

DENR (Division of Waste Management)	Report To/ Authority	Report Due	Status*
Implementation of comprehensive hazardous waste management plan; implementation of the comprehensive hazardous waste plan, including an evaluation of how well the State and private parties are managing and cleaning up hazardous waste.	ERC GS 130A-294(i) SL 2002-148, Sec. 4	Annually (1 Oct)	5 Oct 03 distrib 02/24/04 July 04 distrib 10/21/04 Jan 06 distrib 1/24/06 Nov 06 oral 11/15/06

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DENR (Secretary)	Report To/ Authority	Report Due	Status*
Inactive Hazardous Waste Sites Program	ERC GS 130A-310.10	Annually (Oct 1)	Jan 03 oral 1/28/03 Sep 03 oral 2/24/04 Oct 04 distrib 10/21/04 Jan 06 oral 1/24/06 Nov 06 distrib 11/15/06

DENR, Office of State Budget and Management	Report To/ Authority	Report Due	Status*
Amount and source of available funds used for 10% cost share required for Superfund cleanup of NPL sites, the o&m costs associated w/ these cleanups, and the cleanup of priority inactive hazardous substance or waste sites	ERC, Gov Ops SL 1999-237(15.6)(b)	30 days after spend Superfund/ Inactive Haz Sites funds	Sep 03 distrib 2/24/04 June 04 distrib 10/21/04 May 05 distrib 11/22/05 Aug 05 distrib 11/22/05 Jan 06 oral 1/24/06

Hazardous Waste

DENR	Report To/ Authority	Report Due	Status*
Shall study the need for further regulation of hazardous waste transfer facilities, including whether to require these facilities to obtain a permit, pay permit fees, provide contingency plans, and demonstrate financial responsibility.	ERC SL 2007-107, Sec 1.8.(d)	on or before 1 Feb 2008	

Office of the Governor	Report To/ Authority	Report Due	Status*
Shall report on its efforts in seeking the advice of units of local government to determine if the criteria considered to determine whether or to what extent to preempt local ordinances pursuant to 130A-293 as amended should be further amended.	ERC SL 2007-107, Sec 1.10.(b)	on or before 1 March 2008	

Regulation of Hazardous Materials Facilities Task Force	Report To/ Authority	Report Due	Status*
Shall study issues related to TSD of haz materials and review all current fire code regs regarding the commerical TSD of haz materials to ensure the Code addresses the needs and safety of citizens.	ERC, NC Building Code Council SL 2007-107, Sec 4.1.(j)	on or before 1 April 2008	

land resources

DENR	Report To/ Authority	Report Due	Status*
Annual report and analysis of how the implementation of SPCA is affecting activities that contribute to the sedimentation of streams, rivers, lakes, and other waters of the State; shall also review effectiveness of local programs	ERC G.S. 113A-67; S.L. 2004-195, Sec. 2.1	Annually (beginning 1 Oct 05)	Dec 05 oral 12/20/05 Dec 06 oral 1/17/07 Oct 07 oral 10/31/07

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Onsite wastewater

DENR	Report To/ Authority	Report Due	Status*
Shall evaluate whether: (i) the program resulted in a reduction in the length of time improvement permits or authorizations to construct are pending in the participating counties	ERC S.L. 2006-136, Sec. 3	Annually (beginning 1 October 2007)	

parks and conservation

DENR	Report To/ Authority	Report Due	Status*
Report on the conservation easement program + inventory of all conservation easements held by DENR	ERC GS 113A-235(c) SL 2004-195, Sec. 2.2	Annually (Oct 1)	Jan 03 oral 1/16/03 Dec 03 oral 4/22/04 Oct 04 oral 1/13/05 Mar 06 oral 3/14/06 Jan 07 oral 1/23/07

DENR (North Carolina Parks and Recreation Authority)	Report To/ Authority	Report Due	Status*
Activities and allocations from the Parks and Recreation Trust Fund from the prior fiscal year	ERC, Gov Ops, NER, Fiscal Research GS 113-44.15(c)	Annually (Oct 1) + progress (March 15)	Mar 03 distrib 03/20/03 Oct 03 oral 4/22/04 Oct 04 oral 1/13/05 Mar 05 distrib 4/22/05 Mar 06 oral 3/14/06 Oct 06 oral 1/23/07 March 07

DENR (Secretary)	Report To/ Authority	Report Due	Status*
Acquisitions made with funds from the Natural Heritage Trust Fund	ERC, NHTF Trustees, Gov Ops, NER, Fiscal Research GS 113-77.9(e)	Semiannually, within 30 days of each revision	Nov 03 oral 4/22/04 Sep 04 oral 1/13/05 Sep 05 distrib 3/14/06
Progress towards attaining the State's goal of protecting one million acres of farmland, open space, and conservation lands	ERC, Governor GS 113A-241(c) S.L. 2004-195, Sec. 2.3	Annually (Oct 1)	Jan 03 oral 1/16/03 Dec 03 oral 4/22/04 Sep 04 oral 1/13/05 Mar 06 oral 3/14/06 Jan 07 oral 1/23/07 Oct 07

NC Agriculture Development and Farmland Presrvation Trust Fun	Report To/ Authority	Report Due	Status*
Shall report on the Committee's activities including agriculture easements purchased, and agriculture projects funded during the previous year.	ERC, Gov Ops Subcommittees, NER Subcommittees S.L. 2007-495, Sec. 23 (G.S. 106-744)	Annually, May 1	

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Parks and open space

Land and Water Conservation Study Committee	Report To/ Authority	Report Due	Status*
Shall report its findings and recommendations	ERC S.L. 2006-223, Sec. 11	1 Feb 2007	

solid waste

DENR	Report To/ Authority	Report Due	Status*
Solid Waste Management Annual Report (see also other reports with "SWM Annual Report" noted at the end of the topic line)	Governor, ERC GS 130A-309.06(c)	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06 May 07 oral 6/11/07
Assessment of the recycling industry and recyclable materials market (SWM Annual Report)	ERC GS 130A-309.06(c)(6)	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06 May 07 oral 6/11/07
Condition and use of funds in the Solid Waste Management Trust Fund (SWM Annual Report)	ERC GS 130A-309.12(c) GS 130A-309.06(c)(8)	Annually (Jan 15)	Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06 May 07 oral 6/11/07
Scrap Tire Disposal Account (SWM Annual Report)	ERC GS 130A-309.63(e) GS 130A-309.06(c)(10)	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06 May 07 oral 6/11/07
Management of white goods (SWM Annual Report)	ERC, Revenue Laws Study Committee GS 130A-309.85 GS 130-309.06(c)(11)	Annually (Jan 15)	Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06 May 07oral 6/11/07
Recycled materials specified or used in DOT contracts (SWM Annual Report) (DPPEA portion)	ERC, Gov Ops, Trans Oversight GS 136-28.8(g) GS 130A-309.06(c)(12)	Annually (Jan 15)	Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 Jan 06 oral 1/24/06 May 07oral 6/11/07
Purchase of materials and supplies with recycled content by State institutions (SWM Annual Report) (DPPEA portion)	ERC, Gov Ops GS 143-58.2(f) GS 130A-309.06(c)(13)	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 04 oral 3/25/04 Jan 05 oral 1/13/05 May 07 oral 6/11/07

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Shall submit a report on the recycling of discarded computer equipment in the State including an evaluation of the recycling rates, discussion of compliance and enforcement related to these requirements, and recommendations	ERC S.L. 2007-550, Sec. 16.1 (G.S. 130A-309.98)	Annually beginning April 1, 2011	

Division of Waste Management and Division of Pollution Preventi	**Report To/ Authority**	**Report Due**	**Status***
Shall jointly develop a proposal for a recycling program for fluorescent lamps.	ERC S.L. 2007-550, Sec. 17	March 1, 2008	

DOT and DOA	**Report To/ Authority**	**Report Due**	**Status***
Bid procedures and the purchase and use of reusable, refillable, repairable, more durable, and less toxic supplies and products (SWM Annual Report)	ERC GS 130A-309.14(a1)(3) GS 130A-309.06(c)(9) S.L. 2003-340, Sec. 1.6	Annually (Jan 15)	Jan 02 oral 1/30/02 Jan 03 oral 1/28/03 Jan 05 oral 1/13/05 May 07 oral 6/11/07

Governor	**Report To/ Authority**	**Report Due**	**Status***
Litter enforcement, prevention, and removal efforts.	ERC, JLTOC, NER Subcommittees SL 2001-512, Sec. 9 and 10 GS 147-12(b); SL 2006-79, Sec. 15	Annually (March 1)	Mar 02 oral 3/21/02 Dec 03 oral 4/20/04 Oct 04 distrib 10/21/04 Mar 06 oral 5/3/06 May 07

State Board of Education	**Report To/ Authority**	**Report Due**	**Status***
Recycling efforts of public schools in the State	ERC, Joint Legislative Education Oversight Committee SL 2001-512, Sec. 11	Annually by Dec 15 (2003-2007)	Dec 03 distrib 04/20/04 Dec 04 distrib 1/13/05 Dec 05 distrib 3/8/06 Dec 06 distrib 12/13/06

water quality

DENR	**Report To/ Authority**	**Report Due**	**Status***
Shall report on its progress in developing and implementing a new fee structure for the nutrient offset program	ERC 2007-438, Sec. 3	1 Sept 2008 and 1 Sept 2009	
Shall report on its progress in developing and implementing a new fee structure for the nutrient offset program	ERC S.L. 2007-438, Sec. 3	Sept 1 2008 and 1 2009	March

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water quality - general

Catawba/Wateree River Basin Advisory Commission	Report To/ Authority	Report Due	Status*
Annual report, including any recommendations.	Governor of NC, ERC, Governor of SC, SC General Assembly G.S. 77-117	Annually (1 Oct)	

Clean Water Management Trust Fund (Chair, Board of Trustees)	Report To/ Authority	Report Due	Status*
Implementation of the Clean Water Management Trust Fund; Projects awarded grants	ERC, Gov Ops, NER Subcommittees, Fiscal Research GS 113A-257	Annually (Dec 1)	Jan 03 oral 1/16/03 Dec 03 oral 4/22/04 Jan 05 oral 1/13/05 Mar 06 oral 3/14/06 Jan 07 oral 1/23/07

DENR	Report To/ Authority	Report Due	Status*
Status of permitting and inspecting animal waste management systems/ Animal Waste Compliance Report	ERC, Fiscal Research GS 143-215.10M SL 2002-148 (Sec. 6)	Annually (Oct 1)	Oct 03 oral 3/25/04 Oct 04 oral 10/21/04 Dec 05 oral 3/8/06 Nov 06 oral 11/15/06
Wastewater Discharge Elimination System program	ERC, Fiscal SL 2001-452(2.9)	Annually (15 Oct)	Dec 03 distrib 02/06/04 19 Nov 04 oral Dec 05 oral 12/20/05 Jan 07 oral 1/17/07

DENR (Division of Water Quality)	Report To/ Authority	Report Due	Status*
Compliance/ enforcement of water quality laws for facilities that discharge into surface waters	ERC, Fiscal Research GS 143-215.9A SL 2002-148(Sec. 5)	Annually (Oct 1)	Dec 03 oral 3/25/04 Oct 04 distrib 11/19/04 Sep 05 distrib 3/8/06 Nov 06 distrib 11/15/06

DENR (Divisions of Water Quality, Soil & Water Conservation)	Report To/ Authority	Report Due	Status*
Pilot program for inspection of animal waste management systems, including a comparison of the costs of conducting operations reviews and inspections under the pilot program with the costs of conductng ors and insps pursuant to 143-215.10D and 143-215.10F	ERC, Fiscal Research,NER SL 1999-329(3.3) SL 2001-254(6) SL 2002-176 (1.2)	Semiannual: 15 April and 15 Oct	Oct 03 oral 3/25/04 Oct 04 distrib 11/18/04 Dec 05 distrib 3/8/06 Oct 06 distrib 11/15/06 Apr 07

DENR (Soil and Water Conservation Commission)	Report To/ Authority	Report Due	Status*
Effectiveness of projects funded under the Agriculture Cost-Share Program for Nonpoint Source Pollution Control	ERC, Fiscal Research GS 143-215.74(e)	Annually (Jan 31)	21 March 2002 Dec 03 distrib 2/24/04 Mar 06 distrib 3/8/06 Mar 07 distrib 3/13/07

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DENR, EMC	Report To/ Authority	Report Due	Status*
Basinwide Water Quality Management Plans	ERC GS 143-215.8B(d)	Annually (Oct 1)	Oct 03 oral 2/6/04 Oct 04 oral 10/21/04 Feb 06 distrib 2/14/04 Nov 06 distrib 11/15/06

Division of Soil and Water Conservation (DENR)	Report To/ Authority	Report Due	Status*
Shall prepare a comprehensive report on the animal waste mgt performance standards for swine farms, the Lagoon Conversion Program, and the Swine Farm Waste Management System Conversion Account	ERC S.L. 2007-523, Sec. 2.(f) G.S. 143-215.10M	Annually, beginning October 1, 2008	

EMC	Report To/ Authority	Report Due	Status*
Progress in developing and implementing wastewater collection system permit program (EMC Quarterly Report)	ERC 143-215.9B	Quarterly (Jan 15, Apr 15, Jul 15, Oct 15)	Jan, April 06 oral 4/11/06 June, Oct 06 oral 10/9/06 Jan 07 oral 1/17/07 Apr, Jul, Oct 07, Oral 10/31/07
Implementation of stormwater runoff rules and programs	ERC GS 143-214.7(e)	Annually (Oct 1)	Dec 03 oral 2/6/04 Update 3/25/04 Oct 04 oral 10/21/04 Oct 05 oral 11/22/05 Nov 06 distrib 11/15/06 Oct 07 oral 10/31/07
Extent to which facilities seeking new or modified discharge permits are funded with public funds; their impact on water quality; whether there are cost-effective alt. technologies that would achieve greater water quality benefit (EMC Quarterly Report)	ERC GS 143-215.1(h)	Quarterly (Jan 15, Apr 15, Jul 15, Oct 15)	June, Oct 06 oral 10/9/06 Jan 07 oral 1/17/07 Apr, Jul, Oct 07, Oral 10/31/07
Findings on identification and adoption of control criteria necessary to prevent excess nutrient loading in drinking water supply reservoirs; adoption of nutrient management strategy and permanent rules; (EMC Quarterly Rpt)	ERC S.L. 2005-190, Sec. 2.(b), Sec. 3.(e) and (f)		Jan, April 06 oral 4/11/06 June, Oct 06 oral 10/9/06 Jan 07 oral 1/17/07 Apr, Jul, Oct 07, Oral 10/31/07
Progress in developing and implementing nutrient management strategies for water supply reservoirs identified in Sec. 3 of act.	ERC S.L. 2005-190, Sec. 4	Annually beginning 1 April 2006	April 06 oral 4/11/06
Progress in developing engineering standards to allow regional interconnection of municipal and domestic wastewater collection systems (EMC Quarterly Report)	ERC SL 1999-329(11.1)	Quarterly (Jan 15, Apr 15, Jul 15, Oct 15)	Jan, April 06 oral 4/11/06 June, Oct 06 oral 10/9/06 Jan 07 oral 1/17/07 Apr, Jul, Oct 07, Oral 10/31/07

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Roanoke River Basin Bi-State Commission	Report To/ Authority	Report Due	Status*
Annual report, including any recommendations.	Governor of NC, ERC, Governor of VA, General Assembly of VA G.S. 77-98 S.L. 2007-495, Sec. 22	Annually, October 1	

Upper Neuse River Basin Association	Report To/ Authority	Report Due	Status*
Activities and programs to develop cooperative, comprehensive, integrated State-local watershed management plan for the Upper Neuse Rier Basin to serve as a model watershed management approach	ERC, Gov Ops, Fiscal Research SL 1998-212(14.15)	Mar 1 each year until plan is complete (begin 1999)	Oct 03 distrib 02/06/04

Water Quality Workgroup (DENR & NCSU)	Report To/ Authority	Report Due	Status*
Status of tasks: Synth current science on water quality;Identify knowledge gaps, fill with projects;Maintain water quality data website; Org & eval existing water quality databases; Prioritize knowledge gaps for $; Develop Rivernet mon syst.	ERC, NER Chairs, Chancellor of NCSU G.S. 143-215.8D	Annually (Jan 30)	Jan 02 oral 2/21/02 Present to SAENR 6/04

Yadkin/Pee-Dee River Basin Advisory Commission	Report To/ Authority	Report Due	Status*
Annual report, including any recommendations.	Governor of NC, ERC, Governor of SC, SC General Assembly G.S. 77-117	Annually (1 Oct)	

water quality - ground

DENR	Report To/ Authority	Report Due	Status*
Implementation of Pay for Performance Program (in UST report)	ERC SL 2001-442, SL 2003-340, Sec. 2	Annually 1 Sept (ending Oct 1, 2006)	21 Mar 2002 16 Jan 2003 Mar 04 oral 5/05/04 Jan 05 1/13/05 Oct 06 oral 10/9/06

DENR (Secretary)	Report To/ Authority	Report Due	Status*
Contamination, site, and fiscal information related to the Dry-Cleaning Solvent Cleanup Act of 1997	ERC GS 143-215.104U	Annually (Oct 1)	Jan 02 oral 2/21/02 Dec 03 distrib 3/25/04 Sep 04 distrib 10/25/04 Jan 06 oral 4/11/06 Nov 06 distrib 11/15/06
Leaking Petroleum Underground Storage Tank Cleanup Program	ERC GS 143-215.94M SL 2002-148(Sec. 7)	Annually (1 Sept)	Jan 03 oral 1/16/03 Jan 04 oral 4/22/04 Oct 04 oral 10/21/04(no written) Oct 06 oral 10/9/06 (no written)

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water quantity

DENR (Division of Water Resources)	Report To/ Authority	Report Due	Status*
Implementation of State Water Supply Plan	ERC, Gov Ops GS 143-355(n)	Annually (Sep 1)	Sep 03 oral 2/24/04 Nov 04 oral 11/19/04 Nov 05 oral 11/22/05 Oct 06 oral 10/9/06 Oct 07 oral 10/31/07

Drought Management Advisory Council	Report To/ Authority	Report Due	Status*
Shall report on implementation of act; include review of drought advisories issued by the Council and any recommendations to improve coordination among local, State, and federal agencies; public water systems; and water users	Secretary of ENR, Governor, and ERC G.S. 143 355.1(g); S.L. 2004-195, Sec. 2.5	Annually (beginning 1 Oct 05)	Oct 05 oral 11/22/05 Oct 2006 oral 10/9/06 Oct 07 oral 2007

Water Resources

DENR in consultation with the Commission for Health Services	Report To/ Authority	Report Due	Status*
Shall report on the implementation of citiation, including purpose and amount of all expenditures from the Bernard Allen Memorial Emergency Drinking Water Fund during the prior FY, pros and cons of implementing this section, and proposals for leg. Action	ERC, House and Senate NER, Fiscal Research Division SL 2007-323, Sec 12.2.(a) G.S. 87-98(e)	Annually, beginning on 1 Oct 2008	

wetlands

DENR	Report To/ Authority	Report Due	Status*
Implementation of Ecosystem Enhancement Program and use of Ecosystem Enhancement Fund, including inventory of property and easements	ERC GS 143-214.13	Annually (Nov 1)	Dec 01 oral 01/30/02 Jan 03 oral 1/28/03 Dec 03 oral 5/5/04 Jan 04 oral 01/20/05 Dec 05 oral 12/20/05 Dec 06 oral 1/23/07

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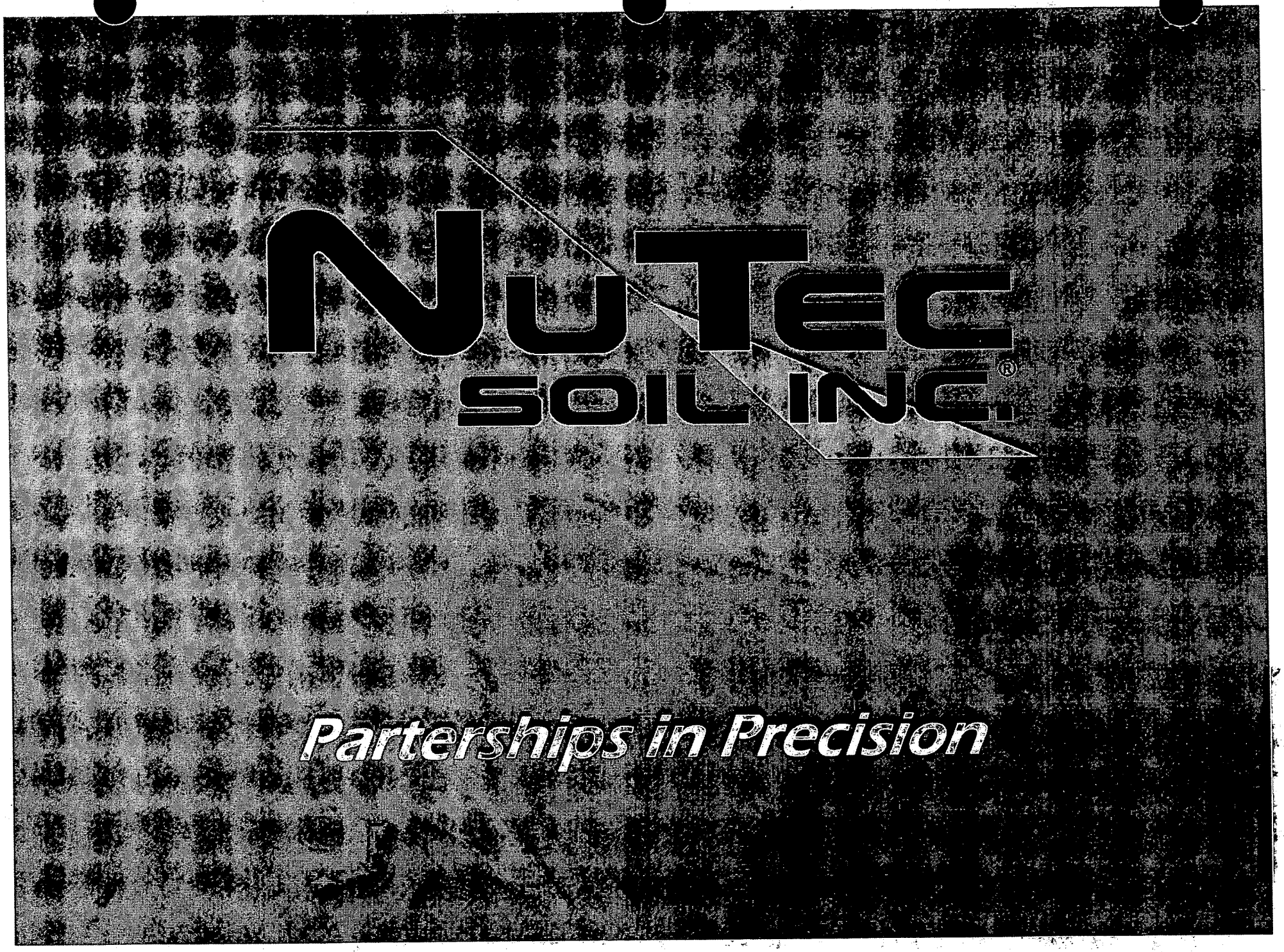
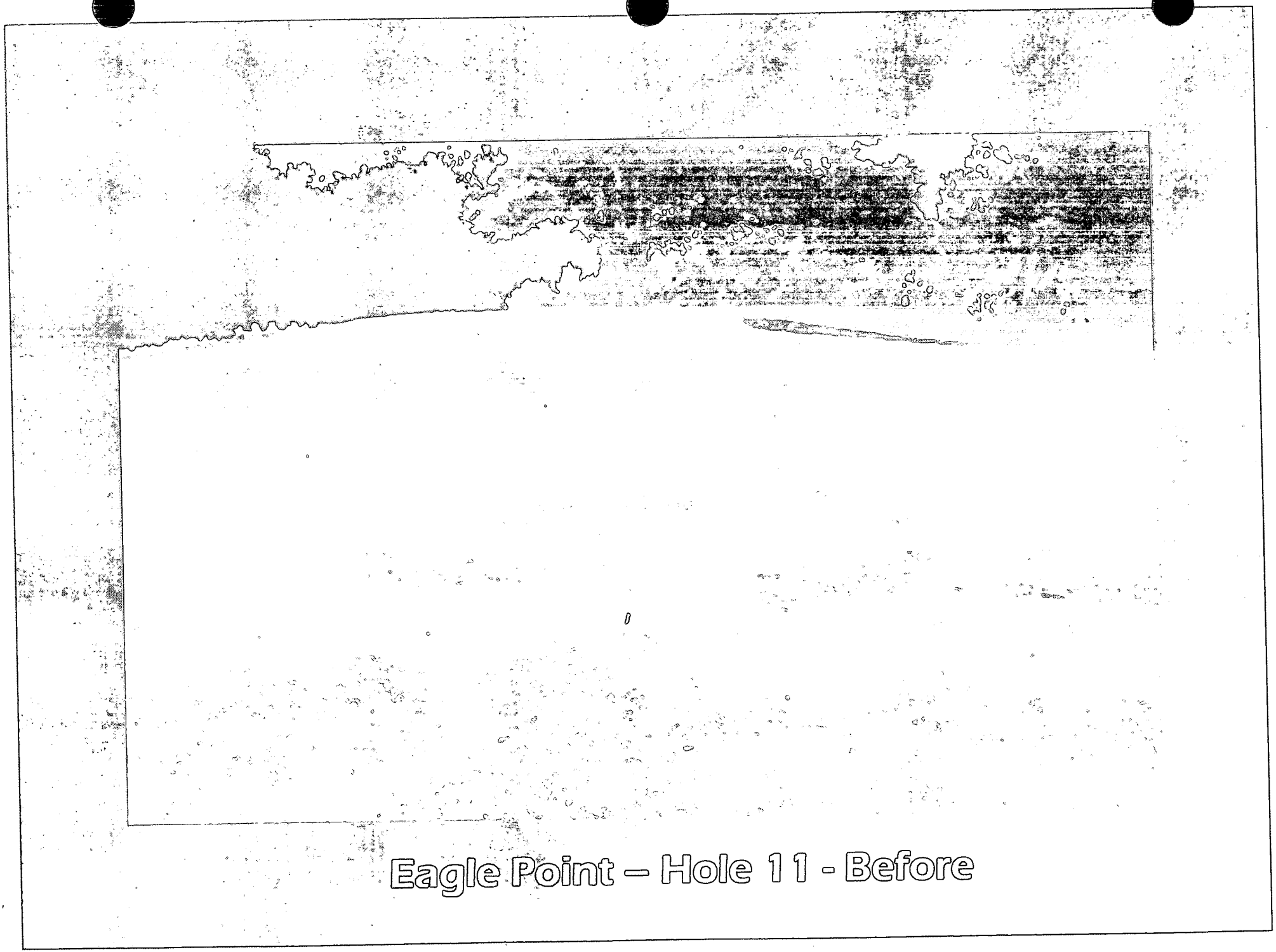


Exhibit F

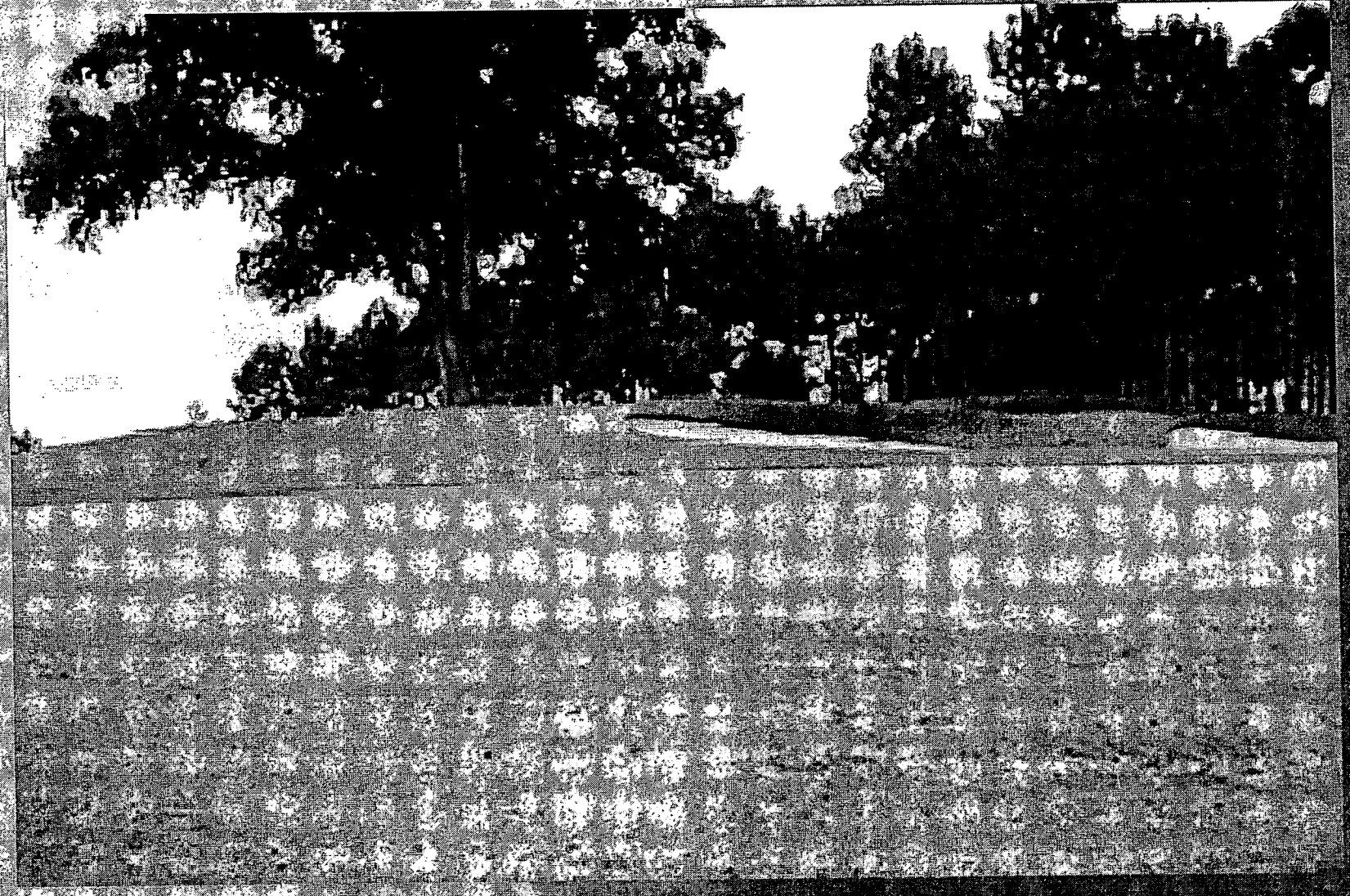
THE COUNTRY CLUB OF NORTH CAROLINA
1896
Host of the
2009 U.S. Women's Open
2009 U.S. WOMEN'S OPEN
SUGAR VALLEY
RIVER LANDING
EAGLE POINT
GOLF CLUB
2007
U.S.
WOMEN'S OPEN
PINE NEEDLES
Old Chatham
Landfall
HASENTREE
OCEAN RIDGE
PLANTATION
OAKLAND PLANTATION
turf farm
ST. JAMES
PLANTATION

Before and After

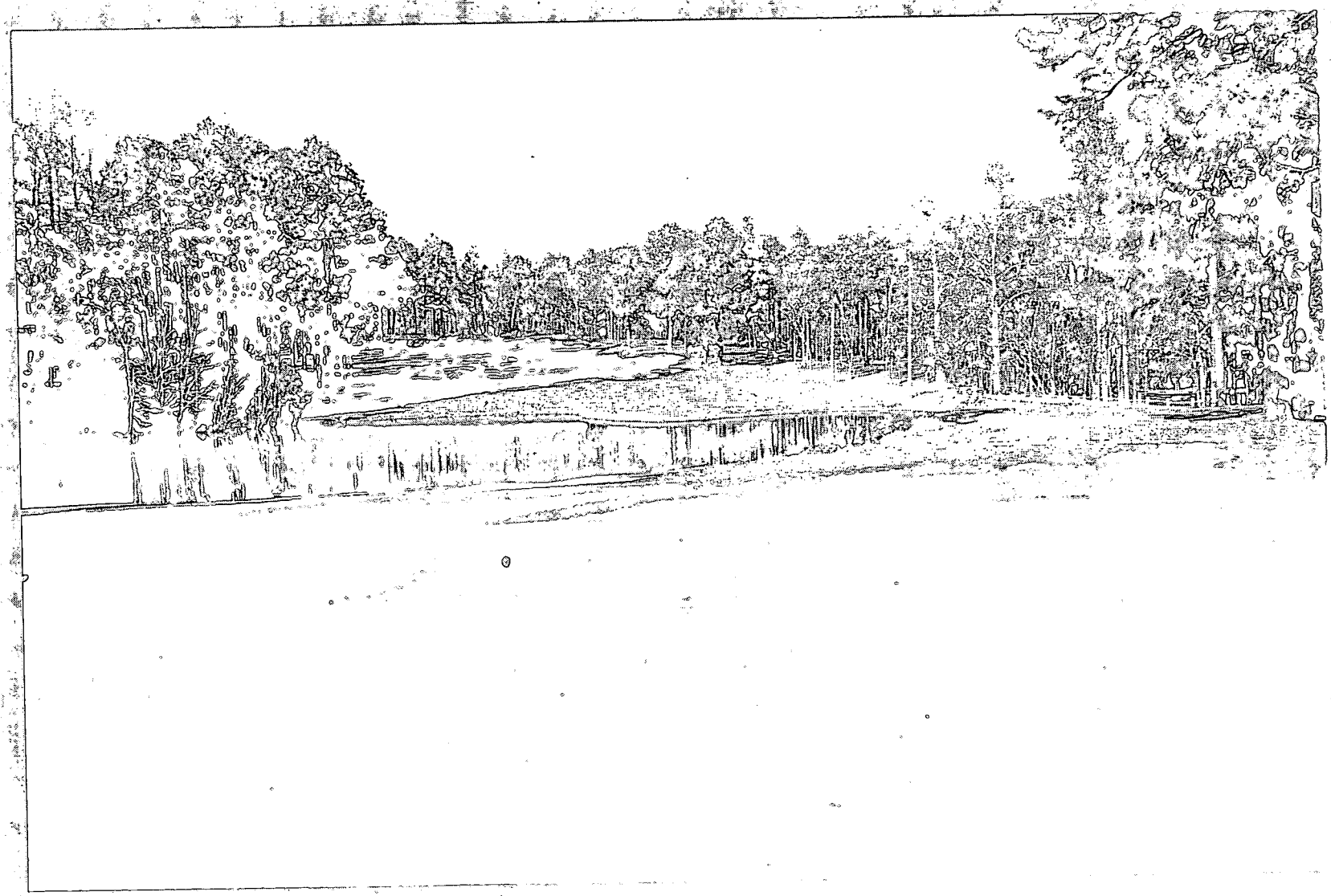
Just Look At the Difference



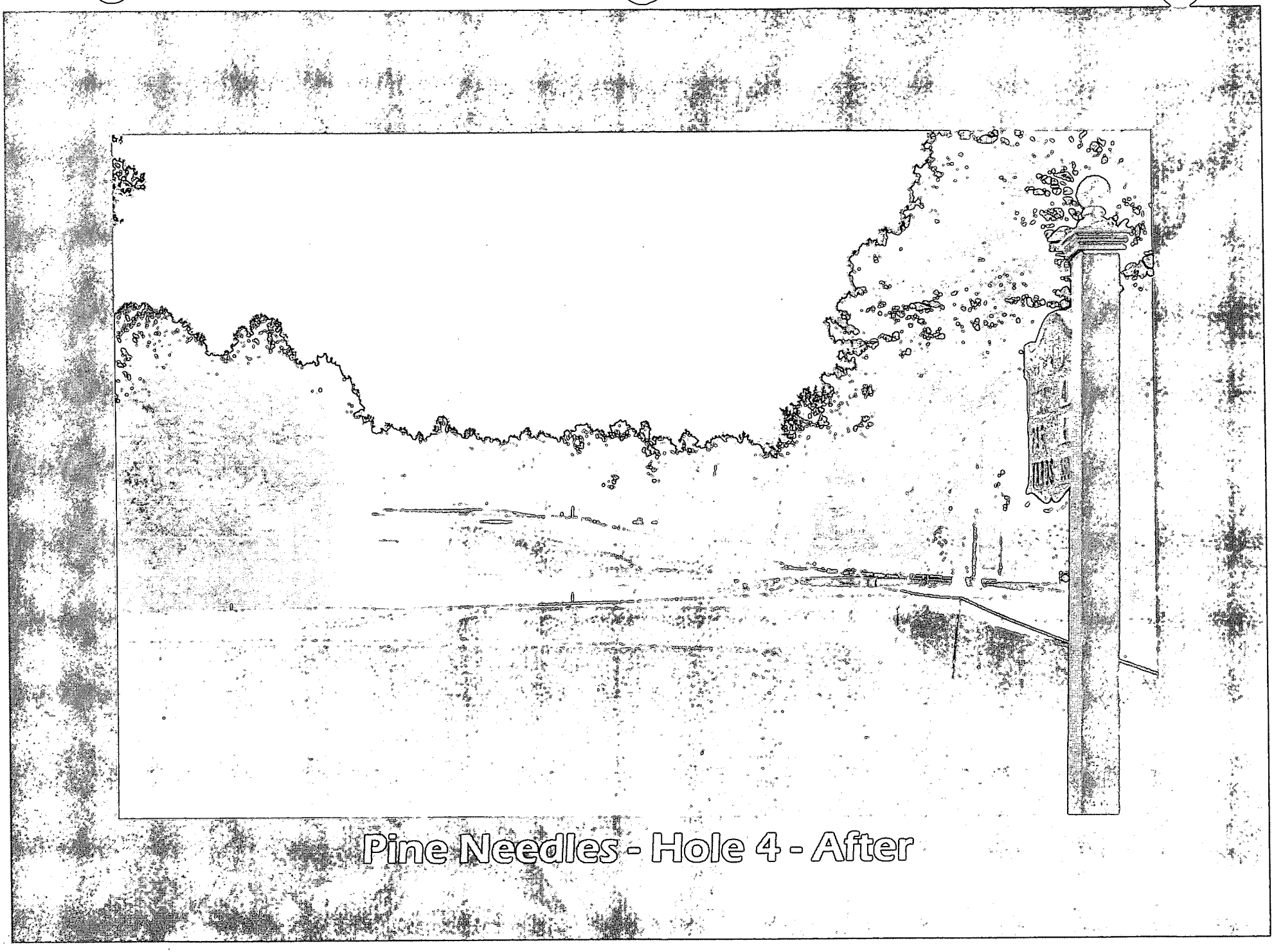
Eagle Point – Hole 11 - Before



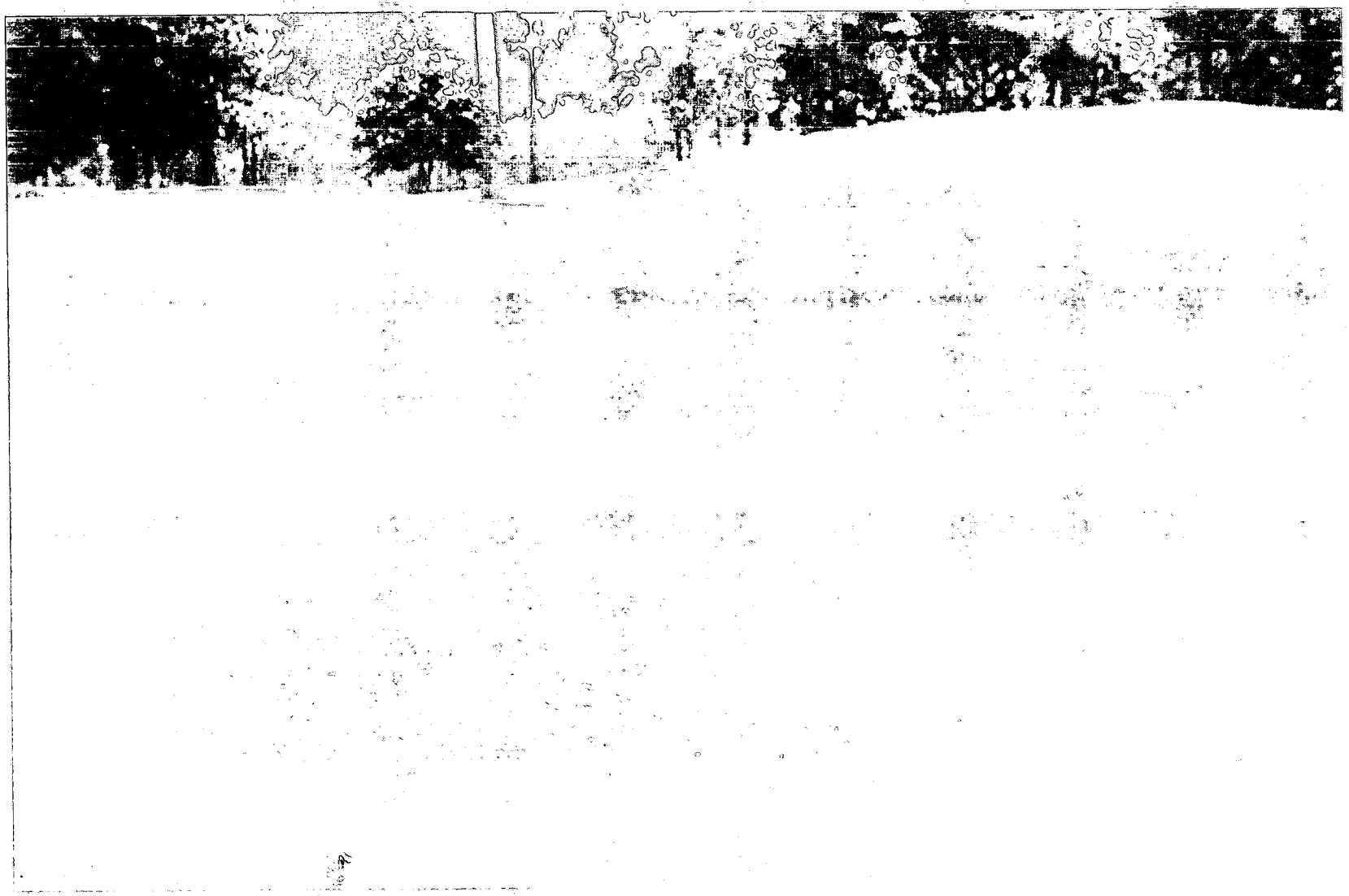
Eagle Point – Hole 11 - After



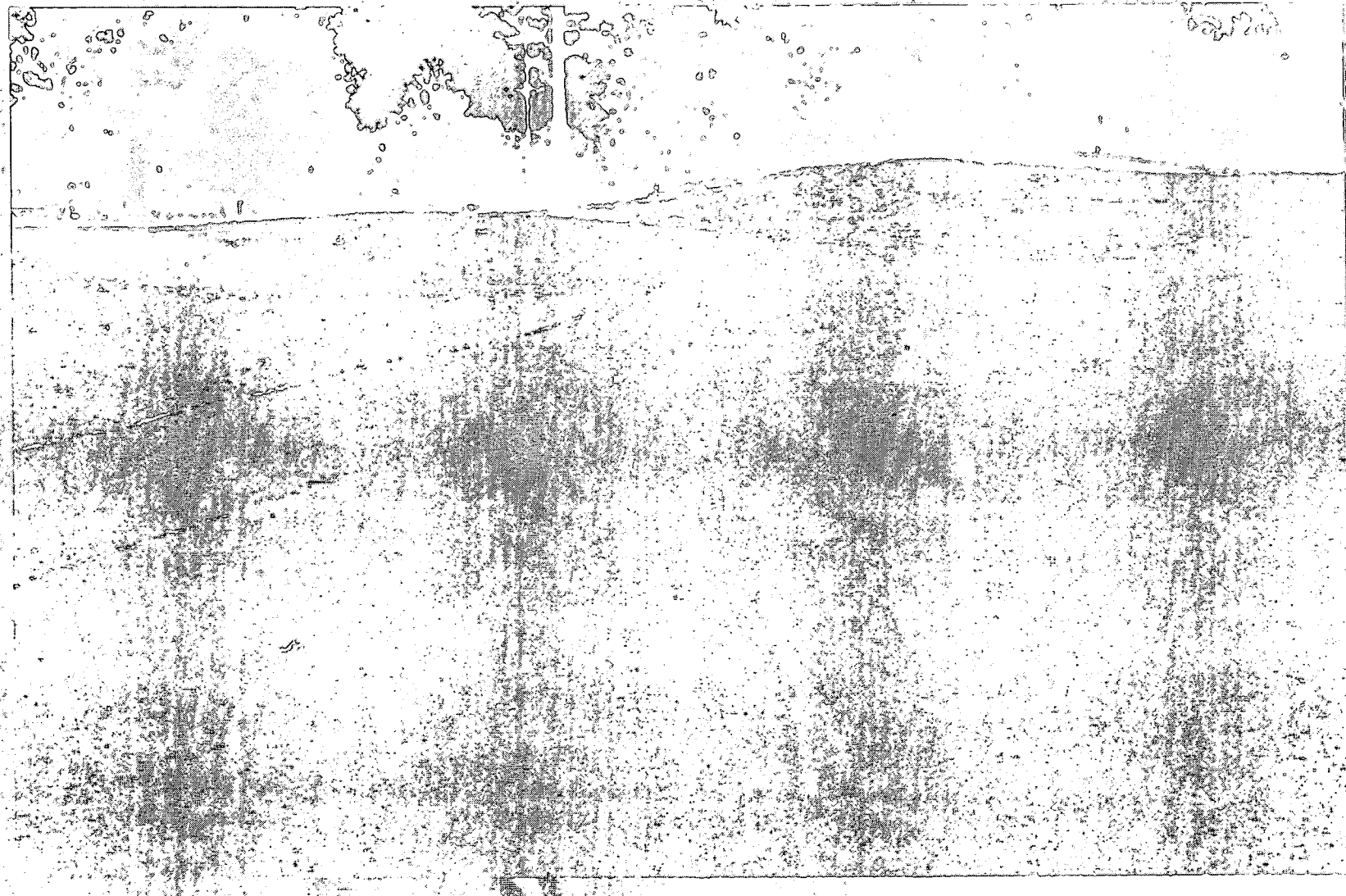
Pine Needles - Hole 4 - Before



Pine Needles - Hole 4 - After

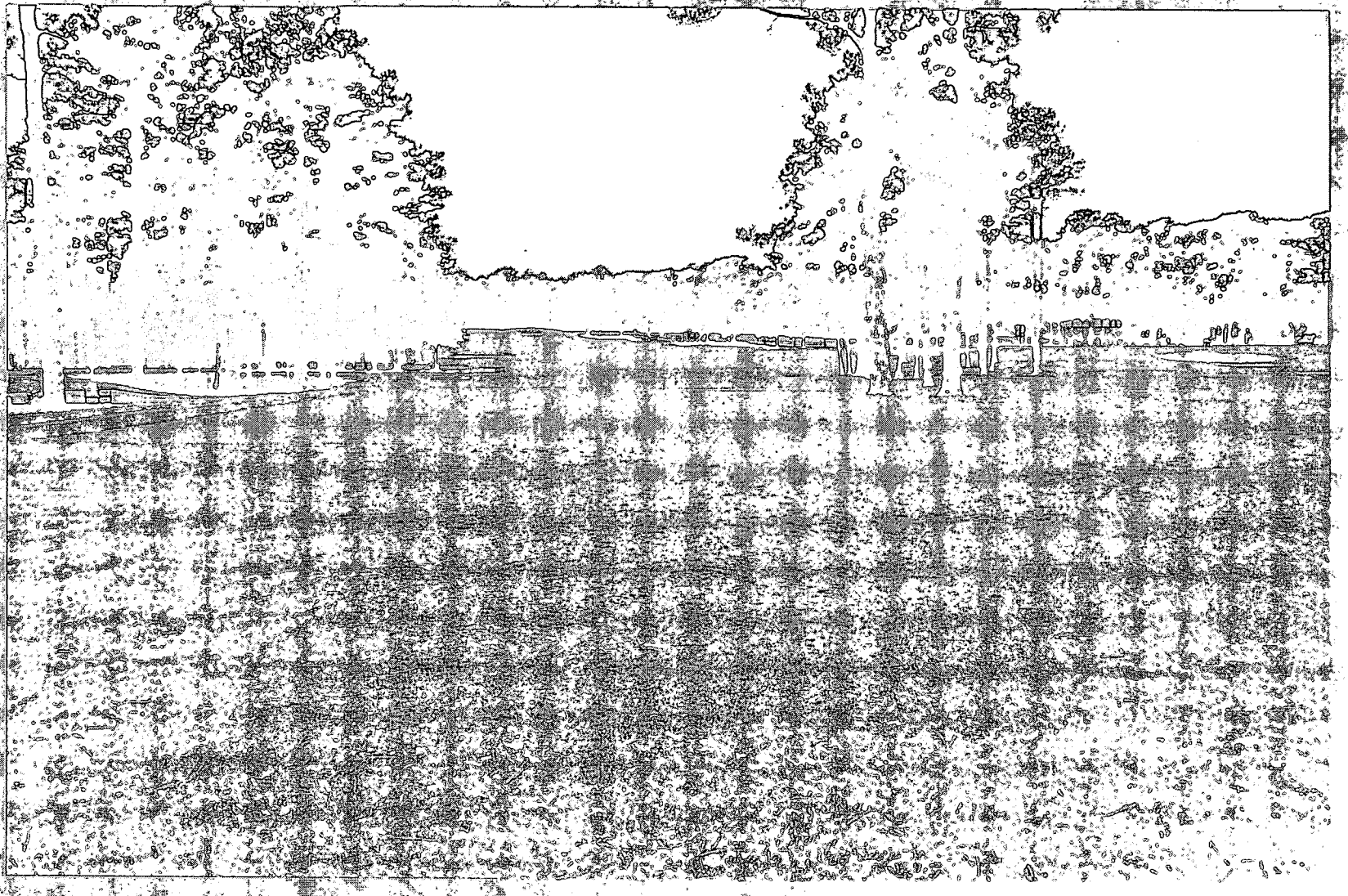


Eagle Point - Hole 3 - Before

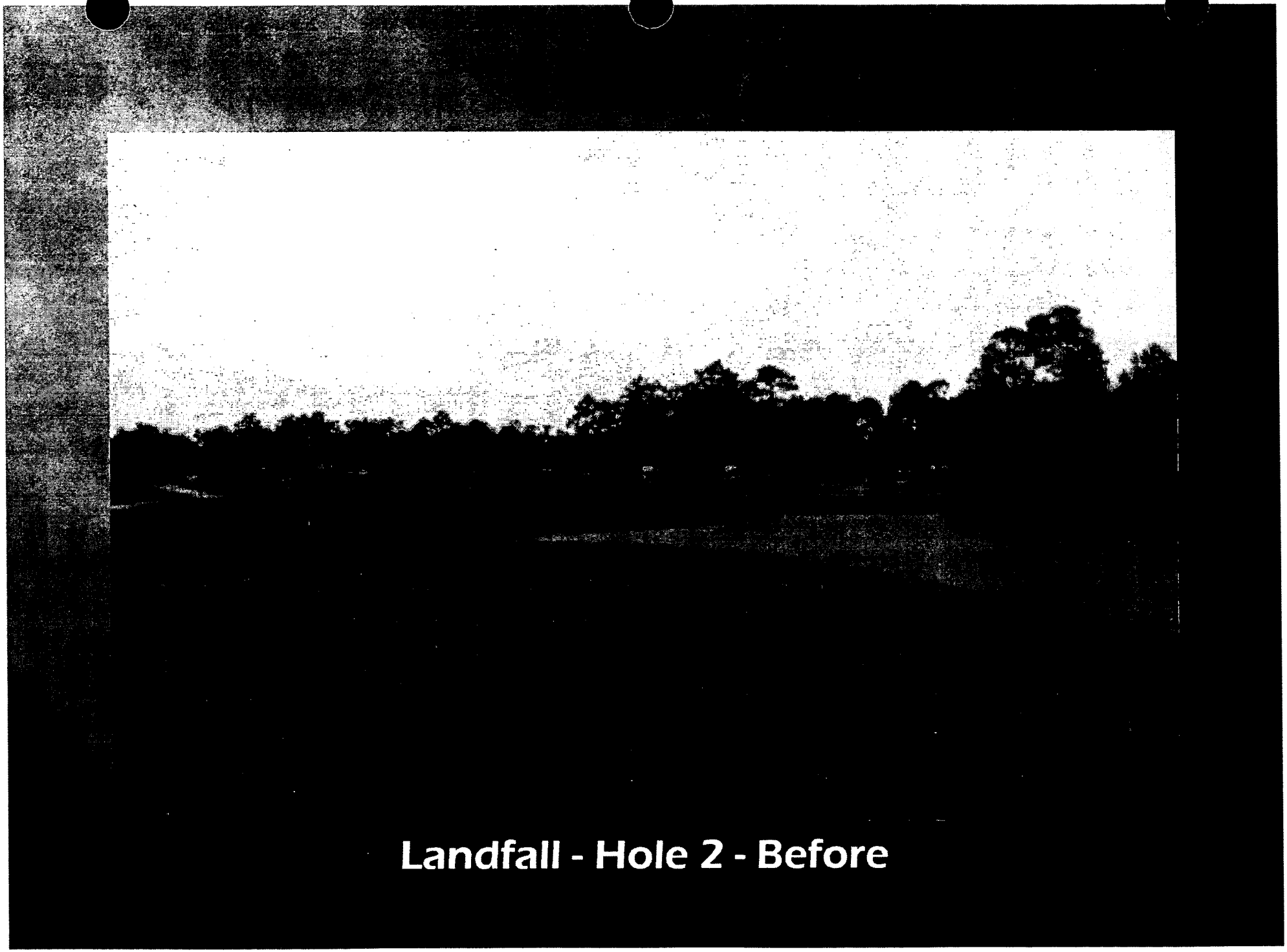


Eagle Point - Hole 3 - After

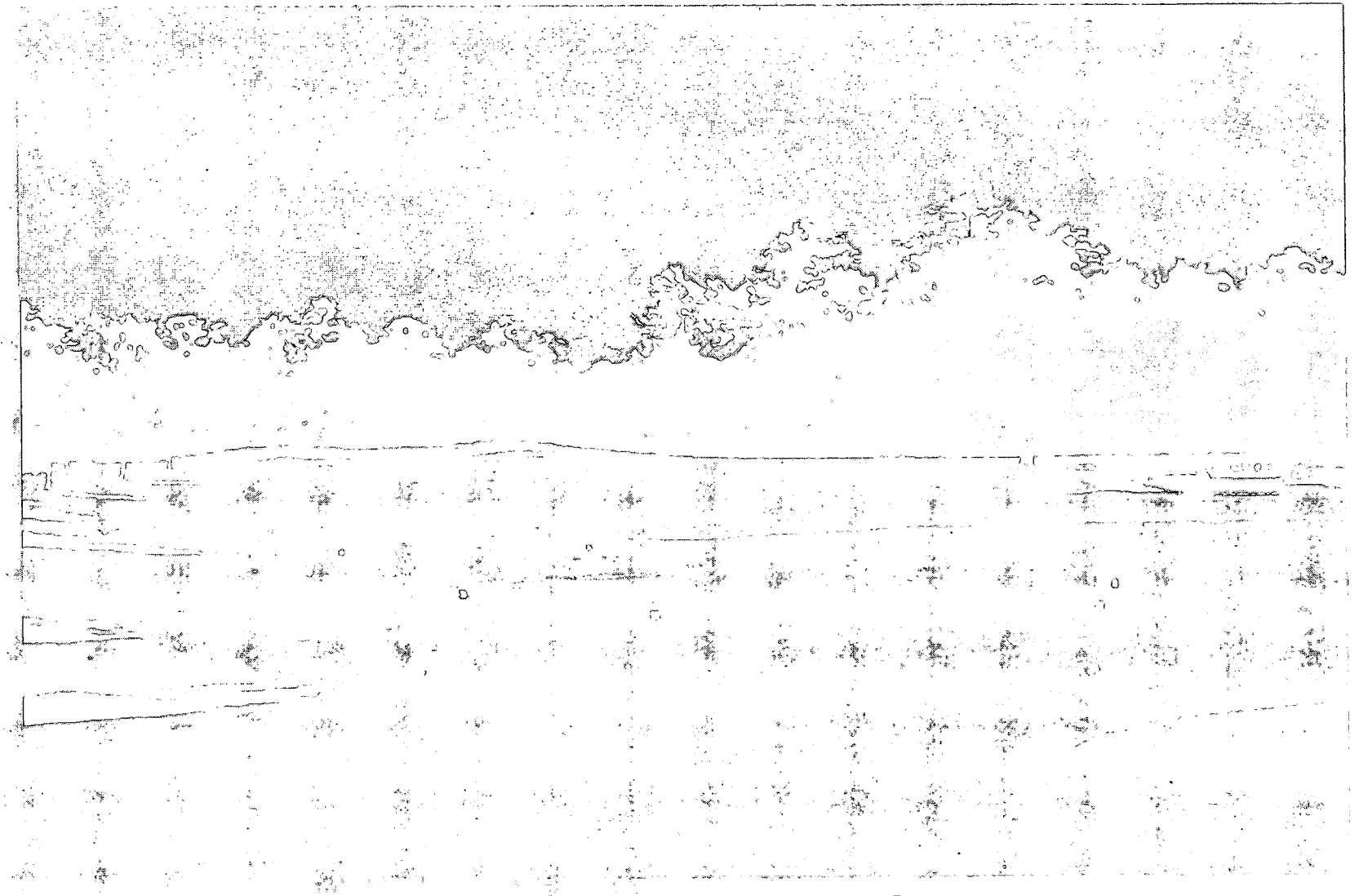
Cape Fear Country Club - Hole 7 - Before



Cape Fear Country Club - Hole 7 - After

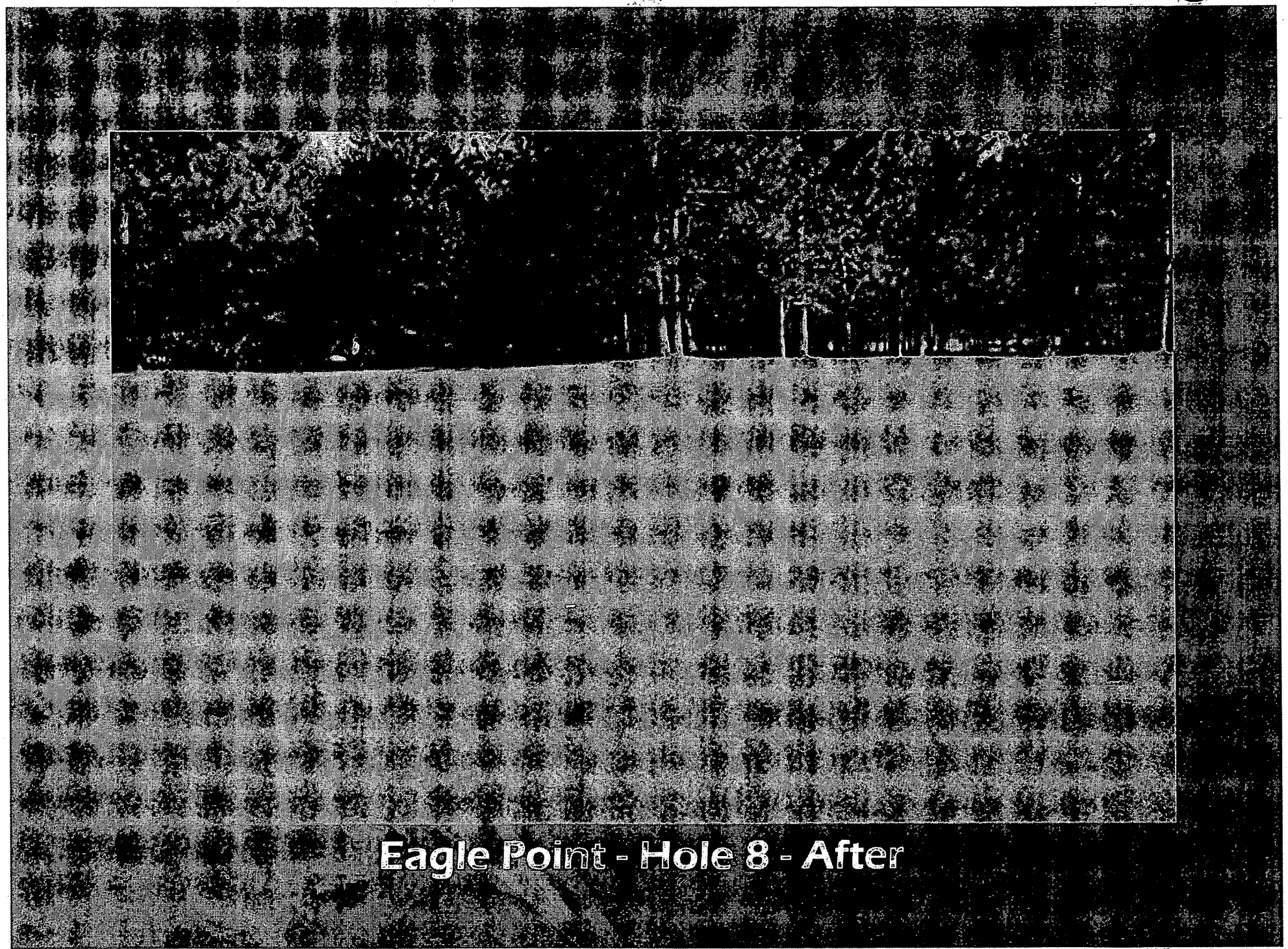


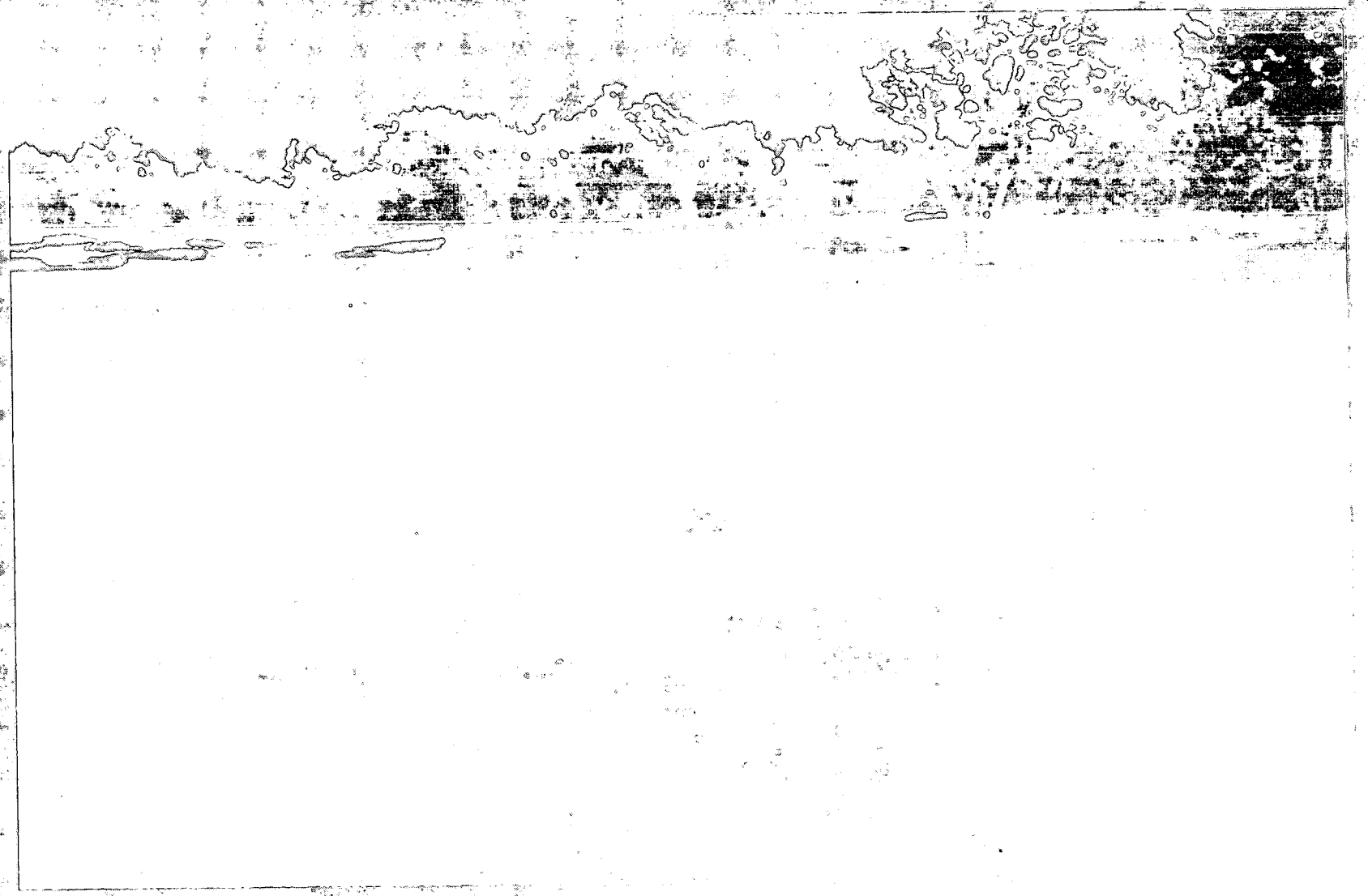
Landfall - Hole 2 - Before



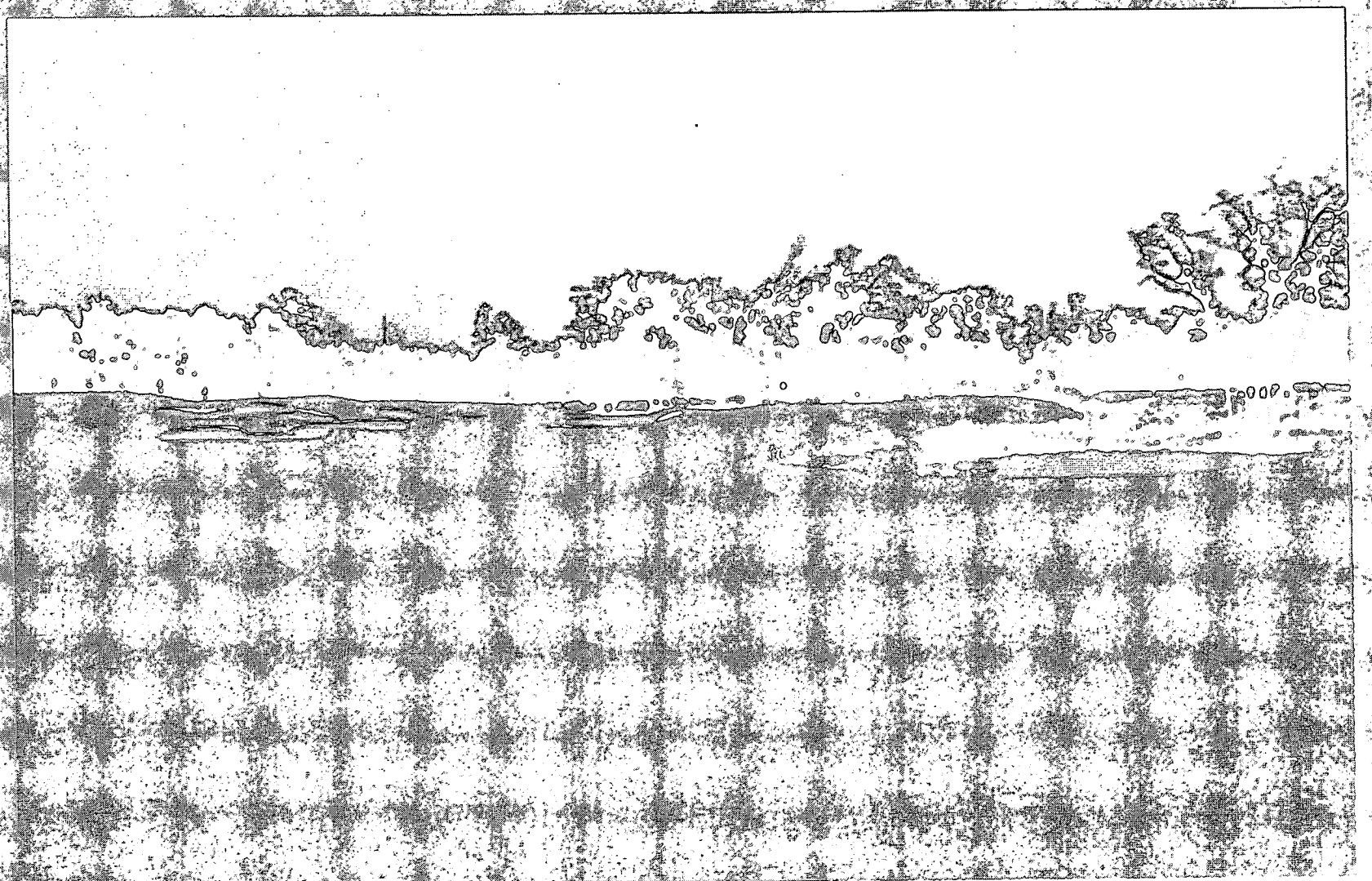
Landfall - Hole 2 - After

Eagle Point - Hole 8 - Before


Eagle Point - Hole 8 - After

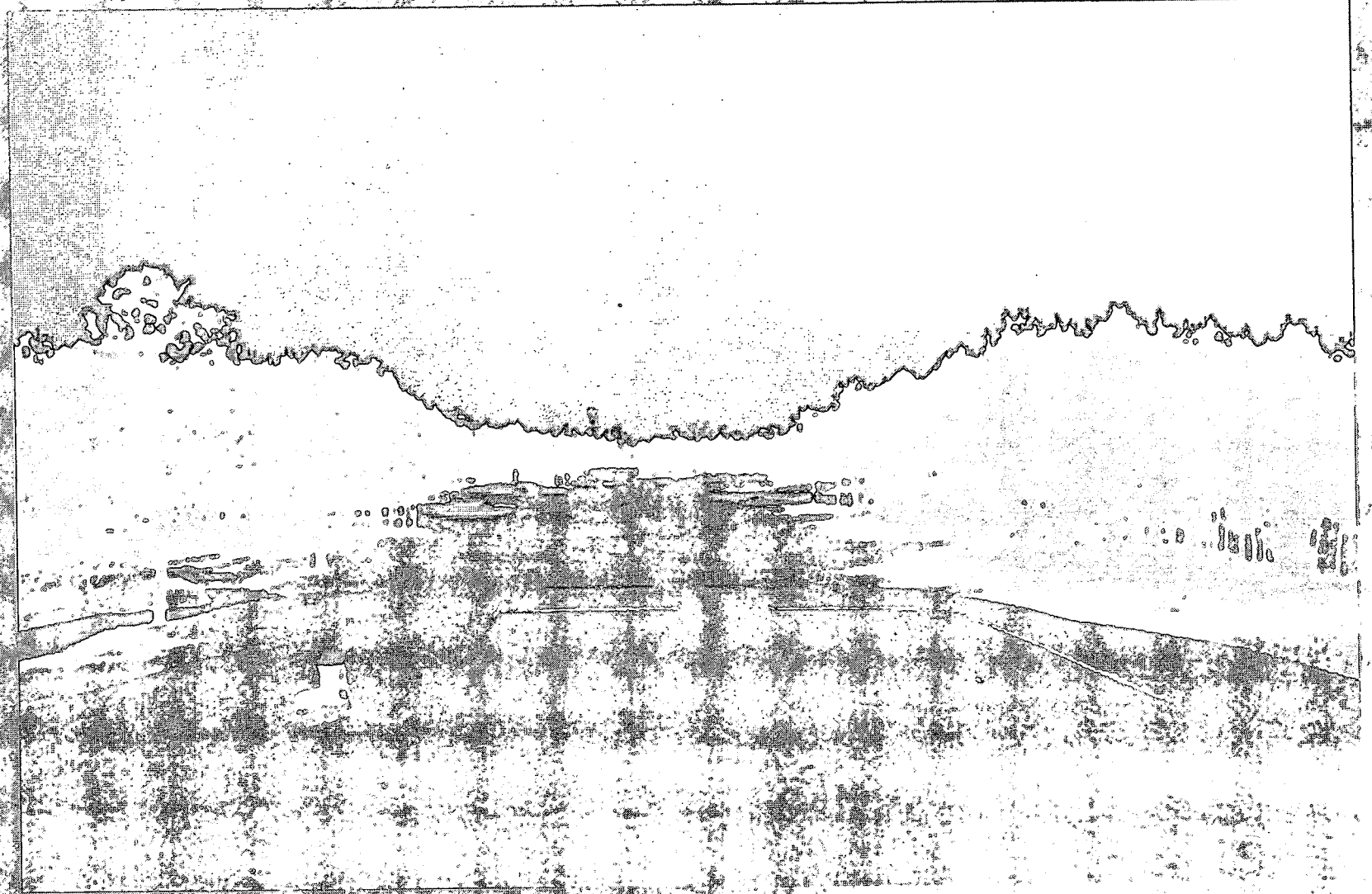


Eagle Point – Hole 18 - Before



Eagle Point - Hole 18 - After

Eagle Point - Hole 18 - Before



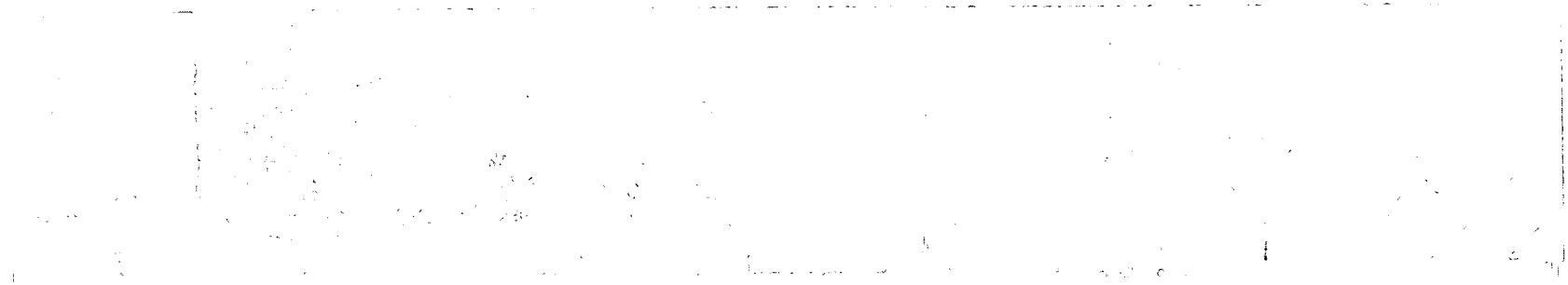
Eagle Point - Hole 18 - After

Landfall - Hole 4 - Before

Landfall - Hole 4 - After

Eagle Point - Hole 17 - Before

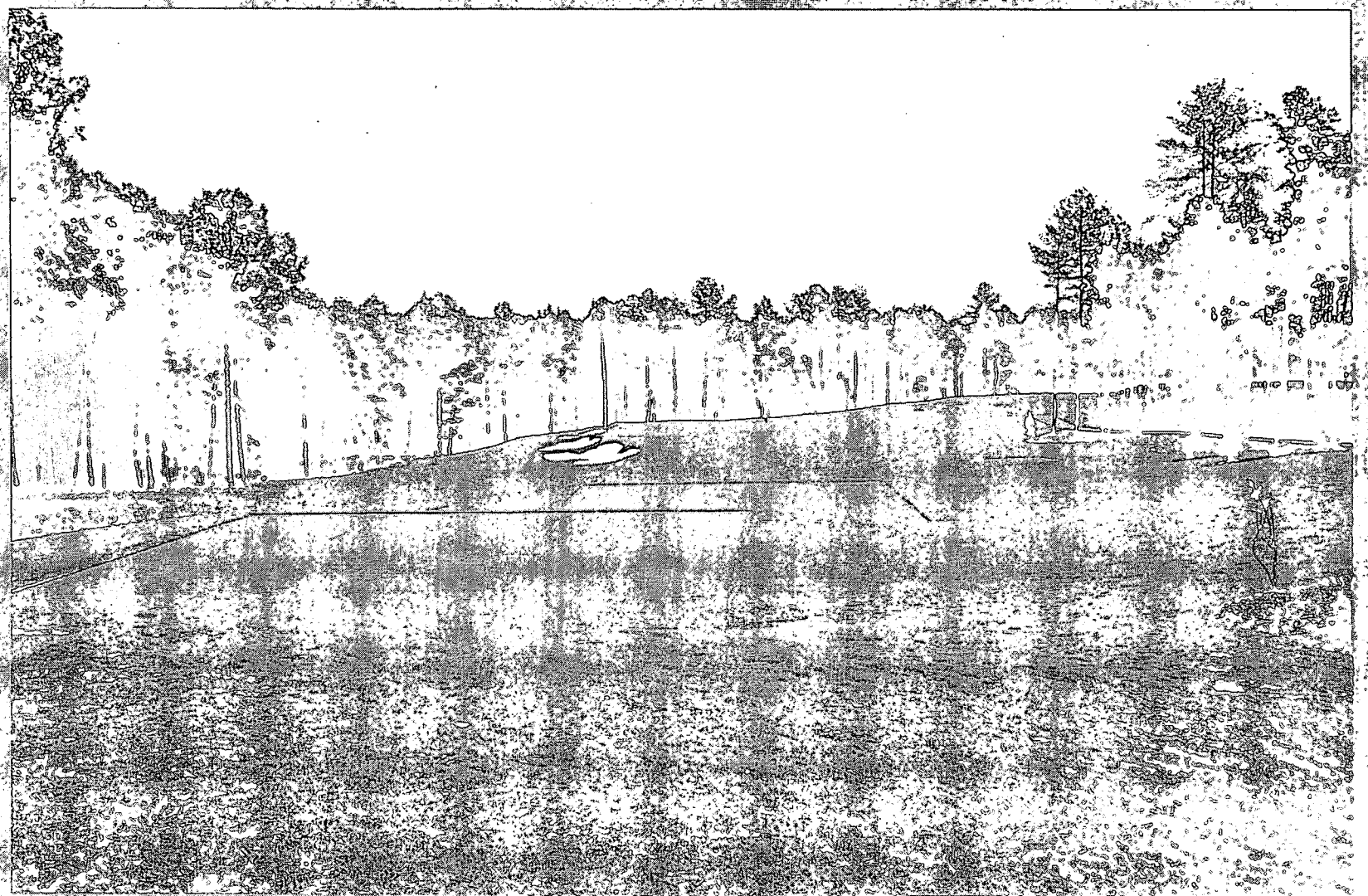
Eagle Point - Hole 17 - After



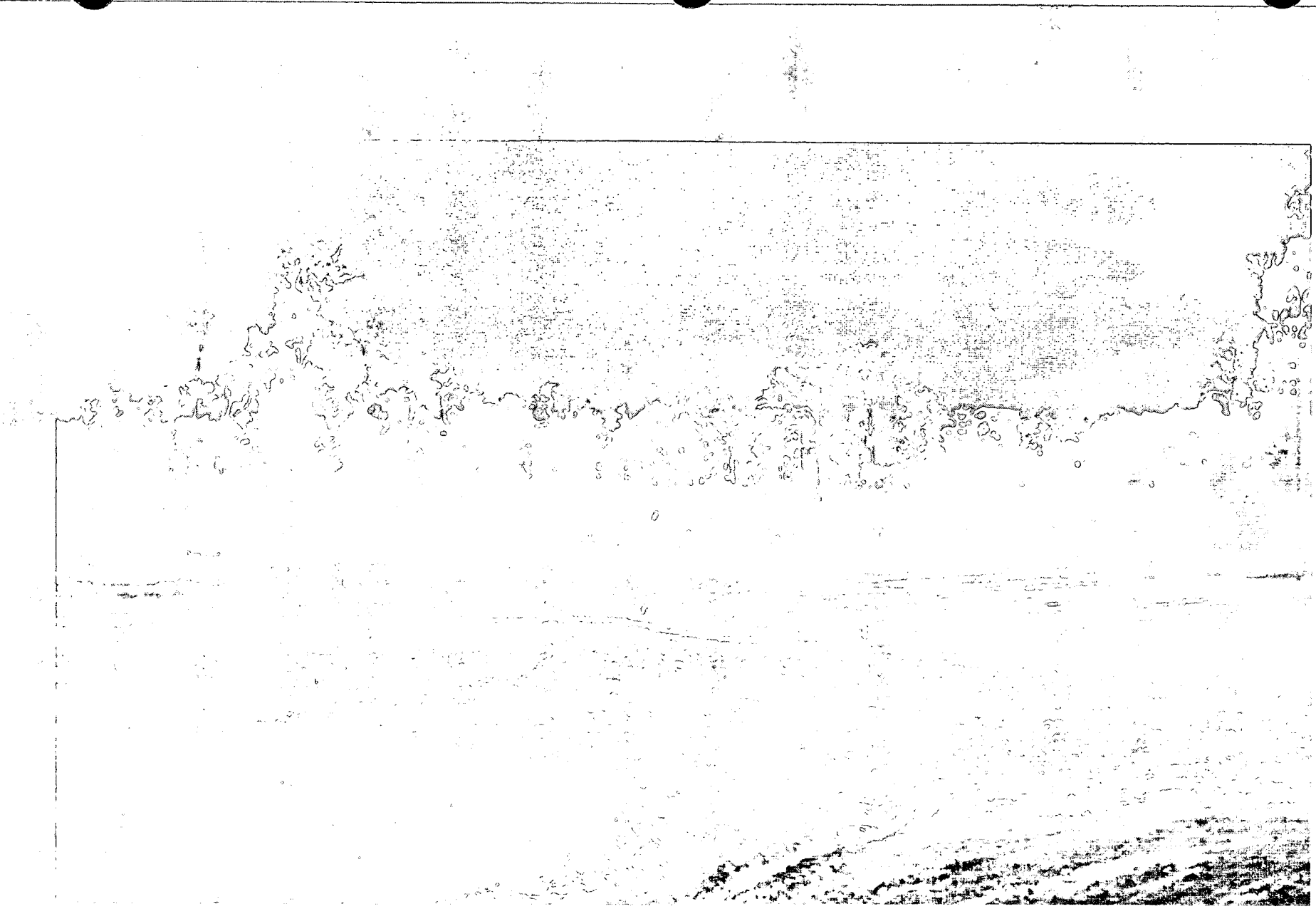
Landfall - Hole 8 - Before

Landfall - Hole 8 - After

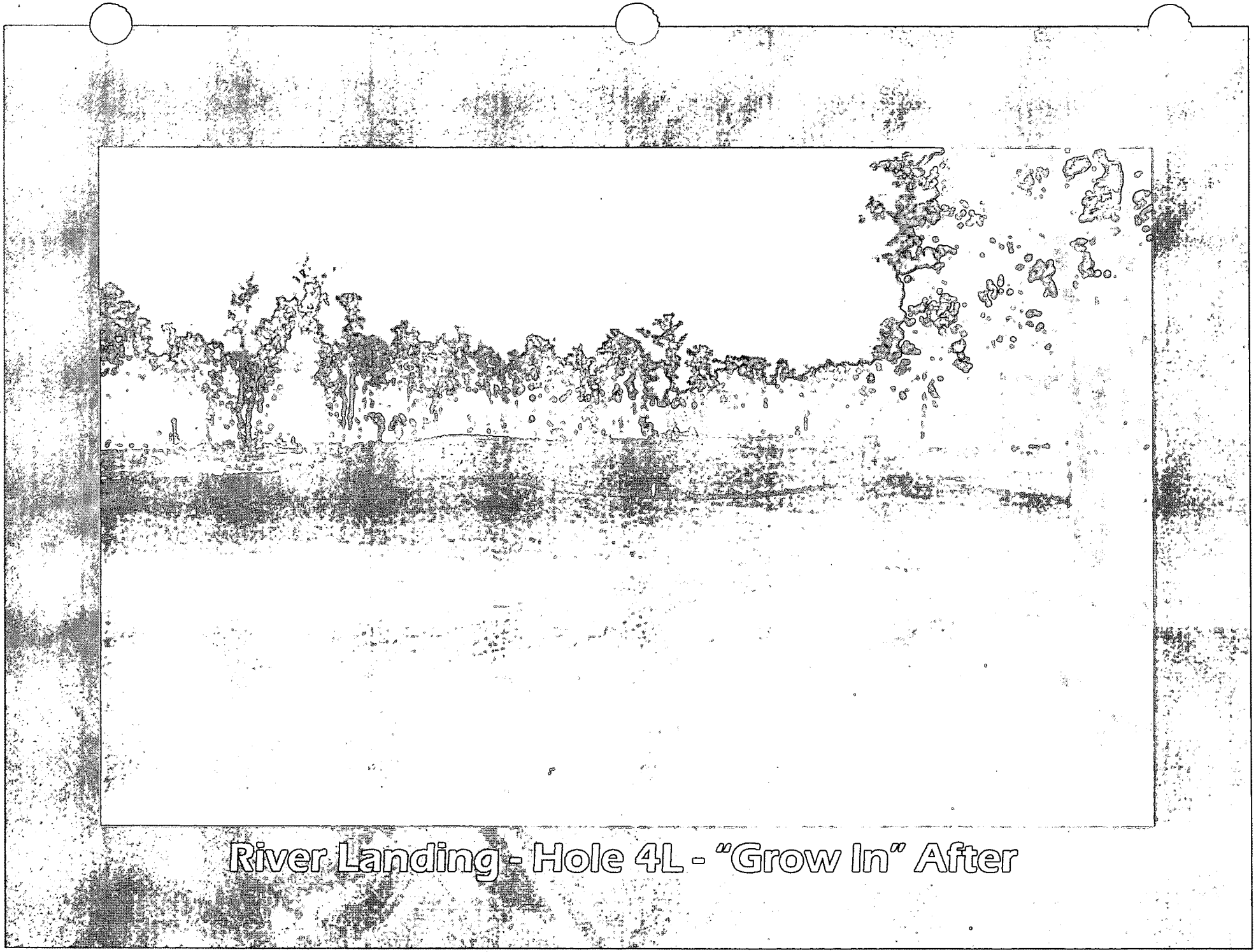
Hasentree - Hole 3 - Before



Hasentree - Hole 3 - After

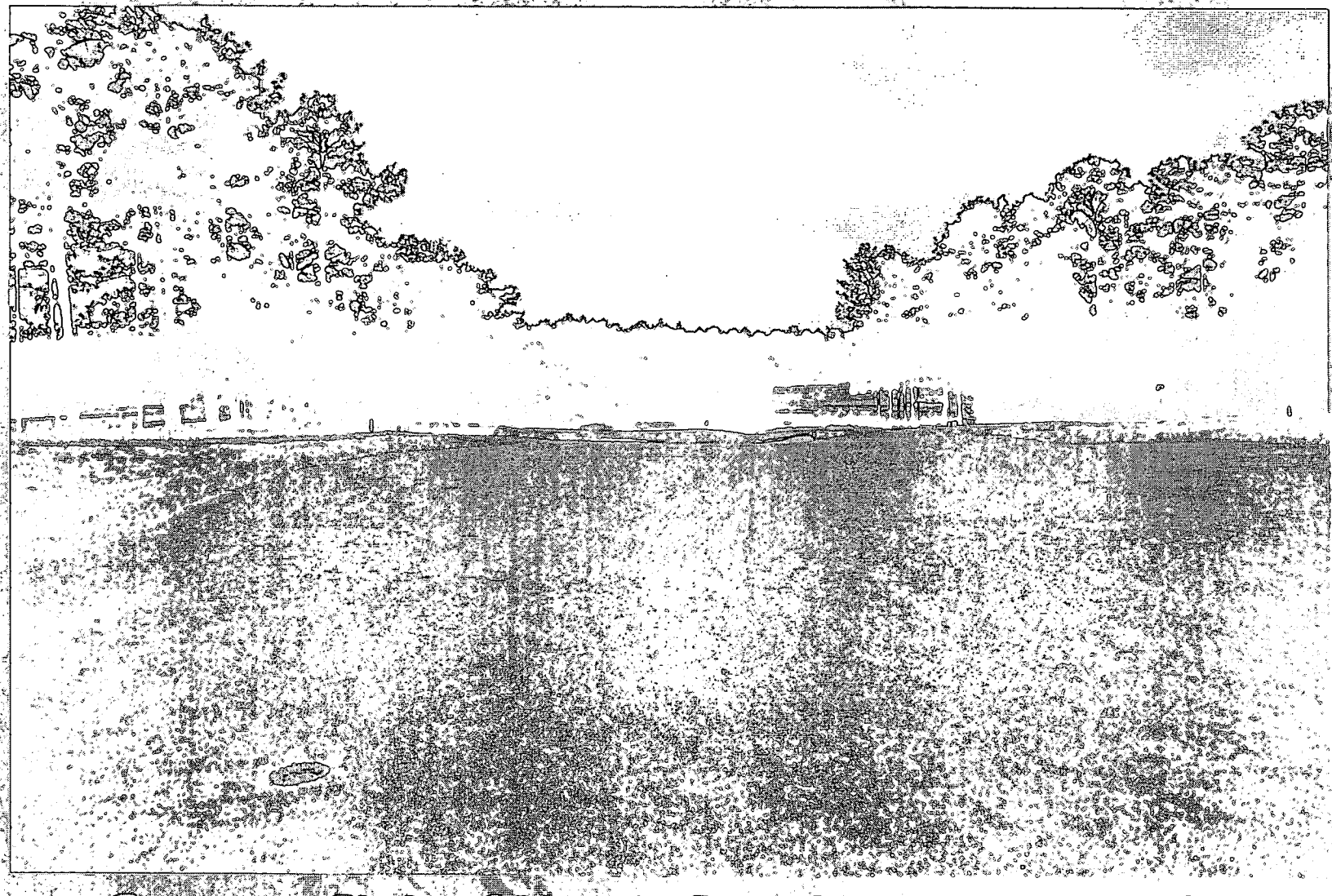


River Landing - Hole 4L - "Grow In" Before

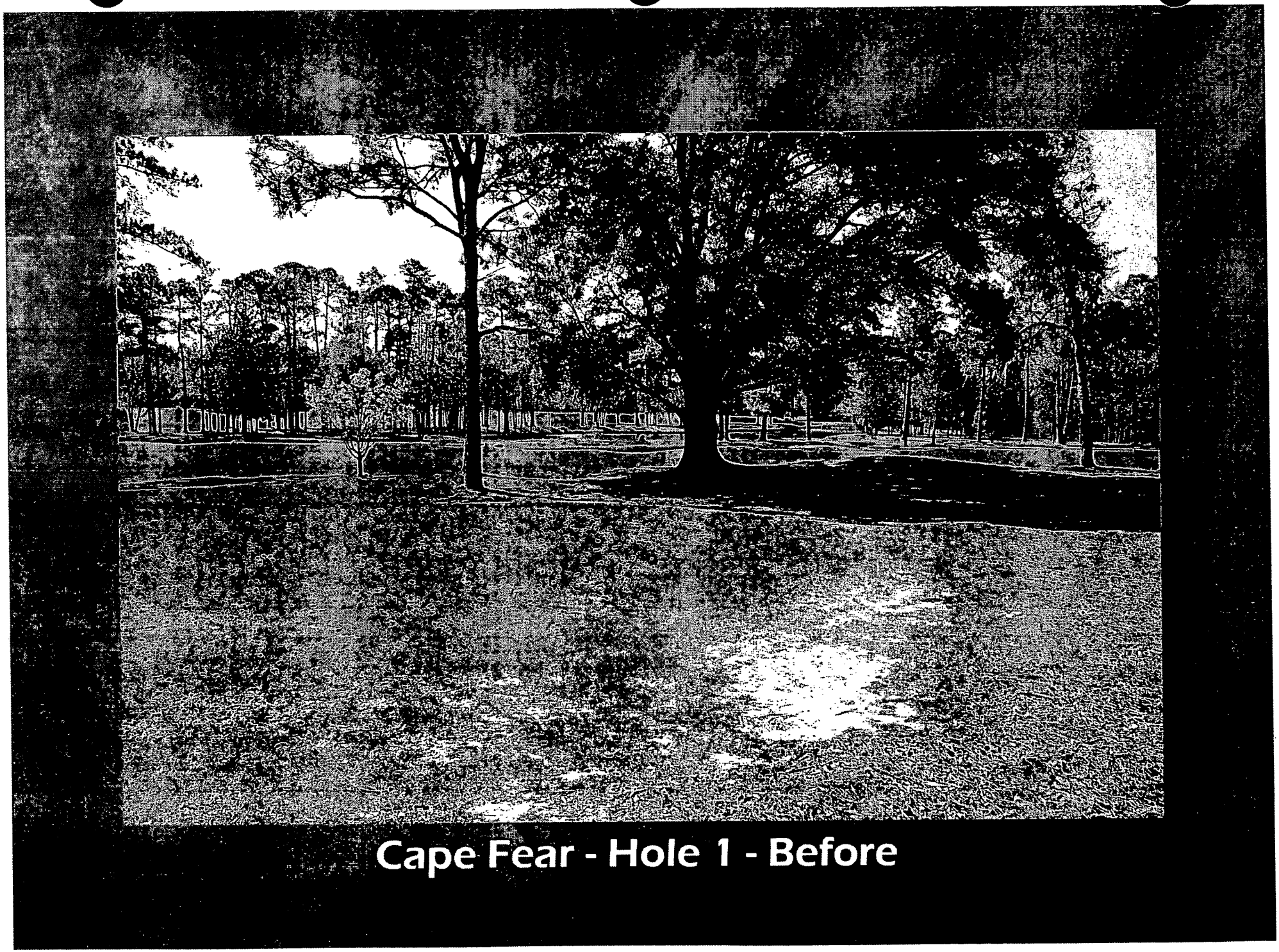


River Landing - Hole 4L - "Grow In" After

Country Club of North Carolina - Hole 2 - Before



Country Club of North Carolina - Hole 2 - After



Cape Fear - Hole 1 - Before

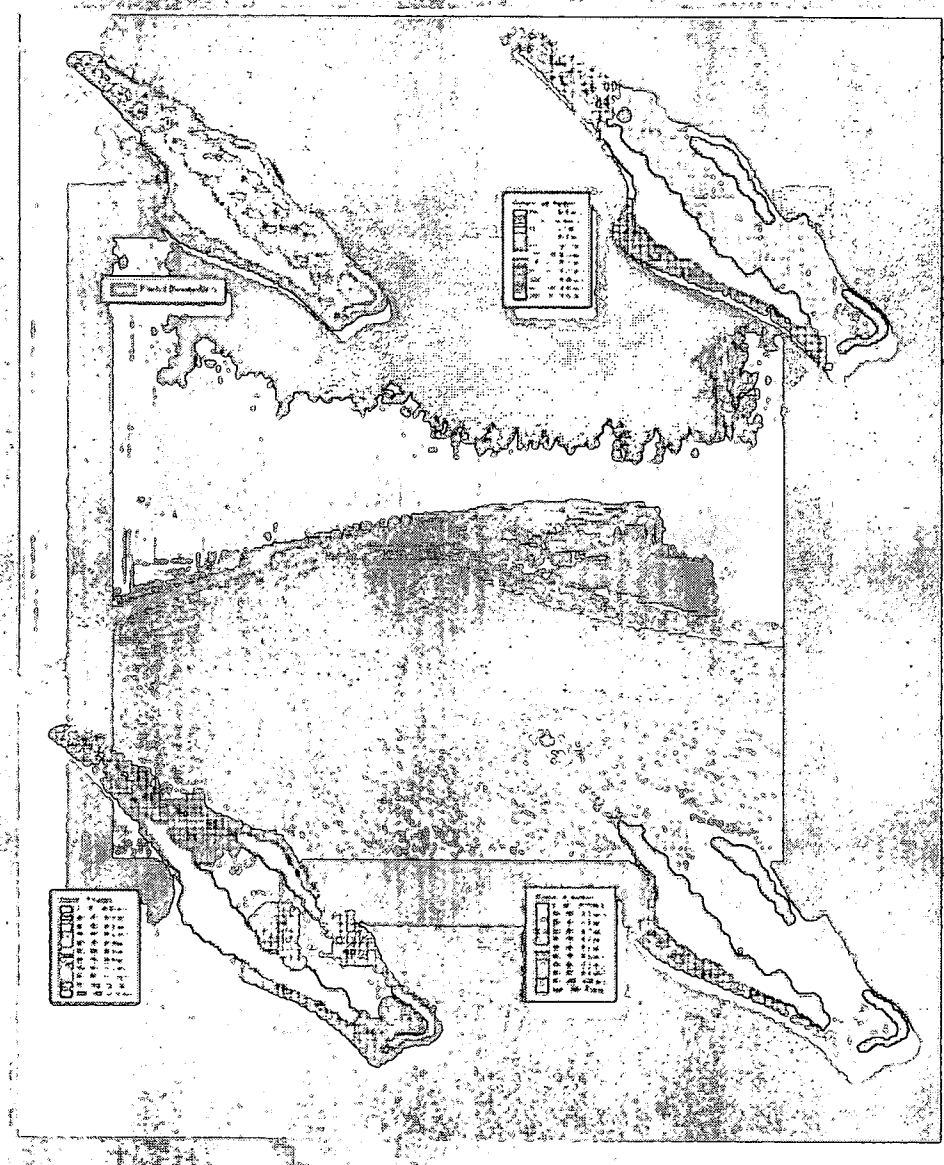
Cape Fear - Hole 1 - After

Striving for Perfection

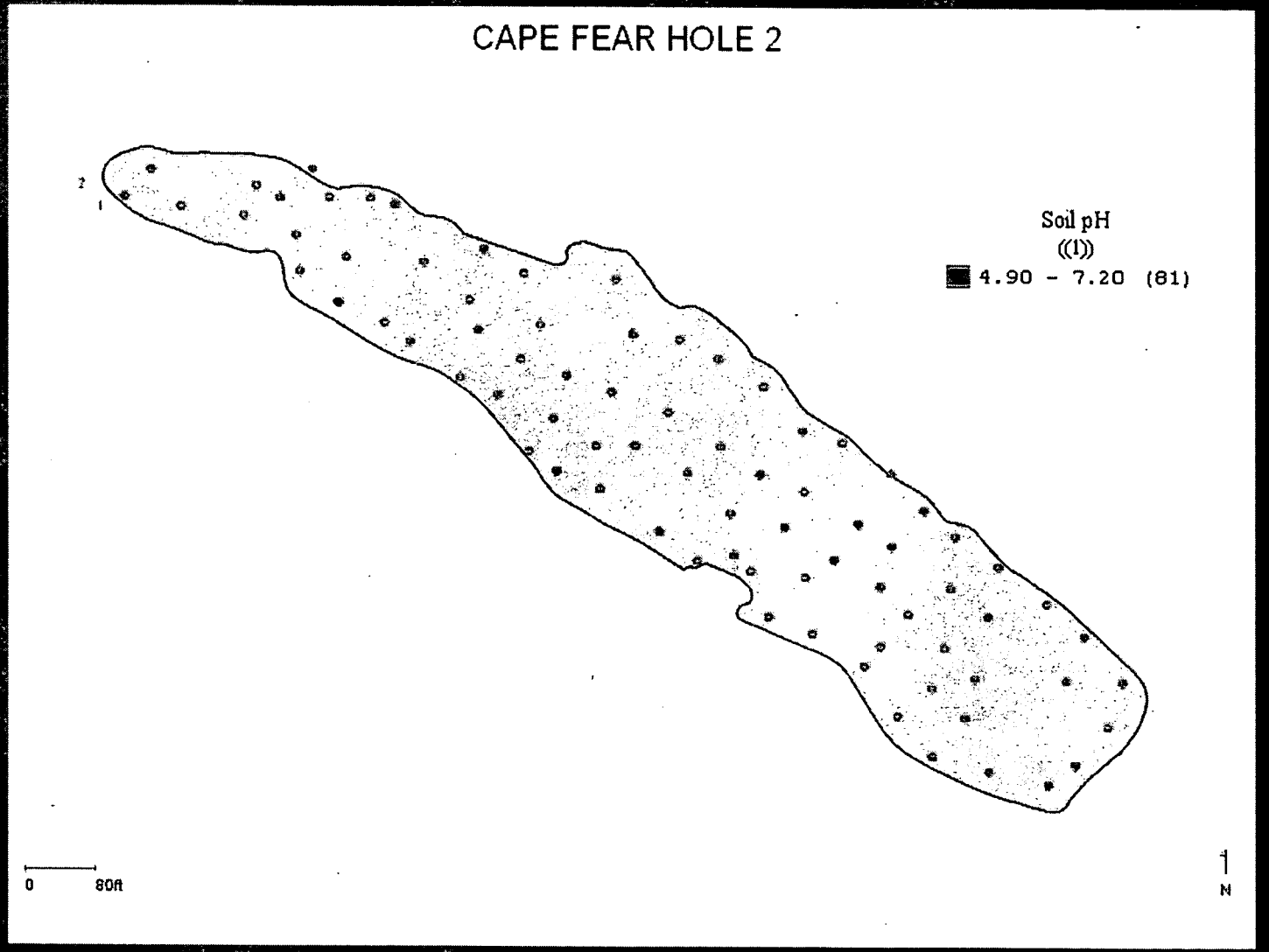
Is What NuTec is All About

NuTec Soil Sampling

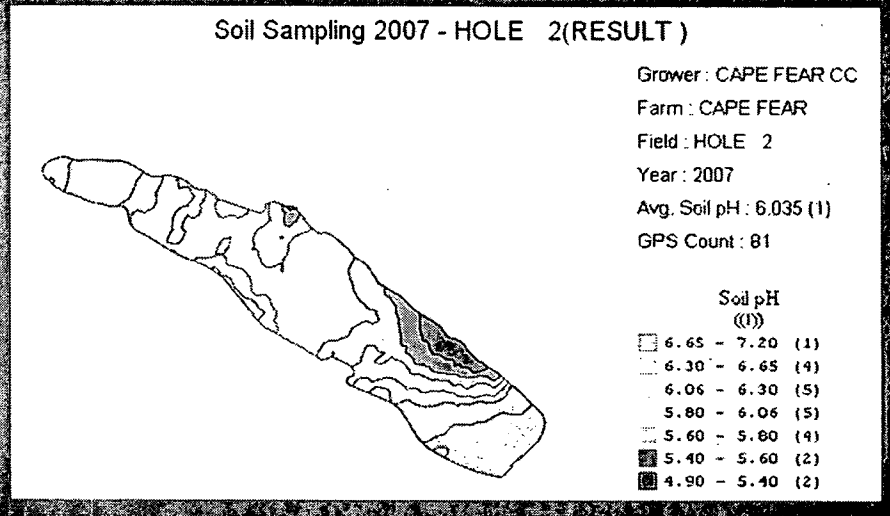
NuTec Soil Sampling

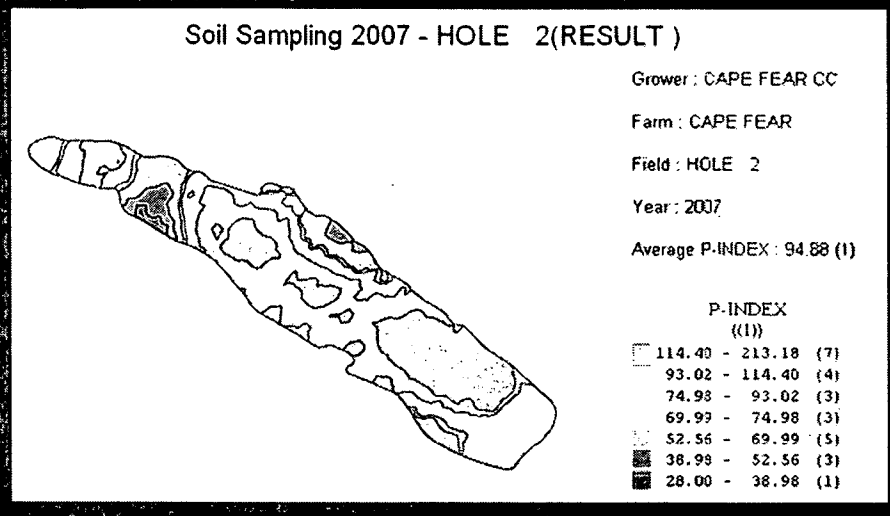


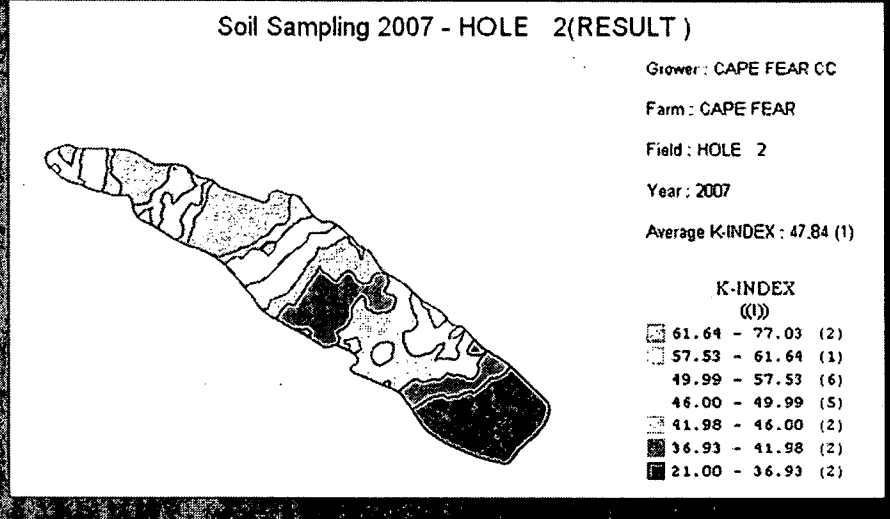
NuTec Charts the Results



NuTec Soil Sampling

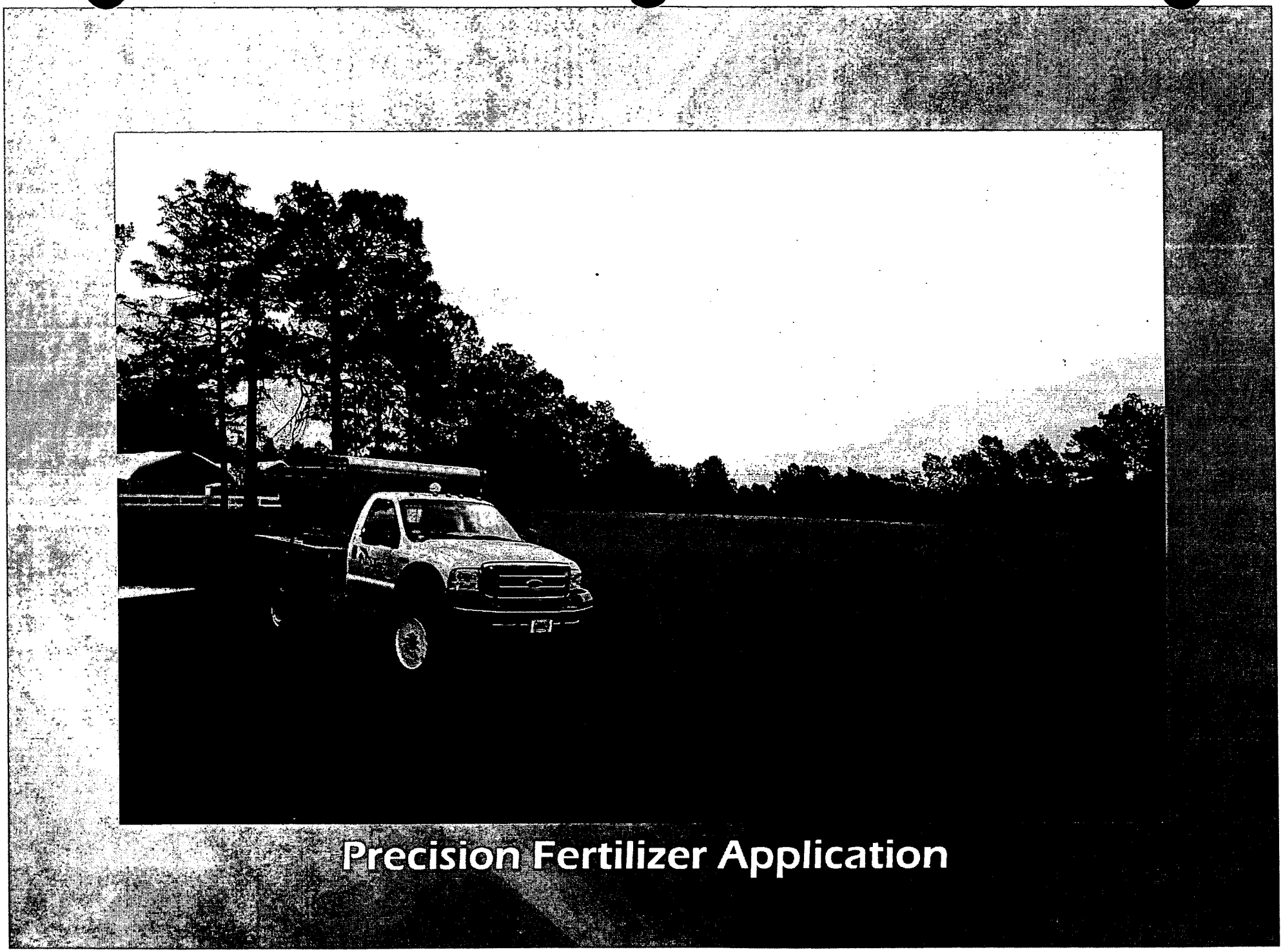


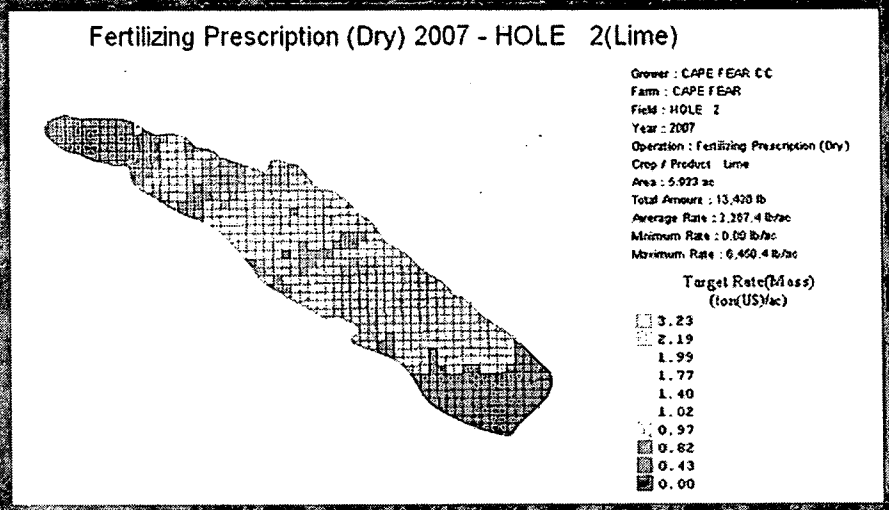


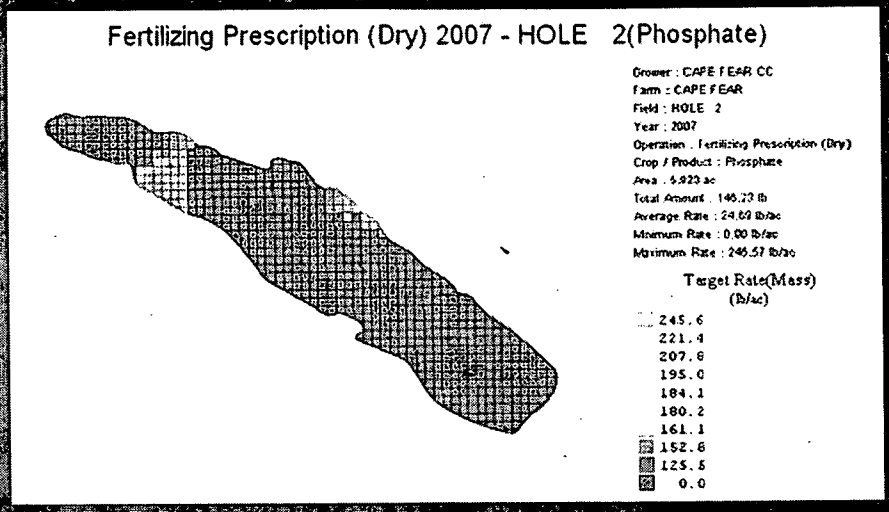


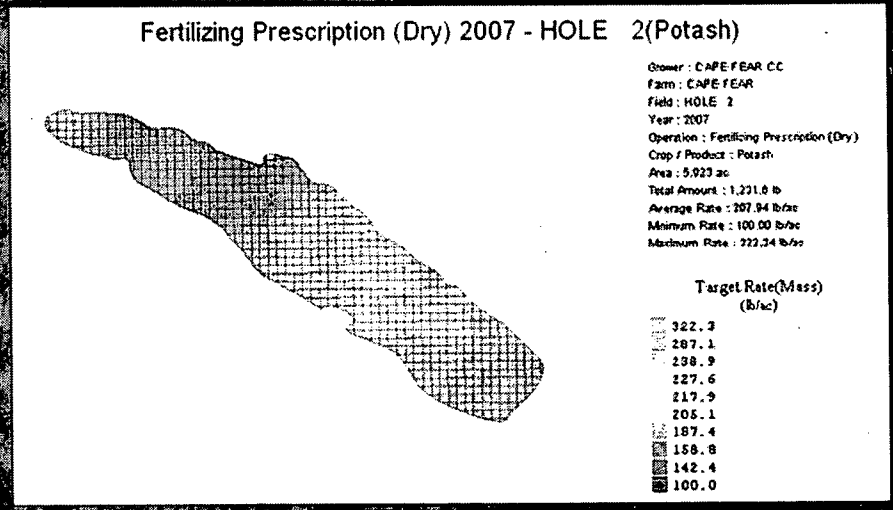
Cape Fear Country Club – Hole 2

Soil pH • Phosphorus Index • Potassium Index


Precision Fertilizer Application





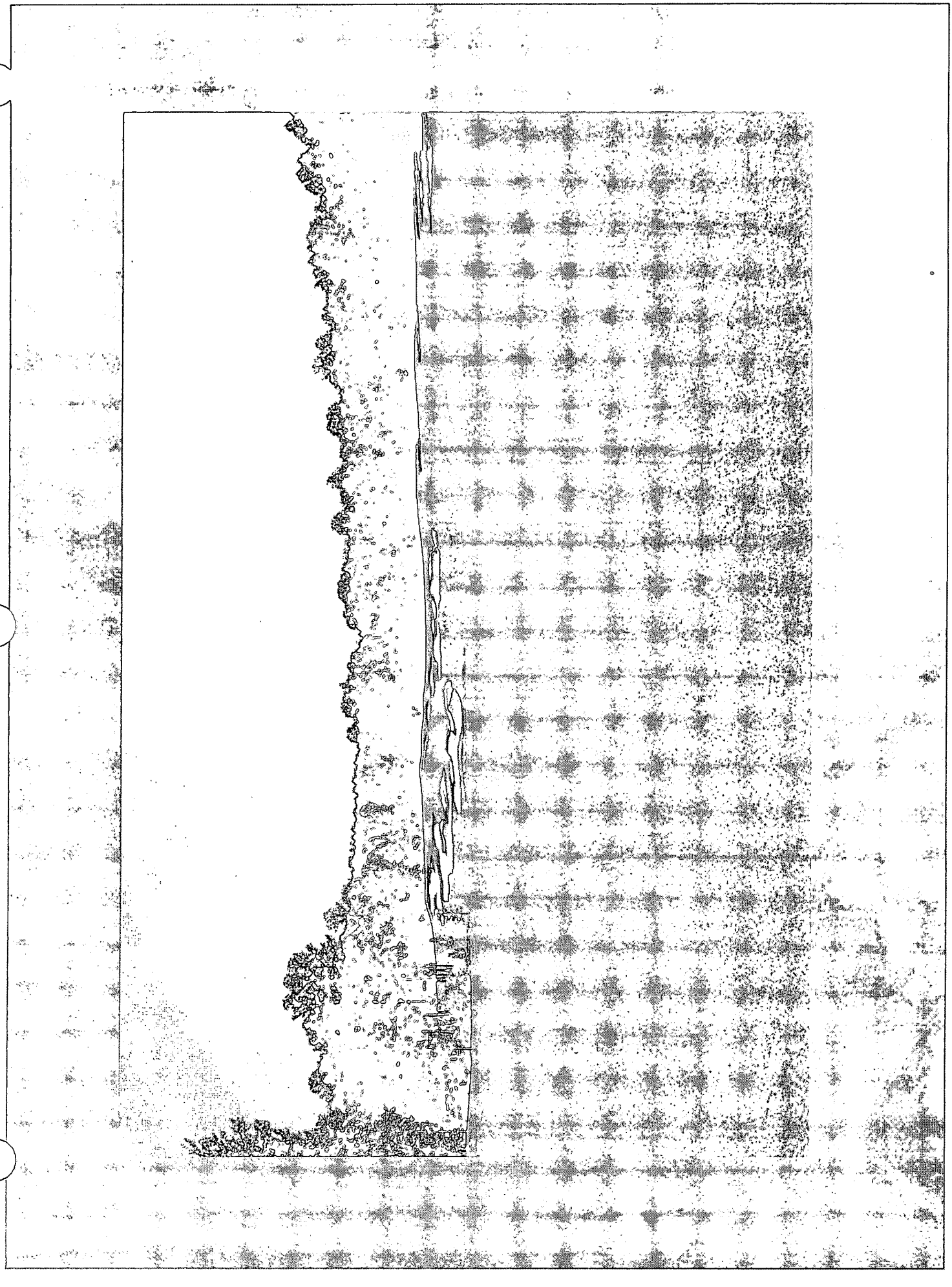


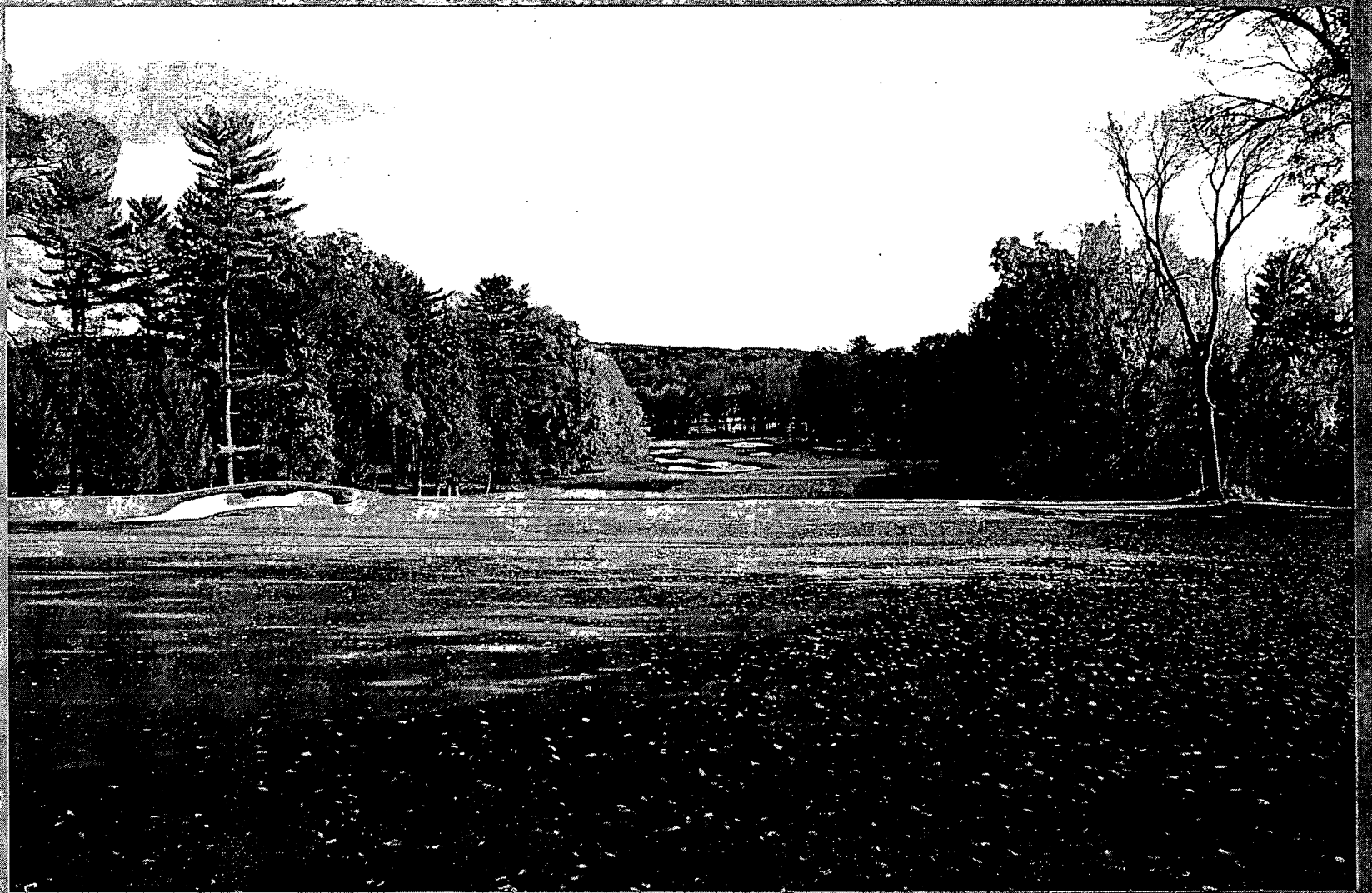
Cape Fear Country Club – Hole 2

Prescription Maps For: Lime • Phosphate • Potash

NuTec Soil, Inc.

The Results





We Thank You

Visit Us At:

NuTecSoil.com

DWQ FY07 Status Report
7/1/2006-6/30/2007

Individually Permitted Discharging Systems

Per General Statute 143-215.9A

DWQ Programs Highlighted

- NPDES wastewater dischargers
- Sanitary sewer overflows

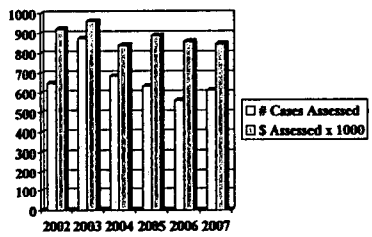
NPDES Wastewater Permitting Summary FY07

Total No. Individual Permitted Facilities: Municipals: Non-Municipals:	1,319 296 1,023
NPDES Permits Issued: Permit Backlog:	282 5.6% as of 9/30/07
Total No. Facility Inspections:	1,293

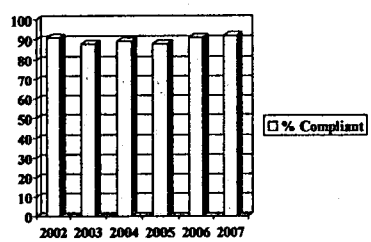
NPDES Wastewater Compliance Summary FY07

Total No. Enforcement Actions Assessed:	613
Civil Penalties Assessed: Civil Penalties Collected:	$844,181 $587,144
Remission Requests: Partial/Full Remission by Director:	100 32
Facilities with Active SOCs: Facilities requesting new/amended SOCs:	28 24

NPDES Wastewater Penalty Assessment Trends



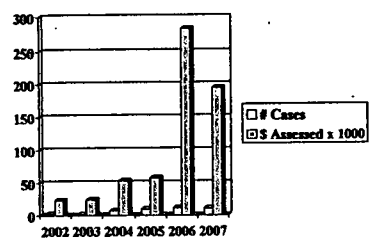
NPDES Wastewater Compliance Trends

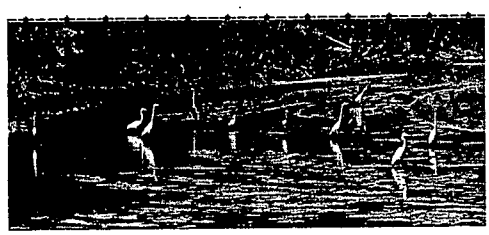


Sanitary Sewer Overflows
Annual Spill Trends

Year	Total # Spills	Total # Spills To Surface Waters	Volume Reaching Surface Waters
2003	2,907	2,547	103.8 MG
2004	1,930	1,705	29.0 MG
2005	2,228	2,076	47.6 MG
2006	1,902	1,744	25.6 MG
2007	2,048	1,895	31.5MG

Sanitary Sewer Overflows
Penalty Assessment Trends





North Carolina
Department of Environment and Natural Resources

Michael F. Easley, Governor
William G. Ross, Jr., Secretary

NCDENR

OCT 25 2007

MEMORANDUM

To: Environmental Review Commission Members

From: William G. Ross, Jr.

Subject: Status Report on Individually Permitted Discharging Systems
Beginning July 1, 2006 and Ending June 30, 2007
Fiscal Year 2006-2007

Pursuant to General Statutes 143-215.9A, the Department of Environment and Natural Resources submits the subject fiscal year report.

If any additional information or clarification is needed, please contact Vanessa Manuel at 919/733-5083, extension 532.

ATTACHMENTS

Cc: Coleen H. Sullins, Director, Division of Water Quality
Dr. Lynn Muchmore, Director, Fiscal Research
Kristin Walker, Fiscal Research

Status Report on Individually Permitted Discharging Systems For the Period Beginning July 1, 2006 and Ending June 30, 2007.

Summary

North Carolina General Statute (N.C.G.S.) 143-215.9A requires the Department of Environment and Natural Resources to report to the Environmental Review Commission and the Fiscal Research Division on the status of facilities discharging into surface waters during the previous fiscal year. Facilities discharging into surface waters are required by N.C.G.S. 143-215.1 to first apply for and secure a permit from the Environmental Management Commission. As a result, the data provided within this fiscal report is captured for those facilities individually permitted with National Pollutant Discharge Elimination System (NPDES) permits.

The enclosed report details the inspections completed and the enforcement actions taken in North Carolina during fiscal year 2006-2007 by the Division of Water Quality. In addition, information on Special Orders by Consent is included. The report also includes a table showing the number of permits issued by region and the names and locations of the individually permitted discharging facilities.

The enclosed tables list totals for each of the Department's regional offices as well as State totals. The regional offices are noted as follows:

- ARO – Asheville Regional Office
- FRO – Fayetteville Regional Office
- MRO – Mooresville Regional Office
- RRO – Raleigh Regional Office
- WARO – Washington Regional Office
- WIRO – Wilmington Regional Office
- WSRO – Winston-Salem Regional Office

If any additional information or clarification is needed, please contact Vanessa Manuel at 919/733-5083, extension 532.

CONTENTS

Table 1 Enforcement actions taken, Civil Penalties assessed and collected, and Remissions Requested from July 1, 2006, through June 30, 2007.

Table 2 Permits Issued and Inspections completed from July 1, 2006, through June 30, 2007.

Table 3 Special Orders by Consent (SOCs) active and pending from July 1, 2006, through June 30, 2007.

Table 4 Names and locations of individually permitted discharging facilities as of August 13, 2007.

Addendum Support information

Table 1
Status of Civil Penalty Assessments
For the Period Beginning July 1, 2006 and Ending June 30, 2007*

	ARO	FRO	MRO	RRO	WARO	WIRO	WSRO	State Totals
Total Number Of Enforcement Actions Assessed+**	**81**	**51**	**84**	**142**	**44**	**86**	**125**	**613**
Total Number Of Enforcement Actions Assessed By The Central Office++	19	8	9	11	4	1	6	**58**
Total Number Of Enforcement Actions Assessed By The Regional Supervisors	62	43	75	131	40	85	119	**555**
Enforcement Actions Generated From Limit &/or Monitoring Violations	58	43	78	124	39	84	119	**545**
Enforcement Actions Generated From Other Permit Condition Violations	23	8	6	18	5	2	6	**68**
Total Civil Penalties Assessed	$76,679.80	$170,491.94	$153,266.00	$196,042.17	$50,696.75	$74,173.85	$122,831.47	**$844,181.98**
Total Civil Penalties Collected+++	$90,974.86	$54,509.52	$75,544.80	$127,020.26	$39,490.69	$63,657.45	$135,946.55	**$587,144.13**
Remission & Contested Case Responses to Enforcement Actions								
Total Number Of Remission Requests	4	11	20	28	10	8	19	**100**
Total Number Of Enforcement Actions With Partial Or Full Remission By The Director	1	3	3	11	7	1	6	**32**
Total Number Of Remission Requests Pending The Director's Decision	5	11	6	26	10	13	16	**87**
Total Number Of Remission Requests Pending The EMC's Final Agency Decision	10	13	6	27	13	15	17	**101**
Total Number Of Contested Cases (known at this time)	0	0	0	1	0	0	2	**3**

* Fiscal Year numbers are reported as of 8/13/2007 and may vary from actual due to delays in data entry.

+ Data based on penalty assessment approved date; violations assessed may have occurred outside of the quarter date range.

++ Includes assessments by the Environmental Sciences Section.

+++ Penalties collected may not include penalties assessed during this reporting quarter and may include penalties assessed outside this quarter date range.

Table 2
Status of Individually Permitted Facilities
For the Period Beginning July 1, 2006 and Ending June 30, 2007*

	ARO	FRO	MRO	RRO	WARO	WIRO	WSRO	State Totals
Total Number Of Individually Permitted Facilities	280	85	247	195	131	121	260	1319
Major Municipal Permitted Facilities	21	22	28	32	15	12	26	156
Major Non-Municipal Permitted Facilities	13	7	17	8	8	12	7	72
Minor Municipal Permitted Facilities	25	19	25	14	18	18	21	140
Minor Non-Municipal Permitted Facilities	221	37	177	141	90	79	206	951
Number Of NPDES Permits Issued	32	29	30	51	13	54	73	282
Major Municipal Permits Issued	4	9	5	11	1	2	11	43
Major Non-Municipal Permits Issued	4	3	3	6	2	5	2	25
Minor Municipal Permits Issued	2	6	1	4	3	13	5	34
Minor Non-Municipal Permits Issued	22	11	21	30	7	34	55	180
Total Number Of Compliance Evaluation Inspections Completed	236	57	185	146	110	85	202	1021
Total Number Of Other Inspections Completed	67	28	53	40	12	29	43	272

Table 3
Status of Special Orders By Consent (SOCs)
For the Period Beginning July 1, 2006 and Ending June 30, 2007*

	ARO	FRO	MRO	RRO	WARO	WIRO	WSRO	State Totals
Total Number of Individually Permitted Facilities With Active SOCs	3	4	1	1	5	1	13	28
Total Number of Individually Permitted Facilities Requesting New or Amended SOCs	6	4	1	4	1	0	8	24

* Fiscal Year numbers are reported as of 8/13/2007 and may vary from actual due to delays in data entry.

Table 4 - NPDES Permit Holders: Names and Locations

Region	Permit Number	Owner	Facility	City	County Name
ARO	NC0000078	Ecusta Business Development Center, LL	Mill in Pisgah Forest, North Carolina	Pisgah Forest	Transylvania
ARO	NC0000094	Fletcher Warehousing Company	Fletcher Warehousing Company	Fletcher	Henderson
ARO	NC0000108	159 Babcock Co LLC	Excelsior Packaging Group	Rosman	Transylvania
ARO	NC0000175	Unimin Corporation	Quartz Operation	Spruce Pine	Mitchell
ARO	NC0000264	Jackson County	Jackson County Industrial Park WWTP	Whittier	Jackson
ARO	NC0000272	Blue Ridge Paper Products Inc	Canton Mill	Canton	Haywood
ARO	NC0000311	M-B Industries Inc	M-B Industries WWTP	Rosman	Transylvania
ARO	NC0000353	Feldspar Corporation	Spruce Pine facility	Spruce Pine	Mitchell
ARO	NC0000361	Unimin Corporation	Schoolhouse Quartz facility	Spruce Pine	Avery
ARO	NC0000396	Progress Energy Carolinas Inc	Asheville Steam Electric Power Plant	Arden	Buncombe
ARO	NC0000400	K T Feldspar Corporation	K-T Feldspar Corp-Spruce Pine	Spruce Pine	Mitchell
ARO	NC0004243	Coats American Inc	Coats American-Sevier Plant	Marion	McDowell
ARO	NC0004391	Grover Industries Inc	Tryon Plant WWTP	Tryon	Polk
ARO	NC0004405	Cliffside Sanitary District	Cliffside Sanitary District WWTP	Cliffside	Rutherford
ARO	NC0004464	Polk County	Woodland Mills WWTP	Mill Spring	Polk
ARO	NC0005088	Duke Energy Carolinas LLC	Cliffside Steam Station	Cliffside	Rutherford
ARO	NC0005258	Sgl Carbon LLC	SGL Carbon Corporation	Morganton	Burke
ARO	NC0006254	Omni Supply	River Road Site	Patterson	Caldwell
ARO	NC0006564	Baxter Healthcare Corporation	Baxter Healthcare Corporation	Marion	McDowell
ARO	NC0020214	Tuckaseigee Water & Sewer Authority	Sylva WWTP	Sylva	Jackson
ARO	NC0020290	Town of Burnsville	Burnsville WWTP	Burnsville	Yancey
ARO	NC0020460	USDA US Forest Service	Sliding Rock Recreation Area	Pisgah Forest	Transylvania
ARO	NC0020478	USDA US Forest Service	Lake Powhatan Recreation Area	Asheville	Buncombe
ARO	NC0020486	USDA US Forest Service	North Mills River Recreation Area	Waynesville	Henderson
ARO	NC0020664	Town of Spindale	Spindale WWTP	Spindale	Rutherford
ARO	NC0020800	Town of Andrews	Andrews WWTP	Andrews	Cherokee
ARO	NC0020940	Town of Murphy	Murphy WWTP	Murphy	Cherokee
ARO	NC0021148	USDA US Forest Service	Jackrabbit Mountain Recreation Area W	Murphy	Clay
ARO	NC0021229	Town of Old Fort	Old Fort WWTP	Old Fort	McDowell
ARO	NC0021369	Town of Columbus	Columbus WWTP	Columbus	Polk
ARO	NC0021407	Town of Highlands	Highlands WWTP	Highlands	Macon
ARO	NC0021423	Town of Spruce Pine	Spruce Pine WWTP	Spruce Pine	Mitchell
ARO	NC0021547	Town of Franklin	Franklin WWTP	Franklin	Macon
ARO	NC0021601	Town of Tryon	Tryon WWTP	Tryon	Polk
ARO	NC0021733	Town of Marshall	Marshall WWTP	Marshall	Madison
ARO	NC0021857	Town of Newland	Newland WWTP	Newland	Avery
ARO	NC0021890	Town of Granite Falls	Granite Falls WWTP	Granite Falls	Caldwell
ARO	NC0021946	Town of Rosman	Rosman WWTP	Rosman	Transylvania
ARO	NC0022454	Midway Medical Center	Midway Medical Center-Canton	Canton	Haywood
ARO	NC0022756	Linville Land Harbor Prop Owners Assoc	Linville Land Harbor WWTP	Linville	Avery
ARO	NC0022900	Carolina Water Service Inc Of NC	Sugar Mountain WWTP	Banner Elk	Avery

Table 4 - NPDES Permit Holders: Names and Locations

Region	Permit Number	Owner	Facility	City	County Name
ARO	NC0022985	Carolina Water Service Inc Of NC	Fairfield Sapphire Valley WWTP	Sapphire	Jackson
ARO	NC0023001	Carolina Water Service Inc Of NC	Bear Paw WWTP	Murphy	Cherokee
ARO	NC0023086	Fontana Village Resort	Peppertree Fontana Village	Fontana Dam	Graham
ARO	NC0023124	GGCC Utility Inc	GGCC Utility WWTP	Linville	Avery
ARO	NC0023281	Tapoco Lodge Inc	Tapoco Lodge & Village WWTP	Tapoco	Graham
ARO	NC0023566	Taylor Togs Inc	Taylor Togs WWTP	Micaville	Yancey
ARO	NC0023591	Silver Line Plastics Corp	Silver Line Plastics Corporation	Asheville	Buncombe
ARO	NC0023736	City of Lenoir	Gunpowder Creek WWTP	Lenoir	Caldwell
ARO	NC0023981	City of Lenoir	Lower Creek WWTP	Lenoir	Caldwell
ARO	NC0024295	Transylvania Utilities Inc	Connestee Falls WWTP	Brevard	Transylvania
ARO	NC0024376	The Wilds Christian Association Inc	The Wilds Christian Camp	Brevard	Transylvania
ARO	NC0024431	Kanuga Conferences Inc	Kanuga Conferences WWTP	Hendersonville	Henderson
ARO	NC0024805	NCDOT	Haywood County Rest Area	Sylva	Haywood
ARO	NC0024911	Metropolitan Sewerage District of Buncom	French Broad River WRF	Asheville	Buncombe
ARO	NC0025101	USDI National Park Service	Smokemont WWTP	Cherokee	Swain
ARO	NC0025135	Huffman Finishing Inc	Huffman Finishing	Granite Falls	Caldwell
ARO	NC0025321	Town Of Waynesville	Waynesville WWTP	Waynesville	Haywood
ARO	NC0025381	Town of Lake Lure	Lake Lure WWTP	Lake Lure	Rutherford
ARO	NC0025461	Town of Bakersville	Bakersville WWTP	Bakersville	Mitchell
ARO	NC0025534	City of Hendersonville	Hendersonville WWTP	Hendersonville	Henderson
ARO	NC0025836	Town of Hot Springs	Hot Springs WWTP	Hot Springs	Madison
ARO	NC0025879	Town of Robbinsville	Robbinsville WWTP	Robbinsville	Graham
ARO	NC0025909	Town of Rutherfordton	Rutherfordton WWTP	Rutherfordton	Rutherford
ARO	NC0025917	Town of Rhodhiss	Rhodhiss WWTP	Rhodhiss	Burke
ARO	NC0025933	Days Inn of Candler, Inc.	Days Inn West WWTP	Candler	Buncombe
ARO	NC0025984	Town of Forest City	Forest City WWTP	Forest City	Rutherford
ARO	NC0026557	Town of Bryson City	Bryson City WWTP	Bryson City	Swain
ARO	NC0026573	City of Morganton	Catawba River Pollution Control Facility	Morganton	Burke
ARO	NC0026654	Town of Crossnore	Crossnore WWTP	Crossnore	Avery
ARO	NC0026697	Clay County Water & Sewer District	Hayesville WWTP	Hayesville	Clay
ARO	NC0027332	Tennessee Valley Authority	Chatuge Hydro Plant	Hendersonville	Clay
ARO	NC0027341	Tennessee Valley Authority	Fontana Hydro Plant	Asheville	Graham
ARO	NC0027359	Tennessee Valley Authority	Hiwassee Hydro Plant	Murphy	Cherokee
ARO	NC0027685	NC Department of Correction	Avery Correctional Center	Newland	Avery
ARO	NC0028975	City of Saluda	Saluda WWTP	Saluda	Polk
ARO	NC0029831	Carolina Energies Inc	Sugar Hill Truck Stop	Marion	McDowell
ARO	NC0029882		Briarwood WWTP	Leicester	Buncombe
ARO	NC0030139	White Oak Manor	White Oak Manor- Rutherfordton	Rutherfordton	Rutherford
ARO	NC0030422	John C Francis	Green Valley Mobile Home Park	Waynesville	Haywood
ARO	NC0030783	Caldwell County Schools	Baton Elementary School	Granite Falls	Caldwell
ARO	NC0030996	The Switzerland Inn	The Switzerland Inn	Little Switzerland	McDowell

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Region	Permit Number	Owner	Facility	City	County Name
ARO	NC0031879	City of Marion	Corpening Creek WWTP	Marion	McDowell
ARO	NC0032115	Town of Banner Elk	Banner Elk WWTP	Banner Elk	Avery
ARO	NC0032174	United World Mission	United World Mission	Union Mills	Rutherford
ARO	NC0032361	Evergreen Foundation	The Balsam Center for Hope & Recovery	Sylva	Haywood
ARO	NC0032778	Town of Highlands	4th Street WTP	Highlands	Macon
ARO	NC0032808	Davis Davis & Dodson LLC	Morningstar WWTP	Sylva	Jackson
ARO	NC0033227	Tyco International (PA) Inc.	Tyco Electronics Corporation	Fairview	Buncombe
ARO	NC0033251	Shelley McCoy Alexander	Camp Highlander	Hendersonville	Henderson
ARO	NC0033430	Camp Judaea	Camp Judaea WWTP	Hendersonville	Henderson
ARO	NC0033553	Polk County Board of Education	Polk Central School	Mill Spring	Polk
ARO	NC0033600	Silver Bluff Village	Pigeon Valley Rest Home	Canton	Haywood
ARO	NC0033685	Avery Development Corporation	Mountain Glen Golf Club	Newland	Avery
ARO	NC0034207	Madison County Board of Education	Laurel Elementary School WWTP	Marshall	Madison
ARO	NC0034304	Young Life Windy Gap Camp	Young Life Windy Gap Camp	Weaverville	Buncombe
ARO	NC0034924	Flesher's Fairview Rest Home	Flesher's Fairview Rest Home	Fairview	Buncombe
ARO	NC0034932	Town of Tryon	Tryon Middle School	Tryon	Polk
ARO	NC0035157	McDowell County Adult Care LLC	Cedarbrook Residential Center	Nebo	McDowell
ARO	NC0035211	Shuford Yarns LLC	Dudley Shoals Plant	Granite Falls	Caldwell
ARO	NC0035386	Cherokee County Schools	Hiwassee Dam School	Murphy	Cherokee
ARO	NC0035939	Camp Carolwood Inc	Camp Carolwood WWTP	Lenoir	Caldwell
ARO	NC0036251	Blue Star Camps Inc	Blue Star Camps WWTP	Hendersonville	Henderson
ARO	NC0036641	Fletcher Academy Inc	Fletcher Academy WWTP	Fletcher	Henderson
ARO	NC0036684	Carolina Water Service Inc Of NC	Bent Creek WWTP	Asheville	Buncombe
ARO	NC0036692	Skyline Lodge & Village	Skyline Lodge & Village WWTP	Highlands	Macon
ARO	NC0036935	Pine Mountain Property Owners Assoc	Pine Mountain Lakes WWTP	Connellys Springs	Burke
ARO	NC0037176	Bon Worth Inc	Bon Worth WWTP	Hendersonville	Henderson
ARO	NC0037711	Vz Top Homeowner's Association Inc	VZ TOP Homeowners Association WWT	Highlands	Macon
ARO	NC0037737	Wese Inc DBA Natahala Village Resort Sp	Nantahala Village	Bryson City	Swain
ARO	NC0038687	Legasus Of North Carolina LLC	Singing Waters Camping Resort	Tuckasegee	Jackson
ARO	NC0039152	Ohio Electric Motors Inc	Ohio Electric Motors WWTP	Barnardsville	Buncombe
ARO	NC0039187	Valley View of Asheville LLC	Valley View Shopping Center	Candler	Buncombe
ARO	NC0039446	Linville Resorts Inc	Linville Resorts WWTP	Linville	Avery
ARO	NC0039578	Tuckaseigee Water & Sewer Authority	Jackson County WWTP	Sylva	Jackson
ARO	NC0040291		Days Inn - Marion	Marion	McDowell
ARO	NC0040339	NC DENR/Division of Forest Resources	B.H. Corpening Forestry Training Center	Crossnore	Avery
ARO	NC0040355	Royal Oaks Inc	Springdale Country Club WWTP	Canton	Haywood
ARO	NC0040754	NC Outward Bound School	NC Outward Bound School	Morganton	Burke
ARO	NC0041157	Caldwell County Schools	Gateway Alternate School	Granite Falls	Caldwell
ARO	NC0041181	Caldwell County Schools	Happy Valley Elementary School	Lenoir	Caldwell
ARO	NC0041190	Caldwell County Schools	Kings Creek Elementary School	Lenoir	Caldwell
ARO	NC0041220	Caldwell County Schools	Oak Hill Elementary School	Lenoir	Caldwell

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Region	Permit Number	Owner	Facility	City	County Name
ARO	NC0041696	Town of Valdese	Lake Rhodiss WWTP	Valdese	Burke
ARO	NC0042277	City of Hendersonville	Hendersonville WTP	Hendersonville	Henderson
ARO	NC0042358	Adams Apple Condomium Assoc	Adams Apple HOA	Banner Elk	Avery
ARO	NC0043125	Patterson School Inc	Patterson School	Lenoir	Caldwell
ARO	NC0043231	Cedar Rock Country Club	Cedar Rock Country Club	Lenoir	Caldwell
ARO	NC0044164	City of Lenoir	Lake Rhodhiss WTP	Lenoir	Caldwell
ARO	NC0044199	LSAA, Inc. dba Sam's Mart	Sam's Mart #45	Waynesville	Haywood
ARO	NC0044784	City of Brevard	Cathey's Creek WTP	Brevard	Transylvania
ARO	NC0048305	Carolina Yarn Processors Inc	Carolina Yarn Processors	Tryon	Polk
ARO	NC0048658	A & D Water Service Inc	Sherwood Forest WWTP	Cedar Mountain	Transylvania
ARO	NC0048755	Monte Carlo Trailer Park	Monte Carlo Trailer Park	Lenoir	Burke
ARO	NC0049409	Town Of Waynesville	Waynesville WTP	Waynesville	Haywood
ARO	NC0049620	Town of Hot Springs	Hot Springs Housing Authority WWTP	Hot Springs	Madison
ARO	NC0050075	Caldwell County Schools	Collettsville Elementary School	Collettsville	Caldwell
ARO	NC0051021	Eagle's Nest Foundation	Eagle's Nest Foundation-Camp	Pisgah Forest	Transylvania
ARO	NC0051381	Highlands Falls Community Association	Highlands Falls Country Club WWTP	Highlands	Macon
ARO	NC0052043	Toxaway Falls Inc	Toxaway Falls WWTP	Leicester	Transylvania
ARO	NC0055221	City of Marion	Marion WTP	Marion	McDowell
ARO	NC0055336	Camp Carolina	Camp Carolina WWTP	Brevard	Transylvania
ARO	NC0055611		Blackberry Sewer System	Blowing Rock	Caldwell
ARO	NC0055905	Waterford Place Property Owners Assoc	Waterford Place WWTP	Brevard	Transylvania
ARO	NC0056561	Town of Maggie Valley	Maggie Valley WWTP	Maggie Valley	Haywood
ARO	NC0056961	City of Asheville	DeBruhl WTP	Swannanoa	Buncombe
ARO	NC0057151	Town of Mars Hill	Mars Hill WWTP	Mars Hill	Madison
ARO	NC0057193	Nantahala Outdoor Center	Nantahala Outdoor Center	Bryson City	Swain
ARO	NC0057541	Cummings Cove Company LLC	Cummings Cove WWTP	Hendersonville	Henderson
ARO	NC0058378	Elk River Utility Inc	Elk River WWTP	Boomer	Avery
ARO	NC0058581	The Brow Association Inc	White Oak Mountain Condominiums	Columbus	Polk
ARO	NC0059200	Trillium Links & Village LLC	Trillium Links & Village LLC	Cashiers	Jackson
ARO	NC0059421	A&D Water Service Inc	Sapphire Lakes Plant WWTP #1	Sapphire	Transylvania
ARO	NC0059439	A&D Water Service Inc	Sapphire Lakes Plant WWTP #2	Sapphire	Transylvania
ARO	NC0059552	Highlands Falls Community Association	Highlands Falls WWTP	Highlands	Macon
ARO	NC0060194	City of Morganton	Catawba River WTP	Morganton	Burke
ARO	NC0060208	Jai-Ambe Company Inc	Super 8 Motel	Marion	McDowell
ARO	NC0060224	Jonas Ridge Nursing Home	Jonas Ridge Nursing Home	Jonas Ridge	Burke
ARO	NC0060283	Paris Banks	Ridgeview Acres Mobile Home Park	Asheville	Buncombe
ARO	NC0060534	City of Brevard	Brevard WWTP	Pisgah Forest	Transylvania
ARO	NC0060844	Laurel Hills Homeowners Association	Laurel Hills WWTP	Franklin	Macon
ARO	NC0061123	The Mountain Retreat & Learning Center	The Mountain Retreat & Learning Center	Highlands	Macon
ARO	NC0061182	Buncombe County Board of Education	North Buncombe High School	Weaverville	Buncombe
ARO	NC0061620	Hide Away Campground Inc	Hide Away Campground WWTP	Bryson City	Swain

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Region	Permit Number	Owner	Facility	City	County Name
ARO	NC0061930	Mark Laurel Homeowner's Association	Mark Laurel WWTP	Highlands	Macon
ARO	NC0062413	Linville Ridge Country Club	Linville Ridge Country Club WWTP	Linville	Avery
ARO	NC0062553	Wade Hampton Property Owners Associat	Wade Hampton Golf Club WWTP	Cashiers	Jackson
ARO	NC0062634	Wedgefield Acres Mobile Home Park	Wedgefield Acres MHP WWTP	Asheville	Buncombe
ARO	NC0062928	Ferguson Farthing & Jaros	Ferguson Farthing & Jaros	Cherokee	Buncombe
ARO	NC0062961	RCS Properties	Tynecastle WWTP	Banner Elk	Avery
ARO	NC0063312	McKee Development	Cedar Creek WWTP	Cashiers	Jackson
ARO	NC0063321	Tuckaseigee Water & Sewer Authority	Cashiers Plant #3 WWTP	Cashiers	Jackson
ARO	NC0064416	Cullasaja Homeowner's Association	Cullasaja WWTP	Highlands	Jackson
ARO	NC0065889	Indian Creek Resort LLC	Indian Creek Resort WWTP	Lake Toxaway	Transylvania
ARO	NC0065986	Robert B Briggs	Dogwood Trails Subdivision	Maggie Valley	Haywood
ARO	NC0066249	Country Acres Mobile Home Park	Country Acres MHP WWTP	Arden	Henderson
ARO	NC0066362	Benson Apartments	Benson Apartments	Hendersonville	Henderson
ARO	NC0066664	Henderson County Board Of Education	Rugby Middle School	Hendersonville	Henderson
ARO	NC0066681	Henderson County Board Of Education	West Henderson High School	Hendersonville	Henderson
ARO	NC0066729	Mitchell County Board of Education	Tipton Hill Elementary School WWTP	Green Mountain	Mitchell
ARO	NC0066737	Mitchell County Board of Education	Mitchell High School WWTP	Bakersville	Mitchell
ARO	NC0066788	Buncombe County Board of Education	Fairview Elementary School	Fairview	Buncombe
ARO	NC0066796	Buncombe County Board of Education	Leicester Elementary School	Leicester	Buncombe
ARO	NC0066958	Jackson County Board of Education	Blue Ridge School	Glenville	Jackson
ARO	NC0067148	McDowell County Schools	Nebo Elementary School WWTP	Marion	McDowell
ARO	NC0067288	Veolia Water North America Operating Se	Hunter's Glen WWTP	Etowah	Henderson
ARO	NC0067300	Macon County Schools	Macon Middle School WWTP	Franklin	Macon
ARO	NC0067318	Macon County Schools	Nantahala School	Topton	Macon
ARO	NC0067326	Macon County Schools	Cullasaja School	Franklin	Macon
ARO	NC0067342	North View Mobile Home Park	North View Mobile Home Park	Asheville	Buncombe
ARO	NC0067351	Haywood County Board of Education	Bethel School WWTP	Waynesville	Haywood
ARO	NC0068152	Buncombe Properties	Eden's Glen Mobile Village WWTP	Weaverville	Buncombe
ARO	NC0068799	Greystone Enterprises Inc	Greystone Subdivision	Hendersonville	Henderson
ARO	NC0068918	Resources Planning Corporation	Cedar Hill WWTP	Cashiers	Jackson
ARO	NC0069370	Emeritus Corp DBA Pine Park	Pine Park Retirement Inn	Hendersonville	Henderson
ARO	NC0069892	Town of Andrews	Andrews WTP	Andrews	Cherokee
ARO	NC0069957	Laurelwood Mobile Home Park	Laurelwood Mobile Home Park	Candler	Buncombe
ARO	NC0069965	Larry G Scott	Scotty's Mobile Village	Marion	McDowell
ARO	NC0070394	Indian Bend Properties Inc	Willowbrook Park WWTP	Franklin	Macon
ARO	NC0071005	Lynnbrook Estates Homeowners Assoc	Lynnbrook Estates WWTP	Columbus	Polk
ARO	NC0071200	City of Marion	Catawba River WWTP	Marion	McDowell
ARO	NC0071323	Etowah Sewer Company	Etowah Sewer Company WWTP	Etowah	Henderson
ARO	NC0071862	Henry K Odom	Magnolia Place WWTP	Hendersonville	Henderson
ARO	NC0071897	Henderson's Assisted Living	Henderson's Assisted Living	Hendersonville	Henderson
ARO	NC0072729	USDI National Park Service	Mount Pisgah WWTP	Asheville	Haywood

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Region	Permit Number	Owner	Facility	City	County Name
ARO	NC0073393	Dana Hill Corporation	Dana Hill WWTP	Hendersonville	Henderson
ARO	NC0073741	Veolia Water North America Operating Se	Mountain Valley WWTP	Etowah	Henderson
ARO	NC0073814	Buncombe County Board of Education	North Buncombe Elementary School	Weaverville	Buncombe
ARO	NC0073962	NC Department of Correction	Blue Ridge Youth Center WWTP	Newland	Avery
ARO	NC0074110	Mizpah Healthcare Inc	Mountain View Assisted Living	Hendersonville	Henderson
ARO	NC0074250	Warner Bradley	Gateway Chevron WWTP	Whittier	Jackson
ARO	NC0074306	Town of Forest City	Forest City WTP	Forest City	Rutherford
ARO	NC0074624	Western Carolina University	Western Carolina University WTP	Cullowhee	Jackson
ARO	NC0075353	McDowell Assisted Living LLC	McDowell Assisted Living WWTP	Marion	McDowell
ARO	NC0075388	Havon Inc	Pleasant Cove Home WWTP	Candler	Buncombe
ARO	NC0075612	Wildcat Cliffs Country Club	Wildcat Cliffs Country Club WWTP	Highlands	Macon
ARO	NC0075647	Hidden Gap Mobile Home Park	Hidden Gap Mobile Home Park WWTP	Dana	Henderson
ARO	NC0075680	She-Can Company	Rosewood Mobile Home Park	Arden	Buncombe
ARO	NC0075736	Whiteside Estates Inc	Whiteside Estates Incorporated	Highlands	Jackson
ARO	NC0075965	Town of Burnsville	Burnsville WTP	Burnsville	Yancey
ARO	NC0076082	Biltmore Investments LTD	Bear Wallow Valley MHP WWTP	Hendersonville	Henderson
ARO	NC0076147	San Giusto Estates	San Giusto Estates	Fletcher	Buncombe
ARO	NC0076180	Jeld-Wen Inc	Jeld-Wen Fiber of NC	Marion	McDowell
ARO	NC0076431	Carolina Water Service Inc Of NC	Wolf Laurel WWTP	Mars Hill	Madison
ARO	NC0076708	Riverwind Homeowners Association	Riverwind Mobile Home Park	Greensboro	Henderson
ARO	NC0078697	R J G Inc	Six Oaks Complex	Tuxedo	Henderson
ARO	NC0079090	Coldwater Farms, Inc.	Coldwater Trout Farm	Robbinsville	Graham
ARO	NC0079251	Clement Pappas NC Inc	Clement Pappas plant	Mountain Home	Henderson
ARO	NC0079448	Fair Haven Home	Fair Haven Home	Bostic	Rutherford
ARO	NC0079481	Dennis J Whitson	Harmony Estates WWTP	Marion	McDowell
ARO	NC0079561	Town of Elk Park	Elk Park WWTP	Elk Park	Avery
ARO	NC0080098	Coastal Ventures Group II LLC	Blue Ridge Country Club WWTP	Marion	McDowell
ARO	NC0080659	Madison County Board of Education	Madison County Middle School WWTP	Marshall	Madison
ARO	NC0081001	Morgan Mills Resorts Inc	Morgan Mills Resorts WWTP	Brevard	Transylvania
ARO	NC0082546	Town of Granite Falls	Granite Falls WTP	Granite Falls	Caldwell
ARO	NC0082716		English Wolf Lodge- WWTP	Mars Hill	Madison
ARO	NC0082767	Town of Spruce Pine	Spruce Pine WTP	Spruce Pine	Mitchell
ARO	NC0083071	Town of Robbinsville	Robbinsville WTP	Robbinsville	Graham
ARO	NC0083178	Woodfin Sanitary W&S	Sugarcamp Fork WTP	Weaverville	Buncombe
ARO	NC0083275	Drg Harris LLC	Harris Plant on NC SR 1111	Rutherfordton	Rutherford
ARO	NC0083282	Mountain View Motel	Mountain View Motel	Burnsville	Yancey
ARO	NC0083313	Brookside Village Association	Brookside Village WWTP	Hendersonville	Henderson
ARO	NC0083712	Town of Mars Hill	Mars Hill WTP	Mars Hill	Madison
ARO	NC0084441	Smoky Mountain Country Club Estates	Smoky Mountain Country Club	Whittier	Swain
ARO	NC0084620	Unimin Corporation	Crystal Operation	Spruce Pine	Mitchell
ARO	NC0085031	Conoco Convenience Store	Conoco Convenience Store	Brevard	Transylvania

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Region	Permit Number	Owner	Facility	City	County Name
ARO	NC0085154	Town of Weaverville	Ivy River WTP	Weaverville	Buncombe
ARO	NC0085294	Pavillon International	Britten Creek WWTP	Mill Spring	Polk
ARO	NC0085341		17 Riverbend Road	Black Mountain	Buncombe
ARO	NC0085448	Gordon Patrizio	6 Riverbend Road	Asheville	Buncombe
ARO	NC0085456	Charles Binkelman	8 Riverbend Road	Asheville	Buncombe
ARO	NC0085464		1 Riverbend Road	Asheville	Buncombe
ARO	NC0085511	City of Asheville	Mills River Regional WTP	Mills River	Henderson
ARO	NC0085839	Unimin Corporation	Red Hill Quartz Processing Plant	Spruce Pine	Mitchell
ARO	NC0085952	TA Operating Corporation	Candler Travel Center	Candler	Buncombe
ARO	NC0085979	NCDOT	Rosman Maintenance Facility	Rosman	Transylvania
ARO	NC0086053	Pilot Travel Centers LLC	Pilot Travel Center #393	Waynesville	Haywood
ARO	NC0086070	Henderson County Utilities	Western Justice Academy WWTP	Edneyville	Henderson
ARO	NC0086088	SKF USA Inc	Girmes Site remediation	Asheville	Buncombe
ARO	NC0086223	D&D Catfish Resort	D&D Catfish Resort	Rosman	Transylvania
ARO	NC0086428	Sugar Hill Enterprises Inc	Marion Travel Plaza WWTP	Marion	McDowell
ARO	NC0086436	Buncombe County Board of Education	Cane Creek Elementary School	Fletcher	Buncombe
ARO	NC0086525	Town of Tryon	Tryon WTP	Tryon	Polk
ARO	NC0086843	Junaluska Highlands Homeowners Associ	Junaluska Highlands WTP	Hazelwood	Haywood
ARO	NC0087076	Columbia Forest Plywood Products	Columbia Forest Plywood Products	Old Fort	McDowell
ARO	NC0087084	Town of Forest City	Riverstone Industrial Park WWTP	Forest City	Rutherford
ARO	NC0087106	Champion Hills Property Owners Associati	Champion Hills WWTP	Hendersonville	Henderson
ARO	NC0087122	Cooper Riis Inc	Cooperriis Healing Farm	Mill Spring	Polk
ARO	NC0087556	HRS Land Development LLC	Ledgestone Subdivision WWTP	Fairview	Buncombe
ARO	NC0087602	Whittier Sanitary District	Whittier Sanitary District WWTP	Whittier	Jackson
ARO	NC0087653	Rilandwell Inc	Waterhill Farms Subdivision WWTP	Fairview	Buncombe
ARO	NC0087688	Wolf Laurel Properties LLC	Wolf Laurel Commercial Park	Mars Hill	Madison
ARO	NC0087700	The Hampton Club Inc	Wade Hampton Horizons Estate	Cashiers	Jackson
ARO	NC0087751	Linville Heights LP	Linville Heights WWTP	Banner Elk	Avery
ARO	NC0087891	Yancey County	South Toe River WWTP	Micaville	Yancey
ARO	NC0088056	Vista Developers, LLC	Blacksmith Run	Hendersonville	Henderson
ARO	NC0088153	Linville Riverbend Rv Park	Linville Riverbend RV Park	Crossnore	Avery
ARO	NC0088188	Scenic Wolf Development LLC	Scenic Wolf Mountain WWTP	Mars Hill	Madison
ARO	NC0088404	Bright Water LLC	The Rapids at French Broad	Asheville	Buncombe
FRO	NC0001121	Dynapar Corporation	Danaher Industrial Controls WWTP	Elizabethtown	Bladen
FRO	NC0001406	Town of Erwin	Erwin WWTP #2	Erwin	Harnett
FRO	NC0003522	West Point Place L L C	West Point Place WWTP	Elizabethtown	Bladen
FRO	NC0003573	E I DuPont de Nemours and Company	Dupont Fayetteville Works	Fayetteville	Bladen
FRO	NC0003719	DAK Americas, LLC	Cedar Creek Site	E Fayetteville	Cumberland
FRO	NC0003964	US Army/Fort Bragg	Fort Bragg WWTP & WTP	Fort Bragg	Cumberland
FRO	NC0004618	Alamac American Knits LLC	Alamac American Knit / Lumberton	Lumberton	Robeson
FRO	NC0005363	Progress Energy Carolinas Inc	Weatherspoon Steam Electric Plant	Lumberton	Robeson

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Region	Permit Number	Owner	Facility	City	County Name
FRO	NC0005479	Laurinburg-Maxton Airport Commission	Laurel Hill/Maxton WWTP	Laurel Hill	Scotland
FRO	NC0005754	Springs Industries	Springfield plant	Laurel Hill	Scotland
FRO	NC0005762	Westpoint Home Inc	Wagram plant	Wagram	Scotland
FRO	NC0007684	Harnett County	Harnett County Regional WTP	Lillington	Harnett
FRO	NC0020095	Mayor Buddy Westbrook	St. Pauls WWTP	Saint Pauls	Robeson
FRO	NC0020117	City of Clinton	Norman H. Larkins WPCF	Clinton	Sampson
FRO	NC0020427	City of Rockingham	Rockingham WWTP	Rockingham	Richmond
FRO	NC0020656	City of Laurinburg	Leith Creek WWTP	Laurinburg	Scotland
FRO	NC0021105	Town of Mount Gilead	Mount Gilead WWTP	Mount Gilead	Montgomery
FRO	NC0021504	Town of Biscoe	Biscoe WWTP	Biscoe	Montgomery
FRO	NC0021610	Town of Clarkton	Clarkton WWTP	Clarkton	Bladen
FRO	NC0021636	Harnett County	North Harnett Regional WWTP	Lillington	Harnett
FRO	NC0021661	City of Laurinburg	Pilkington North American WWTP	Laurinburg	Scotland
FRO	NC0021784	Town of Ellerbe	Ellerbe WWTP	Ellerbe	Richmond
FRO	NC0022489	Wheels Estates of Spring Lake LLC	Dilton Mobile Home Park	Fayetteville	Cumberland
FRO	NC0023353	Town of White Lake	White Lake WWTP	Elizabethtown	Bladen
FRO	NC0023957	PWC/Fayetteville	Cross Creek WWTP	Fayetteville	Cumberland
FRO	NC0024571	City of Lumberton	Lumberton WWTP	Lumberton	Robeson
FRO	NC0024791	NCDOT	Sampson County Rest Area	Clinton	Sampson
FRO	NC0025569	Town of Garland	Garland WWTP	Garland	Sampson
FRO	NC0025577	Town of Red Springs	Red Springs WWTP	Red Springs	Robeson
FRO	NC0026352	Town of Bladenboro	Bladenboro WWTP	Bladenboro	Bladen
FRO	NC0026514	City of Raeford	Raeford WWTP	Raeford	Hoke
FRO	NC0026671	Town of Elizabethtown	Elizabethtown WWTP	Elizabethtown	Bladen
FRO	NC0026816	Town of Roseboro	Roseboro WWTP	Roseboro	Sampson
FRO	NC0026921	Town of Parkton	Parkton WWTP	Parkton	Robeson
FRO	NC0027103	Town of Pembroke	Pembroke WWTP	Pembroke	Robeson
FRO	NC0027120	Town of Maxton	Maxton WWTP	Maxton	Robeson
FRO	NC0028916	Town of Troy	Troy WWTP	Troy	Montgomery
FRO	NC0029769	NC Department of Correction	Scotland County Correctional Center	Wagram	Scotland
FRO	NC0030091	Harnett County	Buies Creek WWTP	Buies Creek	Harnett
FRO	NC0030970	Town of Spring Lake	Spring Lake WWTP	Spring Lake	Cumberland
FRO	NC0031470	Harnett County Department of Public Utiliti	Cooper's Ranch WWTP	Spring Lake	Harnett
FRO	NC0032913	Bladen County Schools	East Arcadia Elementary School WWTP	Elizabethtown	Bladen
FRO	NC0035904	NC Department of Correction	McCain Correctional Hospital WWTP	Raleigh	Hoke
FRO	NC0036773	City of Laurinburg	Laurinburg WTP	Laurinburg	Scotland
FRO	NC0037508	Moore County Public Utilities	Moore County WPCF	Aberdeen	Moore
FRO	NC0041408	Anson County	Anson County Regional WWTP	Wadesboro	Anson
FRO	NC0043176	City of Dunn	Dunn WWTP	Dunn	Harnett
FRO	NC0043320	Burlington Industries LLC	Richmond Plant	Cordova	Richmond
FRO	NC0044725	Laurinburg-Maxton Airport Commission	Laurinburg Industrial WWTP	Maxton	Scotland

Table 4 - NPDES Permit Holders: Names and Locations

Region	Permit Number	Owner	Facility	City	County Name
FRO	NC0047562	City of Hamlet	Hamlet WWTP	Hamlet	Richmond
FRO	NC0048101	Wakefield Communities - Fuquay Varina L	Senters Rest Home	Fuquay Varina	Harnett
FRO	NC0048577	Robeson County Water Department	Maxton WTP	Maxton	Robeson
FRO	NC0049514	Pilkington North America Inc	Plant 75	Laurinburg	Scotland
FRO	NC0049778	Town of Southern Pines	Southern Pines WTP	Pinebluff	Moore
FRO	NC0050105	PWC/Fayetteville	Rockfish Creek WWTP	Fayetteville	Cumberland
FRO	NC0057525	Kennedy Terrell Apartments LP	Kennedy Terrell Apartments WWTP	Lakeview	Moore
FRO	NC0058297	Elizabethtown Power LLC	Elizabethtown Power LLC	Elizabethtown	Bladen
FRO	NC0058301	Lumberton Power LLC	Lumberton Power LLC	Lumberton	Robeson
FRO	NC0058548	Town of Star	Star WWTP	Star	Montgomery
FRO	NC0061719	Heater Utilities Inc	Woodlake Country Club WWTP	Vass	Moore
FRO	NC0062855	Town of Robbins	Robbins WWTP	Robbins	Moore
FRO	NC0064521	Harnett County	Erwin WWTP	Erwin	Harnett
FRO	NC0069612	Town of Rowland	Rowland WWTP	Rowland	Robeson
FRO	NC0072877	Town of Newton Grove	Newton Grove WWTP	Newton Grove	Sampson
FRO	NC0074373	Moore County Public Utilities	Vass WWTP	Vass	Moore
FRO	NC0074390	Anson County	Anson County WTP	Lilesville	Anson
FRO	NC0076783	PWC/Fayetteville	Hoffer WTP	Fayetteville	Cumberland
FRO	NC0077101	Carolina Water Service Inc Of NC	Whispering Pines WTP	Carthage	Moore
FRO	NC0078344	Smithfield Packing Company Inc	Tarheel Plant	Tar Heel	Bladen
FRO	NC0078955	City of Dunn	A.B. Uzzle WTP	Dunn	Harnett
FRO	NC0080322	Montgomery County	Montgomery County WTP	Mount Gilead	Montgomery
FRO	NC0081281	Richmond County	Richmond County WTP	Rockingham	Richmond
FRO	NC0081825	Town of Ansonville	Ansonville WWTP	Ansonville	Anson
FRO	NC0082597	Town of Angier	Angier WWTP	Angier	Harnett
FRO	NC0084204	Robeson County Water Department	Kenric Road WTP	Lumberton	Robeson
FRO	NC0085685	Robeson County Water Department	Lumber Bridge WTP	Lumber Bridge	Robeson
FRO	NC0086037	Hoke County	Arabia WTP	Raeford	Hoke
FRO	NC0086045	Hoke County	Antioch WTP	Red Springs	Hoke
FRO	NC0086550	Town of Fairmont	Fairmont Regional WWTP	Fairmont	Robeson
FRO	NC0086614	D M Farms of Rose Hill LLC	DM Farms Mag 4 Sow Farm	Rose Hill	Sampson
FRO	NC0086649	City of Clinton	Parson-Anders WTP	Clinton	Sampson
FRO	NC0086894	Robeson County Water Department	Raemon Well WTP	Maxton	Robeson
FRO	NC0086991	Robeson County Water Department	Sanchez Drive WTP	Lumberton	Robeson
FRO	NC0088081	Former Cookson Facility DOG	Former Cookson Facility DOG	Ansonville	Anson
FRO	NC0088366	Harnett County	South Harnett Regional WWTP	Lillington	Harnett
MRO	NC0004120	E-flex LLC	E-Flex WWTP	Lawndale	Cleveland
MRO	NC0004260	SKF USA Inc	SKF Gastonia Facility	Gastonia	Gaston
MRO	NC0004308	Aluminum Company Of America	Badin Works	Badin	Stanly
MRO	NC0004375	Clariant Corporation	Mount Holly East (MHE) Facility	Charlotte	Mecklenburg
MRO	NC0004685	PPG Industries Fiber Glass Products Inc	PPG - Shelby facility	Shelby	Cleveland

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Region	Permit Number	Owner	Facility	City	County Name
MRO	NC0004723	Kinder Morgan Southeast Terminals, LLC	Charlotte Terminal 3	Paw Creek	Mecklenburg
MRO	NC0004774	Duke Energy Carolinas LLC	Buck Steam Station	Salisbury	Rowan
MRO	NC0004812	Pharr Yarns Inc	Pharr Yarns Industrial WWTP	Mc Adenville	Gaston
MRO	NC0004839	Kinder Morgan Southeast Terminals-Charl	Charlotte Terminal 2	Paw Creek	Mecklenburg
MRO	NC0004898	Hampton Capital Partners LLC/ DBA Gulis	Gulistan Carpet	Turnersburg	Iredell
MRO	NC0004944	Invista S A R L	Salisbury Plant	Salisbury	Rowan
MRO	NC0004952	CNA Holdings Inc	Ticona Facility	Shelby	Cleveland
MRO	NC0004961	Duke Energy Carolinas LLC	Riverbend Steam Station	Mount Holly	Gaston
MRO	NC0004979	Duke Energy Carolinas LLC	Plant Allen Steam Station	Belmont	Gaston
MRO	NC0004987	Duke Energy Carolinas LLC	Marshall Steam Station	Terrell	Catawba
MRO	NC0005061	Smurfit-Stone Container Enterprises, Inc.	Jefferson Smurfit WWTP		Cleveland
MRO	NC0005126	Tyson Poultry Inc	Harmony plant	Harmony	Iredell
MRO	NC0005177	FMC Corporation	Lithium Division Plant	Bessemer City	Gaston
MRO	NC0005185	Magellan Terminals Holdings L P	Charlotte II Terminal	Paw Creek	Mecklenburg
MRO	NC0005274	Kings Mountain Venture #1 LLC	Kings Mountain Venture #1, LLC	Lowell	Gaston
MRO	NC0005771	TransMontaigne Product Services Inc	Charlotte/Paw Creek Terminal #1	Paw Creek	Mecklenburg
MRO	NC0006033	Town of Cramerton	Eagle Road WWTP	Cramerton	Gaston
MRO	NC0006190	Delta Apparel Inc	Delta Apparel / Maiden	Maiden	Catawba
MRO	NC0006220	City of Kannapolis	Kannapolis WTP	Kannapolis	Rowan
MRO	NC0006351	Chemical Specialties Inc	Chemical Specialties	Harrisburg	Cabarrus
MRO	NC0020036	Town of Stanley	Lola Street WWTP	Stanley	Gaston
MRO	NC0020052	Town of McAdenville	McAdenville WWTP	Mc Adenville	Gaston
MRO	NC0020184	City of Gastonia	Long Creek WWTP	Dallas	Gaston
MRO	NC0020401	City of Hickory	Northeast WWTP	Hickory	Catawba
MRO	NC0020591	City of Statesville	Third Creek WWTP	Statesville	Iredell
MRO	NC0020737	City of Kings Mountain	Pilot Creek WWTP	Kings Mountain	Cleveland
MRO	NC0020966	Town of Spencer Mountain	Spencer Mountain WWTP	Gastonia	Gaston
MRO	NC0021156	City of Mount Holly	Mount Holly WWTP	Mount Holly	Gaston
MRO	NC0021181	City of Belmont	Belmont WWTP	Belmont	Gaston
MRO	NC0021628	Town of Norwood	Norwood WWTP	Norwood	Stanly
MRO	NC0021962	CITGO Petroleum Corporation	Charlotte Terminal	Charlotte	Mecklenburg
MRO	NC0021971	BP Products North America Inc	Charlotte BP Terminal/Paw Creek	Charlotte	Mecklenburg
MRO	NC0022187	Motiva Enterprises LLC	Paw Creek Terminal	Paw Creek	Mecklenburg
MRO	NC0022497	Cross Country Campground	Cross Country Campground	Denver	Catawba
MRO	NC0022934	UCS, Inc	UCS, Inc - Main Plant	Lincolnton	Gaston
MRO	NC0023191	David L Millsaps	Seven Cedars Mobile Home Park WWTF	Statesville	Iredell
MRO	NC0023540	Belmont Textile Machinery Company	Belmont Textile Machinery WWTP	Mount Holly	Gaston
MRO	NC0023761	National Fruit Product Company Inc	National Fruit Product Company	Lincolnton	Lincoln
MRO	NC0023884	City of Salisbury	Salisbury-Rowan WWTP	Salisbury	Rowan
MRO	NC0024155	City of High Shoals	River Street WWTP	High Shoals	Gaston
MRO	NC0024244	City of Albemarle	Long Creek WWTP	Albemarle	Stanly

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Region	Permit Number	Owner	Facility	City	County Name
MRO	NC0024252	City of Conover	Northeast WWTP	Conover	Catawba
MRO	NC0024279	City of Conover	Southeast WWTP	Conover	Catawba
MRO	NC0024333	City of Monroe	Monroe WWTP	Monroe	Union
MRO	NC0024392	Duke Energy Carolinas LLC	McGuire Nuclear Power Plant	Huntersville	Mecklenburg
MRO	NC0024538	City of Shelby	Shelby WWTP	Shelby	Cleveland
MRO	NC0024937	Charlotte Mecklenburg Utility Department	Sugar Creek WWTP	Charlotte	Mecklenburg
MRO	NC0024945	Charlotte Mecklenburg Utility Department	Irwin Creek WWTP	Charlotte	Mecklenburg
MRO	NC0024970	Charlotte Mecklenburg Utility Department	McAlpine Creek WWTP	Charlotte	Mecklenburg
MRO	NC0025259	Carolina Water Service Inc Of NC	Lamplighter Subdivision WWTP	Charlotte	Mecklenburg
MRO	NC0025496	City of Lincolnton	Lincolnton WWTP	Lincolnton	Lincoln
MRO	NC0025542	City of Hickory	Catawba WWTP	Catawba	Catawba
MRO	NC0025861	City of Lowell	Lowell WWTP	Lowell	Gaston
MRO	NC0026271	Town of Taylorsville	Taylorsville WWTP	Taylorsville	Alexander
MRO	NC0027197	City of Shelby	Shelby WTP	Shelby	Cleveland
MRO	NC0027502	Town of Landis	Landis WTP	China Grove	Rowan
MRO	NC0028169	Bv Hedrick Gravel & Sand Company	Aquadale Quarry	Norwood	Stanly
MRO	NC0028606	NCDOT	I-77 Rest Area Iredell County	Union Grove	Iredell
MRO	NC0028711	Mecklenburg County Schools	Berryhill Elementary School WWTP	Charlotte	Mecklenburg
MRO	NC0028941	Aqua North Carolina Inc	Pine Valley Subdivision WWTP	Salisbury	Rowan
MRO	NC0029181	Carolina Water Service Inc Of NC	Forest Ridge WWTP	Matthews	Mecklenburg
MRO	NC0029297	Catawba County Schools	Fred T. Foard High School	Newton	Catawba
MRO	NC0029742	NC Department of Correction	Iredell Correctional Center WWTP	Statesville	Iredell
MRO	NC0030210	Charlotte Mecklenburg Utility Department	Mallard Creek WWTP	Charlotte	Mecklenburg
MRO	NC0030481	Ramseur Washerette	Ramseur Washerette	Shelby	Cleveland
MRO	NC0030597	Union County Public Schools	New Salem Elementary School	Marshville	Union
MRO	NC0031038	Colonial Pipeline Company	Paw Creek Terminal	Paw Creek	Mecklenburg
MRO	NC0031836	City of Statesville	Fourth Creek WWTP	Statesville	Iredell
MRO	NC0032662	City of Claremont	North WWTP	Claremont	Catawba
MRO	NC0032760	Carolina Water Service Inc Of NC	Kings Grant WWTP	Gastonia	Gaston
MRO	NC0032867	Roadside Truck Plaza Inc	Roadside Truck Plaza WWTP	Kings Mountain	Cleveland
MRO	NC0032891	Kinder Morgan Southeast Terminals LLC	Charlotte Terminal 1	Paw Creek	Mecklenburg
MRO	NC0033421	Carolina Water Service Inc Of NC	College Park WWTP	Gastonia	Gaston
MRO	NC0033570	Chemetall Foote Corporation	Chemetall Foote Corporation	Kings Mountain	Cleveland
MRO	NC0034703	Rowan-Salisbury Schools	Knollwood Elementary School	Salisbury	Rowan
MRO	NC0034711	Athena Cedar LLC	Cedar Park Estates WWTP	Concord	Cabarrus
MRO	NC0034754	Commscope Inc	Commscope WWTP	Sherrills Ford	Catawba
MRO	NC0034762	Goose Creek Utility Company	Fairfield Plantation WWTP	Matthews	Union
MRO	NC0034860	Schneider Mills Inc	Schneider Mills WWTP	Taylorsville	Alexander
MRO	NC0034959	Rowan-Salisbury Schools	West Rowan High School	Mount Ulla	Rowan
MRO	NC0034967	Carolina Glove Company	Carolina Glove Company	Taylorsville	Alexander
MRO	NC0035033	Carolina Water Service Inc Of NC	Cabarrus Woods WWTP	Harrisburg	Cabarrus

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Region	Permit Number	Owner	Facility	City	County Name
MRO	NC0035041	Carolina Water Service Inc Of NC	Hemby Acres WWTP	Indian Trail	Union
MRO	NC0036196	City of Newton	Clark Creek WWTP	Newton	Catawba
MRO	NC0036269	Water and Sewer Authority of Cabarrus Co	Rocky River WWTP	Concord	Cabarrus
MRO	NC0036277	Charlotte Mecklenburg Utility Department	McDowell Creek WWTP	Huntersville	Mecklenburg
MRO	NC0037184	Lakeside Investment Properties	Oak Haven Mobile Home Park	Salisbury	Rowan
MRO	NC0037371	Iredell-Statesville Schools	North Iredell High School	Olin	Iredell
MRO	NC0039594	Town of Maiden	Maiden WWTP	Maiden	Catawba
MRO	NC0040070	City of Gastonia	Gastonia WTP	Gastonia	Gaston
MRO	NC0040797	City of Hickory	Henry Fork WWTP	Hickory	Catawba
MRO	NC0041068	Cabarrus County Schools	Bethel Elementary School	Midland	Cabarrus
MRO	NC0041246	Lincoln County Schools	West Lincoln High School	Lincolnton	Lincoln
MRO	NC0041718	Colony Ridge Apartments	Colony Ridge Apartments	Misenheimer	Stanly
MRO	NC0042293	Speciality Lighting Inc	Speciality Lighting	Shelby	Cleveland
MRO	NC0042439	Westside Swim & Racquet Club	Westside Swim & Racquet Club	Salisbury	Rowan
MRO	NC0043532	Town of Oakboro	Oakboro WWTP	Oakboro	Stanly
MRO	NC0044024	City of Albemarle	Highway 52 WTP	Albemarle	Stanly
MRO	NC0044059	Catawba County Schools	Bunker Hill High School	Claremont	Catawba
MRO	NC0044121	City of Hickory	Hickory WTP	Hickory	Catawba
MRO	NC0044253	NC Lions	NC Lions/ Camp Dogwood	Sherrills Ford	Catawba
MRO	NC0044440	City of Cherryville	Cherryville WWTP	Cherryville	Gaston
MRO	NC0044717	Water and Sewer Authority of Cabarrus Co	Mount Pleasant WTP	Mount Pleasant	Cabarrus
MRO	NC0045012	Hill Haven Residential Care	Hill Haven Residential Care	Statesville	Iredell
MRO	NC0045438	Catawba County Schools	Sherrills Ford Elementary School	Catawba	Catawba
MRO	NC0045471	Barium Spings Home for Children	Barium Springs Home WWTP	Barium Springs	Iredell
MRO	NC0045993	Allvac	Monroe Plant	Monroe	Union
MRO	NC0046213	Marathon Petroleum Company LLC	Charlotte Terminal	Paw Creek	Mecklenburg
MRO	NC0046531	Refuel America Inc	Refuel Terminal Operations - Charlotte	Paw Creek	Mecklenburg
MRO	NC0046728	Town of Mooresville	Rocky River WWTP	Mooresville	Iredell
MRO	NC0046892	Motiva Enterprises LLC	Charlotte South Terminal	Paw Creek	Mecklenburg
MRO	NC0047091	Silver Maple Mobile Estates	Silver Maples Community	Concord	Cabarrus
MRO	NC0049867	Town of Cleveland	Cleveland WWTP	Cleveland	Rowan
MRO	NC0049905	Associated Asphalt, Inc.	Salisbury Terminal	Salisbury	Rowan
MRO	NC0051608	Catawba County Schools	Bandys High School	Catawba	Catawba
MRO	NC0051632	Carolina Water Service Inc Of NC	Huntwick WWTP	Harrisburg	Cabarrus
MRO	NC0051918	Cleveland County Sanitary District	Cleveland County WTP	Lawndale	Cleveland
MRO	NC0056154	Heater Utilities Inc	Bridgeport WWTP	Cramerton	Iredell
MRO	NC0057401	Go Go Properties LLC	The Hideaways WWTP	Charlotte	Mecklenburg
MRO	NC0058084	Gough Econ Inc	Gough Econ WWTP	Charlotte	Mecklenburg
MRO	NC0058742	Heater Utilities Inc	Country Valley WWTP	Newton	Catawba
MRO	NC0059579	Carolina Water Service Inc Of NC	Emerald Point WWTP	Charlotte	Mecklenburg
MRO	NC0060593	Heater Utilities Inc	Spinnaker Bay WWTP	Sherrills Ford	Catawba

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Region	Permit Number	Owner	Facility	City	County Name
MRO	NC0060755	Carolina Water Service Inc Of NC	Saddlewood WWTP	Gastonia	Gaston
MRO	NC0061034	Rowan Associates & Mercantile	Rowan Associates & Mercantile WWTP	Salisbury	Rowan
MRO	NC0061786	Poplar Trails Subdivision	Poplar Trails Subdivision	Concord	Cabarrus
MRO	NC0062278	Berkley Oaks LLC	Berkley Oaks WWTP	Gastonia	Gaston
MRO	NC0062383	Carolina Water Service Inc Of NC	Queens Harbor WWTP	Charlotte	Mecklenburg
MRO	NC0062430	NCDENR (Division of Parks & Recreation)	Lake Norman State Park/Swimming	Troutman	Iredell
MRO	NC0062448	NCDENR (Division of Parks & Recreation)	Lake Norman State Park/Campgrnd	Troutman	Iredell
MRO	NC0062481	Heater Utilities Inc	Mallard Head WWTP	Mooresville	Iredell
MRO	NC0063355	Heater Utilities Inc	Killian Crossroads WWTP	Sherrills Ford	Catawba
MRO	NC0063584	Heater Utilities Inc	Oxford Glen WWTP	Charlotte	Mecklenburg
MRO	NC0063762	Carolina Village Mobile Home Park	Carolina Village Mobile Home Park	Harrisburg	Cabarrus
MRO	NC0063789	Heater Utilities Inc	Mint Hill Festival WWTP	Mint Hill	Mecklenburg
MRO	NC0063797	Higalaw Enterprises LLC	Whispering Pines Rest Home	Shelby	Cleveland
MRO	NC0063860	Heater Utilities Inc	Harbor Estates WWTP	Charlotte	Mecklenburg
MRO	NC0063932	White Forest WWT Trust	White Forest WWTP	Mooresville	Mecklenburg
MRO	NC0064599	Lake Norman Motel	Lake Norman Motel	Sherrills Ford	Catawba
MRO	NC0064734	Bradfield Farms Water Company	Bradfield Farms WWTP	Sherrills Ford	Cabarrus
MRO	NC0065242	Town of Grover	Grover WWTP	Grover	Cleveland
MRO	NC0065684	Heater Utilities Inc	Country Wood WWTP	Monroe	Union
MRO	NC0065749	Heater Utilities Inc	Ashe Plantation WWTP	Charlotte	Mecklenburg
MRO	NC0065773	Heater Utilities Inc	Willow Creek WWTP	Charlotte	Mecklenburg
MRO	NC0066141	Town of Spencer Mountain	Spencer Mountain WTP	Gastonia	Gaston
MRO	NC0066397	Cleveland County Schools	Casar Elementary School WWTP	Casar	Cleveland
MRO	NC0067644	Rocky River Run Subdivison	Rocky River Run Subdivison	Matthews	Mecklenburg
MRO	NC0068632	Craftmaster Furniture Inc	Craftmaster Furniture Facility	Hiddenite	Alexander
MRO	NC0068705	Mariners Watch Homeowners Association	Mariners Watch WWTP	Charlotte	Mecklenburg
MRO	NC0068888	Town of Dallas	Dallas WWTP	Dallas	Gaston
MRO	NC0069035	Heater Utilities Inc	Southgate WTP	Gastonia	Gaston
MRO	NC0069175	Ridge Community Sewer Association	Ridge Community WWTP	Gastonia	Gaston
MRO	NC0069345	Catawba County Historical Association	Murray's Mill Historical Site	Newton	Catawba
MRO	NC0069523	Union County Public Works	Tallwood Estates WWTP	Indian Trail	Union
MRO	NC0069841	Union County Public Works	Crooked Creek WWTP #2	Monroe	Union
MRO	NC0070289	Ridgewood Farms Subdivision	Ridgewood Farms Subdivision		Cabarrus
MRO	NC0071242	Carolina Water Service Inc Of NC	Riverpointe WWTP	Charlotte	Mecklenburg
MRO	NC0071447	The Diocese of Charlotte	Catholic Conference Center WWTP	Hickory	Catawba
MRO	NC0071528	Lake Norman Woods Homeowners Assoc	Lake Norman Woods WWTP	Sherrills Ford	Catawba
MRO	NC0071781	Aqua North Carolina Inc	McCarron Subdivision WWTP	Harrisburg	Mecklenburg
MRO	NC0071943	Town of Boiling Springs	Boiling Springs WWTP	Boiling Springs	Cleveland
MRO	NC0072061	Heater Utilities Inc	Fox Run WTP	Gastonia	Gaston
MRO	NC0072508	Union County Public Works	Hunley Creek WWTP	Matthews	Union
MRO	NC0072621	Fa Be Enterprises Inc	Fa-Be Enterprises	Denver	Lincoln

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Region	Permit Number	Owner	Facility	City	County Name
MRO	NC0072664	Shurtape Technologies, LLC	Stony Point Plant	Stony Point	Alexander
MRO	NC0072940	City of High Shoals	State Street WWTP	High Shoals	Gaston
MRO	NC0073539	Aqua North Carolina Inc	Willowbrook Subdivision WWTP	Davidson	Mecklenburg
MRO	NC0074012	Lincoln County	Forney Creek WWTP	Denver	Lincoln
MRO	NC0074233	Catawba County Schools	Blackburn Elementary School	Newton	Catawba
MRO	NC0074268	City of Gastonia	Crowders Creek WWTP	Gastonia	Gaston
MRO	NC0074535	Heater Utilities Inc	Pier 16 Marina WWTP	Sherrills Ford	Iredell
MRO	NC0074705	Magellan Terminals Holdings L P	Charlotte/Southern Facilities Terminal	Paw Creek	Mecklenburg
MRO	NC0074756	Greater Badin Water & Sewer District	Badin WWTP	Badin	Stanly
MRO	NC0074772	Heater Utilities Inc	Diamond Head WWTP	Mooresville	Iredell
MRO	NC0074799	Pines Mobile Home Park	Pines Mobile Home Park	Gastonia	Gaston
MRO	NC0074900	Hydraulics Ltd	Hydraulics Ltd	Sherrills Ford	Iredell
MRO	NC0075205	Heater Utilities Inc	Alexander Island WWTP	Sherrills Ford	Iredell
MRO	NC0075523	RDH Tire & Retread	RDH Tire & Retread	Cleveland	Rowan
MRO	NC0075701	City of Albemarle	Tuckertown WTP	New London	Stanly
MRO	NC0076333	Statesville Auto Auction	Statesville Auto Auction WWTP	Statesville	Iredell
MRO	NC0076643	General Electric Company - Salisbury	Hickory Plant	Hickory	Catawba
MRO	NC0076775	Alcoa Power Generating Inc Yadkin Divisic	Falls Powerhouse	Badin	Stanly
MRO	NC0077364	Carolina Water Service Inc Of NC	Cabarrus Woods Well 6 Water Treatmer	Harrisburg	Cabarrus
MRO	NC0077615	Homer Prevette	Homer's Truck Stop	Statesville	Iredell
MRO	NC0077704	Cabarrus County Schools	Mount Pleasant High School	Concord	Cabarrus
MRO	NC0077763	City of Belmont	Belmont WTP	Belmont	Gaston
MRO	NC0078361	Salisbury-Rowan Utilities	Second Creek WWTP	Salisbury	Rowan
MRO	NC0079740	City of Kings Mountain	Ellison WTP	Kings Mountain	Cleveland
MRO	NC0079758	National Welders Supply Co Inc	National Welders Supply Co	Charlotte	Mecklenburg
MRO	NC0079774	Davidson Downes Subdivision	Davidson Downes Subdivision	Mount Mourne	Iredell
MRO	NC0079898	CNA Holdings Inc	Needmore Road Landfill	Salisbury	Rowan
MRO	NC0080195	Forest Hills Mobile Home Estate	Forest Hills Mobile Home Estate WTP	Lincolnton	Gaston
MRO	NC0080381	City of Monroe	John Glenn WTP	Monroe	Union
MRO	NC0080586	Carolina Stalite Company	Carolina Stalite Company	Albemarle	Rowan
MRO	NC0080691	Heater Utilities Inc	Windemere WWTP	Sherrills Ford	Iredell
MRO	NC0080781	Duke Energy Carolinas LLC	Lincoln Combustion Turbine Plant	Stanley	Lincoln
MRO	NC0081370	City of Claremont	McLin Creek WWTP	Claremont	Catawba
MRO	NC0081621	Water and Sewer Authority of Cabarrus Cc	Muddy Creek WWTP	Midland	Cabarrus
MRO	NC0081931	Alcoa Power Generating Inc Yadkin Divisic	High Rock Powerhouse	Badin	Rowan
MRO	NC0081949	Alcoa Power Generating Inc Yadkin Divisic	Tuckertown Powerhouse	Badin	Stanly
MRO	NC0081957	Alcoa Power Generating Inc Yadkin Divisic	Narrows Powerhouse	Badin	Stanly
MRO	NC0082694	Town of Dallas	Dallas WTP	Dallas	Gaston
MRO	NC0082821	Southern States Cooperative Inc	Southerrn States Fertilizer Plant	Statesville	Iredell
MRO	NC0083119	City of Concord	Coddle Creek WTP	Concord	Cabarrus
MRO	NC0083887	City of Charlotte	Charlotte Douglas International Airport	Charlotte	Mecklenburg

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Region	Permit Number	Owner	Facility	City	County Name
MRO	NC0083984	Grover Industries Inc	Grover Plant WWTP	Grover	Cleveland
MRO	NC0084280	Plantation Pipe Line Company	Stifford Ferry Road site	Charlotte	Mecklenburg
MRO	NC0084301	Celanese Acetate LLC	Celanese Acetate / Mecklenburg	Charlotte	Mecklenburg
MRO	NC0084387	Charlotte Mecklenburg Utility Department	Lee S. Dukes WTP	Huntersville	Mecklenburg
MRO	NC0084468	Heater Utilities Inc	Keltic Meadows WTP #2	Gastonia	Gaston
MRO	NC0084549	Charlotte Mecklenburg Utility Department	Franklin WTP	Charlotte	Mecklenburg
MRO	NC0084565	Carolina Water Service Inc Of NC	The Harbour - Wells 1 & 2 WTP	Mooresville	Iredell
MRO	NC0084573	Lincoln County	Lincoln County WTP	Denver	Lincoln
MRO	NC0084638	Rhodia Inc	Rhodia remediation site	Gastonia	Gaston
MRO	NC0084662	Textron Inc	Textron remediation site	Gastonia	Gaston
MRO	NC0084689	City of Mount Holly	Mount Holly WTP	Mount Holly	Gaston
MRO	NC0085057	Unocal Corporation	Orr Road remediation site	Charlotte	Mecklenburg
MRO	NC0085120	Lowes Home Centers Inc	Iredell Distribution Center WWTP	Olin	Iredell
MRO	NC0085359	Union County Public Works	Twelve Mile Creek WWTP	Monroe	Union
MRO	NC0085588	City of Lincolnton	Lincolnton WTP	Lincolnton	Lincoln
MRO	NC0085731	Cornerstone Carillon, LLC	Shorenstein Realty Investors	Charlotte	Mecklenburg
MRO	NC0085812	Union County Public Works	Grassy Branch WWTP	Monroe	Union
MRO	NC0085928	American Truetzschler Inc	Truetzschler remediation site	Charlotte	Mecklenburg
MRO	NC0086002	Livingstone Coating Corporation	Livingstone Coating Corporation	Charlotte	Mecklenburg
MRO	NC0086142	Heater Utilities Inc	Oakley Park WTP	Gastonia	Gaston
MRO	NC0086169	Corning Inc	Fiber Optic Facility	Midland	Cabarrus
MRO	NC0086185	Lincoln County Schools	Pumpkin Center Schools WWTP	Lincolnton	Lincoln
MRO	NC0086193	Heater Utilities Inc	Maplecrest WTP	Gastonia	Gaston
MRO	NC0086304	Catawba County Schools	Mill Creek Middle School	Newton	Catawba
MRO	NC0086487	Dawson International Properties	Albemarle site	Albemarle	Stanly
MRO	NC0086517	Cousins Real Estate	Charlotte Gateway Village, LLC	Charlotte	Mecklenburg
MRO	NC0086592	Carolina Water Service Inc Of NC	The Point / Well 1 WTP	Mooresville	Iredell
MRO	NC0086606	Carolina Water Service Inc Of NC	The Harbour - Well #4 WTP	Mooresville	Iredell
MRO	NC0086673	SNL Corporation	Aqua-Air Site	Charlotte	Mecklenburg
MRO	NC0086886	First Union Commons	First Union Commons	Charlotte	Mecklenburg
MRO	NC0087033	Town of Harmony	Harmony WWTP	Harmony	Iredell
MRO	NC0087742	Phoenix Minerals Inc	Phoenix Minerals Processing Facility	Kings Mountain	Cleveland
MRO	NC0087858	Equipment And Supply Inc	Union County remediation site	Monroe	Union
MRO	NC0088226	Wachovia Bank N A	Wachovia Tryon Street BTS	Charlotte	Mecklenburg
MRO	NC0088374	City of High Shoals	River Street WWTP	High Shoals	Gaston
RRO	NC0000752	Kapstone Kraft Paper Corporation	Roanoke Rapids Mill	Roanoke Rapids	Halifax
RRO	NC0000892	Dynea U.S.A., Inc.	Dynea U.S.A.	Moncure	Chatham
RRO	NC0001376	Riverplace II LLC	Riverplace II LLC	Wake Forest	Wake
RRO	NC0001589	Hospira, Inc.	Hospira, Inc. -RM1	Rocky Mount	Nash
RRO	NC0001899	Performance Fibers Inc	Performance Fibers / Moncure	New Hill	Chatham
RRO	NC0002852	Town of Franklinton	Franklinton WTP	Franklinton	Franklin

Table 4 - NPDES Permit Holders: Names and Locations

Region	Permit Number	Owner	Facility	City	County Name
RRO	NC0002861	City Of Sanford	Sanford WTP	Sanford	Lee
RRO	NC0003042	City of Roxboro	Roxboro WTP	Roxboro	Person
RRO	NC0003379	Eaton Corporation	Roxboro plant	Roxboro	Person
RRO	NC0003425	Progress Energy Carolinas Inc	Roxboro Steam Electric Power Plant	Roxboro	Person
RRO	NC0003433	Progress Energy Carolinas Inc	Cape Fear Steam Electric Power Plant	Moncure	Chatham
RRO	NC0003549	TransMontaigne Product Services Inc	Selma South terminal	Selma	Johnston
RRO	NC0007528	City of Raleigh	G.G. Hill WTP	Wake Forest	Wake
RRO	NC0007536	Town of Stantonsburg	Stantonsburg WTP	Stantonsburg	Wilson
RRO	NC0007625	City of Creedmoor	Creedmoor WTP	Creedmoor	Granville
RRO	NC0020061	Town of Spring Hope	Spring Hope WWTP	Spring Hope	Nash
RRO	NC0020231	Town of Louisburg	Louisburg WWTP	Louisburg	Franklin
RRO	NC0020354	Town of Pittsboro	Pittsboro WWTP	Pittsboro	Chatham
RRO	NC0020389	Town of Benson	Benson WWTP	Benson	Johnston
RRO	NC0020435	Town of Pinetops	Pinetops WWTP	Pinetops	Edgecombe
RRO	NC0020559	City of Henderson	Henderson WRF	Henderson	Vance
RRO	NC0020605	Town of Tarboro	Tarboro WWTP	Tarboro	Edgecombe
RRO	NC0020834	Town of Warrenton	Warrenton WWTP	Warrenton	Warren
RRO	NC0021024	City of Roxboro	Roxboro WWTP	Roxboro	Person
RRO	NC0021954	CITGO Petroleum Corporation	Selma terminal	Selma	Johnston
RRO	NC0022217	Motiva Enterprises LLC	Motiva Enterprises LLC-Apex	Apex	Wake
RRO	NC0023337	Town of Scotland Neck	Scotland Neck WWTP	Scotland Neck	Halifax
RRO	NC0023442	Wood Resources, LLC	Moncure Plywood, LLC	Moncure	Chatham
RRO	NC0023841	City of Durham	North Durham WRF	Durham	Durham
RRO	NC0023906	City of Wilson	Wilson WWTP	Wilson	Wilson
RRO	NC0024147	City Of Sanford	Big Buffalo WWTP	Sanford	Lee
RRO	NC0024201	Roanoke Rapids Sanitary District	Roanoke Rapids WWTP	Roanoke Rapids	Halifax
RRO	NC0025054	City of Oxford	Oxford WWTP	Oxford	Granville
RRO	NC0025241	Orange Water And Sewer Authority	Mason Farm WWTP	Chapel Hill	Orange
RRO	NC0025305	UNC At Chapel Hill	UNC Cogeneration Facility	Chapel Hill	Orange
RRO	NC0025402	Town of Enfield	Enfield WWTP	Enfield	Halifax
RRO	NC0025437	Town of Rich Square	Rich Square WWTP	Rich Square	Northampton
RRO	NC0025453	Town of Clayton	Little Creek WWTP	Clayton	Johnston
RRO	NC0025691	Town of Littleton	Littleton WWTP	Littleton	Halifax
RRO	NC0025721	Town of Weldon	Weldon WWTP	Weldon	Halifax
RRO	NC0026051	Durham County	Triangle WWTP	Durham	Durham
RRO	NC0026433	Town of Hillsborough	Hillsborough WWTP	Hillsborough	Orange
RRO	NC0026441	Town of Siler City	Siler City WWTP	Siler City	Chatham
RRO	NC0026662	Town of Princeton	Princeton WWTP	Princeton	Johnston
RRO	NC0027006	ExxonMobil Refining and Supply Company	Selma terminal	Selma	Johnston
RRO	NC0027227	Arc Terminals Holdings LLC	Arc Terminals Holdings LLC-Selma	Selma	Johnston
RRO	NC0027626	NC Department of Correction	Caledonia WWTP	Tillery	Halifax

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Region	Permit Number	Owner	Facility	City	County Name
RRO	NC0027642	NC Department of Correction	Odom Correctional Institute WWTP	Jackson	Northampton
RRO	NC0028118	Town of Fuquay-Varina	Kenneth Creek WWTP	Fuquay Varina	Wake
RRO	NC0029033	City of Raleigh	Neuse River WWTP	Raleigh	Wake
RRO	NC0029131	Kittrell Job Corps Center	Kittrell Job Corps Center	Kittrell	Vance
RRO	NC0030317	City of Rocky Mount	Tar River Regional WWTP	Rocky Mount	Edgecombe
RRO	NC0030384	Piedmont Health Services Inc	Moncure Community Health Center	Moncure	Chatham
RRO	NC0030716	Johnston County Department Of Public Uti	Central Johnston County WWTP	Smithfield	Johnston
RRO	NC0030759	City of Raleigh	Smith Creek WWTP	Wake Forest	Wake
RRO	NC0031011	Colonial Pipeline Company	Selma Terminal	Selma	Johnston
RRO	NC0032875	Kinder Morgan Southeast Terminals LLC	Selma Terminal	Selma	Johnston
RRO	NC0035491	Vance County Schools	E.O. Young, Jr. Elementary School	Middleburg	Vance
RRO	NC0035866	County of Chatham	Bynum WWTP	Pittsboro	Chatham
RRO	NC0036145	BP Products North America Inc	BP Selma terminal	Selma	Johnston
RRO	NC0036536	Person County Schools	Woodland Elementary School	Roxboro	Person
RRO	NC0037869	Arbor Hills Mobile Home Park	Arbor Hills MHP WWTP	Hillsborough	Orange
RRO	NC0037885	Nash/Rocky Mount Schools	Southern Nash Middle School	Spring Hope	Nash
RRO	NC0037915	Nash/Rocky Mount Schools	Southern Nash High School	Bailey	Nash
RRO	NC0038300	S S Construction & Rental Inc	S.S. Mobile Home Park	Siler City	Chatham
RRO	NC0038377	Progress Energy Carolinas Inc	Mayo Steam Electric Power Plant	Roxboro	Person
RRO	NC0038580	Halifax County Schools	Eastman Middle School WWTP	Enfield	Halifax
RRO	NC0038610	Halifax County Schools	Pittman Elementary School WWTP	Enfield	Halifax
RRO	NC0038636	Halifax County Schools	Bakers Elementary School WWTP	Scotland Neck	Halifax
RRO	NC0038644	Halifax County Schools	Dawson Elementary School WWTP	Scotland Neck	Halifax
RRO	NC0038784	Aqua North Carolina Inc	Neuse River Village WWTP	Raleigh	Wake
RRO	NC0038831	Carolina Trace Utilities Inc	Carolina Trace WWTP	Buffalo Lake	Lee
RRO	NC0038849	Goldco, LLC	Hill Forest Rest Home	Goldston	Chatham
RRO	NC0038938	Johnston County Board of Education	Corinth-Holder Elementary & Middle Sch	Zebulon	Johnston
RRO	NC0039292	Uniprop Inc	Riverwalk Mobile Home Park	Raleigh	Wake
RRO	NC0039331	Chatham County Schools	Bonlee Elementary School	Bonlee	Chatham
RRO	NC0039349	Chatham County Schools	Waters Elementary School WWTP	Goldston	Chatham
RRO	NC0039381	Chatham County Schools	Central Chatham High School	Bear Creek	Chatham
RRO	NC0039471	Chatham County Schools	Bennett Elementary School WWTP	Bennett	Chatham
RRO	NC0039586	Progress Energy Carolinas Inc	Shearon Harris Nuclear Power Plant	New Hill	Wake
RRO	NC0040266	Knightdale Estates MHP Limited Partnersh	Knightdale Estates MHP WWTP	Knightdale	Wake
RRO	NC0040606	Heater Utilities Inc	Barclay Downs WWTP	Raleigh	Wake
RRO	NC0040711	Atc Panels Inc	Moncure Facility	Moncure	Chatham
RRO	NC0042269	Town of Bunn	Bunn WWTP	Bunn	Franklin
RRO	NC0042285	Trails Property Owners Assoc	Trails WWTP	Chapel Hill	Orange
RRO	NC0042510	Total Environmental Solutions Inc	Lake Royale WWTP	Bunn	Franklin
RRO	NC0042803	Birchwood Mobile Home Park	Birchwood Mobile Home Park	Pittsboro	Orange
RRO	NC0043257	Nature Trails Association CLP	Nature Trails Mobile Home Park WWTP	Chapel Hill	Chatham

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Region	Permit Number	Owner	Facility	City	County Name
RRO	NC0043559	Fearrington Utilities Inc	Fearrington Village WWTP	Pittsboro	Chatham
RRO	NC0045608	Ward Transformer Company	Ward Transformer Company	Raleigh	Wake
RRO	NC0047279	C&J Bradshaw LLC	Heritage Meadows WWTP	Oxford	Granville
RRO	NC0047597	City of Durham	South Durham WRF	Chapel Hill	Durham
RRO	NC0048429	Cedar Village Apartments	Cedar Village Apartments	Carrboro	Chatham
RRO	NC0048631	Interstate Property Management Inc	Long Creek Court WWTP	Kittrell	Vance
RRO	NC0048879	Town of Cary	North Cary WRF	Cary	Wake
RRO	NC0049034	Wake County	Mount Auburn Training Center	Garner	Wake
RRO	NC0049204	Kinder Morgan Southeast Terminals, LLC	Selma Terminal 1	Selma	Johnston
RRO	NC0049662	Heater Utilities Inc	Hawthorne Subdivision WWTP	Raleigh	Wake
RRO	NC0050415	Edgecombe County Schools	Phillips Middle School	Battleboro	Edgecombe
RRO	NC0050431	Edgecombe County Schools	North Edgecombe High School	Tarboro	Edgecombe
RRO	NC0050661	Town of Macclesfield	Macclesfield WWTP	Macclesfield	Edgecombe
RRO	NC0051314	North Chatham Water & Sewer Company	Cole Park Plaza Shopping Center WWT	Pittsboro	Chatham
RRO	NC0051322	Carolina Water Service Inc Of NC	Ashley Hills WWTP	Knightdale	Wake
RRO	NC0052311	Magellan Terminals Holdings L P	Selma Terminal	Selma	Johnston
RRO	NC0055051	Bill Clark Homes of Raleigh, LLC	Buckhorn Ridge Subdivision	Holly Springs	Wake
RRO	NC0055701	Heater Utilities Inc	Nottingham WTP	Garner	Wake
RRO	NC0056278	River Mill COA Inc	River Mill WWTP	Raleigh	Wake
RRO	NC0056391	Heater Utilities Inc	Cross Creek Mobile Estates	Raleigh	Wake
RRO	NC0056413	Aqua North Carolina Inc	Chatham Water Reclamation Facility	Chapel Hill	Chatham
RRO	NC0056499	Uniprop Inc	Mill Run Mobile Home Park	Garner	Wake
RRO	NC0056731	The Chesson Group	Grande Oak Subdivision WWTP	Durham	Durham
RRO	NC0057606	Town of Stantonsburg	Stantonsburg WWTP	Stantonsburg	Wilson
RRO	NC0058416	South Granville Water & Sewer Authority	SGWASA WTP	Butner	Granville
RRO	NC0058505	Heater Utilities Inc	Mallard Crossing WWTP	Raleigh	Wake
RRO	NC0059099	Aqua North Carolina Inc	Lake Ridge Aero Park WWTP	Durham	Durham
RRO	NC0059242	Town of Broadway	Broadway WWTP	Broadway	Lee
RRO	NC0060526	Pope Industrial Park II Ltd Partnership	Pope Industrial Park	Raleigh	Wake
RRO	NC0060577	Heater Utilities Inc	Beachwood WWTP	Raleigh	Wake
RRO	NC0060771	Indian Creek Overlook Owners Assoc Inc	Indian Creek Overlook	Garner	Wake
RRO	NC0061638	Nero Utility Services Inc	Amherst WWTP	Raleigh	Wake
RRO	NC0062219	Carolina Water Service Inc Of NC	Kings Grant Subdivision WWTP	Dudley	Wake
RRO	NC0062715	Heater Utilities Inc	Crooked Creek WWTP	Fuquay Varina	Wake
RRO	NC0062740	Heater Utilities Inc	Briarwood Farms WWTP	Cary	Wake
RRO	NC0063096	Town of Holly Springs	Holly Springs WWTP	Holly Springs	Wake
RRO	NC0063614	Heater Utilities Inc	Wildwood Green WWTP	Raleigh	Wake
RRO	NC0063746	Clarke Utilities LLC	Deer Chase WWTP	Wake Forest	Wake
RRO	NC0064050	Town of Apex	Apex Water Reclamation Facility	Apex	Wake
RRO	NC0064246		Pace Mobile Home Park	Clayton	Johnston
RRO	NC0064378	Carolina Water Service Inc Of NC	Willowbrook WWTP	Clayton	Wake

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Region	Permit Number	Owner	Facility	City	County Name
RRO	NC0064408	Whitewood Properties Inc D	Neuse Crossing WWTP	Raleigh	Wake
RRO	NC0064564	Heater Utilities Inc	Neuse Colony WWTP	Clayton	Johnston
RRO	NC0064891	Town of Kenly	Kenly Regional WWTP	Kenly	Johnston
RRO	NC0065081	Primary Energy Of North Carolina LLC - R	Roxboro plant	Roxboro	Person
RRO	NC0065102	Town of Cary	South Cary WRF	Apex	Wake
RRO	NC0065706	Crosby Utilities	Cottonwood / Baywood WWTP	Knightdale	Wake
RRO	NC0065714	Heater Utilities Inc	Tradewinds WWTP	Raleigh	Wake
RRO	NC0066150	Town of Fuquay-Varina	Brighton Forest WWTP	Fuquay Varina	Wake
RRO	NC0066192	Town of Halifax	Halifax WWTP	Halifax	Halifax
RRO	NC0066516	Town of Fuquay-Varina	Terrible Creek WWTP	Fuquay Varina	Wake
RRO	NC0069311	Franklin County Public Utilities	Franklin County WWTP	Franklinton	Franklin
RRO	NC0072125	City of Rocky Mount	Tar River WTP	Rocky Mount	Nash
RRO	NC0072133	City of Rocky Mount	Sunset Avenue WTP	Rocky Mount	Nash
RRO	NC0072575	Pilgrim's Pride Corporation of Georgia Inc	Pilgrim's Pride Processing Plant	Sanford	Lee
RRO	NC0073318	Clarke Utilities LLC	Whippoorwill Valley WWTP	Wake Forest	Wake
RRO	NC0073679	Heater Utilities Inc	Oak Hollow WTP	Cary	Wake
RRO	NC0074446		Hilltop Mobile Home Park WWTP	Chapel Hill	Orange
RRO	NC0076457	Kinder Morgan Southeast Terminals, LLC	Selma Terminal 3	Selma	Johnston
RRO	NC0077437	Edgecombe Genco LLC	Battleboro plant	Battleboro	Edgecombe
RRO	NC0079014	Virginia Electric and Power Compny	Rosemary Power Station	Roanoke Rapids	Halifax
RRO	NC0079227	Schlage Lock Company	Nash remediation site	Rocky Mount	Nash
RRO	NC0079316	City of Raleigh	Little Creek WWTP	Zebulon	Wake
RRO	NC0080519	Lampe & Malphrus Lumber	10th Street Wet-Decking site	Smithfield	Johnston
RRO	NC0080896	Town of Pittsboro	Pittsboro WTP	Pittsboro	Chatham
RRO	NC0081469	Colonial Pipeline Company	RDU Delivery facility	Raleigh	Wake
RRO	NC0081493	Bost Distributing Corporation	Bost Distributing WWTP	Sanford	Lee
RRO	NC0081540	Square D Company	Square D Company	Knightdale	Wake
RRO	NC0081591	Town of Cary	Cary & Apex WTP	Apex	Wake
RRO	NC0081795	Goldston-Gulf Sanitary District	Goldston-Gulf WTP	Goldston	Chatham
RRO	NC0082210	Orange Water And Sewer Authority	Jones Ferry Road WTP	Carrboro	Orange
RRO	NC0082376	City of Raleigh	E.M. Johnson WTP	Raleigh	Wake
RRO	NC0082759	Orange Alamance Water System	Orange-Alamance Water System WTP	Efland	Orange
RRO	NC0082996	Heater Utilities Inc	Hollybrook WTP	Cary	Wake
RRO	NC0083038	Saint-Gobain Containers	Saint-Gobain Containers	Henderson	Vance
RRO	NC0083101	City of Henderson	Kerr Lake Regional WTP	Henderson	Vance
RRO	NC0083135	B&B Produce Inc	B&B Produce Incorporated	Benson	Johnston
RRO	NC0083348	Town of Smithfield	Smithfield WTP	Smithfield	Johnston
RRO	NC0083747	Dutchman Creek Inc	Twin Lake WTP	Raleigh	Wake
RRO	NC0083852	Pilgrim's Pride Corporation	Gold Kist / Sanford WTP	Sanford	Lee
RRO	NC0084034	Town of Enfield	Enfield WTP	Enfield	Halifax
RRO	NC0084093	County of Chatham	Jordan Lake WTP	Apex	Chatham

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Region	Permit Number	Owner	Facility	City	County Name
RRO	NC0084514	Raleigh Durham Airport Authority	RDU International Airport-WWTP	Raleigh	Wake
RRO	NC0084581	Wilson Technical Community College	Wilson Technical Community College	Wilson	Wilson
RRO	NC0084697	Phillips Petroleum	Amoco Fabrics & Fibers site	Rocky Mount	Edgecombe
RRO	NC0084735	Johnston County Department Of Public Uti	Johnston County WTP	Smithfield	Johnston
RRO	NC0085111	Carolina Water Service Inc Of NC	Heather Glen WTP	Durham	Durham
RRO	NC0085863	Heater Utilities Inc	Waterfall Plantation WTP	Raleigh	Wake
RRO	NC0085936	Jerry G Williams & Sons Inc	Wet Log Deck Storage site	Smithfield	Johnston
RRO	NC0086061	Town of Bailey	Bailey Well #1 WTP	Bailey	Nash
RRO	NC0086126	Alcatel USA Sourcing LP	Alcatel Network Systems	Raleigh	Wake
RRO	NC0086266	Carolina Water Service Inc Of NC	Woodtrace WTP	Wendell	Wake
RRO	NC0086541	Town of Bailey	Bailey Well #2 WTP	Bailey	Nash
RRO	NC0086690	Heater Utilities Inc	Stansted Well #2 (WTP)	Cary	Wake
RRO	NC0086720	W P Ballard & Company	W P Ballard & Company	Durham	Durham
RRO	NC0086827	Brenntag Southeast Inc	Brenntag / Durham remediation	Durham	Durham
RRO	NC0087572	Southern Wood Piedmont Company	Southern Wood Piedmont Company	Gulf	Chatham
RRO	NC0087629	NCDOT	Asphalt Testing Site #6	Pittsboro	Chatham
RRO	NC0087840	Town of Middlesex	Well #4 WTP	Middlesex	Nash
RRO	NC0087912	WilcoHess LLC	WilcoHess LLC #197	Wake Forest	Franklin
RRO	NC0087998	Heater Utilities Inc	Rand Meadows Phase II	Apex	Wake
RRO	NC0088048	Crabtree Bane, LLC	Stonegate Mobile Home Park WTP	Durham	Orange
RRO	NC0088129	NC State University	University - Lot 86	Raleigh	Wake
RRO	NC0088137	City of Raleigh	Raleigh Convention Center	Raleigh	Wake
RRO	NC0088218	Kinder Morgan Southeast Terminals, LLC	Selma Terminal 2	Selma	Johnston
RRO	NC0088285	City Of Raleigh Public Utility Department	Dempsey E. Benton WTP	Garner	Wake
RRO	NC0088412	Aqua North Carolina Inc	Stonehenge Subdivision WTP	Raleigh	Wake
RRO	NC0088587	Arcola Lumber Co Inc	Arcola Lumber Co., Inc.	Warrenton	Warren
WARO	NC0000680	Domtar Paper Company LLC	Domtar Paper Company, LLC	Plymouth	Martin
WARO	NC0000744	Captain Charlie's Seafood Inc	Captain Charlie's / Englehard	Engelhard	Hyde
WARO	NC0001058	DSM Pharmaceuticals Inc	DSM Pharmaceuticals	Greenville	Pitt
WARO	NC0001074	Mount Olive Pickle Company	Mount Olive Pickle Company	Mount Olive	Wayne
WARO	NC0001732	Daniels Seafood Company	Daniels Seafood / Nags Head	Wanchese	Dare
WARO	NC0001881	Phillips Plating Company Inc	Phillips Plating Company	Bridgeton	Craven
WARO	NC0002071	Pamlico Packing Company Inc	Pamlico Packing Company Outfall	Vandemere	Pamlico
WARO	NC0002313	Town of Plymouth	Plymouth WTP	Plymouth	Washington
WARO	NC0002402	Perry-Wynns Fish Company	Perry-Wynns Fish Company	Colerain	Bertie
WARO	NC0003051	Town of Mount Olive	Mount Olive WTP #3	Mount Olive	Wayne
WARO	NC0003174	Fulcher's Point Pride Seafood	Fulcher's Point Pride Seafood	Oriental	Pamlico
WARO	NC0003191	Weyerhaeuser Company	New Bern Mill	New Bern	Craven
WARO	NC0003255	PCS Phosphate Company Inc	Aurora Mine	Aurora	Beaufort
WARO	NC0003417	Progress Energy Carolinas Inc	Lee Steam Electric Plant	Raleigh	Wayne
WARO	NC0003760	Unifi-Kinston LLC	Unifi-Kinston LLC	Kinston	Lenoir

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Region	Permit Number	Owner	Facility	City	County Name
WARO	NC0003816	US MCAS Cherry Point (MCALF-Atlantic)	Cherry Point WWTP	Cherry Point	Craven
WARO	NC0003867	Edenton Dyeing and Finishing LLC	Edenton Dyeing and Finishing	Edenton	Chowan
WARO	NC0004057	Carolina Seafood Company Inc	Carolina Seafood	Aurora	Beaufort
WARO	NC0004081	Aurora Packing Company Inc	Aurora Packing Company	Aurora	Beaufort
WARO	NC0007510	Town of Columbia	Columbia WTP	Columbia	Tyrrell
WARO	NC0007552	Town of Edenton	Freemason WTP	Edenton	Chowan
WARO	NC0007617	Garland F Fulcher Seafood	Garland F Fulcher Seafood	Oriental	Pamlico
WARO	NC0007978	South Mills Water Association Inc	South Mills Water Association WTP	South Mills	Camden
WARO	NC0020028	Town of Plymouth	Plymouth WWTP	Plymouth	Washington
WARO	NC0020044	Town of Williamston	Williamston WWTP	Williamston	Martin
WARO	NC0020443	Town of Columbia	Columbia WWTP	Columbia	Tyrrell
WARO	NC0020575	Town of Mount Olive	Mount Olive WWTP	Mount Olive	Wayne
WARO	NC0020648	City of Washington	Washington WWTP	Washington	Beaufort
WARO	NC0020842	Town of Snow Hill	Snow Hill WWTP	Snow Hill	Greene
WARO	NC0021253	City of Havelock	Havelock WWTP	Havelock	Craven
WARO	NC0021342	Town of Trenton	Trenton WWTP	Trenton	Jones
WARO	NC0021482	Town of Maysville	Maysville WWTP	Maysville	Jones
WARO	NC0021521	Town of Aurora	Aurora WWTP	Aurora	Beaufort
WARO	NC0021644	Town of La Grange	La Grange WWTP	La Grange	Lenoir
WARO	NC0021849	Town of Hertford	Hertford WWTP	Hertford	Perquimans
WARO	NC0023116	Town of Lewiston-Woodville	Lewiston-Woodville WWTP	Lewiston Woodville	Bertie
WARO	NC0023710	Martin County Economic Development Co	McMurray Building	Jamesville	Martin
WARO	NC0023931	Greenville Utilities Commission	GUC WWTP	Greenville	Pitt
WARO	NC0023949	City of Goldsboro	Goldsboro WWTP	Goldsboro	Wayne
WARO	NC0024236	City of Kinston	Kinston Regional Water Reclamation Fa	Kinston	Lenoir
WARO	NC0025011	City of Elizabeth City	Elizabeth City WWTP	Elizabeth City	Pasquotank
WARO	NC0025348	City of New Bern	New Bern WWTP	New Bern	Craven
WARO	NC0025712	Town of Hookerton	Hookerton WWTP	Hookerton	Greene
WARO	NC0026042	Town of Robersonville	Robersonville WWTP	Robersonville	Martin
WARO	NC0026492	Town of Belhaven	Belhaven WWTP	Belhaven	Beaufort
WARO	NC0026751	Town of Windsor	Windsor WWTP	Windsor	Bertie
WARO	NC0027600	Town of Creswell	Creswell WTP	Creswell	Washington
WARO	NC0028835	Perdue Farms Inc	Lewiston Mill	Lewiston Woodville	Bertie
WARO	NC0029572	Town of Farmville	Farmville WWTP	Farmville	Pitt
WARO	NC0030406	Town of River Bend	River Bend WWTP	New Bern	Craven
WARO	NC0031828	Town of Vanceboro	Vanceboro WWTP	Vanceboro	Craven
WARO	NC0031925	Town of Roper	Roper WTP	Roper	Washington
WARO	NC0032077	Contentnea Metropolitan Sewerage Distric	Contentnea Sewerage District WWTP	Grifton	Pitt
WARO	NC0032565	Lenoir County Public Schools	North Lenoir High School WWTP	La Grange	Lenoir
WARO	NC0032719	Chowan County	Valhalla WTP	Edenton	Chowan
WARO	NC0033111	Carolina Water Service Inc Of NC	Fairfield Harbour S/D WWTP	Fairfield	Craven

Table 4 - NPDES Permit Holders: Names and Locations

Region	Permit Number	Owner	Facility	City	County Name
WARO	NC0033782	Gates County Schools	Gatesville Elementary School WWTP	Gatesville	Gates
WARO	NC0033791	Gates County Schools	Sunbury Primary School WWTP	Gatesville	Gates
WARO	NC0033804	Gates County Schools	T.S. Cooper Elementary School WWTP	Gatesville	Gates
WARO	NC0035670	Dare County	Skyco Regional WTP	Manteo	Dare
WARO	NC0035858	Town of Jamesville	Jamesville WWTP	Jamesville	Martin
WARO	NC0036315	Town of Roper	Roper WWTP	Roper	Washington
WARO	NC0036447	City of Elizabeth City	Elizabeth City WTP	Elizabeth City	Pasquotank
WARO	NC0036919	Town of Pantego	Pantego Municipal Center WWTP	Pantego	Beaufort
WARO	NC0037214	Camden County Board of Education	Grandy Primary School	Camden	Camden
WARO	NC0037231	Martin County Schools	Bear Grass Elementary School WWTP	Williamston	Martin
WARO	NC0040584	Clared, LLC	Pantego Rest Home	Pantego	Beaufort
WARO	NC0040789	Pamlico County	Minnesott WTP	Arapahoe	Pamlico
WARO	NC0041386	NC Department of Commerce	Wanchese Harbor Project	Wanchese	Dare
WARO	NC0041530	Ocracoke Sanitary District	Ocracoke Reverse Osmosis WTP	Ocracoke	Hyde
WARO	NC0043583	Pasquotank County	Pasquotank County WTP	Elizabeth City	Pasquotank
WARO	NC0043974	Gates County Schools	Buckland Elementary School	Gatesville	Gates
WARO	NC0044776	Town of Hamilton	Hamilton WWTP	Hamilton	Martin
WARO	NC0048151	Etheridge Seafood Company	Etheridge Seafood Company	Wanchese	Dare
WARO	NC0048861	Town of Creswell	Creswell WWTP	Creswell	Washington
WARO	NC0051373	Perquimans County	Winfall WTP	Winfall	Perquimans
WARO	NC0056065	NCDOT	Marine Maintenance facility	Manns Harbor	Dare
WARO	NC0056618	Carolina Water Service Inc Of NC	Carolina Pines WWTP	New Bern	Craven
WARO	NC0060321	First Craven Sanitary District	First Craven Sanitary District	New Bern	Craven
WARO	NC0061492	Maury Sanitary Land District	Maury Sanitary Land District WWTP	Maury	Greene
WARO	NC0068187	United Organics Corporation	United Organics Corporation	Williamston	Martin
WARO	NC0068233	Hyde County Water System	Fairfield WTP	Fairfield	Hyde
WARO	NC0068861	Perquimans County	Bethel WTP	Bethel	Perquimans
WARO	NC0069426	Dowry Creek Community Association Inc	Dowry Creek WWTP	Belhaven	Beaufort
WARO	NC0070157	Dare County	Kill Devil Hills Reverse Osmosis WTP	Kill Devil Hills	Dare
WARO	NC0070211	Rose Bay Oyster Company	Rose Bay Oyster Company	Swanquarter	Hyde
WARO	NC0072150	Currituck County	Currituck County WTP	Maple	Currituck
WARO	NC0073229	Weyerhaeuser Company	Ayden mill	Grifton	Pitt
WARO	NC0074837	Town of Bridgeton	Bridgeton WWTP	Bridgeton	Craven
WARO	NC0075281	Craven County Wood Energy, LP	Craven County Wood Energy	Trent Woods	Craven
WARO	NC0076571	Gullrock Seafood	Gullrock Seafood	Engelhard	Hyde
WARO	NC0077992	Hyde County Water System	Ponzer WTP	Pantego	Hyde
WARO	NC0078131	City of Havelock	Brown Blvd WTP	Havelock	Craven
WARO	NC0079057	Town of Manteo	Manteo WWTP	Manteo	Dare
WARO	NC0080071	Town of Vanceboro	Vanceboro WTP	Vanceboro	Craven
WARO	NC0081191	City of Washington	Washington WTP	Washington	Beaufort
WARO	NC0081850	Town of Winfall	Winfall WTP	Winfall	Perquimans

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Region	Permit Number	Owner	Facility	City	County Name
WARO	NC0082139	Greenville Utilities Commission	Greenville WTP	Greenville	Pitt
WARO	NC0083216	Town of Chocowinity	Hughes Street WTP	Chocowinity	Beaufort
WARO	NC0083224	Town of Chocowinity	Edgewood Drive WTP	Chocowinity	Beaufort
WARO	NC0083909	Dare County	Rodanthe/Waves/Salvo Reverse Osmos	Rodanthe	Dare
WARO	NC0084808	Beaufort County Water System	Richland WTP	Aurora	Beaufort
WARO	NC0085081		Dalton House Motel/Restaurant	Columbia	Tyrrell
WARO	NC0085502	Eastern Fuels Inc	W. H. Cox Service Center	Engelhard	Hyde
WARO	NC0085707	Dare County/Cape Hatteras Water Assoc	Cape Hatteras Reverse Osmosis WTP	Buxton	Dare
WARO	NC0086231	Aluminum Casting Technology, Inc.	Ahoskie plant	Ahoskie	Hertford
WARO	NC0086291	Town of Edenton	Beaver Hill WTP	Edenton	Chowan
WARO	NC0086584	Town of Belhaven	Belhaven WTP	Belhaven	Beaufort
WARO	NC0086681	Camden County	Camden County Reverse Osmosis WTP	Camden	Camden
WARO	NC0086797	Town of River Bend	River Bend WTP 1 & 2	New Bern	Craven
WARO	NC0086801	Town of Mount Olive	Gordon Street WTP	Mount Olive	Wayne
WARO	NC0086918	Eastern Wayne Sanitary District	Rockford Church Road WTP	Seven Springs	Wayne
WARO	NC0086924	Tyrrell County	Reverse Osmosis WTP	Columbia	Tyrrell
WARO	NC0086932	Dare County	Stumpy Point Reverse Osmosis WTP	Manteo	Dare
WARO	NC0086941	Southeastern Wayne Sanitary District	Southeastern Wayne S D WTP	Goldsboro	Wayne
WARO	NC0086959	Northwestern Wayne Sanitary District	Memorial Church Road WTP	Goldsboro	Wayne
WARO	NC0087009	Washington County	Washington County WTP	Roper	Washington
WARO	NC0087041	Town of Chocowinity	Hill Road WTP	Chocowinity	Beaufort
WARO	NC0087092	Tyrrell County	Tyrrell County WTP	Columbia	Tyrrell
WARO	NC0087491	Beaufort County Water District VI	Chocowinity/Richland Township WTP	Chocowinity	Beaufort
WARO	NC0087670	Currituck County	Southern Outer Banks Water System W	Currituck	Currituck
WARO	NC0087726	Fork Township Sanitary District	Fork Township WTP	Goldsboro	Wayne
WARO	NC0088072	Sea Safari Ltd	Sea Safari Ltd	Belhaven	Beaufort
WARO	NC0088111	Neuse Regional Water & Sewer Authority	Neuse Regional WTP	Kinston	Lenoir
WARO	NC0088234		Captain Neill's Seafood	Columbia	Tyrrell
WARO	NC0088323	Pamlico County	Grantsboro WTP	Grantsboro	Pamlico
WARO	NC0088331	Pamlico County	Kershaw WTP	Arapahoe	Pamlico
WARO	NC0088340	Pamlico County	Millpond WTP	Bayboro	Pamlico
WARO	NC0088358	Pamlico County	Vandemere WTP	Vandemere	Pamlico
WARO	NC0088391	Stumpy Point Water & Sewer District	Stumpy Point WWTP	Manteo	Dare
WARO	NC0088447	Town of Oriental	Town of Oriental WTP	Oriental	Pamlico
WARO	NC0088561	Town of Ahoskie	Ahoskie WWTP	Ahoskie	Hertford
WIRO	NC0000663	DAK Americas LLC	Cape Fear WWTP	Wilmington	Brunswick
WIRO	NC0001112	Invista S A R L	INVISTA, s.a.r.l.	Wilmington	New Hanover
WIRO	NC0001228	Global Nuclear Fuel - Americas LLC	Global Nuclear Fuel - Wilmington WWTP	Wilmington	New Hanover
WIRO	NC0001422	Progress Energy Carolinas Inc	Sutton Steam Electric Plant	Wilmington	New Hanover
WIRO	NC0001970	Bay Valley Foods, LLC	Bay Valley Foods / Faison	Faison	Duplin
WIRO	NC0002305	Guilford Mills Inc	Guilford East Mill WWTP	Kenansville	Duplin

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Region	Permit Number	Owner	Facility	City	County Name
WIRO	NC0002585	A-1 Cleaners Inc	A-1 Cleaners	Jacksonville	Onslow
WIRO	NC0002879	City of Wilmington	Sweeney WTP	Wilmington	New Hanover
WIRO	NC0002933	Town of Calypso	Calypso WTP	Calypso	Duplin
WIRO	NC0003298	International Paper Company	Riegelwood Mill WWTP	Riegelwood	Columbus
WIRO	NC0003344	House of Raeford Farms, Inc.	House of Raeford Farms, Inc.	Wallace	Duplin
WIRO	NC0003395	Hexion Speciality Chemicals Inc	Acme Facility	Riegelwood	Columbus
WIRO	NC0003450	Town of Wallace	Wallace WWTP #2	Wallace	Duplin
WIRO	NC0003794	Corning Inc	Wilmington Plant	Wilmington	New Hanover
WIRO	NC0003875	Elementis Chromium L P	Castle Hayne Manufacturing Facility WW	Castle Hayne	New Hanover
WIRO	NC0005801	Georgia-Pacific Wood Products LLC	Georgia-Pacific Wood Products (Whitevi	Whiteville	Columbus
WIRO	NC0006785	National Spinning Company, Inc	Whiteville Plant	Whiteville	Columbus
WIRO	NC0007064	Progress Energy Carolinas Inc	Brunswick Steam Electric Plant (Old WW	Southport	Brunswick
WIRO	NC0020346	Town of Magnolia	Magnolia WWTP	Magnolia	Duplin
WIRO	NC0020702	Town of Wallace	Wallace WWTP	Wallace	Duplin
WIRO	NC0020729	Town of Fair Bluff	Fair Bluff WWTP	Fair Bluff	Columbus
WIRO	NC0021113	Town Of Burgaw	Burgaw WWTP	Burgaw	Pender
WIRO	NC0021334	City of Southport	Southport WWTP	Southport	Brunswick
WIRO	NC0021555	Town of Newport	Newport WWTP	Newport	Carteret
WIRO	NC0021831	Town of Beaufort	Beaufort WWTP	Beaufort	Carteret
WIRO	NC0021865	Town of Chadbourn	Chadbourn WWTP	Chadbourn	Columbus
WIRO	NC0021881	Town of Lake Waccamaw	Lake Waccamaw WWTP	Lake Waccamaw	Columbus
WIRO	NC0021903	Town of Warsaw	Warsaw WWTP	Warsaw	Duplin
WIRO	NC0021920	City of Whiteville	Whitemarsh WWTP	Whiteville	Columbus
WIRO	NC0022462	Sherwood Mobile Home Park Associates L	Sherwood Mobile Home Park WWTP	Midway Park	Onslow
WIRO	NC0023230	Onslow Water & Sewer Authority	Richlands WWTP	Richlands	Onslow
WIRO	NC0023256	Town of Carolina Beach	Carolina Beach WWTP	Carolina Beach	New Hanover
WIRO	NC0023477	Southern States Chemical Inc	Wilmington Acid Plant	Wilmington	New Hanover
WIRO	NC0023825	Cecil C Morton	Webb Apartments WWTF	Jacksonville	Onslow
WIRO	NC0023965	City of Wilmington	James A. Loughlin Northside WWTP	Wilmington	New Hanover
WIRO	NC0023973	City of Wilmington	Southside WWTP	Wilmington	New Hanover
WIRO	NC0025763	Town of Kure Beach	Kure Beach WWTP	Kure Beach	New Hanover
WIRO	NC0026000	Town of Tabor City	Tabor City WWTP	Tabor City	Columbus
WIRO	NC0026018	Town of Beulaville	Beulaville WWTP	Beulaville	Duplin
WIRO	NC0026611	Town Of Morehead City	Morehead City WWTP	Morehead City	Carteret
WIRO	NC0027065	Archer Daniels Midland Company	Southport Manufacturing Facility WWTP	Southport	Brunswick
WIRO	NC0028215	Beacham Associates Ltd	Beacham Apartments #2 WWTP	Jacksonville	Onslow
WIRO	NC0028223	Beacham Associates Ltd	Beacham Apartments #1 WWTP	Jacksonville	Onslow
WIRO	NC0028827	Snug Harbor Managment, LLC	Snug Harbor on Nelson Bay	Sealevel	Carteret
WIRO	NC0029122	US Army / Military Ocean Terminal - Sunny	Military Ocean Terminal / Sunny Point	Southport	Brunswick
WIRO	NC0030431		Hewitts Mobile Home Park WWTP	Hubert	Onslow
WIRO	NC0030813	Onslow Water & Sewer Authority	Kenwood WWTP	Jacksonville	Onslow

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Region	Permit Number	Owner	Facility	City	County Name
WIRO	NC0031577	Carolina Water Service Inc Of NC	White Oak Estates WWTP	Jacksonville	Onslow
WIRO	NC0032221	Carolina Water Service Inc Of NC	Belvedere WTP	Hampstead	Pender
WIRO	NC0032239	Carolina Water Service Inc Of NC	Regalwood WWTP	Jacksonville	Onslow
WIRO	NC0034339	Gary L Watkins	Cabin Creek Campground & MHP WWT	Jacksonville	Onslow
WIRO	NC0034991	Centerline Utilities of Eastern NC Inc	Hickory Grove WWTP	Jacksonville	Onslow
WIRO	NC0036153	Town of Swansboro	Swansboro WWTF	Swansboro	Onslow
WIRO	NC0036226	Scientific Water & Sewerage Corporation	Lauradale WWTP	Jacksonville	Onslow
WIRO	NC0036668	Town of Kenansville	Kenansville WWTP	Kenansville	Duplin
WIRO	NC0036676	Rexon LTD	Collins Estates Mobile Home Park WWT	Midway Park	Onslow
WIRO	NC0039527	New Hanover County Water & Sewer Distr	Walnut Hills WWTP	Wilmington	New Hanover
WIRO	NC0040061	Brunswick County	Beaverdam Creek WTP	Southport	Brunswick
WIRO	NC0042251	Pender County Board of Education	Pender High School WWTP	Burgaw	Pender
WIRO	NC0043711	Onslow County Board Of Education	Morton Elementary School WWTP	Jacksonville	Onslow
WIRO	NC0043745	Columbus County Board of Education	Old Dock Elementary School WWTP	Whiteville	Columbus
WIRO	NC0043788	Columbus County Board of Education	Acme Delco High School WWTP	Columbia	Columbus
WIRO	NC0043796	Columbus County Board of Education	Acme Delco Elementary School WWTP	Riegelwood	Columbus
WIRO	NC0044806	Town Of Atlantic Beach	Atlantic Beach WTP	Atlantic Beach	Carteret
WIRO	NC0044873	Brunswick County	Carolina Shores WWTF	Calabash	Brunswick
WIRO	NC0045276	Brunswick County Board Of Education	Waccamaw Elementary School WWTP	Ash	Brunswick
WIRO	NC0047759	Taylor Hospital & Extended Care	Taylor Extended Care WWTP	Sealevel	Carteret
WIRO	NC0049387	Viking Utilities Corporation Inc	Hunters Creek WWTP	Jacksonville	Onslow
WIRO	NC0049743	New Hanover County	County Landfill WWTP	Wilmington	New Hanover
WIRO	NC0050849	Onslow County Board Of Education	Silverdale Elementary School WWTP	Jacksonville	Onslow
WIRO	NC0051471	Eugene A Butts	Big Pines Mobile Home Park WWTP	Midway Park	Onslow
WIRO	NC0051853	Aragona Brothers Inc	Southgate Mobile Home Park WWTP	Jacksonville	Onslow
WIRO	NC0051969	Bowden Nursing Home Inc	Hermitage House Rest Home WWTP	Castle Hayne	New Hanover
WIRO	NC0055107	Aqua North Carolina Inc	Dolphin Bay WWTP	Wilmington	New Hanover
WIRO	NC0056863	Town of Rose Hill	Rose Hill WWTP	Rose Hill	Duplin
WIRO	NC0056952	Blue Creek Utilities Inc	Blue Creek WWTP	Jacksonville	Onslow
WIRO	NC0057053	Centerline Utilities of Eastern NC Inc	Springdale Acres WWTP	Jacksonville	Onslow
WIRO	NC0057533	Brunswick County	Hood Creek (Northwest) WTP	Bolivia	Brunswick
WIRO	NC0057703	Aqua North Carolina Inc	The Cape WWTP	Wilmington	New Hanover
WIRO	NC0058271	Coastal Carolina Clean Power LLC	Coastal Carolina Clean Power LLC	Kenansville	Duplin
WIRO	NC0058971	New Hanover County	WASTEC WWTP	Wilmington	New Hanover
WIRO	NC0059234	BASF Corporation	Wilmington Facility WWTP	Wilmington	New Hanover
WIRO	NC0062294	Rock Creek Environmental Company	Rock Creek Golf & Country Club WWTP	Jacksonville	Onslow
WIRO	NC0062359	Horse Creek Farms Utilities Corporation	Horse Creek Farms WWTP	Jacksonville	Onslow
WIRO	NC0062642	Webb Creek Water & Sewage Inc	Webb Creek WWTP	Hubert	Onslow
WIRO	NC0063029	US Marine Corps - Camp Lejeune	Camp Lejeune Advanced WWTP	Camp Lejeune	Onslow
WIRO	NC0063711	Duplin County/Albertson Water & Sewer D	Duplin County/Albertson W&S District W	Albertson	Duplin
WIRO	NC0065099	Primary Energy Of North Carolina LLC - S	Southport Facility	Southport	Brunswick

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Region	Permit Number	Owner	Facility	City	County Name
WIRO	NC0065307	Worsley Companies Inc	Dixie Boy No. 6	Wilmington	New Hanover
WIRO	NC0065480	Aqua North Carolina Inc	Beau Rivage Plantation WWTP	Wilmington	New Hanover
WIRO	NC0066320	House Of Raeford Farms Inc	Rose Hill Plant	Rose Hill	Duplin
WIRO	NC0066711	Hess Corporation	Wilmington terminal	Wilmington	New Hanover
WIRO	NC0071706	Hinson Arms Apartments	Hinson Arms Apartments WWTP	Jacksonville	Onslow
WIRO	NC0072168	Georgia-Pacific Wood Products LLC	Georgia-Pacific Wood Products, LLC (W	Horse Shoe	Columbus
WIRO	NC0072699	Town of Beaufort	Pine Street WTP	Beaufort	Carteret
WIRO	NC0072702	Town of Beaufort	Glenda Drive WTP	Beaufort	Carteret
WIRO	NC0073172	Vopak Terminal Wilmington Inc	Wilmington Terminal	Wilmington	New Hanover
WIRO	NC0073181	Exxon Mobil Chemical Company	South Wilmington Terminal	Wilmington	New Hanover
WIRO	NC0074942	Green's Oyster Company Inc	Green's Oyster Company Processing Fa	Shallotte	Brunswick
WIRO	NC0075540	North Brunswick Sanitary District	Belville WWTP	Leland	Brunswick
WIRO	NC0076732	Flint Hills Resources L P	New Hanover Terminal	Wilmington	New Hanover
WIRO	NC0076830	Lloyd's Oyster Company	Lloyd's Oyster Company Processing Fac	Shallotte	Brunswick
WIRO	NC0077143	West Carteret Water Corporation	West Carteret WTP	Newport	Carteret
WIRO	NC0077500	NCDOT	Ferry Division WTP	Cedar Island	Carteret
WIRO	NC0081736	New Hanover County Water & Sewer Distr	421 WWTP	Wilmington	New Hanover
WIRO	NC0082295	Fortron Industries	Fortron Industries WWTP	Wilmington	New Hanover
WIRO	NC0082520	Town of Pine Knoll Shores	Pine Knoll Shores WTP	Jacksonville	Carteret
WIRO	NC0082970	CTI of North Carolina Inc	CTI of North Carolina	Wilmington	New Hanover
WIRO	NC0083089	Bogue Banks Water Corporation	Bogue Banks Water Corporation	Emerald Isle	Carteret
WIRO	NC0083321	Onslow Water & Sewer Authority	Hubert WTP	Hubert	Onslow
WIRO	NC0083551	Onslow Water & Sewer Authority	Dixon WTP	Sneads Ferry	Onslow
WIRO	NC0083658	AAF-McQuay Inc	Heathcraft remediation site	Wilmington	New Hanover
WIRO	NC0084123	Bayshore Marina & Rac Club	Bayshore Marina & Racquet Club	Sneads Ferry	Onslow
WIRO	NC0084395	Terraine Inc	ABC One Hour Cleaners remediation site	Jacksonville	Onslow
WIRO	NC0085481	Pender County Board of Education	Penderlea Elementary School WWTP	Burgaw	Pender
WIRO	NC0085553	Village of Bald Head Island	Village of Bald Head Island Utilities Dept	Bald Head Island	Brunswick
WIRO	NC0086819	Brunswick County	Northeast Brunswick Regional WWTP	Leland	Brunswick
WIRO	NC0086975	Carteret County	Laurel Road WTP	Beaufort	Carteret
WIRO	NC0087947	Columbus County Committee Of 100	Columbus County WWTP	Whiteville	Columbus
WIRO	NC0088307	New Hanover County Water & Sewer Distr	New Hanover County WTP and Well Fie	Wilmington	New Hanover
WIRO	NC0088455	City of Jacksonville	City of Jacksonville Nanofiltration Water T	Jacksonville	Onslow
WSRO	NC0000019	United Chemi-Con Inc	United Chemi-Con, Inc.	Lansing	Ashe
WSRO	NC0000639	Sapona Manufacturing Company Inc	Sapona Manufacturing Company	Cedar Falls	Randolph
WSRO	NC0000795	Kinder Morgan Southeast Terminals LLC	Greensboro Terminal I	Greensboro	Guilford
WSRO	NC0001384	Tietex Interiors	Williamsburg Plant	Rocky Mount	Caswell
WSRO	NC0001643	Mgm Transport Inc	MGM Transport WWTP	Eden	Rockingham
WSRO	NC0002828	Ameri-Kart Corporation	Ameri-Kart / Reidsville	Reidsville	Rockingham
WSRO	NC0003441	Jps Elastomerics Corporation	Carolina Plant	Westfield	Stokes
WSRO	NC0003468	Duke Energy Carolinas LLC	Dan River Steam Station	Eden	Rockingham

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Region	Permit Number	Owner	Facility	City	County Name
WSRO	NC0003492	R J Reynolds Tobacco Company	Brook Cove facility	Walnut Cove	Stokes
WSRO	NC0003671	Magellan Terminals Holdings L P	Greensboro Terminal II	Greensboro	Guilford
WSRO	NC0004626	PPG Industries Fiber Glass Products Inc	PPG - Lexington Facility	Lexington	Davidson
WSRO	NC0005266	Louisiana Pacific Corporation	LP Roaring River WWTP	Roaring River	Wilkes
WSRO	NC0005312	Interface F A B R I C Elkin Inc	InterfaceFABRIC Elkin, Inc. WWTP	Elkin	Surry
WSRO	NC0006548	Wayne Farms LLC	Wayne Farms LLC - Dobson Plant	Dobson	Surry
WSRO	NC0007323	Town of Yanceyville	Yanceyville WTP	Yanceyville	Caswell
WSRO	NC0007820	Town of Franklinville	Franklinville WWTP	Franklinville	Randolph
WSRO	NC0020338	Town of Yadkinville	Yadkinville WWTP	Yadkinville	Yadkin
WSRO	NC0020451	Town of West Jefferson	West Jefferson WWTP	West Jefferson	Ashe
WSRO	NC0020567	Town of Elkin	Elkin WWTP	Elkin	Surry
WSRO	NC0020621	Town of Boone	Jimmy Smith WWTP	Boone	Watauga
WSRO	NC0020761	Town of North Wilkesboro	Thurman Street WWTP	North Wilkesboro	Wilkes
WSRO	NC0020931	Town of Boonville	Boonville WWTP	Boonville	Yadkin
WSRO	NC0021121	City Of Mount Airy	Mount Airy WWTP	Mount Airy	Surry
WSRO	NC0021211	City of Graham	Graham WWTP	Graham	Alamance
WSRO	NC0021326	Town of Dobson	Dobson WWTP	Dobson	Surry
WSRO	NC0021474	City of Mebane	Mebane WWTP	Mebane	Alamance
WSRO	NC0021491	Town of Mocksville	Dutchman's Creek WWTP	Mocksville	Davie
WSRO	NC0021580	Town of Jonesville	Jonesville WWTP	Jonesville	Yadkin
WSRO	NC0021709	Town of Jefferson	Jefferson WWTP	Jefferson	Ashe
WSRO	NC0021717	Town of Wilkesboro	Cub Creek WWTP	Wilkesboro	Wilkes
WSRO	NC0021873	Town of Mayodan	Mayodan WWTP	Mayodan	Rockingham
WSRO	NC0022098	Cranbrook Village Communities LLC	Cranbrook Village Communities WWTP	Greensboro	Guilford
WSRO	NC0022209	Motiva Enterprises LLC	Greensboro Terminal	Greensboro	Guilford
WSRO	NC0022691	Affordable Residential Communities	Autumn Forest WWTP	Browns Summit	Guilford
WSRO	NC0022730	Town of Beech Mountain	Grassy Gap Creek WWTP	Banner Elk	Watauga
WSRO	NC0023299	Affordable Residential Communities	Woodlake WWTP	Greensboro	Guilford
WSRO	NC0023604	Wilderness N C Inc	SFD/64 Lumber Plant	Lexington	Davidson
WSRO	NC0023868	City of Burlington	Eastside WWTP	Burlington	Alamance
WSRO	NC0023876	City of Burlington	Southside WWTP	Burlington	Alamance
WSRO	NC0024112	City of Thomasville	Hamby Creek WWTP	Thomasville	Davidson
WSRO	NC0024210	City of High Point	East Side WWTP	High Point	Guilford
WSRO	NC0024228	City of High Point	Westside WWTP	Thomasville	Davidson
WSRO	NC0024325	City of Greensboro	North Buffalo Creek WWTP	Greensboro	Guilford
WSRO	NC0024406	Duke Energy Carolinas LLC	Belews Creek Steam Station	Walnut Cove	Stokes
WSRO	NC0024872	Davie County Water System	Cooleemee WWTP	Cooleemee	Davie
WSRO	NC0024881	City of Reidsville	Reidsville WWTP	Reidsville	Rockingham
WSRO	NC0025071	City of Eden	Mebane Bridge WWTP	Eden	Rockingham
WSRO	NC0025151	City of Eden	Dry Creek WWTP	Eden	Rockingham
WSRO	NC0025445	City of Randleman	Randleman WWTP	Randleman	Randolph

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Region	Permit Number	Owner	Facility	City	County Name
WSRO	NC0025526	Town of Walnut Cove	Walnut Cove WWTP	Walnut Cove	Stokes
WSRO	NC0026123	City of Asheboro	Asheboro WWTP	Asheboro	Randolph
WSRO	NC0026247	TransMontaigne Product Services Inc	Southeast terminal	Greensboro	Guilford
WSRO	NC0026565	Town of Ramseur	Ramseur WWTP	Ramseur	Randolph
WSRO	NC0026646	Town of Pilot Mountain	Pilot Mountain WWTP	Pilot Mountain	Surry
WSRO	NC0026689	Town of Denton	Denton WWTP	Denton	Davidson
WSRO	NC0026913	Town of Sparta	Sparta WWTP	Sparta	Alleghany
WSRO	NC0027286	Town of Blowing Rock	Blowing Rock WWTP	Blowing Rock	Watauga
WSRO	NC0027944	Bassett Furniture Industries	Bassett Furniture Industries	Mount Airy	Surry
WSRO	NC0027987	Vulcan Construction Materials LP	Stoneville Quarry	Winston Salem	Rockingham
WSRO	NC0028037	City of Lexington	Lexington WTP #1 & 2	Lexington	Davidson
WSRO	NC0028614	NCDOT	I-77 Rest Area Yadkin County	Hamptonville	Yadkin
WSRO	NC0028746	Aqua North Carolina Inc	Briarwood Subdivision WWTP	Clemmons	Stokes
WSRO	NC0029190	NCDOT	Surry County Rest Area		Surry
WSRO	NC0029246	Norfolk Southern Railway Company	Linwood Yard	Linwood	Davidson
WSRO	NC0029599	Yadkin County Board of Education	Courtney Elementary School WWTP	Yadkinville	Yadkin
WSRO	NC0029602	Yadkin County Board of Education	Forbush Elementary School WWTP	East Bend	Yadkin
WSRO	NC0029611	Yadkin County Board of Education	East Bend Elementary School WWTP	East Bend	Yadkin
WSRO	NC0029726	NC Department of Correction	Guilford Correctional Center WWTP	Mc Leansville	Guilford
WSRO	NC0029947	Davidson County Schools	Churchland Elementary School WWTP	Lexington	Davidson
WSRO	NC0029980	Miller Breweries East Inc	Miller Breweries East	Eden	Rockingham
WSRO	NC0030180	NC Department of Correction	Blanch Youth Center WWTP	Blanch	Caswell
WSRO	NC0030325	Veolia Water North America Operating Se	Buffalo Meadows WWTP	West Jefferson	Ashe
WSRO	NC0030473	Mill Ridge Property Owners Association	Mill Ridge Development WWTP	Banner Elk	Watauga
WSRO	NC0030848	James Vannoy & Sons Construct	Jefferson Apparel Company WWTP	Jefferson	Ashe
WSRO	NC0031046	Colonial Pipeline Company	Greensboro Terminal	Greensboro	Guilford
WSRO	NC0031160	NCDENR (Division of Parks & Recreation)	Pilot Mountain State Park WWTF	Pinnacle	Surry
WSRO	NC0031607	Alamance-Burlington School System	Western Alamance Middle School	Elon College	Alamance
WSRO	NC0032123	Carolina Water Service Inc Of NC	Hound Ears WWTP	Boone	Watauga
WSRO	NC0032131	Tweetsie Railroad	Tweetsie Railroad	Blowing Rock	Watauga
WSRO	NC0032158	DOC LLC	Roaring River Chalets	Blowing Rock	Watauga
WSRO	NC0032166	Appalachian State University	Camp Broadstone WWTP	Banner Elk	Watauga
WSRO	NC0032182	Sunset Apartments	Sunset Apartments	Boone	Watauga
WSRO	NC0032191	Hebron Colony Ministries Inc	Hebron Colony & Grace Home WWTP	Boone	Watauga
WSRO	NC0032212	Water Quality Services	Yonahlossee WWTP	Boone	Watauga
WSRO	NC0033448	MS & SR Enterprises, LLC	Country House Village WWTP	Banner Elk	Watauga
WSRO	NC0034452	Aqua North Carolina Inc	Willow Creek WWTP	High Point	Davidson
WSRO	NC0034827	Forsyth County School System	Old Richmond Elementary School	Winston Salem	Forsyth
WSRO	NC0035149	Seven Devils Resort	Seven Devils Resort	Blowing Rock	Watauga
WSRO	NC0035173	KobeWieland Copper Products LLC	Kobewieland Copper Products	Pine Hall	Stokes
WSRO	NC0036242	Sofield's Children LTD Partnership DBA S	Woodland Hills Apartments WWTP	Boone	Watauga

Table 4 - NPDES Permit Holders: Names and Locations

Region	Permit Number	Owner	Facility	City	County Name
WSRO	NC0036561	United Church Retirement Home	United Church Retirement Home	Lexington	Davidson
WSRO	NC0037001	Rockingham County Board of Education	Bethany Elementary School	Reidsville	Rockingham
WSRO	NC0037311	Allegiance Healthcare Investors LLC	Creekside Manor Assisted Living	Kernersville	Forsyth
WSRO	NC0037834	City of Winston-Salem	Archie Elledge WWTP	Winston Salem	Forsyth
WSRO	NC0038041	PSI Properties Inc	Laurel Seasons WWTP	Boone	Watauga
WSRO	NC0038164	Guilford County Schools	Nathanael Greene Elementary School W	Liberty	Guilford
WSRO	NC0038709	Wilkes County Schools	Roaring River Elementary School	Roaring River	Wilkes
WSRO	NC0038822	Central Care Inc	Central Care WWTP	Mount Airy	Surry
WSRO	NC0038997	Roaring Gap Club Inc	Roaring Gap Club WWTP	Roaring Gap	Alleghany
WSRO	NC0039420	Virginia DOT	Virginia DOT/I-77 Rest Area	Pine Hall	Surry
WSRO	NC0039608	Sofield's Children LTD Partnership DBA S	Summit Woods Apartments WWTP	Blowing Rock	Watauga
WSRO	NC0040011	Town of Yanceyville	Yanceyville WWTP	Yanceyville	Caswell
WSRO	NC0040045	Bills Truck Stop Inc	Bill's Truck Stop WWTP	Linwood	Davidson
WSRO	NC0040908	Randolph County Board Of Education	Tabernacle Elementary School	Asheboro	Randolph
WSRO	NC0040924	Randolph County Board Of Education	Seagrove Elementary School	Seagrove	Randolph
WSRO	NC0040975	Randolph County Board Of Education	Coleridge Elementary School	Ramseur	Randolph
WSRO	NC0041483	Sunrise & Sons, LLC	Sunrise Park	Greensboro	Guilford
WSRO	NC0041599	Davidson County Schools	Central Middle & Senior High School WV	Lexington	Davidson
WSRO	NC0041602	Davidson County Schools	Silver Valley Elementary School WWTP	Lexington	Davidson
WSRO	NC0041629	Davidson County Schools	Extended Day School WWTP	Lexington	Davidson
WSRO	NC0041866	Surry County Schools	Mountain Park Elementary	State Road	Surry
WSRO	NC0041939	Surry County Schools	J. Sam Gentry Middle School	Mount Airy	Surry
WSRO	NC0041947	Surry County Schools	North Surry High School	Mount Airy	Surry
WSRO	NC0041955	Surry County	Beulah Community Center	Mount Airy	Surry
WSRO	NC0042145	Davidson County Schools	Midway Elementary School WWTP	Lexington	Davidson
WSRO	NC0042501	Kinder Morgan Southeast Terminals LLC	Greensboro Terminal	Winston Salem	Guilford
WSRO	NC0042528	B Everett Jordan & Son-1927 LLC	B Everett Jordan 1927 LLC	Saxapahaw	Alamance
WSRO	NC0042749	Davidson County Schools	Southwood Elementary School WWTP	Lexington	Davidson
WSRO	NC0043290	Town of Danbury	Danbury WTP	Danbury	Stokes
WSRO	NC0044211	Brintle Enterprises	Brintles Truck Stop	Mount Airy	Surry
WSRO	NC0044423	Appalachian State University	Appalachian State WTP	Boone	Watauga
WSRO	NC0044750	Britthaven Of Madison	Britthaven of Madison WWTP	Madison	Rockingham
WSRO	NC0044954	Stokes County Schools	South Stokes High School	Walnut Cove	Stokes
WSRO	NC0044962	Stokes County Schools	North Stokes High School	Danbury	Stokes
WSRO	NC0045128	Alamance-Burlington School System	Sylvan Elementary School	Snow Camp	Alamance
WSRO	NC0045144	Alamance-Burlington School System	Western Alamance High School	Elon College	Alamance
WSRO	NC0045152	Alamance-Burlington School System	Jordan Elementary School	Graham	Alamance
WSRO	NC0045161	Alamance-Burlington School System	Altamahaw/Ossipee Elementary School	Elon College	Alamance
WSRO	NC0045292	City of Graham	Graham / Mebane WTP	Mebane	Alamance
WSRO	NC0046019	NCDENR (Division of Parks & Recreation)	The Summit at Haw River State Park WV	Browns Summit	Rockingham
WSRO	NC0046035	High Point Healthcare, Inc.	High Point Healthcare	High Point	Forsyth

Table 4 - NPDES Permit Holders: Names and Locations

Region	Permit Number	Owner	Facility	City	County Name
WSRO	NC0046043	Oak Ridge Military Academy	Oak Ridge Military Academy	Oak Ridge	Guilford
WSRO	NC0046302	Town of Mayodan	Mayodan WTP	Mayodan	Rockingham
WSRO	NC0046345	City of Reidsville	Reidsville WTP	Reidsville	Rockingham
WSRO	NC0046388	Wilkes County Schools	East Wilkes High School WWTP	Ronda	Wilkes
WSRO	NC0046418	Wilkes County Schools	Mountain View Elementary School	Hays	Wilkes
WSRO	NC0046426	Wilkes County Schools	Traphill Elementary School WWTP	Traphill	Wilkes
WSRO	NC0046809	Pentecostal Holiness Church	Western NC Conference Center WWTP	Browns Summit	Guilford
WSRO	NC0047384	City of Greensboro	T.Z. Osborne WWTP	Mc Leansville	Guilford
WSRO	NC0049174	Smoketree Lodge	Smoketree Lodge	Banner Elk	Watauga
WSRO	NC0050342	City of Winston-Salem	Muddy Creek WWTP	Winston Salem	Forsyth
WSRO	NC0050610	Water Quality Utilities	The Ponds WWTP	Banner Elk	Watauga
WSRO	NC0050792	Aqua North Carolina Inc	Melbille Heights WWTP	Asheboro	Randolph
WSRO	NC0050903	Town of Mocksville	Bear Creek WWTP	Mocksville	Davie
WSRO	NC0051161	Plantation Pipe Line Company	Greensboro Petroleum Breakout Facility	Greensboro	Guilford
WSRO	NC0051489	Three R's Mobile Home Park	Three R's Mobile Home Park	Winston Salem	Forsyth
WSRO	NC0051713	Shoreline LLC	Lakeview Mobile Home Park	High Point	Forsyth
WSRO	NC0055158	Town of Bermuda Run	Bermuda Run WWTP	Advance	Davie
WSRO	NC0055191	Aqua North Carolina Inc	Penman Heights WWTP	High Point	Randolph
WSRO	NC0055212	Auman's Mobile Home Park LLC	Auman's Mobile Home Park WWTP	High Point	Forsyth
WSRO	NC0055255		Crown Mobile Home Park WWTP	Greensboro	Guilford
WSRO	NC0055271	Shields Mobile Home Park	Shields Mobile Home Park	Elon College	Alamance
WSRO	NC0055590	Town of Wilkesboro	Wilkesboro WTP	Wilkesboro	Wilkes
WSRO	NC0055786	City of Lexington	Lexington Regional WWTP	Lexington	Davidson
WSRO	NC0055913	Monroe's Mobile Home Park	Monroe's Mobile Home Park WWTP	Browns Summit	Guilford
WSRO	NC0056201	Countryside LLC	Countryside Mobile Home Park WWTP	Sophia	Randolph
WSRO	NC0056791	Horizons Residential Care Center	Horizons Residential Care Center	Rural Hall	Forsyth
WSRO	NC0057223	Head Mobile Home Park	Head Mobile Home Park	Winston Salem	Forsyth
WSRO	NC0057720	John Henry Spainhour	Hidden Lakes Village, LLC	King	Stokes
WSRO	NC0058815	Hope Valley Inc	Hope Valley WWTP	Dobson	Surry
WSRO	NC0058891	Hawksnest Utilities	Valley Creek WWTP	Banner Elk	Watauga
WSRO	NC0059218	Captain Stevens Seafood Restaurant	Captain Stevens Seafood Restaurant	Lexington	Davidson
WSRO	NC0059251	Lee Simaan	Quail Acres Mobile Home Park	Stokesdale	Rockingham
WSRO	NC0059536	Hilltop Living Center	Hilltop Living Center	Linwood	Davidson
WSRO	NC0059625	South Saxapahaw Home Owners	South Saxapahaw WTP	Saxapahaw	Alamance
WSRO	NC0060259	Willow Oak LLC	Willow Oak Mobile Home Park	Reidsville	Rockingham
WSRO	NC0060461	Carolina Water Service Inc Of NC	Abington WWTP	Winston Salem	Forsyth
WSRO	NC0060542	Gold Hill Mobile Home Park	Gold Hill Mobile Home Park	Stokesdale	Rockingham
WSRO	NC0060623	Sterling A Weaver	Stone Highway Mobile Home Park	Eden	Rockingham
WSRO	NC0060691	Blyth Homescents International	Blyth Homescents International	Elkin	Surry
WSRO	NC0061204	Scarlett Acres Mobile Home Park	Scarlett Acres MHP WWTP	Walkertown	Forsyth
WSRO	NC0061425	Water Quality Services	Willow Valley Resort WWTP	Boone	Watauga

Table 4 - NPDES Permit Holders: Names and Locations

Region	Permit Number	Owner	Facility	City	County Name
WSRO	NC0061808	Yoco Inc	Neighbors Fuel Center #12	Mount Airy	Surry
WSRO	NC0063720	Aqua North Carolina Inc	Forest Ridge WWTP	Clemmons	Forsyth
WSRO	NC0064726	Town of East Bend	East Bend Industrial Park WWTP	East Bend	Yadkin
WSRO	NC0065358	Hidden Forest Manufactured Home Comm	Hidden Forest Mobile Home Park WWTF	Pleasant Garden	Randolph
WSRO	NC0065412	Rea Enterprises Inc	Pleasant Ridge WWTP	Reidsville	Rockingham
WSRO	NC0065587	Aqua North Carolina Inc	Frye Bridge WWTP	Clemmons	Forsyth
WSRO	NC0065617	Hidden Valley Inc	Hidden Valley WWTP	Boone	Watauga
WSRO	NC0066028	Town of Lansing	Lansing WWTP	Lansing	Ashe
WSRO	NC0066966	Quarterstone Farm Association Inc	Quarterstone Farm WWTP	Greensboro	Guilford
WSRO	NC0066991	Watauga County Board of Education	Bethel Elementary School	Sugar Grove	Watauga
WSRO	NC0067008	Watauga County Commission	Old Cove Creek School	Sugar Grove	Watauga
WSRO	NC0067016	Watauga County Board of Education	Parkway Elementary School	Boone	Watauga
WSRO	NC0067024	Watauga County Board of Education	Valle Crucis Elementary School	Valle Crucis	Watauga
WSRO	NC0067091	Aqua North Carolina Inc	Mikkola Downs Subdivision WWTP	Harrisburg	Forsyth
WSRO	NC0068365	Town of Pilot Mountain	Pilot Mountain WTP	Pilot Mountain	Surry
WSRO	NC0068543	Davis Davis & Dodson LLC	Mountain Home Assisted Living	Wilkesboro	Wilkes
WSRO	NC0069256	TransMontaigne Product Services Inc	Greensboro Terminal	Greensboro	Guilford
WSRO	NC0069761	Town of Beech Mountain	Pond Creek WWTP	Banner Elk	Watauga
WSRO	NC0070033	Quail Run Mobile Home Park	Quail Run Mobile Home Park	Winston Salem	Davidson
WSRO	NC0070408	Clevon Woods Association	Art Plaza WWTP	Boone	Watauga
WSRO	NC0070459	Yadkin County Board of Education	Starmount High School WWTP	Boonville	Yadkin
WSRO	NC0070637	Kurz & Partners, L.P.	Kurz Transfer Products	Lexington	Davidson
WSRO	NC0071463	Apex Oil Company	Apex Oil Company	Greensboro	Guilford
WSRO	NC0071773	Yadkin County Board of Education	Forbush High School WWTP	East Bend	Yadkin
WSRO	NC0072559	Valle Landing Property Owners Associatio	Valle Landing Shopping Center WWTP	Boone	Watauga
WSRO	NC0073571	Mervyn R King	Countryside Manor WWTP	Stokesdale	Guilford
WSRO	NC0073822	NCDOT	Surry County Office	Dobson	Surry
WSRO	NC0074241	Associated Asphalt Greensboro Inc	AA Greensboro terminal	Greensboro	Guilford
WSRO	NC0074454	Town of Ramseur	Ramseur WTP	Franklinville	Randolph
WSRO	NC0074578	Magellan Terminals Holdings L P	Greensboro Terminal I	Greensboro	Guilford
WSRO	NC0075027	Cains Way Homeowners Association	Cains Way Mobile Home Park	Walkertown	Forsyth
WSRO	NC0075078	Wilkes County Airport	Wilkes County Airport	North Wilkesboro	Wilkes
WSRO	NC0076066	Wilkes County Schools	North Wilkes High School WWTP	Hays	Wilkes
WSRO	NC0076287	Randolph County Board Of Education	Farmer Elementary School	Asheboro	Randolph
WSRO	NC0077135	Curl Modular Homes	Hidden Valley WWTP	Reidsville	Rockingham
WSRO	NC0077968	Tim Horner	Horners Mobile Home Park	Osipee	Alamance
WSRO	NC0078000	Brenntag Southeast Inc	Brenntag / Greensboro remediation	Greensboro	Guilford
WSRO	NC0078115	Aqua North Carolina Inc	Greystone Subdivision WWTP	Harrisburg	Forsyth
WSRO	NC0078140	Northwest Textile Inc	Ronda Industrial Park WWTP	Ronda	Wilkes
WSRO	NC0078158	Aqua North Carolina Inc	Olde Beau Golf Club WWTP	Roaring Gap	Alleghany
WSRO	NC0078271	NC State University	Betsy Jeff Penn 4H Education	Reidsville	Rockingham

Table 4 - NPDES Permit Holders: Names and Locations

Region	Permit Number	Owner	Facility	City	County Name
WSRO	NC0079049	R H Johnson Construction Company	R.H. Johnson Construction WWTP	Rural Hall	Forsyth
WSRO	NC0079260	Town of Yadkinville	Yadkinville WTP	Yadkinville	Yadkin
WSRO	NC0079821	City of Winston-Salem	RA Thomas WTP	Winston Salem	Forsyth
WSRO	NC0080748	Precision Fibers	Ronda Plant	Ronda	Wilkes
WSRO	NC0080853	Lucent Technologies Inc	Salem Business Park remediation site	Winston Salem	Forsyth
WSRO	NC0081256	City of High Point	Frank L. Ward WTP	High Point	Guilford
WSRO	NC0081426	City of Greensboro	N.L. Mitchell WTP	Greensboro	Guilford
WSRO	NC0081671	City of Greensboro	Lake Townsend WTP	Greensboro	Guilford
WSRO	NC0082384	Stokes County	Danbury WWTP	Danbury	Stokes
WSRO	NC0082949	Town of Denton	Denton WTP	Denton	Davidson
WSRO	NC0083291	Reddies River Water Works	Reddies River WTP	North Wilkesboro	Wilkes
WSRO	NC0083470	Town of Jefferson	Jefferson WTP	Jefferson	Ashe
WSRO	NC0083828	City of Burlington	J.D. Mackintosh, Jr. WTP	Burlington	Alamance
WSRO	NC0083925	Heater Utilities Inc	Salem Glen Subdivision WWTP	Clemmons	Davidson
WSRO	NC0083933	Heater Utilities Inc	Salem Quarters WWTP	Winston Salem	Forsyth
WSRO	NC0083941	Heater Utilities Inc	Spring Creek WWTP	Winston Salem	Davidson
WSRO	NC0084077	Hancock Country Hams Inc	Hancock remediation site	Franklinville	Randolph
WSRO	NC0084212	Davie County	Sparks Road WTP	Mocksville	Davie
WSRO	NC0084409	Heater Utilities Inc	Wellesley Place WWTP	Lewisville	Forsyth
WSRO	NC0084425	Davidson Water Inc	Davidson Water WTP	Lexington	Davidson
WSRO	NC0084492	Cemex Construction Materials L P	CEMEX Construction Materials / Colfax	Colfax	Guilford
WSRO	NC0084786	Furniture Illustrators Inc	Furniture Illustrators WWTP	Trinity	Randolph
WSRO	NC0084816	Thomasville Furniture Industries, Inc.	Hooker Furniture plant	Pleasant Garden	Guilford
WSRO	NC0084832		Nikolas' Restaurant & High Meadow Inn	Roaring Gap	Alleghany
WSRO	NC0085189	Virginia H Doyle	Jose's Restaurant WWTP	Stoneville	Rockingham
WSRO	NC0085626	Town of Madison	Madison WTP	Madison	Rockingham
WSRO	NC0085871	Flakt Products Inc	Flakt Products remediation site	Winston Salem	Forsyth
WSRO	NC0086011	City of Winston-Salem	Neilson WTP	Clemmons	Forsyth
WSRO	NC0086029	Trinity American Corp	Glenola remediation site	High Point	Randolph
WSRO	NC0086665	Duke Energy Carolinas LLC	Rockingham County Combustion Turbine	Reidsville	Rockingham
WSRO	NC0086762	City of Winston-Salem	Northwest WTP	Winston Salem	Forsyth
WSRO	NC0086983	Caswell County Schools	South Elementary WTP	Mebane	Caswell
WSRO	NC0087645	Town of Milton	Milton WWTP	Milton	Caswell
WSRO	NC0087866	Piedmont Triad Regional Water Authority	Randleman Lake WTP	Randleman	Randolph
WSRO	NC0087921	Crown Endeavors LLC	Green Valley Townhomes	Boone	Watauga
WSRO	NC0087963		Buckeye Creek WWTP	Blowing Rock	Watauga
WSRO	NC0087980	Stokes County Schools	Pine Hall Elementary School WWTP	Pine Hall	Stokes
WSRO	NC0088099	Town of Beech Mountain	Buckeye WTP	Beech Mountain	Watauga
WSRO	NC0088170	Laurel Mountain Builders LP	Whispering Streams WWTP	Fleetwood	Ashe
WSRO	NC0088200	City of Thomasville	City of Thomasville WTP	Thomasville	Davidson
WSRO	NC0088242	Taylor & McChesney LLC	Conrad Farm WWTP	Lewisville	Forsyth

Table 4 - NPDES Permit Holders: Names and Locations

Region	Permit Number	Owner	Facility	City	County Name
WSRO	NC0088315	Gatekeeper Group	Deep Gap Development	Blowing Rock	Watauga
Count:	1313				

ADDENDUM

The following is provided to support the information in the above status report.

- The Division of Water Quality does not have the data or management system in place to currently track information on the number of violations found during each inspection, the date of the violation, or the nature of the violation. A Basinwide Information Management System is, however, under development to address these needs. Funding has been allocated for the initial development phase. Completion of the system will require further funding. Therefore, at this time, the Division is unable to provide such information as requested in the amended G.S. 143-215.9A(a)(3).
- As found in Table 2, "Other Inspections" include:
  - **Audit Inspections**, a comprehensive review of all elements of a municipal's pretreatment program including a records review & an inspection of an industrial facility conducted once every 5 years;
  - **Bioassay Compliance Inspections**, evaluates the biological effect of a permittee's effluent discharge on test organisms using acute and chronic toxicity testing;
  - **Compliance Sampling Inspections**, a sampling inspection designed to verify the permittee's compliance with applicable permit self-monitoring requirements -- analytical results from representative samples collected during the inspection are used to evaluate the permittee's compliance;
  - **Diagnostic Inspections**, focuses on Publicly Owned Treatment Works that have not achieved permit compliance – the purpose is to identify the causes of noncompliance, suggest immediate remedies, and support current or future enforcement action;
  - **Operation & Maintenance Inspections**, focuses on the operation and maintenance aspect of a facility;
  - **Performance Audit Inspections**, inspections that include actual observation of the permittee performing the self-monitoring process from sample collection and flow measurements through laboratory analyses, data work-up and reporting;
  - **Pre-Treatment Inspections**, an annual inspection of a municipal's pretreatment program; and
  - **Toxicity Sampling Inspections**, same as CSI – however, increased emphasis is placed on toxic substances regulated by the NPDES Permit.
- Effective July 1, 1998, the Director of the Division of Water Quality delegated each Regional Water Quality Supervisor the authority to sign all Civil Penalty Assessments for fast-track enforcement actions for violations of NPDES Permit effluent limits and/or monitoring frequencies in accordance with NCGS 143-215.6A.
- As found in Table 1, "Other Permit Condition Violations" may include
  - discharge violations (resulting from collection system overflows);
  - submitting late Discharge Monitoring Reports;
  - submitting late Toxicity Tests; and
  - permit condition violations (examples, violations of pre-treatment program, improper operation & maintenance of treatment works, or by-pass of treatment works)
- Due to the length of the post assessment process, total civil penalties assessed and total civil penalties collected will not coincide.

Exhibit H

North Carolina Department of Environment and Natural Resources
Division of Soil and Water Conservation

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Manly S. Wilder, Director

NCDENR

TO: Senator Charles Albertson
Senator Dan Clodfelter
Representative Pryor Gibson
Chairs, Environmental Review Commission

FROM: Manly S. Wilder
Director, Division of Soil and Water Conservation

DATE: Tuesday, April 10, 2007

RE: Annual Report on Pilot Program for Inspections of Animal Waste Management Systems

SECTION 12.7. (b) Section 3.3 of S.L. 1999-329, as amended by Section 6 of S.L. 2001-254, Section 1.2 of S.L. 2002-176, and Section 6.2 of S.L. 2003-340, requires the Department of Environment and Natural Resources, in consultation with both the Division of Water Quality and the Division of Soil and Water Conservation, to submit semiannual interim reports no later than April 15 and October 15 of each year beginning October 15, 1999, to the Environmental Review Commission, the Fiscal Research Division, and the Appropriations Subcommittees on Natural and Economic Resources in both the Senate and the House of Representatives.

If you have any questions regarding this report, please contact Patricia Harris, technical engineer with the N.C. Division of Soil and Water Conservation's Operation Review Team, at (252) 946-6481.

Attachment

cc: Asst. Secretary Richard Rogers
Asst. Secretary Robin Smith
George F. Givens

Pilot Program for Inspections of Animal Waste Management Systems

2007 Annual Report
For Calendar Year 2006

N.C. Division of Soil and Water Conservation

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EXECUTIVE SUMMARY

From 1999 through 2006, the pilot program has collected data from 2,720 documented site visit reports to 167 permitted animal operations in Brunswick, Columbus, Jones and Pender Counties. The Division of Soil and Water Conservation (DSWC) staff has used this data to study and better understand the factors that influence compliance and affect the potential for environmental impact by animal waste management systems. For 2006, DSWC experienced or observed the following:

- Weather had a significant negative influence on overall compliance by pilot farms in the second half of 2006. (p. 9, p.11)
- The percentage of pilot farms categorized into the potential *low impact* category decreased from 96% in 2005 to 92% in 2006. (Fig. B, p.10)
- A higher percentage of noncompliance incidents were noted on pilot farms versus non-pilot farms in the 28 eastern counties of North Carolina. (p. 8)
- Pilot farms are more likely to report noncompliance. (p. 8)
- Overall, the percentage of farms documented with "immediate threat" problems such as waste discharges to state surface waters and waste levels within structural freeboard is greater for pilot farms versus non-pilot farms in the 28 eastern counties. (p. 9)
- Fourteen farms were categorized as potential high impact to the environment due to documented noncompliance performance. Eight of these farms are new to the program and located in Pender County. Five of the six remaining farms had documented non-compliance histories as potential high impact farms prior to 2006. (p. 10)
- DSWC *per-visit* costs continue to be less for pilot farms when compared to non-pilot farms. (Tab. 4, p.12)
- DSWC *per-farm* costs are higher for pilot farms than non-pilot farms due to increased frequency of site visits. (Tab. 4, p.12)

BACKGROUND

The objective of the Animal Waste Management Inspection Pilot (hereinafter the pilot), and in accordance with Section 12.7(b) of S.L. 2005-276, is to determine how DSWC staff can respond more quickly and effectively, with technical assistance, to complaints and problems to help farms achieve compliance with environmental regulations. In addition, the program allows Department of Environment and Natural Resources (DENR) staff to test approaches for earlier identification of problems, and to target DENR's resources for expediting corrective actions.

The pilot differs from the state's traditional animal inspections program in that DSWC staff conducts annual *routine* compliance inspections, in addition to performing *routine* operation reviews of all permitted livestock operations in Brunswick, Columbus, Jones and Pender counties. DWQ staff provides regulatory oversight, performs compliance audits with DSWC staff of "targeted" potential high environmental impact farms, responds to DSWC referrals and conducts additional compliance inspections for further investigation and enforcement actions as warranted.

Currently there are 166 swine farms and one horse farm in the pilot area with 95 farms operating under a National Pollutant Discharge Elimination System (NPDES) general permit and 72 farms operating under a State Non-discharge (State) general permit. This number of farms in the pilot area increased by 37% from 2005, due to the inclusion of Pender County into the program.

The pilot program is currently scheduled to end September 1, 2007.

Precipitation

As stated in earlier pilot reports, annual precipitation amounts and events have the biggest impact on compliance performance by farms in the pilot program area. Animal waste management systems, including anaerobic lagoons and waste storage ponds, are generally designed to store one 25-year, 24-hour storm event (ranges 7 to 8 inches in pilot area); 180 days of excess rainfall over evaporation based on historical averages; wash water and animal waste. Heavy precipitation amounts greater than historical average, and/or periods of prolonged precipitation can drastically decrease the storage capacity of the waste system. In addition, the waste system's capacity to land apply waste to receiving crops is also diminished due to wet or frozen soil conditions, wind, and/or availability of adequate crops to utilize the nutrients in the waste.

2006 proved challenging for pilot farms in the coastal counties because precipitation during the first half of the year was 4¾ inches *below* normal, while precipitation during the second half was 10½ inches *above* normal. Overall, pilot counties received two-thirds of its annual precipitation amount from July through December. Based on

historical averages, the pilot area would expect to receive only 55% of its annual precipitation during the second half of the calendar year.

Figure A reflects the uneven monthly precipitation distribution for 2006 within the pilot counties. (See the ***Appendix*** at the end of the report for monthly and annual climate data results.) Higher than normal precipitation received in September was a direct result of Tropical Storm Ernesto as reported in the *2006 Semiannual ERC Report.* Otherwise, North Carolina was fortunate in that the state did not experience a direct hit from a hurricane in 2006, despite earlier predictions.

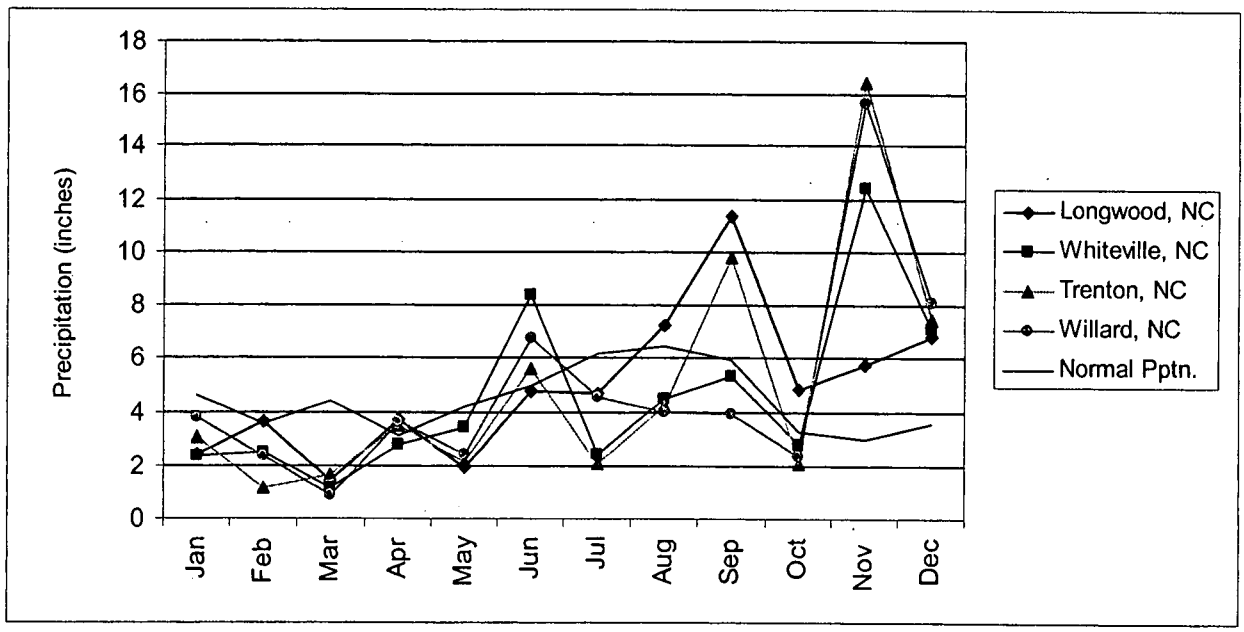


Figure A. 2006 monthly precipitation amounts measured at weather stations located within the four pilot counties. The normal monthly precipitation for the these weather stations is a statistically adjusted 30-year average officially published by the National Oceanic and Atmospheric Administration every ten years. *Source: State Climate Office of North Carolina.*

Based on earlier pilot reports, one could anticipate noncompliance trends of specific operational indicators would increase during the second half of 2006, based on climatic conditions and precipitation amounts.

Categorizing Farms into Environmental Impact Groups

For 2006, DSWC staff continued to use the environmental scale, first described in the May 21, 2002 Addendum ERC Report, and modified in 2005 (due to implementation of the DWQ's *Basinwide Implementation Management System* database known as BIMS) to separate pilot animal operations based on their compliance performance and relative potential for environmental impact. DSWC, DWQ and Soil and Water Conservation District (SWCD) field staff continued to use one standard inspection form with the

collected data entered into BIMS. The pilot's operational indicators and problem parameters were queried and assessed from these documented site visits.

Table 1 lists the operational indicators used to assess animal waste management systems' performance on the pilot farms, with assigned points to reflect the degree of "immediate" or "potential" threat a specific compliance deficiency would have to the environment. The 15 indicators and relative point values remain unchanged from last annual pilot program report.

Operational Indicators	Point Value
Offsite discharge	20
Structural integrity compromised	18
Waste in structural freeboard range	16
Hydraulic overloading	15
Nitrogen over-applied ≥ 10%	12
Waste level in storm storage	11
Irrigation system maintenance deficiency	11
Structural maintenance deficiency	10
Receiving crop inconsistent with waste plan	10
Irrigation records deficient	10
Lagoon level records deficient	9
Nitrogen over-applied <10%	8
Receiving crop/sprayfield needs improvement	8
Waste analysis deficient	8
Soil analysis deficient	7

Table 1. Operational indicators observed and recorded by DSWC and DWQ staff during site inspections. Items in italics represent "immediate threat" indicators.

As in previous years, pilot farms were scored by the noncompliance points received for those operational indicators noted during each site visit, and ranked by the total points received for all site visits in 2006. The farms were then categorized into three potential impact groupings based on their total noncompliance scores. See ***Table 2.*** Point ranges for these groupings were determined from farm performance in 2000, and remains unchanged through 2006.

Potential Impact Group	Noncompliance points
Low environmental impact	0 – 12 points per year
Medium environmental impact	13 – 30 points per year
High environmental impact	31 or more points per year

Table 2. Potential environmental impact groupings and corresponding noncompliance point ranges.

Using the pilot's established inspection protocol, farms in the low and medium environmental impact groups were determined to be responsive to technical assistance and subject to continued *routine* operation reviews and compliance inspections by DSWC staff in 2007. Farms scoring in the high impact group are subject to a joint audit by DSWC and DWQ staff for more comprehensive evaluations. If an audit reveals that the farm is noncompliant with regulations and poses a high potential for environmental impact, DWQ staff assumes full responsibility for the routine inspection of this operation until an acceptable level of compliance is achieved.

DSWC staff feels this is the best approach to inspection because both divisions can apply their respective technical and regulatory resources more effectively and efficiently based on lessons learned from the pilot program. By working together in the pilot, DSWC and DWQ staff has improved communications between the divisions and between DENR and individual livestock producers. Participants continue to voice support for the program and cite consistency, improved communication and focused technical assistance as program benefits needed for compliance.

2006 PROGRAM FINDINGS

Base Data for Pilot

2006 activity, both in and out of the pilot area, is reflected in the following data queried from BIMS:

- Statewide, 2,496 animal operations were subject to permitting and inspection.
- Statewide, DENR staff conducted 5,059 site visits (2,631 by DSWC & SWCD and 2,428 by DWQ).
- In the pilot area of Brunswick, Columbus, Jones and Pender counties, 167 animal operations were subject to permitting and inspection.
- In the pilot area, DENR staff conducted 413 site visits (385 by DSWC and 28 by DWQ).

Compliance Trends

For this report, DSWC examined various reporting tools to determine if pilot farms have better compliance trends than for all farms located within the 28 eastern counties covered by DENR's Washington and Wilmington regional staff.

First, DSWC queried all incident reports logged into the BIMS database between January 1, 2006 through December 31, 2006 for all farms located within DENR's Washington and Wilmington regions. A total of 294 incident reports for animal operations were logged with 28% of the reports originating from pilot farms primarily in Jones and Pender Counties. DSWC staff feels the higher percentage of incidents in the pilot counties is not caused by increased noncompliance but by a combination of the following:

- Direct rainfall and flooding impacts of Tropical Storm Ernesto on August 31 and September 1. (See 2006 Semiannual Pilot Program Report to ERC.)
- Consistency of information and expectations between producers and DSWC staff. Pilot farms are more likely to report noncompliance (82% of the 2006 pilot farm incidents were in the "reported noncompliance" category).
- Better awareness of potential problems by DSWC staff due to increased site visits.
- Heightened surveillance by DSWC staff in pilot area.
- Improved, consistent and uniform approach by DSWC and DWQ staff when dealing with noncompliance performance.

81% of the 294 incident reports in the DENR's Washington and Wilmington regions noted noncompliance started during the second half of 2006, and directly correlates with the 2006 precipitation distribution pattern.

Next, DSWC compared 2006 site visit findings between pilot and non-pilot farms located within the DENR Washington and Wilmington regions. Based on site visit reports in BIMS and the DWQ Year-To-Date Data Report dated 3.7.07, the following items were observed:

- Onsite discharges noted in 1% of pilot farm reports versus 0.4% of non-pilot farm reports.
- Discharges reaching surface waters noted in 1% of pilot farm reports versus 0.1% of non-pilot farm reports.
- Inadequate freeboard noted in 15% of pilot farm reports versus 3% of non-pilot farm reports.
- Freeboard noted less than one foot (within structural freeboard) noted in 4% of pilot farm reports versus 0.8% of non-pilot farm reports.

It should be noted that duplications are included in the pilot area site visit findings because when DSWC and DWQ staff inspects a farm jointly, each division is required to enter a report into BIMS for the same site visit. This double reporting causes noted deficiencies to be counted and scored twice, thus increasing the rate of occurrence for any given operational indictor.

Farm Performance Within the Pilot Program Area

In ***Figure B***, pilot farms are grouped by their environmental impact scores, and shown as a percentage of the total number of pilot farms in operation within a given year.

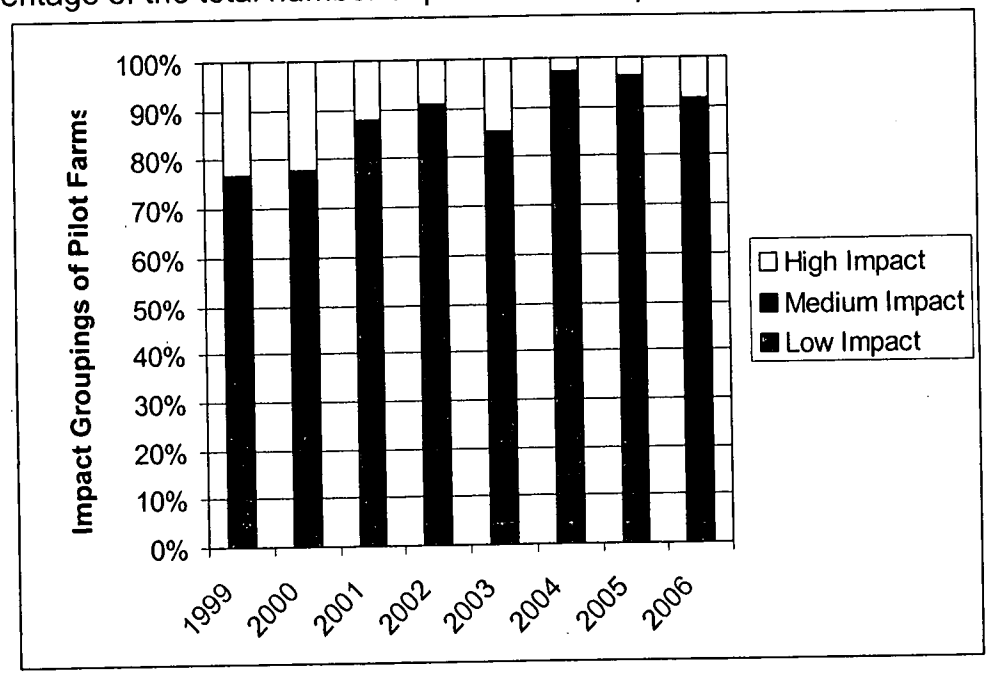


Figure B. Pilot farms grouped into environmental impact categories.

In 2006, 92% of the pilot farms were categorized in either the low or medium impact groups. This is a 4% decrease from 2005 findings and is contributed to the addition of Pender County and above-average precipitation amounts ranging from 3+ inches in Brunswick to almost 6 inches in Jones County. See appendix for additional precipitation information.

Based on 2006 compliance performance, 14 farms were identified as potential high impact farms. Of the six farms identified in Columbus and Jones counties, five farms had been identified as potential high impact in previous years. The remaining eight farms are located in Pender County and do not have previous environmental impact ratings within the pilot program. The 14 potential high impact farms are scheduled for compliance audits by DSWC and DWQ staff during the first half of 2007.

As previously mentioned, noncompliance trends were noted primarily in the second half of 2006 due to climatic impacts. This observation is evident in several "immediate threat" and "potential threat" operational indicators listed in Table 3 comparing the "Frequency of Occurrence" for a DENR inspector to find a specific operational indicator during a site visit to a pilot farm.

Operational Indicator	Jan-June	July-Dec
Offsite discharge	0	1%
Structural integrity compromised	0	3%
Waste in structural freeboard range	0	4%
Hydraulic overloading or ponding	0	3%
Nitrogen over-applied ≥ 10%	0	0
Waste level in storm storage	2%	9%
Irrigation system maintenance deficiency	0	0
Structural maintenance deficiency	3%	3%
Receiving crop inconsistent with waste plan	0.5%	0.5%
Irrigation records deficient	0.2%	0.2%
Waste level records deficient	1%	3%
Receiving crop/application field deficient	3%	4%
Waste analysis deficient	0.5%	0
Soil analysis deficient	1%	0

Table 3. "Frequency of Occurrence" for finding an operational indicator on a pilot farm during either the first or second half of the 2006 calendar year. Items in italics represent "immediate threat" indicators.

Focus Group Activities

Local Focus Groups did not meet during the 2006 calendar year. DSWC resources were redirected towards implementing the pilot program in Pender County while maintaining the program in Brunswick, Columbus and Jones counties. DSWC employed and provided training for an additional Environmental Specialist to work with the livestock producers in Pender County. This employee is a technical specialist designated by the Soil and Water Conservation Commission as required by § 143-215.10D.

COST & LABOR COMPARISONS

Cost and labor comparisons are reported for DSWC operation review staff only and based on an operating cost of $28.15 per hour in 2006, up from the 2005 cost of $26.93 per hour. DSWC's hourly operating cost is the same for pilot and non-pilot farms alike. As previously reported, differences between pilot versus non-pilot costs arise as a result of the frequency and duration of site visits.

Table 4 reflects key cost and labor comparisons. The DSWC's *per-visit costs continue to remain less* for pilot farms than non-pilot farms. Conversely, DSWC's *per-farm costs continue to be higher* in the pilot program, and are a direct function of the higher frequency of site visits made to pilot farms.

Pilot Farms	Non-pilot farms
$162 per DSWC visit	$210 per DSWC visit
2.3 visits per farm	1 visit per farm
13.3 hours total per farm	7.6 hours total per farm
$375 per farm	$214 per farm

Table 4. Key Comparisons for 2006

2006 MONTHLY CLIMATE DATA RESULTS (SUM OF DAILY PRECIPITATION)
Information Provided by the State Climate Office of North Carolina
Compiled February 20, 2007

NAME	STATION	Data Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sums	Deviation
Longwood, NC	315116	Actual	2.44	3.59	1.45	3.70	1.89	4.73	4.65	7.21	11.31	4.83	5.77	6.80	58.37	3.43
(Brunswick Co.)		Normal	4.66	3.57	4.14	3.06	4.09	5.21	5.76	7.42	6.73	3.45	3.06	3.79	54.94	
Whiteville, NC	319357	Actual	2.36	2.51	1.13	2.73	3.41	8.35	2.42	4.48	5.31	2.76	12.37	7.12	54.95	4.73
(Columbus Co.)		Normal	4.37	3.41	4.49	2.94	4.54	4.69	5.64	5.65	5.44	2.99	2.79	3.27	50.22	
Trenton, NC	318706	Actual	3.08	1.15	1.61	3.45	2.14	5.59	2.08	4.19	9.77	2.02	16.46	7.45	58.99	5.97
(Jones Co.)		Normal	4.77	3.57	4.41	3.48	4.12	4.89	6.22	6.12	5.51	3.36	2.93	3.64	53.02	
Willard, NC	319423	Actual	3.75	2.32	0.83	3.63	2.41	6.73	4.54	3.98	3.88	2.37	15.69	8.08	58.21	4.01
(Pender Co.)		Normal	4.49	3.53	4.43	3.06	4.10	5.14	7.12	6.54	6.22	3.16	2.99	3.42	54.20	

North Carolina Department of Environment and Natural Resources
Division of Soil and Water Conservation
Michael F. Easley, Governor
William G. Ross Jr., Secretary
Manly S. Wilder, Acting Director

Environmental Review Commission
Nov. 27, 2007

S1465 Activity Update
2007 Animal Waste Management Initiative

Lagoon Conversion Program

The Division of Soil and Water Conservation was charged with the responsibility of administering S1465's Lagoon Conversion Program (LCP) through the N.C. Agriculture Cost Share Program for Nonpoint Source Pollution Control. In August 2007, Division Director Manly Wilder appointed staff to oversee the program. He also hosted three in-house planning sessions with DENR and N.C. State University staff for input, coordination of efforts and identification of any issues that may prevent successful implementation of the program.

Division staff has met with several technology vendors and conducted site tours of nearly all those technologies that either meet, or are close to meeting, the performance standards as established in the "Development of Environmentally Superior Technologies – Phase 3 Report."

The LCP is intended to be *technology-neutral.* However, until the S1465 performance standards are made permanent through rulemaking, approved technologies for the first round of funding must be consistent with the Phase 3 Report.

LCP Advisory Committee

Director Wilder established the LCP Advisory Committee in early October 2007. The committee has met three times to develop the program's selection process and criteria. The next meeting is scheduled for December 14, 2007. Committee members are:

- Mary Combs, State Conservationist, Natural Resources Conservation Service/USDA
- Molly Diggins, State Director, N.C. Sierra Club
- Lamont Futrell, President, Frontline Farmers; Swine Producer
- Dewitt Hardee, Environmental Program Manager, N.C. Dept. of Agriculture and Consumer Services
- Heather Jacobs, Riverkeeper, Tar-Pamlico River Foundation
- Deborah Johnson, Chief Executive Officer, N.C. Pork Council
- Dr. Joe Rudek, Senior Scientist, Environmental Defense
- Coleen Sullins, Director, Division of Water Quality/NCDENR
- Dr. Mike Williams, Director, Animal Poultry Waste Mgmt. Center, N.C. State University

Application, Selection, Funding and Implementation Process – Round 1
Two million dollars was appropriated for Round 1 of the LCP. With guidance from the LCP Advisory Committee, the following timelines were established (see attached draft flow chart updated for more detailed information):

- Request for applications – Feb. 1, 2008
- Deadline for Round 1 applications – March 17, 2008
- Approval of selected applications – May 5, 2008
- Approval of cost share contracts – July 11, 2008
- Division of Water Quality issues permit no later than Sept. 30, 2008
- New waste system online – July 1, 2009

Web Site
The division is currently developing a website devoted exclusively to providing information on LCP: http://www.enr.state.nc.us/DSWC/pages/animal_waste.html
The site is expected to be up and running by January 2008.

Are Swine Producers Interested?
Division field staff conducted a "snapshot" survey of swine producers from mid-July to mid-August 2007 with 177 surveys completed and returned. As part of the survey, producers were asked about their interest in new animal waste management technologies that do not use anaerobic lagoons and sprayfields. Responses were as follow:

- 76% of the producers would like to learn more about the new technologies.
- 69% of the producers would like more information on financial assistance to convert to new waste management technology.

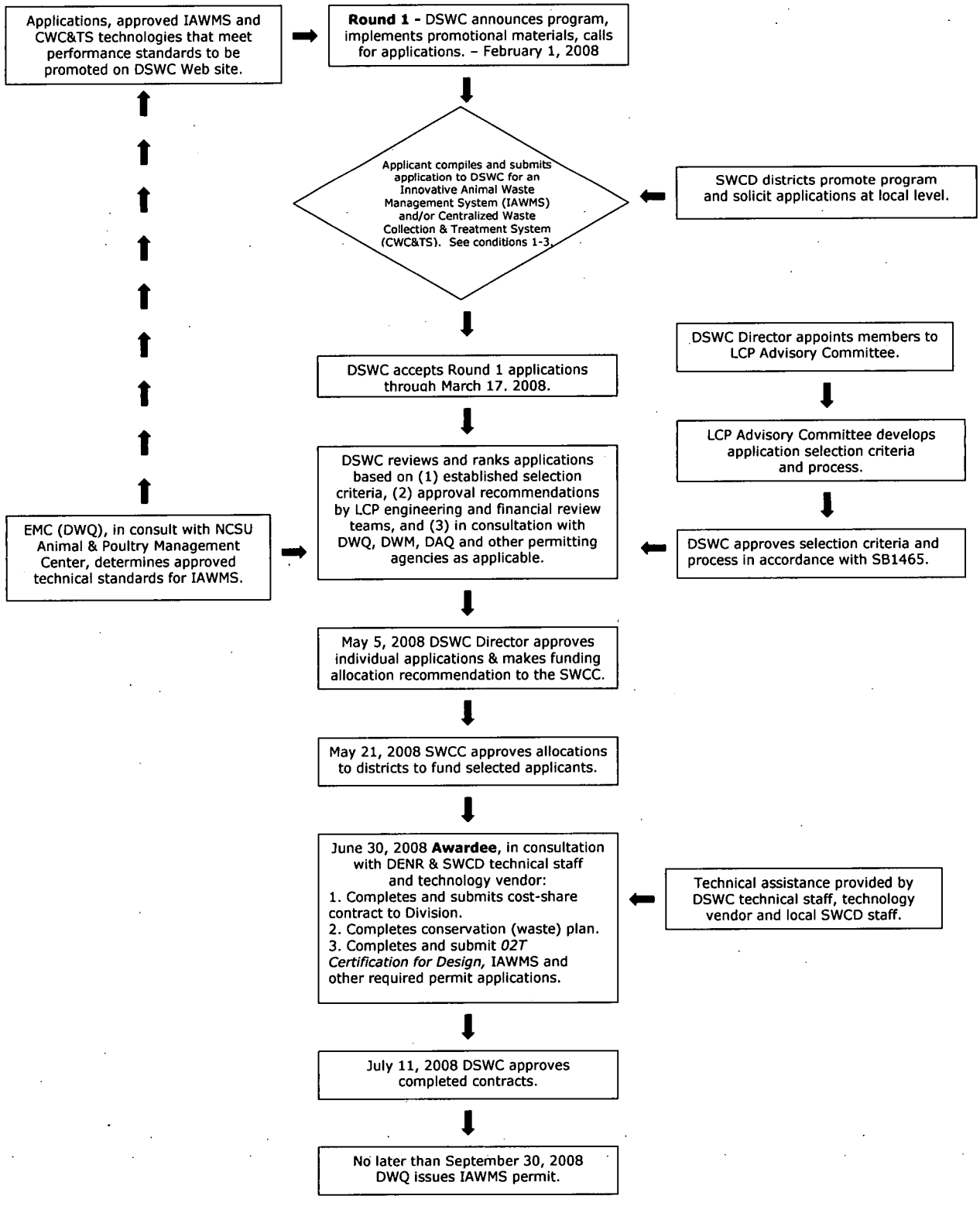
Recently, staff presented S1465 information at both the Southeast and Wilson Regional Pork Conferences. The attached fact sheets were distributed to approximately 190 swine producers in attendance.

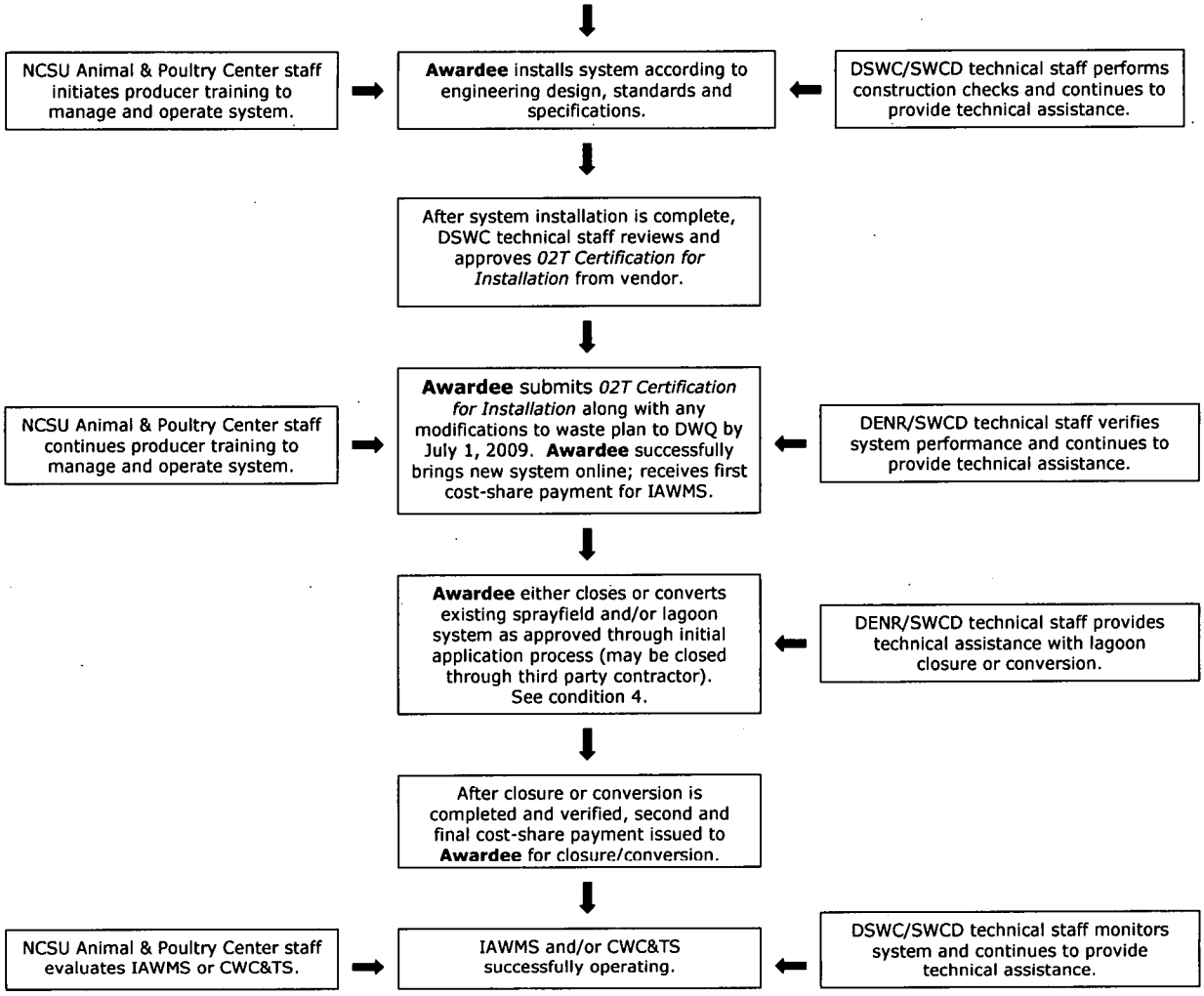
Making S1465 Performance Standards Permanent
The Environmental Management Commission (EMC) must go to rulemaking in order to make the performance standards permanent as listed in S1465. In November 2007, the Division of Water Quality staff hosted two stakeholders' meetings for comments on the draft rules. A stakeholders subcommittee will continue work on the proposed rules, which will be presented to the EMC at their March 2008 meeting. The earliest anticipated date for adoption of the proposed rules is January 2009.

Swine Farm Methane Capture Pilot Program
Discussions are currently underway between the Utilities Commission and the Governor's Office. The Division of Soil and Water Conservation will administer the program. More information will be shared as soon as it becomes available.

N.C. Lagoon Conversion Program
Round 1 Application, Selection, Funding and Implementation Process
Updated November 26, 2007

ACRONYMS:
CWC&TS – Centralized Waste Collection & Treatment System
DAQ – Division of Air Quality
DENR – Department of Environment & Natural Resources
DSWC – Division of Soil & Water Conservation
DWM – Division of Waste Management
DWQ – Division of Water Quality
EMC – Environmental Management Commission
IAWMS – Innovative Animal Waste Management System
LCP – Lagoon Conversion Program
NCSU – North Carolina State University
NRCS – Natural Resources Conservation Service
SWCC – Soil & Water Conservation Commission
SWCD – Soil & Water Conservation District





Conditions:

[1] An application that does not include a total IAWMS that addresses all performance standards either entirely on the farm or partially on the farm with a contractual agreement with a CWC&TS to provide further processing of waste, will not be eligible for LCP cost-sharing.

[2] An application for a CWC&TS must include proof of contractual agreements with one or more existing swine farms that either have coverage or proposed to have coverage under IAWMS permits. This requirement is needed to determine if the proposed CWC&TS provides environmental benefits by addressing *existing* swine-related water quality issues as required by the NC Agriculture Cost-Share Program.

[3] An application to expand the capacity of an existing CWC&TS is eligible for LCP cost-sharing as long as condition 2 is met.

[4] In order for an anaerobic lagoon to be converted to a "waste storage" or "waste holding" pond in accordance with NRCS standard code # 313 – *Waste Storage Facility*, the solids and sludge must be removed, and only treated wastewater containing no solids or sludge may be reintroduced back into the structure. In addition, the liquid level within the structure may not be pumped below the seasonal high water table elevation. The waste storage pond may also be used as emergency back-up system to the IAWMS.

N.C. Division of Soil & Water Conservation November 2007

NORTH CAROLINA SOIL & WATER CONSERVATION

Fact Sheet

2007 Animal Waste Management Initiative

NCDENR North Carolina Department of Environment and Natural Resources

Program Overview

During its 2007 session, the N.C. General Assembly passed S1465 in an effort to reduce environmental hazards posed by conventional animal waste management systems and to turn waste into value-added byproducts. There are four main components of the new law, including initiatives to:

- Make performance standards permanent.
- Replace lagoons that are an imminent hazard.
- Establish a lagoon conversion program.
- Establish a methane capture pilot program.

While many details of the new programs are still being finalized, the Division of Soil and Water Conservation wishes to provide as much information as possible to producers at this time. Below are brief summaries on each component of S1465, including all information that is currently available.

Permanent Performance Standards

Under S1465, the Division of Water Quality cannot issue or modify a permit to authorize construction, operation or expansion of a swine farm animal waste management system that employs an anaerobic lagoon as the primary method of treatment and sprayfields as the primary method of waste disposal. The swine farm animal waste management system performance standards, enacted by the General Assembly in 1998 and adopted as part of the Smithfield Agreement, now apply to all future construction or expansion of swine farms. The performance standards include:

- Eliminate direct discharge, seepage or runoff to surface and groundwaters.
- Substantially eliminate ammonia emissions.
- Substantially eliminate odor beyond property boundaries.
- Substantially eliminate disease-transmitting vectors and pathogens.
- Substantially eliminate nutrient and heavy metals in soils and groundwater.

Lagoon Replacement

In addition to a good compliance history, a permit holder must meet the following criteria to quality for lagoon replacement:

- Lagoon poses or will pose an imminent hazard.
- Repair does not abate the imminent hazard.
- Replacement will abate the imminent hazard.
- Replacement meets current standards and rules.
- Replacement is not located in the 100-year floodplain.
- Replacement does not increase steady state live weight.
- Existing lagoon is closed according to standards.

Lagoon Conversion
The Lagoon Conversion Program (LCP) is a *voluntary* agricultural cost share program designed specifically to meet the needs of North Carolina's swine farmers. It is modeled after the highly successful Agriculture Cost Share Program. Under LCP, swine farmers may be eligible for up to 90% cost share for converting existing swine lagoon and sprayfield systems to innovative animal waste management systems. LCP will help to establish centralized waste collection and treatment systems to serve existing swine waste management systems that employ the new technology.

At this time, the following innovative animal waste management systems have met performance standards in accordance with *The Development of Environmentally Superior Technologies March 8, 2006 Phase 3 Report*:

- Super Soils centralized composting system for solids.
- ORBIT – high solids high temperature anaerobic digester system.
- Gasification of solids system.
- BEST fluidized bed combustion solids system (Idaho).
- Super Soils "liquid" system (solids separation/nitrification — denitrification/ soluble phosphorus removal) *in conjunction with one of the above.*

N.C. State University's College of Agriculture and Life Sciences has done extensive work evaluating and determining these "Environmentally Superior Technologies." A great deal of information on these waste management innovations may be found at their web site: http://www.cals.ncsu.edu/waste_mgt/

Methane Capture Pilot
This component of the initiative is currently under review. More information will be shared as soon as it becomes available.

Projected Timeline for Initiative
Before the new animal waste management initiatives are finalized, the Environmental Management Commission (EMC) must go to rulemaking. The projected timeline for this process is:

- Stakeholders Meetings — November 2007
- EMC Animal Waste Issues Meeting — February 2008
- Proposed Rules to EMC — March 2008
- Earliest anticipated adoption of Proposed Rules — January 2009

For More Information
The division is currently developing a Web site devoted exclusively to providing information on the programs of S1465. The site will be up and running by January 2008 and can be found at: http://www.enr.state.nc.us/DSWC/pages/animal_waste.html

For more information in the interim, contact Vernon Cox, chief of the Technical Services Section with the Division of Soil and Water Conservation, at (919) 715-6109 or vernon.cox@ncmail.net.

North Carolina Department of Environment and Natural Resources
Division of Water Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary
John Morris, Director

North Carolina-South Carolina Catawba-Wateree River Basin Advisory Commission
Report on Activities in 2007
November 27, 2007

The Commission was created by parallel action of the North Carolina and South Carolina General Assemblies to investigate water management issues in the Catawba-Wateree basin of concern to both states and to make recommendations on improvements in water management. The Commission met first on October 21, 2005 and has met since that time at approximately quarterly intervals. Early in the work of the Commission and after extensive discussion, the Commission determined to put their first priority on issues related to long range water supply and water allocation in the Catawba-Wateree basin.

The Commission met on January 5, 2007. Donna Lisenby, the Catawba Riverkeeper, and Nick Stegall, of the City of Rock Hill, reported on water use permitting legislation under consideration at that time in the South Carolina General Assembly. John Morris of the North Carolina Division of Water Resources reported on how North Carolina uses the Water Use Act to resolve problems of non-sustainable water use. Dr. David Moreau of the North Carolina Water Resources Research Institute and Dr. Jeffrey S. Allen of the South Carolina Water Resources Center led a discussion of the history of river basin planning in the United States and of options available to North Carolina to improve the cooperative management of the Catawba-Wateree basin, including the creation of an interstate compact.

The Commission adopted a resolution urging the North Carolina Environmental Management Commission to delay action on a proposed interbasin transfer from the Catawba basin to provide a water supply source for Concord and Kannapolis.

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One NorthCarolina Naturally

The Commission met on April 27, 2007. The Commission reviewed the status of water management bills active in the North Carolina and South Carolina General Assemblies, particularly a bill for statewide water use permitting in South Carolina and revisions to the statute on interbasin transfers in North Carolina. David Baize of the South Carolina Bureau of Water and John Morris of the North Carolina Division of Water Resources reviewed potential approaches to increased coordination and cooperation between the two states for management of the resources of the Catawba-Wateree basin. Barry Gullet of Charlotte-Mecklenburg Utilities discussed the planning and approval of a wastewater treatment plant as an example of how an interstate water quality issue was resolved.

The Commission had given continuing attention to relicensing of the Duke Energy reservoirs in the Catawba-Wateree basin. The operation of these eleven reservoirs is the dominant factor in the management of the water resources of the basin. Under federal law, the Federal Energy Regulatory Commission issues licenses for these projects, which govern lake levels, minimum releases for water quality and aquatic habitat, and management of the basin during drought conditions. Barry Gullet of Charlotte-Mecklenburg Utilities reported on the formation of the Water Management Group, which grew out of the stakeholder consultation process associated with relicensing. This group, which includes all of the major municipal water users in the basin, will be a continuing entity to coordinate water supply management and to fund projects to improve water quality and protect water resources.

The Commission met on October 5, 2007. Tom Fransen of the North Carolina Division of Water Resources summarized a statute, enacted by the North Carolina General Assembly, which revises the process for consideration of interbasin transfers. David Baize of the South Carolina Bureau of Water provided an update on a bill being considered in South Carolina to establish a statewide water use permitting system. David Baize facilitated a discussion of the severe drought affecting South Carolina and North Carolina and the response actions being taken in both states. The Commission discussed plans for the next meeting, scheduled for early 2008. The agenda for this meeting will include a workshop on available methods of resolving interstate water conflicts, including litigation and the formation of interstate compacts. This issue is current, given the suit filed in the US Supreme Court by South Carolina against North Carolina about the future allocation of the basin's water resources.

Section 6.22 of SL 2007-323: Limit Impervious Surfaces for Vehicle Parking

Environmental Review Commission

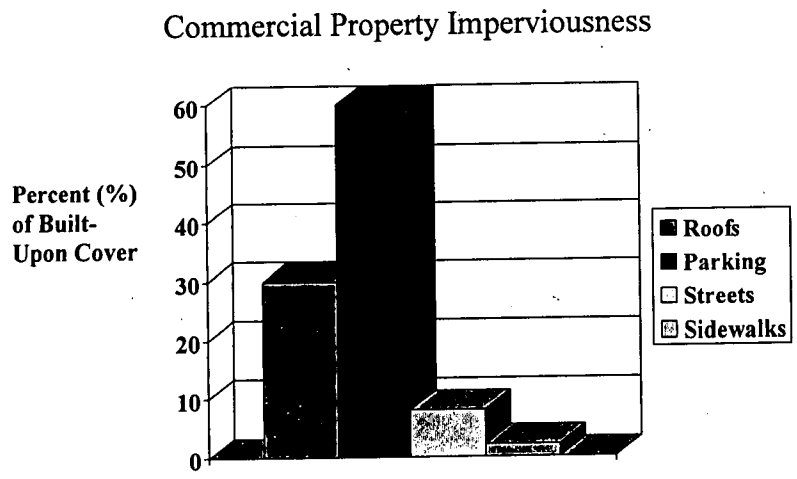
November 27, 2007

Section 6.22 of 2007 Budget Bill

- Statewide application.
- Affects all new uncovered vehicle parking areas:
  - Commercial
  - Residential
- Requires:
  - 20% of parking area to be permeable pavement, or
  - Runoff from 20% of area to go to s/w management
- Effective date: October 1, 2008

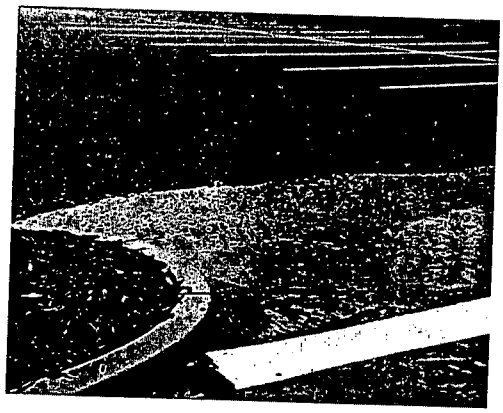
Why control stormwater runoff from parking areas?

Why parking areas?

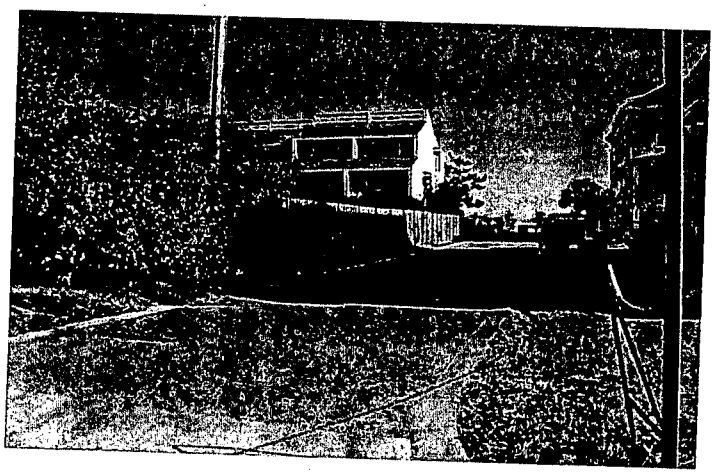


What is Permeable Pavement?

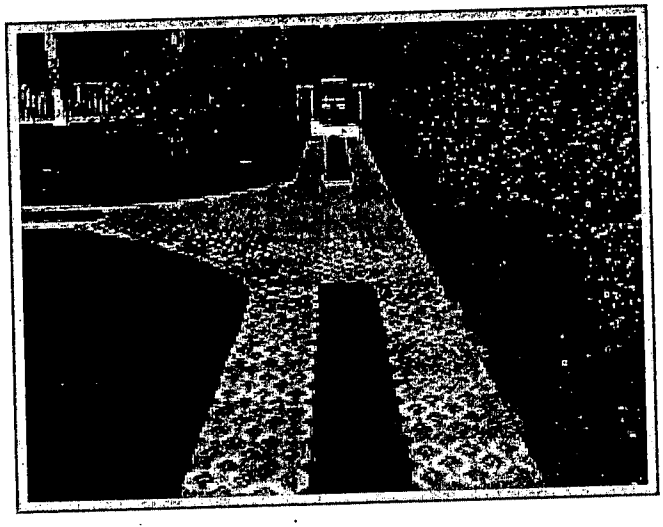
Paving material that allow stormwater to infiltrate



Porous asphalt



Porous concrete

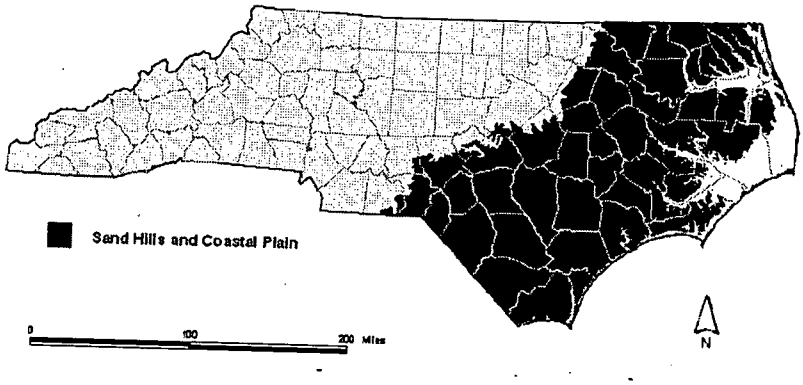


Concrete pavers

This is <u>not</u> permeable pavement.

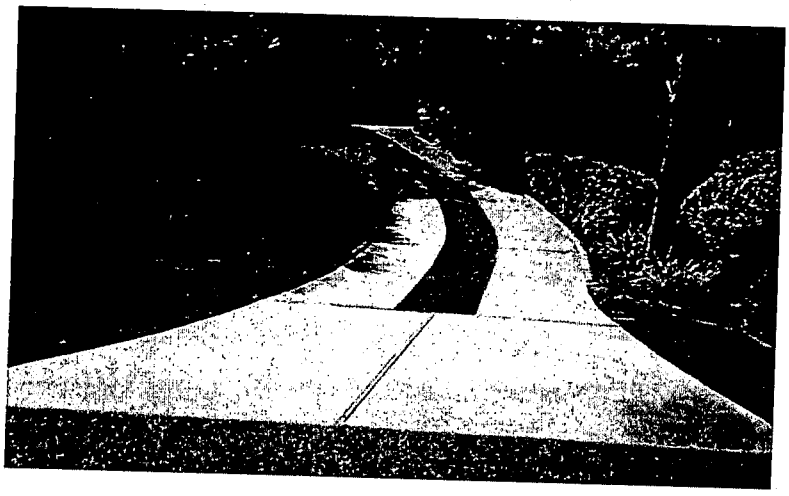
Compacted gravel in <u>not</u> considered permeable.

Where do soils support permeable pavement installation?

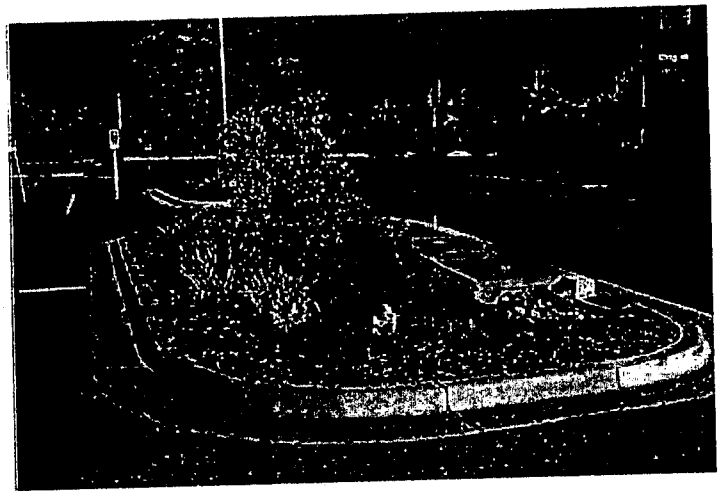


Outside of sand hills and coast other procedures could be used.

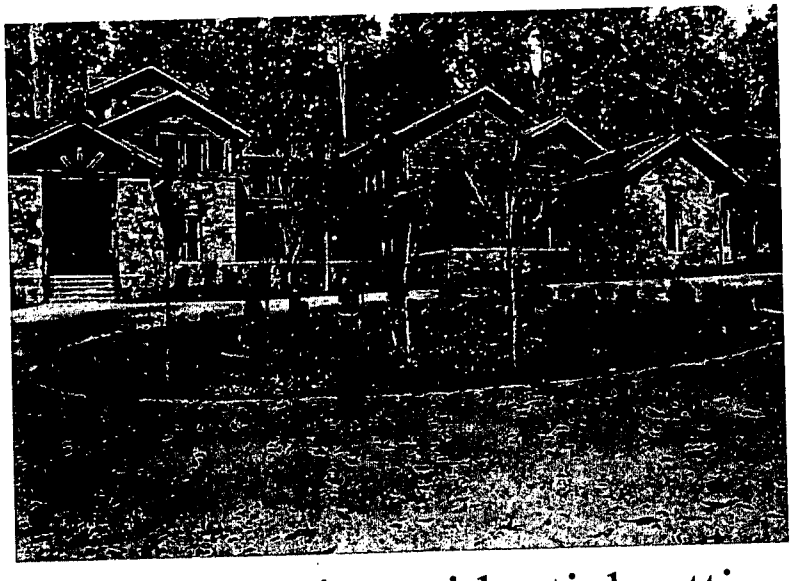
This system would work.



Uncompacted grass.



Rain garden in parking lot island.



Rain garden in residential setting.

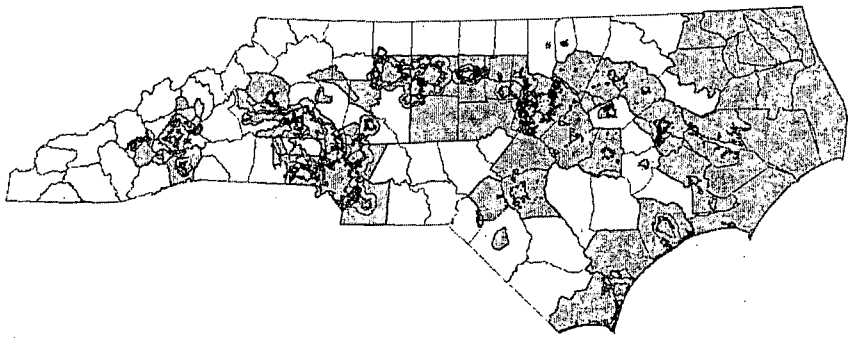
Rain Water Cistern for Reuse

What will this cost?

- Permeable Pavement
  - Pervious concrete - $45.00 per square yard
  - Traditional concrete - $33.50 per square yard
- Cistern – Water harvesting
  - Approx. $3500 per acre of parking area
- Rain Garden
  - Approx. $4.00 per square foot.

Where could this have the biggest impact?

Areas that do not implement stormwater controls.



Unshaded areas on map have limited experience with stormwater controls

Items to consider in future discussions

- Limitation of applicability to 20% of area.
- Opportunities to promote water reuse.
- How best to implement.

For more info contact:

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tom.reeder@ncmail.net

LIMIT IMPERVIOUS SURFACES FOR VEHICLE PARKING

SECTION 6.22.(a) G.S. 143-214.7 is amended by adding a new subsection to read:

"(d2) Any area designed for use as a vehicle parking area, except for covered vehicle parking areas or multilevel vehicle parking areas, shall not exceed eighty percent (80%) built-upon area, as defined in S.L. 2006-246. The remaining area designed for use as a vehicle parking area shall meet:

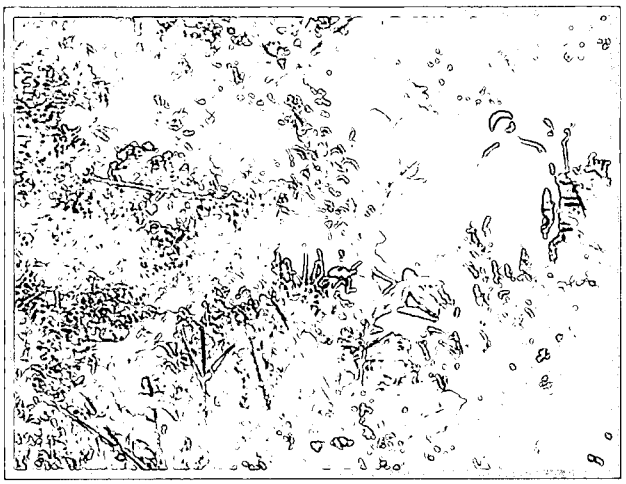
(1) The design requirements for a permeable pavement system, as determined in guidance documents prepared by the Department or

(2) Other design requirements for stormwater management approved by the Department, including, but not limited to, the use of (i) grass and other pervious surfaces and (ii) bioretention ponds, cisterns, and other water retention devices."

SECTION 6.22.(b) The Environmental Review Commission may study issues related to the use of pervious surfaces for vehicle parking areas, including the costs associated with the use of pervious surfaces, the impact to the environment of stormwater runoff, and the practices of other states with regard to stormwater best management practices. The Commission may report its findings and recommendations, including any legislative proposals, to the 2007 Regular Session of the General Assembly when it reconvenes in 2008.

Of the funds appropriated to the General Assembly, the Legislative Services Commission shall allocate twenty-five thousand dollars ($25,000) to conduct this study.

SECTION 6.22.(c) Subsection (a) of this section becomes effective October 1, 2008, and applies to any area designed to be used for vehicular parking for which an application for a building permit, a request for a zoning reclassification, or a subdivision plat is filed in the county or city in which the area is located on or after that date. The remainder of this section is effective when this act becomes law.



Ecosystem Enhancement Program

2006–2007 Annual Report

Restoring... Enhancing... Protecting Our State

State of North Carolina
Michael F. Easley, Governor

A Partnership of:

North Carolina Department of Transportation

U.S. Army Corps of Engineers, Wilmington District

North Carolina Department of Environment and Natural Resources

Ecosystem Enhancement PROGRAM

MISSION

The mission of the Ecosystem Enhancement Program (EEP) is to restore, enhance, preserve and protect the functions associated with wetlands, streams and riparian areas, including but not limited to those necessary for the restoration, maintenance and protection of water quality and riparian habitats throughout North Carolina.

Ecosystem Enhancement PROGRAM

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Executive Summary

In its fourth year of operation, the N.C. Ecosystem Enhancement Program (EEP) registered fresh successes in meeting its goals of producing compensatory mitigation in advance of permitted impacts, and continues to provide high-quality restoration and enhancement projects that will improve our state's natural resources for future generations. However the program is facing important challenges that require appropriate action to support continued service to the state.

The first significant challenge is related to the fees assessed by EEP for the voluntary service of providing compensatory mitigation for the regulated community. EEP has proposed revisions to existing fees for wetland and stream mitigation so that revenues more accurately reflect the costs incurred by the program in delivering restoration projects to meet mitigation commitments. EEP's average per unit costs for restoration projects in this past fiscal year were: $293 per linear foot for streams; $38,629 per acre for riparian wetlands and $17,437 for non-riparian wetlands. Current fees are less than the average expenditures and are $245 per linear foot for streams, $29,351 per acre for riparian wetlands; and $14, 676 per acre for non-riparian wetlands. Many factors have contributed to increased restoration costs including (but not limited to) increasing land values, escalating construction costs, and an increase in the cost of professional and contracting services.

EEP formally proposed revisions to existing fees through the rule-making process beginning in mid-2006. Revisions have been adopted by the Environmental Management Commission and approved by the Rules Review Commission. However, the Rules Review Commission was in receipt of a sufficient number of letters requesting legislative review of the rules so that any effective date for the revisions will be delayed until after the legislature acts during the 2008 session. This represents a significant delay to the anticipated effective date of Nov. 1, 2007. In order to preserve the program's fiscal stability, EEP is carefully considering each mitigation request submitted and will not accept mitigation requirements that cannot be met within existing fees. Program staff look forward to working with members of the General Assembly and other stakeholders to secure a revised fee that will allow continued service to EEP's customers, including private developers, school districts, municipalities and military bases.

The second challenge relates to proposed federal rules for compensatory mitigation, which could change the operation of all in-lieu fee programs nationwide. In support of the EEP, the Governor's office provided a coordinated state response to argue that innovative and successful in-lieu fee programs such as EEP should remain as a viable tool to meet requirements of the Clean Water Act. EEP and DENR have had continuing dialogue with the EPA, U.S. Army Corps of Engineers (USACE), and the U.S. Office of Management and Budget concerning the proposed changes. The rules are expected to be promulgated sometime before the spring of 2008.

A third challenge that will be addressed over time involves joint NCDENR, NCDOT and USACE program adjustments to address surplus mitigation assets. Directed into action by the NCDENR and NCDOT secretaries and the commander of USACE, Wilmington District, this initiative will seek increased flexibility by USACE, NCDENR and NCDOT to utilize surplus assets more effectively. Actions to date have reduced immediate mitigation costs of at least $6 million in a single watershed. We believe that other opportunities will surface in the near future and EEP will adjust procurement strategies accordingly.

Reflecting on the 2006-07 fiscal year, the Environmental Review Commission and the Joint Legislative Transportation Oversight Committee directed a joint study on merging the Clean Water Management Trust Fund with EEP. The study, undertaken by Dye Management Group, was structured to find synergies between the programs, consider overlapping missions and opportunities for non-traditional mitigation alternatives.

While the report did not recommend the merger, citing the regulatory nature of EEP's mission and the positive and flexible nature of CWMTF grants, some of the key findings included:

- Confirmation that the EEP model has been successful toward solving NCDOT permit delays and has saved at least $6.5 million in costs to NCDOT.
- Recognition that EEP is a national model for mitigation, while acknowledging that proposed federal mitigation banking rules are a threat to in-lieu fee programs and confirming that EEP is supported in general by the regulatory community.
- A need to formalize EEP's watershed planning process with the CWMTF grant process to facilitate tactical plans to concentrate effectiveness of both programs. This formalization process has begun and will evolve over the remainder of this fiscal year.
- Suggestions on how to address surplus mitigation assets. Many of these suggestions are being incorporated in a Joint Task Force with NCDOT and USACE.

Also this past year, EEP increased implementation of projects based on local watershed planning. Between January and September 2007, 76.5 percent of EEP-initiated design-bid-build projects were located in Targeted Local Watershed with 64 percent of these projects coming out of Local Watershed Plans (see Section V of this report). In addition, the program saw an increase in the number of full-delivery projects located in Targeted Local Watersheds.

A statewide summary of both MOA and MOU mitigation inventory shows that EEP has 1,555,769 linear feet of stream assets, and 13,233.53 acres of wetland assets. Existing mitigation credits have been established in advance of anticipated permit requirements for NCDOT and mitigation is ready for application to those permit requirements as transportation projects move through the permitting process.

EEP continued to carry out its mission without a single transportation-project delay from the lack of mitigation since the initiative became operational in 2003. Further, EEP's mitigation efforts have helped to move forward more than $3.7 billion in road building in North Carolina, with an investment of less than five percent of the construction cost of those projects.

Ecosystem performance, sustainability and needs continue to evolve through a better understanding of emerging science. EEP remains adaptive and successful in assisting NCDOT and the general public in meeting the requirements of the state and the Clean Water Act. The remaining sections in this report describe the current program status. This report is intended to satisfy all reporting requirements as defined in G.S. 143-214.13 and agreements with the USACE and NCDOT.

William D. Gilmore, PE, Director

Nov. 16, 2007

Additional information on items mentioned above can be found on our website:
Proposed fee revisions: www.nceep.net/pages/Announcement_of_RePub%20v2_3_15_07.pdf
Surplus Assets: www.nceep.net/pages/BOT_Sept52007_Excessive_Surplus_Mitigation_v4.ppt
Dye Management Report: www.nceep.net/pages/DYE_2007_EEP_CWMTF_Study_Final_Report.pdf

EEP manages four mitigation programs:

1) MOA Stream and Wetland Program for NCDOT
2) MOU Stream and Wetland Program
3) Riparian Buffer Program
4) Nutrient Offset Program

Eligibility to participate in an EEP program is a joint decision made by the EEP and the regulatory agencies. Each of these programs operate as an In-Lieu Fee (ILF) program in which applicants make payments to EEP in lieu of providing mitigation themselves or by other means. Upon payment, EEP assumes the full legal responsibility for planning, developing and implementing the required types and amounts of mitigation. After successful payment, applicants are no longer liable for the mitigation associated with their payment.

MOA Program:

The 2003 Memorandum of Agreement (MOA) among the NCDENR, NCDOT, and the USACE outlines the procedures for the NCDOT to utilize the EEP as ILF program for NCDOT's offsite stream and wetland mitigation needs and specifies performance metrics for EEP. In February of each year, NCDOT provides EEP with its mitigation request in the form of impact projections for the seven-year Transportation Improvement Program (TIP) list. EEP secures this mitigation following protocols outlined in the Tri-Party MOA. EEP uses Fund 2984 to track payments and expenditures of this program.

MOU Program:

The MOU Stream and Wetland Program provides applicants of Section 404 Permits, Section 401 Water Quality Certifications, and/or Coastal Area Management Act permits the option to satisfy compensatory-mitigation requirements for wetland and stream impacts in all 17 North Carolina river basins through payment into EEP's ILF program. Payments made into the Stream and Wetland ILF Program are deposited into Fund 2981.

In FY 2006-07, 192 customers made payments into the MOU Program. Stream and Wetland ILF payments totaled $13,023,860.01. Of this total150 customers had requirements from both USACE (404)and DWQ (401), 35 customers had requirements from USACE only, and eight customers had requirements from DWQ only.

Buffer Program:

The Riparian Buffer Program is an option to meet compensatory-mitigation requirements associated with riparian-buffer impacts in the Neuse, Tar-Pamlico and Catawba River basins, and the Randleman Reservoir watershed in the Upper Cape Fear River basin. Payments are made to the Riparian Buffer Restoration Fund (Fund 2982) according to the regulatory schedules for buffers.

In Fiscal Year 2006-07, the EEP received payments for 759,622 square feet or 17.0 acres of buffer mitigation. At the close of the fiscal year, EEP had accepted responsibility for 477.22 buffer acre requirements cumulatively since the program's inception in the Cape Fear, Catawba, Neuse and Tar-Pamlico River basins.

Nutrient Offset Program:

The Nutrient Offset Program is an option to meet compensatory mitigation requirements associated with nutrient offset requirements in the Neuse and Tar-Pamlico River basins. Payments made into the Nutrient Offset ILF Program are deposited into Fund 2981-9819.

During FY 2006-07, Nutrient Offset payments were made by 340 customers located in the counties of Durham, Franklin, Johnston, Nash, Pitt, Wake and Wayne, and the municipalities of Cary, Durham, Garner, Goldsboro, Greenville, Havelock, Kinston, New Bern, Raleigh, Rocky Mount, Tarboro, Washington and Wilson. EEP also received one payment originating from the DWQ. During FY 2006-07, EEP received payment for 294,849 pounds of nitrogen nutrient reduction and 903 pounds of phosphorus nutrient reduction.

Appendices A1, A2, and A3 lists the individual payments and requirements, payment date, payment amount, USACE identification and DWQ Permit numbers associated with the MOU ILF Stream and Wetland Program, the Riparian Buffer Program, and the Nutrient Offset Program.

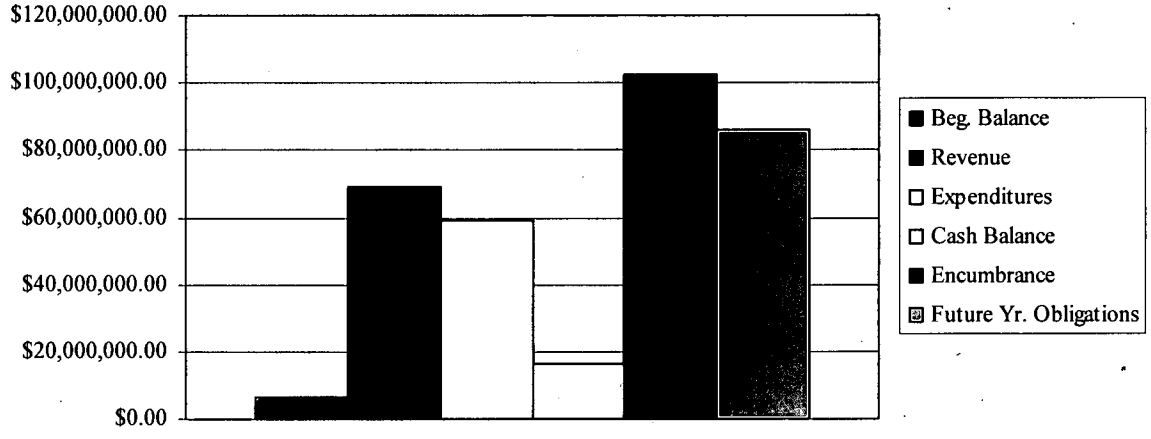
REVENUE, EXPENDITURES, AND ENCUMBRANCES

The figures and tables below depict expenditures and end-of-year balances for the MOA and MOU Stream and Wetland mitigation programs, with an accounting of beginning balances, revenues, expenditures, cash balances, encumbrances and unencumbered balances.

Fund 2984: MOA Program

Figure 1 provides an accounting of the NCDOT MOA Stream and Wetland mitigation program fund. Mitigation production and payments are programmed on a cash-flow basis and reflect the amount paid into the account, the amount encumbered and future year obligations.

Figure 1: MOA Fund 2984 Fiscal Year 2006-2007



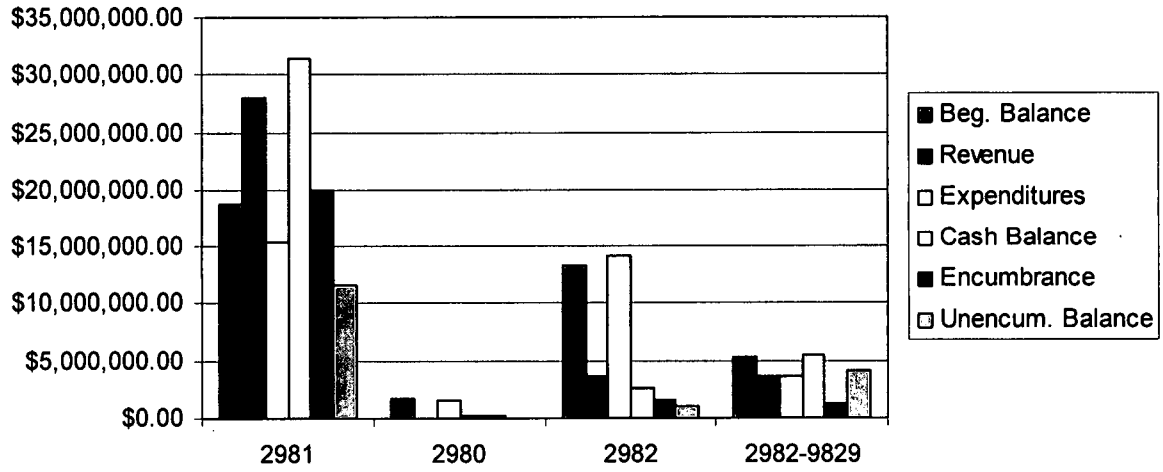
FUND	2984
Beg. Balance	$6,311,712.40
Revenue	$69,089,935.38
Expenditures	$59,302,527.10
Cash Balance	$16,099,120.68
Encumbrance	$102,277,111.71
Future Yr. Obligations	$86,177,991.03

The cash-flow accounting method is in place at the request of NCDOT and is consistent with NCDOT's method of managing Transportation Improvement Program project costs. EEP invoices NCDOT on a quarterly basis and secures only those funds required to pay operating costs for the upcoming quarter. Future year obligations are guaranteed to be paid in accordance with a Memorandum of Agreement between NCDOT and NCDENR. This information is reported quarterly during routine invoicing processes. Also, EEP has been audited quarterly with no findings, by the NCDOT External Auditing Branch, and we are anticipating that the Federal Highway Administration (FHWA) will produce a report soon from an audit conducted in the summer of 2007.

MOU In-Lieu-Fee (ILF) Program, Wetlands Trust Fund, Buffer and Nutrient Offset Program Funds

Figure 2 below provides an accounting of funds for the MOU ILF (2981), the Wetlands Trust Fund (2980), the Buffer Program (2982) and the Nutrient Offset Program (2982-9829).

Figure 2: Funds 2981, 2980, 2982, 2982-9829 Fiscal Year 2006—2007



	2981	2980	2982	2982-9829
Beg. Balance	$18,753,441.36	$1,697,493.04	$13,309,732.40	$5,305,207.39
Revenue	$27,997,777.03	$25,976.84	$3,502,804.09	$3,594,538.74
Expenditures	$15,329,428.25	$1,538,378.31	$14,194,879.52	$3,514,488.18
Cash Balance	$31,421,790.14	$185,091.57	$2,617,656.97	$5,385,257.95
Encumbrance	$19,893,433.28	$184,433.00	$1,591,439.88	$1,245,882.46
Unencumbered Balance	$11,528,356.86	$658.57	$1,026,217.09	$4,139,375.49

Fund 2981, MOU ILF Program, is a voluntary, statewide receipt-based ILF program. Land disturbing activities that require Section 404 or Section 401 permits often require compensatory mitigation as specified by the USACE or the N.C. Division of Water Quality (DWQ). The general public, commercial and residential developers, as well as non-NCDOT governmental agencies including municipalities and military installations, may request mitigation from EEP. Upon acceptance and payment, EEP provides the off-site compensatory mitigation to satisfy regulatory requirements. This fund helps the general public by providing a service that often saves money and streamlines development and permitting processes.

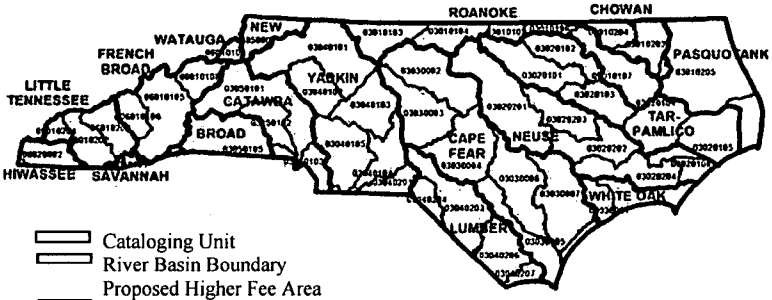
During the last five years, requests to use this service program have increased substantially. EEP's average cost in FY 2006-07 was $293 per linear foot for stream mitigation, $38,629 per acre of for riparian wetlands and $17,437 for non-riparian wetland. Current fees are below average at $245 per linear foot for stream, $29,351 per acre for riparian wetland and $14,676 per acre for non-riparian wetland. Many factors have contributed to increased project costs, including price of land, particularly in urban areas; complexity of site production resulting from better science or new regulatory requirements; accelerated demand resulting in increased cost of supply, and an increase in the cost of professional and contracting services.

Last year, EEP reported that the program was seeking a fee–schedule revision to reflect results of a study undertaken by UNC-Wilmington and Clemson University and other program data. The findings of that study confirmed that costs of projects had increased over and above the existing fee schedule. For that reason, EEP initiated an adjustment through the rule-making process. A short synopsis of activities follows:

- May 2006, EEP begins fee increase petition through the rule-making process.
- December 2006, fee schedule revision published in the North Carolina Register under a tier-based system on county boundaries.
- January 2007, public hearings held New Bern, Raleigh, and Morganton.
- March 2007, two new alternatives published based on comments received during the hearing process.
- September 2007, EMC adopts a two-tier fee defined by hydrologic units.
- October 2007, Rules Review Commission approves rule, but received sufficient public comments to trigger a legislative review.

The proposed two-tier fee schedule is shown in the map and chart below.

Proposed Fee Areas



Proposed Fees

	Proposed High Cost Areas	Proposed Low Cost Areas
Stream	$323	$244
Riparian Wetland	$59,600	$33,696
Non-riparian Wetland	$43,000	$22,113

EEP has taken measures to control costs, particularly in regard to the contracting industry. Some successes have been achieved through training sessions for contractors and engineers, with an objective to educate and introduce potential new contractors to wetland and stream construction techniques. This action has increased the contractor pool and may provide increased competition. EEP has worked with the regulatory agencies, with some success, to find new methods of providing mitigation that meet regulatory requirement at reduced costs, and has implemented some projects with significant cost savings. In addition, engineering services are secured under professional services contracts and construction is awarded based on competitive bidding through the Department of Administration. However, these initiatives and procedures have not been significant enough to alter the need for a fee revision.

EEP acknowledges support from the EMC hearing officers who worked diligently to assist EEP in securing appropriate fees. New fees were anticipated to be in place by November 2007; however, public comments were of a sufficient volume to trigger a decision and possible final determination in the 2008 legislative session. Therefore, EEP will need to be more selective in the acceptance of mitigation requests, in order to continue to be fiscally responsible.

Fund 2980, Wetlands Restoration Program (WRP) Trust Fund, was established by the General Assembly in 1997 as an initial trust fund for the former Wetlands Restoration Program (WRP) to provide funds for watershed planning and long-term maintenance and management of WRP projects. Remaining encumbrances for this fund will be paid this year and this fund will be closed out sometime in the next fiscal year.

Fund 2982, Buffer Fund, is the repository for monies related to the state's buffer-mitigation program that applies to the Neuse, Tar-Pamlico, and parts of the Catawba and Cape Fear River basins.

Fund 2982-9829, Nutrient Offset, is the repository for funds of the Nutrient Offset Program. This program has been in place for the Neuse River basin since 1998. In March 2006, the Tar-Pamlico River Basin was added. House Bill 859, ratified Aug. 1, 2007 and effective Sept. 1, 2007 now requires nutrient-reduction projects to be in the same eight-digit Cataloging Unit (CU), as designated by the U.S. Geological Survey, in which the associated nutrient runoff takes place.

House Bill 859 established the following revised fee schedule for nutrient-offset payments to EEP:

River Basin	Nitrogen	Phosphorus
Neuse	$28.35 / lb	n/a
Tar-Pamlico	$21.67 / lb	$28.62 / 0.1 lb

The per-pound rate in the table above is multiplied by the total number of pounds of offset required for the total area of the development for a 30-year period. In the Tar-Pamlico basin, if a development project has both nitrogen and phosphorus reduction requirements, the offset-requirement and payment-amount calculations are performed for both nutrients, and only the higher amount is required to be paid.

COST DATA

EEP Project Costs for FY 06- 07

EEP produces mitigation sites through two contracting methods: Design-Bid-Build (DBB) and Full Delivery (FD). Average per-unit costs of project implementation are calculated by examining both types of contracts.

In FY 2005 –06 the EEP obtained:

- 106,845 total stream mitigation units at an average of $293 per unit
- 100.22 total riparian wetlands mitigation units at an average of $38,629 per unit
- 72.1 total non-riparian wetlands mitigation units at an average of $17,437* per unit
- 32.44 total buffer mitigation units at an average of $42,000 per unit

(*$17,437 is not reflective of estimated costs for non-riparian wetlands. Additional program data shows that anticipated costs for this mitigation type could be as high as $75,882 per unit.)

Cost Analysis of Private Mitigation Banks

Reporting requirements of G.S. 143 require EEP to compare the cost of wetlands restoration on a per acre basis between the state's Wetlands Restoration Program and private mitigation banks.
To obtain the data necessary to accomplish this task, an electronic Web-based survey requesting restoration cost information was sent to the sponsor of each approved bank in North Carolina. Appendix B includes a listing of banks who were requested to respond, and a copy of the survey is included.

There were no responses from private mitigation banks for FY 2006-07.

Stream Projects Cost Study

EEP initiated a contract with UNC-Wilmington to conduct a stream project cost-analysis study that incorporates both biophysical and economic variables. The final study, due in December 2007, will provide a methodology to compare project costs with the fee schedule. This tool will be used to develop regional project cost estimates and aid in calculating yearly budgets. The study will also look at how variables, such as length, width, location and construction technique, affect total project cost. Early study results were presented at the N.C. Stream Restoration Institute Stream Conference in October 2006.

The study was based on analysis of 26 rural stream projects and 19 urban stream projects that had construction completed by January 2005. The average cost per foot for these projects was $255, ($316 per foot for urban projects and $226 per foot for rural projects). The model encompassing biophysical and economic variables will be used to determine costs in both rural and highly-urbanizing areas.

CONTRACTS

Full Delivery Program

The FD Program procures compensatory mitigation by issuing requests for proposals (RFPs) through the state Department of Administration. Each RFP specifies the river basin and cataloging unit within which mitigation is being sought, and the amount and type of mitigation needed (i.e., buffer, stream and/or wetland). Offerors are required to submit both a technical proposal and a cost proposal for each prospective submittal. The technical proposal details: 1) the experience, qualifications and financial stability of the firm submitting the proposal; 2) the geomorphologic features of the site that make it suitable for restoration; and 3) the conceptual plan for restoring the site to a more natural, stable

condition, both physically and biologically. The cost proposal provides a buffer, stream, and/or wetland unit cost for the submittal. Qualifying proposals are evaluated based on the technical merits of the proposed restoration and the overall per-unit cost. Firms associated with selected proposals enter into a contract with EEP to convey a conservation easement on the project area to the state, develop and implement a restoration plan, and monitor the project for five years to verify that the restoration meets established success criteria.

There are currently 21 firms under FDP contracts with EEP, indicating widespread participation by the environmental consulting/mitigation community. In FY 2006-2007, EEP entered into seven new FDP contracts (with five different full delivery providers) for 33,993 Stream Mitigation Units and 18.3 Riparian Wetland Mitigation Units, at a cost of $10,356,915.00. Appendix C1 lists all active FDP contracts.

Design-Bid-Build Program

The DBB Program operates by contracting with private design and consulting firms for professional services for all stages of project development including: watershed planning, environmental resource investigations, restoration site design and construction management, and post-construction monitoring. EEP contracts with professional consulting and engineering services through State Building Commission designer and consultant selection policy as described in the NC Administrative Code (see 01 NCAC 30D). Upon completion of design projects are advertised for competitive construction bids and construction contracts are awarded to the lowest responsible bidder.

This Fiscal Year the State Building Commission granted EEP a two-year authorization to contract with 31 On-call Design and Consulting firms. Since 2002, the State Building Commission has granted four on-call authorizations to EEP as described in the table below:

NC Ecosystem Enhancement Program On-call Authorizations

Date effective	# of Firms Authorized	Total Authorization
4/18/02 - 4/17/04	15	$10,500,000
4/1/04 - 3/31/06	22	$15,400,000
8/23/-05 – 8/22/07	21	$14,700,000
12/12/06 – 12/11/08	31	$21,700,000

Design and Construction

From July 1, 2006 through June 30, 2007, 44 new design and construction contracts were awarded. The total value of new design and construction contracts was $12,752,311. Appendix C2 lists design and construction contracts awarded in FY 2006–07.

Design and Construction
Fiscal Year July 1, 2006 through June 30, 2007

Total Design Services (26)	$5,499,796.00
Total Construction Services (18)	$7,252,515.26
Total (44)	**$12,752,311.26**

Maintenance and Repair

The science of natural-systems restoration has advanced considerably over the past decade. Design firms have evolved design philosophies and approaches in response to changes in industry and EEP's philosophy, as well as observation and measurement of post-construction design performance. At times, it is necessary to maintain or repair portions of projects that have been damaged or failed as a result of drought, tropical storms and other causes. Maintenance and repair design and construction contracts are implemented using the same contracting methods as described previously.

In FY 2006-07, one new maintenance design contract was awarded. The total value of maintenance design contracts awarded was $9,530.

In FY 2006-07, three maintenance construction contracts were awarded. The total value of maintenance construction contracts awarded was $417,333.14.

Maintenance and Repair
Fiscal Year July 1, 2006 through June 30, 2007

Total Maintenance Design Services (1)	$9,530.00
Total Maintenance Construction Awards (3)	$417,333.14
Total (4)	**$426,863.14**

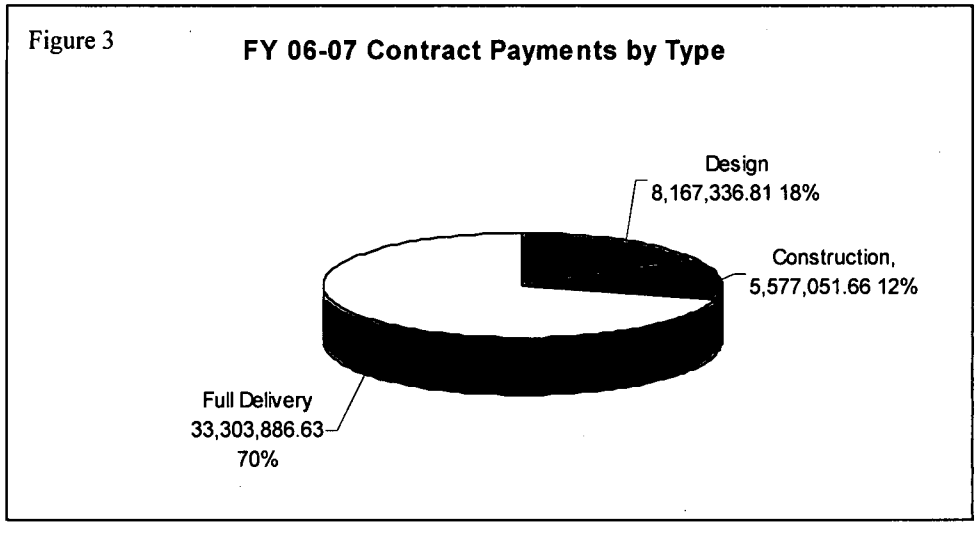
Project Name	Design Firm	Contract Amount
Sandy Creek Repair	Ward Consulting	$9,530.00
	Total Maintenance Design Services	**$9,530.00**

Project Name	Construction Firm	Contract Amount
Stone Mountain Repair	Shamrock	$179,468.00
Brush/Little Pine Repair	NCWRC	$109,451.64
County Line Creek	Land Mechanic	$128,413.50
	Total Maintenance Construction Awards	**$417,333.14**

Fiscal Year 2006-07 Payments to Vendors

Payments to vendors totaled $47,048,275.10 for FY 2006-07 . Figure 3 illustrates payments by contract type: Full Delivery, Design and Construction, but does not include any costs for property acquisition. Appendix D provides a listing of payments by contract type and vendor.

Figure 3



PROPERTY ACQUISITION

In FY 2006-07, the State Property Office closed on 114 parcels associated with preservation and restoration projects, totaling more than 3,300 acres. Four of the acquisitions were outright purchases and 108 were acquisitions of conservation easements. Two of the acquisitions were construction easements. Restoration and preservation properties that closed between July 1, 2005 and July 22, 2006 are shown in Appendix E: Properties Closed. Acreages are included for sites that have been surveyed to date. Landowners have formally agreed to give EEP the right to acquire an easement or property for all sites listed in Appendix F: Properties Optioned.

A cumulative inventory of all properties acquired since the inception of the Wetlands Restoration Program are presented in Appendix G: Cumulative Properties. More than 45,300 acres have been purchased or donated.

This section provides detailed tables and charts regarding production. EEP tracks and is accountable for mitigation production in 17 river basins, 54 CUs, and for 15 mitigation types.

RESTORATION AND PRESERVATION INVENTORY

At the end of FY 2006-07, EEP had produced or inherited 1,539,391 linear feet of stream and 21,608 acres of wetland mitigation, in addition to HQP assets. The table below is a summary of mitigation production assets by river basin and type.

Table 1: EEP Total Assets FY 06 –07

River Basin	Stream Restoration	Stream Enhancement I	Stream Enhancement II	Stream Preservation	Riparian Restoration	Riparian Creation	Riparian Enhancement	Riparian Preservation	Nonriparian Restoration	Nonriparian Creation	Nonriparian Enhancement	Nonriparian Preservation	Coastal Marsh Restoration	Coastal Marsh Creation	Coastal Marsh Enhancement	Coastal Marsh Preservation	Stream Buffer
Broad	54,258	6,410	10,076	9,279	11.40	0.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Cape Fear	325,736	24,169	29,650	40,678	768.93	16.20	153.09	1,028.31	865.85	0.00	227.14	496.74	9.02	0.00	85.76	0.00	98.6
Catawba	147,290	11,726	13,951	4,286	44.79	32.82	19.51	4.66	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.0
Chowan	11,128	1,700	0	6,086	97.30	0.00	0.00	15.00	5.00	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.0
French Broad	76,698	24,295	3,575	10,340	16.68	0.00	17.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Hiwassee	3,900	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Little Tenn.	10,132	1,082	1,490	0	53.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Lumber	25,352	0	0	1,750	30.00	0.25	30.44	35.80	777.38	0.00	0.00	301.50	0.00	0.00	0.00	0.00	0.0
Neuse	122,202	12,008	6,334	9,793	467.92	7.00	283.63	1,516.94	1,560.30	10.80	1,984.20	655.15	5.64	0.00	0.18	4.94	217.4
New	15,252	2,551	14,750	16,510	10.00	6.29	8.98	22.29	1.00	0.00	0.00	13.65	0.00	0.00	0.00	0.00	0.0
Pasquotank	15,400	2,500	0	0	396.80	0.00	21.40	68.65	1,149.13	0.00	6.00	139.32	0.00	30.60	0.00	180.94	0.0
Roanoke	46,845	1,232	8,499	14,263	154.00	0.00	0.00	576.43	248.00	0.00	0.00	3,431.00	0.00	0.00	0.00	0.00	0.0
Savannah	3,310	1,600	0	3,115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	0.00	0.00	0.00	0.00	0.0
Tar-Pamlico	34,753	14,233	5,983	0	276.14	63.91	35.10	442.80	343.90	2.00	2.95	541.22	3.30	0.00	0.00	19.00	104.7
Watauga	2,800	1,000	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
White Oak	26,922	400	400	1,280	52.00	0.00	1.80	2.00	368.50	0.00	0.00	274.10	6.48	0.00	0.00	0.00	0.0
Yadkin	206,648	13,546	33,414	46,811	187.10	159.20	43.97	94.10	18.87	0.00	21.09	8.59	0.00	0.00	0.00	0.00	6.1
Grand Total	**1,128,626**	**118,452**	**128,122**	**164,191**	**2,566.90**	**285.67**	**615.52**	**3,806.98**	**5,345.33**	**12.80**	**2,241.38**	**5,872.87**	**24.44**	**30.60**	**85.94**	**204.88**	**514.9**
Total MOU	**371,367**	**37,200**	**52,465**	**38,967**	**273.67**	**1.50**	**174.82**	**377.98**	**347.73**	**0.00**	**96.46**	**209.99**	**6.30**	**0.00**	**0.00**	**0.00**	**230.0**
Total MOA	**757,260**	**81,252**	**75,657**	**125,224**	**2,293.23**	**284.17**	**440.70**	**3,429.00**	**4,997.60**	**12.80**	**2,144.92**	**5,662.88**	**18.14**	**30.60**	**85.94**	**204.88**	**284.9**

Note: EEP's mitigation assets and requirements are accounted for on a cataloging-unit (CU) basis, not by river basin. This table, along with Table 2, is intended as a summary. A complete listing of these tables by river basin CU can be found in the EEP's Fourth Quarterly Report, located on the EEP Web site at: http://www.nceep.net/news/eeppublications.htm.

Current Inventory of Asset Credits

Table 2 lists net-asset credits by river basin for FY 2006-07. These are the current inventory assets after application of credits to compensatory-mitigation requirements. Remaining asset credits are also summarized by credit amounts in the MOA and MOU programs. Assets in this table have been converted to restoration and restoration-equivalent credits. HQP gross and net assets are summarized in the next section.

At the end of FY 2006–07, EEP had inventory assets of both restoration and restoration equivalent of:

- Stream: 938,419 credits
- Riparian: 4,595 credits
- Nonriparian: 7,185 credits
- Coastal marsh: 115 credits

Inventory assets are the sum of Table 2: Inventory of Asset Credits below and Table 4: HQP Net Asset Summary.

These inventory assets represent progress that EEP has achieved to produce mitigation in advance of permits. These mitigation assets are available to offset future permit requirements. Figures 4 and 5 (on pages 15 and 16) show the existing net assets, outstanding requirements, and projected future mitigation needs.

Table 2: EEP Inventory of Asset Credits, FY 06-07

River Basin	Stream Restoration	Stream Restoration Equivalent	Riparian Restoration	Riparian Restoration Equivalent	Nonriparian Restoration	Nonriparian Restoration Equivalent	Coastal Marsh Restoration	Coastal Marsh Restoration Equivalent
Broad	60,490	1,712.80	11.40	0.00	5.00	0.00	0.00	0.00
Cape Fear	184,182	2,836	638.01	223.16	837.38	194.93	9.02	42.88
Catawba	42,131	0	15.12	3.71	0.00	0.00	0.00	0.00
Chowan	12,249	1,217	96.76	3.00	4.99	2.00	0.00	0.00
French Broad	82,098	2,048	11.63	8.79	0.00	0.00	0.00	0.00
Hiwassee	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Little Tennessee	10,801	0	53.84	0.00	0.00	0.00	0.00	0.00
Lumber	15,980	350	19.98	18.19	689.05	60.28	0.00	0.00
Neuse	39,544	0	411.38	410.69	1,527.07	1,118.52	5.64	1.08
New	20,857	3,097	10.21	8.95	1.00	2.73	0.00	0.00
Pasquotank	15,578	0	394.18	21.72	1,134.60	30.76	9.80	35.79
Roanoke	43,873	2,614	144.04	106.09	124.46	675.80	0.00	0.00
Savannah	4,377	623	0.00	0.00	0.00	0.32	0.00	0.00
Tar-Pamlico	43,446	0	283.40	105.09	297.69	107.15	3.24	3.80
Watauga	3,280	0	0.00	0.00	0.00	0.00	0.00	0.00
White Oak	20,138	256.00	35.47	1.30	72.40	30.42	4.02	0.00
Yadkin	143,593	7,010.20	213.42	33.15	14.51	10.73	0.00	0.00
Total MOU	**48,077**	**647.00**	**97.11**	**55.77**	**47.75**	**53.25**	**3.84**	**0.00**
Total MOA	**694,540**	**21,117.20**	**2,241.72**	**888.06**	**4,660.40**	**2,180.39**	**27.88**	**83.55**
Grand Total	**742,617**	**21,764.20**	**2,338.83**	**943.82**	**4,708.15**	**2,233.64**	**31.72**	**83.55**

High Quality Preservation (HQP) Assets

At the end of FY 2006-07, EEP had acquired more than 250 miles of HQP stream assets and 8,694 acres of wetlands. HQP assets were secured in order to fulfill requirements under the Tri-Party MOA transition strategy. A complete breakdown of the total HQP acquired and remaining HQP assets as of the end of FY 2006-07 are listed in the tables on the next page. Through the partnership with local land trusts, 113 high quality preservation parcels have been permanently protected by outright purchase or by purchase of conservation easements since the inception of EEP. Approximately $47 million worth of property was protected through this partnership. Other state agencies will manage 18 of the parcels. In addition, state agencies cooperated to broker the purchase of additional properties. The total expenditure for the HQP land and conservation easements is approximately $75 million for the acquisition of 128 parcels statewide.

EEP Gross HQP Assets

Table 3 summarizes gross HQP assets. All HQP assets are MOA assets. Gross stream and wetland feet or acreages are subject to correction as additional survey work is completed on these sites.

EEP Net HQP Assets

Table 4 lists the net remaining HQP assets available for future debits by ecoregion. Gross stream and wetland feet or acreages are subject to change as additional survey work is completed on sites.

The February 2006 NCDOT impact projections indicate that most of these net HQP mitigation units will be fully utilized for compliance deadlines based on the projected Transportation Improvement Program (TIP) list.

Since the inception of EEP, more than $75 million has been spent to purchase these conservation lands. Across the state, EEP has net HQP assets of 870,190 feet (164 miles) of stream, 6,563 acres of riverine wetlands and 1,214 acres of non-riverine wetland. EEP assisted in funding nearly 40,000 acres of conservation land. Twenty-four of these parcels will be managed by government agencies for public recreation activities that are compatible with protective restrictions.

To accomplish the goal of no net loss of aquatic resources, utilization of these preservation sites for compensatory mitigation credits will be accompanied by restoration-type mitigation projects within the same watershed where impacts occur.

Table 3: HQP Gross Asset Summary by Ecoregion

Ecoregion	Beginning Balances		
	Stream (feet)	Riparian Wetland (acres)	Non-Riparian Wetland (acres)
Central Piedmont	476,981.50	544.170	62.440
Northern Inner Coastal Plain	74,528.00	651.200	0.000
Northern Mountains	130,230.00	0.000	0.000
Northern Outer Coastal Plain	13,919.00	395.000	390.000
Southern Inner Coastal Plain	186,170.00	4,020.000	85.900
Southern Mountains	189,491.00	30.000	0.000
Southern Outer Coastal Plain	10,206.00	137.000	1,034.000
Southern Piedmont	238,916.00	1,344.300	0.000
TOTAL HQP Beginning Balance	**1,320,441.50**	**7,121.67**	**1,572.34**
TOTAL HQP Beginning Balance in Credits (5:1 ratio)	**264,088.30**	**1,424.334**	**314.468**

Table 4: HQP Net Asset Summary by Ecoregion

Ecoregion	Remaining High Quality Preservation Assets		
	Stream (feet)	Riparian Wetland (acres)	Non-Riparian Wetland (acres)
Central Piedmont	289,835.00	515.850	30.772
Northern Inner Coastal Plain	35,908.00	572.485	0.000
Northern Mountains	104,318.50	0.000	0.000
Northern Outer Coastal Plain	8,149.00	392.870	390.000
Southern Inner Coastal Plain	97,291.50	3,640.735	21.900
Southern Mountains	143,504.50	17.675	0.000
Southern Outer Coastal Plain	6,000.00	115.405	771.590
Southern Piedmont	185,183.50	1,308.300	0.000
TOTAL HQP Remaining Balance	**870,190.00**	**6,563.320**	**1,214.262**
TOTAL HQP Remaining Balance in Credits (5:1 ratio)	**174,038.00**	**1,312.664**	**242.852**

Statewide Status of MOU and MOA Stream and Wetland Programs

The graphs below and on the next page provide a statewide summary status of the stream and wetland ILF Programs at the end of FY 2006-07. The graphs depict EEP current gross assets, the mitigation requirements, outstanding mitigation requirements, and the projected future mitigation needs that EEP expects over the next two years. Please note that the EEP tracks credits and credit requirements by program (MOU or MOA), by impact type, and by watershed cataloging unit. All mitigation credits are applied within mitigation type, within CU of impact, and within program unless the regulatory agencies have approved otherwise. These graphs reflect the statewide picture of EEP's programmatic gains (credits) and estimated losses (requirements). (Since mitigation requirements are typically twice as large as actual permitted impacts, the actual losses are approximately one-half the magnitude of requirements shown.)

Figure 4

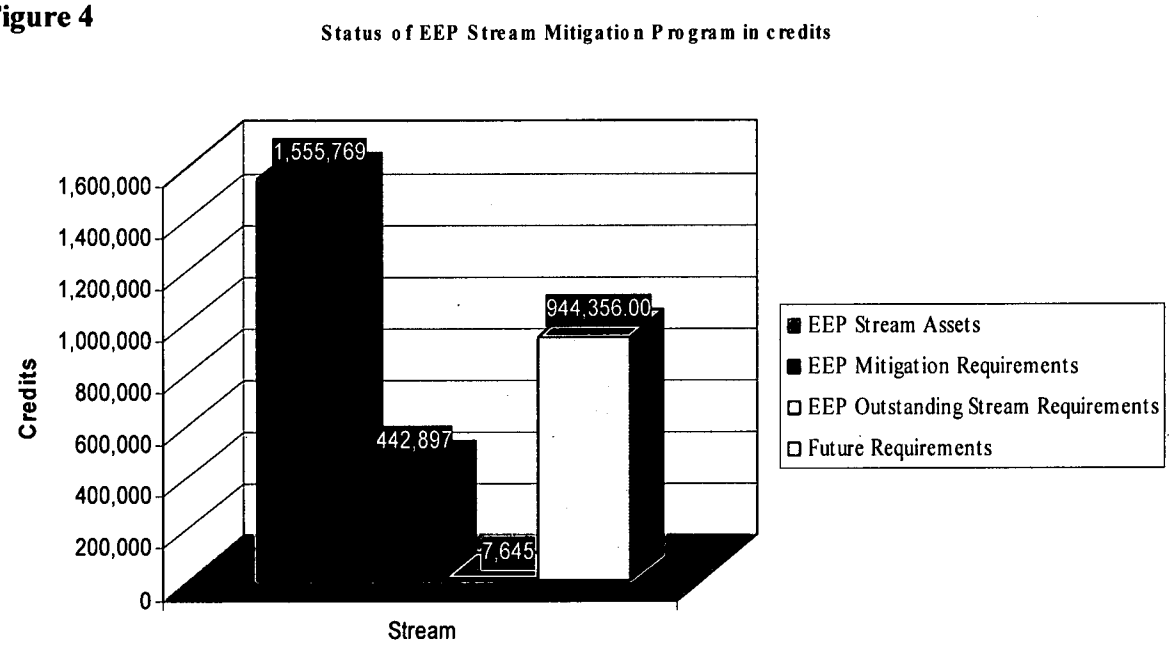


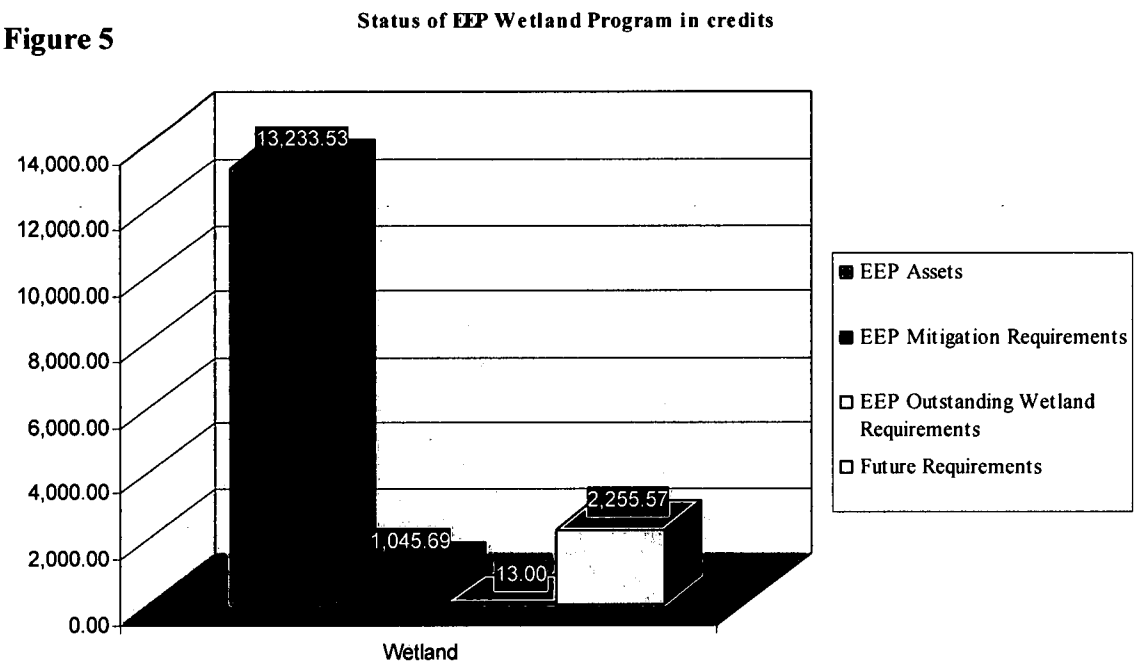
Figure 4 displays the status of stream requirements and assets produced (for both the MOU and MOA programs). Currently EEP has instituted 1,555,769 credits of stream mitigation and accepted mitigation requirements of 442,897 credits — three and one half times as much as required. Excess mitigation is planned to be allocated to future needs as per agreements. Outstanding requirements equal 9,148 credits.

The generation of mitigation credits in advance of mitigation requirements is a founding principle of the MOA In-Lieu Fee Program for NCDOT. The surplus mitigation currently available in the program is evidence that EEP is succeeding on this front. However, future mitigation demand is expected to be very high over the next five years. As shown in the Figure 4, NCDOT and EEP are projecting mitigation needs of 944,356 stream credits over the next five years. The majority of this mitigation needs is due to NCDOT's mitigation needs and the advancement schedule outlined in the MOA.

Outstanding requirements represent mitigation needs that do not match (type or CU location) inventoried assets. EEP has strategies in place to provide for the outstanding requirements which are detailed in EEP's quarterly reports at www.nceep.net. Section III of this report contains additional compliance information.

Figure 5 displays the status of the wetland requirements and assets produced (MOU and MOA programs). Currently EEP is managing instituted assets of 13,233.53 wetland credits with current requirements equaling 1,045.69 credits. Most of these wetland assets (over 7,000 credits) originated from the NCDOT mitigation program that existed prior to EEP's formation. These unused assets were transferred to EEP to be managed within the EEP MOA mitigation program for NCDOT's future mitigation needs. Currently, outstanding requirements equal 13 wetland credits. As shown in the graph, NCDOT and EEP are projecting additional mitigation needs of 2,255.57 credits over the next five years. On a statewide level, EEP has achieved success for advanced mitigation. However, much of the current advanced mitigation is focused in particular CUs, whereas the mitigation needs are spread more evenly across the state. Thus, while some CUs have already achieved advanced mitigation, others will require additional wetland credit development over the coming years.

Figure 5



Statewide Status of Riparian Buffer and Nutrient Offset Programs

The status of the Riparian Buffer Program is illustrated in the table on the right. This program has provided all currently required buffer mitigation except for 2.03 acre credits in Tar-Pamlico 03020105. Note that though 2.03 acre credits are outstanding, EEP has 59.41 acre credits of advanced buffer credits upstream in the Tar-Pamlico basin..

Riparian Buffer ILF Program Status FY 06—07

	Cape Fear	Catawba	Neuse	Tar Pamlico
Mitigation Due	61.56	0.27	353.01	44.99
Mitigation Instituted	91.64	23.4	459.79	104.4

The status of the Nutrient Offset Program is shown in the table below. Nutrient reductions were met in the Tar-Pamlico basin for nitrogen and phosphorus, but not in the Neuse River basin. In FY 2006-07, all new procurement of nutrient offset mitigation projects were placed on hold due to a legislative study on the Nutrient Offset fee schedules. In 2006, a revised increased fee schedule was authorized via rulemaking by the Environmental Management Commission. The revised fee schedule was, however, reverted by the General Assembly while they completed a cost study. During this period of time, EEP suspended procurement of new nutrient-offset mitigation sites. The suspension was necessary because collected fees during FY 2005-06 through FY 2006-07 were below the projected costs of implementing storm water wetland and riparian buffer nutrient offset projects. Implementing projects during this time could have resulted in the complete depletion of the funds within this program without satisfying the required reduction in nutrients. This problem was magnified during FY 2006-07 as nearly 30 percent of the program's total historical requirements were paid during FY 2006-07 at below cost fees. Currently, a revised fee has been passed by the N.C. legislature. These fees, while lower than previously authorized by the EMC, are sufficient to begin procuring nutrient-offset reduction projects. EEP believes that most BMP-type [e.g. stormwater BMP's, constructed wetlands, etc.] nutrient reduction projects will not be fundable under the current fee schedule, particularly since past payments were below cost of BMPs or riparian-buffer restoration projects. Consequently, EEP expects that most new projects will be composed of riparian buffer projects with a few select stormwater BMPs and constructed wetlands.

Nutrient Offset ILF Program Status FY 06—07

	Neuse Nitrogen	Tar Pamlico Nitrogen	Tar Pamlico Phosphorus
Mitigation Due	721,281.36	554.53	0.00
Mitigation Instituted	532,979.68	840.00	840.00
Future Requirements	287,656.30	7,185.49	903.43

Example of a completed stream project–
Clear Creek, French Broad River Basin, Henderson County

MOA Stream and Wetland Compliance

At the close of FY 2006-07, the MOA program had achieved tremendous success in establishing advanced mitigation as prescribed by the Tri-Party MOA program. The amount of advanced mitigation credits established within the program are summarized in the table below.

The MOA Stream compliance was 98.99 percent, Riparian Wetlands compliance was 98.14 percent, Nonriparian Wetlands compliance was 100 percent and Coastal Marsh Wetlands compliance was 100 percent representing increased compliance in each of these mitigation categories from the previous year. Table 5 displays requirements in credits, credits applied, and compliance.

Outstanding requirements represent mitigation needs that do not match (type or CU location) inventoried assets. The magnitude of outstanding stream mitigation was 2,261.6 credits. The magnitude of outstanding riparian-wetland mitigation was 2.4 credits. Seven permits needed additional mitigation. The Tri-Party MOA also specifies that assets utilized for permits achieve a specified completion or phase status. For FY 2006-07 permits, assets were required to meet "Begin Construction" status for most permits. The table below summarizes the mitigation compliance, phase compliance, the percentage of assets utilized that exceeded phase, and amount of advanced mitigation.

A complete listing of the MOA permits and requirements not in full compliance and the corresponding EEP CU Action Strategies can be found in the EEP's Fourth Quarterly Report located on the EEP Web site.

Table 5: MOA Program Compliance

MOA Program	Stream (credits)	Riparian Wetlands (credits)	Nonriparian Wetlands (credits)	Coastal Marsh Wetlands (credits)	Total Wetlands (credits)
Mitigation Due	224,111.2	128.5	409.4	1.8	539.7
Mitigation Met	221,849.6	126.1	409.4	1.8	537.3
Mitigation Used	223,928.0	191.6	349.2	1.8	542.6
Mitigation Not Met	2,261.6	2.4	0	0	2.4
Compliance	98.99%	98.14%	100.00%	100.00%	99.56%
Compliance considering Phase	97.95%	92.01%	99.93%	100.00%	98.04%
Percentage of Mitigation Used Meeting Phase	98.96%	95.89%	99.91%	100.00%	98.49%
Percentage of Mitigation Used Exceeding Phase(Monitoring+)	58.88%	86.12%	80.66%	96.59%	82.64%
Total Advanced Mitigation (Undebited)	871,316.9	4,430.7	7,081.6	111.4	11,623.7

MOU Stream and Wetland Compliance

The MOU program experienced a similar degree of success during FY 2006-07. As of June 30, 2007, the MOU program had 753 total requirements. Of these, 735 are in full compliance, five have partial compliance and 13 are in non-compliance. Therefore the EEP has 97.6 percent of all MOU requirements in compliance, 0.7 percent in partial compliance and 1.7 percent in non-compliance. Of these non-compliant requirements, 14 were related to wetland requirements, and four were related to stream requirements. As in the MOA program, outstanding requirements represent mitigation needs that do not match (type or CU location) inventoried assets.

Table 6 below summarizes the MOU program's mitigation due, mitigation met, mitigation not met, compliance and advanced mitigation amounts:

Table 6: MOU Program Compliance

MOU Program	Stream (credits)	Riparian Wetlands (credits)	Nonriparian Wetlands (credits)	Coastal Marsh Wetlands (credits)	Total Wetlands (credits)
Mitigation Due	218,785.9	339.8	166.0	0.2	506.0
Mitigation Met	211,899.6	330.5	164.9	0.0	495.4
Mitigation Not Met	6,886.3	9.3	1.1	0.2	10.6
Compliance	96.85%	97.26%	99.33%	0.00%	97.90%
Advanced Mitigation (Undebited)	48,723.6	152.9	101.0	3.8	257.7

A complete listing of the MOA permits and requirements not in full compliance and the corresponding EEP CU Action Strategies can be found in the EEP's Fourth Quarterly Report located on the EEP Web site.

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V: Watershed Planning and Project Implementation

An important focus of EEP is the implementation of restoration projects based on environmental needs identified through watershed planning. This is accomplished through high-level and detailed planning initiatives and the coordination of project implementation in accordance with planning outcomes. EEP conducts two main types of watershed planning:

- River Basin Restoration Priority Planning (high-level—river basin/ eight-digit CU scale)
- Local Watershed Planning (detailed level—small watershed scale)

The products of EEP's planning efforts are used to direct mitigation resources to areas of need. EEP's goal is to implement all program projects (both FD and DBB) in targeted watersheds. FD technical rating methods encourage providers to locate projects in targeted watersheds. Many DBB projects are developed based on detailed watershed plans. This section describes the status of EEP watershed planning methods and assesses how well the program's project implementation lines up with watershed priorities.

WATERSHED PLANNING

The purpose of watershed planning is to determine the best locations for watershed-restoration projects based on analysis of watersheds needs for restoration and protection. This is done by conducting two types of planning- River Basin Restoration Priority Planning and Local Watershed Planning.

River Basin Restoration Priority Plans

River Basin Restoration Priority Planning is conducted in each of the 17 river basins in North Carolina. The purpose is to identify local watersheds within each river basin where ecological restoration or protection is most needed—for instance, watersheds that include streams with impaired water quality and degraded habitat are often targeted.

In the summer of 2007, EEP began updating River Basin Restoration Priority (RBRP) plans. The RBRPs identify watersheds for EEP project implementation, or Targeted Local Watersheds (TLWs), in the State's 17 river basins and outline the basin's restoration and preservation needs. In anticipation of DWQ's new, compressed two-year basinwide planning cycle, EEP staff is working to complete RBRP updates for all river basins by the summer of 2009. The RBRP plans incorporate water quality information from DWQ Basinwide Assessment Reports and Water Quality Plans as well as input from local resource-agency professionals and the location of existing or planned watershed projects. The updating of the RBRPs also takes advantage of newly acquired watershed datasets produced by the N.C. Center for Geographic Information and Analysis (CGIA) that profile the assets, problems and baseline conditions of hydrologic units statewide. As they are completed, updated RBRP documents will be posted on the EEP Web site (http://www.nceep.net/services/restplans/watershedplans.html).

Completed River Basin Restoration Priority Plans

This past fiscal year, EEP completed an update of the Lower Catawba River Basin RBRP plan. The document identifies priority watersheds (i.e., TLWs) for implementation of EEP projects and goals for conservation and restoration in the Catawba River basin.

New River Basin Restoration Priority Initiatives

EEP has performed GIS based analysis, conducted fieldwork, and solicited input from stakeholder groups through multiple workshops in order to select TLWs in the Lower Yadkin-Pee Dee River Basin specifically in Yadkin 03040105 and 03040202. A draft RBRP document has been developed for these CUs. A final version of this document is in progress and work to evaluate the remaining CUs within the Lower Yadkin-Pee Dee basin will be completed in late 2007/early 2008.

EEP has also initiated CU screening to develop updated RBRPs for the Chowan River Basin and for a portion of the Roanoke River basin (CU 06).

Local Watershed Plans

Local Watershed Planning merges identified RBRPs with projected impacts from road development to determine where future mitigation investments can provide the greatest benefit for the State of North Carolina. The development of Local Watershed Plans (LWPs) is typically a four-phase process: Preliminary Watershed Characterization (Phase I), Detailed Assessment (Phase II), Development of a Watershed Management Plan including identification of potential project sites within a Project Atlas (Phase III), and Implementation of the Plan (Phase IV). However, rapid or abbreviated plans are also utilized when either the mitigation compliance timeline is compressed, the mitigation needs value for the CU (based on fee schedule) does not justify an extensive planning investment, or detailed analyses are not necessary to identify the most ecologically beneficial projects.

Detailed watershed evaluations are conducted through the use of internal and external resources. External resources include private environmental planning and engineering firms, the N.C. Division of Water Quality, the CGIA, and various not-for-profit organizations.

EEP watershed planners have responsibility for all planning products. For products produced internally, planners generate maps, tables, reports, and budgets. They also work on the development of new assessment methods, alternative mitigation options, and strategies to obtain mitigation within priority watershed areas. They develop a network of contacts in natural-resource agencies, local governments, and local communities and keep local governments informed of EEP projects through meetings and public presentations. They work with local stakeholders to implement plan recommendations and review mitigation projects proposed by EEP staff and external firms.

For products generated externally, planners are responsible for development of contracts, review of products, invoice processing, development of technical methods with contractors, and oversight of all field and mapping work. They also coordinate the work performed by contractors with local stakeholders and related efforts by local, state, and federal agencies.

EEP staff is continuing work on LWPs all across the state. Currently, eight plans are underway and in various stages of development and expected to be completed later in 2007 or in 2008. Appendix H presents a summary of ongoing Local Watershed Plans; these are efforts that haven't yet resulted in a final Watershed Management Plan or Project Atlas (listing of identified restoration opportunities), but will do so within the next six to 18 months.

Completed Local Watershed Plans

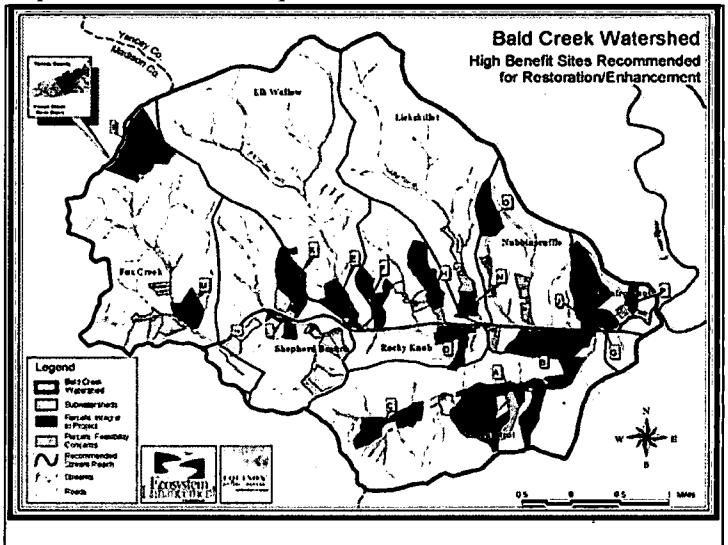
EEP completed a number of local watershed planning efforts in FY 2006-07 as described below. Appendix I presents a summary of Local Watershed Plans completed through Phase III. In many cases, Landowner Outreach and Project Implementation (Phase IV) is ongoing.

- Completed Phase IV implementation effort for two LWPs in Cape Fear 02; Morgan and Little creeks; and Troublesome and Little Troublesome creeks. EEP staff worked with Stantec to visit and gauge the restoration potential of sites identified in both LWPs. EEP is pursuing several of the sites identified in these LWPs as potential mitigation projects, including three that are on property managed by the University of North Carolina at Chapel Hill.

- Completed Phase III of the Little Lick Creek LWP. EEP presented the plan to public officials and the public at an evening forum held in the watershed. The plan can be found online (see http://www.nceep.net/services/lwps/little_lick/Little_Lick.pdf). A Phase IV implementation effort is planned.

- Phase IV was completed in the Stoney Creek watershed, including landowner education, materials development and distribution, presentations, and public question-and-answer opportunities. The final Stoney Creek LWP was presented to the Wayne County Board of Commissioners and to the Goldsboro City Council.

- Completed Phase III of the Little River and Brush Creek LWP (New 05050001) –During FY 2006-07, EEP completed the Little River and Brush Creek LWP (located within the New River basin of Alleghany County). The focus of this planning effort was the Bledsoe Creek watershed, a 6.5-square mile area comprised of two sub-watersheds identified as priority areas during earlier phases of assessment work. A Technical Advisory Committee (TAC) consisting of key local stakeholders contributed significantly to completion of the final *Bledsoe Creek Watershed Management Plan* (June 2007). The plan identifies key local watershed stressors and presents recommended management strategies and watershed projects (including stream/buffer restoration and storm water BMPs) to address these stressors. The TAC



LWP data example: From spring 2006 through June 2007, the EEP/Equinox watershed team conducted landowner outreach and project site evaluation in order to implement priority stream and wetlands restoration projects in the Bald Creek watershed *and adjacent hydrologic units*. This "Phase IV" expanded effort has resulted in production of an Ecological Conditions Summary Report (August 2006), a Preservation Site Atlas (August 2006), and a Restoration Site Atlas (January 2007).

has evolved into the Bledsoe Creek Advisory Team (BCAT) – including representatives from the Town of Sparta, Alleghany County, the High Country COG, the Blue Ridge RC&D, Alleghany Cooperative Extension and DWQ. A major goal of the BCAT is to use the *Bledsoe Creek Watershed Management Plan* to help leverage funding for the implementation of local stormwater BMP projects and the development of a local watershed education program.

- Completed Phase IV of the Bald Creek LWP (French Broad 06010108) – In July 2007, EEP staff and Equinox Environmental completed a year-long effort to conduct site evaluations and landowner outreach for high-priority stream and wetland restoration projects within the 77-square mile expanded Bald Creek study area in Yancey County. This effort proved to be a major challenge due to local topographic and land-use constraints. In spite of these challenges, several stream-restoration project sites are moving forward with willing landowners.

New Local Watershed Planning Initiatives

EEP identified four new Local Watershed Planning initiatives based on forecasted NCDOT mitigation needs and an environmental analysis of affected catalog units. LWPs are needed in the Catawba 02/03, Little Tennessee 02/04, Yadkin 01 and Yadkin 05 in FY 2007-2008.

EEP watershed planning staff is using the results of the Catawba RBRP update to identify watersheds in the Catawba 03 Service Area to initiate watershed-based planning. Details on where to start the plan and the plan activities are still being developed. Once initiated, one of the goals of this plan is to contribute wetland restoration projects that will help meet the mitigation needs of Catawba 03.

A watershed-assessment effort in the Yadkin 01 CU is necessary in order to develop finding stream-mitigation projects within high-priority local watersheds in the upper Yadkin River basin. The Surry County Natural Resource Conservation Service (NRCS) and the Soil and Water Conservation District (SWCD) will act as local partners in this effort, and the field assessment and site identification will focus on stream reaches within the Fisher River and Ararat River watersheds. The effort is tentatively scheduled to begin by early 2008 and to finish by December 2008.

Based upon preliminary fieldwork and watershed analysis, EEP intends to develop a Local Watershed Plan in the Lower Yadkin Basin (Yadkin 05) that will focus on the Goose Creek and Crooked Creek watersheds, which are in adjacent HUs and flow to the Rocky River in the Yadkin basin. Goose Creek is on the state list of impaired waters due to high fecal coliform levels, and serves as habitat for the Carolina heelsplitter (*Lasmigona decorata*), a federally endangered freshwater mussel. Crooked Creek is also impaired due to poor biological health and has experienced problems with flooding and stormwater runoff. This Local Watershed Planning effort will build upon prior planning efforts and work to improve water quality and the biological conditions in these watersheds, while generating mitigation credit to meet the needs of NCDOT.

In response to increasing mitigation needs and high priority aquatic resources, EEP intends to

initiate a LWP in Little Tennessee 02. This is largest CU in the Little Tennessee River basin, and it is habitat for numerous endangered, threatened, and rare aquatic species. Recently, drastic declines in two federally listed species—the Appalachian elktoe (*Alasmidonta raveneliana*), a freshwater mussel, and the spotfin chub (*Cyprinella monacha*), a fish —have been noted. The basin is undergoing drastic change in land use, from timber and agricultural uses to residential use. The N.C. Wildlife Resource Commission (WRC) and U.S. Fish and Wildlife Service (USFWS) are also focusing efforts within LT02 and have made the 23-mile section of the Little Tennessee River that stretches from Lake Emory in Franklin to Lake Fontana a high priority for research and conservation. EEP is collaborating with USFWS to assess aquatic organism barriers and develop a prioritized list of culverts, fords, and other crossings in need of repair or replacement. EEP will propose the repair or replacement of barriers for non-traditional mitigation. These partnerships and research efforts will support the larger local watershed planning effort and help identify mitigation opportunities within the CU.

PROJECT IMPLEMENTATION

A primary purpose of EEP is to produce watershed-restoration projects (stream, wetland, stormwater and other BMPs) that meet regulatory mitigation requirements with respect to type, quality and compliance schedule in the most cost-effective way, while maximizing environmental return for North Carolina. The maximization of environmental returns from implemented projects is achieved through the watershed approach.

EEP utilizes DBB and FD contracting methods to realize projects. Both of these project delivery methods have been, and continue to be, critical to EEP's success in meeting mitigation needs throughout the state.

Design-Bid-Build

When DBB projects are used to meet mitigation needs through watershed planning, EEP staff are charged with implementing projects identified and listed in the LWP project atlas. In areas where Local Watershed Plans have not been completed but mitigation needs exist, EEP implementation and planning staff team to implement projects that are consistent with the RBRP Plan.

A typical DBB project requires development and staff oversight of GIS research, landowner outreach, technical site-assessment review, project-budget development, property owner negotiations, design scoping, environmental resource technical report review and approval, draft restoration plan review and approval, final restoration plan review and approval, pre-construction bid monitoring, construction award participation, invoice approval, change- order approval, construction site visits and inspection, initial construction walkthrough, final construction walk-through and acceptance, monitoring-report review, monitoring field visits, maintenance field visits and inspection, regulatory-review coordination, database management, and product-delivery schedule adherence.

Full Delivery

In areas where FD procurement is used to meet program mitigation needs, providers are encouraged through the project technical-rating system to locate restoration activities in watersheds targeted through the RBRP process. FD projects require that EEP staff review technical proposal evaluations, conduct field-site assessment of proposals, review and comment on restoration plans, and conduct multiple on-site construction reviews, monitoring report review and field verification. EEP staff responsibilities for oversight and review of FD projects have increased in the last fiscal year in response to regulatory agency requests that EEP provide greater assurances regarding project selection and implementation.

SYNERGIES BETWEEN WATERSHED PLANNING AND PROJECT IMPLEMENTATION

The foundation of comprehensive watershed restoration and protection is watershed planning. As EEP matures, more and more of the program's restoration projects are correlated to watershed goals. While a large amount of the mitigation credits currently managed by EEP are reflective of watershed plans and targets, not all of the projects in the program are synchronized in this manner due to a number of factors. The following project characteristics contribute to the existence of projects outside of watershed targets:

Projects Developed Pre-EEP: Twenty-eight percent of projects that EEP is managing were partially developed or initiated by NCDOT prior to the establishment of the program and were not based on the program's watershed approach.

Advanced Mitigation MOA Timeline Requirement: The Tri-Party MOA required the advancement of mitigation based on aggressive compliance deadlines which did not allow time for identification of watershed priorities prior to implementation of restoration projects. Developing watershed plans for all target areas would have resulted in permitting delays for NCDOT transportation projects, and resulted in non-compliance with MOA requirements.

Reduction in MOA Program Targets: NCDOT reduced mitigation impact projections in a number of areas where EEP had begun project identification based on watershed planning. The reductions were due to improved forecasting methods, use of on-site mitigation in lieu of off-site mitigation included in NCDOT's mitigation order, and decreased funding for road projects resulting in transportation projects being delayed beyond the projection timeline. The combination of these factors has resulted in some watershed plans being placed on hold until mitigation is needed in these areas.

Project Trends in Relation to Watershed Priorities

Through careful strategic planning, EEP has increased and will continue to increase the number of EEP projects developed through watershed based plans. Factors supporting the increase in planning-based projects include the following:

1. The initial demand rush, based on the original MOA, has been met and more time is available to conduct planning in advance of compliance timing requirements.
2. The MOA has been amended and the new timelines allow more time for planning;

3. Many watershed plans are now in place and will be utilized over the next 10 years;
4. NCDOT has refined its projections such that plans are unlikely to be developed in areas where there will be major reductions in mitigation needs;
5. LWPs have been refined to deliver better projects;
6. EEP was restructured to better integrate planning and implementation which resulted in more efficient project development.

As shown by the trend analysis below, statistics demonstrate an increasing congruence between watershed planning and project implementation. Through careful strategic planning, EEP will continue to promote increases in planning derived projects. Based on operational strategic planning, EEP forecasts that approximately 70 percent of the projects implemented by DBB in the next fiscal year will be derived from LWPs. In areas where program reliance is on FD procurement or other initiatives EEP will continue to seek greater congruence with RBRP targets.

Figure 6 displays the percentage of *total* EEP projects (NCDOT, WRP and EEP initiated) derived from the watershed-based planning process.

Figure 6
Planning Derived Projects as a Percentage of Total EEP Projects

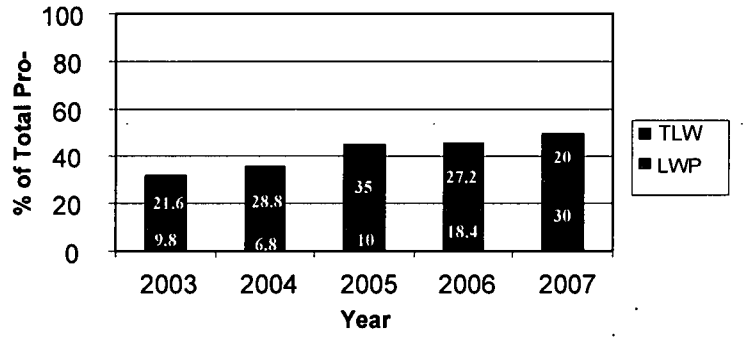
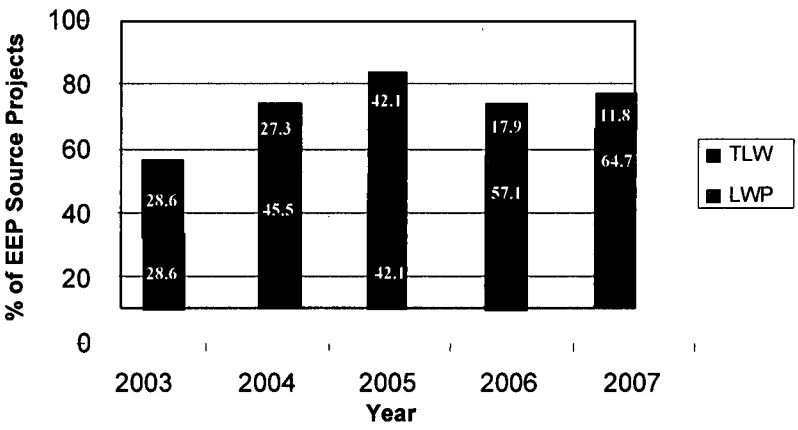


Figure 5 displays the percentage of EEP and WRP initiated (EEP Source) projects derived from the watershed-based planning process.

Figure 5
Planning Derived Projects as a Percentage of EEP Source Projects



Project Implementation

Statistics by Mitigation Type

EEP is currently providing management and oversight for 464 watershed restoration and enhancement projects (excluding HQP). These projects include those that were partially developed or initiated by NCDOT and the Wetlands Restoration Program (WRP), and transferred to EEP, along with projects that were generated by EEP since it's inception in 2003. The distribution of projects in the program is as follows:

- NCDOT transferred 107 DBB projects and 23 FD projects (130 projects total). Forty of these projects required additional implementation and development (i.e., feasibility, conceptual to final restoration plan, site acquisition). The remainder of the projects were transferred at some stage of monitoring.

- EEP has initiated and instituted nearly 160 projects (excluding HQP) through the DBB program. An additional 77 DBB projects were inherited from the WRP.

- In addition to the 23 NCDOT FD projects that EEP is managing, EEP has instituted another 99 FD projects.

A summary of the distribution of wetland and stream credits (i.e. restoration, enhancement or preservation) for EEP Tier 1 projects (instituted and designer assigned) is presented in Figures 8-11. These data are presented separately for the DBB and FD components of the mitigation program and provide the percentage of projects that have resulted from the watershed planning process.

The figures exclude projects that were transferred from NCDOT and do not include HQP sites since these projects were identified outside of the watershed-planning process based on Ecoregion service areas.

Figures 8 and 9 show the distribution of DBB Projects throughout the state and demonstrate that 76 percent of stream credits and 65 percent of wetland credits have been implemented in EEP planning areas. This is a three-percent increase for stream credits from 2006 and a decrease of seven percent for wetland credits.

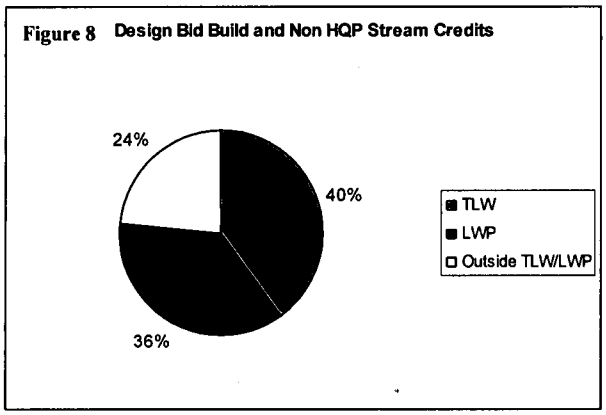


Figure 8. Distribution of Stream Credits derived from DBB Projects.

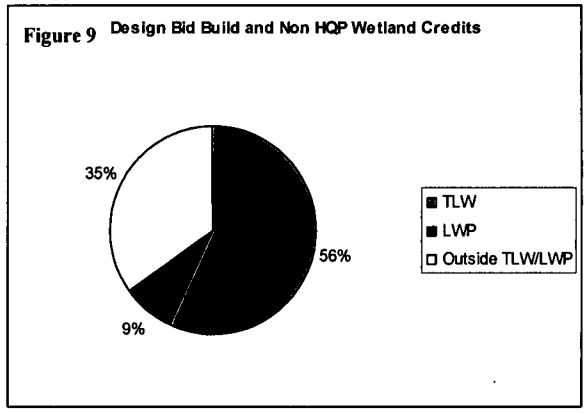


Figure 9. Distribution of Wetland Credits derived from DBB Projects.

Figures 10 and 11 represent the distribution of FD stream and wetland credits. These figures indicate that 38 percent of stream credits and 44 percent of wetland credits have been implemented in EEP planning areas. This represents an increase of six percent for planning-derived stream credits and reflects EEP's efforts to better align FD projects with the watershed-planning process. The percentage wetland credits developed within targeted watersheds did not change since last fiscal year.

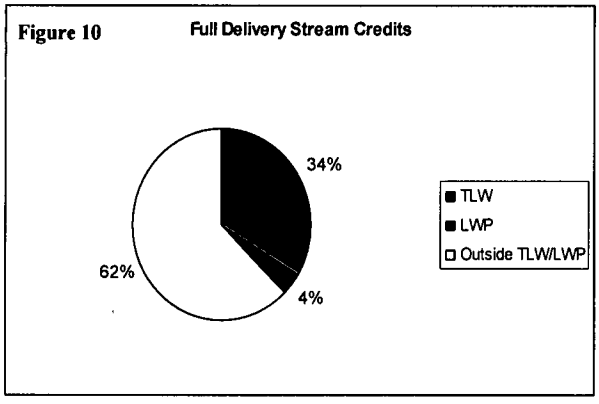


Figure 10. Distribution of Stream Credits derived from FD Projects.

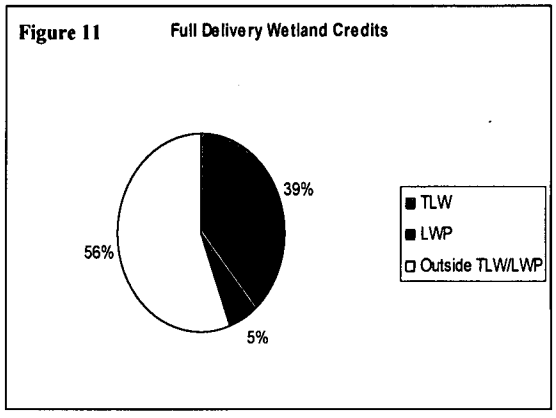


Figure 11. Distribution of Wetland Credits derived from FD Projects.

Additional Watershed Management Synergies Generated Through Planning

Benefits of watershed planning reach beyond compensatory-mitigation requirements. By sharing the plans, others can use the information contained within the plans to increase environmental benefits and assist in local decision-making. The following information highlights areas where EEP's planning efforts have resulted in actions beyond the implementation of restoration for mitigation credit.

- A local planning group consisting of representatives from Chapel Hill, Carrboro and the DWQ Nonpoint Source Program are focusing on management of stormwater in one of the priority areas identified in the Bolin Creek LWP. Through a Clean Water Management Trust Fund grant to the partners, additional fieldwork was completed to assess impacts on streams. The group is seeking additional grant funding to implement projects, such as stormwater BMPs to eliminate impairments to the stream.

- Watershed Education for Communities and Officials (NCSU) partnered with EEP on two stakeholder initiatives and a BMP demonstration field trip to Craven County.

- The Upper Neuse River Basin Association (UNRBA) completed Phases I-III of the Lick Creek watershed plan with funding from an EPA grant. EEP is now contracting with a private consultant to develop the Project Atlas based upon UNRBA's planning efforts, and is contracting with UNRBA to conduct landowner outreach.

- The Lower Creek Advisory Team (LCAT) has formed a partnership with stakeholders to carry out activities to restore and protect Lower Creek and its tributaries, implementing recommendations named in the Lower Creek Watershed Management Plan. In March 2007, the LCAT applied to the Clean Water Management Trust Fund for $310,000 to construct a stormwater wetland in Lenoir; this grant bid was successful, and the City of Lenoir, N.C. State University and the LCAT are working together to implement this project. In addition, EEP has presented the Lower Creek Watershed Management Plan recommendations for county and local government ordinance and programs to the Burke and Caldwell County Commissions, the Lenoir City Council, and the Gamewell Town Council. Each governing body voted unanimously to endorse these recommendations as guidance for future rule-making and program development.

- For the Peachtree-Martins Creek LWP effort, EEP has been modeling changes in land use and resulting pollutant loads. Local stakeholders identified ordinances that are not currently in place but are needed to protect the rich natural and cultural resources of eastern Cherokee County. Data generated as part of the LWP effort will be used by local stakeholders to educate local government decision-makers about actions they can take to protect local resources.

- In Brunswick County, the N.C. Coastal Federation partnered with EEP to address water quality issues in the Lockwoods Folly River. Using data, water quality models and build-out predictors from the Lockwoods Folly River LWP, the group was able to support recommendations to improve water quality in Brunswick County. Eight strategies were presented to the Brunswick County commissioners, who voted to implement the strategies and hire a water quality specialist to carry out the stakeholder's recommendations.

- EEP continues to pursue non-traditional wetland mitigation credit in the Catawba 03050103 CU. The effort will update work previously completed and will result in several pilot site opportunities. The purpose of this study is to present for consideration a flexible mitigation approach that would allow EEP to receive credit for implementing BMPs that could provide similar benefits of a natural wetland in a watershed where traditional wetland restoration opportunities are severely limited.

- CGIA completed a study to assess methods to measure impervious surfaces using remote sensing techniques to estimate impervious surface cover at six locations in the State. CGIA provided EEP with a report on the findings. Three different methods were compared, providing different degrees of quality corresponding to different levels of costs. The study demonstrated ways in which lower-cost methods might be substituted for higher-cost methods to provide useful measures of an important indicator of priorities for restoration, as well as an important consideration for restoration design.

- In the spring of 2007, EEP partnered with USFWS, WRC, NCDOT and others to perform a collaborative study on fish passage in the Needmore area of the Little Tennessee River Basin. This study will identify culverts, fords and other stream crossings that block the movement of fish. From this study, a prioritized list of crossings that should be replaced or repaired will be developed. EEP will develop recommendations to use the replacement

of barriers to fish passage as non-traditional mitigation.

- EEP adopted an MOU developed by the Wetlands Unit of DWQ and EEP Watershed Planning, resulting in wetland identification and classification in two LWP areas (Lockwoods Folly and Fishing Creek). An EPA grant was provided to DWQ for the identification.

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MONITORING

The EEP Monitoring Section is focused on four primary areas: 1) oversight of annual monitoring for all restoration projects; 2) assistance to the Design/Construction Section with maintenance for all restoration projects; 3) data management and analysis; and 4) project and program improvement.

For FY 2006-07 EEP monitored 143 (both DBB and FD) restoration and enhancement projects (Appendix K). There were 27 wetland restoration projects and 66 stream restoration projects; 32 projects contained both wetland and stream components; and there were 18 riparian-buffer restoration projects. These projects totaled 6,701 acres of wetland restoration, enhancement and preservation, 678,584 linear feet of stream restoration, enhancement, and preservation, and 867.8 acres of riparian-buffer restoration.

Monitoring reports are located on the EEP Web site.

Monitoring Results and Trends

In FY 2006-07, the EEP monitoring group reviewed and edited annual Monitoring Reports for 50 projects with stream-restoration components. This is approximately double the number of stream-project reports that were reviewed in FY 2005-06.

Annual geomorphic data of four types was reviewed and evaluated: channel dimension (cross-sections), profile (thalweg surveys), substrate (particle size distributions), and engineered structure stability. The assessment of overall channel "success" was based on the consideration of these four metrics. However, it is important to keep in mind that natural stream systems are dynamic, and likely ever-changing, even if at slow rates or in "fits and starts" due to major storms or droughts. As such, any annual determination of channel "success" is a difficult one.

For FY 2006-07, 88 percent (44 of 50) stream projects were determined to be "currently successful." This compares with 83 percent (19 of 23) projects in FY 2005-06. Of the remaining six projects that were "currently unsuccessful," three have been repaired as of this reporting, and repair planning has begun on the other three.

Reports have also indicated a 20-percent increase in success of vegetative criteria. In the FY 2005-06, vegetative success was reported approximately at 61 percent, while for FY 2006-07 (2006 growing season) vegetative success is at 81 percent.

Project Closeout Activity

Once the required monitoring period is complete and a project is deemed successful, EEP staff submit a summary report to the Program Assessment and Consistency Group-Technical Committee (PACG-TC) for review. The summary report is a synthesis and distillation of seven years worth of project data designed to provide an overall performance summary and rationale for close-out. The purpose of close-out is to lock in project credit yield with the regulatory agencies. Eleven projects were submitted and approved for regulatory close-out by the monitoring unit during this fiscal year, including the program's first stream project (Appendix K). The 11 projects accounted for 9,372 linear feet of stream restoration, enhancement and preservation; 1,723.7 acres of wetland restoration, enhancement and preservation; and 36.3 acres of riparian buffer restoration.

Project Improvement Activities and Initiatives Related to the Stream Restoration

The EEP Monitoring section has initiated the following improvements concerning the assessment and maintenance of stream projects:

- Advancing standardization of data collection and reporting
  Through the creation and revision of process documents and guidance documents (templates) for mitigation plans and monitoring reports, EEP has continued to make advances in the standardization of data collection. These initiatives are providing a concentrated data format that favors tabular and graphical representations of project data over narratives. This has included significant development of policy and procedures documents that are designed to redefine the transition from construction to monitoring, whereby monitoring contractors are introduced earlier in the process to collect the projects baseline data, maximizing temporal consistency. Staff has also initiated the development of draft decision framework for monitoring of restoration projects. The framework provides information that leads to targeted, more cost-effective monitoring.

- Continued development of visual stream-assessment protocol for EEP monitoring
  EEP monitoring staff has continued to refine the methods, criteria and plan-view depiction of stream condition during the monitoring phase, and is working toward an analogous approach for pre-construction phases of EEP projects for the purpose of contrasting and comparing project conditions through time.

- Continued construction of electronic data histories for EEP project inventory
  Approximately 160 documents, document components and data deliverables spanning multiple formats have been identified to comprise the electronic file history of each EEP project. This electronic document and data inventory has been formulated with many essential applications and many end users in mind, including monitoring, analysis (project and program scale), research, regulatory close-out, and project stewardship. Prior to the introduction of recent standards documents by EEP's Monitoring and Design and Construction units, certain data were not provided during project development or were not provided in formats compatible with end-user needs. The population of this data inventory/matrix through acquisition and integration of data in electronic formats from earlier EEP projects has been a continuing time-intensive, yet essential, effort.

- Technical review of program plan documents and reports
  EEP stream-monitoring personnel conducted detailed technical reviews of approximately 50 design plan documents and approximately 60 monitoring reports for stream-related components.

- Initial development of project maintenance thresholds
  The EEP Monitoring section has assisted in the development of a project maintenance matrix to track project condition across the major categories of channel, vegetation and property. During the review of annual Monitoring reports, channel maintenance needs (or potential needs) are documented. Subsequently, monitoring staff made a series of site visits to validate reporting, and to determine if repair thresholds had been exceeded. This work has been done in close cooperation with EEP's maintenance engineer.

- Committee involvement for addressing specific program needs
  Stream-monitoring personnel have participated in the ongoing development of protocols and solutions for specific program needs including:

  ◊ Functional currency approaches to compare BMPs and natural-systems restoration for the purpose of developing a stream-BMP crediting system.
  ◊ Participated in the development of assessment approaches and standards to better ensure that organism passage is protected as part of restoration efforts, and to examine passage augmentation independent of stream-restoration projects as a potential source of alternative mitigation.
  ◊ Participated in the development of a multi-agency stream-functional-assessment method for the purpose of categorizing stream impacts for mitigation purposes.

- Contractor orientation and training
  Monitoring personnel presented information and guidance to members of the consulting community eligible for contracting under EEP's DBB program.

Vegetation Success.
Vegetation success is paramount to ensuring project success. EEP has taken the following efforts to improve documentation and provide guidance for monitoring and reporting vegetation success.

- Vegetation Template Revision:
  As part of an ongoing effort to improve project documentation and success, the vegetation portion of several project document templates have been updated, including: Environmental Resources Technical Report (ERTR), Mitigation Plan, Restoration Plan, Final Design, and Monitoring Report documents. Collectively, the revised documents will complement each other by building on a base of information that begins at project inception and continues through the project close-out phase. Forthcoming revisions will not only improve the functionality of each document, but will also eliminate redundancy of format and effort on the part of EEP contractors.

- Vegetation Management/Easement Maintenance
  Efforts have been initiated by Monitoring staff to produce a new EEP guidance document that will outline program requirements for easement maintenance. Contracts for vegetation-driven maintenance are becoming increasingly necessary due to a number of issues associated primarily with easement-encroachment, low planted stem survival rates, and exotic invasive plant infestations. Once implemented, the new guidance will serve as a basis for easement management agreements between EEP and various entities already involved in ongoing vegetation maintenance adjacent to the program's mitigation projects, such as parks, golf courses, and greenways. The new document will also become an integral part of a novel approach toward maintenance contracts intended to correct various vegetation problems that may result in credit reduction. This approach differs from traditional EEP maintenance contracts by incorporating relatively small amounts of preventative measures at numerous project sites into one contract. The new contract may include: replanting, installation of easement boundary markers, herbicide treatments, installation/removal of tree shelters, and pruning.

- Vegetation Monitoring
  Implementation of the Carolina Vegetation Survey-EEP Protocol for Recording Vegetation (Lee, et al., 2006), has continued under an EEP requirement for all new projects to utilize the new method as outlined in the EEP Mitigation Plan template. To facilitate this transition from numerous uncoordinated vegetation-monitoring methods to a refined data management system that complies with current scientific and pending federal guidelines, a workshop focused on vegetation monitoring was conducted by CVS and EEP staff in June 2007. During this two day workshop, all active On-call firms and FD providers were given comprehensive training necessary for all aspects of applying the protocol, from mitigation-plan development to data delivery. Consequently, an increasing percentage of all the 2007 EEP projects will have vegetation monitoring data that is processed, summarized, and delivered in an efficient automated manner.

  Lee, Michael T., Peet, Robert K., Roberts, Steven D., Wentworth, Thomas R. (2006) CVS-EEP Protocol for Recording Vegetation. (http://cvs.bio.unc.edu/methods.htm)

PROJECT AND PROGRAM IMPROVEMENT RESEARCH

During the FY 2006-07, EEP has continued the research program begun in FY 2005-06. The goal of the research program is to improve EEP effectiveness by helping to increase project success and reduce costs by:

- Improving cost-effective selection among project alternatives and design options within a watershed context;
- Increasing project success;
- Reducing maintenance costs;
- Improving mitigation ratios; and
- Reducing monitoring costs through use of functional methods and other programmatic improvements.

EEP research works through partnerships with state, local and federal agencies and universities. The research program encompasses three broad focus areas: functional assessment, catchment studies and restoration methods.

Functional Assessment

Functional-assessment research projects focus on methods to improve the assessment of stream and wetland condition at both project and watershed scales, and will be usable in assessing both the need for and success of restoration.

Ongoing or new projects in this area include:

- Carolina vegetation survey (UNC, R. Peet and NCSU, T. Wentworth)
- Stream geomorphology reference database (NCSU, G. Jennings)
- Multivariate evaluation of vegetation success (ECU, R. Rheinhardt; part of a cooperative agreement with EPA Region IV)

Projects completed during FY 2006-07 include:

- Urban stream nitrogen uptake study (Duke, E. Bernhardt)
- Biogeochemical function of restored coastal wetlands (Duke, E. Bernhardt)
- Five Mile Branch herpetological survey, Iredell County (M. Dorcas, Davidson College)
- Urban stream reference and outer coastal plain assessment (ECU, M. Brinson).

Catchment Studies

Catchment studies include projects that demonstrate the effects that restoration projects have on water quality, habitat and hydrology at large scales. These studies will help in the selection among project alternatives to better meet programmatic watershed improvement goals. During FY 2006-07, EEP began catchment studies of:

- Big Harris Creek, Cleveland County (NCSU, G. Jennings and DWQ);
- Survey of macrobenthos in restored coastal plain streams (NCSU, G. Jennings);
- Heath Dairy, Randolph County (NCSU, G. Jennings, and DWQ); and
- Unnamed tributary to Crab Creek, Alleghany County (DWQ).

Restoration Methods

By studying restoration methods, EEP will be able to improve the success of restoration projects, limit the need for maintenance, and improve cost-effectiveness.

Ongoing or new projects in this area include:

- Carolina Vegetation Survey (UNC, R. Peet and NCSU, T. Wentworth);
- North River Farms Phase II monitoring, Carteret County (NCSU, R. Evans);
- Ripshin Creek, Ashe County (NCSU, G. Jennings); and
  Dye Branch BMP and stream-restoration study, Mooresville, Iredell County (NCSU, B. Hunt and G. Jennings, and DWQ).

Projects completed during FY 06-07 include:

- North River Farms Phase II construction, Carteret County (N.C. Coastal Federation); and Sand Bed Streams Sediment Study (Buck Engineering; part of a cooperative agreement with EPA Region IV).

EEP is also collaborating with regulatory agencies to develop innovative approaches to mitigation and to develop and implement functional assessment methods. Projects include:

- White Oak LWP (with WPPI and ECU, M. Brinson);
- aquatic organism passage study (with US F&WS);
- wetlands functional assessment (NC WAM) implementation (with DWQ, DCM, USACE and EPA)
- stream functional assessment development (with DWQ and other NCDENR agencies, USACE and EPA).

In addition, monitoring staff are also coordinating with in-state academic institutions related to stream functional assessment on the following activities:

- Collaboration with North Carolina State University to develop a stream restoration reference reach database. Numerous channel reference reaches have been identified, surveyed, and utilized in restoration designs in North Carolina. These data should be compiled and available for query, analysis, and for future design work. Additionally, the success of completed projects should be measured by comparing against statistics from reference reaches.

- Collaboration with Western Carolina University (Jerry Miller) on a study to identify Geomorphically Suitable Sites for Stream Restoration. The study will focus on the

Southern Appalachian and Piedmont Physiographic provinces and will produce a rubric-type model to identify stream segments that are likely to be highly unstable, and thus not good candidates for restoration projects.

- Collaboration with the University of North Carolina (Joel Sholtes) on a study to document effects of stream restoration projects on hydrologic function (flood attenuation).

Additional research goals for the FY 2007-08 include:

- Develop grant applications with researchers in academia and sister agencies to broaden project scope to reduce burden of research costs and increase partnerships.
- Continue to establish linkages and improve collaboration and cooperation between the DOT Research and Analysis Branch and the EEP research program; and
- Continue to develop and assess new approaches for non-traditional mitigation; and continue to define ways in which EEP will meet its commitment to implement the N.C. Division of Marine Fisheries Coastal Habitat Protection Plan.

For further information on EEP research, contact Kevin H. Miller, EEP Research and Grants Coordinator (kevin.miller@ncmail.net or 252-916-6576).

High Quality Preservation Partnerships

Following through on MOA transition requirements, in FY 2006-07 partnerships between local land trusts, state agencies and EEP protected more than 2,300 acres of land on 29 HQP sites throughout the state. These sites focused on conservation of stream corridors bordering designated significant aquatic habitats in the Upper Tar, Uwharrie, and Deep River watersheds of the Piedmont. In addition to more common aquatic species, the Tar spiny mussel, Cape Fear Shiner, and dwarf wedge mussel live in the waters of these tracts.

- The Natural Heritage Trust Fund partnered with EEP and the Plant Conservation Program to fund the purchase of land harboring rare plant and animal populations in the Eno, Fisher, and Green River watersheds. The Uwharrie River Bingham acquisition protected nearly eight miles of nationally significant aquatic habitat along the river and its tributaries. The Land Trust for Central North Carolina received a donation from private donors to fund acquisition of the adjacent uplands. This purchase protected seven species of globally rare mussels as well as scenic views along this popular canoe route. The site was identified in the Uwharrie River Corridor Plan.

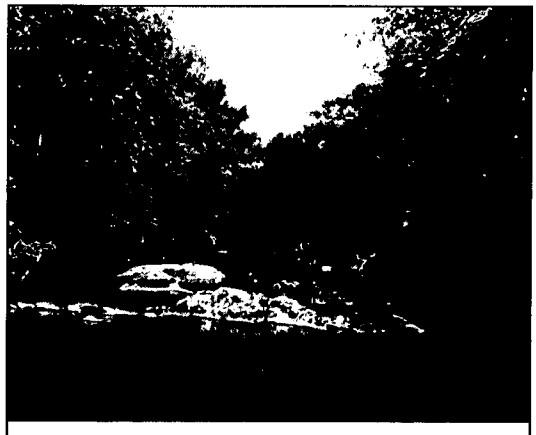

Photo courtesy Tar River Land Conservancy

- Private landowners agreed to permanently protect 11 additional tracts in the Upper Tar River watershed.

- The Fisher River / Fisher Peak acquisition protected water supplies and a natural area of state significance in the Fisher River watershed.

Photo courtesy Sandhills Area Land Trust

- Five parcels along the Deep River and Drowning Creek drainages were placed in permanent conservation easement. The Deep River harbors the Federally Endangered Cape Fear Shiner. Tributaries to Drowning Creek are designated as Water Supply II waters.

Photo courtesy Piedmont Land Conservancy

Appendix A1. MOU Stream and Wetland In-lieu Fee Program Payments and Requirements

Project Name	DWQ Cert. No.	USACE Action ID	Payment Date	Stream	Riparian Wetland	Non Riparian Wetland	Coastal Marsh	Payment Amount
Brandywine Subdivision	2006-0285	200520821	7 /3 /2006	516	0	0	0	$113,004.00
Avinger Lane Realignment and Extension	2006-0695		7 /5 /2006	246	0	0	0	$53,874.00
Seagrass, LLC		200632079-127	7 /5 /2006	0	0	0.02	0	$3,280.75
Vineyard West	2006-0512	200401136	7 /5 /2006	0	0	0.21	0	$3,280.75
Moores Chapel Commercial & Residential	2005-1854	200531006	7 /5 /2006	681	0	0	0	$149,139.00
Fayetteville Road Assemblage	2006-0715	200620268	7 /6 /2006	320	0	0.11	0	$73,360.75
Flat Branch Elementary School	2005-2162	200430773	7 /7 /2006	0	0	1.8	0	$26,246.00
Glenwood Crossings	2005-2231	200521290	7 /10/2006	316	0	0	0	$69,204.00
Wet Ash Swamp		200600849	7 /11/2006	0	0	0.04	0	$3,280.75
Lockwood Folly		200600454	7 /11/2006	0	0	0.2	0	$3,280.75
Loop Road Subdivision	2005-1857	200421675	7 /12/2006	209	0	0	0	$45,771.00
Cathie Urban Retirement Home		200632513146	7 /13/2006	0	0	0.044	0	$3,280.75
River Lure	2006-0405	200632199065	7 /16/2006	114	0.26	0	0	$38,089.00
Holly Springs Retail Site	2006-0002	200620291	7 /19/2006	0	0	1	0	$13,924.00
Jim Brown Chrysler Dealership	2006-0500	200630010	7 /20/2006	268	0.41	0	0	$71,815.00
I-85/NC 73 Site, Carpenter Commercial	2006-0523	200630802	7 /24/2006	0	0.5	0	0	$13,123.00
NC Railroad Company, Auburn Sidings	2006-0677		7 /24/2006	319	0.4	0.21	0	$86,264.75
Twelve Oaks	2006-0352	200633159	7 /25/2006	395	0.25	0	0	$98,601.75
Judd Parkway Extension & Southview Pointe	2005-2254	200621012	7 /27/2006	0	0.228	0	0	$6,561.50
Campus Square		200632627065	7 /31/2006	0	0	0.25	0	$3,280.75
1208 Bonito Lane	2006-0583	200501289	8 /2 /2006	0	0	0.116	0	$3,280.75
Hidden Lake	2006-0658	200620803	8 /4 /2006	250	0.29	0	0	$67,873.00
Tim Smith Sunset Lot	2005-0173	200510610	8 /7 /2006	0	0	0.16	0	$3,280.75
Anchor Medical Center		200633108010	8 /7 /2006	0	0	0.16	0	$3,481.00
Salisbury Shopping Center	2006-1184	2006154205-380	8 /8 /2006	0	1	0	0	$27,847.00
Ten-Ten Commons	2006-0493	200632428292	8 /8 /2006	0	0.64	0	0	$20,885.25
2344 Sandfiddler Road	2006-0953	200632696127	8 /9 /2006	0	0	0.18	0	$3,481.00
Perth Road Project	2006-0280		8 /10/2006	297	0	0	0	$65,043.00
Waterside Villages	2006-0012	200610369	8 /10/2006	0	0	0.15	0	$3,280.75
Waterstone Residential Development	2005-1967	200640351-268	8 /18/2006	584	0.288	0	0	$149,411.50
Cambridge Crossing	2005-0908	200500875	8 /21/2006	0	0	0.49	0	$6,561.50
Laurel Valley Subdivision			8 /21/2006	20	0	0	0	$4,640.00
Governors Village	2005-0810	200520149	8 /22/2006	148	0.75	0	0	$55,221.25
Old Oaks at Belle Isle	2006-0592	200632048-127	8 /23/2006	0	0	0.19	0	$3,481.00
Newbury Ridge		200632257-063	8 /23/2006	32	0.063	0	0	$14,385.75
104 Virginia Avenue		200632983-065	8 /25/2006	0	0	0	0.031	$34,808.75

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Project Name	DWQ Cert. No.	USACE Action ID	Payment Date	Stream	Riparian Wetland	Non Riparian Wetland	Coastal Marsh	Payment Amount
Oaks at Sippihaw	2006-0761	200420686	8 /25/2006	0	0.39	0	0	$13,123.00
Sandy Shores, Lot A	2005-0410	200632069-127	8 /28/2006	0	0	0.2	0	$3,481.00
Chapel Ridge Subdivision		200521110	8 /28/2006	298	0.499	0	0	$78,385.00
St. James Plantation, Lot 35	2006-0132	200600502	8 /30/2006	0	0	0.14	0	$3,280.75
Surf City WTP	2006-1167	200501066	8 /30/2006	0	0	0.4	0	$6,962.00
Birch Street: Lots 112R & 113R		2006696-009	8 /30/2006	0	0	0.5	0	$6,962.00
Burlington - Alamance Regional Airport Runway 24 E	2005-1711	200320418	8 /31/2006	2,228	1.44	0	0	$527,301.00
Glenn Ford Property Access	2005-2158	200610388	9 /6 /2006	0	0	0	0.24	$32,807.50
Haw Mountain, Mars Hill	2006-1046	200632682-357	9 /8 /2006	0	0.5	0	0	$13,923.50
Utley Creek WWTP Upgrade & Expansion	2005-1286	200420744	9 /8 /2006	806	0	0	0	$176,514.00
Clarendon Park	2006-0932	2006 32868 065	9 /11/2006	0	0.19	0	0	$6,961.75
DOT - US 17 (Washington Bypass)	2005-0785	1999301143	9/19/2006	8,488	17.06	7.76	0	$2,416,599.50
Highcroft Village Subdivision	2002-1169	200640419-292	9 /20/2006	0	0	0.3	0	$6,962.00
Louis-Stephens Drive	2006-0770	200520451	9 /26/2006	328	0.59	0	0	$91,516.50
White Oak Interceptor and Pump Station		2006-40250-292	9 /27/2006	0	0.5	0	0	$13,923.50
Copper Creek Subdivision		2006154192047	9 /29/2006	70	0.24	0	0	$23,201.75
Providence Park		2006-00857-065	10/2 /2006	0	0	0.17	0	$3,481.00
Scott Farms		2006-00257	10/2 /2006	0	0	0.463	0	$6,962.00
Wisteria Medical Office		2006-40478-065	10/6 /2006	0	0.12	0	0	$6,961.75
Avon Sand Mine Expansion	2006-1048		10/9 /2006	0	0	4.75	0	$66,139.00
High Explosives Ordinance Magazines	2005-1785	200610044	10/9 /2006	0	0	0.5	0	$6,561.50
Majestic Oaks	2006-0843	2005-01194	10/10/2006	270	0.09	0.203	0	$73,082.75
Woodlands Residential	2006-0643	200520152	10/12/2006	424	0	0	0	$92,856.00
Lowe's of South Winston-Salem	2006-1258	2006-40931-234	10/13/2006	300	0	0	0	$69,600.00
Novartis Holly Springs Site	2006-1376	2006-40023-292	10/13/2006	395	0	0	0	$91,640.00
Turtle Creek, Lot 1/Block 3A	2006-1011	2006-32985-010	10/16/2006	0	0	0.14	0	$3,481.00
Sterling Farms Subdivision	2005-1766	200500551	10/16/2006	0	0	0.5	0	$6,561.50
Lanvale Forest	2005-1499	2005-00332	10/17/2006	0	0	0.45	0	$6,962.00
Richmond Park Sec. 3-5 at Northridge Plantation	2005-1956	200600289	10/18/2006	0	0	1.18	0	$17,405.00
Fort Bragg Hammond Hills Neighborhood	2005-0481	2006-33104-026	10/19/2006	104	0	0	0	$24,128.00
Forty Wade	2006-0961	2006-20546-292	10/19/2006	504	0	0	0	$116,928.00
Green Oaks Parkway	1999-0239	2006-20193-292	10/19/2006	1,014	1.44	0	0	$277,018.50
St James Plantation, Lot 1, Sec 6, Players Club	2006-1314		10/20/2006	0	0	0.02	0	$3,481.00
Heritage Pines	2005-0736	2005-20456	10/23/2006	594	3.12	1.4	0	$249,196.75

Appendix A1. MOU Stream and Wetland In-lieu Fee Program Payments and Requirements

Project Name	DWQ Cert. No.	USACE Action ID	Payment Date	Stream	Riparian Wetland	Non Riparian Wetland	Coastal Marsh	Payment Amount
Hampstead Furniture	2005-0291	200401248	10/26/2006	42	0.087	0	0	$16,705.75
Paradise Harbor	2006-0799	2006-30620	10/27/2006	235	0	0	0	$51,465.00
Riversound, Edenton	2006-1245	2006-32436-121	11/1 /2006	0	0	0.72	0	$10,443.00
Liberty Point Section 3	2006-1537	2006-40846-047	11/1 /2006	80	0	0	0	$18,560.00
Woodburn Crossing	2005-0653	2006-32297-349	11/3 /2006	230	0	0	0	$53,360.00
Moore County Airport	2000-3565	2003-00998	11/6 /2006	840	0	3.74	0	$247,095.00
Belmont Reserve	2006-0506	2006-30826	11/9 /2006	200	0	0	0	$46,400.00
243 Beech Street	2005-1414	2005-00229	11/13/2006	0	0.076	0	0	$6,961.75
7150 River Road	2006-1571	2005-688-065	11/14/2006	0	0.0448	0	0	$6,961.75
Topsail High School Expansion	2006-0065	2005-01014	11/14/2006	0	0	5.12	0	$73,101.00
Davidson County Phase 2 Landfill	2006-1577	2006-41011-229	11/21/2006	0	0.25	0	0	$6,961.75
Farm at Brunswick		2006-41362-010	11/29/2006	65	0	0	0	$15,080.00
Dare County Justice Facility: Phase II	2006-0946	2006-32369-128	12/1 /2006	0	0	1.9	0	$27,848.00
Dawson Place Section 1		200600316	12/1 /2006	87	0.092	0	0	$27,145.76
Apex Peakway	2006-1151	2006-40547-292	12/1 /2006	808	0	0	0	$187,456.00
Harbor Oaks, Lot 88	2006-1464	2006-40772-010	12/4 /2006	0	0.08	0	0	$6,961.75
Middle Creek Commons	2006-1421	2006-40446-251	12/6 /2006	0	0	0.94	0	$13,924.00
Mirror lake Estates	2005-0007	2005-30965	12/8 /2006	385	0	0	0	$84,315.00
Lee County Middle School	2006-1473	2006-41076-253	12/8 /2006	0	0	0.325	0	$6,962.00
Greystone Subdivision	2006-1160	2005-20207-292	12/12/2006	0	0.25	0	0	$6,961.75
Sunny Point Subdivision		200500579	12/14/2006	0	0	0.47	0	$6,962.00
Fort Bragg Brigade Combat Team Complex	2005-1455	200501095	12/19/2006	180	0	0	0	$41,760.00
Affies Oaks Subdivision, Lots 1&2	2006-1722	2006-41471-128	12/20/2006	0	0	0.15	0	$3,481.00
Westgate, Hoke County	2006-0591	2006-32565-047	12/21/2006	0	0.262	0	0	$13,923.50
William Irvin Warren Property		200400692	12/27/2006	80	0	0	0	$17,520.00
Forsyth Country Club	2006-0299	2006 41279 234	1 /10/2007	130	0	0	0	$30,160.00
Henry Simpson Lane	2006-1367	2006-40637-127	1 /11/2007	0	0	0.18	0	$3,481.00
Swan Beach Lot 80 Sec 2	2006-1422	2006-40972-127	1 /16/2007	0	0	0.1	0	$3,481.00
Tideland EMC Housing	2006-1233	2006-40468-148	1 /22/2007	0	0	0.08	0	$3,481.00
Beachside Extension Lots 58 and 66	2002-1157	2006-41141-148	1 /22/2007	0	0	0.18	0	$3,481.00
Price Property/ BC Custom Builders	2006-1785	2007-31-128	1 /24/2007	0	0	0.2	0	$3,481.00
Warner Lot Access	2002-1157	2006-41141-148	1 /30/2007	0	0	0.2	0	$3,481.00
Sheffield Farms	2006-1615	200400174	1 /30/2007	0	0.25	0	0	$6,961.75

Appendix A1. MOU Stream and Wetland In-lieu Fee Program Payments and Requirements

Project Name	DWQ Cert. No.	USACE Action ID	Payment Date	Stream	Riparian Wetland	Non Riparian Wetland	Coastal Marsh	Payment Amount
Tuscany	2006-1333	2007276292	1 /31/2007	0	0	0.288	0	$6,962.00
Olde Towne Site	2006-0447	2006-20287-292	1 /31/2007	300	0.4752	0	0	$83,523.50
The Hamptons	2006-0062	200620801	2 /2 /2007	247	0	0	0	$57,304.00
Union County Public School "G" Site	2006-1085	2006-41185-390	2 /6 /2007	284	0	0	0	$65,888.00
Highway 17, 5 Tracts	2006-0941	2006 32838 067	2 /7 /2007	0	0	0.82	0	$13,123.00
Wild Acres, Holly Springs	2006-1214		2 /8 /2007	510	0.76	0	0	$146,167.00
Ridge at Kenneth Creek	2006-1162	2006-40878-292	2 /12/2007	0	0.5346	0	0	$20,885.25
Lemington	2006-0059	200630385	2 /12/2007	216	0	0	0	$50,112.00
West Clemmonsville Road Extension	2006-0868	2006-32489-234	2 /12/2007	2,591	0.33	0	0	$615,035.50
Fleming Fields Subdivision	2006-1738	2007-620-292	2 /13/2007	0	0	0.288	0	$6,962.00
Olde Point, Lot 140	2007-0057	2007-123-071	2 /14/2007	0	0	0.066	0	$3,481.00
Lanier Landing Ditching Plan	2007-0064	200763065	2 /14/2007	0	0	0.172	0	$3,481.00
Villages at Turtle Creek Phase I	2006-1274	200600208	2 /14/2007	0	0	0.41	0	$6,962.00
Gregory Poole Subdivision	2006-1833	200640213201	2 /14/2007	0	0	0.97	0	$13,924.00
Quail Roost Subdivision	2006-1829	2006-40100-067	2 /14/2007	62	0	0.1884	0	$17,865.00
Joel Bennett Lot 8 Leisure Shores		2006-40766-146	2 /15/2007	0	0	0.2	0	$3,481.00
Glenn View Station	2006-1013	2006-40557	2 /15/2007	0	0.26	0	0	$13,923.50
Waterford Estates	2006-1731	2007-440-292	2 /15/2007	0	0	0.512	0	$10,443.00
Zimmerman	2006-1930	2007-40-128	2 /21/2007	0	0	0.2	0	$3,481.00
Langston Ridge	2006-1745	2006-20660-292	2 /21/2007	0	0.42	0	0	$13,923.50
Willowick	2006-1522	2006 40949 065	3 /1 /2007	72	0	0	0	$16,704.00
Nautical Greens Subdivision	2007-0039	2007-43-065	3 /6 /2007	0	0	0.18	0	$3,481.00
Lenoir Wal-Mart	2006-1179	200630760	3 /6 /2007	394	0	0	0	$91,408.00
1113 Bonito Lane		2006-41785-065	3 /7 /2007	0	0	0.12	0	$3,481.00
Barlett	2007-0021	2006-10734-128	3 /8 /2007	0	0	0.02	0	$3,481.00
Moody Lake Business Park	2006-1122	2006-40061-360	3 /12/2007	237	0.45	0	0	$68,907.50
Vulcan Materials East Forsyth Quarry	2006-1712	2006-41139-234	3 /12/2007	519	0	0	0	$120,408.00
Grand Oaks	2007-0127	2007-41034-071	3 /14/2007	52	0.05	0	0	$19,064.75
Islamic Center of Cary	2003-0482	200420772	3 /15/2007	0	0.25	0	0	$6,561.50
Morgan Creek Subdivision	2003-1018	200420091	3 /15/2007	292	0	0	0	$58,400.00
The Refuge at Drummond's Point		200510019	3 /19/2007	0	0.75	0.51	0	$29,526.75
Cape Fear Crossing Subdivision	2005-0345	200500246	3 /20/2007	140	0.62	0	0	$53,365.25

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Project Name	DWQ Cert. No.	USACE Action ID	Payment Date	Stream	Riparian Wetland	Non Riparian Wetland	Coastal Marsh	Payment Amount
New Bern River Station Subdivision		200610371	3 /22/2007	0	0	0.16	0	$3,280.75
Rocky River Landing	2007-0076	2007-360-313	3 /22/2007	150	0.49	0	0	$48,723.50
Brookstone Pointe and Lands End @ Brookstone	2007-0322	2007-195-067	3 /30/2007	168	0	0	0	$38,976.00
Edgemont Landing	2006-1945	2007-1102-292	3 /30/2007	178	0	0	0	$41,296.00
Renaissance Village	2005-0208		3 /30/2007	227	0.18	0	0	$56,274.50
Ridge Field at Middle Sound	2007-0299	2005-617-065	4 /2 /2007	0	0	0.148	0	$3,481.00
Tidal Walk Subdivision	2006-1943	200401082	4 /2 /2007	40	0.24	0	0	$16,241.75
Jackson Dunes, Lot 7		200511676	4 /4 /2007	0	0	0.14	0	$3,280.75
Jackson Dunes, Lot 6		200511675	4 /4 /2007	0	0	0.2	0	$3,280.75
Holiday Shores: Lot 7	2006-4521	2006-32355-128	4 /4 /2007	0	0	0.2	0	$3,481.00
Holiday Shores, Lot 11	2006-0834	200632248128	4 /4 /2007	0	0	0.22	0	$3,481.00
Holiday Shores: Lot 10	2006-0805	2006-32170-128	4 /4 /2007	0	0	0.22	0	$3,481.00
Autumn Hall	2006-0930	2006-40204-065	4 /9 /2007	68	0.115	0	0	$22,737.75
New Vermillion	2006-0916	2006-33063-360	4 /9 /2007	222	0	0	0	$51,504.00
Bromley	2006-1849	2006-41599-390	4 /9 /2007	300	0.5	0	0	$83,523.50
Cedarvale Farms	2006-0101	200531042	4 /9 /2007	367	0	0	0	$85,144.00
Northwoods: Block O, Lot 1		200632175-067	4 /10/2007	0	0.198	0	0	$6,561.50
Wal-Mart Super Center #4459-00	2006-0646	2007-753-264	4 /10/2007	918	0	0.171	0	$216,457.00
Cramer Woods, Phase III		200630529	4 /11/2007	285	0	0	0	$62,415.00
NC Railroad Powhatan Sidings	2006-1394	200640540251	4 /12/2007	0	0	2.88	0	$41,772.00
Research Park at Westfall	2005-1065	2004-9981703-065	4 /12/2007	312	0.88	0	0	$100,231.00
South Market Square Extension		200511654	4 /17/2007	0	0	2	0	$26,246.00
Sunset Oaks, Phases 3, 6, 7 & 8		200620479	4 /19/2007	0	0	0.156	0	$3,280.75
Barris	2006-1846	2006-32081-128	4 /23/2007	0	0	0.2	0	$3,481.00
Ballantyne South	2005-1854	200630218	4 /23/2007	0	1	0	0	$27,847.00
Sunset Ridge Subdivision	2005-0805	200500323	4 /26/2007	0	0	0.788	0	$13,123.00
3209 Mill Landing Road		200511905	5 /2 /2007	0	0	0.08	0	$3,280.75
Lot 65 Arboretum (738 Alyssum Ave)		200500443-010	5 /2 /2007	0	0.25	0	0	$6,961.75
South Wake Landfill	1993-0818	2006-20191-292	5 /2 /2007	0	6.73	0.15	0	$191,448.25
Tanbridge Park	2007-0042	20041069065	5 /2 /2007	41	0	0	0	$9,512.00
Green Tree Subdivision	2006-1311	2006-41246-125	5 /9 /2007	0	0.09	0	0	$6,961.75
Juniper Creek	2007-0158	2007-900-253	5 /11/2007	0	0.46	0	0	$13,923.50
St James Plantation, Sec 1, Lot 3	2003-1012	200301185MOD	5 /15/2007	0	0	0.28	0	$6,962.00
Morris - Lot 67: Section 2	2006-1093	200640469127	5 /16/2007	0	0	0.2	0	$3,481.00

Appendix A1. MOU Stream and Wetland In-lieu Fee Program Payments and Requirements

Project Name	DWQ Cert. No.	USACE Action ID	Payment Date	Stream	Riparian Wetland	Non Riparian Wetland	Coastal Marsh	Payment Amount
Carriage Park Phase Two	2007-0243	2006 41292 063	5 /17/2007	0	0.66	0	0	$20,885.25
Whitewater Parkway	2005-2113	200630294	5 /22/2007	485	0	0	0	$112,520.00
Town of Swansboro - Wastewater Treatment Plant	2004-0385	200401197	5 /23/2007	0	0.2	0	0	$6,961.75
Midwood Phase II (Firth Court Redevelopment)	2004-1615	200530123	5 /23/2007	0	0.82	0	0	$27,847.00
Optimist Club Road Site	2006-1893	2006-41665-355	5 /23/2007	299	0	0	0	$69,368.00
US 521 Landfill (Foxhole)	2005-0893	200531884	5 /24/2007	0	2.1	0	0	$62,655.75
The Parks at Meadowview	2006-0616	200620775	5 /29/2007	500	0	0	0	$116,000.00
Charlotte Douglas Airport Parallel Runway	2000-1195	2006-32521-360	5 /29/2007	9,626	0.432	0	0	$2,247,155.50
Hatteras Pines Subdivision, Lot 46		200610252	5 /30/2007	0	0	0.18	0	$3,481.00
Beaman Lake Dam	2001-1648	199821117	6 /4 /2007	0	3.8	0	0	$111,388.00
4802 Palmer Drive	2007-0142	2007-654-128	6 /4 /2007	0	0	0.12	0	$3,481.00
Deerfield Lot 180		2006-32872-071	6 /6 /2007	0	0	0.0125	0	$3,481.00
Wiley Lot Access	2007-0404	2007-1225-148	6 /6 /2007	0	0	0.14	0	$3,481.00
Reedy Creek Commons Shopping Center	2006-1652	200630076	6 /13/2007	424	0	0	0	$98,368.00
Highlands Cove	1998-1130	199831148	6 /13/2007	802	0	0	0	$186,064.00
Helmsdale at Landfall	2006-0197	20051184065	6 /14/2007	0	0.181	0	0	$6,961.75
Murfreesboro Wastewater Treatment Expansion	2006-0064	200610392146	6 /17/2007	0	1.969	0	0	$55,694.00
River Bluffs Subdivision: Phase VIII	2006-0920	200641851125	6 /18/2007	0	0.15	0	0	$6,961.75
Beaver Creek Parkway Permit Modification	2006-0290	200620374	6 /18/2007	0	0.344	0	0	$13,923.50
Alligator Lake Hunt Club	2004-2020		6 /20/2007	0	0	0.2	0	$3,481.00
LaGrange Subdivision Section 1	2007-0134	2007-312-026	6 /21/2007	0	0.798	0	0	$27,847.00
Cape Hatteras Landing	2006-1644	2006-41111-128	6 /26/2007	0	0	0.2	0	$3,481.00
Amberly PPD	2005-1321	200520319	6 /28/2007	152	0.18	0	0	$42,225.75
TOTALS				45,380	60.3166	52.7009	0.271	$13,023,860.01

Appendix A2. Riparian Buffer In Lieu Fee Mitigation Program Payments and Requirements

Project Name	DWQ Cert. No.	Payment Date	Inner Buffer	Outer Buffer	Payment Amount
Brandywine Subdivision	2006-0285	7 /3 /2006	15,786	0	$15,154.56
75 Pecan Lane, Lot #18	2006-0399	7 /3 /2006	0	1092	$1,048.32
Glenwood Crossings	2005-2231	7 /10/2006	4,875	2000	$6,600.00
Neuse River Parallel Interceptor	2006-0856	7 /20/2006	43,563	0	$41,820.48
NC Railroad Company, Auburn Sidings	2006-0677	7 /24/2006	43,191	8952	$50,057.28
Brook Drive, Raleigh	2005-0966	7 /27/2006	0	300	$288.00
Hidden Lake	2006-0658	8 /4 /2006	26,368	24205	$48,550.08
Ten-Ten Commons	2006-0493	8 /8 /2006	48,808	0	$46,855.68
Waterstone Residential Development	2005-1967	8 /18/2006	35,643	14186	$47,835.84
NCDOT - U-3823 - Buffer		8 /31/2006	34,599	11462	$44,218.56
NCDOT - B-4110 - Buffer	2005-2138	8 /31/2006	606	3351	$3,798.72
NCDOT - U-3613B - Buffer	2006-0310	8 /31/2006	103,707	26575	$125,070.72
NCDOT - I-306C - Buffer	2002-1677	8 /31/2006	7,449	2504	$9,554.88
NCDOT - R-2809 B/C - Buffer	2001-0550	8 /31/2006	24,888	3537	$27,288.00
NCDOT - R-2000-AAABAC - Buffer		8 /31/2006	5,817	1920	$7,427.52
NCDOT - R-2547B/C - Buffer	2001-1689	9 /1 /2006	4,371	2277	$6,382.08
Louis-Stephens Drive	2006-0770	9 /26/2006	2,414	4000	$6,157.44
1 Marina Road, New Bern	2006-1380	10/9 /2006	0	1800	$1,728.00
Smugglers Cove, Lot 28	2006-1444	10/10/2006	0	3036	$2,914.56
Styron Drive, Lot #13	2006-1207	10/16/2006	403	0	$386.88
Oxford Road Buffer Variance	2006-0507	10/19/2006	4,293	3389	$7,374.72
Forty Wade	2006-0961	10/19/2006	55,284	21576	$73,785.60
Heritage Pines	2005-0736	10/23/2006	46,173	11415	$55,284.48
259 Shine Drive - Buffer	2006-1482	10/30/2006	0	900	$864.00
Ehlin Screen Porch	2006-1475	11/6 /2006	0	369	$354.24
Carriage Hills Subdivision Lots 17 & 18	2006-1360	11/16/2006	0	4035	$3,873.60
2301 White Oak Road Driveway	2006-1750	11/27/2006	0	1332	$1,278.72
Blounts Creek Way Lot 3	2006-1831	12/28/2006	0	825	$792.00
East Front Street Marina	2000-0661	1 /10/2007	8,131	0	$7,805.76
350 Rock Spring Road	2006-1783	1 /10/2007	0	137	$131.52
Hartford Hills Sanitary Sewer	2006-1895	1 /25/2007	3,021	0	$2,900.16
Wild Acres, Holly Springs	2006-1214	2 /8 /2007	34,851	8408	$41,528.64
Brookfield Subdivision, Lot 45	2006-1949	2 /26/2007	2,310	1221	$3,389.76
Rosa Deimo SD Lot 2	2002-0013	3 /6 /2007	1,300	0	$1,248.00
Rowboat Dock and Dredge Staging Area	2006-1903	3 /12/2007	1,200	600	$1,728.00
Crenshaw Hall	1999-0258	4 /25/2007	0	1968	$1,889.28
501 Tiffany Circle	2005-1546	4 /30/2007	0	525	$504.00
314 Stromer Drive Deck	2007-0098	5 /8 /2007	0	33	$31.68
Lowe's Home Centers of East Greenville	2007-0343	5 /17/2007	0	2700	$2,592.00
Bridge Pointe Development	2006-0829	5 /17/2007	21,750	2775	$23,544.00

Appendix A2. Riparian Buffer In Lieu Fee Mitigation Program Payments and Requirements

Project Name	DWQ Cert. No.	Payment Date	Inner Buffer	Outer Buffer	Payment Amount
River Dunes	2007-0764	5 /23/2007	0	2030	$1,948.80
103 Trent Shores Drive		5 /23/2007	23	0	$21.86
Silver Lake Lot 1 Phase 1	2007-0502	6 /6 /2007	0	632	$606.72
Buccaneer Bay Section 2 Lot 28	2005-1893	6 /6 /2007	0	800	$768.00
5205 Azure Lane	2007-0848	6 /13/2007	0	317	$304.32
113 Portside Lane Pool	2007-0416	6 /13/2007	0	483	$463.68
Evans Estates Subdivision, Lot 37	2005-2015	6 /14/2007	0	69	$66.24
Fred and Robin Johnston, Lot 2	2005-0490	6 /28/2007	1,062	0	$1,019.52
Totals			**581,886**	**177,736**	**$729,236.90**

Appendix A3. Nutrient Offset In Lieu Fee Mitigation Program Payments and Requirements

ILFID	NutrientTyp	Basin_Nam	County	trMunicipa	Owner_Co	Owner_Typ	Project_Name	Payment_amount	ament_Dat	NutrientPounds
LF-2006-4604	Nitrogen	NEUSE	CRAVEN	New Bern	Hatteras Yachts, Inc.	Private	Hatteras Yachts - Nutrient	$335.81	7 /5 /2006	30.53
ILF-2006-4707	Nitrogen	NEUSE	CRAVEN	New Bern	McDI Properties	Private	West Crossroads - Nutrient	$19,173.00	7 /27/2006	1743.00
ILF-2006-4782	Nitrogen	NEUSE	CRAVEN	New Bern		Private	2908 Neuse Blvd Mini-Storage - Nutrient	$2,542.61	8 /21/2006	231.15
ILF-2006-4593	Nitrogen	NEUSE	CRAVEN	New Bern	Birdland Properties	Private	Carolina Quick Lube & Superwash - Nutrient	$3,880.00	9 /6 /2006	352.73
ILF-2006-4829	Nitrogen	NEUSE	CRAVEN	New Bern	RAM of Eastern NC	Private	South Market Square - Nutrient - Nitrogen	$4,370.36	9 /8 /2006	397.31
ILF-2006-4828	Nitrogen	NEUSE	CRAVEN	New Bern	RAM of Eastern NC	Private	Taberna Townes - Nutrient	$1,027.68	9 /8 /2006	93.43
ILF-2006-4783	Nitrogen	NEUSE	CRAVEN	New Bern	Craven Community College	Governme nt	Craven Community College, Bldg H - Nutrient	$16,127.33	9 /27/2006	1466.12
ILF-2006-4954	Nitrogen	NEUSE	CRAVEN	New Bern	McCarthy Court LLC	Private	McCarthy Court- Nutrient	$1,546.12	10/27/2006	140.56
ILF-2006-4961	Nitrogen	NEUSE	CRAVEN	New Bern	Coastal Carolina Health Care	Private	Coastal Carolina Health Care-Nutrient	$217.60	10/30/2006	19.78
ILF-2006-5043	Nitrogen	NEUSE	CRAVEN	New Bern	Atta Holding Company	Private	Dialysis Center- Nutrient	$3,829.00	12/28/2006	348.09
ILF-2007-5184	Nitrogen	NEUSE	CRAVEN	Havelock	Annunciation Parish	Private	Annunciation Catholic Church School- Nutrient	$2,526.80	2 /12/2007	229.71
ILF-2007-5302	Nitrogen	NEUSE	CRAVEN	Havelock		Private	Highway 101 Commercial Center- Nutrient	$1,689.92	4 /9 /2007	153.63
ILF-2007-5348	Nitrogen	NEUSE	CRAVEN	New Bern	A Properties, LLC	Private	Westport Planned Unit Development- nutrient	$3,204.63	5 /3 /2007	291.33
ILF-2007-5387	Nitrogen	NEUSE	CRAVEN	Havelock	Bayer Investments	Private	Bayer Investments- Nutrient	$7,293.66	5 /15/2007	663.06
ILF-2006-4661	Nitrogen	NEUSE	DURHAM	Durham	Griffin Associates, Inc.	Private	Perry Place - Nutrient	$248.19	7 /5 /2006	22.56
ILF-2006-4584	Nitrogen	NEUSE	DURHAM	Durham	McCar Homes Raleigh LLC	Private	Ashton Hall Subdivision - Nutrient	$4,866.02	8 /7 /2006	442.37
ILF-2006-4697	Nitrogen	NEUSE	DURHAM	Durham	Petula Prolix Development Co	Private	Carlisle Place - Nutrient	$14,972.25	8 /14/2006	1361.11
ILF-2006-784	Nitrogen	NEUSE	DURHAM	Durham	Triangle Transit Authority	Governme nt	TTA Alston Ave Rail Station - Nutrient	$508.73	8 /23/2006	46.25
LF-2006-4628	Nitrogen	NEUSE	DURHAM	Durham	Angeloni Development, LLC	Private	Shiloh Crossing - Nutrient	$34,199.55	8 /28/2006	3109.05
ILF-2006-5014	Nitrogen	NEUSE	DURHAM	Durham County	Darcon of NC	Private	Fletcher's Mill- Nutrient	$22,631.37	12/5 /2006	2057.40
ILF-2006-5036	Nitrogen	NEUSE	DURHAM	Durham	Cooper Construction Company	Private	Fed Ex Durham- Nutrient	$49,519.01	12/6 /2006	4501.73
ILF-2006-5042	Nitrogen	NEUSE	DURHAM	Durham County	Page Road Townhomes, LLC	Private	Cumberland Park Subdivision- Nutrient	$14,493.86	12/13/2006	1317.62
ILF-2006-5050	Nitrogen	NEUSE	DURHAM	Durham County	SK Investments, Inc	Private	Glenn View Station-Nutrient	$75,015.86	12/14/2006	6819.62
ILF-2006-5065	Nitrogen	NEUSE	DURHAM	Durham	NC Specialty Hospital, LLC	Private	NC Specialty Hospital-Nutrient	$1,612.77	12/18/2006	146.62
ILF-2006-5070	Nitrogen	NEUSE	DURHAM	Durham		Private	East Side of Surles Court-Nutrient	$2,519.29	12/22/2006	229.03
ILF-2007-5087	Nitrogen	NEUSE	DURHAM	Durham	Hillsborough IV	Private	Hillsborough IV- Nutrient	$16,588.44	1 /3 /2007	1508.04
ILF-2007-5094	Nitrogen	NEUSE	DURHAM	Durham County	Elevator Specialists of Carolina, Inc	Private	Elevator Specialists-Nutrient	$4,096.00	1 /4 /2007	372.36
ILF-2007-5103	Nitrogen	NEUSE	DURHAM	Durham	Rhein Interests, LLC-NC	Private	Madison Glen, Phase 1 Nutrient	$15,722.39	1 /5 /2007	1429.31
ILF-2007-5107	Nitrogen	NEUSE	DURHAM	Durham	SECU	Private	State Employees' Credit Union- Nutrient	$2,893.20	1 /12/2007	263.02
ILF-2007-5144	Nitrogen	NEUSE	DURHAM	Durham	Shrijee LLC	Private	Hotel Indigo- Nutrient	$3,461.04	1 /26/2007	314.64
ILF-2007-5257	Nitrogen	NEUSE	DURHAM	Durham	BD Biosciences Discovery Labware	Private	Becton-Dickinson Pre-Development- Nutrient	$24,404.56	2 /28/2007	2218.60
ILF-2007-5258	Nitrogen	NEUSE	DURHAM	Durham	Sherron Road Ventures	Private	Ravenstone Phase III-Nutrient	$16,459.00	2 /28/2007	1496.27
ILF-2006-4990	Nitrogen	NEUSE	DURHAM	Durham	JDL Castle Corporation	Governme nt	US Department of Homeland Security Project	$3,894.95	3 /1 /2007	354.09
ILF-2007-5278	Nitrogen	NEUSE	DURHAM	Durham County	Lick Creek Associates, LLC	Private	Sierra Pump Station-Nutrient	$507.00	3 /21/2007	46.09
ILF-2007-5342	Nitrogen	NEUSE	DURHAM	Durham County	Harvest Time of NC	Private	Worship Center- Nutrient	$16,937.00	4 /25/2007	1539.73
ILF-2007-353	Nitrogen	NEUSE	DURHAM	Durham County	REA Junction Road, LLC	Private	Ginger Hill SD- Nutrient	$3,164.70	4 /26/2007	287.70
ILF-2007-5364	Nitrogen	NEUSE	DURHAM	Durham	Engineered Construction Company	Private	Steel Network Fit-Up-Nutrient	$1,618.62	5 /4 /2007	147.15
ILF-2007-5414	Nitrogen	NEUSE	DURHAM	Durham	Horvath Associates, PA	Private	New Haven at the Park Lots 2 & 4 nutrient	$1,896.15	5 /30/2007	172.38

Appendix A3. Nutrient Offset In Lieu Fee Mitigation Program Payments and Requirements

ILF-2007-5458	Nitrogen	NEUSE	DURHAM	Durham		Private	Quintiles Expansion Imperial Center- nutrient	$737.88	6 /13/2007	67.08
ILF-2007-5461	Nitrogen	NEUSE	DURHAM	Durham	The Keith Corporation	Private	TKC Empire II	$10,974.89	6 /18/2007	997.72
ILF-2007-5467	Nitrogen	NEUSE	DURHAM	Durham	Greenfield Durham LLC	Private	Greenfield- nutrient	$7,265.94	6 /19/2007	660.54
ILF-2006-4687	Nitrogen	NEUSE	JOHNSTON	Johnston County	Crossroads Development Company	Private	Northfield - Nutrient	$5,669.33	7 /6 /2006	515.39
ILF-2006-4748	Nitrogen	NEUSE	JOHNSTON	Johnston County	Rex Development	Private	The Village at Cleveland Springs, Ph 1 - Nutrient	$9,528.85	8 /2 /2006	866.26
ILF-2006-4760	Nitrogen	NEUSE	JOHNSTON	Johnston County	Providence Presbyterian Church	Private	Providence Presbyterian Church - Nutrient	$8,904.51	8 /14/2006	809.50
ILF-2006-4781	Nitrogen	NEUSE	JOHNSTON	Johnston County	Baldies Restaurant Group	Private	Cleveland Draft House (Baldies) - Nutrient	$3,694.68	8 /21/2006	335.88
ILF-2006-4823	Nitrogen	NEUSE	JOHNSTON	Johnston County	Steel Dynamics	Private	Shiloh Baptist Church - Nutrient - Nitrogen	$12,996.13	9 /12/2006	1181.47
ILF-2006-4827	Nitrogen	NEUSE	JOHNSTON	Johnston County	JDG Investments	Private	The Knolls at the Neuse - Nutrient - Nitrogen	$24,269.26	9 /13/2006	2206.30
ILF-2006-4851	Nitrogen	NEUSE	JOHNSTON	Johnston County	D & S Properties	Private	D & S Properties - Nutrient - Nitrogen	$2,959.01	9 /25/2006	269.00
ILF-2006-4962	Nitrogen	NEUSE	JOHNSTON	Johnston County		Private	Beasley Estates Subdivision-Nutrient	$3,358.08	10/30/2006	305.28
ILF-2006-5000	Nitrogen	NEUSE	JOHNSTON	Johnston County	JDG Investments	Private	Twisted Oaks/Hunter's Mill	$4,744.25	11/16/2006	431.30
ILF-2006-5020	Nitrogen	NEUSE	JOHNSTON	Johnston County	Marcus Edwards Development	Private	Brighton Ridge Subdivision-Nutrient	$10,883.47	11/27/2006	989.41
ILF-2006-5052	Nitrogen	NEUSE	JOHNSTON	Johnston County	Ashley Turner Development, LLC	Private	Heritage Farms Subdivision-Nutrient	$22,288.17	12/14/2006	2026.20
ILF-2006-5068	Nitrogen	NEUSE	JOHNSTON	Johnston County	TSS Ventures	Private	Cleveland Commerical Mini Storage- Nutrient	$20,116.80	12/20/2006	1828.80
ILF-2006-5067	Nitrogen	NEUSE	JOHNSTON	Johnston County	Cleveland Community Church	Private	Cleveland Community Church- Nutrient	$31,970.37	12/20/2006	2906.40
ILF-2006-5053	Nitrogen	NEUSE	JOHNSTON	Johnston County	ATB at the Lodge, Inc.	Private	Talmadge Farms Subdivision-Nutrient	$4,251.57	1 /22/2007	386.50
ILF-2007-5136	Nitrogen	NEUSE	JOHNSTON	Johnston County	Diamond Contracting	Private	Airport Industrial Pake Lot 11	$1,439.33	1 /23/2007	130.85
ILF-2007-5195	Nitrogen	NEUSE	JOHNSTON	Johnston County	Amelia Christian Church	Private	Amelia Christian Church-Nutrient	$6,889.48	2 /14/2007	626.32
ILF-2007-5259	Nitrogen	NEUSE	JOHNSTON	Johnston County	Rent a Contractor	Private	NC 42 & Cornwalis Rd Convenience Store- Nutrient	$5,426.19	2 /27/2007	493.29
ILF-2007-5386	Nitrogen	NEUSE	JOHNSTON	Johnston County	Stones Creek Advent Christian Church	Private	Stones Creek Advent Christian Church- Nutrient	$3,418.67	5 /15/2007	310.79
ILF-2007-5402	Nitrogen	NEUSE	JOHNSTON	Johnston County	Broadmoor Associates, LLC	Private	Broadmoor West Phase 2A-nutrient	$4,939.00	5 /23/2007	449.00
ILF-2006-4777	Nitrogen	NEUSE	LENOIR	Kinston	Massey Motor Co	Private	Massey Motor Company - Nutrient	$13,210.96	8 /18/2006	1201.00
ILF-2006-4714	Nitrogen	NEUSE	LENOIR	Kinston	BRS Properties, LLC	Private	Family Dollar - Nutrient	$1,295.47	9 /11/2006	117.77
ILF-2006-5079	Nitrogen	NEUSE	LENOIR	Kinston	Carolina Development and Construction	Private	Queen Street Commercial Development- Nutrient	$4,298.88	12/28/2006	390.81
ILF-2006-4657	Nitrogen	NEUSE	WAKE	Garner	K & J Garner	Private	Agri Supply Modification - Nutrient	$3,242.06	7 /3 /2006	294.73
ILF-2006-4659	Nitrogen	NEUSE	WAKE	Raleigh	Bobbit Design Build, Inc.	Private	Gregory Poole - Nutrient	$13,470.01	7 /5 /2006	1224.55
ILF-2006-4667	Nitrogen	NEUSE	WAKE	Raleigh	Highlands-Raleigh, LLP	Private	Highlands at Brier Creek Village Center - Nutrient	$50,433.78	7 /5 /2006	4584.89
ILF-2006-4668	Nitrogen	NEUSE	WAKE	Raleigh	Centex Homes	Private	Wake Forest Road Townhomes - Nutrient	$26,692.00	7 /6 /2006	2426.55
ILF-2006-4681	Nitrogen	NEUSE	WAKE	Raleigh		Private	St. Mary's School – Smedes Hall Addition	$2,002.48	7 /10/2006	182.04
ILF-2006-4596	Nitrogen	NEUSE	WAKE	Cary		Private	Davis Drive Daycare - Nutrient	$1,884.96	7 /12/2006	171.36
ILF-2006-4591	Nitrogen	NEUSE	WAKE	Cary		Private	Blizzard Property - Nutrient	$4,775.43	7 /13/2006	434.13
ILF-2006-4692	Nitrogen	NEUSE	WAKE	Raleigh	KTP Development	Private	4000 Tryon Road - Nutrient	$7,310.82	7 /17/2006	664.62
ILF-2006-4603	Nitrogen	NEUSE	WAKE	Garner	Greenfield North LLC	Private	Greenfield North Parcel 2 - Nutrient	$6,270.28	7 /18/2006	570.03
ILF-2006-4700	Nitrogen	NEUSE	WAKE	Raleigh	Robuck Family LLC	Private	Robuck Property - Nutrient	$5,089.76	7 /19/2006	462.71
ILF-2006-4403	Nitrogen	NEUSE	WAKE	Raleigh	City of Raleigh	Government	Raleigh Annexation	$13,123.00	7 /20/2006	1193.00
ILF-2006-4701	Nitrogen	NEUSE	WAKE	Raleigh	Watts Chapel Baptist Church	Private	Watts Chapel Baptist Church Driveway - Nutrient	$1,319.21	7 /20/2006	119.93
ILF-2006-4694	Nitrogen	NEUSE	WAKE	Raleigh		Private	Stoneridge Pool and Clubhouse - Nutrient	$1,575.36	7 /20/2006	143.21

Appendix A3. Nutrient Offset In Lieu Fee Mitigation Program Payments and Requirements

ILF-2006-4570	Nitrogen	NEUSE	WAKE	Raleigh	Williams Realty and Building Co., Inc.	Private	Tarheel Drive Office Condominiums - Nutrient	$2,701.88	7 /31/2006	245.63
ILF-2006-4613	Nitrogen	NEUSE	WAKE	Cary	BSC Rice	Private	Laurel Park - Nutrient	$30,990.96	8 /1 /2006	2817.36
ILF-2006-4737	Nitrogen	NEUSE	WAKE	Raleigh	Marlowe & Moye	Private	Providence Phase 2 - Nutrient	$14,440.80	8 /2 /2006	1312.80
ILF-2006-4747	Nitrogen	NEUSE	WAKE	Raleigh	Kiddie Ventures	Private	Kiddie Academy Wakefield Crossing - Nutrient	$3,036.00	8 /3 /2006	276.00
ILF-2006-4750	Nitrogen	NEUSE	WAKE	Raleigh	Mabro Properties	Private	Mabro Properties	$3,783.78	8 /3 /2006	343.98
ILF-2006-4600	Nitrogen	NEUSE	WAKE	Cary		Private	Franks Farm - Nutrient	$1,065.64	8 /4 /2006	96.88
ILF-2006-4751	Nitrogen	NEUSE	WAKE	Raleigh	Amelia Park, LLC	Private	Renaissance Park, Ph 1 - Nutrient	$46,799.04	8 /7 /2006	4254.46
ILF-2006-4754	Nitrogen	NEUSE	WAKE	Raleigh	Freedom Temple Assembly	Private	Freedom Temple Assembly - Nutrient	$180.37	8 /10/2006	16.40
ILF-2006-4772	Nitrogen	NEUSE	WAKE	Raleigh		Private	Hammond Business Park - Nutrient	$41,096.94	8 /14/2006	3736.09
ILF-2006-4770	Nitrogen	NEUSE	WAKE	Raleigh	W B Wright	Private	4317 Pleasant Valley Road - Nutrient	$178.01	8 /15/2006	16.18
ILF-2006-4773	Nitrogen	NEUSE	WAKE	Raleigh	Heaven and Earth Landscaping	Private	Heaven and Earth Landscaping - Nutrient	$2,180.18	8 /15/2006	198.20
ILF-2006-4605	Nitrogen	NEUSE	WAKE	Cary		Private	Haddock Auto Body - Nutrient	$4,890.86	8 /23/2006	444.62
ILF-2006-4814	Nitrogen	NEUSE	WAKE	Raleigh	The Body, LLC	Private	Carrier Plant - Nutrient	$1,689.77	8 /28/2006	153.62
ILF-2006-4815	Nitrogen	NEUSE	WAKE	Raleigh	Transite Consulting Engineers, Inc.	Private	North Quarter Office Park	$255.55	8 /28/2006	23.23
ILF-2006-4786	Nitrogen	NEUSE	WAKE	Raleigh	Harrod & Associates Construction	Private	Providence Baptist Church - Nutrient	$200.55	8 /28/2006	18.23
ILF-2006-4792	Nitrogen	NEUSE	WAKE	Cary	Ten Ten Commons	Private	Stonebridge Village - Nutrient	$31,040.06	8 /29/2006	2821.82
ILF-2006-4709	Nitrogen	NEUSE	WAKE	Cary	Beazer Homes Corporation, Raleigh Division	Private	West Chatham Townhomes - Nutrient	$13,763.44	8 /30/2006	1251.22
ILF-2006-4789	Nitrogen	NEUSE	WAKE	Raleigh	Body of Christ Church	Private	Body of Christ Church - Nutrient	$2,655.19	8 /31/2006	241.38
ILF-2006-4801	Nitrogen	NEUSE	WAKE	Raleigh	Bobbitt Design Build	Private	Eastpark 141 - Nutrient	$2,023.13	8 /31/2006	183.92
ILF-2006-4759	Nitrogen	NEUSE	WAKE	Cary	Crescent Lakeside	Private	Crescent Overlook - Nutrient	$6,441.60	9 /1 /2006	585.60
ILF-2006-4806	Nitrogen	NEUSE	WAKE	Raleigh	Brier Creek Office 3, LLC	Private	Brier Creek Corp Ctr Lot 9 - Nutrient	$10,436.65	9 /1 /2006	948.79
ILF-2006-4803	Nitrogen	NEUSE	WAKE	Raleigh	Upright Builders	Private	Kingdom Way Office - Nutrient	$6,495.16	9 /5 /2006	590.47
ILF-2006-4816	Nitrogen	NEUSE	WAKE	Raleigh		Private	Guard Hill - Nutrient	$1,920.60	9 /5 /2006	174.60
ILF-2006-4820	Nitrogen	NEUSE	WAKE	Raleigh	Rexview Medical	Private	Rexview Medical - Nutrient - Nitrogen	$8,396.00	9 /11/2006	763.27
ILF-2006-4822	Nitrogen	NEUSE	WAKE	Garner	Quarles Petroleum	Private	Quarles Petroleum - Nutrient - Nitrogen	$1,246.58	9 /12/2006	113.33
ILF-2006-4824	Nitrogen	NEUSE	WAKE	Raleigh	Marlowe Builders	Private	Hillandale Subdivision - Nutrient - Nitrogen	$475.20	9 /14/2006	43.20
ILF-2006-4836	Nitrogen	NEUSE	WAKE	Raleigh	City of Raleigh	Governme nt	Firs Station #28 - Nutrient - Nitrogen	$1,546.80	9 /18/2006	140.62
ILF-2006-4861	Nitrogen	NEUSE	WAKE	Raleigh	Wakefield Associates	Private	Wakefield Commons, Tract 34 - Nutrient	$343.13	9 /19/2006	31.19
ILF-2006-4805	Nitrogen	NEUSE	WAKE	Cary	Progressive Builders of NC	Private	Privette Dental Office - Nutrient	$1,330.56	9 /21/2006	120.96
ILF-2006-4788	Nitrogen	NEUSE	WAKE	Raleigh	Chandler Palmer Speight	Private	US Fleet Fueling Facility - Nutrient	$421.35	9 /21/2006	38.31
ILF-2006-4852	Nitrogen	NEUSE	WAKE	Raleigh	Stewart-Proctor PLCC	Private	Central Carolina Homes - Nutrient	$338.78	9 /25/2006	30.80
ILF-2006-4854	Nitrogen	NEUSE	WAKE	Raleigh	Brookhaven Estates	Private	Brookhaven Estates - Nutrient	$4,394.81	9 /26/2006	399.53
ILF-2006-4853	Nitrogen	NEUSE	WAKE	Raleigh	Pantera Development LLC	Private	Brynnan Place - Nutrient	$18,492.83	9 /26/2006	1681.17
ILF-2006-4863	Nitrogen	NEUSE	WAKE	Raleigh	Green Star Equities	Private	Green Star - Southall Commons - Nutrient	$18,015.62	9 /28/2006	1637.73
ILF-2006-4864	Nitrogen	NEUSE	WAKE	Raleigh	W J Properties II	Private	The Room Store - Nutrient	$8,105.79	9 /28/2006	736.89
ILF-2006-4865	Nitrogen	NEUSE	WAKE	Raleigh	Actmate Properties, LLC	Private	Westchase Subdivision - Nutrient	$5,610.66	9 /28/2006	510.06
ILF-2006-4878	Nitrogen	NEUSE	WAKE	Raleigh	Security Self Storage	Private	Security Self Storage (Phases 3&4) -Nutrient	$2,724.07	9 /29/2006	247.64
ILF-2006-4871	Nitrogen	NEUSE	WAKE	Raleigh	Woodfin	Private	US Fleet Fueling Facility 2 - Nutrient	$2,114.34	10/2 /2006	192.21

Appendix A3. Nutrient Offset In Lieu Fee Mitigation Program Payments and Requirements

ILF-2006-4880	Nitrogen	NEUSE	WAKE	Raleigh	M. Durwood Stephenson and Assoc., Inc.	Private	Commercial Mechanical Systems - Nutrient	$2,335.01	10/3 /2006	212.27
ILF-2006-4886	Nitrogen	NEUSE	WAKE	Raleigh	Wakefield Associates, Inc.	Private	Ace Hardware - Nutrient	$1,713.70	10/4 /2006	155.66
ILF-2006-4622	Nitrogen	NEUSE	WAKE	Cary	Withers & Ravenel, Inc.	Private	Preston East Lot 15 - Nutrient	$3,449.95	10/4 /2006	313.63
ILF-2006-4621	Nitrogen	NEUSE	WAKE	Cary	Withers & Ravenel, Inc.	Private	Preston East Lot 14 - Nutrient	$1,153.68	10/4 /2006	104.88
ILF-2006-4891	Nitrogen	NEUSE	WAKE	Raleigh	Woodfield Villas, LLC	Private	Woodfield Glen - Nutrient	$14,723.28	10/4 /2006	44.61
ILF-2006-4896	Nitrogen	NEUSE	WAKE	Raleigh	Piedmont Land Design, LLP	Private	Watauga Street SD - Nutrient	$443.52	10/5 /2006	40.17
ILF-2006-4907	Nitrogen	NEUSE	WAKE	Raleigh	John R. McAdams Company	Private	The Cottages at Briar Creek	$41,303.91	10/9 /2006	3754.81
ILF-2006-4898	Nitrogen	NEUSE	WAKE	Raleigh	Widewaters Forrestville Company	Private	Forestville Road Crossing - Nutrient	$84,403.97	10/16/2006	7673.09
ILF-2006-4922	Nitrogen	NEUSE	WAKE	Cary		Private	Aldi-Cary Store- Nutrient	$4,696.69	10/17/2006	426.98
ILF-2006-4636	Nitrogen	NEUSE	WAKE	Garner	Ackerman Partners	Private	Tunbridge Subdivision - Nutrient	$7,002.27	10/18/2006	636.57
ILF-2006-4928	Nitrogen	NEUSE	WAKE	Raleigh		Private	Leesville Forest Lot 9- Nutrient	$6,017.81	10/19/2006	547.00
ILF-2006-4415	Nitrogen	NEUSE	WAKE	Raleigh	Centex Homes	Private	Highland Creek, Phase 1	$86,494.65	10/19/2006	7863.15
ILF-2006-4944	Nitrogen	NEUSE	WAKE	Wake County	Winslow Properties	Private	Turner Farms- Nutrient	$11,092.55	10/23/2006	1008.36
ILF-2006-4946	Nitrogen	NEUSE	WAKE	Raleigh	Buffaloe Investments, LLC	Private	Stowecroft Phase 11- Nutrient	$1,226.58	10/30/2006	111.51
ILF-2006-4958	Nitrogen	NEUSE	WAKE	Raleigh	GOC Partners, LLC	Private	Glenwood Office Commons- Nutrient	$1,532.00	10/31/2006	139.27
ILF-2006-4963	Nitrogen	NEUSE	WAKE	Raleigh	Mitch Murphy Et Al, LLC	Private	Chasteal Phase 2- Nutirent	$5,837.04	10/31/2006	530.64
ILF-2006-4965	Nitrogen	NEUSE	WAKE	Raleigh	Credle Engineering Company	Private	Six Forks Station Apartment Clubhouse- Nutrient	$195.94	11/1 /2006	17.81
ILF-2006-4967	Nitrogen	NEUSE	WAKE	Raleigh	Standard Pacific of the Carolinas, LLC	Private	Glenwood North Lot 3- Nutrient	$5,947.13	11/1 /2006	540.60
ILF-2006-4618	Nitrogen	NEUSE	WAKE	Cary		Private	Mt Zion Missionary Baptist Ch - Nutrient	$5,702.60	11/6 /2006	518.42
ILF-2006-4977	Nitrogen	NEUSE	WAKE	Raleigh	Habitat For Humanity of Wake Co.	Private	Habitat for Humanity Reuse Center- Nutrient	$12,441.00	11/6 /2006	1131.00
ILF-2006-4949	Nitrogen	NEUSE	WAKE	Cary		Private	Progress Energy- Cary Trenton Road-Nutrient	$865.72	11/8 /2006	78.70
ILF-2006-4987	Nitrogen	NEUSE	WAKE	Raleigh	Empire Contractors	Private	Nicolas Place-Nutrient	$1,195.97	11/13/2006	108.72
ILF-2006-4989	Nitrogen	NEUSE	WAKE	Raleigh	Sunrise Equities	Private	Access Office Park	$5,097.05	11/13/2006	463.37
ILF-2006-4994	Nitrogen	NEUSE	WAKE	Wake County	Monk's Rental	Private	Monk's Warehouse Building- Nutrient	$2,288.53	11/14/2006	208.05
ILF-2006-4995	Nitrogen	NEUSE	WAKE	Raleigh	Triangle Construction	Private	Triangle Townhomes- Nutrient	$4,182.84	11/15/2006	380.26
ILF-2006-4996	Nitrogen	NEUSE	WAKE	Raleigh	Chavez Properties	Private	Raleigh Fast Park- Nutrient	$37,867.90	11/15/2006	3442.54
ILF-2006-5001	Nitrogen	NEUSE	WAKE	Raleigh	Highwoods Realty Partnership	Private	RBC Mixed Use Center- Nutrient	$1,620.76	11/16/2006	147.34
ILF-2006-5022	Nitrogen	NEUSE	WAKE	Raleigh	Ploace Collegiate Development	Private	Wolfcreek Apartments- Nutrient	$19,273.32	11/28/2006	1752.12
ILF-2006-5011	Nitrogen	NEUSE	WAKE	Raleigh	Atlantic Investment Management	Private	308 S. Rogers Lane - Nutrient	$5,760.41	11/29/2006	523.67
ILF-2006-5024	Nitrogen	NEUSE	WAKE	Raleigh		Private	Self Storage Solutions- Nutrient	$5,116.12	11/30/2006	465.10
ILF-2006-5035	Nitrogen	NEUSE	WAKE	Raleigh	Avery Developers, Inc	Private	Whitaker Park- Nutrient	$5,339.50	12/5 /2006	485.41
ILF-2006-5023	Nitrogen	NEUSE	WAKE	Cary	Kitt Creek Development, LLC	Private	Coorsdale Phases 1 and 2- Nutrient	$15,047.80	12/6 /2006	1367.98
ILF-2006-4632	Nitrogen	NEUSE	WAKE	Raleigh	Mitchell Mill Investments	Private	Suncrest Village Phase 3 - Nutrient	$5,645.11	12/8 /2006	513.19
ILF-2006-5051	Nitrogen	NEUSE	WAKE	Raleigh	Amelia Park, LLC	Private	Renaissance Park, Phase 3 Nutrient	$35,955.36	12/13/2006	3268.67
ILF-2006-5064	Nitrogen	NEUSE	WAKE	Raleigh	Mitepe LLC	Private	Tryon Place II- Nutrient	$37,824.60	12/15/2006	3438.60
ILF-2006-5066	Nitrogen	NEUSE	WAKE	Wake County	Jones Dairy Development	Private	Netherfield Subdivision- Nutrient	$4,989.34	12/19/2006	453.58
ILF-2006-5069	Nitrogen	NEUSE	WAKE	Raleigh		Private	AE Finley YMCA Expansion- Nutrient	$247.82	12/21/2006	22.53

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ILF-2006-4984	Nitrogen	NEUSE	WAKE	Raleigh	Seventh Day Adventist Church of Raleigh	Private	Raleigh Adventist Family Center- Nutrient	$5,893.80	12/21/2006	535.80
ILF-2006-4685	Nitrogen	NEUSE	WAKE	Raleigh		Private	Blue Ridge Condominiums - Nutrient	$4,603.17	12/27/2006	418.47
ILF-2006-5077	Nitrogen	NEUSE	WAKE	Raleigh	Erin Enterprises, LTD.	Private	4004 Virginia Street-Nutrient	$1,561.13	12/28/2006	141.92
ILF-2007-5088	Nitrogen	NEUSE	WAKE	Raleigh	Cornerstone Signature Homes	Private	Ebenezer Church Road Townhomes- Nutrient	$1,829.12	1 /3 /2007	166.28
ILF-2007-5092	Nitrogen	NEUSE	WAKE	Wake County	Brasnorr Development Co, LLC	Private	Woodhurst- Nutrient	$3,084.64	1 /4 /2007	280.42
ILF-2007-5101	Nitrogen	NEUSE	WAKE	Raleigh	Beazer Homes Corp. Raleigh Division	Private	Tennyson Place- Nutrient	$2,530.00	1 /5 /2007	230.00
ILF-2006-5073	Nitrogen	NEUSE	WAKE	Cary	Thomas Linderman Graham	Private	RDU Center 3 & 4- Nutrient	$15,329.34	1 /8 /2007	1393.58
ILF-2007-5104	Nitrogen	NEUSE	WAKE	Raleigh	Crossroads Realty Group, LLC	Private	Walgreens Shanta Drive-Nutrient	$4,425.87	1 /8 /2007	402.35
ILF-2007-5100	Nitrogen	NEUSE	WAKE	Cary	Bass Nixon and Kennedy	Private	Resurrection Lutheran Church	$957.34	1 /8 /2007	87.03
ILF-2007-5102	Nitrogen	NEUSE	WAKE	Garner	Homestead Developers, LLC	Private	Lynwood Estates- Nutrient	$2,659.60	1 /8 /2007	241.78
ILF-2006-5080	Nitrogen	NEUSE	WAKE	Raleigh	Cypress of Raleigh	Private	The Cypress of Raleigh-Nutrient	$45,936.00	1 /9 /2007	4176.00
ILF-2007-5114	Nitrogen	NEUSE	WAKE	Raleigh		Private	Leesville Forest Lot 7-Nutrient	$3,453.91	1 /10/2007	313.99
ILF-2007-5113	Nitrogen	NEUSE	WAKE	Raleigh		Private	Leesville Forest Lot 11-Nutrient	$1,890.21	1 /10/2007	171.84
ILF-2007-5112	Nitrogen	NEUSE	WAKE	Raleigh		Private	Leesville Forest Lot 10-Nutrient	$3,773.95	1 /10/2007	343.09
ILF-2007-5116	Nitrogen	NEUSE	WAKE	Raleigh	Dynamic Properties	Private	3800 Centurion Drive-Nutrient	$3,567.83	1 /11/2007	324.35
ILF-2007-5090	Nitrogen	NEUSE	WAKE	Raleigh	Williams Realty and Building Co.	Private	Oakridge West Lot 2-Nutrient	$10,340.48	1 /12/2007	940.04
ILF-2007-5106	Nitrogen	NEUSE	WAKE	Raleigh	Robertson/Loia/Roof, PC	Private	CVS Leesville Church Road-Nutrient	$3,372.00	1 /19/2007	306.55
ILF-2006-5075	Nitrogen	NEUSE	WAKE	Raleigh	Wake Plaza Associates, LLC	Private	Wake Plaza (3031 New Bern Ave.)- Nutrient	$5,603.80	1 /22/2007	509.44
ILF-2007-5135	Nitrogen	NEUSE	WAKE	Wake County	Creedmoor Road Properties	Private	Diverse Electric- Nutrient Payment	$4,902.48	1 /23/2007	445.68
ILF-2007-5142	Nitrogen	NEUSE	WAKE	Raleigh	RHP Investments	Private	Edwards Mill Road Subdivision- Nutrient	$1,036.20	1 /25/2007	94.20
ILF-2007-5152	Nitrogen	NEUSE	WAKE	Raleigh	Bass Nixon and Kennedy, Inc	Private	Ephesus Baptist Church Addition	$408.33	1 /26/2007	37.12
ILF-2007-5139	Nitrogen	NEUSE	WAKE	Raleigh	Fairfield BCMR Centerview LLC	Private	Centerview Phase 1 & 2-Nutrient	$58,137.55	1 /30/2007	5285.23
ILF-2007-5153	Nitrogen	NEUSE	WAKE	Raleigh	Barjer & Lovette	Private	Stonegate Office Building - Nutrient	$2,202.55	1 /31/2007	200.23
ILF-2007-5166	Nitrogen	NEUSE	WAKE	Raleigh	Amelia Park, LLC	Private	Renaissance Park, Phase 2-Nutrient	$41,662.56	2 /1 /2007	3787.51
ILF-2007-5162	Nitrogen	NEUSE	WAKE	Raleigh	Standard Pacific of the Carolinas	Private	Lennox at Brier Creek-Nutrient	$98,010.00	2 /1 /2007	8910.00
ILF-2007-5163	Nitrogen	NEUSE	WAKE	Raleigh	Duke Construction	Private	Horizon Forest Products-Nutrient	$14,150.40	2 /2 /2007	1286.40
ILF-2007-5175	Nitrogen	NEUSE	WAKE	Raleigh	Wakefield Affordable Housing, LLC	Private	Wakefield Hills- Nutrient	$18,347.47	2 /6 /2007	1667.95
ILF-2007-5140	Nitrogen	NEUSE	WAKE	Raleigh	Wright's Building Specialties	Private	Wright's Building Specialties-Nutrient	$4,810.29	2 /6 /2007	437.30
ILF-2007-5177	Nitrogen	NEUSE	WAKE	Raleigh	GHK Developments, Inc	Private	Walgreens :3911 Capital Blvd- Nutrient	$296.09	2 /9 /2007	26.92
ILF-2007-5191	Nitrogen	NEUSE	WAKE	Raleigh	Wake County Board of Alcoholic Control	Governme nt	ABC Store at 2649 Appliance Dr- Nutrient	$1,087.93	2 /12/2007	98.90
ILF-2007-5190	Nitrogen	NEUSE	WAKE	Wake County	Olde Heritage Builders	Private	Wakefield Meadows Phase 5- Nutrient	$15,100.00	2 /12/2007	1372.73
ILF-2007-5182	Nitrogen	NEUSE	WAKE	Raleigh	Nowell Farm Ventures, LLC	Private	Kia of Raleigh- Nutrient	$8,531.89	2 /12/2007	775.63
ILF-2007-5167	Nitrogen	NEUSE	WAKE	Raleigh	Amelia Park, LLC	Private	Renaissance Park Phase 4-5- Nutrient	$62,018.24	2 /13/2007	5638.02
ILF-2007-5179	Nitrogen	NEUSE	WAKE	Garner	WLA Garner Retail	Private	C & M Electric Company-Nutrient	$2,270.00	2 /13/2007	206.36
ILF-2007-5197	Nitrogen	NEUSE	WAKE	Raleigh		Private	King Lar Subdivision Lot 15-nutrient	$591.73	2 /15/2007	53.79
ILF-2006-4755	Nitrogen	NEUSE	WAKE	Raleigh	Wake Chapel Church	Private	Wake Chapel Church - Nutrient	$4,915.94	2 /15/2007	446.90
ILF-2007-5208	Nitrogen	NEUSE	WAKE	Raleigh	Standard Pacific of the Carolinas	Private	Glenwood North Lot 4-Nutrient	$6,115.03	2 /20/2007	555.91
ILF-2007-5210	Nitrogen	NEUSE	WAKE	Wake County	McCullers Community Church	Private	McCullers Community Church- Nutrient	$751.83	2 /22/2007	68.35

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ILF-2007-5211	Nitrogen	NEUSE	WAKE	Raleigh	Mitch Murphy Et Al LLC	Private	Chasteal Subdivision Phase 3- Nutrient	$8,136.48	2 /26/2007	739.68
ILF-2007-5212	Nitrogen	NEUSE	WAKE	Raleigh	DHIC, Inc	Private	Dacien Glen- Nutrient	$1,344.15	2 /26/2007	122.20
ILF-2007-5255	Nitrogen	NEUSE	WAKE	Raleigh	Schwan's Home Service Inc	Private	Schwan's Home Service-Nutrient	$10,157.40	2 /28/2007	923.40
ILF-2007-5256	Nitrogen	NEUSE	WAKE	Raleigh	Saint Mary's School	Private	St. Mary's Faculty Housing-Nutrient	$1,491.91	2 /28/2007	135.63
ILF-2007-5253	Nitrogen	NEUSE	WAKE	Raleigh	Williiard Ferm Architects, PA	Private	Shaw University Early Childhood Dev. Center- Nut.	$1,922.65	3 /2 /2007	174.79
ILF-2007-5252	Nitrogen	NEUSE	WAKE	Raleigh		Private	Shaw University Institute for Health- Nutrient	$1,494.77	3 /2 /2007	135.89
ILF-2007-5250	Nitrogen	NEUSE	WAKE	Raleigh	Dickens Family LLC	Private	Wayland Heights- Nutrient	$694.52	3 /6 /2007	63.14
ILF-2007-5251	Nitrogen	NEUSE	WAKE	Raleigh	M/I Homes of Raleigh	Private	Silver Lake SD- Nutrient	$8,589.64	3 /6 /2007	780.88
ILF-2007-5249	Nitrogen	NEUSE	WAKE	Raleigh	Womble Carlyle Sandridge & Rice	Private	40 Wade (Wade 1) -Nutrient	$21,479.31	3 /6 /2007	1952.66
ILF-2007-5222	Nitrogen	NEUSE	WAKE	Wake County	Arks, Inc.	Private	Philippians Community Church of NC- Nutrient	$419.00	3 /8 /2007	38.09
ILF-2007-5223	Nitrogen	NEUSE	WAKE	Raleigh	T.R. Vernal Paving Inc.	Private	Mt. Herman Road Construction Yard- Nutrient	$10,597.36	3 /9 /2007	963.40
ILF-2007-5224	Nitrogen	NEUSE	WAKE	Cary	Budget Development Partners, LLC	Private	Dillard Rive Storage-Nutrient	$6,393.35	3 /12/2007	581.21
ILF-2007-5231	Nitrogen	NEUSE	WAKE	Raleigh	Sycamore Creek, LLC	Private	8850 Westgate Park Dr-Nutrient	$4,897.20	3 /13/2007	445.20
ILF-2007-5232	Nitrogen	NEUSE	WAKE	Raleigh	Community Alternatives Supportive Abodes Corp.	Private	Hope Crest- Nutrient	$2,059.20	3 /13/2007	187.20
ILF-2007-5247	Nitrogen	NEUSE	WAKE	Raleigh	BGM Investment Company	Private	Athens Grove SD - Nutrient	$5,543.10	3 /14/2007	503.92
ILF-2007-5264	Nitrogen	NEUSE	WAKE	Cary	Cary Church of God	Private	Cary Church of God-Nutrient	$26,822.40	3 /15/2007	2438.40
ILF-2007-5266	Nitrogen	NEUSE	WAKE	Raleigh	Passage Home, Inc	Private	Job's Journey Phase 1-Nutrient	$2,284.82	3 /19/2007	207.71
ILF-2007-5248	Nitrogen	NEUSE	WAKE	Garner	Aiken Land Investment, LLC	Private	Pipeline Supply Company-Nutrient	$35,231.96	3 /19/2007	3202.91
ILF-2007-5246	Nitrogen	NEUSE	WAKE	Raleigh	Spectrum Properties Management	Private	Colonnade II- Nutrient	$13,854.31	3 /20/2007	1258.68
ILF-2007-5279	Nitrogen	NEUSE	WAKE	Wake County	Kirby Mashburn Bldg. Corp	Private	Hawkcrest- Nutrient	$2,576.00	3 /22/2007	234.18
ILF-2007-5282	Nitrogen	NEUSE	WAKE	Raleigh	Mount Peace Baptist Church	Private	Mount Peace Baptist Church Nutrient	$16,550.39	3 /22/2007	1503.21
ILF-2007-5286	Nitrogen	NEUSE	WAKE	Raleigh	Ammons Building Corporation	Private	Creedmoor Medical-Nutrient	$7,999.20	3 /28/2007	727.20
ILF-2007-5287	Nitrogen	NEUSE	WAKE	Raleigh	BEV Enterprises, Inc	Private	Ms. Vans Childcare- Nutrient	$388.08	3 /30/2007	35.28
ILF-2007-5243	Nitrogen	NEUSE	WAKE	Garner	S. Wake Properties, Inc.	Private	Village of Aversboro-Nutrient	$12,733.58	4 /2 /2007	1157.60
ILF-2007-5240	Nitrogen	NEUSE	WAKE	Cary		Private	RBC Bank Tryon Plaza-Nutrient	$1,078.11	4 /4 /2007	98.01
ILF-2007-5290	Nitrogen	NEUSE	WAKE	Raleigh	Bobbitt Design Build	Private	Avian Exotic Animal Care-Nutrient	$1,724.53	4 /4 /2007	156.78
ILF-2007-5309	Nitrogen	NEUSE	WAKE	Wake County	ECI Custom Homes	Private	Glen Valley- Nutrient	$2,536.37	4 /11/2007	230.58
ILF-2007-5307	Nitrogen	NEUSE	WAKE	Raleigh	May and Company	Private	Office Depot 4302 New Bern Avenue- Nutrient	$5,637.03	4 /11/2007	512.46
ILF-2007-5319	Nitrogen	NEUSE	WAKE	Cary	Weston Lakeside, LLC	Private	Weston Lakeside- Nutrient	$36,899.54	4 /12/2007	3354.50
ILF-2007-5318	Nitrogen	NEUSE	WAKE	Raleigh	Lafayette SC, LLC	Private	Lafayette Retail Center-Nutrient	$12,629.76	4 /13/2007	1148.16
ILF-2007-5327	Nitrogen	NEUSE	WAKE	Raleigh	First North Carolina Development	Private	The Essex at Glen Eden-Nutrient	$4,980.69	4 /17/2007	452.79
ILF-2007-5311	Nitrogen	NEUSE	WAKE	Garner	Sausage Patty, LLC	Private	Ashlyn Subdivision- Nutrient	$8,397.68	4 /18/2007	763.43
ILF-2007-5335	Nitrogen	NEUSE	WAKE	Raleigh	Layden Memorial UMC	Private	Layden Memorial Methodist Church- Nutrient	$171.96	4 /19/2007	15.63
ILF-2007-5334	Nitrogen	NEUSE	WAKE	Raleigh	Wexford Development	Private	40 Wade (Phase 1)- Nutrient	$46,402.00	4 /20/2007	4218.36
ILF-2007-5314	Nitrogen	NEUSE	WAKE	Raleigh	Accu Fab Inc	Private	801 Beacon Lake Road-Nutrient	$1,929.28	4 /24/2007	175.39
ILF-2007-5345	Nitrogen	NEUSE	WAKE	DWQ		Private	Crenshaw Hall- Nutrient Payment	$38,979.60	4 /25/2007	3543.55
ILF-2007-5344	Nitrogen	NEUSE	WAKE	Raleigh	John Edwards and Co.	Private	HH Gregg at Alexander Place Lot 4- Nutrient	$2,791.40	4 /25/2007	253.76

Appendix A3. Nutrient Offset In Lieu Fee Mitigation Program Payments and Requirements

ILF-2007-5356	Nitrogen	NEUSE	WAKE	Raleigh	Lennar Carolina, Inc	Private	Glenwood Station Townhomes- Nutrient	$33,452.49	4 /30/2007	3041.14
ILF-2007-5351	Nitrogen	NEUSE	WAKE	Cary	Winn Limited Partnership	Private	RDU Aloft Hotel- Nutrient	$6,681.32	5 /2 /2007	607.39
ILF-2007-5363	Nitrogen	NEUSE	WAKE	Raleigh	Glen Royal	Private	Glen Royal Office Bldg-Nutrient	$1,908.72	5 /3 /2007	173.52
ILF-2007-5108	Nitrogen	NEUSE	WAKE	Cary	Town of Cary	Governme nt	Terrington Pump Station-Nutrient	$574.04	5 /7 /2007	52.19
ILF-2007-5365	Nitrogen	NEUSE	WAKE	Raleigh	L. Sterling Building Co, Inc	Private	Finley Crest- Nutrient	$3,064.50	5 /7 /2007	278.59
ILF-2007-5377	Nitrogen	NEUSE	WAKE	Raleigh	1052 LLC	Private	Clairmont Apartments-Nutrient	$27,245.39	5 /9 /2007	2476.85
ILF-2007-5399	Nitrogen	NEUSE	WAKE	Raleigh	FCD Development	Private	Shops at Alexander Place Lot 2- Nutrient	$26,313.14	5 /22/2007	2392.10
ILF-2007-5396	Nitrogen	NEUSE	WAKE	Raleigh	Comstock Homes of Raleigh, LLC	Private	Massey Preserve South-Nutrient	$9,136.94	5 /22/2007	830.63
ILF-2006-5078	Nitrogen	NEUSE	WAKE	Raleigh	Highwoods Realty	Private	Glenlake Building VI (phase 1)- Nutrient	$13,333.14	5 /23/2007	1212.10
ILF-2007-5408	Nitrogen	NEUSE	WAKE	Wake County	Perry Brothers Development	Private	Blalock Forest- nutrient	$21,403.00	5 /24/2007	1945.73
ILF-2007-5407	Nitrogen	NEUSE	WAKE	Raleigh	Kimberly Development Group, LLC	Private	Six Forks North Office Building- Nutrient	$3,423.42	5 /24/2007	311.22
ILF-2007-5413	Nitrogen	NEUSE	WAKE	Wake County	Jones Landing Inc.	Private	Silver Creek Subdivision-nutrient	$2,977.13	5 /29/2007	270.65
ILF-2007-5415	Nitrogen	NEUSE	WAKE	Raleigh	Mega Builders	Private	New Bern Ave. Apartments-nutrient	$11,887.92	5 /30/2007	1080.72
ILF-2007-5429	Nitrogen	NEUSE	WAKE	Raleigh	Wexford Development	Private	40 Wade (Wade 1)- nutrient	$47,327.00	5 /31/2007	4302.45
ILF-2007-5432	Nitrogen	NEUSE	WAKE	Cary		Private	Biologics- Nutrient	$3,788.40	6 /1 /2007	344.40
ILF-2007-5431	Nitrogen	NEUSE	WAKE	Wake County	K Hovanian Homes	Private	Rockbridge Phase I	$43,187.00	6 /1 /2007	3926.09
ILF-2007-5418	Nitrogen	NEUSE	WAKE	Garner	Diamond Contracting	Private	Lot 24 White Oak Bus. Park-nutrient	$4,082.50	6 /4 /2007	371.14
ILF-2007-5417	Nitrogen	NEUSE	WAKE	Raleigh	Carolina Multifamily Construction	Private	Brier Creek II Apartments - nutrient	$47,667.84	6 /4 /2007	4333.44
ILF-2006-4804	Nitrogen	NEUSE	WAKE	Cary	Wm G Daniel & Assoc	Private	The Bower - Nutrient	$4,886.64	6 /5 /2007	441.67
ILF-2007-5430	Nitrogen	NEUSE	WAKE	Raleigh	Pender Antiques and Refinishing	Private	Pender's Antiques- nutrient	$2,637.36	6 /6 /2007	239.76
ILF-2007-5425	Nitrogen	NEUSE	WAKE	Cary	Duke Realty	Private	Regency Creek 12010& 12040 Regency Pkwy-nutrient	$25,020.60	6 /6 /2007	2274.60
ILF-2007-5426	Nitrogen	NEUSE	WAKE	Cary	Farmah Investment Properties, LLC	Private	Maynard Summit- nutrient	$4,907.76	6 /6 /2007	446.16
ILF-2007-5437	Nitrogen	NEUSE	WAKE	Garner	GVC Properties	Private	White Oak Business Park, Lot 23- nutrient	$3,902.32	6 /7 /2007	354.76
ILF-2007-5447	Nitrogen	NEUSE	WAKE	Wake County	ECI Custom Homes	Private	Glenn Valley Phase 2-nutrient	$4,245.00	6 /7 /2007	385.91
ILF-2006-5071	Nitrogen	NEUSE	WAKE	Garner	HH Hunt of North Carolina	Private	Ashton Village- Nutrient	$29,242.75	6 /8 /2007	2658.43
ILF-2007-5436	Nitrogen	NEUSE	WAKE	Raleigh		Private	Millbrook Baptist Church Expansion	$688.40	6 /12/2007	62.58
ILF-2007-5445	Nitrogen	NEUSE	WAKE	Garner	BSS Properties	Private	Fidelity Business Park-nutrient	$17,095.85	6 /13/2007	1554.17
ILF-2007-5350	Nitrogen	NEUSE	WAKE	Cary	Cary Alliance Church	Private	Cary Alliance Church-Nutrient	$6,893.70	6 /14/2007	626.70
ILF-2007-5466	Nitrogen	NEUSE	WAKE	Raleigh	L Sterling Building Company	Private	Sandy Forks Commons-nutrient	$654.90	6 /18/2007	59.54
ILF-2007-5446	Nitrogen	NEUSE	WAKE	Cary		Private	MacGregor Medical Office Building-nutrient	$3,621.92	6 /18/2007	329.27
ILF-2007-5443	Nitrogen	NEUSE	WAKE	Raleigh	Macadie Associates, LLC	Private	Macadie Park Phase 2-nutrient	$13,114.18	6 /19/2007	1192.20
ILF-2007-5469	Nitrogen	NEUSE	WAKE	Raleigh	Steel Dynamics	Private	PSP Properties- nutrient	$4,857.14	6 /20/2007	441.56
ILF-2007-5317	Nitrogen	NEUSE	WAKE	Cary	Sunrise Senior Living	Private	Sunrise Senior Living-Nutrient	$7,768.93	6 /21/2007	706.27
ILF-2007-5482	Nitrogen	NEUSE	WAKE	Cary	Carolina Hotels and Resorts, LLC	Private	Cambria Suites- nutrient	$5,513.51	6 /25/2007	501.23
ILF-2007-5483	Nitrogen	NEUSE	WAKE	Raleigh	Hart Redd, LLC	Private	Forestville Road Crossing second paymen - Nutrient	$432.20	6 /26/2007	39.29
ILF-2007-5480	Nitrogen	NEUSE	WAKE	Cary	DR Horton	Private	West Lake Phase 4- nutrient	$967.23	6 /27/2007	87.93
ILF-2007-5494	Nitrogen	NEUSE	WAKE	Raleigh	Duke Realty	Private	Walnut Creek Business Park- nutrient	$17,242.50	6 /29/2007	1567.50
ILF-2006-4686	Nitrogen	NEUSE	WAYNE	Goldsboro	Willow Run Goldsboro, LLC	Private	Willow Run Phase 4 - Nutrient	$4,319.70	8 /25/2006	392.70

Appendix A3. Nutrient Offset In Lieu Fee Mitigation Program Payments and Requirements

ILF-2006-4807	Nitrogen	NEUSE	WAYNE	Wayne County	Eastern Pride, Inc.	Private	Eastern Pride - Nutrient	$2,115.30	8 /31/2006	192.30
ILF-2006-4860	Nitrogen	NEUSE	WAYNE	Wayne County	James B. Sasser Construction Company	Private	104 Centura Drive - Nutrient	$4,524.70	9 /27/2006	411.34
ILF-2006-4859	Nitrogen	NEUSE	WAYNE	Wayne County		Private	Cardinal Mini Storage - Nutrient	$1,112.03	9 /27/2006	101.09
ILF-2006-4858	Nitrogen	NEUSE	WAYNE	Wayne County	SGSB, LLC	Private	US 70 Development - Nutrient	$9,845.81	9 /27/2006	895.07
ILF-2006-4857	Nitrogen	NEUSE	WAYNE	Wayne County	Daniels & Daniels Construction	Private	Pinkney Baptist Church - Nutrient	$151.80	9 /27/2006	13.80
ILF-2006-4856	Nitrogen	NEUSE	WAYNE	Wayne County	Security Mini Storage	Private	Security Mini Storage - Nutrient	$7,247.66	9 /27/2006	658.88
ILF-2006-4630	Nitrogen	NEUSE	WAYNE	Goldsboro	Eagles Properties, Inc.	Private	Somervale Subdivision - Nutrient	$4,359.30	10/17/2006	396.27
ILF-2006-4929	Nitrogen	NEUSE	WAYNE	Goldsboro		Private	Group W Management Royall Avenue - Nutrient	$2,983.20	10/19/2006	271.20
ILF-2006-4948	Nitrogen	NEUSE	WAYNE	Goldsboro	Massengill, Best and Markham, PLLC	Private	Massengill, Best & Markham, Malloy St-Nutrient	$1,551.00	10/26/2006	141.00
ILF-2006-4976	Nitrogen	NEUSE	WAYNE	Goldsboro		Private	Goldsboro Dental Office-Nutrient	$3,366.00	11/3 /2006	306.00
ILF-2006-4999	Nitrogen	NEUSE	WAYNE	Goldsboro	Geographic Technologies Group	Private	Geographic Technologies Group Parkway Dr- Nutrient	$1,920.60	11/20/2006	174.60
ILF-2006-4981	Nitrogen	NEUSE	WAYNE	Goldsboro	Jackson Builders	Private	West Logistics- Nutrient	$13,483.80	12/1 /2006	1225.80
ILF-2006-5037	Nitrogen	NEUSE	WAYNE	Goldsboro	Real Estate Management Services	Private	Glenda's Pointe Subdivision-Nutrient	$690.46	12/8 /2006	62.77
ILF-2006-5049	Nitrogen	NEUSE	WAYNE	DWQ	Progress Energy- Lee Steam Plant	Private	HF Lee Plant Rotamix Progress Energy- Nutrient	$151,000.00	12/18/2006	6240.00
ILF-2007-5089	Nitrogen	NEUSE	WAYNE	Goldsboro	AAR Corp	Private	AAR Manufacturing, 500 Gateway Dr. Ph. 2- Nutrient	$6,494.10	1 /30/2007	590.37
ILF-2007-5157	Nitrogen	NEUSE	WAYNE	Goldsboro	Goldsboro Milling Company	Private	Taylor Commons- Nutrient	$3,758.70	1 /31/2007	341.70
ILF-2007-5161	Nitrogen	NEUSE	WAYNE	Goldsboro	Blue Ridge Development Services, LLC	Private	Reserve at Bradbury Place-Nutrient	$19,301.70	2 /12/2007	1754.70
ILF-2007-5362	Nitrogen	NEUSE	WAYNE	Goldsboro	Uchiyama America	Private	Uchiyama America Addition Phase 2- Nutrient	$198.00	5 /3 /2007	18.00
ILF-2007-5310	Nitrogen	NEUSE	WAYNE	Goldsboro	New Century Bank	Private	New Century Bank- Wayne Memorial Ave- Nutrient	$2,206.41	5 /17/2007	200.58
ILF-2007-5405	Nitrogen	NEUSE	WAYNE	Wayne County	Lancaster Land Developers, LLC	Private	Lancaster Pointe - nutrient	$153.85	5 /23/2007	13.99
ILF-2007-5404	Nitrogen	NEUSE	WAYNE	Wayne County	ABCO	Private	Polly Watson Fire Dept-nutrient	$95.63	5 /23/2007	8.69
ILF-2007-5406	Nitrogen	NEUSE	WAYNE	Wayne County	Real Estate Management Services	Private	Stillwater Creek- nutrient	$578.00	5 /23/2007	52.55
ILF-2007-5403	Nitrogen	NEUSE	WAYNE	Wayne County	Varona Construction Co.	Private	Michael Rex Kornegay/Varona Nutrient	$95.04	5 /23/2007	8.64
ILF-2007-5428	Nitrogen	NEUSE	WAYNE	Goldsboro	Gateway RE, LLC	Private	Park Designs 405 Gateway Drive- nutrient	$6,091.80	5 /30/2007	553.80
ILF-2007-5419	Nitrogen	NEUSE	WAYNE	Wayne County		Private	Ellis Harrell Mini Storage-nutrient	$1,192.43	6 /4 /2007	108.40
ILF-2007-5427	Nitrogen	NEUSE	WAYNE	Wayne County	Johnson-Russell Construction Co	Private	Robert Rose Red Shed-nutrient	$95.70	6 /6 /2007	8.70
ILF-2007-5460	Nitrogen	NEUSE	WAYNE	Wayne County		Private	Lakenheath Subdivision-nutrient	$180.58	6 /14/2007	16.42
ILF-2006-4696	Nitrogen	NEUSE	WILSON	Wilson	First Venture Properties	Private	Belle Meade Corporate Park (Lots 7, 8) - Nutrient	$3,755.40	7 /20/2006	341.40
ILF-2006-4710	Nitrogen	NEUSE	WILSON	Wilson	East Coast Hospitality	Private	Candlewood Suites - Nutrient	$6,233.70	8 /7 /2006	566.70
ILF-2006-4756	Nitrogen	NEUSE	WILSON	Wilson	South Mead Place	Private	South Mead Place - Nutrient	$4,458.30	8 /11/2006	405.30
ILF-2006-4790	Nitrogen	NEUSE	WILSON	Wilson	Collett & Associates	Private	Heritage Crossing Lot 1-C - Nutrient	$27,805.80	9 /11/2006	2527.80
ILF-2006-4910	Nitrogen	NEUSE	WILSON	Wilson	Heritage Crossing, LLC	Private	Heritage Crossing Lots 2 and 2A - Nutrient	$34,234.20	10/4 /2006	3112.18
ILF-2006-4905	Nitrogen	NEUSE	WILSON	Wilson	James Properties	Private	Verizon Wireless (Raleigh Road Parkway)	$1,234.52	10/9 /2006	112.00
ILF-2006-4979	Nitrogen	NEUSE	WILSON	Wilson	Williford Properties of Wilson, LLC	Private	Ferguson Lot 2 58 West-Nutrient	$7,629.60	11/3 /2006	693.60

Appendix A3. Nutrient Offset In Lieu Fee Mitigation Program Payments and Requirements

ILF-2006-4978	Nitrogen	NEUSE	WILSON	Wilson	Pinecrest Development Company	Private	Ferguson Private Road Lot 3A of 58 West Nutrient	$6.60	11/6 /2006	0.60
ILF-2006-4980	Nitrogen	NEUSE	WILSON	Wilson	Vicus Development LLC	Private	Brookfield Subdivision Section One- Nutrient	$4,748.70	11/6 /2006	431.70
ILF-2006-5008	Nitrogen	NEUSE	WILSON	Wilson	Pinecrest Development Co.	Private	Brandywine Veterinary Hospital - Nutrient	$2,445.30	11/20/2006	81.51
ILF-2006-5033	Nitrogen	NEUSE	WILSON	Wilson	Resolute Building Company	Private	Parkwood Assisted Living-Nutrient	$3,512.80	12/4 /2006	319.35
ILF-2006-4592	Nitrogen	NEUSE	WILSON	Wilson	The Bluffs Property Company	Private	The Bluffs Sevtion IV - Nutrient	$5,635.27	12/7 /2006	512.30
ILF-2007-5137	Nitrogen	NEUSE	WILSON	Wilson	Single Tree, Inc.	Private	Pine Valley Subdivision	$3,579.84	1 /23/2007	325.44
ILF-2007-5169	Nitrogen	NEUSE	WILSON	Wilson	Bluffs Property Company	Private	The Bluffs Sections V, VI, VII - Nutrient	$25,691.36	2 /2 /2007	2335.58
ILF-2007-5263	Nitrogen	NEUSE	WILSON	Wilson	Ample Storage	Private	Lampe Management Mini Storage- Nutrient	$2,712.60	3 /15/2007	246.60
ILF-2007-5262	Nitrogen	NEUSE	WILSON	Wilson	Westhaven Developers	Private	Westhaven Subdivision (Phase 2)- Nutrient	$654.39	3 /15/2007	59.49
ILF-2007-5277	Nitrogen	NEUSE	WILSON	Wilson	HC and JH, LLC	Private	Ward Boulevard Retail Center- Nutrient	$2,554.20	3 /22/2007	232.20
ILF-2007-5245	Nitrogen	NEUSE	WILSON	Wilson	Patco Lodging of Wilson, LLC	Private	Hampton Inn (Heritage Place)- Nutrient	$6,388.80	3 /22/2007	580.63
ILF-2007-5284	Nitrogen	NEUSE	WILSON	Wilson	United Tobacco Company, LLC	Private	United Tobacco Compant Addition II- Nutrient	$4,247.10	3 /26/2007	386.10
ILF-2007-5343	Nitrogen	NEUSE	WILSON	Wilson	Ful-Pro, Inc	Private	Ace Hardware/ Landscape Source- Nutrient	$6,293.10	4 /26/2007	572.10
ILF-2007-5450	Nitrogen	NEUSE	WILSON	Wilson	Feel Free Church Ministries	Private	Feel Free Church Ministries-nutrient	$478.37	6 /7 /2007	43.49
ILF-2007-5481	Nitrogen	NEUSE	WILSON	Wilson	Hubert Vester Chevrolet	Private	Hubert Vester Chevrolet-nutrient	$13,318.80	6 /26/2007	1210.80
ILF-2006-4971	Phosphorus	TAR-PAMLICO	BEAUFORT	Washington	Beaufort County Hospital	Government	Beaufort County Hospital Surgery Expansion- Nutrie	$29,081.01	11/28/2006	50.19
ILF-2007-479	Nitrogen	TAR-PAMLICO	BEAUFORT	Washington	The Second Baptist Church	Private	The Second Baptist Church-Nutrient	$1,544.40	6 /26/2007	140.40
ILF-2006-4982	Phosphorus	TAR-PAMLICO	EDGECOMBE	Rocky Mount	Rollinwood Manor LLC	Private	Rollinwood Manor Apartments- Nutrient	$19,553.94	11/14/2006	93.11
ILF-2007-5378	Phosphorus	TAR-PAMLICO	EDGECOMBE	Tarboro	Town of tarboro	Private	Andy's Cheesesteak/Domino's Pizza- nutrient	$4,167.36	5 /23/2007	8.18
ILF-2006-4957	Phosphorus	TAR-PAMLICO	FRANKLIN	Franklin County	Rosemart, Inc	Private	Rosemart, Inc.- Nutrient	$4,258.44	12/4 /2006	9.90
ILF-2007-5281	Phosphorus	TAR-PAMLICO	FRANKLIN	Franklin County	Cade Inc. General Contractors	Private	Sage Investments- Nutrient	$3,596.68	3 /22/2007	0.22
ILF-2006-4689	Nitrogen	TAR-PAMLICO	NASH	Rocky Mount	Hudson Properties East	Private	Badcock Furniture Store - Nutrient - Nitrogen	$2,906.00	8 /3 /2006	264.18
ILF-2006-4776	Phosphorus	TAR-PAMLICO	NASH	Nash County	Stocks Engineering	Private	Waterstone Subdivision - Nutrient - Phosphorus	$1,417.35	8 /18/2006	12.30
ILF-2006-4761	Phosphorus	TAR-PAMLICO	NASH	Rocky Mount	Williams Enterprises of NC	Private	Williams Enterprises - Nutrient - Phosphorus	$1,900.80	8 /18/2006	17.28
ILF-2006-4762	Nitrogen	TAR-PAMLICO	NASH	Rocky Mount	James M Shearin II Rentals	Private	Marvin Shearin Strip S/C - Nutrient - Nitrogen	$1,806.82	9 /21/2006	164.25
ILF-2006-4855	Nitrogen	TAR-PAMLICO	NASH	Rocky Mount		Private	Benvenue Business Park - Nutrient	$13,706.55	9 /26/2006	1246.05
ILF-2006-4939	Phosphorus	TAR-PAMLICO	NASH	Rocky Mount	New Standard Corporation	Private	New Standard Corporation-Nutrient	$1,735.02	10/25/2006	8.26
ILF-2006-4985	Phosphorus	TAR-PAMLICO	NASH	Rocky Mount	Turn Key Contractors	Private	Woodstone Office Park-Nutrient	$7,640.22	12/7 /2006	69.46
ILF-2007-265	Phosphorus	TAR-PAMLICO	NASH	Rocky Mount	The Barnhill Company	Private	Construction Drive Subdivision-Nutrient	$67,748.31	3 /19/2007	322.61
ILF-2007-5238	Phosphorus	TAR-PAMLICO	NASH	Nash County	H and S Land, LLC	Private	Castle Berry Subdivision Phase 1- Nutrient	$6,599.88	3 /26/2007	31.42

Appendix A3. Nutrient Offset In Lieu Fee Mitigation Program Payments and Requirements

ILF-2007-5325	Phosphorus	TAR-PAMLICO	NASH	Nash County	Faith Family Worship Church	Private	Faith Family Worhsip Center Nutrient	$8,017.38	5 /1 /2007	38.18
ILF-2007-5382	Phosphorus	TAR-PAMLICO	NASH	Rocky Mount	Rocky Mount Recyclers	Private	Rocky Mount Recyclers Addition- Nutrient	$19,834.92	6 /7 /2007	94.45
ILF-2006-4775	Nitrogen	TAR-PAMLICO	PITT	Greenville	Bobbitt Design Build	Private	Metrics, Inc - Nutrient	$17,603.78	8 /18/2006	1600.34
ILF-2006-4912	Phosphorus	TAR-PAMLICO	PITT	Pitt County		Private	Prudoe Bay - Nutrient	$9,686.00	10/25/2006	42.95
ILF-2006-4930	Nitrogen	TAR-PAMLICO	PITT	Greenville	Firetower Mini Storage	Private	Firetower Mini Storage - Nutrient	$3,964.29	11/21/2006	360.39
ILF-2006-5010	Nitrogen	TAR-PAMLICO	PITT	Greenville	ASMO	Private	ASMO Greenville of NC-Nutrient	$32,158.50	11/29/2006	2923.50
ILF-2006-5019	Phosphorus	TAR-PAMLICO	PITT	Greenville	RR Miller Construction	Private	Ihrie Supply Company-Nutrient	$3,964.48	12/8 /2006	4.53
ILF-2006-4952	Phosphorus	TAR-PAMLICO	PITT	Pitt County	Roberson Builders, LLC	Private	Brittany Ridge Section 12-Nutrient	$17,428.32	2 /21/2007	82.99
ILF-2007-5254	Nitrogen	TAR-PAMLICO	PITT	Greenville	Commercial Site Design	Private	McDonald's Memorial Dr.-Nutrient	$990.00	3 /2 /2007	90.00
ILF-2007-5349	Nitrogen	TAR-PAMLICO	PITT	Greenville		Government	Sarah Vaughn Field of Dreams- Nutrient	$1,197.24	5 /9 /2007	108.84
ILF-2007-5433	Nitrogen	TAR-PAMLICO	PITT	Greenville		Private	Ruckerjohns Restaurant - nutrient	$3,162.85	6 /6 /2007	287.53
ILF-2007-5484	Phosphorus	TAR-PAMLICO	PITT	Greenville	POHL, LLC	Private	PCMH Hyperbaric Facility-nutrient	$7,636.83	6 /28/2007	17.41
								$3,555,732.53		

Appendix B : Private Mitigation Banking Survey Contacts and Questions

Survey sent to:

Mitigation Bank Name:	Sponsor: Contact Information	County	River basin	Catalog-ing Unit	Restoration Type
Fisher River Mitigation Bank	American Wetlands 11876 Sunrise Valley Dr. Suite 200 Reston, VA 20191 Lamar Beasley amwlands@erols.com	Surry	Yadkin	3040101	Riparian
Deep Creek	American Wetlands and Natural Resources Exchange Corporation 11350 Random Hills Road Suite 800 J. Lamar Beasley (703) 934 6130 amwlands@erols.com	Yadkin	Yadkin	3040101	Riparian Stream
Barra Farms Cape Fear Regional Mitigation Bank	EcoBank, LLC EcoBank, 1555 Howell Branch Rd, Winter Park FL 32789 (407) 629-7774 Alan Fickett ecobank@worldnet.att.net	Cumberland	Cape Fear	3030005	Non-riparian Stream
NEU-CON Mitigation Bank	Environmental Banc & Exchange LLC 1119-M Whisperwood Court Greensboro, NC 27104 (336) 851-5902 George Kelly www.ebxusa.com susan@ebxusa.com <susan@ebxusa.com>	Lenior Jones Greene	Neuse	03020202 03020203 03020204	Non-riparian Stream
Great Dismal Swamp Restoration Bank	Great Dismal Mitigation Bank, LLC. Winthrop, Stimson, Putnam & Roberts 1133 Connecticut Ave. NW Washington, DC (202) 775-9877 Don Carr dcarr@pillsburywinthrop.com	Pasquotank & Perquimans	Pasquo-tank	3010205	Non-riparian
Scuppernong River Corridor Mitigation Bank	Green Vest, LLC 1001 Capability Dr., Suite 312 Raleigh, NC 27606 (919) 831-1234 Dr. Douglas Frederick dfrederick@trigrp.com	Tyrrell	Pasquo-tank	3010205	Non-riparian
Hidden Lake Mitigation Bank	Green Vest, LLC 1001 Capability Dr., Suite 312 Raleigh, NC 27606 (919) 831-1234 Dr. Douglas Frederick dfrederick@trigrp.com	Tyrrell	Pasquo-tank	3010205	Non-riparian
Flat Swamp Wetland Mitigation and Stream Restoration Bank	Green Vest, LLC 1001 Capability Dr., Suite 312 Raleigh, NC 27606 (919) 515-7788 Dr. Douglas Frederick dfrederick@trigrp.com	Craven	Neuse	3020202	Non-Riparian
Bear Creek-Mill Branch	Restoration Systems, LLC 1101 Haynes St. Suite 203 Raleigh, NC 27604 (919) 755-9490 George Howard george@restorationsystems.com	Wayne	Neuse	3020202	Riparian

Appendix B : Private Mitigation Banking Survey Contacts and Questions

(Note: There were no responses to this survey in FY 06—07)

Private Mitigation Banking Survey Questions

List of HU's in which credits can be utilized:

This Bank produces: (select all that apply)
What is the total cost per acre?
What is the cost/acre of Land purchase?
What is the cost/acre of Pre-Monitoring?
What is the cost/acre of Design?
What is the cost/acre of Construction?

What is the cost/acre of Hydrological Modifications (includes cost of structures)?
What is the cost/acre of Planting?
What is the cost/acre of Post Monitoring?
What is the cost/acre of Long-Term Management?
What is the total cost per linear foot?
What is the cost/linear foot of Land purchase?
What is the cost/linear foot of Pre-Monitoring?
What is the cost/linear foot of Design?
What is the cost/linear foot of Construction?
What is the cost/linear foot of Hydrological Modifications (includes cost of structures)?
What is the cost/linear foot of Planting?
What is the cost/linear foot of Post-Monitoring?
What is the cost/linear foot of Long-Term Management?
How many acres of RESTORATION?
How many acres of ENHANCEMENT?
How many acres of CREATION?
How many acres of PRESERVATION?

Please list the total number of credits (that the bank started with) by credit type. For example: 20 non-riparian restoration credits 10 non-riparian enhancement credits etc.
How many credits of each type have been sold?
How many credits of each type are remaining?

What is the cost of one Salt-water wetland credit in your bank? (What you charge to sell 1 credit)

What is the cost of one Riparian wetland credit in your bank? (What you charge to sell 1 credit)
What is the cost of one non-riparian wetland credit in your bank? (What you charge to sell 1 credit)

What is the cost of one Stream credit in your bank? (What you charge to sell 1 credit)

Appendix C1: Active Full Delivery Contracts

PROJECT NAME	DESIGN FIRM	CONTRACT AMOUNT
601 North Property Full Delivery - Yadkin River Basin D06054-A	Environmental Banc & Exchange, LLC	894,000.00
601 West Property Full Delivery - Yadkin River Basin D06054-E	Environmental Banc & Exchange, LLC	1,282,500.00
Acre Swamp Creek Full Delivery Project	The Louis Berger Group	2,413,000.00
Anderson Swamp Full Delivery - Tar-Pamlico River Basin	Restoration Systems, LLC	434,000.00
Armstrong Property Full Delivery Project	Albemarle Restorations, LLC	760,000.00
Badin Inn Stream Restoration - Full Delivery	Earth Tech of NC, Inc.	984,150.00
Bailey Fork - Full Delivery	Wetlands Resource Center	1,013,375.00
Bailey Fork Full Delivery	EBX Neuse I, LLC	3,105,680.00
Balance Farm (Buffer)	Baker Engineering of NY, Inc.	2,050,000.00
Beaverdam Creek - Catawba River Basin	River Works, Inc.	2,983,790.00
Beaverdam Creek and Trib (Parker Site) Yadkin River Basin	Wetlands Resource Center	786,044.00
Beaverdam Swamp Full Delivery - Cape Fear River Basin	EBX Neuse I, LLC	2,796,300.00
Big Bull Creek Full Delivery - Neuse River Basin	Restoration Systems, LLC	980,000.00
Big Cedar Creek Full Delivery - Yadkin River Basin	Baker Engineering of NY, Inc.	3,014,760.00
Black Gum Creek Stream Restoration - Full Delivery	The Louis Berger Group, Inc.	2,010,000.00
Blockhouse Creek Full Delivery - Broad River Basin	Baker Engineering of NY, Inc.	1,248,750.00
Blounts Creek Restoration Cape Fear - Full Delivery	CH2MHILL	2,195,165.57
Brogden Road Stream, Wetalnd & Buffer Mitigation - Full Delivery	Restoration Systems, LLC	420,000.00
Brown Farm Wetland Restoration - Full Delivery	KCI Associates of NC	1,638,260.00
Brown Marsh Swamp Full Delivery - Lumber River Basin	Restoration Systems, LLC	1,287,500.00
Cane Creek Full Delivery - Broad River Basin	Restoration Systems, LLC	2,276,172.00
Cane Creek Full Delivery - Roanoke River Basin	KCI associates of NC	3,150,000.00
Carbonton Dam - Full Delivery (Part 1)	Restoration Systems, LLC	3,925,000.00
Carbonton Dam - Full Delivery (Part 2)	Restoration Systems, LLC	4,324,475.76
Cedar/Crooked Creek TarPam (Daniels Farm) - Full Delivery	KCI Associates of NC	594,000.00
Cleghorn Creek Full Delivery	EBX Neuse I, LLC	1,495,000.00

* Contracts closed during FY 06/07

Appendix C1: Active Full Delivery Contracts

PROJECT NAME	DESIGN FIRM	CONTRACT AMOUNT
Coleman Road Full Delivery - Cape Fear River Basin	EBX- Neuse 1, LLC	1,726,400.00
Collins Creek Stream Restoration Site - Full Delivery	KCI Associates of NC	1,889,825.00
Conetoe Creek	Restoration Systems, LLC	194,000.00
Conoconarra Swamp - Full Delivery	EBX Neuse 1, LLC	3,791,300.00
Cox Site - Full Delivery	EBX Neuse I, LLC	2,324,400.00
Crowns West Full Delivery	Baker Engineering of NY, Inc.	950,000.00
Cutawhiskie Creek Full Delivery - Chowan River Basin	Restoration Systems, LLC	1,301,625.00
Daniels Farm #2 Stream & Wetland Restoration - Full Delivery	KCI Associates of NC	525,000.00
Davis Branch Full Delivery - Yadkin River Basin	Wetlands Resource Center	1,365,292.50
Dog Bite Creek Full Delivery - French Broad River Basin	KCI Technologies	976,235.00
Duke Swamp Full Delivery - Chowan River Basin	Baker Engineering of NY, Inc.	1,400,000.00
Elk Branch Stream Restoration - Full Delivery	Baker Engineering of NY, Inc.	1,192,000.00
Elk Shoals Creek Full Delivery	Restoration Systems, LLC	1,189,400.00
Ellington Branch Full Delivery - Roanoke River Basin	Sungate Design Group	1,362,500.00
Farrar Dairy Full Delivery - Cape Fear River Basin	KCI Technologies	5,968,895.00
Floogie - Full Delivery	Environmental Banc & Exchange, LLC	3,343,100.00
Four Mile Creek Full Delivery	Spaulding and Norris, PA *closed 8/25/06	218,905.00
Frizzell Site Stream Restoration - Full Delivery	Restoration Systems, LLC	980,000.00
Gatlin Swamp Site - Full Delivery	Restoration Systems, LLC	1,875,000.00
Glen Raven Stream Restoration - Full Delivery	KCI Associates of NC	1,070,745.00
Gray Farm Site	Restoration Systems, LLC	2,199,290.00
Harrell Property Stream & Wetland Restoration - Full Delivery	KCI Associates of NC	1,946,364.00
Hartett/Tucker Farm - Full Delivery	EBX-Neuse I, LLC	330,750.00
Haw Branch Full Delivery	EBX-Neuse I, LLC	2,650,000.00
Haw River Canal Site - Full Delivery	Restoration Systems, LLC	1,248,000.00
Haw River Swamp - Full Delivery	Restoration Systems, LLC	1,260,000.00

* Contracts closed during FY 06/07

Appendix C1: Active Full Delivery Contracts

PROJECT NAME	DESIGN FIRM	CONTRACT AMOUNT
Hillcrest Bay Site - Full Delivery	Mid-Atlantic Mitigation, LLC	1,087,500.00
Holly Grove Full Delivery - Cape Fear River Basin	Restoration Systems, LLC	4,088,760.00
Howard Farm Property Stream, Wetland & Buffer Mitigation - Full Delivery	Land Management Group, Inc.	426,060.00
Jarmans Oak Full Delivery - White Oak River Basin	Restoration Systems, LLC	2,516,000.00
Jones Creek Full Delivery	EBX - Neuse I, LLC	2,508,008.00
Lick Creek - Full Delivery	Restoration Systems, LLC	2,042,500.00
Little Buffalo Full Delivery - Neuse River Basin	Restoration Systems, LLC	594,000.00
Little Contenena Creek Riparran Buffer Restoration - Full Delivery	Green Environmental Services, LLC	1,098,852.24
Little White Oak Creek Full Delivery - Broad River Basin	Mulkey Engineers and Consultants, Inc.	5,314,400.00
Lloyd Site Full Delivery	Restoration Systems, LLC	1,639,550.00
Logan Creek Full Delivery - Savanah River	Baker Engineering of NY, Inc.	1,095,000.00
Lowell Mill Dam - Full Delivery	Restoration Systems LLC	4,373,750.00
Manning Farm Site	Land Management Group, Inc.	148,000.00
Mason Farm Full Delivery	Albermarle Restorations, LLC	720,000.00
McCotter- Raines	Land Management Group, Inc.	370,880.00
McDonalds Pond - Full Delivery	International Paper Company	1,367,322.00
Moccasin Creek Buffer	Green Environmental Services, LLC	427,815.80
Modlin Site	Albermarle Restorations, LLC	1,400,000.00
Morgan Creek Full Delivery - Broad River Basin	Environmental Banc & Exchange, LLC	3,113,040.00
Morgan Creek Full Delivery - French Broad River Basin	Restoration Systems, LLC	1,745,000.00
Moye Farm - Full Delivery	Greene Environmental Services	992,650.00
Moye Farm on Contentnea Creek - Full Delivery	Green Environmental Services	892,997.00
North Muddy Creek Stream & Wetland Restoration - Full Delivery	Environmental Banc & Exchange, LLC	2,094,570.00
Pinch Gut Tributary Full Delivery - Roanoke River Basin	Baker Engineering of NY, Inc.	2,290,000.00
Plum Creek Full Delivery - Lumber River Basin	The Louis Berger Group	1,240,000.00
Powell Property Full Delivery - Chowan River Basin	Albemarle Restorations, LLC	2,865,100.00

* Contracts closed during FY 06/07

Appendix C1: Active Full Delivery Contracts

PROJECT NAME	DESIGN FIRM	CONTRACT AMOUNT
Puzzle Creek Full Delivery - Broad River Basin	Baker Engineering of NY, Inc.	1,266,700.00
Reeds Creek	Mid-Atlantic Mitigation, LLC	378,950.00
Silver Creek Full Delivery	EBX Neuse I, LLC	1,959,131.00
Silver Creek, Conway and Queen Site	Wetlands Resource Center	1,050,448.00
Simpson Buffer	Wetlands Resource Center	825,660.00
Simpson Wetland	Wetlands Resource Center	494,400.00
Sink Hole Creek Stream Restoration - Full Delivery	Baker Engineering of NY, Inc.	1,185,000.00
Sixmile Creek Tributary Stream and Wetland Restoration - Full Delivery	Mid-Atlantic Mitigation, LLC	1,428,500.00
South Fork Hopper Full Delivery	EBX Neuse I, LLC	1,886,000.00
South Muddy Creek - Full Delivery	Wetlands Resource Center	2,716,692.00
Stricker Branch Full Delivery - Yadkin River Basin	Mid-Atlantic Mitigation, LLC	885,000.00
Tarlton Stream, Wetland Restoration - Full Delivery	Mid-Atlantic Mitigation, LLC	1,218,200.00
Thompson's Fork and Tributary	Wetlands Resource Center	1,212,000.00
Three Mile Creek Stream and Wetland Restoration - Full Delivery	Restoration Systems, LLC	2,492,695.00
Timberlake Farm - WM - Full Delivery Pasquotank River	Great Dismal Swamp Restoration Bank, LLC	1,040,000.00
Timberlake Farm (Great Dismal Swamp) - Wetland Mitigation Full Delivery	Great Dismal Swamp Restoration Bank, LLC	4,662,500.00
Tributary to Reedy Fork Creek	Mulkey Engineers and Consultants, Inc.	1,813,000.00
Walnut Creek - Full Delivery	Restoration Systems, LLC	462,000.00
Walnut Creek Casey Dairy - Full Delivery	Restoration Systems, LLC	1,690,920.00
Whitley Buffer Stream & Wetland Site - Full Delivery	EBX Neuse 1, LLC	976,250.00
Wolf Pond Property Full Delivery - Yadkin River Basin	Environmental Banc & Exchange, LLC	1,305,000.00
Woodlawn Branch	The Louis Berger Group	1,145,000.00
Zack's Fork Creek Full Delivery	Spaulding and Norris, PA	705,900.00
	Total Full Delivery Contracts	**170,592,649.87**

* Contracts closed during FY 06/07

Appendix C2: Design and Construction Contracts Awarded FY 06-07

Design Services

From July 1, 2006 through June 30, 2007, 26 new design and consulting contracts were awarded. Total value of new design contracts awarded was $5,499,796.

Project Name	Design Firm	Contract Amount
Little Alamance Creek	Arcadis	$266,305.00
Greenbrier Creek	Biohabitats	$322,947.00
Glade Creek	Biohabitats	$159,996.00
Mill Creek	Baker	$175,051.00
Jumping Run	Baker	$225,310.00
South Muddy Creek	Baker	$320,769.00
Helms Site	EcoScience	$74,767.00
Dutch Buffalo Creek	Jordan, Jones, & Goulding	$229,845.00
Lewis Creek	Jordan, Jones, & Goulding	$103,720.00
Little Troublesome	KCI	$167,618.00
UT to Crab Creek	KCI	$247,434.00
Lower Creek	Kimley-Horn & Associates	$267,480.00
Moore Property	Kimley-Horn & Associates	$140,000.00
Little Lick Creek	Ko & Associates	$235,479.00
UT to Bear Creek	Ko & Associates	$194,870.00
Adkin Branch	Ko & Associates	$669,064.00
Branson Creek	Mulkey, Inc	$169,997.00
Meadowbranch	Natural Systems Engineering	$214,210.00
Little River J Bar	Stantec	$83,519.00
Jacksonville CC	Stantec	$152,260.00
UT to Hendircks Creek	Sungate	$104,762.00
Wayne Community College	TetraTech, Inc	$54,866.00
Newfound Creek	URS Corporation	$284,851.00
Bowman & Cox Sites	Ward Consulting	$242,159.00
McKee Creek	Withers & Ravenel	$228,351.00
Jenny's Gut	WK Dickson	$164,166.00
	Total Design Services	**$5,499,796.00**

Construction Services

For Fiscal Year July 1, 2006 through June 30, 2007, 18 new construction contracts were awarded. Total value of new construction contracts awarded was $7,252,515.

Project Name	Construction Firm	Contract Amount
Ritter Field Stormwater BMP	Peter Rollins & Assoc	$28,975.00
Norwood Gainey	Carolina Silvics	$119,960.00
Bold Run Creek	Vaughn	$295,150.50
McIntyre Creek	United	$585,873.00
South Fork Cane Creek	Osborne	$499,166.80
Naked Creek	Fluvial Solutions	$348,717.08
UT to Sandy Creek (Rising Meadows)	Shamrock	$352,603.00
Roquist	Sawyer	$440,889.50
UT to Pembroke Creek Farm Mgt	Atlantic Dewatering	$98,450.00
Meredell Farm	Riverworks	$597,451.00
Goose Creek	Shamrock	$578,792.00
Briles Site	L-J, Inc.	$279,615.00
Johnson Site	Quartermaster	$331,795.00
Valley Field Farms	NorthState	$1,246,534.00
UT to Little Coharrie (Roseboro)	Shamrock	$377,917.00
UT to Pembroke Creek	Osborne	$357,205.00
Little Grassy	Riverworks	$71,790.00
Dye Branch	ITSI	$641,631.38
	Total Construction Awards	**$7,252,515.26**

Appendix D: FY 2006 - 2007 Payments to Vendors by Contract Type

VENDOR NAME	DESIGN	CONSTRUCTION	FULL DELIVERY
ALBEMARLE RESTORATIONS LLC			1,688,275.00
ARCADIS	36,338.40		
ATLANTIC DEWATERING SERVICES	98,450.00		
AXIOM ENVIRONMENTAL INC	220,460.70		
BAKER ENGINEERING OF NY	441,742.96		2,593,312.50
BIOHABITATS INCORPORATED	84,862.67		
BLUE LAND WATER INFRASTRUCTURE	288,832.74		
CAROLINA SILVICS INC		119,960.00	
CH2MHILL			439,033.11
CLIFTON CONSTRUCTION CO INC		3,600.00	
CONTAMINANT CONTROL INC		36,140.93	
DAVIDSON COLLEGE	5,521.07		
DEWBERRY & DAVIS	111,540.95		
DUKE UNIVERSITY	12,184.53		
EARTH TECH INCORPORATED	321,559.29		
EBX NEUSE I LLC			6,259,415.45
ECOLOGIC ENGINEERING	177,236.85		
ECOSCIENCE CORPORATION	216,086.90		
ENVIROCON INCORPORATED		138,724.98	
ENVIRONMENTAL BANC AND			1,108,202.00
ENVIRONMENTAL SERVICES INC	55,863.27		
EQUINOX ENVIRONMENTAL	152,521.98		
ESTES DESIGN INCORPORATED	66,995.96		
FLUVIAL SOLUTIONS INCORPORATED		1,164,071.20	
GREAT DISMAL SWAMP RESTORATION			466,250.00
GREENE ENVIROMENTAL SERVICES			384,523.25
HAYES SEAY MATTERN & MATTERN	261,755.92		
HDR ENGINEERING OF THE	24,434.90		
HIWASSEE RIVER WATERSHED	21,098.00		
INTERNATIONAL PAPER			205,098.30
JORDAN JONES AND GOULDING INC	144,957.10		
KCI ASSOCIATES OF N C	434,013.60		3,301,175.35
KIMLEY-HORN AND ASSOCIATES INC	307,667.22		
KO AND ASSOCIATES PC	696,610.70		
L J INC		467,071.49	
LAND MANAGEMENT GROUP INC			104,653.00
LAND MECHANIC DESIGNS		128,413.50	
LOUIS BERGER GROUP INC			80,111.60
MACTEC ENGINEERING AND	201,748.00		
MCQUEEN CONSTRUCTION INC		246,868.00	
MID ATLANTIC MITIGATION LLC			939,162.50
MULKEY ENGINEERS AND CONSULT	101,327.16		2,579,010.00
NATURAL SYSTEMS ENGINEERING	199,358.50		
NC STATE UNIVERSITY	566,621.02		
NC WILDLIFE FINANCE	240,541.09		
NEW RIVER SOIL AND WATER	124,692.37		
NORTH STATE ENVIRONMENTAL INC		604,478.30	
OSBORNE COMPANY OF NC INC		59,316.40	
PETE ROLLINS		28,975.00	
PIEDMONT TRIAD COUNCIL	50,540.00		
RESTORATION SYSTEMS LLC			9,921,976.35

Appendix D: FY 2006 - 2007 Payments to Vendors by Contract Type

RIVER WORKS INCORPORATED			745,947.50
ROBERT J GOLDSTEIN AND	118,134.86		
RUMMEL KLEPPER AND KAHL LLP	232,330.13		
SAWYERS LAND DEVEL CO INC		196,330.42	
SEPI ENGINEERING GROUP	236,635.26		
SHAMROCK ENVIRONMENTAL CORP		1,013,793.73	
SOIL AND ENVIRONMENTAL	137,654.51		
SPAULDING AND NORRIS PA			105,885.00
STANTEC CONSULTING SERVICES	443,271.54		
SUNGATE DESIGN GROUP PA	956.45		545,000.00
SURRY COUNTY FINANCE OFFICE	10,823.68		
TETRA TECH DIVISION	46,818.09		
THE LOUIS BERGER GROUP INC	137,845.75		159,788.40
TOWN OF CARY			120,000.00
UNC CHAPEL HILL	177,370.14		
UNITED CONSTRUCTION INC		253,862.44	
UPPER NEUSE RIVER BASIN ASSOCIATION	21,930.63		
URS CORPORATION NORTH CAROLINA	396,241.66		
VAUGHN CONTRACTING INC		1,115,445.27	
WK DICKSON & CO INC	404,109.10		
WARD CONSULTING ENGINEERS PC	105,697.52		
WESTERN PIEDMONT COG	10,000.00		
WETLANDS RESOURCE CENTER			1,557,067.32
WILKES SWCD	21,953.64		
TOTAL SERVICES PER CATEGORY	**8,167,336.81**	**5,577,051.66**	**33,303,886.63**

Appendix E. Properties Closed 2006-2007

Project	County	Protection Type[1]	Final Acreage	Acquisition Closed Date	Project Type[2]
Collins Creek	Orange	CE	27.90	7/12/2006	R
Little Buffalo	Johnston	CE	19.49	7/14/2006	R
Branson Creek	Cumberland	CE	3.02	7/18/2006	R
Shearin Tract-Fishing Creek	Warren	CE	70.14	7/18/2006	HQP
Dean Tract-Tar River	Granville	CE	63.51	7/18/2006	HQP
Slaughter Tract-Shelton Creek	Granville	CE	35.25	7/24/2006	HQP
Rose Bay Creek-Mason Site	Hyde	CE	36.08	7/24/2006	R
Perry Tract-Cedar Creek	Franklin	CE	162.44	7/27/2006	HQP
Cane Creek	Person	CE	52.11	7/27/2006	R
Seven Springs Farm-Silver Creek	Burke	CE	5.06	8/2/2006	R
Seven Springs Farm-Silver Creek	Burke	CE	6.77	8/2/2006	R
UT Uwharrie	Randolph	CE	32.82	8/3/2006	R
Little Troublesome Creek	Rockingham	CE	20.00	8/4/2006	R
Little Troublesome Creek	Rockingham	CE	10.22	8/4/2006	R
Buckhorn Creek-Lloyd Tract	Onslow	CE	24.28	8/7/2006	R
Gardner Tract-Big Pond Bay	Cumberland	Fee	30.95	8/9/2006	HQP
UT Pembroke Creek	Chowan	CE	59.42	8/17/2006	R
UT Hardison Mill Creek	Beaufort	CE	75.00	8/17/2006	R
Johnston Tract-Reedy Creek	Warren	CE	64.55	8/30/2006	HQP
McIntyre Creek	Mecklenburg	CE	15.90	8/31/2006	R
Eno River-Penny Tract	Durham	Fee	114.68	8/31/2006	HQP
Beaver Dam-Drowning Creek Phase II	Moore	CE	59.18	8/31/2006	HQP
Sharpe Riverine Wetland Preservation	Rockingham	Fee	17.12	9/13/2006	P
Naked Creek	Wilkes	CE	0.99	9/21/2006	R
Blounts Creek-CH2MHill	Cumberland	CE	7.89	9/21/2006	R
Blounts Creek-CH2MHill	Cumberland	CE	2.55	9/21/2006	R
Naked Creek	Wilkes	CE	3.95	9/22/2006	R
Oakley Tract-Tar River	Granville	CE	13.29	10/4/2006	HQP
Blounts Creek-CH2MHill	Cumberland	CE	2.90	10/5/2006	R
Dye Branch	Iredell	CE	0.03	10/5/2006	R
Dye Branch	Iredell	CE	0.03	10/6/2006	R
Dye Branch	Iredell	CE	0.05	10/6/2006	R
Dye Branch	Iredell	CE	0.03	10/6/2006	R
Dye Branch	Iredell	CE	0.05	10/6/2006	R
Dye Branch	Iredell	CE	0.05	10/6/2006	R
Dye Branch	Iredell	CE	0.06	10/6/2006	R
Harrell Tract-Chowan River	Chowan	CE	111.00	10/9/2006	HQP
Dye Branch	Iredell	CE	0.06	10/10/2006	R
Capps Forestry Enterprises-Fishing Cr	Warren	CE	23.46	10/11/2006	HQP
Dye Branch	Iredell	CE	0.06	10/11/2006	R
Dye Branch	Iredell	CE	0.04	10/12/2006	R
Dye Branch	Iredell	CE	0.04	10/13/2006	R
Hunting Creek	Iredell	CE	10.13	10/16/2006	R

McIntyre Creek	Mecklenburg	CE	0.33	10/18/2006	R
Gupton Tract-Shocco Creek	Franklin	Fee	179.95	10/25/2006	HQP
Bingham Tract-Uwharrie River	Montgomery	CE	562.16	10/26/2006	HQP
Capps Farms Inc.-Fishing Creek	Warren	CE	39.64	10/31/2006	HQP
Boyer Tract-Green River	Polk	CE	31.36	11/6/2006	HQP
Blounts Creek-CH2MHill	Cumberland	CE	4.16	11/7/2006	R
Brushy Fork Creek	Forsyth	CE	0.37	11/16/2006	R
Walnut Creek	Wayne	CE	27.31	11/16/2006	R
Jarmans Oak, Restoration Systems	Onslow	CE	10.79	11/17/2006	R
McKean Tract-Deep Creek-Sandy Cre	Moore	CE	95.39	11/27/2006	HQP
Blounts Creek-CH2MHill	Cumberland	CE	10.12	11/27/2006	R
UT to Reedy Fork Creek	Guilford	CE	2.06	11/28/2006	R
Wolf Pond Tract-EBX	Union	CE	13.16	12/1/2006	R
Morgan Creek	Haywood	CE	10.24	12/1/2006	R
Little White Oak Creek	Polk	CE	56.00	12/12/2006	R
Harris Tract-Tar River	Granville	CE	38.82	12/13/2006	HQP
Pories Tract-Tar River	Pitt	CE	37.46	12/14/2006	HQP
Dula Thoroughfare	Anson	CE	3.58	12/14/2006	R
Quioccosin Swamp, Albemarle Restor	Bertie	CE	*	1/2/2007	R
Greenbriar Creek	Chatham	CE	17.02	1/10/2007	R
Dye Branch	Iredell	CE	0.08	1/10/2007	R
Brown Marsh Swamp-Restoration Sys	Robeson	CE	20.25	1/17/2007	R
Jarmans Oak, Restoration Systems	Onslow	CE	6.00	1/18/2007	R
Jarmans Oak, Restoration Systems	Onslow	CE	29.53	1/18/2007	R
Brushy Fork Creek	Forsyth	CE	1.65	1/22/2007	R
McDonald Tract-Hitchcock Creek	Richmond	CE	39.59	1/22/2007	HQP
Goose Creek	Durham	CE	*	1/23/2007	R
Cutawhiskie Creek	Hertford	CE	22.85	1/31/2007	R
Ellington Branch	Warren	CE	14.49	2/15/2007	R
Branson Creek	Cumberland	CE	0.17	2/16/2007	R
Mullen Tract-Sandy Creek	Franklin	CE	28.63	2/23/2007	HQP
Cochran Tract-Little River	Montgomery	CE	18.64	2/27/2007	HQP
Luthi Tract-Skyuka Creek	Polk	CE	19.73	2/27/2007	HQP
Beaverdam Site-EBX	Harnett	CE	21.95	2/27/2007	R
Beaverdam Site-EBX	Harnett	CE	13.44	2/27/2007	R
Big Cedar Creek	Stanly	CE	40.66	2/27/2007	R
Dye Branch	Iredell	CE	0.04	3/2/2007	R
Clark Mill Creek-Albemarle Restoratio	Hyde	CE	25.01	3/12/2007	R
Brushy Fork Creek	Forsyth	CE	*	3/15/2007	R
Great Dismal Swamp Restoration Ban	Tyrrell	CE	12.66	3/19/2007	R
Dog Bite Creek, KCI	Mitchell	CE	6.87	3/28/2007	R
UT Crab Creek	Alleghany	CE	14.33	4/2/2007	R
Duke Swamp	Gates	CE	25.44	4/2/2007	R
Holly Grove Farm-Restoration System	Guilford	CE	61.54	4/3/2007	R
Young Tract-Sandy Creek	Franklin	CE	71.73	4/24/2007	HQP
Branson Creek	Cumberland	CE	0.31	5/3/2007	R
Branson Creek	Cumberland	CE	0.09	5/3/2007	R

Branson Creek	Cumberland	Const. E	0.03	5/3/2007	R
Branson Creek	Cumberland	CE	3.30	5/3/2007	R
Branson Creek	Cumberland	CE	0.57	5/3/2007	R
Branson Creek	Cumberland	CE	0.43	5/3/2007	R
Branson Creek	Cumberland	CE	0.44	5/3/2007	R
Branson Creek	Cumberland	CE	0.17	5/3/2007	R
Pinch Gut Creek	Stokes	CE	28.98	5/23/2007	R
Pinch Gut Creek	Stokes	CE	2.80	5/23/2007	R
Adkin Branch	Lenoir	Const. E	0.12	5/25/2007	R
M. Paschal Tract-Deep River	Moore	CE	74.87	5/25/2007	HQP
Paschal Tract-Glendon Slate Creek	Moore	CE	14.92	5/25/2007	HQP
Rocky River-Stricker Branch	Cabbarus	CE	4.71	6/4/2007	R
Rocky River-Stricker Branch	Cabbarus	CE	1.55	6/4/2007	R
Rocky River-Stricker Branch	Cabbarus	CE	1.42	6/4/2007	R
North Muddy Creek	McDowell	CE	4.32	6/5/2007	R
North Muddy Creek	McDowell	CE	5.68	6/5/2007	R
North Muddy Creek	McDowell	CE	2.15	6/5/2007	R
Greenbriar Creek	Alamance	CE	0.52	6/13/2007	R
Steele Tract-Mill Creek	Surry	CE	14.94	6/14/2007	HQP
Jordan Tract-Deep River	Moore	CE	156.18	6/14/2007	HQP
Jordan Tract-Deep River	Moore	CE	11.48	6/14/2007	HQP
Cochran Tract-Uwharrie River	Montgomery	CE	15.35	6/14/2007	HQP
Fisher River-Fisher Peak	Surry	CE	151.19	6/14/2007	HQP
Orange County-Trinity School-New Hc	Orange	CE	26.51	6/15/2007	HQP

[1]Conservation easement (CE), construction easement (Const. E), fee simple acquisition (Fee)
[2]Restoration or enhancement (R), preservation (P), high quality preservation (HQP)

*survey in progress

Appendix F. Properties Optioned 2006-2007

Project Name	County	Protection Type[1]	Option Date Signed	Project Type[2]
Adkin Branch	Lenoir	Const. E	8/4/2006	R
Adkin Branch	Lenoir	Const. E	8/15/2006	R
Wildcat Branch	Lee	CE	8/29/2006	R
Adkin Branch	Lenoir	CE	9/5/2006	R
Adkin Branch	Lenoir	Const. E	9/28/2006	R
Little Alamance (Burlington Park)	Alamance	CE	10/3/2006	R
Brown Branch (Willowbrook Park)	Alamance	CE	10/3/2006	R
UT Jumping Run Creek	Cumberland	CE	10/9/2006	R
Adkin Branch	Lenoir	CE	10/11/2006	R
Adkin Branch	Lenoir	CE	10/12/2006	R
Adkin Branch	Lenoir	CE	10/12/2006	R
Adkin Branch	Lenoir	CE	10/17/2006	R
Adkin Branch	Lenoir	CE	10/19/2006	R
Adkin Branch	Lenoir	CE	10/26/2006	R
Adkin Branch	Lenoir	CE	10/26/2006	R
Adkin Branch	Lenoir	CE	10/26/2006	R
Adkin Branch	Lenoir	Const. E	10/27/2006	R
Adkin Branch	Lenoir	CE	10/31/2006	R
Jenny's Gut Branch	Perquimans	CE	11/9/2006	R
Adkin Branch	Lenoir	CE	11/10/2006	R
Adkin Branch	Lenoir	CE	11/17/2006	R
Adkin Branch	Lenoir	CE	11/20/2006	R
Adkin Branch	Lenoir	CE	11/27/2006	R
Rocky River	Iredell	CE	11/30/2006	R
UT West Fork of the Deep River	Forsyth	CE	12/12/2006	R
UT West Fork of the Deep River	Forsyth	CE	12/14/2006	R
Adkin Branch	Lenoir	CE	12/18/2006	R
Adkin Branch	Lenoir	CE	12/19/2006	R
Ramah Creek	Mecklenburg	CE	12/31/2006	R
Ramah Creek	Mecklenburg	CE	1/12/2007	R
Rowan Branch	Sampson	CE	1/15/2007	R
Ramah Creek	Mecklenburg	CE	1/19/2007	R
Ramah Creek	Mecklenburg	CE	1/24/2007	R
UT West Fork of the Deep River	Forsyth	CE	1/25/2007	R
Jordan Tract-Deep River (Paschal T	Moore	CE	1/26/2007	HQP
Jordan Tract-Deep River (Singleton	Moore	CE	1/26/2007	HQP
UT West Fork of the Deep River	Forsyth	CE	1/30/2007	R
Buffalo Creek	Durham	CE	1/30/2007	R
Ramah Creek	Mecklenburg	CE	2/2/2007	R
Ramah Creek	Mecklenburg	CE	2/2/2007	R
Adkin Branch	lenoir	CE	2/5/2007	R
Peeler Creek	Davie	CE	2/7/2007	R
Hauser Creek	Davie	CE	2/12/2007	R

Morgan Creek	Orange	CE	2/16/2007	R
Lower Creek	Caldwell	CE	2/20/2007	R
Lewis Creek-Ingle Tract	Henderson	CE	2/26/2007	R
UT to Bald Creek-Young	Yancey	CE	2/27/2007	R
Jordan Creek	Alamance	CE	2/28/2007	R
South Fork Hopper's Creek-Melton	McDowell	CE	3/3/2007	R
UT to Haw River	Alamance	CE	3/6/2007	R
UT to Bear Swamp	Robeson	CE	3/6/2007	R
Jordan Creek	Alamance	CE	3/15/2007	R
UT to Little River-Claridge	Wayne	CE	3/26/2007	R
Little Pine Creek II	Alleghany	CE	3/28/2007	R
Little Pine Creek II	Alleghany	CE	4/3/2007	R
UT Indian Creek	Lincoln	CE	4/5/2007	R
Glade Creek (II)	Alleghany	CE	4/24/2007	R
Lower Creek	Caldwell	CE	4/25/2007	R
Hall Branch	Richmond	Const. E	4/26/2007	R
Cat Creek	Macon	CE	5/11/2007	R
UT Rocky River	Cabarrus	CE	7/5/2007	R
Upper South Hominy Creek	Buncombe	CE	7/5/2007	R
Jones Branch	Chatham	CE	7/6/2007	R
Upper South Hominy Creek	Buncombe	CE	7/17/2007	R
Upper South Hominy Creek	Buncombe	CE	7/17/2007	R
Adkin Branch	Lenoir	CE	7/26/2007	R
Ripshin Branch-Tate Farm	Ashe	CE	7/30/2007	R
Adkin Branch	Lenoir	Const. E	7/31/2007	R
UT to Bald Creek-Turner	Yancey	CE	8/8/2007	R
Jones Branch	Chatham	CE	8/9/2007	R
Jones Branch	Chatham	CE	8/9/2007	R
Adkin Branch	Lenoir	CE	6/15/207	R

[1]Conservation easement (CE), construction easement (Const. E), fee simple acquisition (Fee)
[2]Restoration or enhancement (R), preservation (P), high quality preservation (HQP)

Appendix G. Cumulative Property 1997-2007

Project	County	Protection Type[1]	Final Acreage	Acquisition Closed Date	Project Type[2]
Basket Creek-Wesleyan Blvd.	Nash	CE	41.50	05/14/97	R
Holloman Wetland	Greene	CE	27.50	10/31/97	R
Buckhead Subdivision	Cumberland	CE	4.56	12/01/98	R
Barra Farms	Cumberland	CE	622.94	03/19/99	R
Carteret-Craven EMC Wetland	Carteret	CE	4.14	11/19/99	R
Payne Dairy	Alexander	CE	40.22	12/30/99	R
Hoffman Forest Preservation Site	Onslow	Fee	100.00	04/06/00	P
Nucor Steel Mill Site	Hertford	Fee	150.27	04/18/00	R
Brush Creek	Alleghany	CE	7.78	05/09/00	R
Brush Creek	Alleghany	CE	2.89	05/09/00	R
Contentnea Creek, Neuse River	Greene	CE	80.00	08/18/00	R
Providence Road	Mecklenburg	CE	8.81	09/27/00	R
Providence Flat Swamp Forest	Mecklenburg	CE	17.90	09/27/00	R
Wilson Bay-Sturgeon City	Onslow	CE	3.06	12/18/00	R
Hobbs Road	Guilford	CE	3.31	03/27/01	R
Hominy Swamp Creek	Wilson	CE	3.90	06/06/01	R
Reed Creek	Buncombe	CE	1.32	06/25/01	R
Smith-Austin Creek	Wake	Fee	33.42	09/08/01	R
Smith-Austin Creek	Wake	Fee	3.30	09/08/01	R
Clear Creek	Henderson	CE	6.40	10/16/01	R
Scott-Lamb Wetland	Pasquotank	Fee	22.64	12/31/01	R
Howell Woods	Johnston	CE	139.86	02/08/02	R
Little Beaver Creek	Wake	CE	40.92	03/15/02	R
Wike Stream	Catawba	CE	12.42	04/19/02	R
Haw River-Bouchard Preservation S	Rockingham	CE	95.43	05/09/02	P
Mud Creek (Brevard Church Propert	Henderson	CE	14.00	05/15/02	R
Mine Site	Chatham	CE	38.40	05/30/02	P
Moncure Site	Lee	CE	13.5 ac.	05/30/02	P
County Line Stream	Buncombe	CE	0.08	06/29/02	R
County Line Stream	Henderson	CE	6.54	06/29/02	R
Murphy Farm	Franklin	CE	4.17	07/01/02	R
Boiling Springs	Brunswick	CE	7.36	08/08/02	R
Maritime Museum	Carteret	CE	0.89	09/30/02	R
Little Beaver Creek	Wake	CE	7.5 ac	10/02/02	R
Little Bugaboo Creek	Wilkes	CE	1.33	12/10/02	R
Little Bugaboo Creek	Wilkes	CE	0.01	12/10/02	R
Louisburg Creek	Franklin	CE	1.94	12/13/02	R
East Group Buffer	Pitt	CE	2.28	12/27/02	R
Cato Stream	Mecklenburg	CE	6.32	01/08/03	R
Louisburg Creek	Franklin	CE	1.08	01/14/03	R
Little Bugaboo Creek	Wilkes	CE	3.82	01/31/03	R
Bushy Branch, (Kentwood Park)	Wake	CE	2.91	02/10/03	R
Chavis Branch, (Chavis Park)	Wake	CE	4.63	02/10/03	R

Little Bugaboo Creek	Wilkes	CE	4.15	02/12/03	R
Little Bugaboo Creek	Wilkes	CE	1.72	03/12/03	R
Carper-Harris Wetland	Pasqoutank	CE	67.81	03/14/03	R
Suck Creek	Moore	CE	9.22	03/17/03	R
UT to South Fork Creek	Alamance	CE	10.20	03/27/03	R
Kiser Stream and Flood Plain	Alamance	CE	15.53	03/27/03	R
Little River Wetland	Moore	CE	125.77	03/28/03	R
Big Warrior Creek	Wilkes	CE	0.48	05/08/03	R
Big Warrior Creek	Wilkes	CE	2.59	05/12/03	R
UT to South Fork Creek	Alamance	CE	16.30	05/16/03	R
Brushy Fork Creek	Forsyth	CE	7.88	06/17/03	R
Knox Property	Mecklenburg	CE	11.88	7/2/2003	R
Wells Creek	Alamance	CE	18.05	07/15/03	R
Brushy Fork Creek	Forsyth	CE	9.65	07/17/03	R
Big Warrior Creek	Wilkes	CE	2.00	07/30/03	R
DuPont Forest-Waterfall	Transylvania	Fee	2,223.00	8/8/2003	R
Big Warrior Creek	Wilkes	CE	9.11	08/13/03	R
Well's Creek	Alamance	CE	2.52	08/15/03	R
Hall Branch	Richmond	CE	5.98	08/22/03	R
Big Warrior Creek	Wilkes	CE	0.84	08/25/03	R
UT to South Fork Creek	Alamance	CE	2.52	09/02/03	R
Big Warrior Creek	Wilkes	CE	2.71	09/02/03	R
Purlear Creek	Wilkes	CE	18.72	10/02/03	R
Haw River-Cone Swamp-Phillips	Guilford	CE	75.82	10/22/2003	HQP
Purlear Creek	Wilkes	CE	1.38	11/10/03	R
Four Mile Creek	Mecklenburg	CE	48.35	11/14/03	R
Biltmore Technology Center	Buncombe	CE	11.48	11/24/03	R
Big Warrior/Little Warrior	Wilkes	CE	14.80	12/01/03	R
Silas CreekShaffner Park Property	Forsyth	CE	15.29	12/03/03	R
Lost Bridge	Macon	Fee	140.00	12/9/2003	HQP
Mingo Tract	Caldwell	Fee	5,648.00	12/12/2003	HQP
Eno River-Poplar Ridge (Bunting)	Orange	Fee	134.45	12/16/2003	HQP
Haw River-Duke Forest	Chatham	Fee	892.98	12/19/2003	HQP
Eno River Wilderness	Orange	Fee	814.87	12/31/2003	HQP
Rankin Tract	Gaston	CE	506.14	1/5/2004	HQP
Big Warrior Creek	Wilkes	CE	2.51	01/05/04	R
Snow Creek	Stokes	CE	1.64	01/07/04	R
Snow Creek	Stokes	CE	7.29	01/07/04	R
Snow Creek	Stokes	CE	0.20	01/07/04	R
Snow Creek	Stokes	CE	3.88	01/07/04	R
Needmore Tract	Swain	Fee	4,467.00	1/15/2004	HQP
Horse Creek	Wake	CE	7.98	01/21/04	R
Len's Knob & Little Mountain	Surry	Fee	2,151.94	1/23/2004	HQP
Snow Creek	Stokes	CE	1.90	02/17/04	R
North Buffalo Creek, Brown Bark Pa	Guilford	CE	8.93	02/23/04	R
South Buffalo Creek, Hillsdale Park	Guilford	CE	16.70	02/23/04	R
South Buffalo Creek, Benbow Park	Guilford	CE	4.32	02/26/04	R

Mile Run Creek, Gillespie Park	Guilford	CE	16.08	02/26/04	R
Cane Creek	Alamance	CE	3.33	03/16/04	R
Cane Creek	Alamance	CE	3.73	03/16/04	R
Mary's Creek	Alamance	CE	6.81	03/17/04	R
Allen Tract	Franklin	CE	146.77	3/18/2004	HQP
Moccasin Creek	Wake	Fee	82.54	5/5/2004	HQP
Drowning Creek	Moore	CE	786.00	5/20/2004	HQP
Snow Creek	Stokes	CE	0.63	05/26/04	R
Snow Creek	Stokes	CE	0.51	05/26/04	R
Little Table Rock	Mitchell	CE	544.30	6/11/2004	HQP
Newton Tract-White Pines	Chatham	CE	16.33	6/23/2004	HQP
Davis Tract-Yadkin River	Davie	CE	80.65	7/19/2004	HQP
Cross Creek	Cumberland	CE	0.05	7/21/2004	R
Cross Creek	Cumberland	CE	0.51	7/21/2004	R
Cross Creek	Cumberland	CE	4.06	7/21/2004	R
Cross Creek	Cumberland	CE	0.04	7/30/2004	R
Third Fork Creek, Forest Hills	Durham	CE	9.64	08/04/04	R
New River Heights Tract-New River	Ashe	Fee	109.91	8/27/2004	HQP
Little River	Perquimans	Fee	48.09	9/14/2004	R
Lone Mountain-Phase One and Two	Rutherford	Fee	1,245.16	9/27/2004	HQP
Adams Landing	Pasquotank	CE	23.12	10/5/2004	R
Panther Creek-Cary Park	Wake	CE	7.91	10/13/2004	R
Cashie River-IP-Thunderbolt-Baltim	Bertie	CE	748.76	10/28/2004	HQP
Pickler's Bluff	Rowan	CE	10.53	12/15/2004	HQP
Great Coharie-TNC	Sampson	Fee	4,858.00	12/17/2004	HQP
Hog Branch Ponds	Brunswick	Fee	516.73	12/17/2004	R
Shartree Subdivision	Franklin	CE	35.61	12/20/2004	R
Langley Site-Cypress Creek	Franklin	CE	40.38	12/23/2004	HQP
Sandymush-Progress Energy	Buncombe	Fee	2,655.00	12/28/2004	HQP
Harper Tract-Swift Creek	Franklin	CE	27.59	12/29/2004	HQP
William O'Neal Tract-Swift Creek	Franklin	CE	18.50	12/29/2004	HQP
Guthrie Tract-Shelton Creek	Granville	CE	110.54	12/29/2004	HQP
TESC-Mark's Creek	Wake	Fee	31.54	1/4/2005	HQP
Billy's Creek	Franklin	CE	5.03	1/7/2005	R
Beaver Dam-Drowning Creek I (Rankin Tract)	Moore	CE	1,214.00	1/7/2005	HQP
Wallace Deer Club (Blanchard Tract	Pender	CE	1,238.99	1/20/2005	HQP
Coddle Creek	Cabbarus	Fee	7.92	1/26/2005	R
Linville River-White Creek	Burke	Fee	1,425.30	1/27/2005	HQP
Stevens Tract-Eno River	Durham	Fee	70.70	2/1/2005	HQP
RFP-Contentnea Buffer Phase II	Greene	CE	50.08	2/4/2005	R
Hillcrest Bay	Hoke	CE	46.66	2/11/2005	HQP
McGowan Creek	Orange	CE	30.80	2/22/2005	R
Kings Creek	Transylvania	CE	6.11	3/10/2005	R
Wimberley Tract-Nat's Creek	Moore	CE	34.11	3/21/2005	HQP
Lester Capps Tract-Shocco Creek	Franklin	CE	19.38	3/28/2005	HQP
Lynn Capps Tract-Fishing Creek	Warren	CE	36.78	3/28/2005	HQP

Troublesome Creek	Rockingham	CE	52.74	4/8/2005	R
Pickard Farms Stream	Alamance	CE	18.31	4/13/2005	R
Pickard Farms Stream	Alamance	CE	18.18	4/13/2005	R
Pickard Farms Stream	Alamance	CE	14.56	4/13/2005	R
Bishop Tract-Canal Branch	Anson	CE	78.89	4/13/2005	HQP
Elk-Shoals-Methodist Camp	Ashe	CE	95.91	4/15/2005	HQP
Wallace Deer Club (Swinson Tract)	Pender	CE	109.92	4/19/2005	HQP
Old Cove Tract-Green River-Burdett	Polk	CE	23.98	4/21/2005	HQP
Lewis Tract, Little River	Randolph	CE	43.56	4/29/2005	HQP
Shocco Creek LLC-Little Shocco Cr	Franklin	CE	40.43	5/3/2005	HQP
Swift Creek Wetlands	Wake	CE	41.69	5/3/2005	HQP
Eno River-Cabe's Ford-Scarlett Trac	Orange	Fee	11.00	5/19/2005	HQP
Eno River-Cabe's Ford-McFayden T	Orange	Fee	26.87	5/21/2005	HQP
Tucker-Daniel 2 Tract-Shelton Creel	Granville	CE	3.44	5/24/2005	HQP
Peterson Tract-Shelton Creek	Granville	CE	40.55	5/24/2005	HQP
Whitelace Creek	Lenoir	CE	35.81	5/31/2005	R
O'Neal Tract-Little Shocco Creek	Franklin	CE	26.01	5/31/2005	HQP
Lambert Tract-Uwharrie River Bluff	Montgomery	CE	18.26	6/9/2005	HQP
Seagate Woods	Carteret	CE	122.96	6/10/2005	P
Four Mile Creek-Coffey Creek	Mecklenburg	CE	0.78	6/16/2005	R
Norwood Gainey Wetland	Wayne	Fee	58.38	6/16/2005	R
Flat River-Horton Grove	Durham	CE	307.28	6/17/2005	HQP
Sturges Tract-Fishing Creek	Franklin/Nash	CE	13.49	6/21/2005	HQP
Roanoke River-IP-Blue Sky Timber	Halifax	CE	329.00	6/27/2005	HQP
Roanoke River-IP-Blue Sky Timber	Halifax	CE	263.76	6/27/2005	HQP
West Haven Apartment Stream	Wayne	CE	2.20	7/10/2005	R
McDonald's Pond	Richmond	CE	127.86	7/14/2005	R
New Light Creek	Wake	Fee	34.94	8/1/2005	R
Haw River-Bouchard Tract	Rockingham	CE	30.87	8/4/2005	P
Great Dismal Swamp Restoration Ba	Tyrrell	CE	455.00	8/17/2005	R
Brogden Road Buffer Site	Johnston	CE	15.00	8/24/2005	R
Grogan Tract-Mayo River	Rockingham	Fee	81.31	8/25/2005	HQP
West Haven Apartment Stream	Wayne	CE	2.47	8/31/2005	R
Brushy Fork Creek	Forsyth	CE		9/10/2005	R
Green Tract-Fishing Creek	Warren	CE	15.55	9/13/2005	HQP
Whitley Site	Johnston	CE	27.50	9/13/2005	R
River's Edge	Perquimans	CE	TBD	9/15/2005	R
Averett Tract-Tar River	Granville	CE	11.36	9/20/2005	HQP
Indian Run-Coddle Creek	Cabbarus	sition by Eas	1.11	9/21/2005	R
Big Bull Buffer Site	Johnston	CE	36.76	9/21/2005	R
UT Buffalo Shoals Creek-Gray Farm	Iredell	CE	21.50	9/22/2005	R
Edwards Tract-Fishing Creek	Nash	CE	87.32	9/23/2005	HQP
Gaitlin Swamp	Martin	CE	150.52	9/23/2005	R
A&P Timber Tract-Sandy Creek	Franklin	CE	18.49	9/28/2005	HQP
Faulkner Tract-Sandy Creek	Franklin	CE	20.29	9/28/2005	HQP
Smitherman Tract-Tar River	Granville	CE	20.27	9/28/2005	HQP
D. Davis Tract-Shocco Creek	Warren	CE	12.06	10/7/2005	HQP

MacNair Tract (Turpentine, LLC)-Ay	Granville	CE	211.07	10/7/2005	HQP
Charles Creek	Pasquotank	CE	2.00	10/10/2005	R
Beaverdam Creek	Mecklenburg	CE	0.17	10/12/2005	R
Beaverdam Creek	Mecklenburg	CE	2.52	10/12/2005	R
Crowther North-South Yadkin River	Rowan	CE	39.12	10/14/2005	HQP
Baker Tract, Little River	Randolph	CE	10.15	10/17/2005	HQP
Dutch Second Creek-Hill Tract	Rowan	CE	16.98	10/18/2005	HQP
Ellerbee Creek	Durham	CE	17.41	10/20/2005	R
Moccasin Creek, Kornegay Farms	Johnston	CE	20.51	10/21/2005	R
Childers Tract North Pacolet	Polk	Fee	39.88	10/25/2005	HQP
Contentnea Creek, Stokes Farm	Greene	CE	55.65	10/28/2005	R
Reeds Creek	Iredell	CE	14.66	10/31/2005	R
Reeds Creek	Cumberland	CE	18.21	11/1/2005	R
Mackovic Tract-Countyline Creek-Pr	Caswell	Fee	90.13	11/3/2005	HQP
Reeds Creek	Iredell	CE	23.65	11/9/2005	R
Conetoe Creek Buffer Site	Pitt	CE	10.02	11/9/2005	R
Walbourn Tract, Little River	Randolph	CE	38.02	11/23/2005	HQP
Tobey Tract-Melrose Mountain	Polk	Fee	318.36	11/23/2005	HQP
Coddle Creek	Cabbarus	CE	6.38	11/28/2005	R
Coddle Creek	Cabbarus	CE	3.75	11/28/2005	R
Tomlinson Tract-Little Shocco Creek	Franklin	CE	77.95	11/28/2005	HQP
Alston Tracts 1, 2 & 3-Shocco Creek	Franklin	CE	359.55	12/1/2005	HQP
Cane Creek	Alamance	CE	22.58	12/5/2005	R
Terrible Creek	Wake	Fee	48.00	12/7/2005	R
IP/Alston Tract-Fishing Creek	Warren	CE	179.38	12/9/2005	HQP
Harrell Stream and Wetland	Edgecombe	CE	44.61	12/09/05	R
Beaverdam Creek	Mecklenburg	CE	43.85	12/13/2005	R
Bruchon Tract-Roan Massif	Mitchell	Fee	145.65	12/20/2005	HQP
McIntyre Creek	Mecklenburg	CE	0.11	12/21/2005	R
Camp Chestnut Ridge-Sevenmile Cı	Orange	CE	59.74	12/22/2005	HQP
Nahunta Swamp	Wayne	CE	TBD	12/22/2005	R
Winslow Tract-North Fork Upper Ta	Granville	CE	36.89	12/28/2005	HQP
Bessemer Tract-Hyco Lake	Caswell	CE	167.05	12/29/2005	HQP
Hodges Tract-Tar River	Franklin	CE	41.70	12/29/2005	HQP
Wheless Tract-Little Shocco Creek	Franklin	CE	14.63	12/29/2005	HQP
Tucker-Daniel 1 Tract-Shelton Creel	Granville	CE	18.15	1/4/2006	HQP
Cooper Swamp-Modlin Site	Martin	CE	41.24	1/20/2006	R
Brushy Fork Creek	Forsyth	CE	0.41	1/24/2006	R
Freedom Park-Little Sugar Creek	Mecklenburg	CE	13.12	1/26/2006	R
Middle Swamp Creek	Pitt	Fee	10.60	1/26/2006	R
New Hope Creek-Brown Farm	Orange	CE	46.13	1/26/2006	R
Manning Farm Site	Edgecombe	CE	10.00	01/26/06	R
Tarlton-Country Club Hills-Reeds Cr	Cumberland	CE	17.75	1/27/2006	R
Howard Farm Site	Greene	CE	26.76	2/1/2006	R
Daniels & Daniels Farms	Franklin	CE	33.76	2/6/2006	R
Beaverdam Creek	Mecklenburg	CE	0.58	2/7/2006	R
Beaverdam Creek	Mecklenburg	CE	1.53	2/8/2006	R

M. Speed Tract-Little Shocco Creek	Warren	CE	44.55	2/10/2006	HQP
Sandy Creek	Durham	CE	10.39	02/14/06	R
Beaverdam Creek	Mecklenburg	CE	2.53	2/16/2006	R
Beaverdam Creek	Mecklenburg	CE	15.91	2/17/2006	R
McIntyre Creek	Mecklenburg	CE	0.73	2/24/2006	R
Double Thumb Road-Bost Tract	Rowan	Fee	3.72	2/28/2006	R
Double Thumb Road-Madden Tract	Rowan	Fee	6.69	2/28/2006	R
East Tarboro Canal	Edgecombe	CE	3.05	3/3/2006	R
Parker Tract, Little River	Randolph	CE	34.00	3/3/2006	HQP
WalkerTract-Dutch Buffalo Creek	Cabarrus	CE	33.67	3/3/2006	HQP
Wickliff Tract-Dutch Buffalo Creek	Cabarrus	CE	2.73	3/3/2006	HQP
East Tarboro Canal	Edgecomb	CE	8.89	3/6/2006	R
East Tarboro Canal Phase 1	Edgecombe	CE	0.83	3/6/2006	R
Black Gum Creek	Robeson	CE	146.47	3/17/2006	R
East Tarboro Canal	Edgecomb	CE	5.81	3/22/2006	R
Glen Raven Wetland, KCI Full Deliv	Alamance	CE	9.47	3/27/2006	R
Conoconnara Site	Halifax	CE	186.57	4/6/2006	R
McIntyre Creek	Mecklenburg	Const. E	n/a	4/28/2006	R
Betty Crews Tract-Tar River	Granville	CE	31.58	5/3/2006	HQP
Coddle Creek	Cabbarus	CE	1.38	5/19/2006	R
Hall Tract-Fishing Creek	Edgecombe	CE	231.45	5/19/2006	HQP
Whatley Tract-Uwharrie River	Randolph	CE	24.80	5/23/2006	HQP
Parrish Tract-Sandy Creek	Franklin	CE	33.39	5/30/2006	HQP
Crews Farm-Roy Crews Tract-Tar R	Granville	CE	10.07	5/31/2006	HQP
Ward Tract-Green River	Polk	CE	15.39	6/2/2006	HQP
Third Fork Creek	Durham	CE	8.89	06/06/06	R
Wells Tract, Cape Fear River	Pender	Fee	99.76	6/6/2006	HQP
Thorp Tracts-Shelton Creek	Granville	CE	52.20	6/7/2006	HQP
Morton Tracts-Shelton Creek	Granville	CE	5.89	6/9/2006	HQP
Pitts Tracts-Tar River	Granville	CE	27.31	6/9/2006	HQP
Sherman Tract No. 1-Tar River	Granville	CE	15.97	6/19/2006	HQP
Sherman Tract 2-Tar River	Granville	CE	28.11	6/19/2006	HQP
Penny Tract-New Hope Creek	Orange	CE	20.14	6/22/2006	HQP
Grissom Tract-Barnes Creek	Montgomery	CE	55.87	6/30/2006	HQP
Collins Creek	Orange	CE	27.90	7/12/2006	R
Little Buffalo	Johnston	CE	19.49	7/14/2006	R
Branson Creek	Cumberland	CE	3.02	7/18/2006	R
Shearin Tract-Fishing Creek	Warren	CE	70.14	7/18/2006	HQP
Dean Tract-Tar River	Granville	CE	63.51	7/18/2006	HQP
Slaughter Tract-Shelton Creek	Granville	CE	35.25	7/24/2006	HQP
Rose Bay Creek-Mason Site	Hyde	CE	36.08	7/24/2006	R
Perry Tract-Cedar Creek	Franklin	CE	162.44	7/27/2006	HQP
Cane Creek	Person	CE	52.11	7/27/2006	R
Seven Springs Farm-Silver Creek	Burke	CE	5.06	8/2/2006	R
Seven Springs Farm-Silver Creek	Burke	CE	6.77	8/2/2006	R
UT Uwharrie	Randolph	CE	32.82	8/3/2006	R
Little Troublesome Creek	Rockingham	CE	20.00	8/4/2006	R

Little Troublesome Creek	Rockingham	CE	10.22	8/4/2006	R
Buckhorn Creek-Lloyd Tract	Onslow	CE	24.28	8/7/2006	R
Gardner Tract-Big Pond Bay	Cumberland	Fee	30.95	8/9/2006	HQP
UT Pembroke Creek	Chowan	CE	59.42	8/17/2006	R
UT Hardison Mill Creek	Beaufort	CE	75.00	8/17/2006	R
Johnston Tract-Reedy Creek	Warren	CE	64.55	8/30/2006	HQP
McIntyre Creek	Mecklenburg	CE	15.90	8/31/2006	R
Eno River-Penny Tract	Durham	Fee	114.68	8/31/2006	HQP
Beaver Dam-Drowning Creek Phase II	Moore	CE	59.18	8/31/2006	
Sharpe Riverine Wetland Preservati	Rockingham	Fee	17.12	9/13/2006	P
Naked Creek	Wilkes	CE	0.99	9/21/2006	R
Blounts Creek-CH2MHill	Cumberland	CE	7.89	9/21/2006	R
Blounts Creek-CH2MHill	Cumberland	CE	2.55	9/21/2006	R
Naked Creek	Wilkes	CE	3.95	9/22/2006	R
Oakley Tract-Tar River	Granville	CE	13.29	10/4/2006	HQP
Blounts Creek-CH2MHill	Cumberland	CE	2.90	10/5/2006	R
Dye Branch	Iredell	CE	0.03	10/5/2006	R
Dye Branch	Iredell	CE	0.03	10/6/2006	R
Dye Branch	Iredell	CE	0.05	10/6/2006	R
Dye Branch	Iredell	CE	0.03	10/6/2006	R
Dye Branch	Iredell	CE	0.05	10/6/2006	R
Dye Branch	Iredell	CE	0.05	10/6/2006	R
Dye Branch	Iredell	CE	0.06	10/6/2006	R
Harrell Tract-Chowan River	Chowan	CE	111.00	10/9/2006	HQP
Dye Branch	Iredell	CE	0.06	10/10/2006	R
Capps Forestry Enterprises-Fishing	Warren	CE	23.46	10/11/2006	HQP
Dye Branch	Iredell	CE	0.06	10/11/2006	R
Dye Branch	Iredell	CE	0.04	10/12/2006	R
Dye Branch	Iredell	CE	0.04	10/13/2006	R
Hunting Creek	Iredell	CE	10.13	10/16/2006	R
McIntyre Creek	Mecklenburg	CE	0.33	10/18/2006	R
Gupton Tract-Shocco Creek	Franklin	Fee	179.95	10/25/2006	HQP
Bingham Tract-Uwharrie River	Montgomery	CE	562.16	10/26/2006	HQP
Capps Farms Inc.-Fishing Creek	Warren	CE	39.64	10/31/2006	HQP
Boyer Tract-Green River	Polk	CE	31.36	11/6/2006	HQP
Blounts Creek-CH2MHill	Cumberland	CE	4.16	11/7/2006	R
Brushy Fork Creek	Forsyth	CE	0.37	11/16/2006	R
Walnut Creek	Wayne	CE	27.31	11/16/2006	R
Jarmans Oak, Restoration Systems	Onslow	CE	10.79	11/17/2006	R
McKean Tract-Deep Creek-Sandy C	Moore	CE	95.39	11/27/2006	HQP
Blounts Creek-CH2MHill	Cumberland	CE	10.12	11/27/2006	R
UT to Reedy Fork Creek	Guilford	CE	2.06	11/28/2006	R
Wolf Pond Tract-EBX	Union	CE	13.16	12/1/2006	R
Morgan Creek	Haywood	CE	10.24	12/1/2006	R
Little White Oak Creek	Polk	CE	56.00	12/12/2006	R
Harris Tract-Tar River	Granville	CE	38.82	12/13/2006	HQP

Pories Tract-Tar River	Pitt	CE	37.46	12/14/2006	HQP
Dula Thoroughfare	Anson	CE	3.58	12/14/2006	R
Quioccosin Swamp, Albemarle Rest	Bertie	CE		1/2/2007	R
Greenbriar Creek	Chatham	CE	17.02	1/10/2007	R
Dye Branch	Iredell	CE	0.08	1/10/2007	R
Brown Marsh Swamp-Restoration S	Robeson	CE	20.25	1/17/2007	R
Jarmans Oak, Restoration Systems	Onslow	CE	6.00	1/18/2007	R
Jarmans Oak, Restoration Systems	Onslow	CE	29.53	1/18/2007	R
Brushy Fork Creek	Forsyth	CE	1.65	1/22/2007	R
McDonald Tract-Hitchcock Creek	Richmond	CE	39.59	1/22/2007	HQP
Goose Creek	Durham	CE		1/23/2007	R
Cutawhiskie Creek	Hertford	CE	22.85	1/31/2007	R
Ellington Branch	Warren	CE	14.49	2/15/2007	R
Branson Creek	Cumberland	CE	0.17	2/16/2007	R
Mullen Tract-Sandy Creek	Franklin	CE	28.63	2/23/2007	HQP
Cochran Tract-Little River	Montgomery	CE	18.64	2/27/2007	HQP
Luthi Tract-Skyuka Creek	Polk	CE	19.73	2/27/2007	HQP
Beaverdam Site-EBX	Harnett	CE	21.95	2/27/2007	R
Beaverdam Site-EBX	Harnett	CE	13.44	2/27/2007	R
Big Cedar Creek	Stanly	CE	40.66	2/27/2007	R
Dye Branch	Iredell	CE	0.04	3/2/2007	R
Clark Mill Creek-Albemarle Restorat	Hyde	CE	25.01	3/12/2007	R
Brushy Fork Creek	Forsyth	CE		3/15/2007	R
Great Dismal Swamp Restoration Ba	Tyrrell	CE	12.66	3/19/2007	R
Dog Bite Creek, KCI	Mitchell	CE	6.87	3/28/2007	R
UT Crab Creek	Alleghany	CE	14.33	4/2/2007	R
Duke Swamp	Gates	CE	25.44	4/2/2007	R
Holly Grove Farm-Restoration Syste	Guilford	CE	61.54	4/3/2007	R
Young Tract-Sandy Creek	Franklin	CE	71.73	4/24/2007	HQP
Branson Creek	Cumberland	CE	0.31	5/3/2007	R
Branson Creek	Cumberland	CE	0.09	5/3/2007	R
Branson Creek	Cumberland	Const. E	0.03	5/3/2007	R
Branson Creek	Cumberland	CE	3.30	5/3/2007	R
Branson Creek	Cumberland	CE	0.57	5/3/2007	R
Branson Creek	Cumberland	CE	0.43	5/3/2007	R
Branson Creek	Cumberland	CE	0.44	5/3/2007	R
Branson Creek	Cumberland	CE	0.17	5/3/2007	R
Pinch Gut Creek	Stokes	CE	28.98	5/23/2007	R
Pinch Gut Creek	Stokes	CE	2.80	5/23/2007	R
Adkin Branch	Lenoir	Const. E	0.12	5/25/2007	R
M. Paschal Tract-Deep River	Moore	CE	74.87	5/25/2007	HQP
Paschal Tract-Glendon Slate Creek	Moore	CE	14.92	5/25/2007	HQP
Rocky River-Stricker Branch	Cabbarus	CE	4.71	6/4/2007	R
Rocky River-Stricker Branch	Cabbarus	CE	1.55	6/4/2007	R
Rocky River-Stricker Branch	Cabbarus	CE	1.42	6/4/2007	R
North Muddy Creek	McDowell	CE	4.32	6/5/2007	R
North Muddy Creek	McDowell	CE	5.68	6/5/2007	R

North Muddy Creek	McDowell	CE	2.15	6/5/2007	R
Greenbriar Creek	Alamance	CE	0.52	6/13/2007	R
Steele Tract-Mill Creek	Surry	CE	14.94	6/14/2007	HQP
Jordan Tract-Deep River (Paschal T	Moore	CE	156.18	6/14/2007	HQP
Jordan Tract-Deep River (Singleton	Moore	CE	11.48	6/14/2007	HQP
Cochran Tract-Uwharrie River	Montgomery	CE	15.35	6/14/2007	HQP
Fisher River-Fisher Peak	Surry	CE	151.19	6/14/2007	HQP
Orange County-Trinity School-New I	Orange	CE	26.51	6/15/2007	HQP

[1]Conservation easement (CE), construction easement (Const. E), fee simple acquisition (Fee)
[2]Restoration or enhancement (R), preservation (P), high quality preservation (HQP)

Appendix H. LWPs – Ongoing (Phases I – III) as of July 1, 2007

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]
Hiwassee [West]	06020002	090020, 100040, 100050, and 170010	Hiwassee River [39 sq. mi.]	June 2005	- Phase III in progress - Working with Hiwassee River Watershed Coalition	December 2007 [Equinox]
Broad [West]	03050105	040040, 040060, and 040050	Cove Ck. [80 sq. mi.]	May 2006	- Fast track LWP in order to identify and acquire cold/cool stream mitigation needs will be pursued	July 2007 [EarthTech]
Upper Cape Fear [Central]	03030002	030010, and 040110	Travis, Tickle, & Little Alamance [51 sq. mi.]	Summer 2006	- Phase II underway - Fieldwork Complete - Demonstration projects identified	May 2008 [Piedmont Triad Council of Government]
Lower Yadkin [Central]	03040104	010010 and 010020	Mountain & Jacobs Cks. [68 sq. mi.]	Fall 2003	- Phase I tasks 100% complete - Final Phase I report from HDR delivered spring 2004	On hold; will re-evaluate. Possible re-start in 2007
Middle Yadkin [Central]	03040103	050010, 050020, and 050040	Upper Uwharrie [3 HUs; ~ 135 sq. mi.]	Apr. 2005	- Phase I 100% complete - LWP effort on hold per 2005 Op Strategic Plan	Phase I completed Aug. 2005 [Buck Engineering] Further planning on hold
Neuse [East]	03020204	Subwatersheds within 030020, 030050, 040010, and 050020 to 050040	Havelock [~ 60 sq. mi.]	June 2005	- Phase I activities ended Jan. 2006	On Hold [EcoScience]
Tar-Pamlico [East]	03020101	020010, 030010, and 030020	Fishing Ck. [69.7 sq. mi.]	May 2005	- Phase I completed Feb. 2006 - Phases II & III are in progress	Summer 2008 [WK Dickson]
White Oak [East]	03020106 & 03030001	Currently undetermined	White Oak	Apr. 2006	- Phases II & III in progress - Secondary focus is to develop coastal watershed-specific mitigation strategy	Summer 2008 [ECU & NCED]
					-	

Appendix I: LWP's Phase III Completed as of July 1, 2007

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]	Phase IV Completion Date and Comments (if applicable)
Lower Cape Fear [East]	0303 0007	140010	Northeast Cape Fear tributaries [80 sq. mi.]	Sept. 2000	- 100% complete - Many projects identified, including stormwater BMPs; several funded (and/or funding being sought)	Completed December 2002 [KCI]	WECO implementing BMPs through EPA grant
Upper Neuse [East]	0302 0201	060010	Lake Rogers sub-watershed [17 sq. mi.]	Jan. 2002	- 100% complete - Limited opportunities for stream restoration - Contracting with UNRBA and EcoScience to conduct site search and landowner outreach.	Dec. 2003 [No assessment consultant, but used Tetra Tech data]	October 2008
Upper Neuse [East]	0302 0201	050010	Ellerbe Creek [37 sq. mi.]	Jan. 2002	- 100% complete - Several restoration projects both initiated and completed - Contracting with UNRBA and EcoScience to develop Site Atlas and conduct landowner outreach.	Jan. 2004 [used UNRBA data for this CU]	October 2008
Upper Neuse [East]	0302 0201	110010 and 110020	Upper Swift Creek [66 sq. mi.]	Fall 2003	- Phases I - III 100% complete - 4 EEP projects underway - Contracting with UNRBA to conduct landowner outreach	June 2005 [Amec/Tetra Tech]	October 2008
Upper Neuse [East]	0302 0201	050020	Little Lick Ck. [22 sq. mi.]	Fall 2004	- Demonstration projects underway - Contracting with EcoScience to produce site Atlas and with UNRBA to do landowner outreach	Dec. 2006 [Upper Neuse River Basin Assn.]	October 2008
Upper Neuse [East]	0302 0201	050030	Lick Creek [22.8]	October 2007	- Contracting with EcoScience to develop site Atlas based on work done by UNRBA - Contracting with UNRBA to do landowner outreach	Phases I-III funded through an EPA grant	October 2008

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]	Phase IV Completion Date and Comments (if applicable)
Lower Catawba [Central]	0305 0101 and 0305 0103	03050101 – 170010 and 170020; 03050103-020020 to 020050	Charlotte-area Local Watersheds [6 HUs totaling 257 sq. mi.]	Feb. 2002	- Phases I - III 100% complete July 2003 - ID'd many stormwater BMPs/retrofits and ~50,000' stream restoration in 6 "focus areas" - 4 EEP projects underway	July 2003 [CH2M Hill]	In July of 2006 Tetra Tech completed an assessment of stormwater BMPs for non-traditional mitigation. In April of 2007 contract was initiated to revise/update work previously done for this study; work is ongoing.
Lower Yadkin [Central]	0304 0105	010010 and 010020	Upper Rocky River – Dye Branch & Clarke Creek [77 sq. mi.]	Dec. 2001	- 100% complete - Many potential projects & BMPs id'd, including ~ 80,000' stream restoration. - Several projects in acquisition.	Feb. 2004 [CDM]	
Lower Yadkin [Central]	0304 0105	03040105 – 010030 to 010050 and 020010	Upper Rocky River part 2 [4 HUs; 200 sq. mi.]	Dec. 2002	- Phases I through III are 100% complete. - NCSU/WECO has modified "Phase IV" contract to do education/outreach to landowners & local gov'ts in this LWP area [ongoing; contract ended 2/06]	Spring 2005 [Mactec]	Feb. 2006 [WECO and EEP field staff presentations to general public, landowners, town councils, and county commissions]
French Broad [West]	0601 0105	030020 to 030040	Mud Creek [3 HUs; 113 sq. mi.]	Sept. 2000	- 100% complete - Documented many non-point sources of impairment, degradation - Two EEP projects underway - 319 grant received for Ag BMPs	Jan. 2003 [No assessment consultant; relied in part on TVA IPSI work]	-Received EPA funding for local *Watershed Coordinator* to implement plan -EEP has stream restoration project on Lewis Creek in design
Pasquo-tank [East]	0301 0205	050010, 010020 and 040010	Pasquotank River [3 HUs; 370 sq. mi.]	Dec. 2001	- Final Plan development 100% complete - Some potential restoration, enhancement and preservation sites identified; BMP opportunities also identified	Feb. 2004 [DS Pro]	Resolving issue of mitigation needs associated with U.S. 64 before pursuing projects
Middle Neuse [East]	0302 0203	020040	EPA *Contentnea Grant* – Hominy Swamp Creek [16 sq. mi.]	1999	- Final plan development 100% complete - Several restoration projects & BMP sites identified.	May 2004 [No assessment consultant; some support from NCSU & ECU]	

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]	Phase IV Completion Date and Comments (if applicable)
Middle Cape Fear [East]	0303 0004	020010, 030010 and 040010	Harris Lake tributaries; Kenneth & Parkers Creeks [180 sq. mi.]	Spring 2003	- Final plan development 100% complete - Several restoration projects & BMP sites identified	Sept. 2004 [Buck Engineering]	
Middle Cape Fear [East]	0303 0004	070010 & 070020	Cranes Creek [2 HUs; 101 sq. mi.]	Dec. 2001	- Assessment tasks completed May 2005 [Blue] - Several potential projects delivered to EEP Implementation staff - Final stakeholder summary & preliminary plan completed (WECO, 2005)	WECO report completed June 2005; additional planning efforts on indefinite hold pending annual updates to Op Strategic Plan	
Upper Cape Fear [Central]	0303 0002	060100, 060070, 060080	Morgan and Little Creeks [3 HUs; 75 sq. mi.]	Nov. 2002	- Final plan development 100% complete - Many restoration projects & BMP site identified and evaluated. - Phase IV contract underway to pursue Plan identified sites	Dec. 2004 [TetraTech]	Phase IV completed in March 2007 [Stantec]. Chapel Hill and Carrboro are continuing implementation efforts.
Upper Cape Fear [Central]	0303 0002	010010 and 010030	Troublesome & Little Troublesome Creeks [69 sq. mi.]	Nov. 2001	- 100% complete - Many potential preservation, restoration, and BMP sites id'd - Phase IV contract underway to pursue Plan identified sites	February 2004 [TetraTech]	Phase IV completed in March 2007 [Stantec]
Upper Yadkin [West]	0304 0101	010080 to 010110 and 020010	K. Scott Lake – Lewis Fork & Warrior Ck. [5 HUs; 137 sq. mi.]	Nov. 2001	- 100% complete - ~ 60,000' of stream restoration id'd; negligible wetland opportunities - Ag BMPs targeted for CWMTF grant	June 2004 [TetraTech]	No current plans for formal Phase IV effort.
French Broad [West]	0601 0108	080020	Bald Creek [18 sq. mi.] + additional HUs added for Phase IV [59 sq. mi.]	Fall 2003	- Phase III (Plan & Atlas) completed - Habitat degradation and straight-piping issues	Feb. 2006 [Equinox]	July 2007 [Equinox]
French Broad [West]	0601 0105	060020	South Hominy Creek [38 sq. mi.]	Fall 2003	- Phase III completed - Sediment, nutrients are key stressors	Nov. 2005 [Buck Engineering]	-Mar. 2006 [Buck Engineering] -EEP pursuing projects identified in Phase IV
Broad [West]	0305 0105	070020	Catheys Ck. [45 sq. mi.]	June 2003	- Phases I - III are 100% complete - Contract amendment to perform fast track LWP in Cove Ck.	Sept. 2005 [Earth Tech]	Landowner outreach performed by EEP staff

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]	Phase IV Completion Date and Comments (if applicable)
Middle Tar-Pamlico [East]	0302 0103	15 sq. mi. subwatersheds with HUs: 010020, 060020, 050030, and 080010	Crisp Creek [18 sq. mi. total]	Fall 2003	- Phases I – III 100% complete - Phase IV effort on hold indefinitely	Phases I – III completed Mar. 2005	Fall 2008 [NCSI-BAE] Phase IV ongoing in Crisp Creek Watershed]
Middle to Lower Neuse [East]	0302 0202	010010, 010020 and 010021	Initial: Core Ck. Now: Stoney Ck. [3 HUs, 29.8 sq. mi. total]	Fall 2003	- Phase I on Core Ck. 100% complete [KCI] - Decision made to move LWP to Stoney Ck. HUs beginning 2004 - Stoney Ck. Phases I - III 100% complete - Phase IV effort to be completed in September 2007	Phases I through III Dec. 2005	Phase IV scheduled for completion September 2007 [KCI]
Lumber [East]	0304 0203	030010 and 050010	Bear Swamp & Lumber River [52 sq. mi.]	Fall 2003	- Phase I 100% complete [Earth Tech] - Phase II detailed assessment 100% complete - Phase III 100% complete - LWP identified project underway	Dec. 2005 [Earth Tech]	
Upper Cape Fear [Central]	0303 0003	070010, 070020 and 070050	Initial: Hasketts Ck. Now: Upper Rocky River & tribs [3 HUs; 177 sq. mi.]	Fall 2003	- Moved LWP from Hasketts Ck. (Asheboro area) to Upper Rocky River (3 HUs) in Siler City area due to great restoration opportunities and more favorable stakeholders - Phases I – III are 100% complete	June 2005 [TetraTech]	Landowner outreach being performed by EEP staff on potential riverine wetland sites.
Upper Catawba [West]	0305 0101	080010 and 080020	Lower Ck. [98 sq. mi.]	Fall 2003	- Phase III complete - Working with post-plan stakeholder group (Lower Creek Advisory Team) to implement plan recommendations - All local and county governments voted to endorse plan recommendations	July 2006 [Mactec}	Landowner outreach being performed by EEP staff; pursuing several stream restoration projects
New [West]	0505 0001	030020 and 030030	Little River [77sq.mi] + Brush Ck.[34 sq.mi.]=111mi^2 total	Fall 2003	- Phase I completed March 2004 - Phases II and III began Jan. 2006; completed Spring 2007 - Final Project Atlas and Bledsoe Creek plan produced June 2007	June 2007 [WK Dickson]	No plans for a formal Phase IV process, but local group has formed the Bledsoe Creek Advisory Team

River Basin [EEP Region]	8-digit CU	14-digit HU(s) (6-digit suffix)	Local Watershed Name [approx. total area in sq. miles]	Initiation Date	Status/Comments	Plan (Phase III) Completion Date [Consultant]	Phase IV Completion Date and Comments (if applicable)
Lumber [East]	0304 0207	020010, 020020, 020030, 020040, and 020050	Lockwoods Folly [~ 50 sq. mi.]	June 2005	- Phase I was 100% complete Dec. 2005 - Phase II 100% complete - Final Management Plan complete	July 2007 [Stantec]	Landowner outreach being conducted by EEP staff

Appendix J: 2006- 2007 Projects in Monitoring

Project_Name	Project_Type	Basin	Cataloging Unit	County_Name	Stream	Wetland	Stream_Bu	Proj_status
Cleghorn Creek	Stream	BROAD	03050105	RUTHERFORD	5167	0	0	Monitoring Year 2
Starmount Forest CC	Stream	CAPE FEAR	03030002	GUILFORD	5621	0	0	Monitoring Complete
Jumping Run Creek	Stream/Wetland	CAPE FEAR	03030004	HARNETT	4480	67	0	Monitoring Year 1
Little Beaver Creek	Stream/Wetland	CAPE FEAR	03030002	WAKE	5298	5.72	0	Monitoring Year 1
Brown Farm	Wetland	CAPE FEAR	03030002	DURHAM	0	27.9	0	Monitoring Year 1
Glen Raven	Stream	CAPE FEAR	03030002	ALAMANCE	3990	0	0	Monitoring Year 1
Cross Creek	Stream	CAPE FEAR	03030004	CUMBERLAND	2400	0	0	Monitoring Year 2
UT to South Fork Creek (Hadley-Newl	Stream	CAPE FEAR	03030002	ALAMANCE	6000	0	0	Monitoring Year 2
Cane Creek	Stream	CAPE FEAR	03030002	ALAMANCE	2277	0	6.9	Monitoring Year 2
Mary's Creek	Stream	CAPE FEAR	03030002	ALAMANCE	2096	0	5.4	Monitoring Year 2
Grove Creek	Wetland	CAPE FEAR	03030007	DUPLIN	0	372.1	0	Monitoring Year 2
Tick Creek (Condoret Tract)	Stream	CAPE FEAR	03030003	CHATHAM	3011	0	0	Monitoring Year 2
Hillcrest Bay	Wetland	CAPE FEAR	03030004	HOKE	0	15	0	Monitoring Year 2
Tarlton Swamp	Stream/Wetland	CAPE FEAR	03030004	CUMBERLAND	4302	9.2	0	Monitoring Year 2
Carbonton Dam	Stream	CAPE FEAR	03030003	MOORE	90494	0	0	Monitoring Year 2
Privateer Farms	Stream/Wetland	CAPE FEAR	03030005	CUMBERLAND	34005	427.5	0	Monitoring Year 2
Haw Branch	Stream/Wetland	CAPE FEAR	03030007	ONSLOW	10000	25	0	Monitoring Year 2
Lick Creek	Stream	CAPE FEAR	03030004	LEE	9500	0	0	Monitoring Year 2
Stonebridge	Stream	CAPE FEAR	03030003	MOORE	6240	0	8.6	Monitoring Year 2
Forest Hills	Stream	CAPE FEAR	03030002	DURHAM	2960	0	0	Monitoring Year 3
Benbow Park	Stream	CAPE FEAR	03030002	GUILFORD	1902	0	0	Monitoring Year 3
Brown Bark Park	Stream	CAPE FEAR	03030002	GUILFORD	2834	0	0	Monitoring Year 3
Wells Creek	Stream	CAPE FEAR	03030002	ALAMANCE	5743	0	0	Monitoring Year 3
Reedy Branch	Stream	CAPE FEAR	03030002	ALAMANCE	3150	0	0	Monitoring Year 3
Haw River Swamp I	Wetland	CAPE FEAR	03030002	ROCKINGHAM	0	12	0	Monitoring Year 3
Open Springs	Stream	CAPE FEAR	03030003	RANDOLPH	4520	0	4.7	Monitoring Year 3
Haw River Swamp II	Wetland	CAPE FEAR	03030002	ROCKINGHAM	0	35.2	0	Monitoring Year 3
Suck Creek	Stream	CAPE FEAR	03030003	MOORE	2963	0	7.8	Monitoring Year 4
Sandy Creek	Stream/Wetland	CAPE FEAR	03030002	DURHAM	2700	3.6	0	Monitoring Year 4
Gillespie Golf Course	Stream	CAPE FEAR	03030002	GUILFORD	5795	0	0	Monitoring Year 4
Hillsdale Park	Stream	CAPE FEAR	03030002	GUILFORD	5440	0	0	Monitoring Year 4
Caviness	Stream	CAPE FEAR	03030003	RANDOLPH	3250	0	11	Monitoring Year 4
Spring Valley Park	Stream	CAPE FEAR	03030002	GUILFORD	1000	0	0	Monitoring Year 4
Deaton	Stream	CAPE FEAR	03030003	RANDOLPH	4800	0	13.7	Monitoring Year 5
Price Park	Stream	CAPE FEAR	03030002	GUILFORD	1776	0	0	Monitoring Year 6
Bailey Fork (WRC)	Stream	CATAWBA	03050101	BURKE	5500	0	9.5	Monitoring Year 1
Bailey Fork (EBX)	Stream/Wetland	CATAWBA	03050101	BURKE	15782	17.1	12.6	Monitoring Year 1
South Muddy Creek	Stream/Wetland	CATAWBA	03050101	MCDOWELL	15226	0	7.3	Monitoring Year 1
Reeds Creek	Wetland	CATAWBA	03050101	IREDELL	0	6.4	0	Monitoring Year 1
Beaverdam Creek	Stream	CATAWBA	03050101	MECKLENBURG	15597	0	0	Monitoring Year 1
Gray Farm	Stream	CATAWBA	03050101	IREDELL	7610	0	15.7	Monitoring Year 2
Zack's Fork Ck RFP*	Stream/Wetland/Buffe	CATAWBA	03050101	CALDWELL	3900	0	0	Monitoring Year 2
Pott Creek II	Stream	CATAWBA	03050102	CATAWBA	10054	0	0	Monitoring Year 2
South Fork Hopper	Stream/Wetland	CATAWBA	03050101	MCDOWELL	7213	6.1	9.9	Monitoring Year 2
Silver Creek	Stream	CATAWBA	03050101	BURKE	9632	0	5.3	Monitoring Year 2
Freedom Park	Stream	CATAWBA	03050103	MECKLENBURG	4400	0	0	Monitoring Year 3
Elk Shoals RFP*	Stream	CATAWBA	03050101	ALEXANDER	5376	0	5.3	Monitoring Year 3
South Fork	Stream	CATAWBA	03050102	CATAWBA	11260	0	0	Monitoring Year 3
Pott Creek	Stream/Wetland	CATAWBA	03050102	LINCOLN	3500	37.89	0	Monitoring Year 4
Brown Branch	Stream	CATAWBA	03050101	CALDWELL	5227	0	0	Monitoring Year 5
Wike Property (Lyle Creek)	Stream	CATAWBA	03050101	CATAWBA	3126	0	0	Monitoring Year 5
Kings Creek	Stream	FRENCH BROAD	06010105	TRANSYLVANIA	2300	0	0	Monitoring Year 2
Clear Creek	Stream	FRENCH BROAD	06010105	HENDERSON	1200	0	0	Monitoring Year 4
High Vista	Stream	FRENCH BROAD	06010105	BUNCOMBE	3800	0	0	Monitoring Year 5
Trout Cove Branch	Stream	HIWASSEE	06020002	CLAY	1876	0	0	Monitoring Year 2
Tulula	Stream/Wetland	LITTLE TENNESSEE	06010204	GRAHAM	9734.84	102	0	Monitoring Year 5
Mill Branch	Stream/Wetland	LUMBER	03040206	COLUMBUS	5032	37.99	0	Monitoring Year 1
Juniper Bay	Wetland	LUMBER	03040203	ROBESON	0	597.7	0	Monitoring Year 2
Bold Run Creek	Stream/Buffer	NEUSE	03020201	WAKE	1629.3	0	27.1	Monitoring Year 1
Norwood Gainey Site	Buffer	NEUSE	03020202	WAYNE	0	0	47	Monitoring Year 1
Whitley Site	Buffer	NEUSE	03020201	JOHNSTON	0	0	27.5	Monitoring Year 1
Whitelace Ck*	Wetland/Buffer	NEUSE	03020202	LENOIR	5901	20.7	2.4	Monitoring Year 2
Wake Forest C.C.	Stream	NEUSE	03020201	WAKE	3400	0	6.5	Monitoring Year 2
Stillhouse Creek	Stream	NEUSE	03020201	ORANGE	1391	0	2	Monitoring Year 2
Mocassin Creek	Stream/Wetland/Buffe	NEUSE	03020203	WAKE	311	48.52	3	Monitoring Year 2
Cox Site	Stream/Wetland	NEUSE	03020201	JOHNSTON	7642	43.7	13.4	Monitoring Year 2
Howard Farm	Buffer	NEUSE	03020203	GREENE	0	0	26.3	Monitoring Year 2
Lowell Mill	Stream	NEUSE	03020201	JOHNSTON	34990	0	0	Monitoring Year 2
Little Buffalo	Buffer	NEUSE	03020201	JOHNSTON	0	0	18.5	Monitoring Year 2
Moccasin Creek-Buffer	Buffer	NEUSE	03020201	JOHNSTON	0	0	20.2	Monitoring Year 2
Big Bull Creek	Buffer	NEUSE	03020201	JOHNSTON	0	0	35	Monitoring Year 2
Neu-Con MBI (Nahunta)	Stream/Wetland	NEUSE	03020203	WAYNE	10670	141	0	Monitoring Year 2
Ballance Farm (Buffer)	Buffer	NEUSE	03020203	WAYNE	0	0	50	Monitoring Year 2
Ellerbee Creek	Stream/Buffer/BMP	NEUSE	03020201	DURHAM	6279	0	12	Monitoring Year 3
Prestonwood G.C.	Stream/Buffer	NEUSE	03020201	WAKE	4123	0	5.3	Monitoring Year 3

Appendix J: 2006- 2007 Projects in Monitoring

Kentwood Park	Stream	NEUSE	03020201	WAKE	1420	0	2.9	Monitoring Year 3
Richland Creek	Stream	NEUSE	03020201	WAKE	415	0	0	Monitoring Year 3
Rocky Branch (NCSU) Phase I	Stream	NEUSE	03020201	WAKE	0	0	0	Monitoring Year 3
Little Contentnea-Buffer	Buffer	NEUSE	03020203	GREENE	0	0	54.16	Monitoring Year 3
Brogden Road	Buffer	NEUSE	03020201	JOHNSTON	0	0	15	Monitoring Year 3
Sleepy Creek	Wetland	NEUSE	03020202	LENOIR	0	515.6	0	Monitoring Year 3
Walnut Creek (Buffer)	Buffer	NEUSE	03020202	WAYNE	0	0	25	Monitoring Year 3
Chavis Park	Stream	NEUSE	03020201	WAKE	2210	0	2.3	Monitoring Year 4
Neu-Con MBI (Marston)	Stream/Wetland	NEUSE	03020204	JONES	6416	167.1	0	Monitoring Year 4
Moye Farm Phase II	Buffer	NEUSE	03020203	GREENE	0	0	50	Monitoring Year 4
Hargett/Tucker Farm	Buffer	NEUSE	03020204	LENOIR	0	0	17.5	Monitoring Year 4
Smith/Austin Creek	Stream	NEUSE	03020201	WAKE	10954	0	32	Monitoring Year 5
Croatan Mitigation Bank Phase II	Wetland	NEUSE	03020204	CRAVEN	0	1555.6	0	Monitoring Year 5
Moye Farm Phase I	Buffer	NEUSE	03020203	GREENE	0	0	37.1	Monitoring Year 5
Casey Dairy	Buffer	NEUSE	03020202	WAYNE	0	0	72	Monitoring Year 5
Neu-Con MBI (Westbrook)	Stream/Wetland	NEUSE	03020201	JOHNSTON	5414	130	0	Monitoring Year 5
Bear Creek	Wetland	NEUSE	03020202	LENOIR	0	422	0	Monitoring Year 5
McCotter-Raines	Buffer	NEUSE	03020204	JONES	0	0	24.4	Monitoring Year 5
Neu-Con MBI (Casey-King)	Wetland	NEUSE	03020202	LENOIR	0	25	0	Monitoring Year 5
Neu-Con MBI (Alexander)	Wetland	NEUSE	03020203	GREENE	0	21.4	0	Monitoring Year 5
Hominy Swamp Creek	Stream	NEUSE	03020203	WILSON	2232	0	2.6	Monitoring Year 6
Howell Woods	Wetland	NEUSE	03020201	JOHNSTON	5251	140	5.5	Monitoring Year 6
White Oak Creek	Wetland	NEUSE	03020201	JOHNSTON	0	32.24	0	Monitoring Year 6
Brush Creek	Stream	NEW	05050001	ALLEGHANY	3590	0	0	Monitoring Year 6
Charles Creek	Wetland	PASQUOTANK	03010205	PASQUOTANK	0	1.76	0	Monitoring Year 1
Dismal Swamp Full-Delivery	Wetland	PASQUOTANK	03010205	TYRRELL	0	455	0	Monitoring Year 2
Conoconnara Swamp	Stream/Wetland	ROANOKE	03010107	HALIFAX	5000	140	0	Monitoring Year 1
Snow Creek	Stream	ROANOKE	03010103	STOKES	4705	0	0	Monitoring Year 2
Gatlin Swamp	Wetland	ROANOKE	03010107	MARTIN	0	125	0	Monitoring Year 2
UT to Crooked Creek/Speas Property	Stream/Wetland/Buffe	TAR-PAMLICO	03020101	FRANKLIN	2477	2.8	10.8	Monitoring Year 1
Simpson Wetland	Wetland	TAR-PAMLICO	03020104	BEAUFORT	0	30	0	Monitoring Year 1
Anderson Swamp	Wetland	TAR-PAMLICO	03020102	EDGECOMBE	0	0	0	Monitoring Year 1
Simpson Buffer	Buffer	TAR-PAMLICO	03020104	BEAUFORT	0	0	45	Monitoring Year 1
Billy's Creek	Stream	TAR-PAMLICO	03020101	FRANKLIN	2101	0	2.6	Monitoring Year 2
Louisburg (UT to Tar River)	Stream	TAR-PAMLICO	03020101	FRANKLIN	1937	0	3.047	Monitoring Year 2
Daniels Farm #2	Wetland	TAR-PAMLICO	03020101	FRANKLIN	0	29.31	0	Monitoring Year 2
Manning Farm	Buffer	TAR-PAMLICO	03020103	EDGECOMBE	0	0	10	Monitoring Year 2
Conetoe Creek	Buffer	TAR-PAMLICO	03020103	PITT	0	0	10	Monitoring Year 2
Gregory	Stream	TAR-PAMLICO	03020102	HALIFAX	6500	75	0	Monitoring Year 3
Daniels Farm	Wetland	TAR-PAMLICO	03020101	FRANKLIN	0	31.7	0	Monitoring Year 4
Bear Swamp Creek	Stream	TAR-PAMLICO	03020101	FRANKLIN	1460	0	2.4	Monitoring Year 5
Grimesland (Phase II)	Wetland	TAR-PAMLICO	03020103	PITT	0	48.8	0	Monitoring Year 5
Hanging Rock Creek (A3)	Stream	WATAUGA	06010103	AVERY	3046	0	0	Monitoring Year 4
Camp Lejeune USMC	Wetland	WHITE OAK	03030001	ONSLOW	0	3.49	0	Monitoring Complete
Crowns West	Stream	WHITE OAK	03030001	ONSLOW	3800	0	0	Monitoring Year 1
Lloyd Site	Stream/Wetland	WHITE OAK	03030001	ONSLOW	4750	6.4	0	Monitoring Year 1
Clayhill Farm	Stream/Wetland	WHITE OAK	03020106	JONES	11608.7	217.7	0	Monitoring Year 2
Sturgeon City (Phase II)	Wetland	WHITE OAK	03030001	ONSLOW	0	2.5	0	Monitoring Year 4
Rocky Branch	Stream/Wetland/BMP	YADKIN	03040102	YADKIN	4400	1.5	0	Monitoring Year 1
Purlear Creek II	Stream	YADKIN	03040101	WILKES	2620	1.35	0	Monitoring Year 2
UT to Barnes Creek (HurleySite)	Stream/Wetland	YADKIN	03040103	MONTGOMERY	3975	4.12	0	Monitoring Year 2
Back Creek	Stream/Wetland	YADKIN	03040105	MECKLENBURG	4146	3.8	0	Monitoring Year 2
Jones Creek	Stream/Wetland	YADKIN	03040201	ANSON	8218	27.7	0	Monitoring Year 2
Homestead/Second Creek	Wetland	YADKIN	03040102	ROWAN	5500	65.1	0	Monitoring Year 2
McDonald's Pond	Stream/Wetland	YADKIN	03040201	RICHMOND	8149	40.9	0	Monitoring Year 2
Bugaboo Creek	Stream	YADKIN	03040101	WILKES	6230	0	0	Monitoring Year 3
Cato	Stream	YADKIN	03040105	MECKLENBURG	2295	0	0	Monitoring Year 3
Warrior Creek	Stream	YADKIN	03040101	WILKES	11035	0	0	Monitoring Year 3
Purlear Creek	Stream	YADKIN	03040101	WILKES	11500	4	0	Monitoring Year 3
Shepherd's Tree	Stream/Wetland	YADKIN	03040102	IREDELL	10700	121.1	0	Monitoring Year 3
City Pond	Stream	YADKIN	03040201	ANSON	10667	0	0	Monitoring Year 3
Beaver Creek	Stream	YADKIN	03040101	SURRY	4266	0	9.4	Monitoring Year 4
Silas Creek	Stream	YADKIN	03040101	FORSYTH	4444	0	0	Monitoring Year 4
Key Branch	Stream/Wetland	YADKIN	03040104	ANSON	6183	95	14.2	Monitoring Year 4
Rich Fork FDP (Bodenheimer-Parker)	Stream/Wetland	YADKIN	03040103	DAVIDSON	3000	22	0	Monitoring Year 5
Deep Creek (Harding)	Stream/Wetland	YADKIN	03040101	YADKIN	5500	42.5	0	Monitoring Year 5
Fisher River Mit. Bank (Ring FDP)	Wetland	YADKIN	03040101	SURRY	4752	34.51	0	Monitoring Year 5
Stone Mountain	Stream	YADKIN	03040101	WILKES	8321	0	0	Monitoring Year 7
					678583.8	**6701.3**	**867.807**	

Appendix K: Projects Submited for Close-Out

Project_Name	Project Type	Basin	CU	Count	Stream	Wetland	Stream Buffer
Jumping Run Creek	Wetland	WHITE OAK	03020106	CARTERET	0	3	0
Payne Dairy	Stream/Wetland/Buffer	CATAWBA	03050101	ALEXANDER	6997	6.4	25.4
Sturgeon City (Phase I)	Wetland	WHITE OAK	03030001	ONSLOW	0	3.04	0
Hammocks Beach	Wetland	WHITE OAK	03030001	ONSLOW	0	0.3	0
Grimesland Site Phase I	Wetland	TAR-PAMLICO	03020103	PITT	0	355.8	0
Croatan Wetland Mitigation	Wetland	NEUSE	03020204	CRAVEN	0	511.6	0
Sandy Creek	Wetland	CAPE FEAR	03030003	RANDOLPH	0	12.9	0
Dowd Dairy	Wetland	CAPE FEAR	03030005	BLADEN	0	601.26	0
ABC	Wetland/Buffer	TAR-PAMLICO	03020104	BEAUFORT	2375	138.44	10.9
Mallard Creek	Wetland	YADKIN	03040105	MECKLENBURG	0	9.1	0
Benson Grove	Wetland	NEUSE	03020201	JOHNSTON	0	81.9	0
					9372	**1723.74**	**36.3**

Monitoring is complete for all projects

State Water Infrastructure Commission:

2007 Report and Recommendations on Regional Collaborations for Infrastructure

Presentation to the ERC

November 27, 2007

Exhibit M

State Water Infrastructure Commission

- Created by the North Carolina General Assembly in 2005.

- The purposes of the Commission are to
  - identify the State's water infrastructure needs,
  - develop a plan to meet those needs, and
  - monitor implementation of the plan.

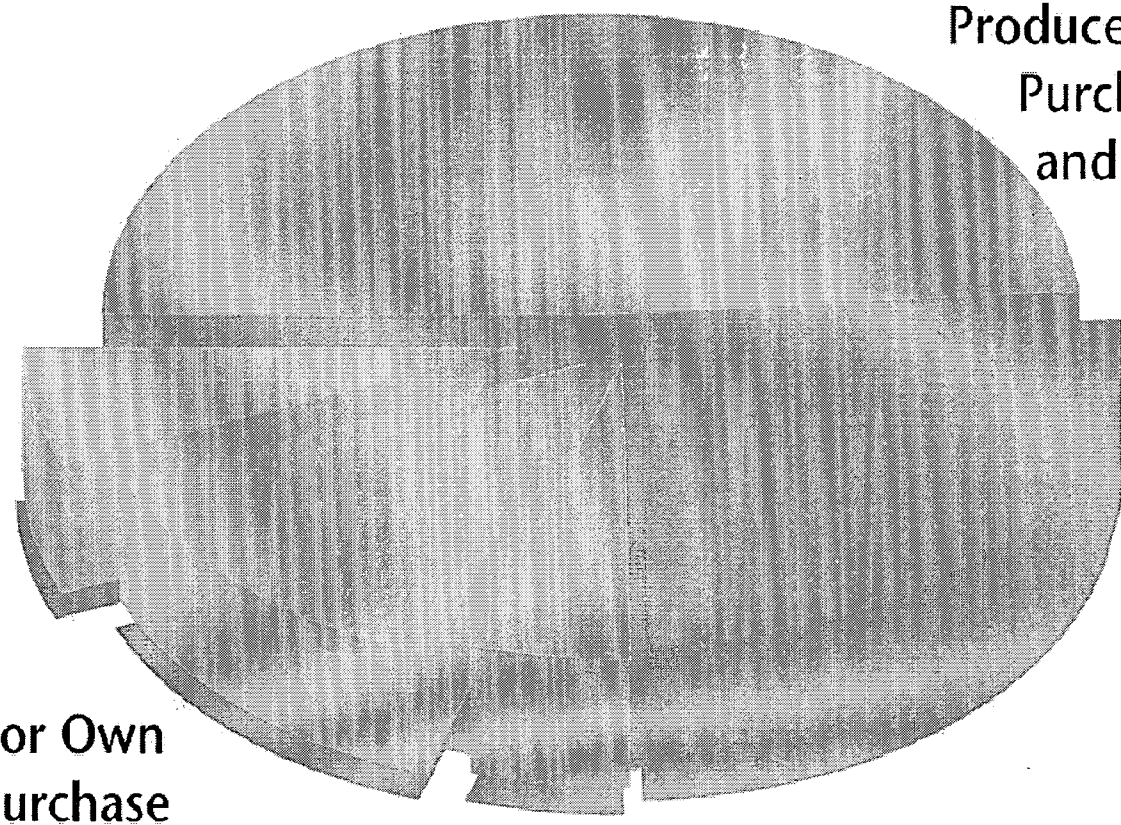
Regional Collaborations and Partnerships

- How does the State currently address regional infrastructure?
- What can we do we maintain that which works? What can change where needed?

Regional Collaborations and Partnerships

- There is no uniform State policy regarding regional infrastructure
- Regional efforts originate locally in response to local needs/opportunities
- State funding is the only way we currently recognize the value of regional collaborations
- Funding is not predictable year to year; each funder has it's own points formula

Water Regionalization



Produce for Own Use, Purchase None and Sell None
48%

Produce for Own Use, Purchase and Sell to Others
7%

Purchase all Water
26%

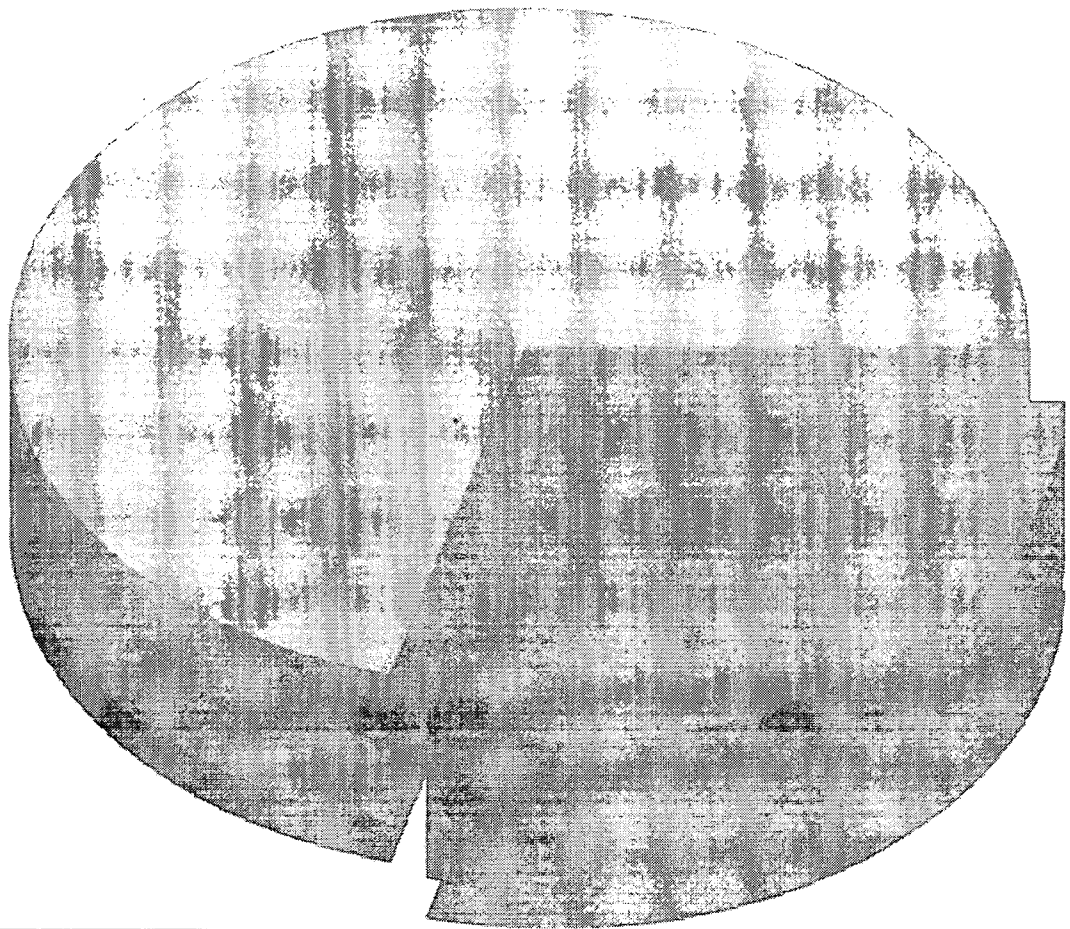
Produce for Own Use and Purchase from Others
14%

Produce for Own Use and Sell to Others
5%

Source: NC Rural Center Water 2030

Sewer Regionalization

Treat Own Sewage or Treat Own and Others 71%



Sewage Treated by Others 29%

Source: NC Rural Center Water 2030

Benefits of Regional Collaborations

Whether physical connections or shared management and administrative efforts, regional collaborations provide many benefits:

- Reduce number if treatment plants under State regulatory supervision
- Economy of Scale
- Strategic deployment of funding resources
- Regional networks provide needed backups
- Support regional economic development

Barriers to Regional Collaborations

- Start-up funds very limited
- Costs are higher for small and rural systems
- "Emotional" barriers
- Regulatory and legal barriers

Regional Collaborations and Partnerships

Some systems in North Carolina are not ready to participate in regional collaborations:

- imperfections in the system
- lack of sound fiscal management for the system

Regional Collaborations and Partnerships

Some systems in North Carolina cannot participate in regional collaborations due to distance between systems and topography

Regional Collaborations and Partnerships

SWIC Recommendations

Regional Collaborations and Partnerships

1. Identify and remove existing barriers legal, regulatory and policy barriers to regional collaborations and provide a set of inducements that will promote regional thinking.

Regional Collaborations and Partnerships

2. Develop and implement a set of criteria for evaluating system "readiness" for regionalization.

This may prevent bringing systems that are not ready i.e., not yet managing their systems efficiently and effectively, into a regional configuration where they cannot participate as an equal.

Regional Collaborations and Partnerships

3. State funders of infrastructure should develop a "Cooperation Alternatives Analysis" process.

This will ensure that systems seeking State funds have analyzed all regional alternatives available.

Regional Collaborations and Partnerships

4. Federal and State funders of infrastructure should execute a Memorandum of Understanding to support funding collaboration on regional projects.

Regional Collaborations and Partnerships

5. Conduct a study to identify the most promising regions for water regionalization.

   Using existing geospatial data we can identify systems that represent potential regional networks.

Regional Collaborations and Partnerships

6. Increase funding for the strategic development of regional collaborations.

A predictable revenue stream would allow for strategic development of regional systems.

Regional Collaborations and Partnerships

7. System regionalization should also allow for cooperation between private and public water entities.

Regional Collaborations and Partnerships

8. Encourage the State Division of Water Resources to explore and employ water resource management strategies that compliment regionalization.

Continue and expand work on new strategies that ensure sustainable water capacity for future use.

Regional Collaborations and Partnerships

9. System owner education on fiscal management and its relationship to regional partnerships is necessary and needed.

Educational materials are also need for the consuming public on the value of regionalization as a tool for managing the state's water resources.

Annual Report

and

Recommendations:

Regional Infrastructure Collaborations and Partnerships

The North Carolina
State Water Infrastructure Commission

To

Governor Michael F. Easley
and Members of the General Assembly of North Carolina

November 1, 2007

The State Water Infrastructure Commission was created by act of the North Carolina General Assembly in 2005. The purpose of the Commission is to identify the State's water infrastructure needs, develop a plan to meet those needs, and monitor implementation of the plan. The Commission is comprised of 13 members representing State agencies and non-profits, organizations representing North Carolina local governments and members of the water infrastructure and water resources professions.

Report Author: Jean Crews-Klein, Staff to Commission

Contributor: Jeff Hughes, UNC Environmental Finance Center

Regions rarely work unless everybody gains, the planning process works and funding works.

-David Thompson, Executive Director of the North Carolina Association of County Commissioners

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Members of the State Water Infrastructure Commission

Standing Members

Dudley Watts, Chairman, also Forsyth County Manager and Governor's Appointee

William Laxton, Deputy-Assistant Secretary, NC Department of Commerce

Vacant, NC Department of Environment and Natural Resources

Billy Ray Hall, President, NC Rural Economic Development Center

Ellis Hankins, Executive Director, NC League of Municipalities

Vance Holloman, Deputy State Treasurer, Office of State Treasurer

David Thompson, Executive Director, NC Association of County Commissioners

Richard Rogers, Executive Director, Clean Water Management Trust Fund

Appointed Members: Serving two-year terms

Dr. Downey Brill, Professor, NC State University (Chancellor's Appointee)

Steve Cavanaugh, P.E., Cavanaugh Associates (American Council of Engineering Companies Appointee)

Harold Herring, Executive Director, Neuse Regional Water and Sewer Authority (Appointee of Speaker Pro Tem)

The Honorable Bill Owens, NC House of Representatives (Appointee of House Speaker)

Richard Whisnant, Associate Professor, UNC School of Government (Appointee of Water Resources Research Institute)

Introduction

In the United States and abroad, regional cooperation among utility providers is used to increase efficiency of system operations, join systems together to enjoy economies of scale that otherwise might not be enjoyed by those members, and to provide service to areas that would not otherwise receive service. Regionalization, regional collaborations and partnerships take many forms and provide a variety of services to North Carolina drinking water and wastewater systems.

In keeping with its charge to provide recommendations on the role of the State government in the development and funding of wastewater, drinking water, and storm water infrastructure, the State Water Infrastructure Commission (SWIC) has examined the concept and practice of regionalization in North Carolina this year. In so doing, SWIC members have determined that further refinement of our collective understanding of regionalization, its benefits and the barriers to regional cooperation, will serve to improve the use of and targeting of State resources for needed infrastructure development.

As North Carolina continues to experience record population growth and concentration of that population coupled with increases in water consumption spurred by our perception North Carolina as a "water rich" state, efficient use of water resources and strategic infrastructure development through regional collaborations and partnerships makes sense.

The SWIC members heard from a variety of presenters including those that fund infrastructure in North Carolina and owners/operators of several of our largest regional systems. Without exception, funders and those that manage these regional systems see regional collaboration as an essential component of our State's strategy for enhanced resource management. How we, as a State, support new and existing collaborations will benefit from this examination.

Background on the State Water Infrastructure Commission

The State Water Infrastructure Commission was created through passage of House Bill 1095 during the 2005 Session of the North Carolina General Assembly. Passage of this bill was led by The Honorable John Kerr of the NC Senate and The Honorable Pryor Gibson of the NC House of Representatives and supported widely by members of the General Assembly. The bill is codified as Session Law 2005-454, "An Act to Establish Uniform Criteria for Drinking Water, Wastewater and Stormwater Loans and Grants, to Clarify and Revise the Procedures that Apply to These Loans and Grants to Reflect the Exhaustion of the 1998 Clean Water Bond Proceeds, and to Provide for Greater Coordination Among Agencies that Make Loans and Grants for Water Projects by Establishing the Water Infrastructure Commission."

The creation of the Commission and the modifications to the State's existing water and wastewater finance law were the product of a collaborative effort between major State funders of infrastructure including the Department of Environment and Natural Resources, the Clean Water Management Trust Fund and the Rural Economic Development Center. These three entities have served as the agents of the State in making important water, wastewater and storm water investments that have protected public health and the environment and created opportunities for economic growth and development.

Together with other State and Federal funders of water infrastructure and North Carolina local governments, the purpose of the efforts was two-fold: 1) to make certain that the State's policies governing infrastructure financing were refined and updated to better align with current trends, and 2) to define the role of the State in providing financial resources for needed infrastructure investments. This focus contributed to the creation of the State Water Infrastructure Commission in 2005.

Specifics of the Legislation

The legislation offered numerous modifications to Section 159G. Previously called the North Carolina Clean Water Revolving Loan and Grant Act of 1987, the new section title is simply and inclusively, *Water Infrastructure*. This decision, as others in this revision to existing law, symbolized the intent of the drafters to create a more cohesive set of guidelines for management of State funding resources for infrastructure improvements and focus for those investments. Water Infrastructure, in this case, refers inclusively to drinking water, wastewater and stormwater infrastructure.

The newly adopted version made a number of technical corrections, consolidating the existing State water and wastewater funds into one fund- the Water Infrastructure Funds - where the accounts for the Clean Water State Revolving Fund and the Drinking Water Revolving Fund would now be housed. Along with these accounts, the Drinking Water Reserve and the Wastewater Reserve accounts were established for the purpose of receiving State funds for loans and grants. The new version also established a set of common criteria upon which certain points in applications reviewed would be determined.

Article 4 established the State Water Infrastructure Commission. The purpose of the Commission as set out in the law is to identify the State's water infrastructure needs, develop a plan to meet those needs, and monitor the implementation of these plans. The Commission consists of both appointed (6) and standing (7) members.

Appointments were completed in May 2006 and the Commission held its first meeting that month. Specific duties of the Commission include:

1. To assess and make recommendations on the role of the State in the development and funding of wastewater, drinking water, and storm water infrastructure in the State.

2. To analyze the adequacy of projected funding to meet projected needs over the next five years.

3. To propose State priorities for funding.

4. To make recommendations on ways to maximize the use of current funding resources, whether federal, State, or local, and to ensure that funds are used in a coordinated manner.

5. To review the application of management practices in wastewater, drinking water, and stormwater utilities and determine the best practices.

6. To assess the role of public-private partnerships in the future provision of utility service.

7. To assess the application of the river basin approach to utility planning and management.

8. To assess the need for a "troubled system" protocol.

Commission Makes Seven Recommendations in 2006 to the Governor and Members of the General Assembly

Completing its first year of activity, the Commission submitted its 2006 report to the Governor and the members of the General Assembly offering seven recommendations. These recommendations focused on refining the State's role in the development, regulation and funding of drinking water, wastewater and stormwater infrastructure. The report ncluded both short-term and long-term suggestions. Briefly, the seven recommendations were:

1. Establish new and stable State funding for water, wastewater and stormwater improvements;

2. Provide $50 million in the 2007-2008 State Budget to address critical needs;

3. Establish conditions on State funding that ensure financial, technical and managerial efficiency of operation to ensure support of sustainable infrastructure investments;

4. Support efforts to improve operation and maintenance of water, wastewater and stormwater systems;

5. Provide for Regular Updates to the State Water and Wastewater Data Layers;

6. Establish State Funding for North Carolina Stream Mapping Project: Phase II;

7. Provide continuation funding for the State Water Infrastructure Commission.

Following submittal of that report in November 2006, the Commission set out on its second year of activity with two primary goals in mind: 1) to provide educational support for the efforts to secure needed funding for infrastructure improvements, and 2) to more closely examine the concept and practice of regionalization in North Carolina in order to deliver in its 2007 report a set of recommendations on how the state might further support the practice of regional collaboration.

Commission members and staff, at the request of organizations and various committees, made numerous presentations to further the public's education on the profile of the infrastructure capital needs and the work of the Commission.

$100 Million Funds Secured for Critical Needs Improvements

The 2007-2008 Long Session of the General Assembly was notable for the state's infrastructure systems. In a landmark effort, a broad coalition of interests joined together to bring attention to the condition of the state's infrastructure systems and the needs for improving those systems. The group, The Partnership for North Carolina's Future, includes advocates for public schools, land and water conservation, transportation, water and sewer, affordable housing, cities and counties. The common concern is that North Carolina is not making the necessary investments to keep pace with our growth and development and that there is no plan in place to address these needs. (quote)

At the close of the session in August 2007, the General Assembly had allocated $100 million for critical drinking water and wastewater needs. In light of numerous competing needs, the State was unable to act on the recommendation for dedication of a permanent source of revenue for water and sewer infrastructure improvements. In the face of at least $16.6 Billion in capital needs to improve the state's drinking water, wastewater and stormwater infrastructure, the $100 million appropriated must be carefully allocated toward projects. The funds will be administered through the Rural Economic Development Center in two grant rounds starting in December 2007.

> North Carolina is in the midst of a monumental change. Each hour adds 21 new North Carolinians to our state's population; each day another 504 persons.
>
> -*Reality Check for North Carolina*, The Partnership for North Carolina's Future. July 2007.

Reflecting the recommendations of the State Water Infrastructure Commission, these funds will address several new state priorities for funding. Units of local governments qualifying for funds will be required to adjust their monthly water and sewer rates to at least 1.5 percent of the median household income of the local government unit. This amount has been deemed by the State to be a reasonable level of financial support from customers of the State's systems. Also notable with this funding is the cooperation of the infrastructure funders in the State. Both federal and State-level funders will collaborate in review of the potential projects represented by the applications to the Rural Center in order to ensure that the State utilizes all funding effectively.

Regionalization, Regional Collaboration and Partnerships

Simultaneous to its work on funding education, the Commission established a series of monthly presentations to foster discussion on the concept of regionalization and its practice in North Carolina. Both in this country and abroad, regional cooperation among utility providers is seen as a method to increase efficiency of system operations, to join systems together to enjoy economies of scale that otherwise might not be enjoyed by those members, and to provide service to areas that would not otherwise receive service. Regionalization was chosen as the concept/practice on which to focus the Commission's efforts because there is opportunity in the State for enhanced collaboration. This collaboration among systems, and between systems and funders, can enable sustainable public investment and yield needed protection for the environment, public health and economic prosperity.

Commission members, through their own experiences, recognize that regionalization in water infrastructure (which is inclusive of drinking water, wastewater and stormwater), was being initiated at the local level across North Carolina and was sometimes funded through State sources. It appeared, however, that there was no common definition of what comprised a "regional" effort, though these regional efforts among systems appeared to require some significant change in the way participating systems were organized and conducted business. Additionally, there was some concern by Commission members that if regionalization was to be funded by the State, we be clear about what the existing incentive (funding) system was encouraging and discouraging and examine barriers, if any, to further regional cooperation.

If regional collaborations were to be funded by the State, the Commission believed that we needed to be clear about what the existing incentive (funding) system was encouraging or discouraging, and examine barriers, if any, to further regional collaborations.

Regionalization: Why Do It?

Regionalism in the water infrastructure world has been held up as a solution to many challenges facing those that provide the service (system owners and operators) and those responsible for developing and implementing state and national infrastructure policy. With few exceptions, "regionalization" has meant a physical connection between systems and an organizational change in management. Regionalization through these physical connections has been routinely encouraged between smaller systems challenged by keeping pace with regulations and smaller customer bases over which to spread costs, and larger systems with more financial, technical and managerial resources. "Since the Safe Drinking Water Act was first passed by Congress in 1974, a frequently suggested strategy for facilitating and reducing the costs of compliance for small systems has been to restructure them through regional consolidation or cooperation with other systems. Consolidation — whether by physical interconnection or a shared management strategy — would reduce unit costs by reducing duplication of effort and taking advantage of economies of scale". [1]

In a national review of literature on regionalization conducted for the National Regulatory Research Institute, the consensus was that regionalization is held out as a challenging but beneficial practice. "Taken as a whole, the studies in the literature find much agreement over the technical and economic benefits of regionalization, but frustration with the institutional context of implementation". [2]

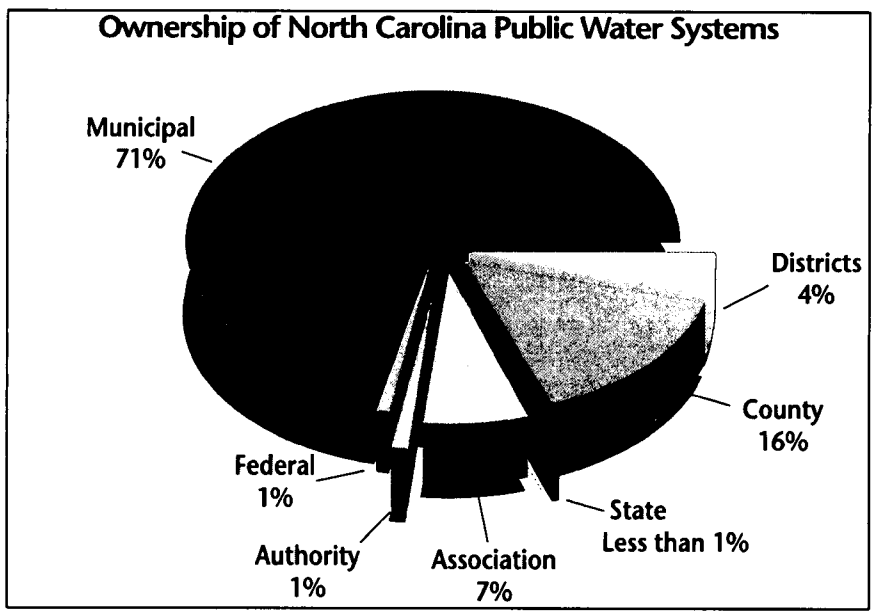
Given the confluence of factors placing pressure on the safe operation of our state's infrastructure systems and highlighting our need for water resource planning and management statewide, the Commission saw regional collaboration as an important strategy/practice that may offer near-term benefit to the State.

Following in this report is a summary of findings by the Commission on regional collaboration and a series of recommendations by which the State might refine its support of these collaborations.

Regional Cooperation in North Carolina: Organizational Structures

There are ten organizational structures through which water and sewer service can be provided in North Carolina. According to the Water 2030 Study, the overwhelming majority of both water (71 percent) and wastewater (86 percent) service is provided by cities (municipalities) operating as independent systems. [3]

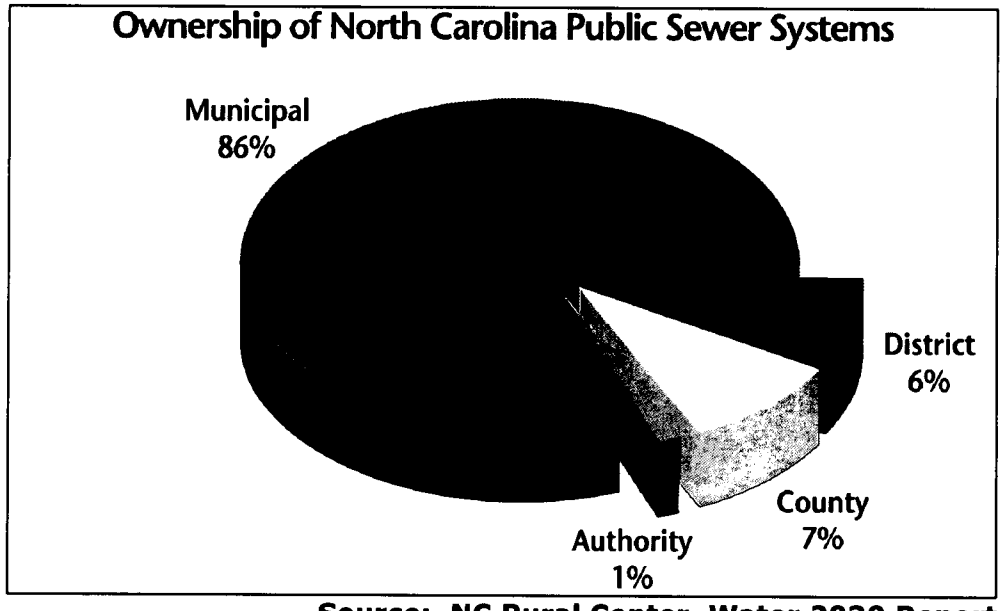
Figure 1:



Source: NC Rural Center, Water 2030 Report

Multi-jurisdictional authority is available through Interlocal Agreements, Joint Management Agencies, County Service Districts, Sanitary Districts, Water and Sewer Authorities, Metropolitan Water Districts, Metropolitan Sewerage Districts, and County Water and Sewer Districts. These are, thus far, the least sought after institutional arrangements for delivery of water and sewer service in the state. Most regional utilities are actually county systems or town systems with inter-local agreements. Private Nonprofit Associations also provide a regional structure for operation.

Figure 2:



Source: NC Rural Center, Water 2030 Report

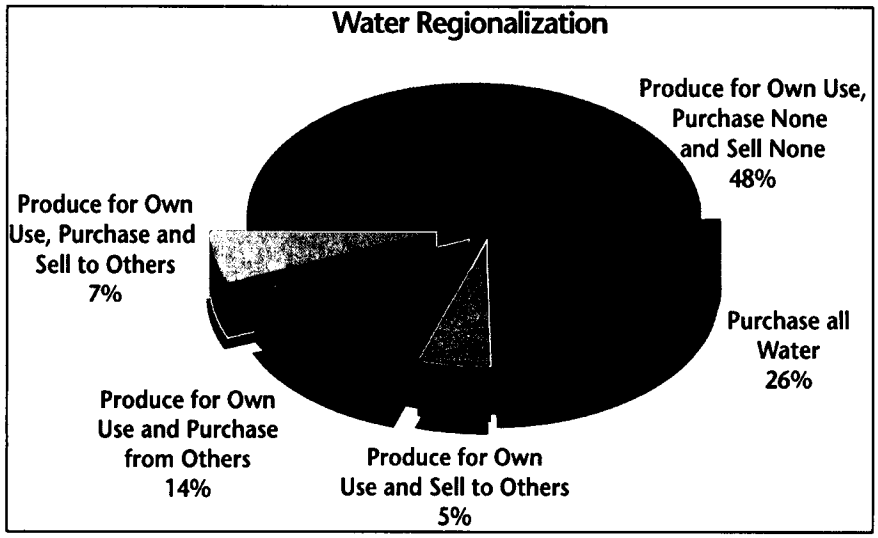
Within these organizational structures there are a variety of arrangements between partners

The degree of regional cooperation varies across systems we would consider to be "regional". On the light end of the scale, arrangements such as those for billing and operations and maintenance support are common. On the heavy end of the scale, systems are physically connected and ownership may vest with an authority. Even when physically connected the degrees of cooperation vary. Buying and selling of water through a contractual arrangement – the light end of the scale- generally allows for the systems each to maintain their autonomy and a business transaction to be their connection. In contrast, an authority arrangement often combines existing assets of the participants, such as main distribution lines, and then jointly develops new treatment and/or distribution assets. [4]

Seen through the diagrams below, the degree of regional cooperation among water suppliers and distributors is much greater than that on the wastewater side. According to the Water 2030 data, about 52 percent of all water systems were

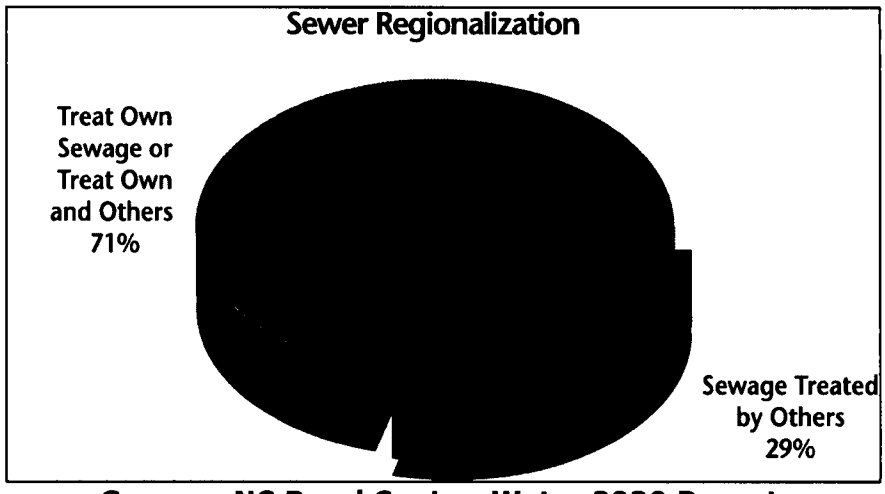
involved in some regional arrangement compared to 30 percent of wastewater systems.

Figure 3:



Source: NC Rural Center, Water 2030 Report

Figure 4:



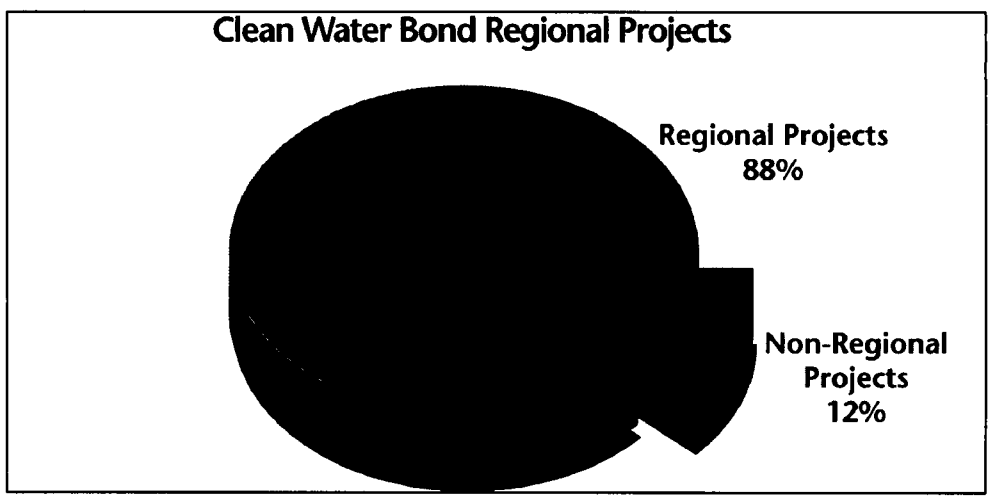
Source: NC Rural Center, Water 2030 Report

The impetus for regionalization/cooperation has been primarily local as funding incentives only recently moved toward encouraging regional cooperation

Though this practice of regionalization involving a physical connection between systems was first financially supported through the Safe Drinking Water Act of 1974, it was not until the 1998 North Carolina Clean Water Bond that the number of "regional" systems grew significantly in the State. In the interim, regional systems developed in North Carolina as a response to local concerns and needs. Regional projects were funded through the available sources – State Revolving Loan Fund programs and USDA being the primary funders of infrastructure in this period – simply on the merits of the project, but not because they were regional in nature. [5]

The 1998 North Carolina Clean Water Bond injected $800 million of water and wastewater infrastructure funding into the financing system for water and sewer projects. At that time, this was the single largest bond effort in the State and it was a significant boost in resources to address failing infrastructure statewide. This Clean Water Bond allocated infrastructure funding to the State's Department of Environment and Natural Resources through both the drinking water and wastewater programs funded by State bonds. Funding was also allocated to the Rural Economic Development Center, Inc. to capitalize a program for drinking water and wastewater grants. This State-directed incentive required that "significant additional points" be allocated to projects that met a set of criteria, including creating regional systems, set out in the law. In the final accounting of projects funded through this significant State investment, 88 percent of projects funded were regional in nature.

Figure 5:



Source: NC Rural Center, Water 2030 Report

Regional Collaborations in Other States

Often, when deciding whether or not to take a particular action as a state to address a challenge or opportunity, we look to how other states have dealt with that same challenge or opportunity that is facing us. A summary of data on individual state practices is found below.

It is clear from this review that efforts that the most focused and comprehensive regionalization efforts are State-led and do not depend on federal funding or regulation as their driver. Each of these State-led efforts had a policy connection point – a specific act passed by the legislature or Executive Order by the Governor or reflected state priority already established in State infrastructure regulations.

Three Ways to Encourage Regional Collaborations

Our review of individual state programs revealed three basic methods by which regional collaborations are supported. [6] These collaborations can be supported through:

1) Points in a rating system
2) A check off system - "it's this or nothing"
3) Favorable terms when you make a certain action

Providing points in a rating system for regional collaborations tends to work only when the supply of funds is inadequate to meet the demand. In this instance, allocating a certain number of points in a rating scheme works to provide an advantage for those projects with a regional aspect. In cases where the supply of funds is greater than the demand, points in a rating system simply do not provide sufficient incentive.

A check-off system provides a means to contrast between those projects which are regional in nature and those that are not. Use of the check-off system implies that a priority has been established for regional collaborations and projects must fit this priority or risk not being funded.

The favorable terms approach is typically utilized in states that have a steady stream of funding available, either from the state or from state and federal resources combined. Under this method, projects are submitted for funding and if they meet certain established criteria that reflect a state priority (in this case regionalization), then the project is provided with more favorable financing terms than those that do not meet the state priority. This treatment can take the form of grant over loan or loans at more favorable terms.

Infrastructure funding programs were examined in states that share a border with North Carolina – to see what our "neighbors" are doing to address regionalization- and in state's from across the country that have exceptional regional programs.

Virginia

In Virginia, the State government has made a firm commitment to statewide water supply planning through creation of a state grant program to fund the development of local or regional water supply plans. Local governments must submit their plans for approval by the State Water Control Board according to a schedule based on population. The first plans are due in 2008 and the last in 2011. Localities have received a total of more than $1 million in grants from the Commonwealth of Virginia since 2006 to support the development of local and regional water supply plans.

This regulation was developed to implement the mandate of Senate Bill 1221 (2003, c.227, SB1221). The purpose of this regulation is to protect the health, safety and welfare of citizens by requiring local and regional water supply planning. The goal of this regulation is to establish a basic set of criteria that each local or regional water supply plan must contain so that they may plan for and provide adequate water to their citizens in a manner that balances the need for environmental protection and future growth.

Through the Drinking Water Revolving Loan Program, the state of Virginia does recognize regional systems as applicants but does not provide any additional bonus points or other incentives for regional infrastructure projects through their State Revolving Fund. The same is true of the Clean Water State Revolving Fund Program, with no encouragements or rewards for regional systems. See http://www.deq.state.va.us/watersupplyplanning/. [7]

South Carolina

The State of South Carolina has no specific State funding provided for infrastructure development that rewards regional systems or collaborations. The State relies on the EPA Revolving Loan Program to fund most infrastructure improvements.

The manner in which the State has complied with federal directive from EPA through the State's Drinking Water State Revolving Fund (DWSRF) is, however, notable. The Drinking Water Program has recently undergone revision and the State has developed an initiative to encourage and facilitate the consolidation or regionalization of public water systems. South Carolina uses a regionalization/consolidation criterion for drinking water projects only.

In general, eligible Drinking Water SRF projects are first grouped into categories according to their relative importance with respect to SDWA requirements. Within

categories, the projects are evaluated according to regionalization/consolidation considerations, affordability, and size of community. Regional projects receive 5 points in a ranking system total of 115 maximum possible points.

The DWSRF may provide assistance to an eligible public water system to consolidate/connect with another public water system(s) only if the assistance will ensure that the system returns to and maintains compliance with SDWA requirements.

If the system does not have the technical, managerial, and/or financial capability to ensure compliance, or is in significant noncompliance, the system may receive assistance only if (1) the assistance will ensure compliance, or (2) the owner or operator of the system agrees to undertake appropriate changes in operations. These changes include consolidation or management changes that will ensure that the system has the technical, managerial, and financial capability to ensure and maintain compliance with SDWA requirements. The State may require the submission of a business plan as part of the preliminary engineering report for a project. [8]

Tennessee

Through the Drinking Water Revolving Loan Program, the state of Tennessee does recognize regional systems as applicants but does not provide any additional bonus points or other incentives for regional infrastructure projects through their State Revolving Fund. The same is true of the Clean Water State Revolving Fund Program, with no encouragements or rewards for regional systems.

Tennessee does, however, maintain an awareness of statewide infrastructure needs through related policy that does recognize the value of regional collaborations. Recognizing the state's rate of growth and land development activities, Tennessee's General Assembly created a framework for development of sound growth policy in 1998 by enacting Public Chapter 1101, the Growth Policy Act, which has come to be known simply as "PC1101", the Tennessee Growth Policy Act (Public Chapter 1101, Act of 1998). [9]

PC1101 required local officials within each of the ninety-two non-metropolitan counties to work together to shape growth policy through the development of 20-year growth plans. The Act did not impose a single, statewide solution. It did, however, include five statements of legislative intent:

1. To eliminate annexation or incorporation out of fear.
2. To establish incentives to annex or incorporate where appropriate.

3. To more closely match the timing of development to the provision of public services.
4. To stabilize each county's education funding base and establish an incentive for each county legislative body to be more interested in education matters.
5. To minimize urban sprawl.

Beginning in 1996, the State was required to compile and maintain inventories of the infrastructure needs of Tennessee's counties (Public Chapter 817, Acts of 1996). The inventory obtains information on new and planned, as well as prospectively needed, public infrastructure, which is defined as "capital facilities and land assets under public ownership or operated or maintained for the public benefit."

The General Assembly assigned responsibility for monitoring the implementation of PC1101 to the Tennessee Advisory Commission on Intergovernmental Relations (TACIR). A series of TACIR's reports on PC1101 can be found at www.state.tn.us/tacir/publications.htm. [10]

Kentucky

The Kentucky Infrastructure Authority (KIA) was created in 1988 to provide the mechanism for funding construction of local public works projects. KIA is continually growing and expanding its services. Through the various programs currently offered, KIA has become the answer for local financing needs. [11]

The Kentucky Infrastructure Authority developed a deliberate program to reduce the number of public water systems in the state. State Statutes were developed directing the Authority to establish an incentive program that allocates funds from their 2020 water service account in a manner that encourages the regionalization, merger, and consolidation of water systems and elimination of structural and administrative duplication. Both government-owned and private systems are eligible to participate.

The incentive program targeted water systems that have high debt, inadequate operational and maintenance resources, high maintenance costs, old and inadequately maintained treatment works, a history of violations of the Division of Water's statutes and administrative regulations due to inadequate operational and maintenance resources, or insufficient financial resources to extend system service to unserved or underserved areas.

As a result of this program, the number of water systems in the state has been significantly reduced. See KIA website for further information: http://kia.ky.gov/.

Non-Contiguous States

Other states across the country that have advanced state policy on regionalization and regional collaborations include Texas, Florida and New Mexico. These three states have been grappling with water resource constraints and have developed management strategies focused on sustaining the resource and maximizing the efficiencies of infrastructure systems.

Texas

In 1997, the State of Texas passed Senate Bill 1. This established the statutory authority for the implementation of a program of infrastructure regionalization in the State through the Texas Commission on Environmental Quality. Regulations subsequently developed enable the State to examine both existing water and wastewater systems and new systems to ensure they are optimizing the use of existing financial, managerial and technical resources. This policy is implemented by requiring that each system operating in the state obtain a Certificate of Convenience and Necessity (CNN) that requires regionalization unless the system can demonstrate it meets one of three exceptions. The State has clearly articulated a preference for regional collaborations because they see regionalization as a means to protect the health, safety and welfare of Texans by ensuring a long-term supply of safe water at affordable rates and by maintaining the quality of water in the state. The ultimate goal of regionalization is to provide timely and cost-effective solutions for achieving quality service in the face of ever-increasing costs of compliance.

A contract with the University of New Mexico's Environmental Finance Center exists to develop a baseline of water system costs for a good system under the Safe Drinking Water Act, but does not include regionalization economic issues. This contract has been expanded to include development of an economic module, which includes regionalization parameters that relate to reasonableness of certain sized systems to distance of service. Staff of TCEQ has also been directed to estimate the resource burden to accomplish this task. For additional information on TCEQ, see http://www.tceq.state.tx.us/subject/subject_water.html. [12]

Florida

Florida has managed its water infrastructure and water resources through a district system for over 55 years. This was enabled through the State Constitution which created five Water Management Districts. The Florida Department of Environmental Protection is involved in managing the quality and quantity of water through its relationship with the state's five water management districts: Northwest Florida Water Management District, Suwannee River Water Management District, St. Johns River Water Management District, South Florida Water Management District and Southwest Florida Water Management District.

Originally established as single-purpose districts, they now must balance a four-part mission: 1) flood control and floodplain management, 2) water supply, 3) water quality, and 4) natural systems. In balancing this four part mission, the districts avoid the unintended consequences that managing for a single purpose can create.. The districts also develop water management plans for water shortages in times of drought and to acquire and manage lands for water management purposes under the Save Our Rivers program. Regulatory programs delegated to the districts include programs to manage the consumptive use of water, aquifer recharge, well construction and surface water management. As part of their surface water management programs, the districts administer the Department's stormwater management program. This increases the districts' contacts with local governments by directing the districts to help with the development of the water elements in local government comprehensive plans. For further information, see http://www.dep.state.fl.us/secretary/watman/ for further information. [13]

New Mexico

Recognizing that water systems in New Mexico were facing serious challenges related to inadequate or deteriorating infrastructure, declining aquifers, reduced water supply, and inability to meet new water quality regulations and prepare for drought conditions, the State developed the Collaborative Area-Wide Management Project. The purpose of the project is to help communities identify the available water supply and demand characteristics and reach mutual agreement on ways to acquire, produce, deliver, conserve, or reuse water more efficiently in New Mexico. This project is funded by the Governor and State Legislature of New Mexico through the Department of Finance and Administration and the Office of the State Engineer. The Office of the State Engineer is charged with administering the state's water resources. The State Engineer has power over the supervision, measurement, appropriation, and distribution of all surface and groundwater in New Mexico, including streams and rivers that cross state boundaries.

Benefits to the project include:

1) Promotion of collaboration and coordination among water systems drawing from the same water source, and assistance for troubled water systems affected by depleted water sources during periods of drought.
2) Establishment of mutual agreements between communities, neighbors, municipalities and water systems for planning and implementation of water projects to ensure current and future drinking water needs.
3) Increasing funding opportunities through collaborative solutions by combining planning, technical and engineering studies for water projects.
4) Improving the efficiency of water system operation and management through cooperation.
5) Ensuring that water conservation measures are implemented effectively to protect a shared water resource.

The initial project piloted this approach for three areas across the State. The current project is assisting nine regional areas within the state. Potential collaborations are reviewed on a scale from "light" to "heavy" regional collaboration as follows:

1) Agree on an effective planning document together.
2) Agree to a limited working relationship within the group to provide one another assistance in times of emergency.
3) Agree to share inventory or equipment with one another.
4) Agree to share an operator with another system or systems.
5) Agree to some type of joint management of the system: could include one management entity over several systems, bookkeeping or billing together.
6) Agree to interconnect system for emergency purposes only.
7) Agree to share water rights or water resources without actually completely tying systems together.
8) Agree to tie systems together, but have separate operations.
9) Agree to tie systems together, dissolve current systems and form a new entity.

For information on the New Mexico model http://nmcollaborations.nmt.edu/. [14]

Support for Regional Collaborations by North Carolina Funders

During this process of investigation, the Commission heard presentations from the major funders of water and wastewater infrastructure in North Carolina. These included the State Department of Environment and Natural Resources (DENR) – Drinking Water and Clean Water Program, the Clean Water Management Trust Fund and the Rural Economic Development Center, Inc. as the major State-supported funders. The Commission also heard from the USDA Rural Development Office, Water and Wastewater Programs as USDA has historically been the second largest funder of water and sewer infrastructure in the State behind DENR (refer to Table 1 below).

Table 1:

North Carolina's Major Public Infrastructure Funders

1995-2005

US Department of Agriculture	$738,395,576	26%
DENR – Clean Water(Wastewater)	$870,220,602	30%
DENR – Drinking Water	$403,347,039	14%
Clean Water Management Trust Fund	$119,609,039	4%
Rural Economic Development Center, Inc.	$263,859,532	9%
All Other Public Sources (Federal and State)	$478,899,896	17%
Total	**$2,874,331,684**	**100%**

Source: NC Rural Center, Water 2030 Report

The Commission was quickly able to determine that regional collaborations have been supported only through additional points in a rating system by these funders. This has been a successful method to encourage regional collaborations since the State has such significant water and wastewater infrastructure needs. For example, allocating points for regional efforts does seem to have elevated these projects so that a significant number of them, about 88 percent, of those presented for consideration were funded. The table below outlines the sources of funds and rating allocations.

Table 2:

Funding Incentives for Regional Projects

Major North Carolina Funders

Funder	Method	Allocation	Source of Funds
DENR- Water Quality – Clean Water State Revolving Fund	None	2 of 27 total points	Federal (EPA) with State match
DENR – Water Quality – State Bond Fund(recycled State Loan Funds)	Points	2 of 55 total points	State Bond Funds, earned interest, repaid principal and interest on loans
DENR – Public Water Supply - Drinking Water State Revolving Fund	Points	2 of 43 total points	Federal (EPA) with State match
DENR – Public Water Supply- State Program	Points	2 of 39 total points	State Bond Funds, earned interest, repaid principal and interest on loans
Clean Water Management Trust Fund (wastewater only)	Points	18 of 165 total points	State Appropriation
Rural Economic Development Center, Inc. – Supplemental Program	Points	25 of 420 total points	State Appropriation
Rural Economic Development Center, Inc. – Capacity Building Program	Points	25 of 285 total points	State Appropriation
USDA – Rural Utilities – Water and Wastewater Programs	Points	15 of 150	Federal Appropriation

Some Systems are Not Ready for Regional Collaborations

During its period of investigation, the Commission also heard from every presenter that there are drinking water and wastewater systems in the State that are not ready to take part in a regional effort. This lack of "being ready" is attributable to technical, financial and managerial challenges within the system.

First, many of the State's smaller systems do not have sound, functional infrastructure networks. Wastewater collection systems are plagued by Inflow and Infiltration which causes the wastewater system to process groundwater and stormwater runoff, sometimes in excessive quantities, rather than normal wastewater discharged from its customers. In cases where this Inflow and Infiltration problem is not remedied before a physical connection to a regional system is made, these systems are charged for this extraneous flow. Regional systems set a certain charge per gallon (typically per thousand gallon or "x" cubic feet) to process wastewater from a connecting system. There is no differentiation that can be made between true wastewater flow and extraneous flow; therefore, every unit of extraneous flow represents a charge for service to the connecting system.

A similar dynamic exists on drinking water systems. In this case, connecting systems that have not made structural improvements in their water distribution systems to correct for leaks will find that they are paying for water service that simply leaks into the ground.

In both of these situations, the challenge for the connecting system is that it is not collecting revenue through billable sales to account for the wastewater inflow and infiltration or the water leaks. Yet, the connecting system is responsible, regardless, for payment of the bill to the regional system.

Secondly, a major impediment to successful participation in a regional collaboration is the lack of sound fiscal management practices on part of the connecting system. This is evident through water and wastewater customer rates insufficient to cover the expenses of operating the systems. According to the Local Government Commission Staff in the Office of the State Treasurer, the instance of revenues through rates and fees being insufficient to cover operating costs is growing significantly, especially among the state's smaller systems. The negative financial impact to systems failing to operate their water and wastewater systems as true enterprises (business) is also evident in low cash flows at year end, failure to fund depreciation and the absence of a capital reserve through which to make needed improvements to the systems over time.

These fiscal challenges are significant for small systems, particularly those in economically distressed areas. Smaller systems must rely on fewer customers to carry the operations of the utility. Since most water and wastewater system upgrades are costly, this means fewer customers over which to rate base those costs. This has led to a reliance on grant monies for improvements and on deferring need projects which only serves to exacerbate the condition of an already compromised system.

Other Systems Too Distant for Cost-Effective Interconnection

For many systems in State, regional projects that include a physical connection between systems are not cost-effective. Distance between systems, mountainous terrain and sharp contrasts in elevation all make physical connections impractical in the face of costs for pumps and lines. This is certainly true in the western portion of North Carolina. There are many smaller to medium sized systems that would possibly look at regional connections in their futures, but for the costs of doing so. This challenge has been the subject of much research and writing, especially in the face of the move by the Environmental Protection Agency to encourage regionalization and consolidation of small water systems as part of the revisions to the Safe Drinking Water Act adopted in 1996. One such research effort on restructuring small systems using geographical location and other data, undertaken by the research arm of the American Water Works Association concluded, that there may be significant potential for small systems to share management and technical resources, but that the cost to physically link systems is prohibitive in almost all cases in most states. [15]

In a more recent effort, the National Rural Water Association studied small and rural systems nationally. The 2003 study concluded that significant differences exist between small water systems in rural areas and those in urban areas and that these costs may pose a more significant barrier to consolidation than suggested by previous research efforts.

For example, more than 50% of urban small systems are 5 miles or less from a larger system, but much fewer than 25% of rural systems are that close to a potential partner system. Since rural systems tend to be located much farther from a larger system than do small systems in urban areas, rural system costs for regional approaches probably will tend to be relatively high. [16]

The study also found that rural systems were more likely to have a difficult time financing regional solutions that involved regional interconnections. The study noted that the household income of the populations served by rural small and very small community water systems is generally much lower and the poverty rate is higher than the urban populations served by small systems. [17]

When comparing North Carolina systems included in the study with the derived national averages, both our State's small and very small systems have further connection distances than the average. The financial difficulty in connecting regionally is also compounded by median household incomes that are lower than the national average and poverty rates that are higher than the national average in the study. Refer to Table 3 below.

Table 3:

Comparison of Key Statistics for Small and Very Small Water Systems

In Rural and Urban Areas

National Rural Water Association Research Study, 2003

System Type	Sample Size	Median Distance to Nearest Medium, Large or Very Large Facility	No. of Service Connects	2000 Median HH Income	2000 Percent in Poverty
North Carolina :Very Small Systems (25 to 500 Persons served)					
Metro areas	884	5.91 miles	58	$45,967	9.95%
Rural areas	523	9.79 miles	53	$36,741	13.32%
All	1,407	6.82 miles	56	$42,537	11.20%
National – Very Small Systems (25 to 500 Persons served)					
Metro Areas	8,406	4.11 miles	57	$46,706	10.01%
Rural Areas	7,975	9.90 miles	65	$37,770	11.95%
All	16,381	6.16 miles	61	$42,356	10.95%
North Carolina : Small Systems (501 to 3,300 Persons served)					
Metro areas	160	7.96 miles	367	$50,022	9.22%
Rural areas	189	11.66 miles	630	$35,043	14.80%
All	1,349	10.59 miles	509	$41,910	12.24%
National –Small Systems (501 to 3,300 Persons served)					
Metro Areas	2,271	3.91 miles	1,376	$46,703	10.04%
Rural Areas	3,854	10.37 miles	1,343	$36,440	12.71%
All	6,125	7.52 miles	1,356	$40,245	11.72%

Source: Consolidation Potential for Small Water Systems — Differences Between Urban and Rural Systems, Prepared By: Tom Ottem, Russell Jones, and Robert Raucher, PhD, Stratus Consulting Inc.

What are the Benefits of Regional Collaboration?

Regional collaborations and partnerships, when founded on a principal of equity and fairness among partners, can provide a means for each participating system to deliver safe and affordable service to its customers. The advantages to regional collaboration, whether through actual interconnection of system, or whether through collaboration in management or administration, include the ability to achieve an economy of scale unachievable alone, enhanced environmental protection, and a safeguard against loss of service due to natural disaster. Regional collaborations can also support regional economic development effectively by providing service in locations where it may not be cost-effective for a single system to do so alone. These advantages and benefits are further examined below:

1. To achieve an economy of scale together that is not readily attainable alone.

Regional collaborations, whether they involve a physical connection between systems or a managerial or administrative connection, can provide an economy of scale that systems operating alone cannot achieve. Many of the costs associated with constructing infrastructure are fixed costs – planning, permitting, and engineering- that will not increase significantly by adding another partner.

These economies of scale can be seen in the improved quality of delivery, improved ability to keep pace with regulatory changes and demands including attracting and maintaining qualified staff.

2. Reduction in the number of treatment plants and discharges to the environment.

Regional collaboration involving a physical connection between systems can reduce the need for establishing new treatment facilities by requiring connection to an existing regional facility with available capacity. Reducing the number of plants in operation can lessen operations and maintenance costs and duplication of service.

3. Uncertainty around the availability of federal and state dollars for infrastructure improvements forces local systems to look beyond their borders for potential partners since infrastructure investments are so costly.

As the federal investment in infrastructure continues to decline and change form from grant to loan, more emphasis is being placed on State and local resources to fund needed improvements. States across the country are grappling with defining their role in infrastructure funding. Locally, system owners are challenged to maintain rates at levels that demonstrate their customers are paying "their fair share". Working in a regional collaboration may offer a better way to face increasing costs of replacement and new infrastructure and operation and maintenance.

4. Regional systems provide a vehicle for securing needed financing that a single system may be qualified to receive.

In today's environment of scarce financial resources and looming capital needs for infrastructure improvements, funders may provide priority to regional systems as a more cost-effective investment of the funding resource.

5. Regional collaborations can help systems address climate and weather changes.

Establishing a network of regional infrastructure systems can provide needed assurance for backup supplies in emergency situations such as those caused by hurricanes, flooding and drought. Health risks often associated with these emergency situations can be mitigated through regional collaboration.

6. Economic development occurs regionally, infrastructure on regional approach needed to support this.

In order to be successful in the global economy, local governments and states are challenged to think about economic development on a regional basis, evaluating and capitalizing on regional assets. In today's environment, this may be the only way to ensure that their regions are efficient and competitive. Water infrastructure is a essential support for economic development. Safe and vital regional infrastructure networks must be in place to support future economic development.

What are the Barriers to Regionalization?

Regional systems are founded on cooperation. This requires system owners to be visionary, to see beyond the immediate challenge to a future several years hence. It also requires system owners to come together without fear of loss of identity and control – a tall order for most of us. Local politics, whether we like it or not, play a major role in whether regions develop or not.

In today's environment, it also requires that these collaborations finance all the upfront costs associated with studies, preliminary engineering and permitting. This is exceptionally challenging for smaller systems that may see the benefit of regional collaboration, but have limited capital to contribute. These barriers to regional collaborations and partnerships are examined further below:

1. Lack of Start-Up Funds

Regional projects are by their nature large and involve more complex institutional arrangements that single-entity ownership and management. Planning and development of these systems may extend over several years. Funding to cover the start-up costs (planning, meetings, investigations, preliminary engineering, draft permitting) is not available in the amounts needed in North Carolina. A predictable flow of funds from the state would allow strategic development of regional facilities. Multi-year, predictable public investment needed.

2. Costs are Higher for Rural, Small Systems

Cost Barriers, especially for small and rural systems, are significant. The distance between systems and the relatively small number of users per system limit the financial ability of the system to operate efficiently as an independent entity. This also represents a significant and often insurmountable barrier to regional cooperation in the form of actual connection to a regional system. The ability to pay for their share of the needed upfront costs (planning and engineering, land acquisition, permitting) as well as the actual cement and pipe connections cannot be borne by a small number of users in communities with distressed economies.

3. "Emotional" Barriers are Real

North Carolinians have long been noted for their fierce attitude of independence. That "I'll do it on my own" mentality helped to build and shape the economy of our State. It is also a way of life that created the leaders who established North Carolina's most significant public institutions and infrastructure – our universities, hospitals, roads, water/sewer and telecommunications.

Surviving in today's global economy requires that we as people and the systems we use operate efficiently and be adaptive to change. For water and wastewater infrastructure, this requires the local political leaders make difficult decisions – often politically unpopular decisions such as raising rates or joining a regional effort- to ensure that their infrastructure systems deliver the service they must, in compliance with the laws and regulations that govern those services. Too often, it is the case that personal and political obstacles, *emotional barriers*, are permitted to stand in the way of sound decision-making. While collaborating regionally may make financial and environmental sense, fear of loss of control and local power struggles can prevent these collaborations from forming.

4. Regulatory or Legal Barriers Do Exist

As growth pressures and climate change continue to impact our water resources and infrastructure systems, the need for enhanced management of natural and financial resources is heightened. North Carolina, as a "water rich" state along the eastern seaboard has based its legal and regulatory systems on riparian law. Riparian law presupposes an abundant supply of water with little to no conflict resulting from competing uses. Growth pressures and climate change highlight the inadequacy of our state's legal and regulatory systems as they exist to address today's challenges. For instance, regulatory and legal conflicts exist in a system that supports regional infrastructure development and Interbasin Transfer under its current configuration. The State should examine such regulatory and legal barriers in order to define a strategic path forward to best manage growth pressures and climate changes.

Refining State Support for Regional Collaborations and Partnerships: Our Recommendations

Regional collaborations, whether they involve an actual physical connection between systems or a management or administrative connection such as sharing operators and equipment, provide an important service to the State. These collaborations, initiated on the local level and many without state financial support, strengthen the infrastructure system in North Carolina. Through these systems, residents and business well outside the reach of an individual system can be served more cost-effectively. Regional drinking water networks are established that move drinking water from areas of availability to areas of scarcity. These regional networks are essential during times of emergencies.

Thinking regionally is thinking collaboratively. Working together to address our States infrastructure and water management challenges, especially in an environment of scarce financial resources and demanding political accountability, makes sense. How we do that in North Carolina can be improved. Following is a set of recommendations by the State Water Infrastructure Commission on enhancing the State's approach to and support of regional collaborations and partnerships.

1. Remove existing barriers to regional cooperation

Regionalization is more than two or more systems coming together through a physical system connection. An alternate view of regional cooperation proposed by the Commission is one that recognizes regional cooperation can also occur in administration, procurement and operation of systems. True regional cooperation, partnership and collaboration takes many forms and we know from experience that it can create many benefits for those involved. The role of the State should be in identifying and removing existing legal, regulatory and other policy barriers to enhanced regional collaboration and to offer a set of inducements that will encourage regional thinking and actions. sThis will provide local drinking water, wastewater and stormwater systems with more options by which to create and sustain partnerships and collaborative efforts that enhance the delivery of utility service to the customers, protect the environment and public health, and effectively manage the state's water resources.

> If a water, sewer or stormwater system is facing problems in operations or management and needs to secure funding for improvements, what we want is a funding and regulatory system that encourages you to pause and think, "Do I need to continue doing this on my own or is there a partnership arrangement that will work?"
>
> -Richard Whisnant, Commission Member

2. Develop and implement a set of criteria for evaluating system "readiness" for regionalization. This may prevent bringing systems that are not ready i.e., not yet managing their systems efficiently and effectively, into a regional configuration where they cannot participate as an equal.

Representatives of the Department of Environment and Natural Resources, the Local Government Commission, funders of infrastructure improvements in the State, the League of Municipalities, the Association of County Commissioners should develop a set of criteria that can be applied to all regionalizing systems.

3. State funders of infrastructure should develop a "Cooperation Alternatives Analysis" process and documentation as a way to ensure that systems seeking State funds have analyzed all regional alternatives available.

Before State funds are obligated to an infrastructure project, a "Cooperation Alternatives Analysis" should be completed by the applicant for funds. This analysis will review all available regional configurations/options available and ensure that careful attention has been given by the applicant system to partnership arrangements before funds for a stand-alone infrastructure project are obligated.

4. Federal and State funders of infrastructure should execute a Memorandum of Understanding to support funding collaboration on regional projects.

Regional projects, by their nature, are often costly and require significant planning and investment by the entities funding the projects. Such an agreement between state and federal funders would allow for maximization of all financial resources for these projects.

5. Fund a study to identify the most promising regions for water regionalization that could then inform local decision makers, funders and the public.

Using data available, including both tabular data and spatial data, identify geographic regions of the state where it makes sense to develop regional water networks.

6. Start-up funds for regional efforts should be made available for strategic investment in regional collaborations.

The costs involved in planning for, funding and constructing regional systems are significant. Currently there is minimal State financial support for start-up, the most critical stage of regional project development. The lack of upfront money from state and federal resources was a real hindrance to getting started and the costs involved in going regional are not small.

7. System regionalization should also allow for cooperation between private and public water entities.

Cooperation between private-for-profit and public water systems should be supported where practicable.

8. Encourage the state Division of Water Resources to explore and employ water resource management strategies that compliment regionalization such as allowing communities to bank the excess water capacity for future use.

For example, the NRWASA provides a safe and dependable alternative for the future. While they will be withdrawing water from the Neuse River, there will also be a total of 61 groundwater wells that will still remain available for use. These can be used to supplement the water from the plant to meet total demand. This joint use reduces the reliance on either source.

9. System owner education on fiscal management and its relationship to regional partnerships is necessary and needed. Educational materials are also need for the consuming public on the value of regionalization as a tool for managing the state's water resources.

System regionalization may be the key tool to survival, especially for smaller systems in the State. But, regionalization is a good tool only when the systems are ready to regionalize. In order to be a functional regional partner, small systems must effectively manage their own systems before regionalization. Sound fiscal management and good system structural integrity are keys to survival in a regional system.

Further education of the consuming public on the merits of regionalization is needed. Regionalization will be best supported when there is mutual agreement between participating parties on the end goal and its benefits. That means folks that are consumers will need to be better educated on why tools such as regionalization are important to the State as we seek to manage our water resources more effectively.

Endnotes

[1] Consolidation Potential for Small Water Systems — Differences Between Urban and Rural Systems, Prepared By: Tom Ottem, Russell Jones, and Robert Raucher, PhD, Stratus Consulting Inc., May 2003.

[2] The Regionalization of Water Utilities: Perspectives, Literature Review, and Annotated Bibliography, Janice A. Beecher, Ph.D., Senior Research Scientist and Director of Regulatory Studies Center for Urban Policy and the Environment Indiana University for THE NATIONAL REGULATORY RESEARCH INSTITUTE.

[3] Rural Economic Development Center, Inc., Report 3: Water, Sewer & Stormwater Capital Needs (2006)

[4] Rural Economic Development Center, Inc., Report 3: Water, Sewer & Stormwater Capital Needs (2006)

[5] Rural Economic Development Center, Inc., Report 3: Water, Sewer & Stormwater Capital Needs (2006)

[6] Notes for State Water Infrastructure Commission on Regionalization, Jeff Hughes, Director, Environmental Finance Center, January 2007.

[7] State of Virginia, Water Supply Planning Division Website, October 2007.

[8] Conversations with Director, Department of Health and Environmental Control, State of South Carolina, October 2007.

[9] Tennessee Growth Policy Act (Public Chapter 1101, Act of 1998).

[10] Tennessee Advisory Commission on Intergovernmental Affairs, Reports and Publications Website, October 2007.

[11] Kentucky Infrastructure Authority Website, October 2007.

[12] State of Texas, Texas Commission on Environmental Quality. Website, October 2007.

[13] State of Florida, Florida Water Management Districts, Department of Environmental Protection. Website, October 2007.

[14] New Mexico Environmental Finance Center, Regional Collaborations. Website, October 2007.

[15] Ottem, Jones, and Raucher, Stratus Consulting Inc., May 2003.

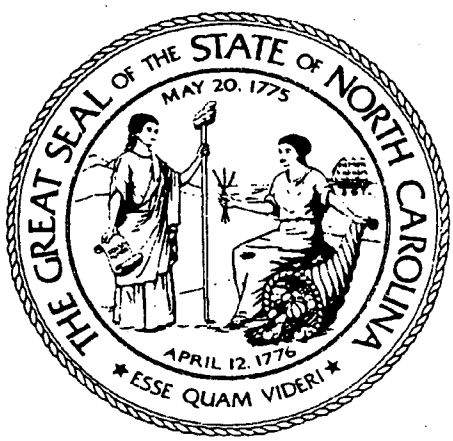
[16] Ottem, Jones, and Raucher, Stratus Consulting Inc., May 2003.

[17] Ottem, Jones, and Raucher, Stratus Consulting Inc., May 2003.

Implementation of the "Clean Smokestacks Act"

A Report to the Environmental Review Commission and the Joint Legislative Utility Review Committee

Submitted by the North Carolina Department of Environment and Natural Resources and the North Carolina Utilities Commission



June 1, 2007

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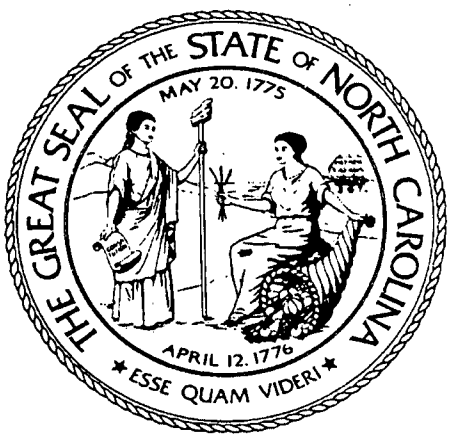


June 1, 2007

Implementation of the "Clean Smokestacks Act"

A Report to the Environmental Review Commission and the Joint Legislative Utility Review Committee

Submitted by the North Carolina Department of Environment and Natural Resources and the North Carolina Utilities Commission

This report is submitted pursuant to the requirement of Section 14 of Session Law 2002-4, Senate Bill 1078 enacted June 20, 2002. The actions taken to date by Progress Energy Carolinas, Inc. and Duke Energy Carolinas, LLC appear to be in accordance with the provisions and requirements of the Clean Smokestacks Act.

Signed: _____

William G. Ross, Jr., Secretary
Department of Environment and Natural Resources

Signed: _____

Edward S. Finley, Jr., Chairman
North Carolina Utilities Commission

June 1, 2007

Implementation of the "Clean Smokestacks Act"

A Report to the
Environmental Review Commission and the
Joint Legislative Utility Review Committee

June 1, 2007

The General Assembly of North Carolina, Session 2001, passed Session Law 2002-4, also known as Senate Bill 1078. This legislation is titled "*An Act to Improve Air Quality in the State by Imposing Limits on the Emission of Certain Pollutants from Certain Facilities that Burn Coal to Generate Electricity and to Provide for Recovery by Electric Utilities of the Costs of Achieving Compliance with Those Limits*" ("the Clean Smokestacks Act" or "the Act"). The Clean Smokestacks Act, in Section 14, requires the Department of Environment and Natural Resources ("DENR") and the Utilities Commission ("Commission") to report annually, i.e., by June 1 of each year, on the implementation of the Act to the Environmental Review Commission and the Joint Legislative Utility Review Committee.

The Act, in Section 9, requires Duke Energy Carolinas, LLC ("Duke Energy"), and Progress Energy Carolinas, Inc. ("Progress Energy"), to submit annual reports to DENR and the Commission containing certain specified information. Duke Energy and Progress Energy filed reports, with DENR and the Commission, by cover letters dated March 30, 2007. Specifically, such reports were submitted in compliance with the requirements of G.S. 62-133.6(i). Duke Energy's and Progress Energy's reports are attached, and made part of this report, as Attachments A and B, respectively.

Additionally, by letter dated May 9, 2007, the Secretary of DENR wrote to the Commission stating that, pursuant to G.S. 62-133.6 (j), DENR has reviewed the information provided and determined that the submittals comply with the Act. The Secretary further stated that the plans and schedules of the Companies appear adequate to achieve the emission limitations set out in G.S. 143-215.107D.

This report is presented to meet the reporting requirement of the Act pertaining to DENR and the Commission, as discussed above, and is submitted jointly by DENR and the Commission. The report is structured to address the various actions that have occurred pursuant to the provisions of Sections 9, 10, 11, 12, and 13 of the Act. Reports of actions under these Sections describe the extent of implementation of the Act to this date.

I. Section 9(c) of the Act, Codified as Section 62-133.6(c) of the North Carolina General Statutes

G.S. 62-133.6(c) provides: *The investor-owned public utilities shall file their compliance plans, including initial cost estimates, with the Commission and the Department of Environment and Natural Resources not later than 10 days after the date on which this section becomes effective. The Commission shall consult with the Secretary of Environment and Natural Resources and shall consider the advice of the Secretary as to whether an investor-owned public utility's proposed compliance plan is adequate to achieve the emissions limitations set out in G.S. 143-215.107D.*

Status: North Carolina's investor-owned electric utilities, Progress Energy and Duke Energy, filed their initial compliance plans as required in June and July of 2002, respectively, in accordance with G.S. 62-133.6(c), Section 9(c) of Session Laws 2002-4, the Clean Smokestacks Act. DENR reviewed this information and determined that the submittals comply with the Act and, as proposed, appear adequate to achieve the emission limitations set out in G.S. 143-215.107D.

II. Section 9(i) of the Act, Codified as Section 62-133.6(i) of the North Carolina General Statutes

G.S. 62-133.6(i) provides: *An investor-owned public utility that is subject to the emissions limitations set out in G.S. 143-215.107D shall submit to the Commission and to the Department of Environment and Natural Resources on or before 1 April of each year a verified statement that contains all of the following [specified information]:*

The following are the eleven subsections of G.S. 62-133.6(i) and the related responses from Progress Energy and Duke Energy for each subsection:

1. **G.S. 62-133.6(i)(1) requires:** *A detailed report on the investor-owned public utility's plans for meeting the emissions limitations set out in G.S. 143-215.107D.*

Progress Energy Response: "The initial plan for Progress Energy Carolinas, Inc. was submitted on July 29, 2002. Appendix A [of the attached Progress Energy submittal dated March 30, 2007, i.e., Attachment B] contains an updated version of this plan, effective April 1, 2007."

Duke Energy Response: "Exhibits A and B [of the attached Duke submittal dated March 30, 2007, i.e., Attachment A, outline the updated plan as of April 1, 2007, for] . . . current unit specific technology selections, projected operational dates, expected emission rates, and the corresponding tons of emissions that demonstrate compliance with the legislative requirements to the best of Duke Energy Carolinas' knowledge at this time."

2. **G.S. 62-133.6(i)(2) requires:** *The actual environmental compliance costs incurred by the investor-owned public utility in the previous calendar year, including a description of the construction undertaken and completed during that year.*

Summary of Progress Energy Report: The actual environmental compliance costs (capital costs) incurred by Progress Energy in calendar year 2006 were $272.82 million. Progress Energy performed a significant amount of work at the Asheville and Roxboro plants. Progress Energy successfully placed the wet scrubber on Asheville Unit 2 into service in May 2006. Additionally, mechanical and electrical work for the Asheville Unit 1 selective catalytic reduction (SCR) project was completed in preparation for placing the SCR into service in the Spring of 2007. At the Roxboro plant, construction for the scrubber project continued on the four units in 2006. Specific unit construction activities included, but were not limited to: Unit 1 – completion of foundations for the absorber, recycle pump house, primary hydro cyclone tank, and electrical building; Unit 2 – completion of the recycle pump house, installation of induced draft fans and associated ducting, and installation of the hydro cyclone tank and transformers; Unit 3 – started installation of ducting from the existing stack to new induced draft fans, started construction of foundations for duct support steel, and continued installation of the absorber; Unit 4 – completed the absorber and started the erection of the recycle pump house and primary hydro cyclone tank. At the Lee plant, procurement and installation of the low-NOx burners for Unit 2 were completed in 2006. Also, construction activities associated with the Unit 3 Rotamix concluded. At the Mayo plant, engineering and design work continued in 2006 and contracts associated with the absorber tower and chimney were executed. At the Sutton plant, procurement and installation of the low-NOx burners for Unit 2 were completed in 2006.

Summary of Duke Energy Report: The actual environmental compliance costs incurred by Duke Energy in calendar year 2006 were $427.98 million. Significant construction occurred in 2006 at the Belews Creek Steam Station. Construction of the major foundations and the concrete shell for the two new chimneys for the flue gas desulfurization (FGD) system was completed. Approximately 72% of the overall project was completed (54% of the construction activities) in 2006. At the Marshall Steam Station, tie-in of the Unit 4 absorber was completed, while initial tie-in of the Unit 3 ductwork and installation of the blanking plate were completed in 2006. All ductwork, with the exception of Unit 1 and Unit 2 tie-in, was set in 2006. At Allen Steam Station, contracts were awarded for the stack construction and wastewater treatment system associated with the FGD system. Other activities included, but were not limited to: relocation of a transmission line; site clearing, grubbing and earthwork; relocation of an ash line; relocation of coal handling railroad spurs; and placing purchase orders for all major electrical and mechanical equipment.

For the remaining Steam Stations (Cliffside, Buck, Dan River, and Riverbend), the Company reported that costs were incurred for a variety of things such as detailed engineering, material procurement and delivery, equipment installations, etc.

3. **G.S. 62-133.6(i)(3) requires:** *The amount of the investor-owned public utility's environmental compliance cost amortized in the previous calendar year.*

Summary of Progress Energy and Duke Energy Reports: In 2006, Progress Energy amortized $140 million and Duke Energy amortized $225.2 million. As indicated in the June 1, 2006 report to the Environmental Review Commission and the Joint Legislative Utility Review Committee ("the June 1, 2006 report"), Progress Energy, in response to a data request submitted by the Commission, had projected - assuming certain ratable amortization - that it would amortize $87 million of environmental compliance costs in 2006. However, Progress Energy also noted that the Act grants Progress Energy the flexibility to vary the amortization schedule for 2006 and 2007 from $0 to $174 million per year. Also, as indicated in the June 1, 2006 report, Duke Energy, in response to a Commission data request, had projected that it would amortize $250 million of environmental compliance costs in 2006.

4. **G.S. 62-133.6(i)(4) requires:** *An estimate of the investor-owned public utility's environmental compliance costs and the basis for any revisions of those estimates when compared to the estimates submitted during the previous year.*

Summary of Progress Energy Report: Progress Energy reported that its total estimated net capital costs (that is, excluding the portion for which the Power Agency is responsible) are currently projected to be between $1.1 billion and $1.4 billion, with the current point estimate being $1.355 billion, a slight decrease from the 2006 cost estimate of $1.362 billion. While costs of materials and labor continue to increase according to Progress Energy, it continues to refine the compliance strategy weighing a number of factors such as system load projections, expected fuel selection, available control equipment, anticipated performance and costs of emissions controls, and knowledge of and experience with emissions control options. For example, Progress Energy continues to evaluate the potential use of Furnace Sorbent Injection (FSI) technology at the Cape Fear Plant. The FSI technology may offer a more cost-effective compliance solution for Cape Fear than the original plan to use a wet scrubber. The North Carolina Division of Air Quality (DAQ) submitted an informational request to Progress Energy on April 25, 2007. The information requested of Progress Energy, among other things, concerned the evaluation of the FSI technology and whether there would be sufficient time to pursue alternatives to the FSI if the testing does not support its installation at Cape Fear. Progress Energy responded that, "if the testing at Robinson (SC) results in a conclusion that FSI will not be used at Cape Fear, PEC will have sufficient time to pursue alternatives prior to the CSA 2013 deadline." Finally, other more cost effective compliance solutions submitted by Progress Energy include the use of a dry scrubber at Sutton Unit 3 and use of Rotamix technology with combustion optimization at Lee Unit 3 for NOx control.

Progress Energy's current cost estimate of $1.355 billion is $542 million, or 67 percent, higher than the original 2002 cost estimate of $813 million.

Summary of Duke Energy Report: Duke Energy reported that its currently expected costs are higher than the estimates provided in 2006. More specifically, in its 2007 report, the Company estimated its compliance costs to be $1.965 billion, as compared to the $1.732 billion reflected in its 2006 report, an increase of $233 million, or 13 percent (detailed in Exhibit C of Attachment A of the Duke Energy report). As stated by Duke Energy, the reasons for this increase were:

- Allen FGD Project – The Allen FGD estimate has increased since the previous 2006 filing, with this increase attributable to continued ramp up in the power generation and/or environmental retrofit construction market and continued escalation of labor and commodity costs.
- Cliffside Unit 5 FGD Project – Like Allen, the Cliffside Unit 5 FGD estimate is primarily affected by labor, commodity and market escalation and thus shows an increase in total forecasted cost as compared to the estimate included in the 2006 filing. In addition, the current estimate now includes a larger portion of the costs associated with common FGD equipment and infrastructure assuming only one new Cliffside unit is built, versus assuming two new units are built as in the previous year's plan.
- Selective Non-Catalytic Reduction (SCNR) & Burner Projects – While there has been no significant change to the scope or timing of the NOx related projects remaining to be installed, all of the current forecasts have increased as compared to the 2006 filing. In each case, these increases approach 10% as compared to prior estimates and take into account the continued escalation of labor costs and ramp up in the environmental retrofit construction market as noted for the larger projects.
- Marshall Unit 4 SNCR Project – The Marshall Unit 4 SNCR equipment was installed in late 2006 at a cost significantly less than estimated in the previous year's plan. The decision to add the SCR technology to Marshall Unit 3 allowed for this reduction in costs as selected SNCR equipment in service on Unit 3 was redeployed to Unit 4.

Duke Energy's current cost estimate of $1.965 billion is $465 million, or 31 percent, higher than the original 2002 cost estimate of $1.5 billion.

5. **G.S. 62-133.6(i)(5) requires:** *A description of all permits required in order to comply with the provisions of G.S. 143-215.107D for which the investor-owned public utility has applied and the status of those permits or permit applications.*

Summary of Progress Energy Response:

Asheville Plant

- Notified that air permit change for SO_3 mitigation system will be treated as an off permit change.
- Several erosion and sedimentation control plan updates were submitted.

Roxboro Plant

- Updates for air permit for coal handling and limestone handling were issued.
- Several erosion and sedimentation control plan updates were submitted.
- NPDES Permit - Authorization to Construct (ATC) relating to the gypsum settling pond and the bioreactor was received.

Mayo Plant

- Air permit was issued for construction of the FGD system.
- NPDES Permit modification for wastewater system received.
- Erosion and sedimentation control plan update was approved.

Lee Plant

- A prevention of significant deterioration (PSD) air permit was approved for installation of low NOx burners. Air permit approved for construction of the Rotamix System NOx control.
- NPDES permit amendment approved for Rotamix Urea Injection System on Unit 3.

Summary of Duke Energy Response:

Belews Creek

- NPDES Permit modification received.
- Landfill site suitability approved.
- Landfill construction plan – permit received.
- Air permit for FGD project received.
- Authorization to Construct (ATC) application for the wastewater treatment system was approved.
- Received permit to construct sanitary waste lagoon.
- Received permit to decommission existing sewage lagoon.
- Several soil erosion and sedimentation control plans have been approved.

Cliffside

- Air permit received for Unit 5 FGD.

Marshall

- Several soil erosion and sedimentation control plans have been approved.
- Landfill construction plan application received – Landfill (lining) permit received – Permit to operate Marshall FGD landfill received.
- Authorization to Construct (ATC) application for solids removal system was approved.
- ATC application for constructed wetlands was approved.
- Air permits received for SNCRs on Units 1-4.

Allen

- NPDES Permit modification received.
- DENR/ACOE Permit received.

- Air permit received for FGD and SNCRs on Units 2, 3, 4, and 5.
- Authorization to Construct (ATC) application for the wastewater treatment system was approved.
- Several soil erosion and sedimentation control permits have been received

Riverbend

- Air permits received for SNCRs on Units 4-7. Burner permits received for Units 5 and 6.

Dan River

- Air permits received for Burners on Units 1-3.

Buck

- Air permits received for Burners on Units 3 and 4 and for SNCRs on Units 5 and 6.

6. **G.S. 62-133.6(i)(6) requires:** *A description of the construction related to compliance with the provisions of G.S. 143-215.107D that is anticipated during the following year.*

Summary of Progress Energy Response: See Appendix C of the attached letter from Progress Energy dated March 30, 2007 (Attachment B of this report) for details of construction and installation of equipment. The Division of Air Qualify (DAQ) submitted an informational request to Progress Energy on April 25, 2007. The information requested of Progress Energy, among other things, concerned the operational date of the SCR on Asheville Unit 1 and the Rotamix at Lee Unit 3. Progress Energy responded that "Installation of the Asheville Unit 1 SCR is being completed during the current outage. The unit is expected to be back on-line on or about May 7 (2007), and the SCR is expected to be in operation on or about May 10 (2007). The Lee #3 Rotamix system is online and is operating. Initial operation of the Rotamix system began in January 2007. Initial checkout and testing of the Rotamix system continued into February and March with final tuning and normal operation occurring in March 2007."

Summary of Duke Energy Response: See attached letter from Duke Energy dated March 30, 2007 (Attachment A), for details of construction anticipated for the next year.

7. **G.S. 62-133.6(i)(7) requires:** *A description of the applications for permits required in order to comply with the provisions of G.S. 143-215.107D that are anticipated during the following year.*

Progress Energy Response:

Asheville Plant

Air Permit

- "Current opacity rules pre-date saturated gas streams from wet scrubbers and

require representative measurements where condensed water vapor is not present. We will request revisions to the permit and underlying rules for opacity monitoring to include references to current federal regulations that exempt units with wet scrubbers from continuous opacity monitoring requirements."

NPDES Permit

- "A request for Sampling Reduction at the internal Outfall 005 (treated FGD wet scrubber wastewater) was submitted January 25, 2007. A response is expected by end of first quarter."

Roxboro Plant

Air Permit

- "A permit application for the emergency fire water diesel engine was submitted in January 2007. Authorization to construct the fire water diesel engine has been received; however, the operating permit must be received to support operation of the Unit 2 scrubber during the second quarter 2007."
- "Current opacity rules pre-date saturated gas streams from wet scrubbers and require representative measurements where condensed water vapor is not present. We will request revisions to the permit and underlying rules for opacity monitoring to include references to current federal regulations that exempt units with wet scrubbers from continuous opacity monitoring requirements."

Mayo Plant

NPDES Permit

- "An ATC request for the wastewater treatment system is expected to be submitted in the first quarter with response desired by the end of the second quarter."
- "An ATC request for a new oil/water separator is expected to be submitted by the end of the first quarter with response expected by the end of the third quarter."

Erosion and Sedimentation Control Plan

- "Rev F. for the increase in disturbed land (from 35 acres to 98 acres for the flue gas desulfurization system was submitted January 29, 2007. Additional plan revisions will be necessary as construction plans are developed."

Lee Plant

- "A Title V permit application is due to be submitted in July 2007 in accordance with permit requirements associated with the low-NOx burner installation."

Duke Energy Response:

Belews Creek Steam Station FGD

- Permit to operate the FGD Residue Landfill – Submit certification report August 13, 2007, expect permit to operate by October 23, 2007.

Cliffside Steam Station Unit 5 FGD

- Authorization to Construct (ATC) application anticipated September 2007.

8. **G.S. 62-133.6(i)(8) requires:** *The results of equipment testing related to compliance with G.S. 143-215.107D.*

Summary of Progress Energy Response: Progress Energy conducted performance testing of the SO_2 scrubbers at Asheville Units 1 and 2 in 2006. The testing confirmed the scrubbers had achieved their performance guarantee of 97 percent removal efficiency.

Progress Energy also tested the low-NOx burners (LNBs) at Sutton Unit 2 and Lee Unit 2 in 2006. The testing demonstrated that the LNBs met their respective performance guarantees.

Duke Energy Response: "No additional equipment related testing occurred in 2006." Duke Energy included SNCR and SCR tests done in prior years in the 2007 report for reference.

9. **G.S. 62-133.6(i)(9) requires:** *The number of tons of oxides of nitrogen (NOx) and sulfur dioxide (SO_2) emitted during the previous calendar year from the coal-fired generating units that are subject to the emissions limitations set out in G.S. 143-215.107D.*

Progress Energy Response: "The total calendar year 2006 emissions from the affected coal-fired Progress Energy units are:

- NOx 46,501 [tons]
- SO_2 175,226 [tons]"

Summary of Duke Energy Response: In the 2006 calendar year, the following were emitted from the North Carolina based Duke Energy coal-fired units:

- NOx 54,335.5 tons
- SO_2 286,639.2 tons

10. **G.S. 62-133.6(i)(10) requires:** *The emissions allowances described in G.S. 143-215.107D(i) that are acquired by the investor-owned public utility that result from compliance with the emissions limitations set out in G.S. 143-215.107D.*

Progress Energy Response: "During 2006, PEC did not acquire any allowances as a result of compliance with the emission limitations set out in N.C. General Statute 143-215.107D."

Duke Energy Response: "No emissions allowances have been acquired by Duke Energy Carolinas resulting from compliance with the emissions limitations set out in G.S. 143-215.107D."

11. **G.S. 62-133.6(i)(11) requires:** *Any other information requested by the Commission or the Department of Environment and Natural Resources.*

Summary of DENR/DAQ Request: The DENR/DAQ submitted informational requests to Progress Energy and Duke Energy on April 25, 2007. The information requested, along with the information contained in the original March 30, 2007 submittals from Progress Energy and Duke Energy, support DENR/DAQ's conclusion that the plans and schedules of the companies appear adequate to achieve the emission limitations set out in G.S 143-215.107D.

The information requested on April 25, 2007, among other things, concerned: operational dates for control units at Progress Energy (answers outlined in Number 6 above); plan and timing if furnace sorbent injection (FSI) testing does not support the FSI installation at Cape Fear (answer outlined in Number 4 above); whether plans for maintaining NOx emissions at or below the cap(s) consider, for example, growth in energy sales; and an inquiry on how year-to-year meteorological variability affects energy demand and thus affects production from the coal-fired units and the related SO_2 and NOx emissions.

Progress Energy Response: In response to the DENR/DAQ question, "What are your plans for maintaining NOx emissions at or below the final (2007) cap considering, for example, growth in energy sales," Progress Energy noted, "PEC fully intends to comply with the annual NOx emissions cap. Planning for NOx emissions is included with planning for unit generation, fuel consumption, and fuel and operations costs. Year-to-date actual emissions with year-end projections are continuously monitored and are updated weekly to ensure annual compliance. High and low cases (energy, outages, performance, etc.) are continuously evaluated and monitored to provide PEC with a range of potential scenarios in order to prepare for additional actions to curb emissions, if needed."

In response to the DENR/DAQ question on how year-to-year meteorological variability affects energy demand and thus affects production from the coal-fired units and the related SO_2 and NOx emissions, Progress Energy noted, "PEC's base case forecast uses a weather-normalized load and energy forecast. Deviations from normal weather conditions increase or decrease system energy demand (depending on the specific deviation) and thus can result in an increase or decrease in actual emissions. For example, a hotter than normal summer would likely result in an increase in emissions while a milder summer would likely result in lower emissions."

Duke Energy Response: In response to the DENR/DAQ question, "What are your plans for maintaining NOx emissions at or below the final (2009) cap considering, for example, growth in energy sales," Duke Energy noted, "The projections above represent a system average capacity factor of 73%. To put this in perspective, the highest annual fossil system capacity factor Duke has ever achieved was 69% in 2005. The projection also includes a substantial amount of bulk power marketing (BPM) sales. If we had BPM sales at a historical high, this could increase NOx emissions in the

900 tons range to account for this load." Duke stated that they expect to have a comfortable compliance margin even with off system sales.

In response to the DENR/DAQ question on how year-to-year meteorological variability affects energy demand and thus affects production from the coal-fired units and the related SO_2 and NOx emissions, Duke Energy noted, "...we are planning to a very high system average capacity factor. Historically, we have had very hot summers and very cold winters but have never achieved the 73% annual CF we are currently planning to.

"In developing the appropriate compliance margin multiple scenarios were considered that increased NOx emissions, including forced outages at the nuclear units and units with SCR, increase in BPM sales. Through this analysis it was determined that a 1,000 to 1,500 tons compliance margin was needed going into any year. Though we are installing the Marshall 3 SCR for the Charlotte 8 hour ozone attainment demonstration, it also provides compliance margin for the North Carolina Clean Smokestack Act (NC CSA).

"The total NOx emissions and how each unit is performing is trended on a weekly basis. If the system total NOx emissions were trending above the firm NC CSA cap, we would attempt to achieve lower NOx emissions from our generation stations without consideration of performance. We would have the option to change the dispatch of units, limit BPM sales and at a last resort, purchase power and shut down the highest emitting generation units. Our plan is not to exceed the NC CSA firm cap unless under a force majeure situation."

Summary of Commission Request: The Commission submitted discovery requests to Progress Energy and Duke Energy on April 12, 2007. The information requested, among other things, concerned current projected amortization schedules over the remaining years of the seven-year accelerated cost-recovery period.

Progress Energy Response: The Act requires Progress Energy to amortize $569 million, which represents 70% of the original cost estimate of $813 million, by the end of 2007. The Company indicated that $535.2 million had been amortized as of December 31, 2006, leaving a total of $33.8 million to be amortized during 2007.

With regard to the amounts to be amortized in 2008 and 2009, Progress Energy indicated in response to the Commission's April 12, 2007 discovery request that it projected estimated amortization of $122 million per year for each of those two years. However, in a Petition filed in Docket No. E-2, Sub 900, Progress Energy, among other things, has requested that the Commission satisfy the requirements of G.S. 62-133.6(d) by allowing it to amortize a total of $244 million during calendar years 2008 and 2009, the result being that Progress Energy has requested the discretion to amortize up to $174 million in either year, as currently permitted by G.S. 62-133.6(b), according to Progress Energy.

Progress Energy stated that it currently has no plans to write off or amortize any amounts above $813 million in 2007 through 2009. Rather, Progress Energy has proposed that the environmental compliance costs incurred by Progress Energy in excess of $813 million be included in its rate base. **[DENR/COMMISSION NOTE:** As previously indicated, Progress Energy currently estimates its total net environmental compliance costs to be approximately $1.355 billion.]

Subsection (d) of G.S. 62-133.6, in pertinent part, provides as follows:

> Subject to the provisions of subsection (f) of this section, the Commission shall hold a hearing to review the environmental compliance costs set out in subsection (b) of this section. The Commission may modify and revise those costs as necessary to ensure that they are just, reasonable, and prudent based on the most recent cost information available and determine the annual cost recovery amounts that each investor-owned public utility shall be required to record and recover during calendar years 2008 and 2009. . . . The Commission shall issue an order pursuant to this subsection no later than December 31, 2007.

Commission proceedings are currently ongoing with respect to the requirements of G.S. 62-133.6(d) as highlighted above. Therefore, the Commission has not yet ruled regarding the annual amounts of environmental compliance costs to be amortized by Progress Energy in 2008 and 2009. However, the Commission will do so not later than December 31, 2007.

Duke Energy Response: The Act requires Duke Energy to amortize $1.050 billion, which represents 70% of the original cost estimate of $1.5 billion, by the end of 2007. The Company indicated that $862 million had been amortized as of December 31, 2006, leaving a total of $188 million to be amortized during 2007.

With regard to the amounts to be amortized in 2008 and 2009, Duke Energy indicated, in response to the Commission's April 12, 2007 discovery request, that such amounts were to be determined in Docket No. E-7, Sub 829. That docket was initiated by the Commission, by Order issued March 9, 2007, for the purpose of allowing the Commission to comply with the provisions of G.S. 62-133.6(d) as such statutory provisions pertain to Duke Energy.

Regarding Duke Energy's plan to write off or amortize any amounts above $1.5 billion, Duke Energy stated that it will, no later than June 1, 2007, file testimony and exhibits with the Commission setting forth the information and data supporting its position regarding recovery of the remaining clean air compliance expenditures, that is, presumably, the environmental compliance costs incurred by Duke Energy in excess of $1.5 billion. **[DENR/COMMISSION NOTE:** As previously indicated, Duke Energy currently estimates its total net environmental compliance costs to be approximately $1.965 billion.]

Commission proceedings are currently ongoing with respect to the foregoing matters. Therefore, the Commission has not yet ruled regarding the annual amounts of environmental compliance costs to be amortized by Duke Energy in 2008 and 2009. However, the Commission will do so not later than December 31, 2007.

III. Section 10 of the Act provides: *It is the intent of the General Assembly that the State use all available resources and means, including negotiation, participation in interstate compacts and multistate and interagency agreements, petitions pursuant to 42 U.S.C. § 7426, and litigation to induce other states and entities, including the Tennessee Valley Authority, to achieve reductions in emissions of oxides of nitrogen (NOx) and sulfur dioxide (SO_2) comparable to those required by G.S. 143-215.107D, as enacted by Section 1 of this act, on a comparable schedule. The State shall give particular attention to those states and other entities whose emissions negatively impact air quality in North Carolina or whose failure to achieve comparable reductions would place the economy of North Carolina at a competitive disadvantage.*

DENR/DAQ and Department of Justice (Attorney General) Activities to Implement this Section:

The State continues to pursue opportunities to carry forward the Legislature's objectives in Section 10 of the Act. The State reports the following recent activities and developments:

1) On January 30, 2006, the State, through the Attorney General, sued the Tennessee Valley Authority (TVA) in federal district court in Asheville. The suit alleges that emissions of SO_2 and NOx from TVA's fleet of coal-fired power plants are inadequately controlled and therefore create a public nuisance. The Attorney General has asked the Court to require TVA to install NOx and SO_2 controls to abate the public nuisance. In July 2006 the District Court denied TVA's motions to dismiss the case, but TVA has appealed these rulings to the U.S. Court of Appeals in Richmond, Virginia. Oral argument has not yet been scheduled and it is uncertain when the appeal will be decided. Meanwhile, the parties are continuing to prepare for and are on schedule for a trial in Asheville in October 2007. TVA has recently announced plans to install NOx and SO_2 controls on its John Sevier plant, which is the closest TVA facility to North Carolina.

2) On July 8, 2005, the Attorney General filed in the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) a petition for review of the United States Environmental Protection Agency's (EPA) Clean Air Interstate Rule (CAIR). Among other things, the State is alleging that CAIR fails to take into account significant air quality problems in North Carolina, fails to guarantee a remedy to North Carolina because the rule relies too heavily on the trading of pollution credits, and fails to require controls to be installed expeditiously. The Court will likely hear arguments in this matter in late 2007 or early 2008.

3) Also on July 8, 2005, the Attorney General filed a petition with the EPA requesting that the EPA administratively reconsider certain aspects of CAIR. EPA

denied this petition. The Attorney General has asked the D.C. Circuit to review this action as well, and this request will be heard along with the CAIR case.

4) On March 18, 2004, the State filed a petition under §126 of the Clean Air Act requesting that EPA impose NOx and/or SO_2 controls on large coal-fired utility boilers in 13 upwind states that impact North Carolina's air quality. On March 15, 2006, the EPA denied the State's petition. The Attorney General has filed a petition in the D.C. Circuit seeking review of the denial of the petition. The matter will likely be heard by the Court in early 2008. The Attorney General also petitioned EPA for administrative reconsideration of the §126 petition.

5) Since the enactment of the Clean Smokestacks Act, the Attorney General and the Department of Environment and Natural Resources have on several occasions presented the Clean Smokestacks Act to other jurisdictions to demonstrate leadership and prompt similar actions in surrounding areas that impact North Carolina. On April 6, 2006, Governor Ehrlich of Maryland signed into law the Healthy Air Act (2006 Md. Laws 301) -- a Clean Smokestacks-type law that significantly limits emissions of SO_2 and NOx from large coal-fired utility boilers in Maryland. Maryland also is in the process of promulgating rules that will further tighten controls on large NOx and SO_2 sources.

6) The Attorney General is also seeking a prompt resolution about whether large stationary sources of NOx in Georgia must comply with the summertime NOx cap under EPA's "NOx SIP Call" rule, which is designed to help downwind States reduce ambient levels of ozone. This aspect of the NOx SIP Call has been under review by EPA and EPA has failed to resolve the issue in a timely manner.

IV. Section 11 of the Act provides: *The Environmental Management Commission shall study the desirability of requiring and the feasibility of obtaining reductions in emissions of oxides of Nitrogen (NOx) and Sulfur Dioxide (SO_2) beyond those required by G.S. 143-215.107D, as enacted by Section 1 of this act. The Environmental Management Commission shall consider the availability of emission reduction technologies, increased cost to consumers of electric power, reliability of electric power supply, actions to reduce emissions of oxides of nitrogen (NOx) and sulfur dioxide (SO_2) taken by states and other entities whose emissions negatively impact air quality in North Carolina or whose failure to achieve comparable reductions would place the economy of North Carolina at a competitive disadvantage, and the environment, and the natural resources, including visibility. In its conduct of this study, the Environmental Management Commission may consult with the Utilities Commission and the Public Staff. The Environmental Management Commission shall report its findings and recommendations to the General Assembly and the Environmental Review Commission annually beginning 1 September 2005.*

Note: Session Law 2006-79 changed the beginning date of the requirements of this Section to September 1, 2007.

Environmental Management Commission and DENR Response: A letter was submitted to the Environmental Review Commission from Dr. David Moreau, Environmental Management Commission Chairman, dated April 3, 2006, which stated the following:

> Since the Clean Smokestacks Act was passed in June 2002, significant Federal regulatory changes have occurred. Specifically, the Clean Air Interstate Rule (CAIR) requires North Carolina's neighboring states to achieve major reductions in NO_x and SO_2 -- reductions that require installation of state-of-the-art control equipment. Although there may be questions about the timing and emissions reductions of CAIR, the Division of Air Quality (DAQ) believes CAIR will ultimately require Duke Energy and Progress Energy to enhance existing or add new controls that are consistent with the latest technology.
>
> The Clean Smokestacks Act already requires that state of the art control equipment be installed on many units in North Carolina. CAIR annual NO_x and SO_2 emissions budgets are even lower than those set by the Clean Smokestacks Act and this could result in even more units in North Carolina having state of the art control equipment applied.
>
> Given the recent action by the Federal government regarding power plant emissions, it is recommended that the study as to whether or not further State action is required be extended while evaluation is made of the progress of North Carolina in complying with both the clean Smokestacks Act and CAIR.
>
> The DENR/DAQ generally believes the current compliance plans represent a suite of state-of-the-art controls, taking into consideration both emissions reductions and costs of control. The Environmental Management Commission and DENR/DAQ will continue to evaluate control options through the requirements of this section as both the Clean Smokestacks Act compliance dates and the CAIR compliance dates draw near.

V. Section 12 of the Act provides: *The General Assembly anticipates that measures implemented to achieve the reductions in emissions of oxides of nitrogen (NOx) and sulfur dioxide (SO_2) required by G.S. 143-215.107D, as enacted by Section 1 of this act, will also result in significant reductions in the emissions of mercury from coal-fired generating units. The Division of Air Quality of the Department of Environment and Natural Resources shall study issues related to monitoring emissions of mercury and the development and implementation of standards and plans to implement programs to control emissions of mercury from coal-fired generating units. The Division shall evaluate available control technologies and shall estimate the benefits and costs of alternative strategies to reduce emissions of mercury. The Division shall annually report its interim findings and recommendations to the Environmental Management*

Commission and the Environmental Review Commission beginning 1 September 2003. The Division shall report its final findings and recommendations to the Environmental Management Commission and the Environmental Review Commission no later than 1 September 2005. The costs of implementing any air quality standards and plans to reduce the emission of mercury from coal-fired generating units below the standards in effect on the date this act becomes effective, except to the extent that the emission of mercury is reduced as a result of the reductions in the emissions of oxides of nitrogen (NOx) and sulfur dioxide (SO_2) required to achieve the emissions limitations set out in G.S. 143-215.107D, as enacted by Section 1 of this act, shall not be recoverable pursuant to G.S. 62-133.6, as enacted by Section 9 of this act.

DAQ Actions to Implement this Section: The DAQ submitted reports in September of 2003, 2004, and 2005, as required by this Section. The first report primarily focused on the "state of knowledge" of the co-benefit of mercury control that will result from the control of NOx and SO_2 from coal-fired utility boilers. Also, preliminary estimates were made for this co-benefit for North Carolina utility boilers based on the initial plans submitted by Progress Energy and Duke Energy. The second report primarily focused on "definition of options". The Division has also submitted the third and final report titled Mercury Emissions and Mercury Controls for Coal-Fired Electrical Utility Boilers. In 2006, DAQ developed a state mercury rule that goes beyond the federal Clean Air Mercury Rule (CAMR) that took effect in November 2006. The North Carolina mercury rules, contained in Section 15A NCAC 02D .2500, became effective January 1, 2007. The coal-fired units of Duke Energy and Progress Energy have two sets of independent requirements that they have to meet. First, they have to satisfy the requirement set out in the EPA guideline rule, which has been incorporated into the State's mercury regulation. This requirement is that each unit's account contains enough allowances at the end of the year to equal or exceed its actual emissions for that year. Second, these units have to meet a State-only requirement. This requirement is that the emissions of mercury from each coal-fired unit at Duke Energy and Progress Energy have to be controlled to the maximum degree that is technically and economically feasible or shut down by a prescribed date. Both requirements are independent of each other. Meeting the first requirement does not relieve the company from the need to meet the second requirement. However, meeting the second requirement, the State-only requirement, will greatly aid the companies in meeting the first requirement.

VI. Section 13 of the Act provides: *The Division of Air Quality of the Department of Environment and Natural Resources shall study issues related to the development and implementation of standards and plans to implement programs to control emissions of carbon dioxide (CO_2) from coal-fired generating units and other stationary sources of air pollution. The Division shall evaluate available control technologies and shall estimate the benefits and costs of alternative strategies to reduce emissions of carbon dioxide (CO_2). The Division shall annually report its interim findings and recommendations to the Environmental Management Commission and the Environmental Review Commission beginning 1 September 2003. The Division shall report its final findings and recommendations to the Environmental Management*

Commission and the Environmental Review Commission no later than 1 September 2005. The costs of implementing any air quality standards and plans to reduce the emission of carbon dioxide (CO_2) from coal-fired generating units below the standards in effect on the date this act becomes effective, except to the extent that the emission of carbon dioxide (CO_2) is reduced as a result of the reductions in the emissions of oxides of nitrogen (NOx) and sulfur dioxide (SO_2) required to achieve the emissions limitations set out in G.S. 143-215.107D, as enacted by Section 1 of this act, shall not be recoverable pursuant to G.S. 62-133.6, as enacted by Section 9 of this act.

DENR Actions to Implement this Section: The DAQ submitted reports in September of 2003, 2004, and 2005, as required by this Section. The first report primarily focused on the "state of knowledge" and actions being taken or planned elsewhere regarding CO_2 control from coal-fired utility boilers. The second report primarily focused on "definition of options". The DAQ submitted the third and final report titled, "Carbon Dioxide (CO_2) Emission Reduction Strategies for North Carolina", to the Environmental Management Commission and the Environmental Review Commission as required. Numerous recommendations were set forth in this report, including a recommendation for a North Carolina Climate Action Plan.

The North Carolina Global Warming/Climate Change Bill (HB 1191/SB 1134) was enacted during the 2005 Session of the General Assembly. Along with the passage of the bill, the North Carolina 2005 Session of the General Assembly passed the Global Climate Change Act. This act established a Legislative Commission on Global Climate Change (LCGCC). Additionally, a formalized stakeholder group, the Climate Action Plan Advisory Group (CAPAG), was formed by DENR. The CAPAG's purpose is to evaluate, discuss, and formalize consensus-based recommendations for CO_2 and other greenhouse gas reductions through a formal stakeholder process. Determination of economic benefits to North Carolina will be assessed for each prospective recommendation. The CAPAG will work in conjunction with the LCGCC in providing periodic updates. The inaugural meeting of the CAPAG was held on February 16, 2006. The CAPAG is now in the final stages of utilizing technical workgroups. These technical workgroups contain experts in the following five sectors: 1) Agriculture, Forestry, and Waste; 2) Energy Supply; 3) Transportation and Land Use; 4) Residential, Commercial, and Industrial; and 5) Cross Cutting (for issues that cut across different sectors, such as establishing a greenhouse gas registry). The CAPAG is working diligently towards a comprehensive North Carolina Climate Action Plan, with a current target to complete it by the end of 2007.

VII. Supplementary Information: As noted in earlier reports, the Public Staff - North Carolina Utilities Commission (Public Staff) will audit the books and records of Progress Energy and Duke Energy on an ongoing basis in regard to the costs incurred and amortized in compliance with the provisions of the Act. The Public Staff has undertaken such a review, focusing on the verification of costs related to complying with the Act, the amortization of those costs, and the operating results of emission reduction equipment installed by Progress Energy and Duke Energy.

The Public Staff filed its most recent reports in the present regard with the Commission on May 25, 2007. (The report regarding PEC was subsequently revised on May 29, 2007.) Such reports, which are a continuation of the Public Staff's ongoing review, present an overview of certain work performed by the Public Staff and its findings for the 12-month period ending December 31, 2006. Attached, and made part of this report, are the Public Staff's reports for Duke Energy and Progress Energy, Attachments C and D, respectively.

VIII. Conclusions

The DENR/DAQ carefully reviewed and considered the information provided by Progress Energy and Duke Energy in their March 30, 2007 compliance plan submittals and their May 2007 supplemental submittals in response to informational requests from DENR/DAQ on April 25, 2007. The information in the submittals, including the construction undertaken and completed through the past year and consideration of the fraction of construction remaining and permits received and applied for in the past year, point toward steady progress in meeting the prescribed goals of the Clean Smokestacks Act. DENR/DAQ staff also analyzed the emissions projections and assumptions on growth in energy sales. A specific analysis of the NOx emissions relative to the 2007 cap was completed using data from the submittals along with publicly available 2006 emissions data from USEPA's Clean Air Markets Division Web Site. Similar analysis of SO_2 emissions will be possible in future reports as the first SO_2 cap in 2009 approaches. Additionally, DENR/DAQ notes that, as emission controls have come online for both Progress Energy and Duke Energy, their ability to refine the expected future year emission rates for controls yet to be installed is enhanced based on operational performance of similar technologies already put into service.

The Commission has also carefully reviewed and considered the information and data provided by the investor-owned public utilities in their 2007 Clean Smokestacks annual reports and in response to the Commission's discovery requests of April 12, 2007. Based upon such information, it appears that both Progress Energy and Duke Energy are on track to meet the statutorily imposed 70% accelerated amortization requirement during the five-year rate freeze period in the amounts of $569.1 million and $1.050 billion, respectively. Further, as required by the Act, the Commission has scheduled hearings for the purpose of (1) determining the annual cost recovery amounts that each investor-owned public utility shall be required to record and recover during calendar years 2008 and 2009; (2) reviewing the investor-owned public utilities' current estimates of total projected environmental compliance costs and revising such costs, if necessary, to ensure that they are just, reasonable, and prudent based on the most recent cost information available; and (3) consulting with the Secretary of DENR to receive advice as to whether the investor-owner public utilities' actual and proposed modifications and permitting and construction schedule are adequate to achieve the emissions limitations set out in G.S. 143-215.107D. The Commission will rule on the aforesaid matters not later than December 31, 2007.

In summary, it appears that the actions taken to date by Progress Energy and Duke Energy are in accordance with the provisions and requirements of the Clean Smokestacks Act. Further, the compliance plans and schedules proposed by Progress Energy and Duke Energy appear adequate to achieve the emissions limitations set out in G.S. 143-215.107D.

ATTACHMENTS

Attachment A: Duke Energy Carolinas, LLC, Clean Smokestacks Compliance Plan Annual Update for 2007, Submitted by Cover Letter Dated March 30, 2007

Attachment B: Progress Energy Carolinas, Inc. Annual North Carolina Clean Smokestacks Act Compliance Report, Submitted by Cover Letter Dated March 30, 2007

Attachment C: Report of the Public Staff on Costs Incurred and Amortized by Duke Energy Carolinas, LLC in Compliance with Session Law 2002-4, Filed on May 25, 2007

Attachment D: Report of the Public Staff on Costs Incurred and Amortized by Progress Energy Carolinas, Inc. in Compliance With Session Law 2002-4, Filed on May 25, 2007 (Revised on May 29, 2007)

DUKE ENERGY CAROLINAS, LLC

225 Hillsborough Street, Suite 160
Raleigh, NC 27603

919 235 0995
919 828 5240 fax

March 30, 2007

Ms. Renne C. Vance, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, NC 27699-4325

FILED
MAR 30 2007
Clerk's Office
N.C. Utilities Commission

Subject: Docket No. E-7, Sub 718
Duke Energy Carolinas, LLC NO_x and SO_2 Compliance Plan Annual Update

Record No. NC CAP 006

Dear Ms. Vance:

Duke Energy Carolinas, LLC is required by Senate Bill 1078 (the "North Carolina Clean Air Legislation") to file information on or before April 1 of each year to update the North Carolina Utilities Commission on ("Commission") of the progress to date, upcoming activities and expected plans to achieve the emissions limitations set out in G.S. 143-215.107D. Enclosed for filing are the original and thirty (30) copies of Duke Energy Carolinas' Compliance Plan Annual Update for 2007 that fully describe the Company's efforts to comply with the North Carolina Clean Air Legislation.

The current plan to meet the emission requirements for NO_x and SO_2 includes:

NO_x Control – The installation of Selective Catalytic Reduction (SCR) on Cliffside Steam Station Unit 5 and Belews Creek Steam Station Units 1&2 has been completed. Our NO_x plans continue to include the installation of Selective Non-Catalytic Reduction (SNCR) on 15 units and burner work at our remaining smaller units with the exception of Cliffside Units 1-4. With these installations, the company can demonstrate compliance with the 2007 and 2009 NO_x caps under Senate Bill 1078.

SO_2 Control – The installation of wet scrubbers on our twelve largest generating units continues to be our plan for compliance with the 2009 and 2013 SO_2 caps under the North Carolina Clean Air Legislation. The company continues to work under an accelerated schedule with respect to the Allen scrubber project to maintain design and construction continuity throughout the scrubber program and also assure compliance with the federal Clean Air Interstate Rule. Estimated costs for the scrubber projects at Cliffside Unit 5 and Plant Allen continue to rise due to escalation of labor and commodity prices as well as the continued run up of costs in the power generation and environmental retrofit construction market.

Exhibits A and B outline current unit specific technology selections, projected operational dates, expected emission rates, and the corresponding tons of emissions that demonstrate compliance with the legislative requirements to the best of Duke Energy Carolinas' knowledge at this time. The current estimate of Environmental Compliance Costs for these pollution control projects are included in Exhibit C.

Duke Energy Carolinas will continue to examine the technology selection, implementation schedule and associated costs. Annual updates will be provided to the Commission as required. If you have questions regarding any aspect of our plan, please do not hesitate to contact my office at 919-235-0955.

Sincerely,

George T. Everett

George T. Everett, Ph.D.
Director, Environmental/Legislative Affairs
Duke Energy Carolinas

Enclosures

cc: Robert P. Gruber
Executive Director – Public Staff
4326 Mail Service Center
Raleigh, NC 27699-4326

VERIFICATION

I, George T. Everett, state and attest that the attached information updating the North Carolina Utilities Commission on progress to date, upcoming activities, and expected strategies to achieve the emissions limitations set out in N.C.G.S. 143-215.107.D (Annual Update) is filed on behalf of Duke Energy Carolinas, LLC; that I have reviewed said Annual Update and, in the exercise of due diligence, have made reasonable inquiry into the accuracy of the information provided therein; and that, to the best of my knowledge, information, and belief, all of the information contained therein is accurate and true, and no material information or fact has been knowing omitted or misstated therein.

George T. Everett

George T. Everett, Ph.D.
Director, Environmental and Legislative Affairs

March 30, 2007
Date

Subscribed and sworn before me this the 30th day of March, 2007.

Maria Edwards
Notary Public

MARIA EDWARDS NOTARY PUBLIC WAKE COUNTY, N.C.

My commission expires 3/2/2008

Duke Energy Carolinas, LLC

General Assembly of North Carolina Session 2001
Senate Bill 1078 – Improve Air Quality/Electric Utilities (NC Clean Air Legislation)
2007 Annual Data Submittal

1. A detailed report on the investor-owned public utility's plans for meeting the emissions limitations set out in G.S. 143-215.107D.

Exhibits A and B outline the plan as of this date for technology selections by facility and unit, projected operational dates, expected emission rates, and the corresponding tons of emissions that demonstrate compliance with the provisions of G.S. 143-215.107D. Changes to the expected plan for meeting these emissions limitations as compared to past compliance plans are described below:

NO_x Compliance

- Emission Rate Changes – Expected rates have been adjusted in this 2007 update based on 2006 operational performance:
  - Emission rates for the Allen units were adjusted based on 2006 ozone season performance of the Units 1, 3 & 4 SNCR equipment. Expected rates were increased by 0.01 for Units 1 & 2 and 0.02 for Units 3, 4 & 5.
  - The Belews Creek Unit 1 expected rate was increased by 0.01 based on 2006 operational results.
  - The Buck Units 3 & 4 expected rates in 2009 were increased by 0.01 based on operation of the similar Dan River Unit 2 with new Separated Over-fired Air (SOFA) burner equipment in early 2007. The Buck Unit 3 expected rate in 2007 was decreased by 0.02 based on the timing of the SOFA installation.
  - The Buck Units 5 & 6 expected rates were increased by 0.02 based on the early 2007 performance of the recently installed SNCR equipment.
  - Cliffside Units 1 - 4 expected rates were changed based on 2006 performance.
  - The Dan River Units 1 & 2 expected rates were increased slightly based on operations of the SOFA equipment on Unit 2 in early 2007.
  - The Marshall Units 1 - 4 expected rates were increased by 0.01 based on operation in 2006 and the effect on baseline NO_x of the coals used with the scrubber.
  - The 2009 expected rate for Marshall Unit 3 was decreased significantly based on the expected addition of SCR equipment. This SCR addition is expected to be operational in 2009 primarily in support of the 8-hour ozone attainment demonstration for the Charlotte region. Increased mercury removal in support of the federal Clean Air Mercury Rule (CAMR) and improved ability to support existing NOx emission limitations are added benefits associated with this project. Similar to other SCR additions attributed primarily to compliance with regulations other than the North Carolina Clean Air Legislation, costs associated with this Marshall Unit 3 SCR project are not "environmental compliance costs" within the meaning of that term as used in the North Carolina Clean Air Legislation.
  - The Riverbend Units 4 – 7 expected rates were changed based on 2006 and early 2007 operational results.

SO_2 Compliance

- New Pulverized Coal (PC) Unit – This 2007 update assumes the addition of one new 800 MW coal unit at the Cliffside Steam Station. The 2013 expected compliance plan includes this unit along with the corresponding retirement of Cliffside Units 1-4.
- Schedule Changes – Optimization of the 2009 scrubber tie-in outages for the Allen Units 1 – 5 has resulted in some minor changes to the expected emission rates for the 2009 year.
- Emission Rate Changes – Expected rate changes have been adjusted in this 2007 update for the Buck and Cliffside stations:
  - The Buck Units 3 – 6 expected rates were increased. These new rates assume that the use of lower sulfur Colombian coal is discontinued given that it is not cost competitive in the current market. Forecasted prices for this coal do not currently provide a cost effective solution as compared to domestic options.
  - The Cliffside Units 1 – 5 rates were adjusted based on the expected sulfur content in the coal.

2. The actual environmental compliance costs incurred by the investor-owned public utility in the previous calendar year, including a description of the construction undertaken and completed during that year.

In the 2006 calendar year, Duke Energy Carolinas spent **$427,984,400** on activities in support of compliance with the provisions of G.S. 143-215.107D. Exact amounts associated with each project are provided in Exhibit C, and a description of the associated activities is provided below:

Allen Steam Station FGD

- Provided Limited Notice to Proceed (LNTP) to EPC Contractor 4/3/06
- Provided Full Notice to Proceed (FNTP) to EPC Contractor 8/31/06
- Awarded Wastewater Treatment engineering contract 3/1/06
- Awarded Wastewater Treatment construction contract 12/22/06
- Awarded Stack construction contract 5/16/06
- Completed relocation of 230kV Transmission Line 8/1/06
- Started site clearing, grubbing and earthwork
- Completed relocation of ash line 12/22/06
- Completed relocation of coal handling railroad spurs 11/29/06
- Placed purchase orders for all major electrical and mechanical equipment

Belews Creek Steam Station FGD

- Completed construction of the major foundations for the FGD System
- Completed construction of the concrete shell for the two new chimneys
- Completed 95% of construction for the Constructed Wetlands (part of the waste water treatment system)
- Achieved a completion status of 72% on the overall project (54% of construction activities)

Cliffside Steam Station Unit 5 FGD

- Continued preliminary construction planning and development of conceptual site layout

Marshall Steam Station FGD

- Completed tie-in of the Unit 4 Absorber; began initial operations of Unit 4 and common equipment on 10/30/06; achieved substantial completion on 12/20/06
- Completed initial tie-in of the Unit 3 ductwork and installation of blanking plate
- Completed setting all ductwork with the exception of Unit 1 and Unit 2 tie-in sections
- Completed lining of FGD gypsum landfill
- Completed engineered wetlands installation
- Completed Unit 4 CEMS RATA testing and certification
- Completed NSPS testing of material handling systems per air permit

Allen Steam Station SNCR, Unit 2

- Completed detailed engineering
- Completed procurement, installation and commissioning associated with the site's reagent storage equipment

Allen Steam Station SNCR, Unit 3

- Completed remaining small close-out activities

Allen Steam Station SNCR, Unit 4

- Completed material delivery and installation of the Unit 4 SNCR equipment including supporting plant air and dilution water equipment

Allen Steam Station SNCR, Unit 5

- No significant activity completed in 2006

Buck Steam Station Burners, Unit 3

- Completed detailed engineering and material procurement in preparation for 2007 installation

Buck Steam Station Burners, Unit 4

- Completed detailed engineering and material procurement in preparation for 2007 installation

Buck Steam Station SNCR, Unit 5

- Completed detailed engineering
- Completed material delivery and installation of the Unit 5 SNCR equipment including plant air, dilution water and reagent storage equipment required for SNCR operation

Buck Steam Station SNCR, Unit 6

- Completed detailed engineering, material delivery and installation of the Unit 6 SNCR equipment

Dan River Steam Station Burners, Unit 2

- Completed installation of burners in fall of 2006

Dan River Steam Station Burners, Unit 3

- Completed installation of burners in fall of 2006

Marshall Steam Station SNCR, Unit 1

- Completed installation of the Unit 1 SNCR equipment

Marshall Steam Station SNCR, Unit 2

- Completed material procurement and delivery in preparation for 2007 installation
- Completed procurement, installation and commissioning associated with the site's reagent storage equipment

Marshall Steam Station SNCR, Unit 3

- Completed remaining small close-out activities

Marshall Steam Station SNCR, Unit 4

- Completed detailed engineering, material procurement and delivery, and installation of the Unit 4 SNCR equipment

Riverbend Steam Station SNCR, Unit 4

- Completed detailed engineering, material procurement and delivery in preparation for 2007 installation

Riverbend Steam Station SNCR, Unit 5

- Completed detailed engineering, material procurement and delivery in preparation for 2007 installation

Riverbend Steam Station SNCR, Unit 6

- Completed detailed engineering, material procurement and delivery, and installation of the Unit 6 SNCR equipment
- Completed procurement, installation and commissioning associated with the site's reagent storage equipment

Riverbend Steam Station SNCR, Unit 7

- Completed detailed engineering, material procurement and delivery, and installation of the Unit 7 SNCR equipment
- Completed installation of plant air and dilution water equipment required for SNCR operation

3. **The amount of the investor-owned public utility's environmental compliance costs amortized in the previous calendar year.**

   In the 2006 calendar year, **$225,236,000** was amortized related to construction work activity in support of compliance with the provisions of G.S. 143-215.107D. **$862,665,143** has now been amortized in total for the program through year-end 2006.

4. **An estimate of the investor-owned public utility's environmental compliance costs and the basis for any revisions of those estimates when compared to the estimates submitted during the previous year.**

   The estimated 'environmental compliance costs' as defined in G.S. 143-215.107D are provided in Exhibit C. Changes to the expected costs as compared to past compliance plans are described below:

   - Allen FGD Project – The Allen FGD estimate has increased since the previous 2006 filing and is attributable to continued ramp up in the power generation and/or environmental retrofit construction market, and continued escalation of labor and commodity costs.
   - Cliffside Unit 5 FGD Project – Like Allen, the Cliffside 5 FGD estimate is primarily affected by labor, commodity and market escalation and thus shows an increase in total forecasted cost as compared to the estimate included in the 2006 filing. In addition, the current estimate now includes a larger portion of the costs associated with common FGD equipment and infrastructure assuming only one new Cliffside unit is built, versus assuming two new units are built as in the previous year's plan.
   - SNCR & Burner Projects – While there has been no significant change to the scope or timing of the NO_x related projects remaining to be installed, all of the current forecasts have increased as compared to the 2006 filing. In each case, these increases approach 10% as compared to prior estimates and take into account the continued escalation of labor costs and ramp up in the environmental retrofit construction market as noted for the larger projects.
   - Marshall Unit 4 SNCR Project – The Marshall Unit 4 SNCR equipment was installed in late 2006 at a cost significantly less than estimated in the previous year's plan. The decision to add the SCR technology to Marshall Unit 3 allowed for this reduction in costs as selected SNCR equipment in service on Unit 3 was redeployed to Unit 4.

5. **A description of all permits required in order to comply with the provisions of G.S. 143-215.107D for which the investor-owned public utility has applied and the status of those permits or permit applications.**

   Allen Steam Station FGD

   - Request to revise NPDES Permit to include FGD wastewater – Submitted 1/24/06; received revision 9/11/06
   - Submittal to DENR/ACOE regarding stream crossing of entrance road – Received permits 5/25/06
   - Air Permit Application – Submitted 4/10/06; received Permit 6/30/06

- Authorization to Construct (ATC) application for Wastewater Treatment System – Submitted 9/14/06; received Permit to Construct 12/15/06
- NOTE: all erosion control permits are in EPC contractor's scope for the Allen FGD Project and were received in 2006 (7/13/06 and 12/18/06). EPC contractor has also applied for air permit associated with flue liner fabrication on 11/1/06 and expects to receive permit in early 2007.

Belews Creek Steam Station FGD

- Request to revise NPDES Permit to include FGD wastewater – Submitted 6/30/04; received Permit Revision 5/16/05
- Initial Erosion Control Permit – Submitted 2/4/05; received Permit 3/7/05
- Landfill Site Suitability Application – Submitted 3/30/05; received Site Suitability Approval Letter 6/19/06
- Air Permit Application for Belews Creek FGD project – Submitted 4/18/05; received Air Permit 2/6/06
- Authorization to Construct (ATC) application for Wastewater Treatment System – Submitted 7/21/05; received Permit to Construct 12/27/05
- Authorization to Construct (ATC) application for Constructed Wetlands – Submitted 7/21/05; received Permit to Construct 12/27/05
- Revised Landfill Construction Plan Application – Submitted 9/30/05; received Permit to Construct 6/29/06
- Air Permit – Notice of Intent to Construct – Submitted 10/11/05; received Permit to Construct 10/24/05
- Authorization to Construct Sanitary Waste Lagoon – Submitted 3/23/06; received Permit to Construct 9/1/06
- Existing Sewage Lagoon Approval to Decommission – Submitted 10/31/06; received permit 1/25/07
- NOTE: Revisions to Erosion Control Permit submitted on various dates; most recent revised permit received 3/30/06

Cliffside Steam Station Unit 5 FGD

- Air Permit Application – Submitted 12/16/05; received 12/15/06

Marshall Steam Station FGD

- Landfill Construction Plan Application – Submitted 4/1/04; received 2/4/05
- Sedimentation and Erosion Control Plan Permits
  - Limestone/Gypsum Conveyor – Submitted 6/17/04; received 7/9/04
  - Limestone/Gypsum Conveyor Expansion – Submitted 12/15/04; received 12/30/04
  - Constructed Wetland Treatment System – Submitted 7/26/04; received 8/18/04
  - Gypsum Landfill – Submitted 3/31/04; received 4/21/04
- Authorization to Construct (ATC) application for Solids Removal System – Submitted 11/19/04; received 12/22/04
- Authorization to Construct (ATC) application for Constructed Wetlands – Submitted 5/21/04; received 8/10/04

- Air Permit Revisions (for material handling issues) – Submitted 9/2/05; received 12/7/05
- Landfill Permit Documents (to line landfill) – Submitted 12/15/05; received 6/5/06
- Permit to Operate Marshall FGD Landfill – Submitted 10/27/06; received 11/21/06

Allen Steam Station SNCR, Unit 2
- Air Permit Application – Submitted 4/24/06; Received 6/30/06

Allen Steam Station SNCR, Unit 3
- Air Permit Application – Submitted 7/15/04; Received 2/5/05

Allen Steam Station SNCR, Unit 4
- Air Permit Application – Submitted 7/15/05; Received 1/15/06
- Building/Plumbing permit from Gaston County Building and Standards – Received 4/27/06 for municipal water tie-ins

Allen Steam Station SNCR, Unit 5
- Air Permit Application – Submitted 4/24/06; Received 6/30/06

Buck Steam Station Burners, Unit 3
- Air Permit Application – Submitted 9/15/06; Received 2/15/07

Buck Steam Station Burners, Unit 4
- Air Permit Application – Submitted 9/15/06; Received 2/15/07

Buck Steam Station SNCR, Unit 5
- Air Permit Application – Submitted 3/10/06; Received 5/16/06

Buck Steam Station SNCR, Unit 6
- Air Permit Application – Submitted 3/10/06; Received 5/16/06

Dan River Steam Station Burners, Unit 1
- Air Permit Application – Submitted 2/23/06; Received 9/11/06

Dan River Steam Station Burners, Unit 2
- Air Permit Application – Submitted 2/23/06; Received 9/11/06

Dan River Steam Station Burners, Unit 3
- Air Permit Application – Submitted 2/23/06; Received 9/11/06

Marshall Steam Station SNCR, Unit 1
- Air Permit Application – Submitted 9/18/05; Received 12/20/05

Marshall Steam Station SNCR, Unit 2
- Air Permit Application – Submitted 9/18/05; Received 12/20/05

Marshall Steam Station SNCR, Unit 3

- Air Permit Application – Submitted 5/14/04; Received 10/13/04

Marshall Steam Station SNCR, Unit 4

- Air Permit Application – Submitted 4/28/06; Received 9/12/06

Riverbend Steam Station SNCR, Unit 4

- Air Permit Application – Submitted 3/20/05; Received 8/1/05

Riverbend Steam Station Burners, Unit 5

- Air Permit Application – Submitted 4/2/04; Received 4/30/04

Riverbend Steam Station SNCR, Unit 5

- Air Permit Application – Submitted 3/20/05; Received 8/1/05

Riverbend Steam Station Burners, Unit 6

- Air Permit Application – Submitted 5/14/03; Received September 2003

Riverbend Steam Station SNCR, Unit 6

- Air Permit Application – Submitted 11/5/05; Received 1/1/06

Riverbend Steam Station SNCR, Unit 7

- Air Permit Application – Submitted 11/5/05; Received 1/1/06

6. **A description of the construction related to compliance with the provisions of G.S. 143-215.107D that is anticipated during the following year.**

Allen Steam Station FGD

- Complete relocation of fuel oil tank and transfer system
- Complete construction of stack shell
- Complete construction of new access driveway
- Complete all major building foundations and steel erection
- Complete initial duct tie-in outages for Units 1-5
- Complete all major equipment foundations
- Mobilize FRP liner fabrication facility
- Complete major process equipment procurement
- Receive auxiliary transformer on site

Belews Creek Steam Station FGD

- Complete construction and commissioning of all FGD Systems
- Place new Sanitary Waste System into operation
- Achieve Unit 1 FGD Substantial Completion - Expect in February 2008

Cliffside Steam Station Unit 5 FGD

- Complete clearing and grubbing required to begin FGD construction
- Begin earthwork excavation, blasting and hauling activities

- Begin structural/foundation work for FGD equipment
- Complete Unit 5 chimney foundation

Marshall Steam Station FGD

- Complete construction, turnover and commissioning of Unit 3 FGD systems
- Complete final tie-in of Unit 3 ductwork; remove blanking plate; and begin operations, testing and tuning of Unit 3 FGD systems
- Achieve substantial completion for Unit 3
- Complete construction, turnover and commissioning of Unit 1/2 FGD systems
- Complete final tie-in of Unit 2 ductwork and begin operations, testing and tuning of Unit 1/2 FGD systems
- Complete final tie-in of Unit 1 ductwork
- Achieve Substantial Completion for Unit 1/2
- Achieve Marshall FGD Project Completion

Allen Steam Station SNCR, Unit 2

- Complete material procurement, installation and commissioning of SNCR equipment in time to support operation in summer 2007

Allen Steam Station SNCR, Unit 5

- Complete detailed engineering and material procurement activities
- Begin equipment installation activities in support of a 2008 project completion date

Buck Steam Station Burners, Unit 3

- Complete installation of burners in early 2007

Buck Steam Station Classifiers, Unit 3

- Complete installation of classifiers in early 2007

Buck Steam Station Burners, Unit 4

- Complete installation of burners in early 2007

Buck Steam Station Classifiers, Unit 4

- Complete installation of classifiers in early 2007

Dan River Steam Station Burners, Unit 1

- Complete detailed engineering and material procurement activities
- Complete installation of burners in late 2007

Dan River Steam Station Classifiers, Unit 1

- Complete installation of classifiers in late 2007

Marshall Steam Station SNCR, Unit 2

- Complete installation and commissioning of SNCR equipment in preparation for operation in summer 2007

Riverbend Steam Station SNCR, Unit 4

- Complete installation and commissioning of SNCR equipment in preparation for operation in summer 2007

Riverbend Steam Station SNCR, Unit 5

- Complete installation and commissioning of SNCR equipment in late 2007

Riverbend Steam Station SNCR, Unit 6

- Complete commissioning and small project close-out activities

Riverbend Steam Station SNCR, Unit 7

- Complete commissioning and small project close-out activities

7. A description of the applications for permits required in order to comply with the provisions of G.S. 143-215.107D that are anticipated during the following year.

Belews Creek Steam Station FGD

- Permit to operate the FGD Residue Landfill - Submit Certification Report 8/13/07, Expect permit to operate by 10/23/07

Cliffside Steam Station Unit 5 FGD

- Authorization to Construct (ATC) application anticipated September 2007

8. The results of equipment testing related to compliance with G.S. 143-215.107D.

No additional equipment related testing occurred in 2006. The SNCR and SCR tests that occurred in prior years that were used in evaluating technology selections are repeated in this 2007 report for reference.

Allen Steam Station SNCR, Unit 1

- SNCR Equipment installation was completed in May 2003 followed by equipment acceptance testing in late 2003. During this test run, it was determined that the SNCR system met all commercial performance guarantees with approximately a 25% reduction in NOx with ammonia slip of less than 5 ppm at full load.
- During the 2004 ozone season, Allen Unit 1 achieved a 0.162# NO_x/MMBTU outlet rate, 5% better than the 0.17#/MMBTU target established for the unit.

Belews Creek Steam Station SCR

- SCR Equipment installation was completed in 2003 in support of the EPA/SIP Call requirements for NO_x reduction. While Belews Creek had operational problems in the first half of the 2004 ozone season, many of these issues were addressed on Belews Creek Unit 1 by August, 2004. Subsequently, tests performed during the months of August and September showed that when the SCR Equipment was in service during this time, emissions averaged 0.07# NO_x/MMBTU

9. **The number of tons of oxides of nitrogen (NO_x) and sulfur dioxide (SO_2) emitted during the previous calendar year from the coal-fired generating units that are subject to the emissions limitations set out in G.S. 143-215.107D.**

   In the 2006 calendar year, **54,335.5** tons of NO_x and **286,639.2** tons of SO_2 were emitted from the North Carolina based Duke Energy Carolinas coal-fired units located in North Carolina and subject to the emissions limitations set out in G.S 143-215.107D.

10. **The emissions allowances described in G.S. 143-215.107D(i) that are acquired by the investor-owned public utility that result from compliance with the emissions limitations set out in G.S. 143-215.107D.**

    No emissions allowances have been acquired by Duke Energy Carolinas resulting from compliance with the emissions limitations set out in G.S. 143-215.107D.

11. **Any other information requested by the Commission or Department of Environment and Natural Resources.**

    No additional information has been requested to be included in this annual data submittal.

Expected Duke Energy Carolinas Compliance for NC Clean Air Plan as of 4/1/2007
(Exhibit A)

NO_x							
				2007 Compliance		2009 Compliance	
Facility	Unit	Technology	Operational Date	Expected Rate #/MMBTUs	Tons	Expected Rate #/MMBTUs	Tons
Allen	1	SNCR	2003	0.170	885	0.170	898
Allen	2	SNCR	2007	0.180	773	0.170	826
Allen	3	SNCR	2005	0.180	1,450	0.180	1,484
Allen	4	SNCR	2006	0.180	1,592	0.180	1,632
Allen	5	SNCR	2008	0.230	2,004	0.180	1,542
Belews Creek	1	SCR	2003	0.070	2,045	0.070	2,628
Belews Creek	2	SCR&Burners	2004	0.060	2,234	0.060	1,754
Buck	3	Burners	2007	0.260	338	0.230	346
Buck	4	Burners	2007	0.280	216	0.230	190
Buck	5	SNCR	2006	0.170	670	0.170	711
Buck	6	SNCR	2006	0.170	671	0.170	704
Cliffside	1	Tuning Only	2004	0.400	262	0.400	242
Cliffside	2	Tuning Only	2004	0.400	259	0.400	239
Cliffside	3	Tuning Only	2004	0.390	505	0.380	529
Cliffside	4	Tuning Only	2004	0.390	534	0.380	527
Cliffside	5	SCR	2002	0.062	1,184	0.062	1,239
Dan River	1	Burners	2008	0.370	483	0.225	353
Dan River	2	Burners	2006	0.240	394	0.240	407
Dan River	3	Burners	2006	0.216	796	0.216	812
Marshall	1	SNCR	2006	0.180	2,360	0.179	2,279
Marshall	2	SNCR	2007	0.200	2,151	0.179	2,283
Marshall	3	SNCR/SCR[1]	2005/2009	0.200	4,527	0.061	1,421
Marshall	4	SNCR	2007	0.200	4,408	0.200	4,321
Riverbend	4	SNCR	2007	0.189	432	0.178	428
Riverbend	5	SNCR&Burners	2008	0.230	501	0.179	439
Riverbend	6	SNCR&Burners	2006	0.180	664	0.165	636
Riverbend	7	SNCR	2006	0.165	622	0.165	664
			Expected Total:		32,961		29,534
			Compliance Limit:		35,000		31,000

[1] SNCR Technology in service on Marshall Unit 3 expected be replaced by SCR Technology in 2009 in support of 8-hour ozone attainment demonstration in the Charlotte region. Similar to other SCR additions to comply with other laws besides the North Carolina Clean Air Legislation, costs associated with this Marshall Unit 3 SCR project are not "environmental compliance costs" within the meaning of that term as used in the North Carolina Clean Air Legislation.

Technology

Burners – Overfired Air or Separated Overfired Air with associated Mill Classifier installations

SCR – Selective Catalytic Reduction

SNCR – Selective Non-Catalytic Reduction

Expected Duke Energy Carolinas Compliance for NC Clean Air Plan as of 4/1/2007
(Exhibit B)

SO_2							
				2009 Compliance		2013 Compliance	
Facility	Unit	Technology	Operational Date	Expected Rate #/MMBTUs	Tons	Expected Rate #/MMBTUs	Tons
Allen	1	Scrubber	2009	0.300	1,585	0.150	719
Allen	2	Scrubber	2009	0.250	1,215	0.150	653
Allen	3	Scrubber	2009	1.400	11,543	0.150	1,167
Allen	4	Scrubber	2009	1.300	11,789	0.150	1,312
Allen	5	Scrubber	2009	0.700	5,996	0.150	1,181
Belews Creek	1	Scrubber	2008	0.150	5,632	0.150	5,596
Belews Creek	2	Scrubber	2008	0.150	4,385	0.150	5,368
Buck	3			1.400	2,107	1.400	1,631
Buck	4			1.400	1,157	1.400	934
Buck	5			1.400	5,852	1.400	5,453
Buck	6			1.400	5,794	1.400	5,161
Cliffside	1			1.600	969	0.000	0
Cliffside	2			1.600	954	0.000	0
Cliffside	3			1.600	2,228	0.000	0
Cliffside	4			1.600	2,221	0.000	0
Cliffside	5	Scrubber	2010	1.600	32,151	0.150	2,817
Cliffside	6	Scrubber	2011	0.000	0	0.080	2,133
Dan River	1			1.400	2,196	1.400	1,895
Dan River	2			1.400	2,374	1.400	2,009
Dan River	3			1.400	5,262	1.400	4,813
Marshall	1	Scrubber	2007	0.150	1,909	0.150	1,938
Marshall	2	Scrubber	2007	0.150	1,916	0.150	1,667
Marshall	3	Scrubber	2007	0.150	3,495	0.150	3,427
Marshall	4	Scrubber	2006	0.150	3,241	0.150	3,534
Riverbend	4			1.550	3,717	1.550	2,596
Riverbend	5			1.550	3,799	1.550	3,033
Riverbend	6			1.550	5,965	1.550	5,267
Riverbend	7			1.550	6,229	1.550	5,446
			Expected Total:		135,681		69,750
			Compliance Limit:		150,000		80,000

Expected Duke Energy Carolinas Compliance Costs for NC Clean Air Plan as of 4/1/2007
(Exhibit C)

Facility	Unit(s)	Technology	Operational Date	Spent to Date						Remaining	Project Total	
				2001 ($000)	2002 ($000)	2003 ($000)	2004 ($000)	2005 ($000)	2006 ($000)	2007-2010 ($000)	($000)	
Allen	1-5	Scrubber	2009	$0.9	($0.9)	$1,099.8	($11.8)	$5,348.3	$62,752.8	$433,777.7	$502,966.8	SO_2
Belews Creek	1-2	Scrubber	2008	$0.0	$0.0	$1,121.3	$5,999.1	$106,433.5	$250,648.5	$179,399.0	$543,601.4	
Cliffside	5	Scrubber	2010	$0.0	$0.0	$978.5	$287.5	$112.0	$3,175.2	$394,446.9	$399,000.0	
Marshall	1-4	Scrubber	2007	$0.0	$0.0	$10,213.7	$92,096.3	$218,129.8	$74,162.8	$26,939.1	$421,541.7	
Allen	1	SNCR	2003	$177.3	$162.4	$2,884.1	$364.9	$0.0	$0.0	$0.0	$3,588.7	NO_x
Allen	2	SNCR	2007	$0.0	$0.0	$0.0	$0.0	$239.3	$2,710.6	$2,772.8	$5,722.7	
Allen	3	SNCR	2005	$0.0	$0.0	$215.7	$2,584.1	$4,091.5	$32.5	$0.0	$6,923.9	
Allen	4	SNCR	2006	$0.0	$0.0	$0.0	$217.9	$1,122.2	$4,258.0	$224.3	$5,822.4	
Allen	5	SNCR	2008	$0.0	$0.0	$98.9	$164.6	$122.3	$22.7	$5,383.9	$5,792.4	
Buck	3	Burner	2007	$0.0	$0.0	$0.0	$0.0	$0.0	$614.5	$3,604.3	$4,218.8	
Buck	3	Classifier	2007	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$309.9	$309.9	
Buck	4	Burner	2007	$0.0	$0.0	$0.0	$0.0	$0.0	$358.3	$2,458.5	$2,816.8	
Buck	4	Classifier	2007	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$165.0	$165.0	
Buck	5	SNCR	2006	$0.0	$0.0	$0.0	$268.2	$345.9	$4,836.8	$549.1	$6,000.0	
Buck	6	SNCR	2006	$0.0	$0.0	$0.0	$265.8	$335.3	$3,814.2	($533.6)	$3,881.7	
Dan River	1	Burner	2008	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$2,762.6	$2,762.6	
Dan River	1	Classifier	2008	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$182.1	$182.1	
Dan River	2	Burner	2006	$0.0	$0.0	$0.0	$0.0	$775.4	$1,693.6	$255.9	$2,725.0	
Dan River	2	Classifier	2005	$0.0	$0.0	$0.0	$0.0	$130.8	$0.0	$0.0	$130.8	
Dan River	3	Burner	2006	$7.5	$162.3	$22.2	$512.8	$679.0	$1,441.4	$254.7	$3,080.0	
Dan River	3	Classifier	2005	$0.0	$0.0	$0.0	$0.0	$184.3	$0.0	$0.0	$184.3	
Marshall	1	SNCR	2006	$0.0	$0.0	$0.8	$167.2	$1,418.4	$2,106.3	$157.2	$3,849.9	
Marshall	2	SNCR	2007	$0.0	$0.0	$197.6	$185.4	$778.3	$2,760.7	$2,328.1	$6,250.1	
Marshall	3	SNCR	2005	$0.0	$0.0	$1,577.4	$652.1	$2,042.4	$32.0	$0.0	$4,303.8	
Marshall	4	SNCR	2007	$0.0	$0.0	$0.0	$0.0	$43.3	$2,613.6	$543.4	$3,200.2	
Riverbend	4	SNCR	2007	$0.0	$0.0	$0.0	$45.6	$474.3	$1,082.2	$2,681.3	$4,283.4	
Riverbend	5	Burner	2005	$362.8	$284.3	$2.8	$2,313.4	$180.0	$0.0	$0.0	$3,143.3	
Riverbend	5	Classifier	2005	$0.0	$0.0	$0.0	$159.6	$0.0	$0.0	$0.0	$159.6	
Riverbend	5	SNCR	2008	$0.0	$0.0	$0.0	$1.5	$321.7	$1,474.6	$3,194.5	$4,992.3	
Riverbend	6	Burner	2005	$144.0	$416.1	$12.2	$510.4	$2,096.4	$0.0	$0.0	$3,179.1	
Riverbend	6	Classifier	2005	$0.0	$0.0	$0.0	$0.0	$189.4	$0.0	$0.0	$189.4	
Riverbend	6	SNCR	2006	$0.0	$0.0	$0.0	$1.5	$340.3	$3,454.1	$1,173.8	$4,969.8	
Riverbend	7	SNCR	2006	$0.0	$0.0	$0.0	$48.5	$485.8	$3,939.0	$849.3	$5,322.5	
			Subtotals:	$692.4	$1,024.2	$18,424.9	$106,834.5	$346,420.0	$427,984.4	$1,063,879.7		
										NC-CAP Program Total [1]:	$1,965,260.2	

[1] The NC-CAP Program forecast excludes AFUDC associated with capital expenditures yet to be amortized

Progress Energy

FILED
MAR 30 2007
Clerk's Office
N.C. Utilities Commission

March 30, 2007

Ms. Renne Vance
Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, NC 27699-4325

Re: Annual NC Clean Smokestacks Act Compliance Report
Docket No. E-2, Sub 815

Dear Ms. Vance:

Progress Energy Carolinas, Inc. submits the attached report for calendar year 2006 regarding the status of compliance with the provisions of the North Carolina Clean Smokestacks Act. Section 9(i) of the Act requires that an annual report of compliance progress be submitted to the Commission by April 1 of each year for the previous calendar year.

Very truly yours,

Len S. Anthony
Deputy General Counsel-Regulatory Affairs

LSA:mhm

Attachment

232822

Progress Energy Service Company, LLC
P.O. Box 1551
Raleigh, NC 27602

Progress Energy

March 30, 2007

Mr. William G. Ross, Jr.
Secretary
North Carolina Department of Environment and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

Dear ~~Secretary~~ Ross: Bill

Progress Energy Carolinas, Inc. (PEC, Company) submits the attached report for calendar year 2006 regarding the compliance status with the provisions of the North Carolina Clean Smokestacks Act (Act).

As you know, 2007 is a significant year for the Clean Smokestacks Act – the first year in which the nitrogen oxides (NOx) emissions cap is effective. Beginning this year, the Company's annual NOx emissions from its coal units in North Carolina cannot exceed 25,000 tons. We have developed plans and processes to assure we meet the requirement, and we are on track to achieve this milestone.

While the Act established stringent NOx and sulfur dioxide (SO_2) emissions limits from coal-fired power plants, it also allowed the affected utilities to determine how to meet the emissions limitations. We regularly review and refine our compliance strategy, weighing a number of factors such as system load projections, expected fuel selection, available control equipment, and anticipated performance and costs of emissions controls. For example, since our last filing, we have continued our evaluation of Furnace Sorbent Injection (FSI) technology. FSI may offer a more cost-effective compliance solution for our Cape Fear Plant than the original plan to use scrubbers. We plan to test the FSI technology at our Robinson Plant in Florence, S.C., in fall 2007. Since Robinson Unit 1 is similar in design to the Cape Fear units, we believe that the FSI test will indicate whether this technology will be effective at Cape Fear. We are happy to provide you and your staff more detail about our plans and the test results.

Progress Energy Service Company, LLC
P.O. Box 1551
Raleigh, NC 27602

We appreciate the excellent work of the Department staff, particularly those in the Air Quality and Water Quality divisions, who support our efforts to complete the projects in a timely manner to assure compliance with the Act's requirements. We look forward to continuing our positive working relationship to facilitate fulfillment of the Company's obligations with this important law.

Please don't hesitate to contact me at (919) 546-3775 if you have any questions.

Sincerely,

Caroline Choi
Director, Energy Policy and Strategy

c: North Carolina Utilities Commission
Keith Overcash, DAQ
Alan Klimek, DWQ

VERIFICATION

STATE OF NORTH CAROLINA)
)
COUNTY OF WAKE)

NOW, BEFORE ME, the undersigned, personally came and appeared, E. Michael Williams, who first duly sworn by me, did depose and say:

That he is E. Michael Williams, Senior Vice President-Power Operations of Carolina Power & Light Company, d/b/a Progress Energy Carolinas, Inc.; he has the authority to verify the foregoing Progress Energy Carolinas, Inc. North Carolina Clean Smokestacks Act Calendar Year 2006 Progress Report; that he has read said Report and knows the contents thereof; are true and correct to the best of his knowledge and beliefs.

E. M. Williams

E. Michael Williams
Senior Vice President-Power Operations
Progress Energy Carolinas, Inc.

Subscribed and sworn to me
this 28th day of March, 2007.

Betty Jean Young
Notary Public

My Commission expires:
October 5, 2008

BETTY JEAN YOUNG
NOTARY
PUBLIC
WAKE COUNTY, NC

246373

Progress Energy Carolinas, Inc. (PEC)
North Carolina Clean Smokestacks Act
Calendar Year 2006 Progress Report

On June 20, 2002, North Carolina Senate Bill 1078, also known as the "Clean Smokestacks Act," was signed into effect. This law requires significant reductions in the emissions of nitrogen oxides (NOx) and sulfur dioxide (SO_2) from utility owned coal-fired power plants located in North Carolina. Section 9(i), which is now incorporated as Section 62-133.6(i) of the North Carolina General Statutes, requires that an annual progress report regarding compliance with the Clean Smokestacks Act be submitted on or before April 1 of each year. The report must contain the following elements, taken verbatim from the statute:

1. A detailed report on the investor-owned public utility's plans for meeting the emissions limitations set out in G.S. 143-215.107D.
2. The actual environmental compliance costs incurred by the investor-owned public utility in the previous calendar year, including a description of the construction undertaken and completed that year.
3. The amount of the investor-owned public utility's environmental compliance costs amortized in the previous calendar year.
4. An estimate of the investor-owned public utility's environmental compliance costs and the basis for any revisions of those estimates when compared to the estimates submitted during the previous year.
5. A description of all permits required in order to comply with the provisions of G.S. 143-215.107D for which the investor-owned public utility has applied and the status of those permits or permit applications.
6. A description of the construction related to compliance with the provisions of G.S. 143-215.107D that is anticipated during the following year.
7. A description of the applications for permits required in order to comply with the provisions of G.S. 143-215.107D that are anticipated during the following year.
8. The results of equipment testing related to compliance with G.S. 143-215.107D.
9. The number of tons of oxides of nitrogen (NOx) and sulfur dioxide (SO_2) emitted during the previous calendar year from the coal-fired generating units that are subject to the emissions limitations set out in G.S. 143-215.107D.
10. The emissions allowances described in G.S. 143-215.107D(i) that are acquired by the investor-owned public utility that result from compliance with the emissions limitations set out in G.S. 143-215.107D.
11. Any other information requested by the Commission or the Department of Environment and Natural Resources.

Information responsive to each of these report elements follows. The responses are given by item number in the order in which they are presented above.

1. **A detailed report on the investor-owned public utility's plans for meeting the emissions limitations set out in G.S. 143-215.107D.**

Under G.S. § 143-215.107D(f), "each investor-owned public utility...may determine how it will achieve the collective emissions limitations imposed by this section." PEC originally submitted its compliance plan on July 29, 2002. Appendix A contains an updated version of this plan, effective April 1, 2007. We continue to evaluate various design, technology and generation options that could affect our future compliance plans.

2. **The actual environmental compliance costs incurred by the investor-owned public utility in the previous calendar year, including a description of the construction undertaken and completed that year.**

In 2006, Progress Energy Carolinas, Inc. incurred actual capital costs of $272,819,000.

Asheville

We successfully placed in service the wet scrubber on Asheville Unit 2 in May 2006. A significant amount of work was performed at the Asheville plant in 2005 and 2006 in order to accomplish this milestone. This work included the installation of electrical power and control cables and circuits, piping, pumps, valves, oxidation air compressors, instruments and controls, agitators, absorber tower outlet hood, spray headers, trays and other tower internals. Work efforts also included completing ductwork from the precipitator to the scrubber tower and from the scrubber tower to the stack. The stack liner was connected in 2006. Mechanical and electrical work for the Unit 1 SCR was completed in preparation for placing the SCR into service in spring 2007.

Lee

We completed procurement and installation of the low-NOx burners for Unit 2, placing them in service in 2006. We also completed design, procurement and installation of the Rotamix equipment for NOx control at Unit 3. Construction activities related to Unit 3 Rotamix concluded in 2006, with operational status expected in early 2007.

Mayo

Contracts for the absorber tower and chimney were executed, along with contracts for the overall engineering and construction. Engineering and design work continued throughout the year, and in mid-October contractors mobilized and began construction activities. Long-lead procurement activities continued in order to ensure timely receipt of equipment on-site in support of a spring 2009 in-service date. During the fourth quarter of 2006, on-site activities focused on excavation and backfill of the scrubber island area, installation of rebar, and placement of base slabs for the auxiliary and startup transformers and bus supports.

Roxboro

Construction work for the scrubber project continued on the four units in 2006. In the Common area, installation of the pipe bridge was completed as well as installation of the equipment in the limestone prep building and gypsum dewatering building. The limestone unloading pit was completed, and work was started on installation of conveyors. The limestone slurry storage tanks, vacuum filter feed tanks, filtrate tanks, service water tanks, blow-down tank, and emergency storage tank were completed as well as the electrical equipment building and the oxidation air blower building. Commissioning began on most of the common systems in support of the Unit 2 outage scheduled for spring 2007. Specific unit construction activities completed include the following:

Unit 1
Significant construction included completion of foundations for the absorber, recycle pump house, primary hydro cyclone tank, and electrical building.

Unit 2
Significant construction included completion of the recycle pump house, final assembly of the absorber discharge to the stack, installation of the induced draft fans and associated flue gas ducting, installation of the hydro cyclone tank, and installation of the transformers. In addition, we started commissioning Unit 2 systems in preparation for the spring 2007 outage during which time the final scrubber tie-in will be completed and the scrubber placed into service.

Unit 3
Significant construction included starting installation of ducting from the existing stack to the new induced draft fans. Construction was started on foundations for duct support steel from the new induced draft fans to the absorber. We continued installation of the absorber and started assembly of the booster fan. Work also started on fabrication of the new flue gas ducting.

Unit 4
Significant construction included completion of the absorber and the start of erection of the recycle pump house and primary hydro cyclone tank.

Wastewater Project
Significant construction activity included starting the wastewater settlement and flush ponds which are scheduled for completion in early 2007. In December, we issued a request for bids on construction of the bioreactor facilities.

Sutton

We completed procurement and installation of the low-NOx burners for Unit 2 and placed them in service during 2006.

3. The amount of the investor-owned public utility's environmental compliance costs amortized in the previous calendar year.

Progress Energy Carolinas, Inc. amortized $140 million in 2006.

4. An estimate of the investor-owned public utility's environmental compliance costs and the basis for any revisions of those estimates when compared to the estimates submitted during the previous year.

Appendix B contains the capital costs incurred toward compliance with G.S. § 143-215.107D through 2006 and the projected costs for future years through 2013. The costs shown are the net costs to PEC, excluding the portion for which the Power Agency is responsible. The estimated total capital costs, including escalation, are currently projected to be between $1.1 and $1.4 billion. The current point estimate is $1.355 billion, a slight decrease from the 2006 cost estimate of $1.362 billion. Prior reports have discussed the cost impact of project scope changes and the impact of significant increases in the cost of materials and labor which have impacted construction projects across the Southeast. These factors continued to impact the cost of the projects during 2006 as indicated by the current estimates for Roxboro, Mayo, and Sutton.

The current estimates also reflect updates to PEC's compliance plan based on the expected performance of the scrubbers at Asheville, Roxboro, and Mayo, current resource plans, current fuel forecasts, and advancements in SO_2 removal technology. Under G.S. § 143-215.107D(f), "each investor-owned public utility...may determine how it will achieve the collective emissions limitations imposed by this section." We regularly review and refine our compliance strategy, weighing a number of factors such as system load projections, expected fuel selection, available control equipment, anticipated performance and costs of emissions controls, and knowledge of and experience with emissions control options.

For example, since our last filing, PEC has continued its evaluation of the potential to use Furnace Sorbent Injection (FSI) technology at our Cape Fear Plant. FSI technology may offer a more cost-effective compliance solution for Cape Fear Plant than the original plan to use scrubber technology. Use of the FSI technology also eliminates the need for a costly wastewater treatment system. We plan to test the FSI technology at PEC's Robinson Unit 1 in fall 2007. Since Robinson Unit 1 is similar in design to the Cape Fear units, the Robinson test will indicate whether the use of this technology will be effective at Cape Fear.

The current compliance plan also contemplates the use of a dry scrubber at Sutton Unit 3. A dry scrubber at that unit represents a more cost-effective compliance solution and also eliminates the need for a costly wastewater treatment system.

Lastly, the compliance plan calls for the use of Rotamix technology with combustion optimization at Lee 3 for NOx control. Prior plans had contemplated the use of rotating opposed-fired air (ROFA) and Rotamix technology at that unit. Engineering studies

completed in early 2006 indicated that combustion optimization combined with the existing Low-NOx burners with overfired-air would provide benefits equivalent to the ROFA and at less cost.

5. A description of all permits required in order to comply with the provisions of G.S. 143-215.107D for which the investor-owned public utility has applied and the status of those permits or permit applications.

Progress Energy Carolinas, Inc. applied for the following permits in 2006:

Asheville Plant

Air Permit

- Notification of 502(b)(10) permit change for SO_3 mitigation system submitted April 5, 2006. Notification that the permit change will be treated as an "off permit change" rather than a 502(b)(10) received June 30, 2006.

Erosion and Sedimentation Control Plan

- Several updates were submitted. Rev J for the construction of the de-mineralized pipe, pump and duct bank was approved in January 2006.

Roxboro Plant

Air Permit

- An update for coal handling and limestone handling was issued on February 9, 2006. An additional update was requested on November 10, 2006. The revised air permit incorporating this revision was issued on March 15, 2007.
- Revisions to address fugitive emissions of hydrogen sulfide from the wastewater treatment system were approved June 23, 2006.

NPDES Permit

- An Authorization to Construct (ATC) for the gypsum settling pond was received March 3, 2006.
- An ATC for the bioreactor was received July 5, 2006.

Erosion and Sedimentation Control Plan
Several updates were submitted:

- Rev K for the haul road, transformer, main plant area wastewater pipe trench and gypsum conveyor foundations was submitted January 18, 2006, and approved February 10, 2006.
- Rev L for burying the wastewater pipeline was submitted April 19, 2006, and approved May 2, 2006.
- Rev M for increased disturbed areas for wastewater pond construction borrow and stockpile area, construction parking area, and construction road widening was submitted June 7, 2006, and approved June 26, 2006.

Mayo Plant

Air Permit

- Construction permit application for the flue gas desulfurization system was submitted May 25, 2006, and the permit was issued July 28, 2006.

NPDES Permit

- Permit modification for wastewater treatment system was received September 14, 2006.

Erosion and Sediment Control Plan

- Rev D for the installation of the flue gas desulfurization system was approved November 9, 2006.

Lee Plant

Air Permit

- A prevention of significant deterioration (PSD) permit for the installation of low NOx burners was approved March 21, 2006.
- Construction permit application for the installation of the Rotamix System for NOx control was submitted April 5, 2006, and was approved June 30, 2006.

NPDES Permit

- A permit application amendment for the Rotamix Urea Injection System on Unit 3 was submitted May 15, 2006. A revised amendment was then submitted October 24, 2006, and approved December 18, 2006.

6. A description of the construction related to compliance with the provisions of G.S. 143-215.107D that is anticipated during the following year.

Asheville

Construction activities will continue in 2007 for the Asheville Unit 1 SCR. Construction activities related to installation of electrical power, control cables and circuits, piping, instruments and controls will occur. Installation of the additional urea-to-ammonia system modifications for Unit 1 SCR is planned. The Unit 1 SCR is scheduled to be operational in spring 2007.

Lee

For Unit 3, we will complete tuning of the Rotamix equipment for NOx emissions control and place the system in service in early 2007.

Mayo

During 2007, construction activities will focus on completion of the chimney and absorber foundations and subsequent erection of the absorber and chimney structures. Concurrently, equipment such as pumps, ball mills, induced draft fans, and conveyors will begin to arrive on-site. In support of major equipment installation, numerous foundations will be placed during 2007 including foundations for the recycle pump house, limestone prep and dewatering buildings. Engineering activities will continue during 2007, with the focus during the latter half of the year shifting from scrubber to wastewater treatment process flows and equipment.

Roxboro

For 2007, significant construction activities planned in the Common area include completion of the limestone conveyors. Specific unit activities are described below:

Unit 1
Significant construction activities planned include construction of Unit 1 absorber, electrical building, primary hydro-cyclone tank, recycle pump house, and induced draft fan foundations.

Unit 2
Significant activities planned include completion of commissioning and startup activities to support the tie-in of the new flue gas duct to the absorber. The scrubber will be placed in service in spring 2007.

Unit 3
Significant construction activities planned include completing the installation of the booster fans, final assembly of flue gas duct from the existing stack to the absorber, and the start of duct insulation. Additionally, work on the foundation for the recycle pump house will start in spring 2007. The expected start-up of the scrubber is spring 2008.

Unit 4
Significant construction activities planned include completion of the absorber internals, installation of all equipment associated with the recycle pump house, and installation of booster fans and associated flue gas ducting from the existing stack to the absorber. Commissioning of Unit 4 equipment in support of scrubber start-up planned for fall 2007 will be completed as well.

Wastewater
Significant construction activities planned for wastewater include completion of the wastewater settlement and flush ponds, construction and commissioning of the bioreactor facilities, and completion of the wastewater piping from the plant.

7. **A description of the applications for permits required in order to comply with the provisions of G.S. 143-215.107D that are anticipated during the following year.**

We appreciate the collaborative efforts the DAQ and DWQ staff has made to assure our construction and installation schedules remain on track. However, the potential for longer permit processing times continues to be a serious concern for future projects. PEC wishes to work collaboratively with the Department to prevent delays from occurring.

The following permit applications and permit approvals are anticipated for 2007:

Asheville Plant

Air Permit

- Current opacity rules pre-date saturated gas streams from wet scrubbers and require representative measurements where condensed water vapor is not present. We will request revisions to the permit and underlying rules for opacity monitoring to include references to current federal regulations that exempt units with wet scrubbers from continuous opacity monitoring requirements.

NPDES Permit

- A request for Sampling Reduction at the internal Outfall 005 (treated FGD wet scrubber wastewater) was submitted January 25, 2007. A response is expected by end of first quarter.

Roxboro Plant

Air Permit

- A permit application for the emergency fire water diesel engine was submitted in January 2007. Authorization to construct the fire water diesel engine has been received; however, the operating permit must be received to support operation of the Unit 2 scrubber during the second quarter 2007.
- Current opacity rules pre-date saturated gas streams from wet scrubbers and require representative measurements where condensed water vapor is not present. We will request revisions to the permit and underlying rules for opacity monitoring to include references to current federal regulations that exempt units with wet scrubbers from continuous opacity monitoring requirements.

Mayo Plant

NPDES Permit

- An ATC request for the wastewater treatment system is expected to be submitted in the first quarter with response desired by the end of the second quarter.
- An ATC request for a new oil/water separator is expected to be submitted by the end of the first quarter with response expected by the end of the third quarter.

Erosion and Sedimentation Control Plan

- Rev F. for the increase in disturbed land (from 35 acres to 98 acres) for the flue gas desulfurization system was submitted January 29, 2007. Additional plan revisions will be necessary as construction plans are developed.

Lee Plant

Air Permit

- A Title V permit application is due to be submitted in July 2007 in accordance with permit requirements associated with the low-NOx burner installation.

8. The results of equipment testing related to compliance with G.S. 143-215.107D.

During 2006, performance testing of the SO_2 scrubbers at Asheville Units 1 and 2 was completed. The testing confirmed that the scrubbers had achieved their performance guarantee of 97% removal efficiency.

During 2006, performance testing of the low-NOx burners (LNBs) at Sutton Unit 2 and Lee Unit 2 was completed. The testing demonstrated that the LNBs met their respective performance guarantees.

9. The number of tons of oxides of nitrogen (NOx) and sulfur dioxide (SO_2) emitted during the previous calendar year from the coal-fired generating units that are subject to the emissions limitations set out in G.S. 143-215.107D.

The total calendar year 2006 emissions from the affected coal-fired Progress Energy Carolinas units are:

NOx 46,501 tons
SO_2 175,226 tons

10. The emissions allowances described in G.S. 143-215.107D(i) that are acquired by the investor-owned public utility that result from compliance with the emissions limitations set out in G.S. 143-215.107D.

During 2006, PEC did not acquire any allowances as a result of compliance with the emission limitations set out in N.C. General Statute 143-215.107D.

11. Any other information requested by the Commission or the Department of Environment and Natural Resources.

There have been no additional requests for information from the North Carolina Utilities Commission or the Department of Environment and Natural Resources since the last report.

Appendix A

Progress Energy Carolinas, Inc's (PEC) Air Quality Improvement Plan Supplement

April 1, 2007

On June 20, 2002, Governor Easley signed into law SB1078, which caps emissions of nitrogen oxides (NOx) and sulfur dioxide (SO_2) from utility owned coal-fired power plants located in North Carolina. Under the law, G.S. § 143-215.107D, PEC's annual NOx emissions must not exceed 25,000 tons beginning in 2007 and annual SO_2 emissions must not exceed 100,000 tons beginning in 2009 and 50,000 tons beginning in 2013. These caps represent a 56% reduction in NOx emissions from 2001 levels and a 74% reduction in SO_2 emissions from 2001 levels for PEC.

PEC owns and operates 18 coal-fired units at seven plants in North Carolina. The locations of these plants are shown on Attachment 1. Under G.S. § 143-215.107D(f), "each investor-owned public utility...may determine how it will achieve the collective emissions limitations imposed by this section."

Nitrogen Oxides Emissions Control Plan

PEC has been evaluating and installing NOx emissions controls on its coal-fired power plants since 1995 in order to comply with Title IV of the Clean Air Act and the NOx SIP Call rule adopted by the Environmental Management Commission (EMC). Substantial NOx emissions reductions have already been achieved (46,500 tons of NOx in 2006 compared with 112,000 tons in 1997) and further reductions will ensure compliance with the Clean Smokestacks Act's 25,000 ton cap in calendar year 2007. This target will be achieved with a mix of combustion controls (which minimize the formation of NOx), such as low-NOx burners and over-fire air technologies, and post-combustion controls (which reduce NOx produced during the combustion of fossil fuel to molecular nitrogen), such as selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR) technologies.

Attachment 2 details PEC's North Carolina coal-fired electric generating units, their name plate generation capacity, installed NOx control technologies and those planned for installation. As technologies evolve or other circumstances change, a different mix of controls may be selected. Attachment 2 also projects annual NOx emissions on a unit-by-unit basis based on the energy demand forecast and expected efficiencies of the NOx emissions controls employed. This information is provided only to show how compliance may be achieved and is not intended in any way to suggest unit-specific emission limits. Actual emissions for each unit may be substantially different.

Sulfur Dioxide Emissions Control Plan

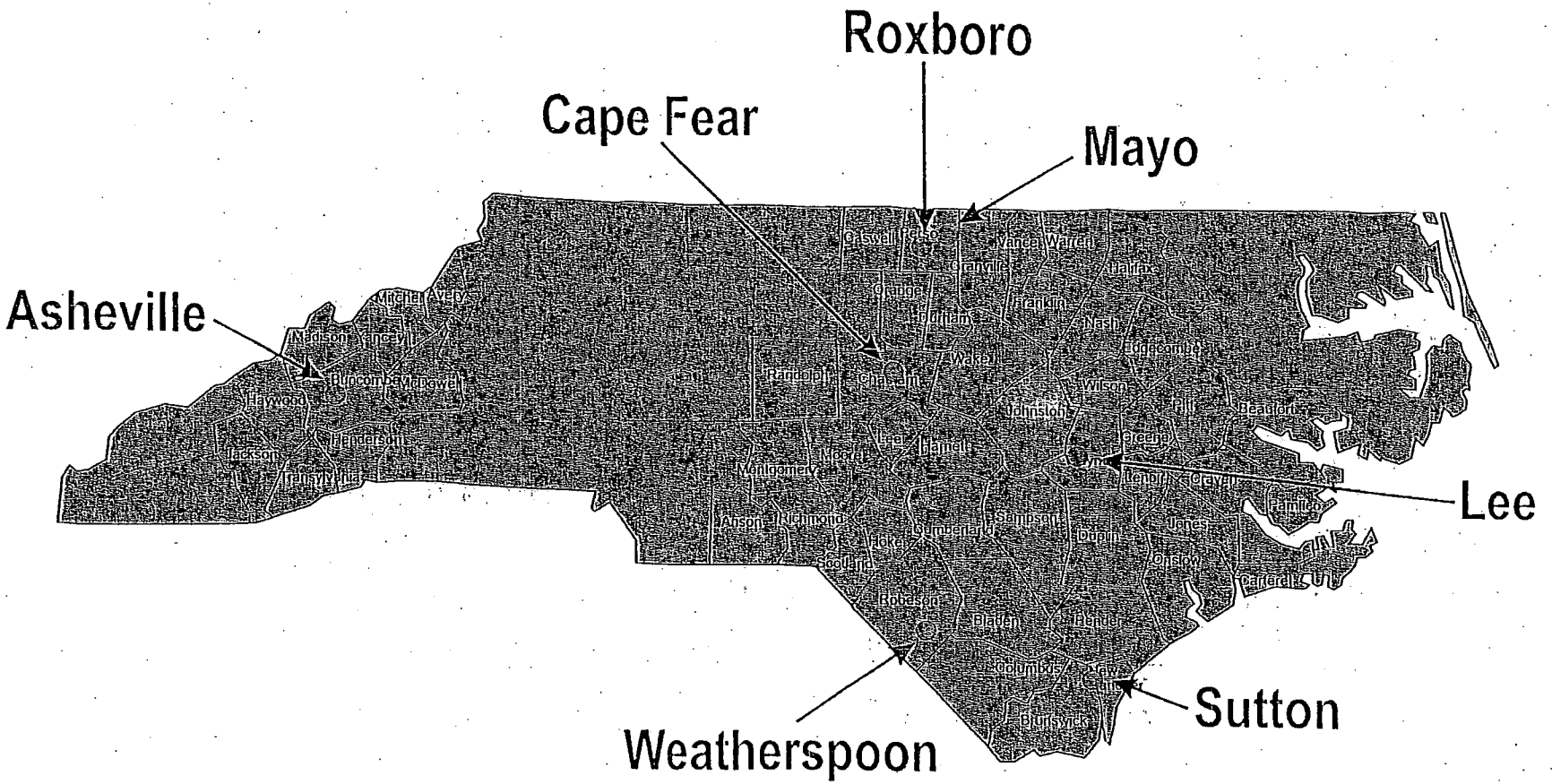
PEC will be installing wet flue gas desulfurization systems (FGD or "scrubbers") to remove 97% of the SO_2 from the flue gas of its Asheville, Roxboro and Mayo boilers. Since our last filing, PEC has continued its evaluation of the potential to use Furnace Sorbent Injection (FSI) technology at our Cape Fear Plant. FSI technology may offer a more cost-effective compliance solution for the Cape Fear Plant than the original plan to use scrubber technology. Use of the FSI technology also eliminates the need for a costly wastewater treatment system. We plan to test the FSI technology at PEC's Robinson Unit 1 in fall 2007. Since Robinson Unit 1 is similar in design to the Cape Fear units, the Robinson test will indicate whether the use of this technology will be effective at Cape Fear. The current compliance plan also contemplates the use of a dry scrubber at Sutton Unit 3. A dry scrubber at that unit represents a more cost effective compliance solution and also eliminates the need for a costly wastewater treatment system.

Wet scrubbers produce unique waste and byproduct streams. Issues related to wastewater permitting and solid waste disposal are being addressed for each site. PEC is treating the scrubber wastewater stream at the Asheville Plant using an innovative constructed wetlands treatment system to ensure compliance with discharge limits. A bioreactor technology will be used for the Roxboro and Mayo Plants.

A contract has been executed with a gypsum product end-user that will construct a facility near the Roxboro Plant to use the synthetic gypsum produced by the Roxboro and Mayo Plants for the manufacture of drywall products. PEC also has entered into an agreement that enables PEC to market and sell synthetic gypsum produced at the Asheville Plant.

Attachment 3 details PEC's North Carolina coal-fired electric generating units, their name plate generation capacity, installed SO_2 control technologies and those planned for installation. As technologies evolve or other circumstances change, a different mix of controls may be selected. Attachment 3 also projects annual SO_2 emissions on a unit-by-unit basis based on the energy demand forecast and expected efficiencies of the SO_2 emissions controls employed. These projections are based on the planned removal technologies and PEC's current fuel and operating forecasts. This information is provided only to show how compliance may be achieved and is not intended in any way to suggest unit-specific emission limits. Actual emissions for each unit may be substantially different.

Attachment 1: Location of PEC's Coal-Fired Power Plants in North Carolina



Attachment 2: PEC's 2007 NOx Control Plan for North Carolina Coal-fired Units

Unit	MW Rating	Control Technology	Operation Date[1]	Projected NOx Tons, 2007[2]
Asheville 1	198	LNB/AEFLGR/SCR	2007	1,304
Asheville 2	194	LNB/OFA/SCR		377
Cape Fear 5	143	ROFA/ROTAMIX		627
Cape Fear 6	173	ROFA/ROTAMIX		930
Lee 1	79	WIR		909
Lee 2	76	**LNB**	2006	740
Lee 3	252	LNB/**ROTAMIX**	2007	1,855
Mayo 1	745	LNB/OFA/SCR		1,712
Roxboro 1	385	LNB/OFA/SCR		1,067
Roxboro 2	670	TFS2000/SCR		1,021
Roxboro 3	707	LNB/OFA/SCR		2,092
Roxboro 4	700	LNB/OFA/SCR		1,999
Sutton 1	97	SAS		960
Sutton 2	106	**LNB**	2006	1,282
Sutton 3	410	LNB/ROFA/ROTAMIX		3,936
Weatherspoon 1	49			881
Weatherspoon 2	49			951
Weatherspoon 3	78	WIR		1,205
Total	5,111			23,848

AEFLGR – Amine-Enhanced Flue Lean Gas Reburn
LNB = Low NOx Burner
SNCR = Selective Non-Catalytic Reduction
OFA = Overfire Air
ROFA = Rotating Opposed-fired Air
ROTAMIX = Injection of urea to further reduce NOx
WIR = Underfire Air
TFS2000 = Combination Low-NOx Burner/Overfire Air
SAS = Separated Air Staging

[1] This is the operation date for the control technology installed to comply with the North Carolina Improve Air Quality/Electric Utilities Act only (shown in bold).

[2] Unit by unit emissions are illustrative only and specific emissions limits should not be inferred. Actual emissions in 2007 may be different from unit to unit.

Attachment 3: PEC's 2007 SO_2 Control Plan for North Carolina Coal-Fired Units

Unit	MW Rating	Technology	Operation Date	Projected SO_2 Tons, 2009[1]	Projected SO_2 Tons, 2013
Asheville 1	198	Scrubber	2005	379	360
Asheville 2	194	Scrubber	2006	405	398
Cape Fear 5	143	FSI	2011	7,004	3,379
Cape Fear 6	173	FSI	2012	8,629	4,300
Lee 1	79			2,925	2,504
Lee 2	76			2,883	2,470
Lee 3	252			11,384	6,892
Mayo 1	745	Scrubber	2009	9,406	1,532
Roxboro 1	385	Scrubber	2008	742	960
Roxboro 2	670	Scrubber	2007	978	1,260
Roxboro 3	707	Scrubber	2008	1,102	1,521
Roxboro 4	700	Scrubber	2007	1,376	1,402
Sutton 1	97			4,383	4,470
Sutton 2	106			4,335	4,353
Sutton 3	410	Scrubber	2012	17,907	1,019
Weatherspoon 1	49			1,599	1,778
Weatherspoon 2	49			1,580	1,701
Weatherspoon 3	78			2,917	3,079
Total	5,111			79,934	43,378

FSI = Furnace Sorbent Injection

[1] Unit by unit emissions are illustrative only and specific emissions limits should not be inferred. Actual emissions in 2009 and 2013 may be different from unit to unit.

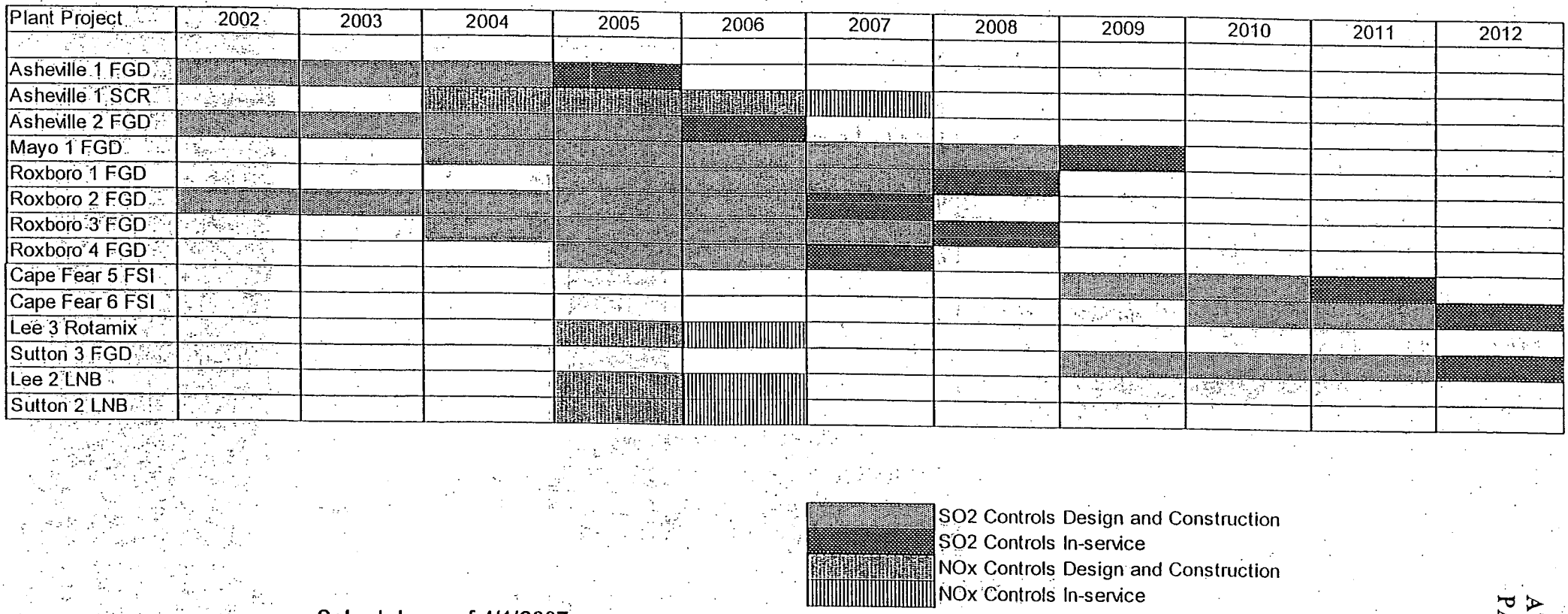
Appendix B
PEC's Actual Costs Through 2006 and Projected Costs Through 2013 for Clean Smokestacks Act Compliance (in thousands)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Asheville 1 FGD	$ 100	$ 17,652	$ 33,571	$ 25,769	$ 3,930	-$ 1,132	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 81,894
Asheville 1 SCR	$ 0	$ 0	$ 688	$ 1,428	$ 14,608	$ 19,063	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 35,783
Asheville 2 FGD	$ 100	$ 7,742	$ 28,190	$ 24,238	$ 11,701	-$ 992	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 71,180
Asheville FGD Common	$ 467	$ 0	$ 0	$ 0	$ 0	-$ 467	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Mayo 1 FGD	$ 187	$ 0	$ 276	$ 644	$ 22,794	$ 102,187	$ 90,669	$ 19,891	$ 0	$ 0	$ 0	$ 0	$ 236,950
Roxboro FGD Common	$ 403	$ 5,561	$ 10,033	$ 51,717	$ 72,934	$ 20,277	$ 22,155	$ 495	$ 0	$ 0	$ 0	$ 0	$ 183,576
Roxboro 1 FGD	$ 0	$ 0	$ 0	$ 3,135	$ 12,164	$ 19,380	$ 62,807	$ 884	$ 0	$ 0	$ 0	$ 0	$ 98,370
Roxboro 2 FGD	$ 120	$ 3,574	$ 6,848	$ 20,782	$ 46,014	$ 19,166	$ 1,123	$ 0	$ 0	$ 0	$ 0	$ 0	$ 107,627
Roxboro 3 FGD	$ 0	$ 0	$ 241	$ 10,628	$ 36,661	$ 44,857	$ 18,891	$ 255	$ 0	$ 0	$ 0	$ 0	$ 111,251
Roxboro 4 FGD	$ 0	$ 0	$ 0	$ 9,075	$ 28,550	$ 56,309	$ 9,346	$ 0	$ 0	$ 0	$ 0	$ 0	$ 103,279
Cape Fear 5 LSI	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 5,120	$ 8,152	$ 9,844	$ 0	$ 0	$ 23,116
Cape Fear 6 LSI	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 5,579	$ 18,874	$ 10,715	$ 0	$ 25,163
Lee 3 Rotamix	$ 0	$ 0	$ 0	$ 198	$ 6,424	$ 3,197	$ 27	$ 0	$ 0	$ 0	$ 0	$ 0	$ 9,846
Sutton 3 FGD	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 10,378	$ 60,142	$ 61,607	$ 44,211	$ 6,610	$ 182,948
Lee 2 LNB	$ 0	$ 0	$ 133	$ 273	$ 1,886	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 2,292
Sutton 2 LNB	$ 0	$ 0	$ 0	$ 236	$ 1,900	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 2,136
Total without Wastewater	$ 1,377	$ 26,528	$ 80,187	$ 168,118	$ 259,566	$ 281,860	$ 205,019	$ 37,026	$ 73,867	$ 80,325	$ 54,926	$ 6,610	$ 1,275,410
Asheville WWT	$ 0	$ 0	$ 0	$ 12,365	$ 1,289	$ 200	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 13,853
Mayo WWT	$ 0	$ 0	$ 0	$ 0	$ 0	$ 6,117	$ 10,813	$ 4,638	$ 0	$ 0	$ 0	$ 0	$ 21,568
Roxboro WWT	$ 0	$ 0	$ 0	$ 791	$ 11,965	$ 28,250	$ 2,708	$ 32	$ 0	$ 0	$ 0	$ 0	$ 43,746
Sutton WWT	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Total Wastewater Treatment	$ 0	$ 0	$ 0	$ 13,156	$ 13,253	$ 34,567	$ 13,521	$ 4,670	$ 0	$ 0	$ 0	$ 0	$ 79,167
Total NC Clean Smokestacks Act	$ 1,377	$ 26,528	$ 80,187	$ 181,274	$ 272,819	$ 316,427	$ 218,540	$ 41,696	$ 73,867	$ 80,325	$ 54,926	$ 6,610	$ 1,354,577
Estimated AFUDC						$ 710	$ 11,720	$ 6,470	$ 1,332	$ 2,857			

Notes: Costs reflect the Power Agency contribution.

Historic year costs are actual, current year costs are projected, and future year costs are escalated.

Appendix C
PEC's Clean Smokestacks Act Compliance Plan



Schedule as of 4/1/2007

ATTACHMENT B
PAGE 20 OF 20

REPORT OF THE PUBLIC STAFF ON COSTS INCURRED AND AMORTIZED BY DUKE ENERGY CAROLINAS, LLC IN COMPLIANCE WITH SESSION LAW 2002-4

Docket No. E-7, Sub 718

May 25, 2007

Section 14 of Session Law 2002-4 ("the Clean Smokestacks Act" or "the Act") requires the Department of Environment and Natural Resources ("DENR") and the Utilities Commission ("Commission") to report, by June 1 of each year, on the implementation of the Act to the Environmental Review Commission and the Joint Legislative Utility Review Committee. The May 30, 2003, report of DENR and the Commission states that the Public Staff will audit the books and records of the investor owned utilities on an ongoing basis in regard to the costs incurred and amortized in compliance with the Act. The Public Staff has undertaken such a review, focusing on the verification of costs related to complying with the Act, the amortization of those costs, and the operating results of emission reduction equipment installed by Duke Energy Carolinas, LLC ("Duke"). This report presents the Public Staff's findings for the twelve months ended December 31, 2006.

I. Compliance Plan Summary

Duke's original plan to install Selective Non-catalytic Reduction ("SNCR") technology to remove NO_x and flue-gas desulfurization technology ("scrubbers") to remove SO_2 to comply with the Act remains practically the same with only minor changes to the compliance schedule and plan. Duke has indicated that it is installing Selective Catalytic Reduction ("SCR") technology at its Marshall Unit 3 to comply with other regulatory requirements for NO_x reductions in the Charlotte region. The new SCR replaces the SNCR equipment that was installed at Marshall Unit 3 to comply with the Act. Duke has redeployed the SNCR equipment from Marshall Unit 3 to Unit 4. The Public Staff is not aware of other similar modifications to the compliance plan.

II. Environmental Compliance Costs

Duke is required by the Act to submit a report to the Commission and to DENR on or before April 1 of each year containing its actual environmental compliance costs incurred during the previous calendar year. As defined by G.S. 62-133.6(a)(2), "environmental compliance costs" include only capital costs.

In its Compliance Plan Annual Update for 2007 ("2007 Compliance Update"), Duke reported that its actual environmental compliance costs in calendar year 2006 were $427,984,429. The cumulative environmental compliance costs incurred by Duke through 2006 were $901,380,056, as follows:

Year 2001	$ 692,433
Year 2002	1,024,223
Year 2003	18,424,921
Year 2004	106,834,479
Year 2005	346,420,000
Year 2006	427,984,429
Total	$901,380,485

Duke's expenditures to date involve emission reduction technologies at its Allen, Belews Creek, Buck, Cliffside, Dan River, Marshall, and Riverbend facilities. Environmental compliance costs were incurred primarily for engineering, equipment procurement, contracting, construction, and field performance testing.

As part of its review, the Public Staff requested information from Duke on the project costs, invoices documenting costs, and the purpose of the costs. Duke provided project cost sheets delineating actual project costs by year into the following categories: (1) direct labor costs; (2) labor loads; (3) contract costs; (4) material costs; (5) overhead costs; and, (6) other costs. These costs are as follows:

Direct Labor	$ 4,579,146
Labor Loads	1,306,856
Contracts	407,124,522
Materials	1,419,497
Overheads	213,822
Other	13,340,586
Total	$427,984,429

The project cost sheets were supported by project detail reports that incorporated all expenditures for a particular category or group. The Public Staff selected invoices in each category from the detailed spreadsheets and requested Duke to provide specific information on the selected costs. The Public Staff also had discussions with Duke personnel to gain a better understanding of the cost items charged to each specific project. Duke provided documentation to support each selected cost.

Duke has estimated its environmental compliance costs at $1,965,260,200, as set forth on Exhibit C in its 2007 Compliance Update, compared to an estimate of $1,731,510,400 filed as part of Duke's 2006 update. The 2007 projection represents an increase of $465,260,200 or 31% over Duke's original estimate of $1,500,000,000, as set forth in G.S. 62-133.6(b). According to Duke personnel, several factors have contributed to the increase in the estimate, including an industry-wide ramp-up of similar environmental compliance work nationwide and its effect on labor availability, and increases in the prices for materials.

Duke is using third party verification to ensure that its fixed price estimates for each project are consistent with market prices. The Public Staff will review the

verifications and will continue to monitor the factors causing increases in the environmental compliance cost estimates.

III. Amortization of Costs

In Section 9 of the Act [G.S. 62-133.6(b)], the investor owned utilities are allowed to accelerate the recovery of their estimated environmental compliance costs over a seven-year period, beginning January 1, 2003, and ending December 31, 2009. The statute requires that a minimum of 70% of the environmental compliance costs be amortized before December 31, 2007, when the rate freeze period expires. In Duke's case, this amount is $1,050,000,000. The annual levelized amount is $214,285,714. The maximum amount that can be amortized in any given year is 150% of the annual levelized environmental compliance costs or $321,428,000.

Using the protocols established by the Act and subsequent Commission orders, Duke reported that its environmental compliance costs amortization for 2006 was $225,236,000. The Public Staff reviewed Duke's quarterly amortization filings and supporting journal entries and concluded that the amounts appear to be accurate. The cumulative amortization to date is $862,665,142.

IV. Contracts

No contracts were reviewed during this audit period.

V. Site Inspections

On May 8, 2007, the Public Staff conducted an inspection of Duke's Marshall Steam Station in Mooresville, North Carolina. All but one of the scrubbers were completed and operational. The remaining scrubber is scheduled for tie-in later by the end of May. All of the related facilities (reagent storage and processing, wastewater disposal system, and byproduct removal) for SNCRs and scrubbers were installed and operational. Once the remaining scrubber is brought online, all of the work intended for the Marshall Steam Station to comply with the Act will have been completed.

The Public Staff will continue to inspect other facilities as Duke implements its compliance plan.

REPORT OF THE PUBLIC STAFF ON COSTS INCURRED AND AMORTIZED BY PROGRESS ENERGY CAROLINAS, INC. IN COMPLIANCE WITH SESSION LAW 2002-4

Docket No. E-2, Sub 815

May 25, 2007

Section 14 of Session Law 2002-4 ("the Clean Smokestacks Act" or "the Act") requires the Department of Environment and Natural Resources ("DENR") and the Utilities Commission to report, by June 1 of each year, on the implementation of the Act to the Environmental Review Commission and the Joint Legislative Utility Review Committee. The May 30, 2003, report of DENR and the Commission states that the Public Staff will audit the books and records of the investor owned utilities on an ongoing basis in regard to the costs incurred and amortized in compliance with the Act. The Public Staff has undertaken such a review, focusing on the verification of costs related to complying with the Act, the amortization of those costs, and the operating results of emission reduction equipment installed by Progress Energy Carolinas, Inc. ("PEC"). This report presents the Public Staff's findings for the twelve months ended December 31, 2006.

I. Compliance Plan Summary

PEC's original plan to install Selective Catalytic Reduction ("SCR") technology to remove NO_x and flue-gas desulfurization technology ("scrubbers") to remove SO_2 to comply with the Act, remains practically the same with minor changes being made to the compliance schedule and plan.

The scrubber at Asheville Unit 2 was placed into operation in May 2006. The SCR on Asheville Unit 1 is expected to be online in 2007. The Roxboro (Units 1, 3, and 4) and Mayo scrubber construction projects continue with substantial work being done at both facilities. The scrubber for Roxboro Unit 2 started operation in May 2007.

Lee Unit 2 and Sutton Unit 2 initiated operation of low NOx burners in 2006. Lee Unit 3 is expected to begin operation of a "Rotamix" system in 2007.

PEC is also looking into installing Furnace Sorbent Injection (FSI) technology that promises a lower cost means of SO_2 removal. PEC indicates that testing of similar equipment at its Robinson facility in South Carolina will affect its decision to pursue FSI technology rather than scrubbers at the Cape Fear units.

II. Environmental Compliance Costs

PEC is required by the Act to submit a report to the Commission and to DENR on or before April 1 of each year containing the actual environmental compliance costs

incurred during the previous calendar year. As defined by G.S. 62-133.6(a)2, "environmental compliance costs" include only capital costs.

In its calendar year 2006 Progress Report ("2006 Report"), PEC reported that its actual environmental compliance costs in calendar year 2006 were $272,819,398. The cumulative environmental compliance costs incurred by PEC through 2006 are $560,410,636, as follows:

Year 2002	$ 1,391,731[1]
Year 2003	26,604,199
Year 2004	78,321,742
Year 2005	181,273,566
Year 2006	272,819,398
Total	$560,410,636 [2]

PEC's expenditures to date involve emission reduction technologies at its Asheville, Mayo, Roxboro, Sutton, and Lee facilities. Environmental compliance costs were incurred for project studies and investigations, engineering, contracting, construction, and equipment acquisition.

As part of its review, the Public Staff requested information from PEC on the project costs, invoices documenting costs, and the purpose of the costs. PEC provided project cost sheets delineating actual project costs by year into the following categories: (1) company labor costs; (2) materials costs; (3) outside services costs; (4) burdens; and (5) other costs. These costs are as follows:

Company Labor	$ 2,964,099
Material	128,130,618
Outside Services	126,479,796
Labor Loads/Overheads	4,877,740
Other	10,367,145
Total	$272,819,398

The project cost sheet was supported by detailed spreadsheets for a particular category. The Public Staff selected invoices from the detailed spreadsheets and

[1] Per Appendix B, costs for 2002, 2003, and 2004 are slightly different from the costs reported for those years in previous reports. For 2004, a majority of the difference relates to a Company adjustment to include Asheville wastewater treatment (WWT) costs in the FGD line items for Asheville. In 2005, PEC began reporting WWT project costs separately.

[2] PEC's estimated and reported environmental compliance costs exclude certain costs attributable to the portions of its Mayo and Roxboro facilities that are owned by the NC Eastern Municipal Power Agency (NCEMPA). According to PEC's FERC Form No. 1 for 2005, PEC entered into an agreement with NCEMPA in 2005 to limit its aggregate cost associated with PEC's environmental compliance costs to approximately $38,000,000. In a November 2, 2006, filing with the Commission in this docket, PEC stated that its estimated compliance costs have now further increased and that the $37.9 million cap is $29.1 million less than NCEMPA's full ownership share of the total Clean Smokestacks costs.

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requested PEC to provide specific information on the selected costs. The Public Staff has had discussions with PEC personnel regarding the cost items charged to projects. PEC has provided documentation to support the selected costs.

PEC has estimated its environmental compliance costs at $1,354,577,000, as set forth on Appendix B in its 2006 Report. This represents an increase of $541,577,000 or 66.6% over PEC's original estimate of $813,000,000, as set forth in G.S. 62-133.6(b).

According to PEC personnel, several factors continue to contribute to the increase in the estimate, including significant increases in the price of skilled labor and materials, increases in equipment costs due to the limited number of suppliers available, and adjustments of future costs based on actual costs of projects already completed or substantially completed.

PEC has previously cited its decision to change the scrubber technology on its units from a dry scrubber to a wet scrubber. This decision has further increased the costs because of the need for wastewater treatment. In its 2006 Report, PEC has indicated that it is now considering a dry scrubber for Sutton Unit 3, and that this represents a more cost effective compliance solution. While no expenditures have been made to date on developing the scrubber for Sutton Unit 3, the Public Staff understands that unit specific criteria, system-wide emission targets, existing scrubber performance, and costs are all factors involved in the decision-making process. The Public Staff will continue to monitor this development.

III. Amortization of Costs

In Section 9 of the Act [G.S. 62-133.6(b)], the investor owned utilities are allowed to accelerate the cost recovery of their estimated environmental compliance costs over a seven-year period, beginning January 1, 2003, and ending December 31, 2009. The statute requires that a minimum of 70% of the environmental compliance costs be amortized before December 31, 2007, when the rate freeze period expires. In PEC's case, this amount is $569,100,000. The annual levelized amount is $116,142,857. The maximum amount that can be amortized in any given year is 150% of the annual levelized environmental compliance costs or $174,214,285.

Using the protocols established by the Act and subsequent Commission orders, PEC reported that its environmental compliance costs amortization for 2006 is $140,000,000. The Public Staff has reviewed PEC's quarterly amortization filings, as well as the journal entries recorded, and concluded that the reported amounts appear to be accurate. The cumulative amortization to date is $535,218,808.

IV. Contracts

No contracts were reviewed during this audit period.

V. Site Inspections

On May 21, 2007, the Public Staff conducted a site inspection of PEC's Mayo and Roxboro facilities in Person County, North Carolina. Significant construction is occurring at both facilities. Roxboro Unit 2 is now being scrubbed, with gypsum being temporarily trucked to a holding area until the wallboard facility is completed. The wallboard facility will take ownership of the gypsum once it is conveyed across the intake canal. Most of the other support equipment common to all scrubbers is in place and the remaining units will be placed in service as each unit enters a scheduled outage period over the next two years.

With respect to the Mayo facility, foundation work is progressing on the scrubber itself, the building housing the equipment, and the stack. Construction on limestone handling and gypsum removal facilities has not yet started. PEC plans to truck limestone and gypsum to and from the Mayo facility to the Roxboro facility.

It is the intent of the Public Staff to continue inspections of other coal-fired generating facilities as PEC continues to install emission reduction equipment in its boiler units.

2007

ENVIRONMENTAL REVIEW COMMISSION

DECEMBER 19, 2007

MINUTES

MINUTES
ENVIRONMENTAL REVIEW COMMISSION
December 19, 2007

The Environmental Review Commission met Wednesday, Wednesday, December 19, 2007 at 9:30 a.m. in Room 544 of the Legislative Office Building. Co-Chairperson Charlie Albertson presided.

Members present were Co-Chairperson Albertson, Co-Chairperson Lucy Allen, Co-Chairperson Pryor Gibson, Senator Katie Dorsett, Senator A. B. Swindell, Representative Pricey Harrison, Senator Eleanor Kinnaird, Representative Ruth Samuelson, Representative Edith Warren and Representative Larry Womble. Staff present were Commission Counsel George Givens, Assistant Counsel Jeffery Hudson, Assistant Counsel Jennifer McGinnis, Assistant Counsel Susan Iddings, Commission Analyst Jennifer Mundt, Research Assistant Mariah Matheson and Commission Clerk Jessica Kozma Bennett.

A meeting notice was distributed to staff, members and outside parties via regular mail and electronically and is included as an attachment in these minutes as **Exhibit A**. The meeting agenda and visitor's registration sheets are attachments to these minutes and referred as **Exhibit B** and **Exhibit C**.

Co-Chairperson Albertson called the meeting to order at 9:40 a.m. and welcomed members after dealing with technical issues with the microphones. Senator Albertson then called on Commission Counsel Givens to give an overview of the day's agenda. Mr. Givens began noting a ready only packet **(Exhibit D)** and said that the agenda was largely self-explanatory. Read only reports, he said, are held for future presentations. He then said that minutes were distributed for members and would be voted on that day **(Exhibit E).**

Continuing to review the day's agenda, Mr. Givens noted that Item Five was a follow up on the drought following an extensive series of presentations on the drought at the October 31 meeting. In Item 6, the Hazardous Waste management presentation, Mr. Givens noted that the most important part would be the transfer of the number of sites to other areas. He continued saying there were two reports on legislative initiatives in recent years, including a Title Five Air Quality Program. Mr. Givens announced that the first of five Water Allocation Public Hearings was scheduled for December 21 in Charlotte. He also noted two meetings in Asheville January 9 and 10, on for Water Allocation and another for House Bill 1756 regarding the construction on steep slopes. He then briefly reviewed the remainder of the agenda and the meeting moved to Agenda Item Four.

Co-Chairperson Gibson asked Mr. Givens for a 30-second review of the Water Allocation Public Hearing December 21. Mr. Givens said he would look at how many would show up, then hopefully form a colloquy. It is Mr. Givens then said it was not his. intention to have people speak in the order they arrive but to beckon as many ideas from the public as possible. Co-Chairperson Gibson followed up asking how the public was

informed of the meeting. Mr. Givens said that he had been contacted by the media and that the meeting was not arranged as a media event but for the public. Co-Chairperson Gibson then asked if there was a second date chosen for the January 10 Steep Slope Public Hearing in Asheville.

Co-Chairperson Albertson then asked the Commission for approval of the October minutes. With no discussion that minutes were approval through unanimous vote.

Co-Chairperson Albertson then called on Mr. Thomas Fransen, Chief of the River Basin Management Section of the Division of the Division of Water Resources of DENR. Mr. Fransen is called to give an update on current drought conditions in light of current conservation efforts and rain events. Although a copy of Mr. Fransen's presentation was not given to member or the audience, a copy of the presentation is included for reference in the attachments and is noted as **Exhibit F.**

Mr. Fransen opened his presentation showing current drought conditions statewide. A rain event at the end of October, he said did not give the State the relief needed from the drought, "I wished our recent inch and a half of rain helped us but it didn't," he said. Despite the rain, the State's drought conditions had returned to the same severity as before the rain within weeks following. He showed how the drought had move eastward and not the entire state shared the same intensity of drought. The past 180 days were the driest on record in 80 years, he said, continuing that this was a long-term deficit which greatly impacts water supplies.

He then moved to a slide showing steam- and groundwater levels, noting that they are all in exceptional drought conditions. Mr. Fransen said that there had been slight improvement of steam- and groundwater levels in the West but not enough improvement to alleviate the drought.

Following the groundwater slide Mr. Fransen discussed public water supply systems statistics. Of the 292 public water supply systems in North Carolina 163 are under voluntary conservation and 173 are under mandatory conservation. None were considered in "emergency," but there were 800,000 people living in Tier 1 (extreme drought) areas. At the December 20 meeting there were 14 public water systems classified as Tier 1. Senator Kinnaird asked if Charlotte was Tier 1. Mr. Fransen replied that Charlotte had more than a 100 day water supply. Senator Dorsett asked about Greensboro. Mr. Fransen said that he had been in communication with the City but did not personally what Greensboro's water supply was. Had Greensboro have only 30 days of water supply remaining it would be on the list, but purchasing water may have helped Greensboro remain off the Tier 1 list. He also explained the fluidity of the list, some systems one the list currently were not in the list before.

Mr. Fransen said that forecast conditions were bleak and that we were in an La Nina effect, meaning conditions will continue or worsen thorugh the winter. Again, the far west may potentially see some slight relief later but the rest of the state will remain the same.

He then spoke of Army Corps of Engineers projects at Falls Lake, noting that Falls Lake is running at nine percent of normal flow, and added that Jordan and Scott lakes are down but not as severely as Falls Lake. Information from the Corps shows that water at Falls Lake—if current conditions continue—will be depleted of water by April.

Co-Chairperson Albertson called for questions and asked what will happen in a community that falls into emergency situation and what constitutes an emergency. Mr. Fransen answered that emergency is a function and that the only system in emergency was Siler City. In Siler City, water was trucked in for industry. Current thinking on the emergency situations, he said, was to solve it when an emergency happened.

Co-Chairperson Albertson followed up and asked if we are doing as much as we can. Mr. Fransen answered that we were. Co-Chairperson Albertson then recognized Senator Kinnaird.

Senator Kinnaird asked if the State was likely to start looking at statewide programs to save wastewater, citing a current program in California.

Mr. Fransen answered that the drought is starting to make people rethink how water is used in North Carolina. North Carolina has two issues: one, how to get through the current crisis and two) how do we deal with the longterm, he said.

Senator Dorsett was then recognized and asked if there was anything we could do at the state level to encourage those in Tier 1 status to be more serious about conservation.

Mr. Fransen said that he had worked with municipalities to encourage more conservation, including incorporating outreach with the League of Municipalities.

Representative Allen then asked if the state is working with private water supply companies. Mr Fransen said that such companies fall under the control of the North Carolina Utilities Commission and that there had been communication.

Senator Kinnaird questioned rates for water use. Mr. Fransen said that there is a downside to conservation and that there is a proposed drought rate structure to more appropriately charge those conserving. Sen. Kinnaird added that she knew of a rate structure similar to the suggested drought structure.

Co-Chairperson Albertson thanked Mr. Fransen and recognized Elizabeth W. Cannon, Chief of the Hazardous Waste Section of the Division of.Waste Management with DENR. A report entitiled "Resident Inspector Program, 2007 Annual Report" was distributed to Commission members and is attached to the minutes as **Exhibit G.**

Ms. Cannon opened her remarks thanking the Commission. She said she would discuss the hazardous waste report distributed to members and also the implementation status of SL 2007-107, which are recommendations from the Governor's Task Force on Hazardous Materials. The Resident Inspector Program began in 1991 to ensure a high rate of compliance among hazardous waste storage facilities by subjecting those facilities to frequent and unannounced inspections. On average, she said, a facility may be inspected two to six times a month depending on the "size and complexity" of the operation. Inspections are solely for commercial facilities that manage hazardous waste from other companies.

She continued that when an inspection occurs the inspector looks at not only compliance with hazardous waste regulation but also compliance with other regulatory programs, including workplace safety, transportation, air omissions and wastewater discharge. If an inspector finds a violation other than for hazardous waste regulation, proper authorities, such as OSHA, are altered.

There are ten facilities across North Carolina, she continued, consisting of four in the Charlotte area, three in the Greensboro-Triad area, one in metropolitan Raleigh, one in Granville County and one in Robeson County. The largest facility is in Reidsville and

receives more than half of all facilities combined. In all, some 6 million gallons of hazardous waste is processed annually by these ten facilities, or 26000 tons. Looking over the past two years there is a decline in processed waste: 3 million less gallons were processed in 2006-2007 as were in 2005-2006.

The program is staffed by a supervisor, four inspectors and an administrative assistant, she continued and is funded through fees from the facilities totaling $295,000 per year. In the past year there were two notices of violation at the ten facilities, 2 compliance order and fix corrected deficiencies. The primary order was issued to the EQ Hazardous Waste facility in Apex based on conditions that preceded a fire in March of 2007. Penalties of roughly $500,000 settled for more than $400,000, and EQ has voluntarily agreed to withdraw permit for facility. The facility is currently in the "cleaning" process and Ms. Cannon said she expects EQ to have a clean closure.

She then moved to the implementations of S. L. 2007-107 and explained the sections major provisions, including requiring facilities to have two new types of financial assurance to cover offsite sampling and onsite cleanup should a catastrophic event occur. Also because of the new law, the State is currently working with facilities and local governments to better communication between the two, facilities have to notify residents within a quarter-mile of the facilities existence, 24-hour security is required, and daily inventory information must be kept in a off-site location.

Albertson asked if Ms. Cannon felt good about the implementation of new regulation. Ms. Cannon replied that she did. Senator Dorsett was then recognized and asked what happens to funds raised from violations. Ms. Cannon replied that they go to school district as pursuant to State law.

Co-Chairperson Albertson thanked Ms. Cannon and then recognized Dexter R. Matthews, director of the Division of Water Management with DENR, to discuss a recent report on the Inactive Hazardous Sites Program. The report was distributed to Commission members and is included with the minutes as **Exhibit H.** A second report entitled "Annual Report to the North Carolina General Assembly: The N. C. Brownfields Program" was also distributed to members and is included in the minutes as **Exhibit I.**

Mr. Matthews began his discussion saying that he had two reports and that the majority of his discussion would focus on the reorganization within his department. He opened saying the prior presentation on the ground "really" focused the issue "throughout North Carolina so far as groundwater contamination" is concerned. He said the State needed to move as quickly as possible for groundwater contamination cleanup and that 50 percent of North Carolinians get their drinking water from groundwater sources.

Returning to the discussion of reorganization, Mr. Matthews said he was directed late last year to combine with the Division of Water Quality because of limited resources in the two divisions and crossed-remediation programs. The consolidation occurred February 20. Formerly both divisions as well as others may have remediation authority over a given site, including the Superfund. Divisions could have duplicate sites.

As a result of the consolidation, 16 positions and 300 cases were transferred from the Division of Water Quality to Waste Management. He continued saying the division on the Brownfields Program to look at new sites and see if they can be development. Such a concentration would run throughout the year.

Even with the consolidation the Division still sees 1200 sites a year for remediation, and those sites have to be handled on a priority basis due to limited

resources. Even so, Mr. Matthews said the reorganization was an "excellent step" and that given the drought and its impact on groundwater.

Co-Chairperson Albertson thanked Mr. Matthews and asked for questions. He recognized Representative Harrison, who asked what program the Department had to test groundwater in areas near schools. Mr. Matthews said such sites are being ranked for priority

Representative Harrison followed up asking if this pertained to all sites, of which Mr. Matthews said no, just for old landfills. The reason, he continued, was because of funding. Currently there is no funding from the EPA for inactive sites and existing money for orphan sites is running out. Mr. Givens asked why 1200 sites are coming in every year, and Mr. Matthews said that sites are taken from a number of sources and that a lot of sites come from real estate transactions.

Co-Chairperson Albertson asked if he saw 1200 sites coming in year after year, of which Mr. Matthews replied he did as numbers from recent years have remained consistent.

Representative Gibson asked if there is any way to model what kind of resources needed and costs needed for increase in sites. Mr. Matthews said a plus is that the Division can focus on the number of sites coming in, but as for costs to remediate sites is not established. Sites are being remediated on a priority basis, he continued. Representative Gibson followed up asking if budgetary considerations were made for the reorganization. Mr. Matthews replied that there were considerations.

Representative Allen then gave an example of a site in Franklin County of a country store when a gas line was torn. When investigated the store had an underground leak in a 5,000-gallon tank. She noted that there is no money to deal with these situations.

With limited discussion among member Co-Chairperson Albertson thanked Mr. Matthews. Mr. Givens then told the Commission that Waste Industries and Blackbear Landfill had recently filed a suit against the State in Wake County Superior Court and a report would be given to the Commission.

Edythe M. McKinney was recognized by Co-Chairperson Albertson to discuss the One-Stop Permit Assistance Program regarding environmental permits taking more then 90 days. She began saying a complete report would be ready in March. Today, she said, would be a progress report. A brochure was then distributed to Commission members and is in the minutes as **Exhibit J.** She explained that the brochure was to capture the attention of resident and to outline that "if you are doing certain things you need a permit."

An overview of the program was also distributed and is included in the Minutes as **Exhibit K. Exhibit L** shows permit issued through the program for the years of 2006 and 2007. She asked the Commission to understand that the program is new and getting an overview of the program will take time. But, in 2007 there was a 12 percent increase in permits—roughly 1200—with the vast majority in stormwater permits and sedimentation and erosion control. Ms. McKinney said that program began as a coastal program but has spread through the State.

Things that relate to the overall success of the program included that processing time had reduced and during the internal process had reduced as well. She noted a stable, consistent staff with the program and that the staff was surveyed on how to do a better job. Responses included adding engineers and adding another assistant.

Co-Chairperson Albertson called for questions among Commission members. Representative Samuelson commented that while serving as a town commissioner in Charlotte additional fees were added for those dragging on permits. Senator Kinnaird suggested that the General Assembly fund a program for all to have access to the One-Stop Program. Senator Kinnaird follow up asking how small businesses afford fees. Ms. McKinney said that the program's permitting did not cover residential homes and would not cover convenience marts.

Representative Harrison commented that she had heard concerns regarding review time from residents in the coastal area and asked when fees would allow for more staff.

Ms. McKinney replied that one issue is whether there is a balance between compliance and permitting. Particularly in the coastal area, she added, there had been a decrease in permits.

Co-Chairperson Albertson thanked Ms. McKinney and then recognized Mr. Keith Overcash, Director of the Division of Air Quality of DENR to discuss the "Title V Air Quality Permit Program Accountability Report," included in these minutes as **Exhibit M**.

Mr. Overcash said that the Division of Air Quality is fee supported and does not receive appropriations from the General Assembly. He then explained that Title V refers to the Clean Air Act of 1990, which put in a permitting program for major facilities with emit 25 tons or more of hazardous air pollutants or 100 tons of regulated pollutants. Authority for the program is statutory, he continued and fees are set by a rules process. Mr. Overcash said that regarding funding there had been a surplus for several years and because of that fees remained stable. Most industries covered under Title V include major utilities, major paper manufacturers and other large chemical users.

Mr. Overcash said there is a one time application fee for a five year permit. Permits last five years and there is not a renewal fee. Industries pay according to a rate of currently $18.10 per ton. He then said there was a potential of deficits due to an increased Consumer Price Index and increases in expenses. Because of the State economy the program's workload as well as regulatory demands are increasing, adding additional financial stress to the program, he added. He continued through his presentation which is included in the Minutes as **Exhibit N.**

Co-Chairperson Albertson thanked Mr. Overcash and asked for questions from the Commission. Hearing

Co-Chair Charlie Albertson
Presiding

Co-Chair Lucy Allen

Jessica Kozma Bennett

Co-Chair Pryor Gibson

Exhibit A

General Assembly of North Carolina

Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

CO-CHAIRS
SENATOR CHARLES W. ALBERTSON
SENATOR DANIEL G. CLODFELTER

REPRESENTATIVE LUCY T. ALLEN
REPRESENTATIVE PRYOR A. GIBSON

MEMBERS
SENATOR STAN W. BINGHAM
SENATOR KATIE G. DORSETT
SENATOR JAMES S. FORRESTER
SENATOR ELEANOR G. KINNAIRD
SENATOR A.B. SWINDELL
SENATOR DAVID F. WEINSTEIN

REPRESENTATIVE JAMES A. HARRELL
REPRESENTATIVE PRICEY HARRISON
REPRESENTATIVE CAROLYN H. JUSTICE
REPRESENTATIVE RUTH SAMUELSON
REPRESENTATIVE EDITH D. WARREN
REPRESENTATIVE LARRY W. WOMBLE

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JENNIFER L. McGINNIS
ASSISTANT COMMISSION COUNSEL

JENNIFER R. F. MUNDT
COMMISSION ANALYST

MARIAH B. MATHESON
COMMISSION ASSISTANT

JESSICA BENNETT
COMMISSION CLERK

30 November 2007

TO: Members of the Environmental Review Commission
Interested Parties

FROM: George F. Givens, Commission Counsel
Jessica Bennett, Commission Clerk

RE: **Notice of Commission Meeting**
Notice of Planning Meeting
Schedule of Future Meetings
Meetings of Interested Parties (605 Working Groups)
Additional Information

COMMISSION MEETING:

The Environmental Review Commission (Commission) will meet at 9:30 a.m. Wednesday 19 December 2007 in Room 544 of the Legislative Office Building in Raleigh.

At this meeting, the Commission will begin or continue studies for which the Commission is responsible, hear reports from State agencies, discuss topics to be considered at future meetings, and attend to other matters. Listed below are potential agenda topics for this meeting and for future meetings. More specific information regarding the agenda for the 19 December meeting of the Commission will be developed at the staff planning meeting discussed below. Commission Staff may publish a revised notice/draft agenda following the staff planning meeting if circumstances permit.

STUDIES

1) Issues related to the franchise of solid waste management facilities by units of local government. (S.L. 2007-550, Sec. 18)

2) Issues related to the transportation of solid waste by rail or barge, including the extent to which regulation of the transportation of solid waste by rail or barge may be preempted by federal law. (S.L. 2007-550, Sec. 18)

3) Issues related to the use of pervious surfaces for vehicle parking areas, including associated costs, impact to the environment of stormwater runoff, and practices of other states with regard to stormwater best management practices. (S.L. 2007-323, Sec. 6.22.(b))

4) Allocation of surface water resources and their availability and maintenance in the State, including issues related to the transfer of water from one river basin to another, the withdrawal of

water for consumptive use, and the accuracy and tolerance of equipment used to measure the flow of water transferred from one river basin to another river basin. (S.L. 2007-518, Sec. 1.(a))

5) Preparation of a revised map entitled "Major River Basins and Sub-basins in North Carolina" as a recommended replacement for the map referenced in G.S. 143-215.22G. The revised map shall define the extent to which any river basin that encompasses any river that flows from another state into North Carolina or that flows from North Carolina into another state extends into an adjacent state. (S.L. 2007-518, Sec. 1.(b))

6) Other studies undertaken by the Commission.

REPORTS *(Report due dates are indicated in parentheses)*

General/Miscellaneous:

7) Annual report on the One-Stop Permit Assistance Program on the number of environmental permits that took more than 90 days to issue or deny, types of permits, reasons for extended processing time, and how the time used to issue or deny the permits compared with projected time provided to the applicant by DENR. (143B-279.12(e)) *(1 October)*

8) Annual report on the findings and recommendations on the success of the express permit and certification review program. (G.S. 143B-279.13(c)) *(1 March)*

9) Annual report on litter enforcement, prevention, and removal efforts. (G.S. 147-12(b)) *(1 March)*

10) Annual report on the evaluation and adjustment of the boundaries of the area served by each Metropolitan Planning Organization. (G.S. 136-202(d)) *(1 November)*

Air Quality:

11) Annual report on the cost of the Title V program. (G.S. 143-215.3A(c)) *(1 November)*

Coastal Management:

12) Annual report on the progress in developing and implementing the Coastal Habitat Protection Plans and reports on the completion or substantial revision of each draft Coastal Habitat Protection Plan. (G.S. 143B-279.8(e) and G.S. 143B-279.8(f)) *(1 September)*

13) Annual report by the Coastal Resources Commission evaluating the impacts on water quality and other environmental impacts from new urban waterfront area development. (S.L. 2004-117, Sec. 4) *(1 October)*

Hazardous Waste Management:

14) Report of Superfund cost share fund expenditures for cleanup of sites on the National Priorities List. (S.L. 1999-237(15.6)(b)) *(Floating, within 30 days of expenditure)*

15) Annual report on the Inactive Hazardous Sites Program (G.S. 130A-310.10) *(1 October)*

16) Annual report on implementation of the Resident Inspectors Program at commercial hazardous waste facilities (G.S. 130A-295.02(m)) *(1 October)*

17) Annual report on the North Carolina Hazardous Waste Management Plan (G.S. 130A-294(i)) *(1 October)*

18) Annual report on the Effectiveness of the Brownfields Property Reuse Act (G.S. 130A-310.40) *(1 October)*

Parks and Recreation / Land Conservation:

** Note: All reports under this heading are being held for presentation at the 18 March 2008 meeting of the Commission.*

Solid Waste:

** Note: All reports under this heading are being held for presentation at the 23 January 2008 meeting of the Commission.*

Water Quality:

19) Annual report on fish kills in the previous year. (G.S. 143B-297.7(c)) *(1 December)*

20) Interim report on the pilot program to streamline the process for the issuance of an improvement permit or an authorization to construct for an on-site subsurface wastewater system in certain counties by authorizing local health departments, authorized agents of DENR, and licensed soil scientists to complete soil and site evaluations in participating counties. (S.L. 2006-136, Sec. 3) *(1 October)*

21) Annual report on the Wastewater Discharge Elimination Program. (S.L. 2001-452, Sec. 2.9) *(15 October)*

22) Annual report on Basinwide Water Quality Management Plans. (G.S. 143-215.8B) *(1 October)*

23) Annual report on the Dry-Cleaning Solvent Cleanup Program. (G.S. 143-215.104U) *(1 October)*

24) Annual report on the status of leaking petroleum underground storage tanks, the State cleanup funds, and the Groundwater Protection Loan Fund. (G.S. 143-215.94M) *(1 September)*

25) Implementation of the Clean Water Management Trust Fund; projects and awarded grants. (G.S. 113-145.6A(a) and S.L. 2002-148, Sec. 3) *(1 December)*

OTHER MATTERS

26) Discussion of issues related to drought.

PLANNING MEETING:

To facilitate development of the agenda for the 19 December meeting of the Commission, to begin planning for subsequent meetings of the Commission, and to receive input from interested persons regarding the work of the Commission, the Commission Counsel will hold an informal planning meeting at **10:00 a.m. on Wednesday 5 December 2007 in Room 605 of the Legislative Office Building**. Persons who wish to participate in the development of the agenda for meetings of the Commission, or who are interested in any matter before the Commission, are invited to attend.

SCHEDULE OF FUTURE MEETINGS:

Below is a schedule of meetings of the Environmental Review Commission for January 2008 through May 2008. **This schedule is tentative and subject to adjustment.** For planning purposes, however, please reserve these dates. This schedule may be modified to allow for out-of-town business meetings or site visits and in the event that it becomes necessary to cancel a scheduled meeting due to hazardous weather conditions. Please note the following:

1. Meetings of the Commission normally begin at 9:30 a.m., often include a lunch break, and run until mid-afternoon. Please plan on meeting from 9:30 a.m. until at least 3:30 p.m. Meetings of the Commission are open to the public.

2. Staff planning meetings normally begin at 10:00 a.m. and adjourn by noon. Staff planning meetings are informal and are open to the public. Commission members are not expected to attend these meetings.

3. The March meeting is anticipated to focus on parks and recreation issues. This meeting may take place over two days at a location outside Raleigh.

4. The 2008 Regular Session is scheduled to begin at 12:00 noon on Tuesday 13 May 2008. The Commission may meet shortly after the beginning of the session to complete ongoing work and to consider any legislative proposals and recommendations and may meet at other times during the legislative session.

Commission Meeting	Location	Staff Planning Meeting	Location
Wednesday 23 January 2008	544 LOB	Friday 11 January 2008	605 LOB
Thursday 14 February 2008	544 LOB	Tuesday 5 February 2008	605 LOB
Tuesday 18 March 2008	***TBD***	Friday 7 March 2008	605 LOB
Thursday 10 April 2008	544 LOB	Friday 28 March 2008	605 LOB
Friday 9 May 2008	544 LOB	Tuesday 29 April 2008	605 LOB
Wednesday 14 May 2008	544 LOB		

MEETINGS OF INTERESTED PARTIES (605 WORKING GROUPS):

The Commission Counsel will hold meetings of interested parties on specific topics as indicated below:

Underground Storage Tank Working Group
2:00 p.m. Monday 17 December 2007 – 605 Legislative Office Building

Public meetings on the scope and direction of the study of allocation of water resources
4:00 p.m. to 7:00 p.m. Thursday 20 December 2007 – Charlotte
4:00 p.m. to 7:00 p.m. Friday 4 January 2008 – Greenville
4:00 p.m. to 7:00 p.m.Wednesday 9 January 2008 – Asheville
4:00 p.m. to 7:00 p.m. Wednesday 23 January 2008 – Raleigh
4:00 p.m. to 7:00 p.m. Thursday 24 January 2008 – Wilmington

Public meeting on the study of issues related to construction on artificial slopes
4:00 p.m. to 7:00 p.m. Thursday 10 January 2008 – Asheville

**Note: Specific locations for all meetings are TBD*

ADDITIONAL INFORMATION:

If you have questions related to the Commission, please feel free to contact the Commission Counsel or other Commission staff at (919) 733-2578.

Exhibit B

General Assembly of North Carolina

Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

CO-CHAIRS
SENATOR CHARLES W. ALBERTSON
SENATOR DANIEL G. CLODFELTER

REPRESENTATIVE LUCY T. ALLEN
REPRESENTATIVE PRYOR A. GIBSON

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SENATOR DAVID F. WEINSTEIN

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JENNIFER R. F. MUNDT
COMMISSION ANALYST

MARIAH B. MATHESON
COMMISSION ASSISTANT

JESSICA BENNETT
COMMISSION CLERK

AGENDA

9:30 a.m. Wednesday 19 December 2007
Room 544 Legislative Office Building
Raleigh, North Carolina

1. Call to order
   Senator Daniel G. Clodfelter, Presiding

2. Introductory remarks by Cochairs *(5 minutes)*
   Senator Daniel G. Clodfelter
   Senator Charles W. Albertson
   Representative Lucy T. Allen
   Representative Pryor A. Gibson

3. Report to the Commission and explanation of agenda items *(10 minutes)*
   George F. Givens, Commission Counsel

4. Approval of the minutes of the 31 October 2007 meeting of the Commission *(2 minutes)*

5. Update on current drought conditions in light of conservation efforts and recent rain events *(15 minutes)*
   Thomas C. Fransen, Chief
   River Basin Management Section, Division of Water Resources, Department of Environment and Natural Resources (DENR)

6. Hazardous waste management *(30 minutes)*
   Annual report on the implementation of the resident inspectors program for commercial hazardous waste facilities including implementation of the amendments to the program made by S.L. 2007-107 (G.S. 130A-295.02(m)) *(10 minutes)*
   Elizabeth W. Cannon, Chief
   Hazardous Waste Section
   Division of Waste Management, DENR

Annual report on the Inactive Hazardous Sites Program including discussion of the reorganization of contaminated sites program in the Department (G.S. 130A-310.10) *(10 minutes)*

Dexter R. Matthews, Director
Division of Waste Management, DENR

Report on the effectiveness of the Brownfields Property Reuse Act (G.S. 130A-310.40) *(10 minutes)*

Dexter R. Matthews, Director
Division of Waste Management, DENR

7. Permitting reports *(15 minutes)*

Annual report on the One-Stop Permit Assistance Program on the number of environmental permits that took more than 90 days to issue or deny, types of permits, reasons for extended processing time, and how the time used to issue or deny the permits compared with projected time provided to the applicant by DENR (143B-279.12(e))

Edythe M. McKinney, Director of the Customer Service Center and
Small Business Ombudsman, DENR

Annual report on the findings and recommendations on the success of the express permit and certification review program (G.S. 143B-279.13(c))

Edythe M. McKinney, Director of the Customer Service Center and
Small Business Ombudsman, DENR

8. Annual report on the cost of the Title V program (G.S. 143-215.3A(c)) *(10 minutes)*

Keith Overcash, Director
Division of Air Quality, DENR

9. Water quality reports *(35 minutes)*

Interim report on the pilot program to streamline the process for the issuance of an improvement permit or an authorization to construct for an on-site subsurface wastewater system in certain counties by authorizing local health departments, authorized agents of DENR, and licensed soil scientists to complete soil and site evaluations in participating counties (S.L. 2006-136, Sec. 3) *(20 minutes)*

Terry L. Pierce, Director
Division of Environmental Health, DENR

Annual report on the Wastewater Discharge Elimination Program (S.L. 2001-452, Sec. 2.9) *(15 minutes)*

Walter "Walt" T. Haven, Head,
Private Water Supply Branch, On-site Water Protection Section,
Division of Environmental Health, DENR

10. Commission discussion and announcements

11. Adjourn

SCHEDULE OF FUTURE MEETINGS:

Below is a schedule of meetings of the Commission for January 2008 through May 2008. This schedule is tentative and subject to adjustment. In particular, the March meeting may take place over two days at a location outside Raleigh in order to focus on parks and recreation matters.

To facilitate development of the agenda for meetings of the Commission and to receive input from interested persons regarding the future work of the Commission, the Commission Counsel holds informal public planning meetings for staff and interested parties. The schedule of these meetings is also set out below.

Commission Meeting	Location	Staff Planning Meeting	Location
Wednesday 23 January 2008	544 LOB	* *Friday 11 January 2008*	*605 LOB*
Thursday 14 February 2008	544 LOB	Tuesday 5 February 2008	605 LOB
Tuesday 18 March 2008	TBD	Friday 7 March 2008	605 LOB
Thursday 10 April 2008	544 LOB	Friday 28 March 2008	605 LOB
Friday 9 May 2008	544 LOB	Tuesday 29 April 2008	605 LOB
Wednesday 14 May 2008	544 LOB		

** Note the time for the staff planning meeting on 11 January 2008 has been changed from **10:00 a.m. to 2:00 p.m.***

MEETINGS OF INTERESTED PARTIES:

The Commission Counsel will hold meetings of interested parties on specific topics as indicated below:

Underground Storage Tank Working Group
2:00 p.m. Monday 4 February 2008

Public Meetings on the Scope, Direction, and Conduct of the Study of Allocation of Water Resources (Water Allocation Study (WAS))

Public Meeting	Location
Thursday 20 December 2007 4:00 p.m. to 7:00 p.m.	Room 280*, Charlotte-Mecklenburg Governmment Cente 600 East 4th Street Charlotte, North Carolina 28202 ** Meeting will move to Room 267 after 5:00 p.m. if additional space is required*
Friday 4 January 2008 4:00 p.m. to 7:00 p.m.	Room 153, Fulford Building Pitt County Community College 1986 Pitt Tech Road Winterville, North Carolina 28590

Wednesday 9 January 2008 4:00 p.m. to 7:00 p.m.	Lecture Room, Simpson Administration Building Asheville Buncombe Technical Community College 340 Victoria Road Asheville, North Carolina 28801
Wednesday 23 January 2008 4:00 p.m. to 7:00 p.m.	Room 544, Legislative Office Building North Carolina General Assembly 300 North Salisbury Street Raleigh, North Carolina 27603
Thursday 24 January 2008 4:00 p.m. to 7:00 p.m.	New Hanover County Public Library 201 Chestnut Street Wilmington, North Carolina 28401

Public Meeting on the Study of Issues Related to Construction on Artificial Slopes

Thursday 10 January 2008 4:00 p.m. to 7:00 p.m.	Lecture Room, Simpson Administration Building Asheville Buncombe Technical Community College 340 Victoria Road Asheville, North Carolina 28801

ADDITIONAL INFORMATION:

Persons having questions about the Commission meeting or other matters related to the Commission may contact Commission Counsel or other Commission staff at (919) 733-2578 or may visit the Commission's website at:
http://www.ncleg.net/gascripts/DocumentSites/browseDocSite.asp?nID=12

Exhibit C

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION December 19, 2007

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Brian Powell	Carolinas Golf Course Superintendents Assoc.
Doug Lowe	Carolinas Golf Course Superintendents Assoc.
Bill Patton	Carolinas Golf Course Supt. Assoc
Chuck Borman	Carolinas GCSA
Chris Valgari	Carolinas GCSA
Gayle Wilson	Orange County / SWANA
Dan Moore	MRR Southern
Michael Hair	Carolina Golf-Course Superintendents Assoc.
Preston Howard	MCIC
Jay Stem	NCAA
Doug Lassiter	NCSTA

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION December 19, 2007

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Thomas Moore	Edwista & Wall
Scott Gordon	Duke Energy
Tommy Stevens	NCPC
Sam Searcy	WCSR
Joan Smyth	RSG Engineers Raleigh
Tracy Kimbrell	Parker Poe
Amy McConkey	Smith Anderson
Jim Johnson	BSA
Jon Hawke	NCRC
Tom Berry	NC Env. Law Def NC Sustainable Energy Assoc

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION December 19, 2007

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Laura Leonard	DENR - Div of Env Health
Tom Mather	DENR - Div Air Quality
Sharon Stroud	State Energy Office
Erin Kinsey	NC Conservation Network
David Barnes	Progress Energy
Wendy Kelly	HMW
David Mickey	BREAL
Beth Ward	AGO
Kenn Gardner	Wake County Commissioner

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION December 19, 2007

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
JENE TAYNTON	NCDPI
Michael Williford	NCDENR - Hazardous Waste Sec.
Elizabeth Cannon	NCDENR - Hazardous Waste
MIKE BRAILSFORD	" "
DON SAFRIT	McKIM & CREED, 200 MacKenan Dr. CARY, NC 27511
JOHN SHAW	SELF
Tom Fransen	DENR-DWR
Edythe McKinny	DENR - Customer Service Center
[illegible]	Nicholas Inst / Duke U.
DAN CRAWFORD	Electricities of NC
VOLANN HARRIS	LAHA

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION December 19, 2007

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
Amy SIMES	DENR
Sonna Greene	H&W (Hunton&Williams)
Rebecca Troxler	NCACC
Jim Lowry	NCHCA
Dewitt Hardee	NCDA&CS
Cathy Akroyd	NCDENR - DWM
Kathy Hawkins	Progress Energy
Colleen Kochanek	Smith Moore
Dan McLawhorn	City Attorney Office, Raleigh
Walt Haven	NCDENR - DEH
Terry Pierce	NCDENR - DEH

VISITOR REGISTRATION SHEET

ENVIRONMENTAL REVIEW COMMISSION December 19, 2007

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMISSION ASSISTANT

NAME	FIRM OR AGENCY AND ADDRESS
TED LYON	NCDENR - DEH
ANTHONY ALLEN	NCACC
Wilmer McHan	Kannapolis
Henry Waldroup	Concord
Terry Gross	Concord
Forrest Westall	McGill Associates
COLEEN SULLINS	DENR-DWQ
Charlotte Jesnick	DENR- DWM
Robin Smith	DENR
Dottie Mathews	DENR-DWM
Elizabeth Self	DENR

Exhibit D

General Assembly of North Carolina

Environmental Review Commission
State Legislative Building
Raleigh, North Carolina

CO-CHAIRS
SENATOR CHARLES W. ALBERTSON
SENATOR DANIEL G. CLODFELTER

REPRESENTATIVE LUCY T. ALLEN
REPRESENTATIVE PRYOR A. GIBSON

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19 December 2007

MEMORANDUM

To: Members of the Environmental Review Commission
From: Jennifer Mundt, Commission Analyst
Re: Reports to the Commission

The following reports have been submitted by the Department of Environment and Natural Resources (DENR) to the Environmental Review Commission (Commission) since the last reports distribution on 27 November 2007. These reports are designated as read only and are attached to this memorandum:

1) Annual report on fish kills in the previous year. 1 December 2007. Statutory Authority: G.S. 143B-297.7(c)).

2) Annual report on the progress in developing and implementing the Coastal Habitat Protection Plans and reports on the completion or substantial revision of each draft Coastal Habitat Protection Plan. 1 September 2007. Statutory Authority: G.S. 143B-279.8(e) and G.S. 143B-279.8(f).

The following report has been submitted by the Department of Transportation to the Commission since the last reports distribution. This report is designated as read-only and is attached to this memorandum:

1) Annual report on the evaluation and adjustment of the boundaries of the area served by each Metropolitan Planning Organization. 1 November 2007. Statutory Authority: G.S. 136-202(d)).

The following reports have been submitted by the Department of Environment and Natural Resources to the Commission and will be distributed in connection with today's agenda as follows:

1) Annual report on implementation of the Resident Inspectors Program at commercial hazardous waste facilities. 1 October 2007. Statutory Authority: G.S. 130A-295.02(m). ***Agenda Item #6***

2) Annual report on the Inactive Hazardous Sites Program. 1 October 2007. Statutory Authority: G.S. 130A-310.10. ***Agenda Item #6***

3) Annual report on the Effectiveness of the Brownfields Property Reuse Act. 1 October 2007. Statutory Authority: G.S. 130A-310.40. ***Agenda Item #6***

4) Annual report on the One-Stop Permit Assistance Program on the number of environmental permits that took more than 90 days to issue or deny, types of permits, reasons for extended processing time, and how the time used to issue or deny the permits compared with projected time provided to the applicant by DENR. 1 October 2007. Statutory Authority: G.S. 143B-279.12(e). ***Agenda Item #7***

5) Annual report on the findings and recommendations on the success of the express permit and certification review program. 1 March 2007. Statutory Authority: G.S. 143B-279.13(c). ***Agenda Item #7***

6) Annual report on the cost of the Title V program. 1 November 2007. Statutory Authority: G.S. 143-215.3A(c). ***Agenda Item #8***

7) Interim report on the pilot program to streamline the process for the issuance of an improvement permit or an authorization to construct for an on-site subsurface wastewater system in certain counties by authorizing local health departments, authorized agents of DENR, and licensed soil scientists to complete soil and site evaluations in participating counties. 1 October 2007. Authority: S.L. 2006-136, Sec. 3. ***Agenda Item #9***

8) Annual report on the Wastewater Discharge Elimination Program. 15 October 2007. Authority: S.L. 2001-452, Sec. 2.9. ***Agenda Item #9***

The following reports have been received and are being held for distribution either as read-only or for presentation at a future meeting of the Commission. If you would like a copy of one of these reports in advance of the next meeting, please contact Jennifer Mundt at (919) 733-2578 or jennifermu@ncleg.net for assistance.

1) *Annual report on the Parks and Recreation Trust Fund, Fiscal Year 2006-2007.* 1 October. Statutory Authority: G.S. 113-44.15(c).

2) *Annual Report on Litter Enforcement, Prevention, and Removal Efforts.* 1 March 2007. S.L. 2006-79, Sec. 15.

3) *2006 Annual Report NC Million Acre Initiative.* 1 October 2007. Statutory Authority: G.S. 113A-241(c)).

Please contact George Givens, Jeff Hudson, Jennifer McGinnis, Jennifer Mundt, or Mariah Matheson at (919) 733-2578 if you have any questions or comments.

NORTH CAROLINA MARINE FISHERIES COMMISSION
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

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September 28, 2007

Environmental Review Commission
North Carolina General Assembly
Legislative Building
16 West Jones Street
Raleigh, NC 27603-5925

Gentlemen:

Attached is the 2006 – 2007 Coastal Habitat Protection Plan report of the Marine Fisheries Commission, Coastal Resources Commission, and Environmental Management Commission. This report is submitted in compliance with the Fisheries Reform Act of 1997.

Please let us know if additional information is needed.

Sincerely,

for Mac Currin, Chairman
Marine Fisheries Commission

Courtney Hackney, Chairman
Coastal Resources Commission

David H. Moreau, Chairman
Environmental Management Commission

P.O. Box 769, Morehead City, NC 28557-0769
www.ncfisheries.net

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

December 1, 2007

TO: Senator Dan Clodfelter
Senator Charlie Albertson
Representative Pryor Gibson
Representative Lucy Allen

FROM: William G. Ross Jr., Secretary

RE: Fish Kills Report

G.S. 143B-279.7 (c) requires the Department of Environment and Natural Resources to report to the Environmental Review Commission each year a report on fish kills within the preceding year. Attached is this year's report. If you have any questions please contact Mark Hale at (919) 743-8422.

Attachment

cc: Coleen H. Sullins

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
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One NorthCarolina Naturally

North Carolina Division of Water Quality
Annual Report of Fish Kill Events
2007

Division of Water Quality
Environmental Sciences Section
Raleigh, NC

December 2007

Introduction

The investigation of fish kill activity across North Carolina currently involves protocols established by the North Carolina Division of Water Quality (DWQ) in 1996. The protocols were developed with assistance from DWQ Regional Office staff, North Carolina Wildlife Resources Commission biologists, and Division of Marine Fisheries personnel as a means to improve the tracking and reporting of fish kill events throughout the state. Fish kill and fish health investigation data are recorded on a standardized form and sent to the Division's Environmental Sciences Section (ESS) where the data are reviewed and compiled. Data from fish kill investigation forms, laboratory test results and supplemental information sent to the ESS are entered into a central database where the information can be managed, queried and reported. The procedure also requires the notification of appropriate state officials and scientists associated with the investigation of such events. The protocols have proven successful in standardizing reporting methods and enhancing the quality and quantity of information reported from kill events.

Fish kill information is posted weekly from June to November on the ESS website: http://h2o.enr.state.nc.us/esb/Fishkill/fishkillmain.htm. The following report will also be available at this website after submittal.

This document is a summary of fish kill events reported to the DWQ from January to early December, 2007. The report is mandated under Section 4 of Chapter 633 of the 1995 North Carolina General Assembly Session Laws.

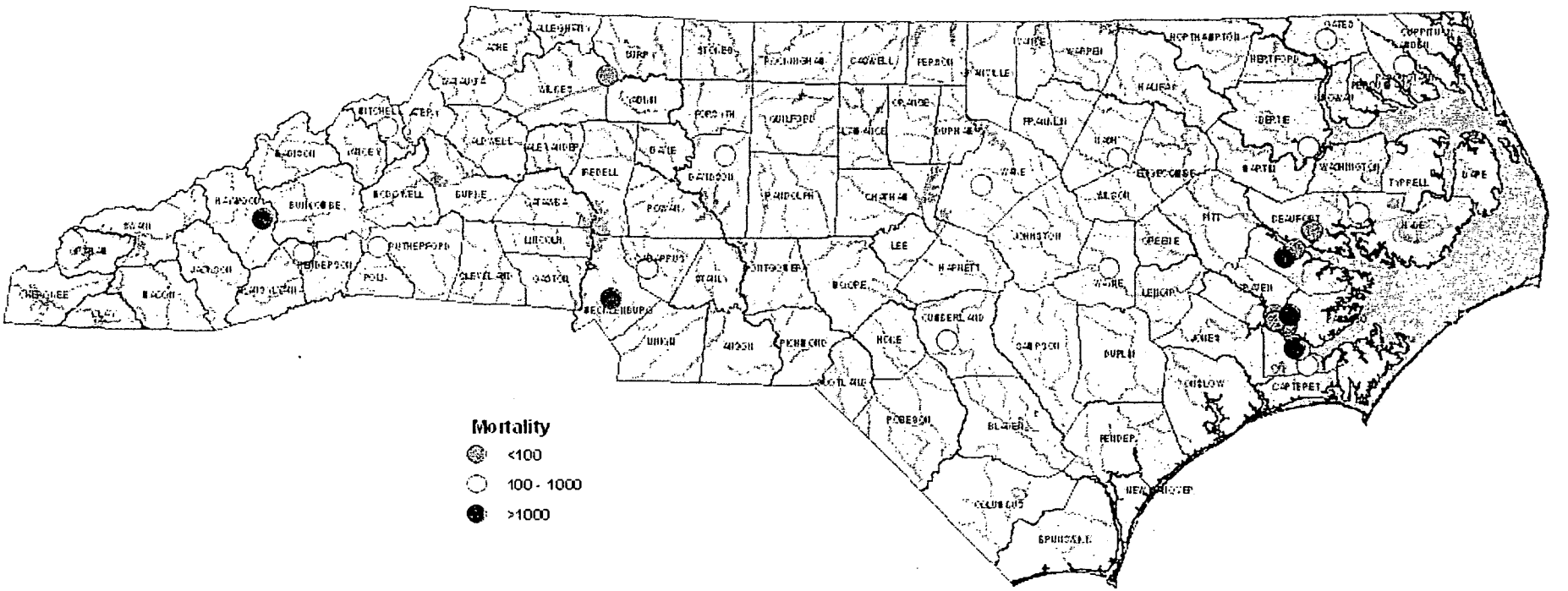
2007 Fish Kill Event Summary

Field investigators reported 27 fish kill events from March to October, 2007. Kill events were reported from coastal waters as far west as Haywood County. Kill activity was documented during the year in 10 of the state's 17 major river basins. The ESS records fish kill events when at least 25 fish are affected and the event is confirmed by trained investigators from regional offices and cooperating agencies.

The cumulative fish mortality for all 2007 reports was 137,285 individuals. This figure represents an increase over mortality reported in 2006 but remains far below the peak total reported in 2003 (3.5 million). Mortality counts for individual events ranged from 31 to 100,000. The majority of events were observed in fresh waterbodies, however, the bulk of the year's fish mortality was reported from events occurring in estuarine waters.

• **Total Kill Events for 2007**	**27**
• **Freshwater Kills**	**18**
• **Estuarine Kills**	**9**
• **Cumulative Mortality for 2007**	**137,285**
▪ *Estuarine*	*107,185*
▪ *Freshwater*	*30,100*
• **Report Mortality Range**	**31 to 100,000**
• **River Basins with Activity**	**10 (of 17)**

Figure 1 : Fish Kill Events and Observed Mortality Reported to NCDWQ During 2007



Basin Activity

Investigators reported fish kill events in 10 of the state's 17 major river basins during 2007 (Figure 1, Table 1). Kill activity was most frequent in the Neuse Basin, with all but two of the events in the basin occurring within the lower watershed below New Bern. The lower Neuse, as well as the lower Pamlico estuary, have historically been plagued by adverse environmental factors such as low dissolved oxygen, high water temperatures, and fluctuating salinities. These factors have played a significant role in the frequency of events reported annually from the two areas. Activity in other river basins across the state remained relatively light or absent throughout the 2007 season. Since 1996, annual totals of statewide events peaked in 2001 with 77 reports, but have since decreased and remained relatively low over the last six years (Table 1).

Table 1: Fish kill reports by basin, 1996 – 2007

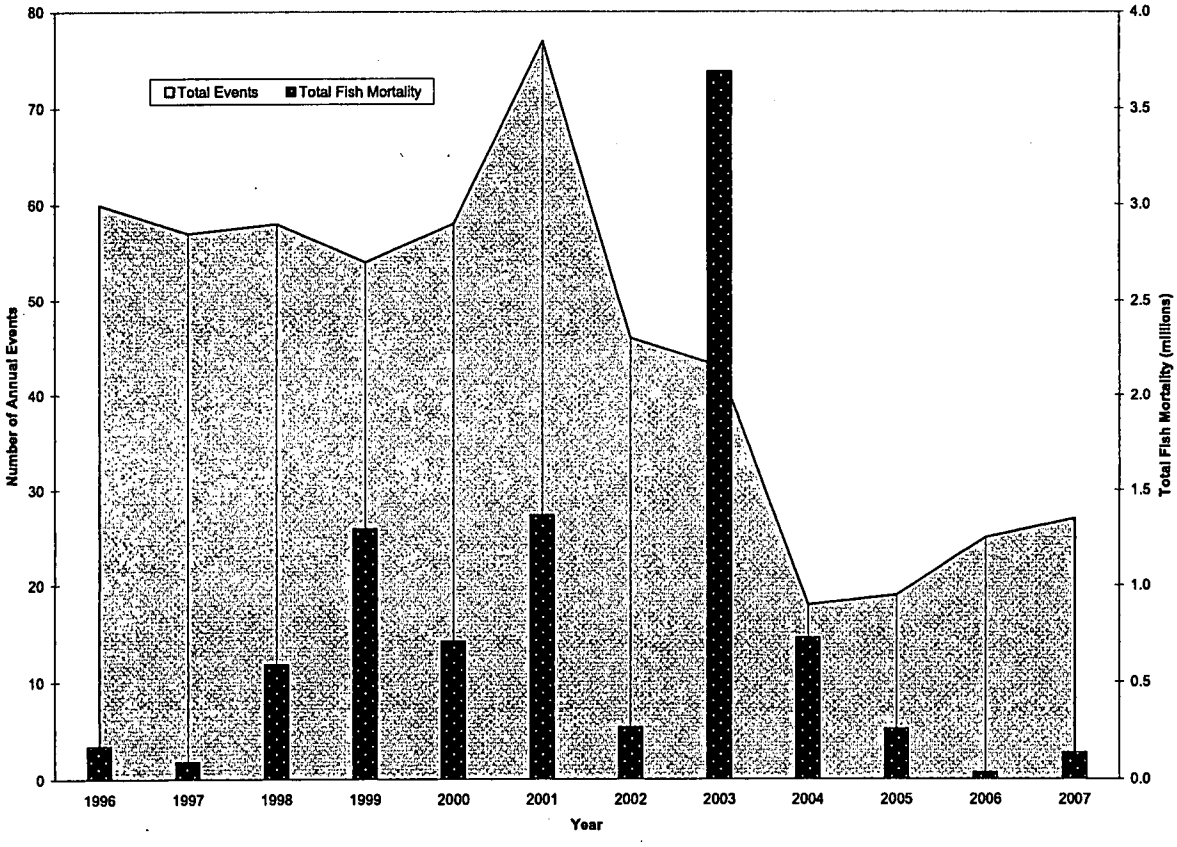
	YEAR												
River Basin	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Basin Total
Broad	None	None	None	1	None	None	None	None	None	None	1	1	3
Cape Fear	21	16	23	14	12	5	8	3	1	2	5	1	111
Catawba	None	3	1	3	2	4	1	None	None	None	2	2	18
Chowan	2	2	1	1	None	1	2	2	1	1	None	1	14
French Broad	None	2	3	1	None	None	1	1	None	None	None	3	11
Neuse	14	12	8	16	23	37	9	21	8	9	10	10	177
Lumber	4	3	5	None	2	None	None	2	1	1	2	None	20
Pasquotank	10	2	8	2	None	1	6	2	None	2	None	1	34
Roanoke	2	None	1	None	None	None	None	2	1	1	2	1	10
Tar/Pamlico	3	6	5	11	14	23	8	6	2	1	2	5	86
New/Watauga	None	None	None	1	None	None	None	2	None	None	None	None	3
White Oak	3	3	1	3	3	3	3	None	None	1	None	None	20
Yadkin	1	10	2	1	2	3	8	2	3	1	1	2	36
Yearly Totals	60	59	58	54	58	77	46	43	17	19	25	27	543

** No fish kill reports have been received from the Hiwassee, Little Tennessee., and Savannah basins since 1996.*

Fish Mortality

The 2007 season produced a fish mortality total of over 135,000 individuals reported in 27 events. (Figure 2). Reported events continued to increase from a low of 18 during 2004, however the 2007 mortality total is one of the lowest since reporting began in 1996 and far below the maximum of 3.6 million observed in 2003. Reports since 1996 have shown that the majority of the annual mortality is often the result of a few events. During 2007 nearly 75% of those fish reported killed were observed in just one event in the Pamlico River watershed near Blounts Bay.

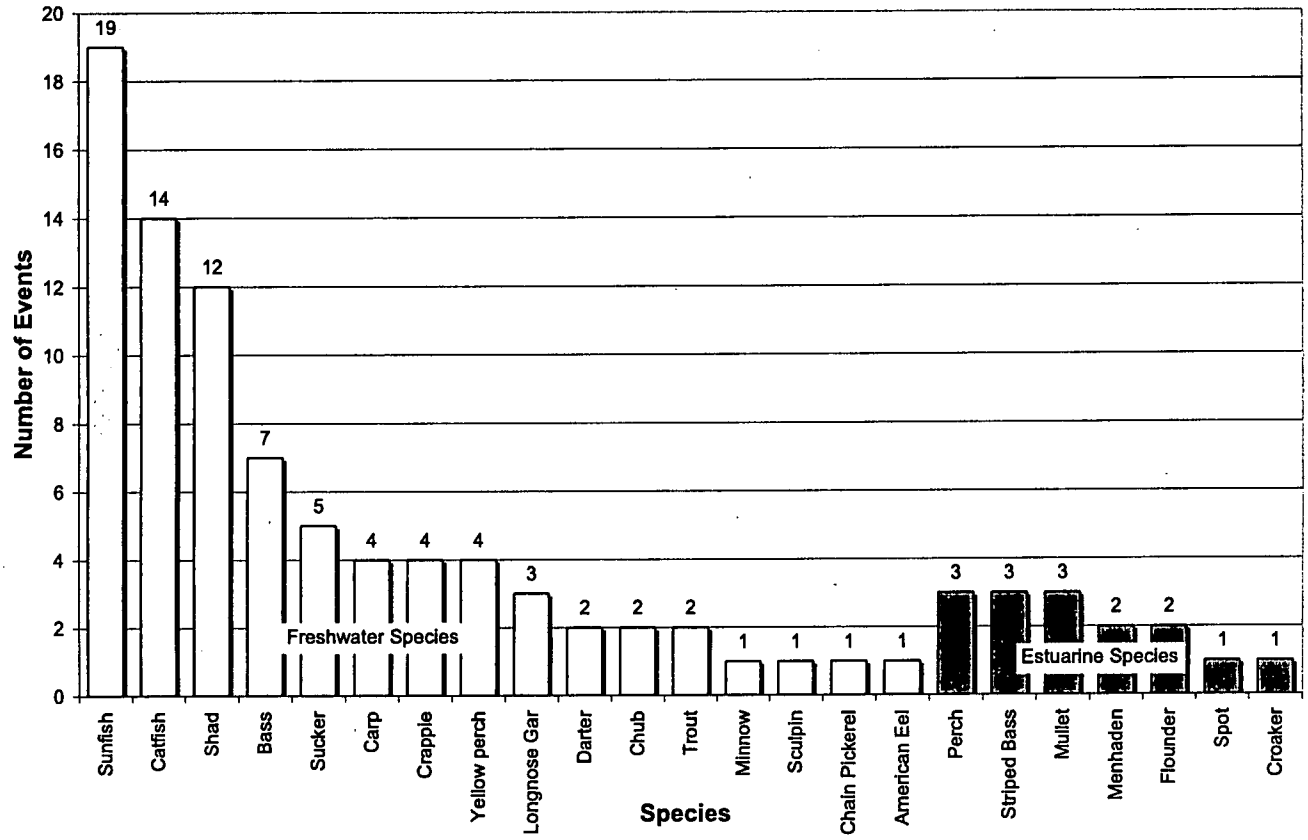
Figure 2: Reported annual fish kill events and mortality, 1996 to 2007



Finfish and Other Species Reported

Fish kill events in 2007 involved over 23 different species of fish in both estuarine and freshwaters (Figure 3). Freshwater species were most frequently observed during investigations included sunfishes, catfish, and shad. Estuarine species most frequently reported included perch, striped bass and mullet and menhaden. Non-finfish species were observed in six events during 2007. These included amphibians, macroinvertebrates, crayfish, clams, and blue crab.

Figure 3: Finfish observed during 2007 fish kill events



Suspected Causes of 2007 Events

Specific causes of fish kill events may or may not be obvious to investigators depending on a number of factors. Causes are often identified, but others remain unconfirmed or unclear due to an investigation occurring hours or days after the actual event. Kill events often result from many environmental factors, and sorting out the major reason(s) why a fish kill occurs is frequently a difficult and often subjective task. Investigators generally monitor environmental conditions surrounding an event and are encouraged to submit this information on reports along with observations regarding a suspected cause. This information aids in evaluating potential water quality trends and problems, and assists scientists and decision-makers with formulating future courses of action. Reported causes should not be viewed as a definitive label for a particular event.

Reported causes of 2006 kill events are listed in Table 2 in order of frequency. Those events where no specific causes could be determined were reported as "unknown".

Table 2: Major causes reported for 2007 fish kill events

Reported Cause	Number of Events
Dissolved Oxygen Depletion	10
Unknown	9
Spills	5
Bycatch	3

Dissolved Oxygen Depletion: Low dissolved oxygen (DO) was cited as a factor in ten kill events during 2007. DO depletion was reported as a likely cause in two large estuarine events observed during the summer in the Pamlico and Neuse estuaries. Estuarine fish kills have historically been associated with upwelling of hypoxic water from the river bottom or a depletion of DO in warm shallow areas, especially during the season's warmest months. Low DO was also a factor in a large freshwater event on the Pigeon River (Haywood Co.) and was attributed to ongoing severe drought conditions throughout the state (see Notable Events).

Unknown Causes: Causes for kill events are reported as unknown when investigators fail to cite specific reasons for an event. Investigations may not provide definitive causes when they are conducted too long after an event and no clear factors are determined, or when causes are suspected but not confirmed. Investigations for such events yielded few clues and environmental conditions or water quality measurements were often reported as normal by the time personnel arrived on scene. Investigators failed to cite or confirm causes for nine of the year's events. Events with unknown causes were relatively small (<1000 fish) and occurred most frequently in freshwaters.

Spills: Toxic spills may deplete DO levels in receiving streams or induce kills outright through physical or chemical toxicity. During 2007 investigators reported five events where the release of toxic substances induced a fish kill. These substances included pesticides, bleach, sewage, and an industrial degreaser. Spill induced kills all occurred in freshwaters and mainly in the western counties of the state.

Bycatch: Discarded fish from nearby fishing activity was reported as a cause in three events during the year. All bycatch events were reported to be small (<200 fish) and were apparent from net marks or knife injuries visible on the fish carcasses.

Algal Blooms: Although evidence of algal blooms was noted during several investigations in 2007, no such activity was determined to be a direct factor in any of the year's kill events. Phytoplankton species associated with kills and identified by ESS staff included the dinoflagellates *Karlodinium, Peridiniella*, the chrysophyte *Paulinella*, the filamentous bluegreen *Cylindrospermopsis*, and the flagellated raphidophyte *Heterosigma*. It should be noted that the presence of these species alone does not infer toxicity or environmental concerns. These assemblages may be typical for the summer in the areas where observed. Algae and other phytoplankton begin to negatively affect

water quality when excessive growths impair aquatic systems through physical and chemical means.

ESS staff routinely examine water samples associated with kills for the presence of harmful species. Samples that contain significant amounts potentially harmful algae are often sent to research laboratories throughout the state. The Center for Applied Aquatic Ecology in Raleigh has the ability to examine samples under scanning electron microscopy. Laboratories at the University of North Carolina at Greensboro and the National Oceanic and Atmospheric Administration laboratory in Beaufort can examine samples with molecular probes. Laboratories at UNC-Chapel Hill and UNC-Wilmington provide valuable taxonomic expertise. Algal samples and results are collected, exchanged, and discussed between labs.

Notable Events

Blounts Creek (Beaufort Co.), August: Investigators recorded multiple species fish kill along a 2 mile stretch in the headwaters of Blounts Creek adjacent to the Cotton Patch Landing. Official total numbers were from 50,000-100,000 fish affected. The event coincided with a previous strong wind and rain event in the area. The storm event exhibited north winds up to 65 mph gusts, and large amounts of rainfall. Real-time data near Channel marker 5 indicated surface salinity changes from 12 % to 0 % coinciding with DO drop to zero and a water level increase of 5 feet in less than 12 hours. Low DO and a sudden drops in salinity were cited as factors in the event. The area near Blounts Creek was also the site for a major kill in 2006. A multispecies kill of was observed after a sudden drop in DO occurred following a period of hot, calm weather.

Little Sugar Creek (Mecklenburg Co.), September: The kill in the area around the Carolina Medical Center involved multiple species including catfish, and sunfish as well as amphibians. The mortality count for the event was reported at 15,000. Investigators reported a runoff of degreaser (Orange Tough 90 used to power wash concrete) into the storm drain system and Little Sugar Creek. The DWQ Mooresville Regional Office initiated an enforcement action against the responsible party.

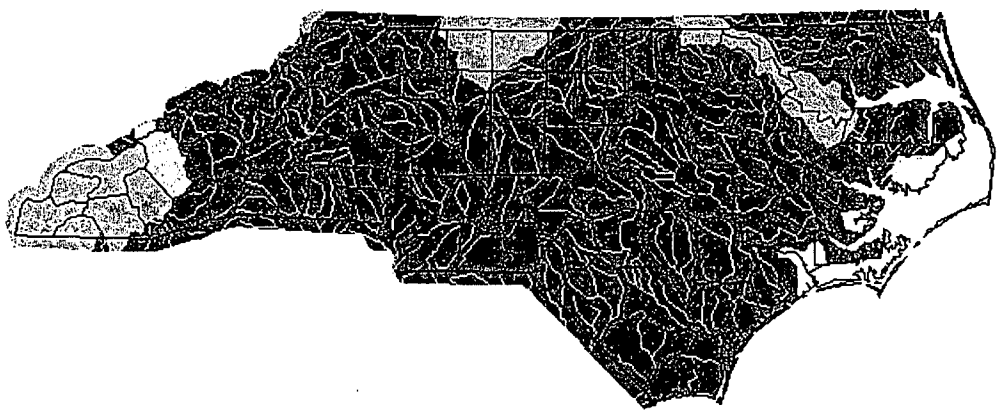
Neuse River (Craven Co.), July: A multispecies kill of over 6,600 individuals was observed for nearly a mile along the Neuse River near Carolina Pines. There was no indication of an algal bloom and no lesioned fish were observed. The fish kill appeared to have taken place approximately 12 hours prior to the investigation, coinciding with an observed upwelling event. DWQ staff review of water quality data from the nearby marker 11 water quality monitor indicated an upwelling event had occurred during the early morning hours. The upwelling event was characterized by a considerable decrease in DO and increase in salinity in surface water at the monitor location.

South Fork Mills River (Henderson Co.), July: Investigators suspected a kill of 1000 fish, mainly rainbow trout, was related to pesticide application in adjacent tomato fields. DWQ water samples showed the presence of Chlorothalonil in field runoff and samples collected from the river. The event occurred after heavy rain following pesticide

application. The event also had significant effects on the aquatic insect population. The affected area of the South Mills River supports a documented population of the federally listed Appalachian elktoe mussel (Alasmidonta raveneliana), an endangered species. A follow up survey conducted at the end of July indicated that all located mussels were in good condition.

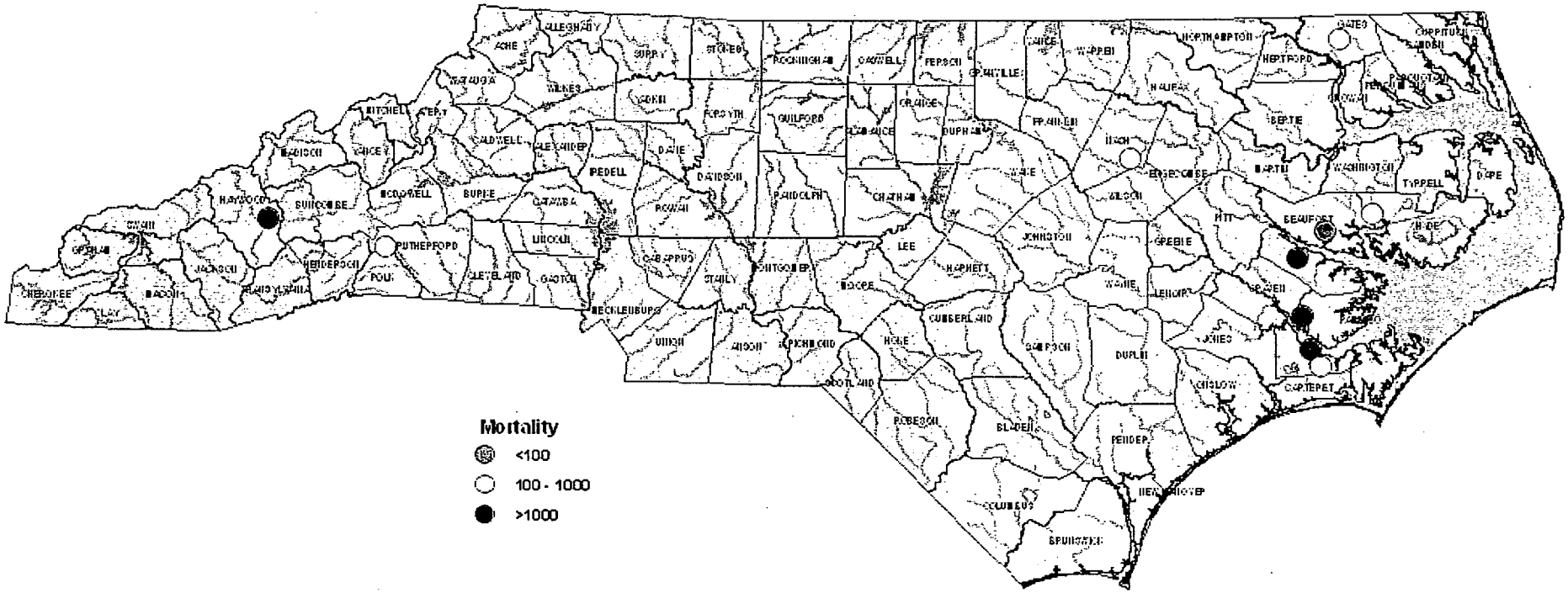
2007 Drought Conditions: North Carolina entered yet another period in 2007 marked by severe drought conditions statewide. During the course of the 2007 fish kill season the majority of monitored streams across the state reached severe to extreme hydrologic conditions, meaning they were at 5 percent or less than normal flow for that time of year (Figure 4, www.ncwater.org). Similar conditions were last observed across the state in 2002-2003 when streams reached 10 percent of normal flow.

Figure 4: Below normal 7-day average streamflow compared to historical streamflow, November-December 2007



Drought conditions were evident in nearly a third (10) of fish kill reports submitted by investigators during 2007 and may have been a factor in the year's largest events (Figure 5). Reports from the coastal areas of the state often mentioned low dissolved oxygen levels associated with low river flows and subsequent stagnation or sudden changes in DO and salinity following periods of low flow and calm weather. Coastal investigators also observed areas with high salinities due to the lack of freshwater inflow. Inland investigations revealed fish kills occurring simply from a lack of water where the absence of flow trapped fish without adequate oxygen levels.

Figure 5: Drought related fish kill events reported to DWQ during 2007



2007 Summary

Investigators reported fish kill events in 10 of the state's major river basins during 2007. In general, kill activity in basins across the state was light when compared to yearly activity reported since 1996. The number of fish kills reported during the year totaled 27, an increase from 2006 but a figure consistent with low totals reported for the last six years. Total fish mortality was reported near 130,000. This count is also slightly higher than the 2006 figure but remains well below the peak mortality figure reported in 2003.

Given the severe hydrologic conditions associated with the current drought, the modest number of kill events and associated fish mortality reported to DWQ for 2007 was unexpected. While drought conditions were observed over a majority of the state and suspected in nearly a third of the year's kills, including some of the largest events, they did not result in catastrophic die-offs throughout the state.

The frequency and intensity of fish kill activity over recent years remains relatively subdued compared to activity seen in the 1990's and into the early part of this decade. Reasons for the decrease remain unclear based on reported data. Results from investigations continue to suggest that a majority of North Carolina's annual kill activity (or lack thereof) may depend on crucial environmental conditions in key areas of the state, namely, the coastal basins and estuaries. Reports indicate that DO depletion continues to play a key role in the bulk of the state's kill activity. While occurring statewide in any given year, low DO levels are more common in coastal trouble spots such as the Neuse and Tar/Pamlico estuaries. Environmental conditions that determine DO levels in these areas (even in a drought year) may therefore be significant drivers of fish kill activity.

Appendix: 2007 Fish Kill Events (by County)

Total 2007 Fish Kills: 27
Total 2007 Fish Mortality: 137285

Date	Kill Number	Waterbody	Location	Mortality	Comments
Beaufort					
5/29/2007	WA07003	Pamlico River	Crystal Beach	31	Upon investigation PRRT staff discovered over 30 badly decomposed mullet, bream and striped bass in a canal near the mouth of Nevil Creek and Crystal Beach Community Campground. Decomposition suggested these fish died during the weekend. This area sees large numbers of recreational fishermen, especially during memorial day weekend. Staff notice the bream heads were cut off. There were no net marks visible. Real-time data near the area showed some drops in dissolved oxygen, but none for a long period of time. PRRT staff agrees that these fish most likely died as a result of some aspect of recreational fishing.
8/11/2007	WA07009	Blounts Creek	above Cotton Patch Landing	100000	Fish kill was reported by PTRF Riverkeep Heather Jacobs August 11th, 2007. PRRT's pager system was faulty and were not notified until August 13. On site, Riverkeeper 1st recorded multiple species fishkill along a 2 mile stretch in the headwaters of Blounts Creek adjacent to the Cotton Patch Landing. PTRF official total numbers were from 50,000-100,000. Their data indicated very low DO (2 mg/L) and salinities near 6%. PRRT staff arrived on scene 2 days later,August 13, approximately 10:45 a.m. Species affected included juvenile menhaden (80-200mm), striped bass (350 mm), shad, catfish (350 mm), mullet (300 mm), bluegill (200 mm), and perch (100mm). Water levels had dropped nearly 6-8 inches since the weekend. Fish were observed lying on shoreline banks. Count was not performed since most fish had decayed or were consumed within past days. PRRT transect data on August 13th showed salinities spanning from 3 % (headwaters) to 6 % (near Cotton Patch Landing). DO levels were from 3 mg/L (surface) to near 0 (bottom). An algae bloom was observed along the stretch of the kill area, however DO% saturation values were highest further upstream. Bloom samples were collected and sent to ESS for further evaluation. The kill event coincides with a previous strong wind and rain event in the area. The storm event exhibited north winds up to 65 mph gusts, and large amounts of rainfall. Real-time data near Channel marker 5 indicated surface salinity changes from 12 % to 0 % coinciding with DO drop to zero and a water level increase of 5 feet in less than 12 hours. These Northerly winds may have pushed waters levels up into Blounts Creek, while rainfall caused a pulse of freshwater in the system. Low DO and a sudden drops in salinity were cited as factors in the event . Water samples submitted to ESS showed a dense bloom of the raphidophyte flagellate Heterosigma.
10/19/2007	WA07016	Tankard Creek	at Hunter's Bridge	60	The Pamlico Rapid Response Team investigated a fish kill that occurred in the headwaters of Bath creek (Tankard creek) on Friday October 19th. The kill extended 1.2 miles up Tankard creek from Bath creek. The fish, mostly freshwater, averaged 150 mm in length, consisted of catfish, crappie, perch, bluegill, and sunfish. Some of these fish were partially eaten and appeared to be at least 48 hours old. No lesions were observed. Chlorophyll A, nutrient and phytoplankton samples were taken in the kill area, as a remnant algal bloom surface film was evident. The current drought conditions most likely created higher salinity conditions (12-14 ppt) than typically observed in this area. Saltwater stress and low dissolved oxygen readings (0.8 mg/l surface and 0.5 mg/l bottom) combined to create stressful conditions for these resident freshwater fish. Water samples indicated there was a bloom of the dinoflagellates Karlodinium and Peridiniella at the site. Both algal taxa are common in the state's coastal estuarine rivers. Karlodinium is known to produce toxins but it is not known to kill fish in the open waters of North Carolina.
					Total Kills for County: 3 Total Mortality for County: 100091

Date	Kill Number	Waterbody	Location	Mortality	Comments
Bertie					
5/29/2007	WA07004	Private Pond	near Sans Souci	500	Upon investigation PRRT staff discovered several homeowners that have routinely dumped in copper sulfate in the pond for years to kill algae. This year the owners also noticed emergent, floating duckweed (lemna spp) and considered it to be a nuisance plant and were further considering eradicating it. PRRT staff pressed no dumping of herbicides into the pond since there is no natural outlet except evaporation. PRRT also suggested the owners consult with their local Agricultural Extension County Agency to document and clarify appropriate measure of herbicidal application. Over 500 fish species were killed, most likely as a result of chemical and biological oxygen demand increasing and ultimately diminishing any available dissolved oxygen.
					Total Kills for County: 1 Total Mortality for County: 500
Cabarrus					
9/24/2007	MO07003	Coddle Creek	Near Concord	150	DWQ/MRO was not notified of the fish kill until 9/24/2007 at 10:43 a.m, (almost three days later). Instream dissolved oxygen (DO) and total residual chlorine (TRC) levels were measured by DWQ-MRO staff. TRC levels ranged from 66 ug/l (upstream of the PVC pipe) to 88 ug/l (directly below the location where the kids were playing and the majority of the dead fish were observed). In addition, DWQ-MRO staff did not detect any "bleach" odors. The instream DO levels ranged from 5.71 mg/l (same upstream TRC sampling site) to 5.9 mg/l (same downstream TRC sampling site). DWQIMRO staff performed a site inspection at the facility that owned the irrigation pipe. The facility was a pool chemical supplier with bulk sodium hypochlorite and sulfuric acid storage tanks (inside the building). A stormwater drain was observed at the loading/unloading area for these chemicals. The concrete driveway (adjacent to the stormwater drain) exhibited evidence of previous discharges/spills. Strong odors of sodium hypochlorite were detected in the stormwater drainage ditch (from the loading dock area) that discharges directly to Coddle Creek. The substrate in Coddle Creek adjacent to the outlet of the stormwater drainage ditch appeared dark red of unknown origin and was only observed in this immediate area of the creek. In addition, the soil throughout the stormwater drainage ditch was still damp from the previous discharges. Note: No discharges were observed to Coddle Creek by DWQIMRO staff during this site investigation. This Office will perform a follow-up inspection at this facility to ensure corrective actions have been incorporated.
					Total Kills for County: 1 Total Mortality for County: 150

Date	Kill Number	Waterbody	Location	Mortality	Comments
Craven					
7/20/2007	WA07006	Neuse River	Carolina Pines	6600	The investigation was prompted by NRRT staff review of water quality data from the channel marker 11 real-time water quality monitor. Data from the channel marker 11 monitor indicated an upwelling event had occurred during the early morning hours. The upwelling event was characterized by a considerable decrease in dissolved oxygen (DO) and increase in salinity in surface water at the monitor location. The observed drop in DO (down to 0.7 mg/L) created hypoxic conditions favorable for a fish kill. NRRT staff discovered the fish kill upon arrival to the Carolina Pines area at approximately 09:30. The fish kill extended approximately 3/4 of a mile and included spot, croaker, menhaden, silver perch, trout, flounder and needlefish. Team members estimated 6,666 fish were killed during the event. There was no indication of an algal bloom and no lesioned fish were observed. The fish kill appeared to have taken place approximately 12 hours prior to NRRT arrival, coinciding with the observed upwelling event. Physical parameters were measured with a Hydrolab MS-5 equipped with an optical DO probe. Additionally, water quality samples, including phytoplankton, nutrients, and chlorophyll, were collected during the investigation. Measured DO concentrations were 7.1 mg/L at the surface and multiple species of fish were observed swimming in the vicinity of the fish kill during the investigation. Data from the Carolina Pines NCSU real time water quality monitor was utilized by NRRT staff following the onsite fish kill investigation to corroborate data from the channel marker 11 real time water quality monitor. Samples showed algal assemblages typical for summer and resembles the Neuse River samples collected earlier in the month during the ambient monitoring run. The dominant taxa were the flagellated chrysophyte Paulinella, the filamentous bluegreen Cylindrospermopsis, and the flagellated raphidophyte Heterosigma.
7/23/2007	WA07007	Private Pond	near Fairfield Harbor	52	The groundskeeper at Fairfield Harbor contacted the Neuse River Rapid Response Team (NRRT) on July 23, 2007 regarding a fish kill in a private pond located at Fairfield Harbor. NRRT staff responded and counted 42 dead fish ranging in size from approximately 8" to 24". The fish kill consisted of multiple freshwater species including gizzard shad, grass carp, bluegill bream, yellow perch, largemouth bass, channel catfish, and american eel. During the investigation, pond water was blue/green in color and cloudy. Physical parameters were measured and did not indicate an algal bloom was in progress. Water samples were also collected for phytoplankton, chlorophyll, and nutrients. Fish appeared to have been dead at least 48 hours. It was difficult to establish the reason for the fish kill due to the state of decomposition and time lapse between the kill and the investigation.
7/29/2007	WA07008	Fairfield Harbor Canals		98	Mr. Mark Klipinger, resident of Fairfield Harbor, reported a fish kill on July 29, 2007 in the canal system at Fairfield Harbor. NRRT staff responded and counted 98 dead fish ranging in size from approximately 8" to 24". The fish kill consisted of three freshwater species; channel catfish (accounting for 91 of 98 dead fish), bream, and yellow perch. Dead fish associated with this fish kill were observed throughout the canal system although the majority were located in the northwest portion of the canal system (winds were out of the Southeast). Several species of estuarine fish were observed swimming in the canals during the investigation. Physical parameters were measured and did not indicate an algal bloom was in progress. Water samples were also collected for phytoplankton, chlorophyll, and nutrients. Fish appeared to have been dead at least 48 hours as evidenced by the state of decomposition. The algal assemblage in water samples was typical for the lower Neuse River during summer. The dominant algal groups were small chrysophyte flagellates, chain forming diatoms (Aulocoseira, Chaetoceros), and dinoflagellates (Karlodinium, Scrippsiella).

Date	Kill Number	Waterbody	Location	Mortality	Comments
8/13/2007	WA07014	Hancock Creek	above Cherry Point MCAS	118	The Neuse River Rapid Response Team received a report of a fishkill at the headwaters of Hancock Creek on Monday August 13, 2007. Upon investigation, team staff found 118 dead catfish and panfish in an area encompassing approximately 0.6 river miles. Fish appeared to be 48-72 hours old and highly decomposed. At the time of investigation, dissolved oxygen (DO) concentrations were low, measuring 1.0 mg/L at the surface and 0.2mg/L at 1 meter bottom depth while salinity was relatively high, measuring 4.7 ppt at the surface and 11.7 ppt at 1 meter bottom depth. Water color and clarity were indicative of an algae bloom although pH and DO measurements were not characteristic of an active bloom at the time of investigation. Weather may have contributed to this fish kill event as a period of strong north winds and heavy rains coincided with the estimated time of the fish kill. Physical measurements recorded at the real-time water quality monitor at Channel Marker 9 indicated an increase in water level that would likely have created a rise in salinity in the headwaters of Hancock Creek. High salinity combined with low DO concentrations and high water temperatures provided stressful conditions that likely led to the fish kill.
8/23/2007	WA07010	Neuse River	Marker 38	59	During routine maintenance of the Neuse River CM38 continuous water quality monitors, Mr. Maverick Raber of the NRRT observed dead gar in the vicinity. Upon completion of maintenance activities, Mr. Raber and Mr. Ryan Rassmussen of the USGS investigated the area and discovered a total of 59 dead fish, primarily longnose gar, that had been dead 24-48 hours. Conditions at the CM38 water quality monitors did not indicate the presence of an algal bloom and several species of fish were observed swimming in the area. The kill area covered approximately 0.75 river miles.
8/30/2007	WA07012	Neuse River	Hwy 70 Bridge	36	While commuting from the CM9 to CM38 continuous water quality monitors, Mr. Maverick Raber of the NRRT and Mr. Ryan Rasmussen of the USGS observed a total of 33 dead gizzard shad and 3 dead longnose gar just downstream of the Highway 70 Bridge in the Neuse River. Fish had been dead approximately 24 hours as noted by the state of degradation. The fish kill appeared to be the result of net fishing activities as net marks were observed on several of the fish.
9/3/2007	WA07013	Upper Broad Creek	near Lee's Landing	2200	Live fish observed in the fish kill area appeared lethargic and a few may have been dying. None of the fish observed in the fish kill had lesions. Algal bloom samples were collected in the area of the fish kill although there were no signs of an active bloom. Recent drought conditions combined with strong northeast winds during the previous few days has resulted in relatively high salinity concentrations in the headwaters of Broad Creek. The drought has caused higher salinity waters to move farther upstream than normal. The northeast winds created a wind-generated tide that "pushed" higher salinity waters even farther upstream. NRRT team staff measured salinities in the fish kill area as high as 13 ppt, or nearly half the strength of sea water. Additionally, measured dissolved oxygen concentrations in the fish kill area were low, ranging from 0.4 mg/L to 1.6 mg/L. High salinity concentrations combined with low DO concentrations created highly stressful conditions to freshwater fish species and are the likely cause of this fish kill event.
10/23/2007	WA07015	Slocum Creek	near mouth	183	The Neuse Rapid Response Team (NRRT) responded to a report of several dead longnose gar and other species in a pile at the mouth of Slocum Creek on October 23, 2007. Upon investigation, NRRT staff counted 183 dead fish, primarily longnose gar. The fish were located above the high water mark on a 15 square meter area of beach and appeared to have been dead less than 24 hours. This fish kill is apparently the result of gill net fishing activities as net marks were apparent on several fish. Several gill nets were observed set just outside the mouth of Slocum Creek on the Neuse River. Water quality samples were not collected for this fish kill event.

Total Kills for County: 8 Total Mortality for County: 9346

Date	Kill Number	Waterbody	Location	Mortality	Comments
Cumberland					
7/10/2007	FA07001	Private Pond	Fayetteville	105	Kill appeared to be due to oxygen depletion due to turnover of water column. Upon talking with landowner, it was noted that he thought the kill began after a hard rain approximately a week ago. DO was 5.3 on shallow side of pond and 3.5 on deeper side. He indicated at first that he thought the kill was due to herbicide application nearby that occured approximately a month ago. Pond was uphill of herbicide application site so it is not believed to be the cause. Live fish, turtles, and frogs were seen still alive in the pond.
					Total Kills for County: 1 Total Mortality for County: 105
Davidson					
8/1/2007	WS07001	Lake Tom-A-Lex	near Thomasville	225	Fish had no signs of disease, no visible parasites, sores, tumors, etc. Two fish that were still alive were floating belly-up. Investigators did not see anything to indicate there was anything dumped. Water described as pea green, possible algal bloom.
					Total Kills for County: 1 Total Mortality for County: 225
Gates					
6/8/2007	WA07005	Bennetts Creek	below Merchants Millpond	400	Low dissolved oxygen was cited as the cause and most likely due to the ambient conditions of low water, high air and water temperatures and presence of a dense mat of duckweed. During low water conditions, pools below millponds are subject to these fish kills. Nearby bridge project possibly contributed to the situation.
					Total Kills for County: 1 Total Mortality for County: 400
Haywood					
9/7/2007	AS07004	Pigeon River	below Canton	8000	Kill event attributed to low flow/DO and high water temperatures brought on by ongoing drought conditions. Investigators observed numerous live fish during the investigation.
					Total Kills for County: 1 Total Mortality for County: 8000
Henderson					
7/27/2007	AS07003	S.Fork Mills River	near Mills River	1000	Investigators suspected event was related to pesticide application in adjacent tomato fields. DWQ water samples showed the presence of Chlorothalonil in field runoff and samples collected from the river. The event occurred after heavy rain following pesticide application. Majority of affected fish were identified as rainbow trout. Event also had significant effects on the aquatic insect population. This area of the South Mills River supports a documented population of the federally listed Appalachian elktoe mussel (Alasmidonta raveneliana), an endangered species. A follow up survey conducted on July 29 indicated that all located mussels were in good condition.
					Total Kills for County: 1 Total Mortality for County: 1000

Date	Kill Number	Waterbody	Location	Mortality	Comments
Hyde					
8/25/2007	WA07011	Pungo River Canal	above Leachville	778	PRRT staff responded August 25th. A fisherman noticed dead catfish along the Pungo River August 24th. The fish kill began north of the Leechville Bridge near the confluence of Herring Run and extended approximately 3.5 miles to where the Piney Grove Landing area connects with the Pungo Canal. Over 778 catfish were counted. Sizes ranged from 100 to 250 mm in length. These fish were estimated from 24-48 hours old. No obvious lesions were observed. Staff observed heavy organic algal film along the surfacewaters over several miles although there was no indication of an algal bloom at present. Physical water quality data closest to the upstream portion of the kill indicated salinities from 4 to 5 parts per thousand from the surface to the bottom with DO values from 4 to 1 mg/L top to bottom respectively. Downstream data seemed to be more homogeneous with consistent salinities of 5 ppt and and DO values of 3 mg/L. This area had periods of heavy rainfall on August 22nd. The cause of this fishkill may have been a combination of previous algal bloom activity, low DO, and sudden pulses of rainfall into the system.
					Total Kills for County: 1 Total Mortality for County: 778
Mecklenburg					
7/25/2007	MO07001	Stewarts Creek	Lawton Road, Charlotte	40	Fishkill due to sanitary sewer overflow from industrial property. Overflow reached Stewarts Creek. Overflow contained at least one type of dye with colored the water purple/blue. The overflow was stopped at the time MCWQP arrived at the site around 9:00am and may have been ongoing for some time before 8:00am. The event occurred at 701 Lawton Road in Charlotte NC.
9/1/2007	MO07002	Little Sugar Creek	Charlotte	15000	Kill event caused by runoff of degreaser (Orange Tough 90) used to powerwash concrete areas at Carolina Medical Center in Charlotte. Product was entering the storm drain system and discharging into Little Sugar Creek. Degreaser had been applied for 11 hours beginning at 10:00 PM on 8/31/07. Enforcement action initiated by DWQ Mooresville office.
					Total Kills for County: 2 Total Mortality for County: 15040
Mitchell					
5/1/2007	AS07001	Whiteoak Creek	near Bakersville	250	Sediment pesticide sample (organochlorine, organophosphorus, nitrogen) collected at most upstream site on White Oak Creek where dead fish observed. Pesticide sample collected due to Christmas Tree farm in the watershed.
					Total Kills for County: 1 Total Mortality for County: 250
Nash					
9/17/2007	RA07002	Tar River Reservior	Sapony Creek Arm	500	The drought conditions were severe in this area and played a significant role in this fish kill. The Sapony Creek arm of the Reservior is stocked in the fall-winter yearly with fish. It would be unlikely that the water body could support fish life anytime in the near future, as the Reservior is almost completely dry with little to no moving water. An algal bloom may have occurred during the low flow conditions, worsening the situation. Possible sources of agricultural chemicals and nutrients are in the area, as many farms surround the Sapony Creek, but no evidence suggest this was a primary cause of the fish kill.
					Total Kills for County: 1 Total Mortality for County: 500

Date	Kill Number	Waterbody	Location	Mortality	Comments
Pasquotank					
5/2/2007	WA07002	Knobs Creek	Elizabeth City	100	Low DO observed at time of investigation. Staff walked upstream of event taking hydrolab data. These data indicate DO levels increasing slightly, but the waters remained turbid and whitish in color. Further observation upstream indicated two prongs of this stream that split off. One prong was piped to the other side of highway 17 and seemed to have no riparian buffer and the other prong paralleled US 17 and had some buffer, although this stream 'ended' at a retention pond from Lowe's parking lot. This area is heavily urbanized. Water samples did not indicate algal bloom according to ESS staff.
					Total Kills for County: 1 Total Mortality for County: 100
Rutherford					
8/29/2007	AS07002	Broad River	Below Lake Lure Dam	100	Kill was attributed to a dissolved oxygen sag below the Lake Lure dam. Event occurred following several weeks of drought conditions, hot weather and low flow. The event involved mostly suckers up to 12 inches in length. The event was first reported in the evening hours of 8/28/07.
					Total Kills for County: 1 Total Mortality for County: 100
Wake					
3/26/2007	RA07001	Walnut Creek	Lake Johnson	600	Gizzard Shad kill throughout the entire lake. No other species noted. Park personnel stated water temps had risen significantly over the last few days (from 12.2 degrees C to 16.6 degrees C.) Water Temp was 18.7 degrees C at the time of investigation.
					Total Kills for County: 1 Total Mortality for County: 600
Wayne					
4/24/2007	WA07001	Long Branch	Goldsboro	100	Approximately 100 fish were found piled on a hill by PRRT staff on April 24th, adjacent to the pond shoreline. These fish were mainly gizzard shad less than 20 cm in length with no visible sores or lesions. Residents revealed some bass that died and were collected and dumped on the side of the pond that was not observed by PRRT staff. The pond was around 2 acres and was apparently dug to serve as stormwater retention when the adjacent condominiums were built over 20 years ago. The pond receives baseflow in from Long Branch, which drains the southern portion of the city of goldsboro and discharges to Stoney Creek. The cause of the kill could be due to several factors. Pond overturn and strong temperature variations may have stressed resident fish. Nutrient inputs from previous northeaster may have also caused algal blooms, as instruments revealed very high DO % saturation values downstream towards the widest portion of the pond. The homeowner's association meeting indicated previous fish kills in the past and new construction is slated adjacent to the pond shoreline in the next few months. This information is being forward to SWPS' Chris Pullinger for further investigation of potential buffer violations.
					Total Kills for County: 1 Total Mortality for County: 100

NORTH CAROLINA'S COASTAL HABITAT PROTECTION PLAN

2006 - 2007

ANNUAL REPORT

TO THE

JOINT LEGISLATIVE COMMISSION ON SEAFOOD AND AQUACULTURE

AND

ENVIRONMENTAL REVIEW COMMISSION

OF THE

NORTH CAROLINA GENERAL ASSEMBLY

FROM

NORTH CAROLINA MARINE FISHERIES COMMISSION,
NORTH CAROLINA COASTAL RESOURCES COMMISSION, AND
NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION
AND
NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

September 2007

Highlights

September 2006 – August 2007 Accomplishments

- Significant progress regarding stormwater runoff and rule development as the new Phase II rules went into effect and the proposed Coastal Stormwater rules went to public hearings
- Coordinated enforcement of rules between the Division of Marine Fisheries (DMF) and the Division of Coastal Management (DCM) and the continued cross training of Marine Patrol
- Funding of compliance (DCM) and mapping positions (DMF, DEH) by the General Assembly
- Interagency and intercommission coordination of rules and permits and the continued involvement of the CHPP coordinator based in the Washington Regional Office
- Developed comprehensive approach to problems identified in Wilmington/New Hanover County regarding infrastructure, maintenance, and capacity of wastewater management system. DENR worked with the city/county to establish benchmark, and the City/County system was placed under a Special Order of Consent (SOC) to correct the problems
- Oyster reef sanctuary program enhancement through increased funding and visibility
- Enhanced cooperative interagency work to map Shellfish and Submerged Aquatic Vegetation habitats
- Increased level of public involvement and outreach
- Completion and adoption of the Strategic Habitat Area (SHA process)
- Funding of the Beach and Inlet Management Plan (BIMP) and the beginning of a long term effort to put a plan in place
- Adoption by the Coastal Resources Commission (CRC) of Beach Sediment Criteria rules
- Enhanced ability to enforce coastal rules and increased CAMA civil penalties by the General Assembly
- CRC's Shoreline Stabilization Subcommittee completed its report and its list of recommendations regarding the placement and suitability of hardened shoreline structures along estuarine shores.

September 2007 – August 2008 Planned Action and Needs

- Continue work towards adoption and implementation of the Environmental Management Commission's (EMC) amended Coastal Stormwater Rules
- Ensure the progress of the BIMP (CRC/DCM)
- Delineate SHAs in the Albemarle Sound priority area (MDMF/MFC)
- Review "Inner Banks" development issues and address environmental issues (CRC/DCM, DWQ/EMC)
- APNEP to finalize estuarine environmental indicators
- DCM to complete marina and dock siting policies and initiate CRC rule development
- Continue to analyze dam removal and encourage removal where practical and necessary
- Begin to seriously address the challenges associated with Sea Level Rise
- Continue to increase public awareness on the value of and threats to coastal fish habitats and the role of the CHPP process to protect and enhance these resources.
- Facilitate state agencies' review and coordination of rules regarding Sea Level Rise and flooding which may result from major storms as they pertain to the siting of landfills and confined animal operation waste treatment lagoons
- Pursue non-traditional ways to mitigate and offset nutrient impacts
- Support use of dye tablets for vessels at marinas to encourage use of pumpout stations (for fear of enforcement tracing)

- Seek dedicated funding to staff DCM's Clean Marina Program and effectively implement Best Management Practices as a non-regulatory way to improve water quality in and around marinas and docks
- Continue development and refinement of shoreline stabilization rules that preserve ecosystem function and consider rising sea levels and a changing land/water interface
- Take steps to encourage more restoration of degraded waters
- Continue to identify problems regarding infrastructure for WWTPs and system maintenance. Work with the local governments to develop and implement plans to correct deficiencies

Introduction

Fisheries Reform Act

The North Carolina General Assembly established the Coastal Habitat Protection Plan program within the North Carolina Department of Environment and Natural Resources (DENR) with passage of the Fisheries Reform Act of 1997. The Act (General Statute or G.S. 143B-279.8) requires preparation of Coastal Habitat Protection Plans (CHPPs) for critical fisheries habitats in the coastal area. The Act states "[t]he goal of the Plans shall be the long-term enhancement of coastal fisheries associated with each coastal habitat." Within DENR, the Divisions of Marine Fisheries, Water Quality, and Coastal Management are designated as the lead agencies for implementing the CHPP program. Many other DENR agencies also participate in CHPP work. By law the CHPP includes:

1. A description of fisheries habitats and their biological systems;
2. An evaluation of the functions, fisheries' values, status, and trends within the habitats;
3. Identification of existing and potential threats to the habitats and impacts of those threats on coastal fishing; and
4. Recommended actions to protect and restore the habitats.

Role of the Commissions

The Coastal Resources, Environmental Management, and Marine Fisheries commissions adopted the CHPP in December of 2004. Now that the CHPP has been adopted, along with implementation plans which were adopted by each commission in June and July 2005 (see Implementing the North Carolina Coastal Habitat Protection Plan 2005), rule making and policy actions taken by all three commissions are to comply "to the maximum extent practicable" with the plan.

The three commissions are to report by 1 September each year to the Joint Legislative Commission on Seafood and Aquaculture and the Environmental Review Commission on their progress in implementing the Coastal Habitat Protection Plan. This document reports on the progress made by the respective commissions and their supporting agencies in implementing the CHPP during year beginning in September 2006 and ending in August 2007.

North Carolina Coastal Habitat Protection Plan (CHPP)

The CHPP focuses on six basic fish habitat: water column, shell bottom, submerged aquatic vegetation (SAV), wetlands, soft bottoms, and ocean hard bottom. A chapter is devoted to each type. Each of the habitat chapters is organized to provide the information specified in the Act:

- Description and distribution of the habitat,

- Ecological role and function,
- Status and trends,
- Threats, and
- Recommended management actions to deal with the threats.

The CHPP describes the functions of habitats necessary for production of economically important fish stocks and the links between those habitats and various life history stages of the fish. The CHPP also discusses the various types of threats to the habitats upon which productive coastal fisheries depend. Moreover, the plan summarizes the institutional structures for management of fisheries habitat, adjacent lands, water quality, and fisheries in eastern North Carolina. Finally, the plan includes 19 management recommendations for the Coastal Resources, Environmental Management, and Marine Fisheries Commissions, DENR (primarily the divisions of Water Quality, Coastal Management, and Marine Fisheries), and others to implement in order to address the identified threats.

Attachment 1 lists the current members of the CHPP Steering Committee.

Major Accomplishments of the CHPP Implementation Plan

After the CHPP was formally adopted in December of 2004, the commissions, their administrative divisions, and DENR also developed and adopted implementation plans during the summer of 2005. These implementation plans detail more than 100 specific steps they would take during the 2005/06 – 2006/07 fiscal years to implement the CHPP recommendations.

Numerous specific actions have been accomplished or are underway. All three commissions and their DENR agencies are active in using the CHPP and its recommendations as guidance in their regulatory and operational programs. Attachment 2 lists the major accomplishments which were part of the 2005-2007 CHPP Implementation Plan and were completed this past year. Attachment 3 is the newly adopted 2007-2009 CHPP Implementation Plan, which includes the action items for the Department, its agencies and their respective commissions.

Administration and Public Outreach

- Administrative Activities

  During the summer of 2007, a second two-year implementation plan was endorsed by the Department, its agencies and the regulatory commissions. This second iteration of the two year implementation plan once again details more than 100 specific action items DENR, its divisions and their respective commissions will undertake in the next two years to continue to carry out the CHPP recommendations. The draft and approved implementation plans were placed on the CHPP web site to facilitate public review. This new implementation plan will be placed on the CHPP web site, along with the accomplishments from the previous two years, to once again facilitate public review. In addition, this second two-year implementation plan will be included in a new publication which will be designed, printed and distributed to the general public early in 2008.

- Public Outreach

  The CHPP Steering Committee, comprised of two members each from the Environmental Management, Coastal Resources, and Marine Fisheries commissions, continues to be very active role in the CHPP implementation process. Members of the Steering Committee meet quarterly with senior DENR officials and technical staff from DENR divisions and the Wildlife Resources Commission

(CHPP Team) to discuss CHPP related topics and exchange information regarding CHPP implementation activities of the respective commissions and divisions.

The DENR assigned its Eastern Region Field Officer as the coordinator for CHPP implementation. This person is strategically housed in the DENR Office of Conservation and Community Affairs, which also include the Albemarle-Pamlico National Estuary Program (APNEP) and the One North Carolina Naturally program, both of which focus heavily on improved management of important habitats, including the coastal area.

The CHPP Coordinator and the CHPP Team members participate in relevant meetings and give numerous CHPP presentations at various gatherings concerning coastal issues: DENR and its agencies, the Commissions, Coastal Resources Advisory Council, North Carolina Sea Grant Program, APNEP, Outer Banks Association of Realtors, The Nature Conservancy, the NC Coastal Caucus, the North Carolina Coastal Federation, local governments, and several local civic clubs and groups with environmental concerns.

In 2005, the CHPP program published the booklet *Implementing the North Carolina Coastal Habitat Protection Plan 2005* to provide an easy-to-understand version of the initial two year CHPP Implementation Plan. This booklet continued to be a valuable resource this past year. The three posters produced in the summer of 2006 under the theme "Home is where the habitat is...." were widely distributed through the State aquariums, environmental education centers and the various DENR divisions. The posters feature seagrass habitat, shell bottom, and the water column.

The Coastal Habitat Protection Plan was also a continuing theme in the *One NC Naturally Quarterly Newsletter.* Articles about Strategic Habitat Areas, river herring, and the 2007-2009 Implementation Plan were featured in the newsletter in 2006. The newsletter is distributed by DENR's Office of Conservation and Community Affairs through the NC1 listserve.

The DCM produced a series of programs centered on the CHPP and specific habitat functions this past year. These programs were done in conjunction with *NOAA in the Carolinas* in May and featured SAV habitats, marshlands, soft bottom and shell bottom. The segments were seen by approximately 5,000 students during the three day on-line event.

The CHPP table top display was used at several meetings concerned with coastal habitat, such as the North Carolina Oyster Day held in Raleigh in late May. CHPP Team members gave talks at meetings of the NC Soil and Water Conservation Commission, the annual meeting of the Soil and Water District Supervisors, the Pamlico Tar River Foundation's quarterly meeting and the Onslow Bight Estuarine and Marine Conservation Planning Group. CHPP team members and the Eastern Regional Field Officer provided updates to the CRC, EMC and MFC on a regular basis. In the three months prior to this report, the website for the CHPP continues to be one of the most accessed sites that the DMF tracks averaging 4858 visits per month and 3224 downloads per month.

Other Accomplishments

The CHPP, as adopted in 2004, identified more than 90 research needs. In 2005, the CHPP Team summarized those needs in a report placed on the CHPP web site and distributed to the academic, and state and federal agency research community. The identified research needs continue to be a vital component of the CHPP and its 2007-2009 Implementation Plan and the original report of research needs continues to be available on the CHPP web site.

With assistance from the divisions of Coastal Management and Marine Fisheries, as well as the Albemarle-Pamlico National Estuary Program (APNEP), Elizabeth City State University (ECSU) continued to operate a remote sensing program and laboratory. Much of the justification for the grant was based on the need to obtain and analyze remotely sensed data (including satellite imagery and aerial photography) to aid in preparation of the CHPP. Under this program, ECSU staff is mapping sea grass beds in northeastern North Carolina, including Currituck Sound and Back Bay, Kitty Hawk Bay, and portions of Albemarle Sound.

The APNEP, in conjunction with NOAA, NCDOT, ECSU and several DENR agencies has taken the lead in funding and coordinating a statewide effort to aerially photograph all high salinity and low salinity beds of Submerged Aquatic Vegetation. The flights to digitally photograph the coastal waters of North Carolina will be flown this fall and next spring. The photographs will be used by several agencies involved with permitting, as well as used to help inventory docks, piers and hardened shoreline structures.

ATTACHMENT 1.

CHPP STEERING COMMITTEE MEMBERS, 2006 – 2007

Marine Fisheries Commission		
Dr. Barbara Garrity-Blake	Gloucester	252-729-8021
Dr. B. J. Copeland	Pittsboro	919-837-5024
Environmental Management Commission		
Dr. Charles H. Peterson	Morehead City	252-726-6841
Mr. Tom Ellis	Raleigh	919-872-0897
Coastal Resources Commission		
Dr. Courtney Hackney	Wilmington	910-962-3759
Mr. Bob Emory	New Bern	252-633-7417

ATTACHMENT 2.

NORTH CAROLINA COASTAL HABITAT PROTECTION PLAN GOALS AND IMPLEMENTATION RESULTS

North Carolina has a number of programs in place to manage coastal fisheries and the natural resources that support them. The Coastal Habitat Protection Plan (CHPP) has identified gaps in the protection provided for important fish habitats under these programs, and also notes that these habitats would benefit from stronger enforcement of existing rules and better coordination among agencies. The focus of the CHPP, per the Fisheries Reform Act of 1997, is on activities regulated by the Marine Fisheries, Coastal Resources and Environmental Management Commissions. During the summer of 2007 each Commission and the Department of Environment and Natural Resources (DENR) adopted a second two-year set of plans to implement the recommendations found in the CHPP, once again with a focus on actions that could be taken based on existing resources and within the 2007-2009 budget cycle. Some actions are well underway towards being completed, while others are just beginning. -Most will be completed before the update of the CHPP scheduled for 2010. There continues to be a basic understanding among agencies that all recommendations and their associated actions will be supported regardless of lead agency. Listed in this attachment are some of the completed actions, as well as those which will be completed within the year.

Department of Environment and Natural Resources

DENR is the lead stewardship agency for the preservation and protection of North Carolina's outstanding natural resources. The Department, which has offices from the mountains to the coast, administers regulatory programs designed to protect air quality, water quality, and the public's health. Through its natural resource divisions, DENR manages fish, wildlife, and wilderness areas. The DENR implementation plan focuses on coordination among the Commissions and the Department, as well as ensuring that all DENR Divisions are taking actions consistent with the goals and recommendations of the CHPP.

Marine Fisheries Commission and Division of Marine Fisheries

The Marine Fisheries Commission (MFC) and Division of Marine Fisheries (DMF) manage the commercial and recreational fisheries in North Carolina's estuarine and ocean waters. These waters, including their specific physical habitats (water column, wetlands, sea grasses, soft and hard bottoms, and shell bottoms), produce the finfish, shrimp, crabs, oysters, and other economically important species sought by fishermen, as well as the forage base that supports them. The Division implements the Commission's rules and Department initiatives. The Division's mission is to ensure sustainable marine and estuarine fisheries for the benefit of the people of North Carolina. Division staff drafted the CHPP, and they will staff many of the groups working on implementation actions. Staff in DMF district offices will also utilize CHPP information to review potential impacts of coastal development projects.

Environmental Management Commission and Division of Water Quality

The Environmental Management Commission (EMC) is responsible for adopting rules for the protection, preservation and enhancement of the State's air and water resources. The Commission oversees and adopts rules for several divisions of DENR, including the Divisions of Air Quality, Water Resources, and Water Quality. The goal of the Division of Water Quality (DWQ) is to maintain or restore and improve the aquatic environment and to ensure compliance with state and federal water quality

standards. In coordination with the CRC and MFC, and their respective staffs, the EMC and DWQ have developed specific actions to implement the CHPP recommendations.

Coastal Resources Commission and Division of Coastal Management

The Coastal Resources Commission (CRC) establishes policies for North Carolina's Coastal Management Program and adopts implementing rules for both the N.C. Coastal Area Management Act (CAMA) and the N.C. Dredge and Fill Law. The commission designates areas of environmental concern, adopts rules and policies for coastal development within those areas, and certifies local land-use plans. The Division of Coastal Management (DCM) serves as staff to the CRC and works to protect, conserve, and manage North Carolina's coastal resources through an integrated program of planning, permitting, education and research. With jurisdictional authority at the interface of many of the habitats identified in the CHPP, the CRC and DCM take actions to compliment those of the MFC/DMF and EMC/DWQ.

GOAL 1

IMPROVE EFFECTIVENESS OF EXISTING RULES AND PROGRAMS PROTECTING COASTAL FISH HABITATS

Division of Coastal Management

(1.1) CRC has approved rule revisions for public hearing, which will strengthen DCM's enforcement programs after successfully seeking legislation to raise maximum Coastal Area Management Act penalties to $1,000 for a minor development violation and $10,000 for a major development violation. Anticipated effective date – December 1, 2007.

(1.1) The Coastal Reserve and DCM's Regulatory Branch hosted four workshops for marine contractors in February 2007. These workshops provided marine contractors with up-to-date information on rules for coastal development. The workshops included an overview of general permit fees, construction of bulkheads, placement of riprap, and construction of piers. Coastal Management's shoreline stabilization, and pier and dock development initiatives were also be discussed with comments included in drafts being considered by the CRC.

(1.1) The 2006-2007 North Carolina budget provided four new compliance and enforcement positions for DCM. These positions, one based in each of the four district offices, will focus primarily on compliance monitoring of permits issued under the CAMA and the State's Dredge and Fill Law and enforcement activity. In addition, these positions will provide compliance assistance to the regulated communities on how to comply with regulatory requirements. DCM has filled these positions.

(1.1) N.C. National Estuarine Research Reserve's System-Wide Monitoring Program (SWMP) has been integrated with DWQ, APNEP and DMF monitoring efforts.

(1.3) In conjunction with NOAA in the Carolinas on May 9, 2007, the NC National Estuarine Research Reserve produced a segment of Estuary-Live focusing on Shell Bottom, Marsh, Soft Bottom and SAV habitats. Approximately 5,000 students participated in this online 3-day event. CHPP habitats will be a recurring theme for Estuary-Live.

(1.3) The Mid-Atlantic Marine Educators Association held a conference at the Aquarium at Pine Knoll Shores for teachers and educators on March 2, 2007. Participants took part in several activities specifically addressing the CHPP habitats.

(1.3) North Carolina's Clean Marina Program and Clean Vessel Act activities will emphasize the threats to fish habitat and the benefits of BMPs

(1.4) DWQ Basinwide Planners are reviewing CAMA Land Use Plans including plans for Currituck County, Hyde County, Emerald Isle, Oriental, Manteo and Southport.

Division of Water Quality

(1.1) Two new full-time compliance positions were added in the Washington and Raleigh regional offices.

(1.1) DWQ continues to inspect high density Coastal Stormwater Permits as they come up for renewal.

Division of Marine Fisheries

(1.1) DCM trained DMF Marine Patrol to assist in noting and reporting possible CAMA permit violations

(1.1) DMF prepared draft Shellfish and Submerged Aquatic Vegetation (SAV) habitat survey methods for Division of Coastal Management to provide to CAMA permit applicants to use in the permit application and review process

(1.2) DMF and NOAA developing cooperative SAV habitat research program

(1.3) Incorporated CHPP information into DMF outreach activities

Department of Environment and Natural Resources

(1.2) Received funding for continuation of cooperative university-DOT water quality monitoring in Pamlico Sound through the FERRYMON program

(1.2) The Division of Environmental Health (DEH) completed the mapping of all permanent shellfish harvest area closures and created new closure maps for distribution. All closure maps are now accessible on the DEH Web Site: http://www.deh.enr.state.nc.us/shellfish/maps.htm

(1.2) GIS shellfish waters classification layer is now available on the NC One Map.

(1.2) DEH completed the new shoreline survey methodology for the four pilot shellfish growing areas.

(1.2) DEH received funding from the General Assembly for three new positions to expand the new Shellfish Sanitation Shoreline Survey methodology in all shellfish growing areas.

(1.2) DEH, through Shellfish Sanitation is developing a data system to share information with other DENR agencies.

(1.3) A draft of a new Memorandum of Agreement has been developed by NC Division of Forest Resources (DFR) and shared with staff of DWQ for their agency review and comments.

GOAL 2

IDENTIFY, DESIGNATE AND PROTECT STRATEGIC HABITAT AREAS

Division of Marine Fisheries

(2.1) Submerged Aquatic Vegetation (SAV) cooperative mapping:

- DMF signed MOU for cooperative SAV mapping and research efforts
- DMF accepted lead responsibilities for SAV mapping groundtruth process and overall data management
- DMF and partners trained 117 persons from various agencies in standardized SAV ground truth sampling methods to be used starting Fall 2007

(2.1) Shellfish habitat mapping:

- DMF received state funding to enhance mapping activities
- 4 new state funded mapping positions
- One GIS analyst to manage mapping data
- Begin mapping in Brunswick County
- Begin mapping deep waters in Pamlico Sound system

(2.2) Strategic Habitat Area (SHA):

- DMF completed the Strategic Habitat Area process report
- MFC approved the Strategic Habitat Area process report
- DMF began analysis to implement SHA process in Albemarle Sound area in support of River Herring FMP implementation
- DMF and Sea Grant funded a fellowship to assist in data analysis for the Albemarle Sound SHA determination

Division of Coastal Management

(2.1) DCM initiated a three Phase Monitoring Program for seagrass in the Coastal Reserves. Completed the mapping of Rachel Carson Reserve and will begin mapping of the Masonboro Island Reserve. The Coastal Reserves are tracking location, coverage by species, light, salinity and depth. They are considering adding nutrient load to the monitoring protocol. DCM signed MOU for cooperative SAV mapping and research efforts

Division of Water Quality

(2.1) DWQ signed MOU for cooperative SAV mapping and research efforts

(2.2) DWQ coordinated with DOT to conduct a feasibility study regarding SAV restoration and mitigation in the Currituck Sound.

Department of Environment and Natural Resources

(2.1) APNEP coordinated Interagency SAV mapping effort and managed the contract to obtain digital aerial imagery of the North Carolina coast for mapping of SAV. Mapping project currently over 75% complete and ongoing.

GOAL 3

ENHANCE HABITAT AND PROTECT IT FROM PHYSICAL IMPACTS

Division of Marine Fisheries

(3.1) DMF received state funding to enhance oyster restoration

(3.1) Oyster shell recycling

- One new state funded position to enhance shell recycling
- More than 100 recycling sites established, mostly with volunteers
- About 13,000 bushels of recycled shells annually
- New state laws to support shell recycling
  - No oyster shells in landfills (effective 7/1/2007)
  - State tax credit for donated shells (effective 7/1/2007)
  - State agencies cannot use oyster shells for landscaping (effective in 2007 upon passage)

(3.1) Oyster sanctuary management

- 9 managed oyster sanctuaries in Pamlico Sound system
  - All closed to shellfish harvest
  - All function as artificial reefs

(3.5) Anadromous fish spawning areas (AFSAs) for coastal waters were designated in MFC rules. The WRC is undertaking similar rule designations for AFSAs in inland waters.

Division of Coastal Management

(3.2) The Beach and Inlet Management Plan (BIMP) was included in DCM's CZMA Section 309 5 - Year Program Enhancement Strategy (2006-2010) which has been approved by NOAA. Included in the BIMP are:

- DWR and DCM are collaborating to develop a comprehensive Beach and Inlet Management Plan (BIMP) for the State. Contractor selection has been completed. DCM and DWR have consulted with the Department and selected an Advisory Committee to define what such a plan should include and a timeline for development, as well as defining the areas to be managed. The Advisory Committee is comprised of appropriate state and federal agencies and members from the affected coastal communities.

- BIMP Advisory Committee – DENR has established a BIMP Advisory Committee of stakeholders. The Committee consists of representatives from the NC Ports Authority; USF&W Service; USACE; New Hanover County Ports, Waterway and Beach Commission; Environmental Defense; US Coast Guard; NC Dept of Commerce; ECU, NC Fisheries Assoc.; NCSU; Town of Topsail Beach; NC Sea Grant; Carteret County Shore Protection Office; National Marine Fisheries Service; Town of Caswell Beach; NC Coastal Federation; Town of Kill Devil Hills; and NC Division of Tourism, Film and Sports Development. The Committee held its first meeting in June 2007 to discuss the project with the contractor.

- Beach Fill Project Database: A database of historic, ongoing and future beach fill projects including beach nourishment, dredged material disposal, habitat enhancement, storm protection, and dune construction is being developed. Portions of this dataset already have been compiled by state and federal agencies as well as academic institutions. DCM is currently merging these data sets.

- DCM's proposal to receive a NOAA Coastal Services Center Fellow for the period of August 2007 to August 2009 was approved. The Fellow will be assigned solely to tasks associated with the development of the BIMP (beach fill database, working with advisory group, etc.). The Fellow will begin working with DCM staff in August 2007.

(3.4) The CRC is considering rule changes to its general permit for Shoreline Stabilization to reduce the distance waterward in which bulkheads encroach into public trust areas, by moving structure locations further landward of marsh vegetation to allow for marsh migration and to minimize construction impacts, and by promoting the benefits of rock structures. Currently, the DCM and the DWQ are discussing the recommended implementation strategies in order to most effectively incorporate each agency's management objectives for the coastal and estuarine shorelines.

(3.4) DCM's CZMA Section 309 5-Year Program Enhancement Strategy (2006-2010) has been approved by NOAA. The following activities are proposed specific to the estuarine shoreline:

Delineate the Estuarine Shoreline along with the Associated Shoreline Type and Shoreline Structures. The Center for Geographic and Information Systems (CGIA) has been contracted to determine the methodology for delineating the shoreline and structures for North Carolina. They have evaluated techniques such as LiDAR, Feature Analyst, and digitizing from the best available aerial photography. By July 2007, CGIA will deliver a suggested methodology report as well as a completed shoreline and delineated structures for all public trust waters in Carteret, Craven and Pamlico Counties.

Department of Environment and Natural Resources

(3.1)(b) The DFR, along with NCDOT and EEP, has begun gathering preliminary information in order to reestablish riparian wetlands and stream hydrology within the Little River watershed in the Neuse River basin and the Claridge Nursery sight near the city of Goldsboro.

GOAL 4

ENHANCE AND PROTECT WATER QUALITY

Division of Coastal Management

(4.5) The CRAC-sponsored a Stormwater Retrofitting Seminar in Manteo in conjunction with its March 2007 meeting. Approximately 70 attendees, including CRAC members, local elected officials, and municipal staff were present to learn about some of the technical and practical issues associated with retrofitting existing facilities for better stormwater control. DWQ briefed attendees on current and proposed permitting standards. Presentations were made on the technical aspects of retrofitting, focusing on his 16 broad criteria for designing a project. Staff of the N.C. Cooperative Extension Service office in Craven County highlighted projects that they have been involved with, and the services they offer to assist local governments that wish to undertake projects. Attendees also heard about the City of Kinston's experiences with retrofitting projects. A second seminar was held in Greenville in May 2007, and a third in Wilmington in July 2007.

(4.7) The CRC has been considering changes to the docks and piers rules that would address the recommendations of the Multi-slip Docking Facilities Advisory Group and give property owners greater flexibility in designing docks and piers. Staff has presented the Commission with a square footage of public trust coverage formula based on lot width. Such a formula would give riparian property owners an "allowance" of coverage that they could use to fit their needs. Certain aspects of the draft rule (pier width and height) have been sent back to the P&SI Committee for further consideration.

Division of Water Quality

(4.3) DWQ completed a survey of all municipally-owned stormwater outfalls to saline waters, including a GIS data layer.

(4.5) DWQ completed revision of its updated Stormwater Best Management Practices (BMP) Manual.

(4.6)(b) EMC completed the rulemaking process for, and began implementation of, the new Universal Stormwater Management Program.

(4.6)(b) The EMC and DWQ initiated comprehensive revision of Coastal Stormwater Rules in the 20 coastal counties.

(4.6)(b) The DWQ initiated implementation of Phase II Stormwater Rules with reduced low density thresholds for Onslow, Brunswick, and New Hanover Counties.

(4.6)(b) The EMC designated Morehead City and Atlantic Beach as new Phase II municipalities.

Department of Environment and Natural Resources

(4.5)(a) Within the DFR's four coastal districts, existing DFR bridgemats were used on 10 harvest tracts, protecting 12 stream crossings and accessing 426 acres of timberland. Specifications for new bridgemats have been drafted; purchase is expected later in calendar year 2007.

(4.5)(a) Currently the work order and final production costs for publishing the *NC Forestry BMP Quick-Reference Field Guide* are being developed between DFR and Correction Enterprises. It is expected that this field guide will be available for distribution in the fall of 2007.

(4.5)(c) Significant progress was made on the construction of an outdoor education and training pavilion at Clemmons Educational State Forest in Clayton, located within the targeted Beddingfield Creek watershed. This pavilion will be dedicated to the topic of nonpoint source pollution prevention and instructional workshops focusing on North Carolina's river basins. This pavilion is the first effort 'on-the-ground' to provide training and educational opportunities to the nearby community within the watershed and visiting school groups that frequently utilize the services of the State Forest.

Attachment 3

2007 – 2009 CHPP Implementation Plan

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
1.1. Enhance enforcement of, and compliance with, Coastal Resources Commission (CRC), Environmental Management Commission (EMC), and Marine Fisheries Commission (MFC) rules and permit conditions.							
1	The Department will seek funding for additional compliance positions in appropriate programs.	Yes	No	No	Yes		DWQ needs one more for Wilmington. Land Resources needs positions; CRAC sending letter of support for establishment of additional DWQ compliance positions.
2	Cross train Marine Patrol officers to take note of and report violations of EMC rules and permits in Coastal Waters to appropriate agencies.	Yes	Yes	No	Yes	Plan in FY 2007-08; train in 2008-09; implement following training.	
3	Enhance DMF habitat alteration permit review capability.	No	Yes	No	No	Establish program and staff in FY 2008-09	One position in each regional office plus one clerical position (total=5) as requested in DMF expansion budget.
4	Design an effective Inspection Program to focus more resources on areas that are critical to coastal habitat protection similar to Shellfish Sanitation shoreline survey program (Lead: DEH-SS Shoreline Survey Coordinator)	Yes	No	Yes	Yes	2007-08 (1st step)	Steps: 1-Organize a DENR interagency inspection task force to examine the issue and develop a system to accomplish the objective; 2-Produce a report with proposed new inspection regime and list of

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							additional resources necessary to execute the plan; 3-Begin implementing the plan
5	Conduct outreach to educate citizens in their jurisdictions about DWQ's Neuse and Tar-Pamlico riparian buffer rules.	No	No	No	Yes		
6	Share COE permit tracking system to address cumulative impacts.	Yes	No	Yes	No		
7	Coordinate DMF, DWQ, and Dept. of Agriculture and Consumer Services actions concerning aquaculture operations in order to protect and enhance surface waters and estuarine resources.	Yes	Yes	No	Yes	2008-09	
8	Develop permit application survey protocols for shellfish and SAV habitats for CAMA applicants to use.	No	Yes	Yes	No	2007-08	Draft protocols under review by DCM.
9	Ensure consistency in habitat definitions among agencies and commissions.	Yes	Yes	Yes	Yes		Draft rule language for SAV habitat being reviewed by MFC. CRC would change their definition to, "SAV as defined by MFC."
1.2. Coordinate and enhance water quality, physical habitat and fisheries resource monitoring (including data management) from headwaters to the nearshore ocean.							
10	Enhance dependable water quality monitoring by investing in Neuse Estuary MODMON and FerryMon.	Yes	No	No	No		Work to secure funding
11	The Department, through the Division of Environmental Health, will develop a data system for monitoring data and mapping of the closure of shellfishing waters to enhance the sharing of information among Departmental Divisions.	Yes	No	No	No		Maps available on DEH-SS and NC-One map websites
12	The Department, through the Division of Environmental Health, will continue to refine and expand the data gathered in shoreline surveys to more effectively assess	Yes	No	No	No		

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
	pollution impacts to shellfish growing areas.						
13	The Department, through the Albemarle-Pamlico National Estuary Program (APNEP), will develop a comprehensive monitoring plan for the estuarine system.	Yes	Yes	Yes	Yes	End of 2008	Coordinate with data sharing processes (Action# 16 below).
14	Analyze DMF data to develop fish-based habitat indicators.	Yes	Yes	No	No	End of 2008	
15	Develop a suite of indicators of estuarine and nearshore coastal health (APNEP action).	Yes	No	No	No	Start in 2006-07; complete development by Dec 2007	
16	Work with other DENR agencies to develop data sharing processes. Specifically address data types and standards, data sharing standards, definitions, web services, scaling, integration mechanisms, administration, QA/QC, and other issues.	Yes	Yes	Yes	Yes	2007-09	Coordinate with comprehensive monitoring program (Action ID 187)
1.3. Enhance and expand educational outreach on the value of fish habitat, threats from human activities, effects of non-native species, and reasons for management measures.							
17	The Department, through the Public Information Office will coordinate with the Zoo, Aquariums, Museum of Natural Sciences, State Parks, Educational State Forests and Environmental Education Centers to integrate the relevant components of the CHPP into exhibits and programs.	Yes	No	No	No	2007-09	
18	Develop an educational outreach plan for CHPP – NERR lead.	Yes	No	Yes	No	2007-08	NC-NERR included development of the plan in its activities for FY 07-08.
19	N.C. NERR will include a segment of E-Live to focus on fish habitat.	No	No	Yes	No		E-Live has featured shell bottom and SAV in its 2007 session; 2008 session will focus on soft bottom.

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
20	North Carolina's Clean Marina Program and Clean Vessel Act activities will emphasize the threats to fish habitat and benefits of BMPs.	Yes	No	Yes	No		DCM has partnered with Sea Grant to revitalize the Clean Marinas Program and to assist DCM with implementation of BMPs at all coastal marinas. Clean marinas BMP manual being reviewed by DWQ. An Advisory Committee has been established to review criteria and check list (June 2007). Clean Marina workshops are scheduled for December 2007 to focus on power washing. Clean Boating Guide distributed to marinas.
21	DCM and N.C. Sea Grant will incorporate CHPP into their research and education efforts.	No	No	Yes	No		
22	Create interactive display(s) showing habitat functions and threats for use at festivals, etc.	No	Yes	No	No	2008	
23	Develop and distribute brochures about fish, fish habitat, and fishing	Yes	Yes	Yes	Yes	2007-09	To be available for general distribution by DENR staff.
1.4. Coordinate rulemaking and enforcement among regulatory commissions and agencies.							
24	The Department will hold quarterly meetings on proposed projects and enforcement cases that are or may be subject to the permitting or enforcement jurisdiction of the programs of more than one division and invite other state and federal agencies to participate as appropriate.	Yes	Yes	Yes	Yes		Divisions and agencies that will participate in meetings include Division of Coastal Management, Division of Water Quality, Division of Marine Fisheries, Division of Land Resources, Division of Environmental Health, Wildlife Resources Commission and U.S. Army Corps of Engineers. Discussion will include cumulative

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							impact and SEPA concerns
25	The NCDFR will revise its Memorandum of Agreement (MOA) documents with the NC Division of Land Resources and the NC Division of Water Quality to ensure compliance monitoring and enforcement policies are consistently practiced in a timely and seamless manner.	Yes	No	No	No	2007-09	These MOAs primarily address interdivisional communication on the nine forestry performance standards known as the Forest Practice Guidelines Related to Water Quality (FPGs) and the Riparian Buffer Rules applicable to NC's river basins. Additionally, the NCDFR will work with the US Army Corps of Engineers, Wilmington District, to create an additional guidance document for the forestry community that provides interagency consensus on what is allowable minor drainage in wetlands. Other forestry stakeholders will be involved in this guidance development process.
2.1. Evaluate potential Strategic Habitat Areas by:							
a) coordinating, completing, and maintaining baseline habitat mapping (including seagrass, shellbottom, and other bottom types) using the most appropriate technology;							
26	Map submerged aquatic vegetation (SAV) in coastal North Carolina.	Yes	Yes	Yes	Yes	Complete initial coastwide mapping 2007-08	APNEP will coordinate aerial photography in fall 2007.
27	Continue mapping of all shallow estuarine bottom and bottom types.	No	Yes	No	No		
28	Map deep (> 10 ft) estuarine bottoms, starting with lower Neuse River.	No	Yes	No	No	Begin 2007-08	

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
29	N.C. NERR will map SAV within reserve boundaries with data acquisition coordinated with multi-agency coastwide mapping effort: Repeat Rachel Carson mapping and map Masonboro and Currituck sites.	No	No	Yes	No	2007-08	
	b) selective monitoring of the status of those habitats;						
30	Conduct cooperative DMF/NOAA research evaluating environmental conditions needed to provide suitable SAV habitat.	No	Yes	No	No	Begin summer 2007	
31	DMF and NERR will initiate SAV monitoring of sentinel sites	No	Yes	Yes	No	2008	
	c) assessing effects of land use and human activities on those habitats,						
32	Conduct research on the effects of current dock siting practices on SAV and shell bottom, and determine design modifications that would minimize impacts.	No	Yes	Yes	No	2008-09	Possible federal aid or university research project
33	Develop and support graduate fellowship programs to address CHPP priority research needs.	No	Yes	No	No	2008-09	
	2.2. Identify and designate Strategic Habitat Areas using ecologically based criteria, analyze existing rules and enact measures needed to protect Strategic Habitat Areas, and improve programs for conservation (including voluntary actions) and acquisition of areas supporting Strategic Habitat Areas.						
34	Integrate information resulting from SHA committee into DENR Divisions' guidelines, policies, and rulemaking.	Yes	Yes	Yes	Yes	Start July 2007; continue through SHA designation	
35	Conduct SHA evaluation and designation process for Albemarle Sound area.	No	Yes	No	No	2007-08	Coordinate with DENR Strategic Conservation Plan
36	*MFC designate Anadromous Fish Spawning Areas.*	No	Yes	No	No	2007-08	Part of River Herring FMP actions
37	Work with DENR to include SHA priorities within EEP and Strategic Conservation Plan.	Yes	Yes	No	No	2007-09	
38	Conduct SHA evaluation and designation process for	No	Yes	No	No	2008-09	Coordinate with DENR Strategic

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
	White Oak basin.						Conservation Plan
	3.1 Greatly expand habitat restoration, including:						
	a) creation of subtidal oyster reef no-take sanctuaries,						
39	Enhance oyster sanctuaries in Pamlico Sound system. Expand several sanctuaries; plan new sites.	No	Yes	No	No		
40	Enhance Oyster Shell Recycling Program. Discourage use of shell material for landscaping or other uses besides shellfish cultch.	Yes	Yes	No	No		State law prohibits shell disposal in landfills.
41	Monitor all oyster sanctuaries for oyster recruitment, survival, and growth.	No	Yes	No	No		
42	Work with university researchers to monitor fish/invertebrate use of oyster sanctuaries and effect of oysters on local water quality.	No	Yes	No	No	Start 2007-08	
43	Cooperate with university researchers on oyster larvae distribution and movement investigations	No	Yes	No	No	2007-09	
44	DMF Resource Enhancement Section will initiate dissolved oxygen (DO) sampling in Pamlico Sound system to aid in determining suitable sites for oyster restoration.	No	Yes	No	No	2007-08	Coordinate with DWQ Rapid Response Program data collection.
45	Support funding for establishment and operation of shellfish hatcheries	Yes	Yes	Yes	Yes		
	b) re-establishment of riparian wetlands and stream hydrology.						
46	Work with the Corps of Engineers and the Department of Transportation on innovative mitigation projects and an appropriate crediting system for them under the Ecosystem Enhancement Program (EEP). Such projects may include the protection and restoration of SAV and oyster beds, and the removal of certain dams and other aquatic organism barriers.	Yes	No	No	No		More development of mitigation credit strategy using nontraditional means, ongoing data development for coastal cataloging unit screening. EEP is incorporating CHPP priorities into its coastal cataloging unit screening process to promote

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							internally (via its Full-Delivery and Design-Bid-Build programs) and externally (via programs like CREP) the implementation of restoration projects in hydrologic units where coastal functions can be most improved.
47	DENR review of state agency requests to the Natural Heritage Trust Fund will place a priority on those proposals that would further the protection and restoration of critical fisheries habitats.	Yes	No	No	No		Coordinate with DENR Strategic Conservation Plan
48	Make protection and restoration of critical fisheries habitats a priority part of the One North Carolina Naturally initiative, such as developing conservation plans for the twenty coastal counties that identify potential conservation focus areas.	Yes	No	No	No	2007-09	Coordinate with DENR Strategic Conservation Plan
49	The Department will assist coastal local governments in identifying navigation and stream restoration projects of particular importance to both fish and fisheries with grants from the State-Local projects program of the Division of Water Resources.	Yes	No	No	No		
50	Survey previously identified Albemarle Sound river herring spawning areas to estimate current condition and spawning function, and identify stream obstructions on river herring spawning streams.	Yes	Yes	No	No	2007-08	EPA grant through APNEP to Environmental Defense to do this in NC portion of Chowan Basin; WRC involvement needed for more comprehensive effort.
51	Include Strategic Habitat Areas as a priority area for CREP (DSWC).	Yes	No	No	No	2007-09	
52	DSWC encourage local SWCDs to include Strategic Habitat Areas and other CHPP priorities in local priority	Yes	No	No	No	2007-09	Need strong emphasis on Community Conservation Assistance

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
	ranking system for the Agriculture Cost Share Program and the Community Conservation Assistance Program.						Program because it is the only retrofit program that can begin to reverse stormwater pollution.
53	Establish and maintain an inventory of restoration projects describing the location, amount, and type of habitat established in the coastal river basins. Contributors: EEP, DWQ, etc.	Yes	No	Yes	No		APNEP is conducting an inventory in northeast region; DWQ 319 Program and CWMT also have inventories.
54	The NCDFR will partner with the NCDOT and NCEEP to restore ~13,000 linear feet of stream and floodplain (Priority 2 Restoration) and create ~10-30 acres of wetlands in the Little River watershed (Neuse River Basin).	Yes	No	No	No	2007-08	
55	The NCDFR will work with other DENR agencies to start pre-construction water quality and water quantity monitoring of 'The Canal'.	Yes	No	No	No	Start 2007-08	This channelized stream runs through the Division's 700+ acre Claridge Nursery, located just west of the City of Goldsboro.
	c) and other habitat restoration.						
56	Study the feasibility and benefits of developing an SAV Restoration Program (Lead: EEP?).	Yes	Yes	Yes	Yes		Needs further discussion among agencies regarding exotic SAV species. Note: Split into stepwise actions - much more needs doing (research, policy); could be a DENR issue. NEED DENR DECISION.
	3.2 Prepare and implement a comprehensive beach and inlet management plan that addresses ecologically based guidelines, socio-economic concerns and fish habitat.						
57	Develop minimum criteria for monitoring beach nourishment projects.	Yes	Yes	Yes	Yes		Part of the Beach and Inlet Management Plan (BIMP); contractor selection has been completed.
58	Convene stakeholder group to identify data gaps, funding	No	No	Yes	No		Part of the Beach and Inlet

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
	needs, and framework, and develop a timeline.						Management Plan. The Advisory Committee is comprised of appropriate state and federal agencies and members from the affected coastal communities. BIMP Advisory Committee meeting held in May 2007.
59	DCM will serve as a clearinghouse for beach nourishment monitoring data.	No	No	Yes	No		This is part of DCM CZMA section 309 program for 2006-2010; portions of this dataset already have been compiled by state and federal agencies as well as academic institutions. DCM is currently merging these datasets.
3.3. Protect Submerged Aquatic Vegetation (SAV), shell bottom, and hard bottom areas from fishing gear effects through improved enforcement, establishment of protective buffers around habitats, and further restriction of mechanical shellfish harvesting.							
60	Prepare maps identifying areas where allowed use of bottom disturbing fishing gear does or could overlap areas with sensitive estuarine habitat.	No	Yes	No	No	By December 2008	Update GIS data layers for regulated area boundaries available - analysis required
3.4. Protect fish habitat by revising estuarine and public trust shoreline stabilization rules using best available information, considering estuarine erosion rates, and the development and promotion of incentives for use of alternatives to vertical shoreline stabilization measures.							
61	Support/promote efforts to develop shoreline stabilization demonstration projects along non-ocean shorelines.	No	No	Yes	No		DCM has identified possible funding sources and will be submitting applications for assistance July 2007.
62	Encourage alternatives to vertical shoreline stabilization methods through permit requirements and fees.	Yes	No	Yes	No		The CRC is considering rule changes to its GP for shoreline stabilization that reduce the distance waterward in which bulkheads encroach into public trust areas, by moving

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							structure locations further landward of marsh vegetation to allow for march migration with sea level rise and to minimize construction impacts, and by promoting the benefits of rock structures.
63	Refine rule 15A NCAC 07H .2700 GP for Marsh Sills.	No	No	Yes	No	Ongoing	Included in ongoing effort of CRC Shoreline Stabilization Subcommittee.
64	Use NOAA grant to delineate estuarine shorelines; begin by developing mapping methods	No	No	Yes	No	2007-09	The Center for Geographic and Information Systems (CGIA) has been contracted to determine the methodology for delineating the shoreline and structures for North Carolina. They have evaluated techniques such as LIDAR, Feature Analyst, and digitizing from the best available aerial photography. By June 2007, CGIA will have delivered a suggested methodology report as well as a completed shoreline and delineated structures for all public trust waters in Carteret, Craven and Pamlico Counties.
65	Pursue and provide financial support for shoreline stabilization demonstration projects and studies	No	No	Yes	No		DCM has identified possible funding sources and will be submitting application for assistance July 2007.
66	Work with NOAA's Technical Advisory Committee members in their sponsored research program "Ecological Effects of Sea Level Rise" to develop information/tools to	No	Yes	Yes	No		DCM and DMF staff serving as management representatives; Presentations on SLR scheduled for

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
	better forecast and manage landscape responses of critical natural resources relative to sea level rise.						July 2007 CRC (Projects Status Report). DCM participating in EPA Coastal Elevations and Sensitivity to SLR study – focuses on coastal areas of NY to NC.
67	Consider erosion rates as an additional factor in the siting of structures along estuarine and public trust shorelines.	No	No	Yes	No	2007-09	The Center for Geographic and Information Systems (CGIA) has been contracted to determine the methodology for delineating the shoreline. They have evaluated techniques such as LIDAR, Feature Analyst, and digitizing from the best available aerial photography. Recommendations expected June 2007.
3.5 Protect and enhance habitat for anadromous fishes by:							
a) incorporating the water quality needs of fish in surface water use planning and rule-making							
68	The Department, through the Division of Water Resources, will participate in a study of Kerr Lake with federal partners. The study will include the evaluation of modifying releases from the dam to benefit anadromous fish in the Roanoke River.	Yes	Yes	No	No	Complete study by 2012	Conduct study under section 216 of the federal Clean Water Act; include other DENR agencies with appropriate knowledge and programs.
b) eliminating obstructions to fish movements, such as dams, locks, and road fills							
69	The Department, through the Division of Water Resources and the Ecosystem Enhancement Program will focus on evaluation and possible removal of lock and dams 1, 2, and 3 on the Cape Fear River.	Yes	No	No	No		Being pursued by CHPP Steering Committee and FMP implementation group
70	The Department, through the Division of Water Resources and the Ecosystem Enhancement Program, will pursue dam removal projects where appropriate.	Yes	No	No	No	2007-09	

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
71	Modify dam removal policy with ACE to provide for accomplishing action #s 69 and 70, above.	Yes	Yes	Yes	Yes	2007-09	
72	Survey coastal river basins systematically to locate obstructions to fish migration and prioritize sites for removal/restoration.	No	Yes	No	No		
73	Obtain funding to restore designated streams and associated wetlands designated as anadromous fish spawning areas in the Albemarle Sound area as implementation steps for the River Herring Fishery Management Plan.	Yes	Yes	No	No		APNEP also pursuing funding.
4.1 Reduce point source pollution from wastewater by:							
b) providing incentives for upgrading all types of wastewater treatment systems.							
74	Evaluate 15A NCAC 2H .0400 and 2B .0500 regulations for opportunities to provide incentives for upgrading all types of wastewater treatment systems and make recommendation to EMC.	No	No	No	Yes		
4.2. Adopt or modify rules or statutes to prohibit ocean wastewater discharges.							
75	Evaluate 15A NCAC 2H .0400 rules as they apply to ocean wastewater treatment systems and make recommendation to the EMC regarding modifications.	No	No	No	Yes		
4.3. Prohibit new or expanded stormwater outfalls to coastal beaches and to coastal shellfishing waters (EMC surface water classifications SA and SB) except during times of emergency when public safety and health are threatened, and continue to phase-out existing outfalls by implementing alternative stormwater management strategies.							
76	Work with DENR to prioritize stormwater outfall mapping efforts on areas near critical fisheries habitats and implement DOT's Stormwater Pilot Project on new and innovative technologies to clean up discharges from NC DOT outfalls and associated outlets (DWR action).	Yes	No	No	No		Money with DENR; "Smart sponge" experiment underway in Dare County. Note: Consider UNC-Coastal Studies Institute as another partner in research.
77	Evaluate impact of deep-water ocean outfall for	Yes	Yes	Yes	Yes	2007-09	

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
	stormwater management (Lead: DWQ).						
78	Actively seek research on innovative technology to remove stormwater outfalls with 319 grant funding.	No	No	No	Yes		
79	Develop a plan to phase out municipal stormwater outfalls to sounds.	No	No	No	Yes	2007-09	All estuarine outfalls have been identified
80	Enhance DWQ coastal/state stormwater database by mid-2007	No	No	No	Yes	2007-08	Awaiting report
4.4. Enhance coordination with, and financial/technical support for, local government actions to better manage stormwater and wastewater.							
81	Provide Phase II stormwater educational & technical assistance to local governments through the DENR Runoff Pollution Campaign and through partnerships with the Division of Community Assistance and UNC Institute of Government.	No	No	No	Yes		
82	Implement Community Conservation Assistance Program with emphasis on CHPP stormwater priorities in coastal counties (DSWC action).	Yes	No	No	No	Start in 2007-08	DSWC program patterned after Agriculture cost share program. Need strong emphasis on Community Assistance Program because it is the only retrofit program than can begin to reverse stormwater pollution.
4.5. Improve land-based strategies throughout the river basins to reduce non-point pollution and minimize cumulative losses to wetlands and streams through voluntary actions, assistance, and incentives, including:							
a) improved methods to reduce sediment pollution from construction sites, agriculture, and forestry;							
83	The NCDFR will use additional 319 Grant (NPS Pollution Prevention) funds in 2007 to purchase five additional sets of steel bridge mats for the Division's Bridge Mat Loan & Education Project.	Yes	No	No	No		Some of these new mats will be located at coastal plain district offices and made available to local loggers. Using bridge mats for stream or ditch crossings is a

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							preferred BMP with respect to protecting water quality and improving forest operation efficiency and costs.
84	Enhance DCM education efforts such as the N.C. NERR Septic Systems Workshops.	No	No	Yes	No		DCM held grant-writing workshops (2006) introducing participants to various funding agencies that provide assistance to local communities to make environmental improvements that control stormwater runoff, improve local water quality and restore watersheds. Coastal Reserves staff conducted a workshop on Stormwater Management and Sustainable Development in Morehead City on Nov. 1, 2006. (move to 2005-2007 actions)
85	The NCDFR will complete, publish, and distribute statewide 10,000 copies of the NC Forestry BMP Quick-Reference Field Guide in 2007-08.	Yes	No	No	No	2007-08	This 140+ page color-illustrated handbook will complement the Division's 2006 release of the NC Forestry BMP Manual To Protect Water Quality. The Field Guide is a hands-on document targeted at reaching loggers including their heavy equipment operators and laborers.
86	The NCDFR will seek funding to purchase 'rehab' fire plows for five of its coastal-based district offices.	Yes	No	No	No	2007-08	Pulled by tractors or dozers, fire plows are used by the Division to install many miles of prescribed fire and wildfire control lines on an

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							annual basis. Rehab plows leave a more environmental-friendly footprint on the landscape by minimizing sediment release and transport, while accomplishing similar forest protection goals as traditional fire plows. Rehab plows could be used to install control lines on prescribed burns and to mitigate wildfire control lines installed in sensitive areas under emergency conditions.
87	Obtain USDA approval to expand CREP to include the Roanoke, Pasquotank, White Oak, Lumber, and Cape Fear River basins. (DSWC action)	Yes	No	No	No		Awaiting USDA approval to include Roanoke and Pasquotank basins.
88	Implement enhanced marketing strategy for CREP to include education on Neuse and Tar-Pamlico buffer rules. (DSWC action)	Yes	No	No	No		
b) increased on-site filtration of stormwater;							
89	The NCDFR will begin long-term water quality and water quantity monitoring of Beddingfield Creek during 2007 in anticipation of implementing a 3,000+ acre watershed restoration effort in the Neuse River Basin.	Yes	No	No	No	2007-09	The Division is using 319 Grant funds to startup this watershed monitoring. The restoration will be part of the 10-year Urban Forest Watershed Protection and Education Initiative (UFWPEI). The UFWPEI seeks to improve the water quality in urbanizing watersheds by integrating managed forests with planned and existing development and protecting and enhancing sensitive areas in the

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							watershed. Phase 1 of the project has already generated > $4.0 million in partnership funds, primarily used for land acquisition within the watershed.
c) documentation and monitoring of small but cumulative impacts to wetlands and streams from approved, un-mitigated activities;							
90	Coordinate with Wetland Functional Assessment Team to determine wetland status and trends.	Yes	No	Yes	Yes		Proposed for adoption by letter 21 May 2007.
d) incentives for low-impact development (LID);							
91	Implement five on-the-ground projects to increase understanding of the effectiveness of low impact development in coastal and piedmont North Carolina in meeting water quality goals, develop guidance for design considerations, and provide educational opportunities.	No	No	No	Yes	Dec 2010	Four LID demonstration projects funded with Section 319 funds in Neuse, Tar-Pamlico, and Cape Fear basins
g) other							
92	The NCDFR will seek funding to establish two Water Quality Forester (WQF) positions in coastal-plain Districts 6 (Fayetteville) and 13 (Fairfield).	Yes	No	No	No	2007-09	The Division's WQFs provide a diversity of services including preharvest planning, onsite technical assistance, FPG compliance inspection, and forestry BMP education and training. The WQFs also engage in special projects related to forest water quality, such as the recurring Forestry BMP Implementation Survey Project.
93	The NCDFR will implement 'Tailgate BMPs for Loggers' in 2007-08, a customer education outreach project designed to take the classroom into the woods.	Yes	No	No	No	2007-09	This new service will target equipment operators and laborers that can not financially afford to take off a workday to attend forestry BMP training in a traditional

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							classroom environment.
94	The NCDFR will produce a 4th BMP video on forest operations.	Yes	No	No	No	2007-08	The video, entitled 'BMPs for Site Rehabilitation', will cover appropriate practices to use in stabilizing and closing out a harvested timber tract. Once completed, this video will be incorporated into NC Forestry Association's ProLogger Continuing Education program for water quality and other Division BMP training opportunities.
95	The NCDFR will produce a 2nd edition of the 'Riparian & Wetland Tree Planting Pocket Guide for North Carolina'.	Yes	No	No	No	2007-08	The Division produced 5,000 copies of this 77-page booklet in September 2006. The 1st edition is projected to be out-of-print by mid to late 2007.
96	Through the Division of Land Resources (DLR), work with the Sedimentation Control Commission (SCC) to include CHPP presentations on the Commission agenda and to include information on CHPP actions in SCC and DLR publications.	Yes	No	No	No		
4.6. Improve land-based strategies throughout the river basins to reduce non-point pollution and minimize cumulative losses to wetlands and streams through rule making, including:							
a) increased use of effective vegetated buffers,							
97	*EMC solicit public comment on a proposal to extend the vegetative setback for new development within the 20 CAMA Counties from 30 feet to 50 feet.*	*No*	*No*	*No*	*Yes*	*2007-08*	*The EMC has initiated rulemaking action to revise DWQ's Coastal Stormwater rules. EMC is soliciting comment on the proposal.*
b) reduction of impervious surfaces where feasible and reduction of the level of impervious surface allowable in the absence of engineered stormwater controls,							

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
98	*Require the use of engineered stormwater controls for all new development within 1/2 mile and draining to Shellfishing Waters that exceeds 12% impervious surfaces and new development that is not within 1/2 mile and draining to shellfishing waters would be required to install engineered stormwater controls is the impervious surface density exceeds 24%.*	*No*	*No*	*No*	*Yes*	*2007-08*	*The EMC has initiated rulemaking action to revise DWQ's Coastal Stormwater Rules (current threshold for engineered stormwater controls is 25% within ½ mile of shellfishing waters and 30% beyond ½ mile).*
c) expansion of CAMA Areas of Environmental Concern (AECs) upstream and landward, and							
99	Expand CAMA Areas of Environmental Concern (AECs) upstream and landward within CAMA counties.	No	No	Yes	No	2007-09	
e) Other							
100	Evaluate stormwater pollution control mechanisms and cumulative wetland and stream losses in the Cape Fear and White Oak River basins to determine if additional regulatory controls are needed and present findings to the EMC.	No	No	No	Yes		Study is underway.
101	Develop a mitigation policy for intermittent streams.	No	No	No	Yes		In development.
4.7. Develop and implement a comprehensive coastal marina and dock management plan and policy for the protection of shellfish harvest waters and fish habitat.							
102	Inventory docks and piers in the 20 coastal counties.	No	No	Yes	No		The Center for Geographic and Information Systems (CGIA) has been contracted to determine the methodology for delineating the shoreline and structures for North Carolina. They have evaluated techniques such as LIDAR, Feature Analyst, and digitizing from the best available aerial photography. By June 2007, CGIA will deliver a suggested methodology report as

Action#	Action description	DENR	DMF	DCM	DWQ	Time frame	Comments
							well as a completed shoreline and delineated structures for all public trust waters in Carteret, Craven and Pamlico Counties.
103	*Incorporate EMC's prohibition of marinas in ORWs into CRC rules.*	*No*	*No*	*Yes*	*Yes*	*2008-09*	
104	*Evaluate marina development standards (rule NCAC 7H .0208(b)(5)). CRC consider rule changes to implement in dock and pier management.*	*No*	*No*	*Yes*	*No*		
105	Improve wastewater/stormwater management at coastal marinas	No	No	No	Yes		Evaluating existing and potential water/stormwater management at coastal marinas.
4.8 Reduce non-point source pollution from large-scale animal operations by the following actions:							
a) support early implementation of environmentally superior alternatives to the current lagoon and sprayfield systems as identified under the Smithfield Agreement and continue the moratorium on new/expanded swine operations until alternative waste treatment technology is implemented;							
106	The Department, through the Division of Pollution Prevention and Environmental Assistance, will provide contract and independent swine farms with the technical assistance and training needed to implement effective Environmental Management Systems.	Yes	No	No	No		
107	Support early implementation of environmentally superior alternatives to lagoon and spray field systems. Encourage commissions to express their support for early implementation.	Yes	No	No	No		
b) seek additional funding to phase-out large-scale animal operations in sensitive areas and relocate operations from sensitive areas;							
108	Seek funding for fourth phase of voluntary program to buy out active swine operations in the 100-year floodplain (DSWC action).	Yes	No	No	No		DSWC seeking funding from CWMTF.

North Carolina General Statute 136-202
2007 Annual Report

Prepared by the NCDOT Transportation Planning Branch
December 11, 2007

North Carolina General Statute 136-202
2007 Annual Report

North Carolina General Statute 136-202 concerning Metropolitan Planning Organizations (MPO) requires the Department of Transportation to report annually on the evaluation and adjustment of the boundaries of the areas served by each MPO in the State. The following is a summary of MPO adjustments during the last calendar year.

Burlington-Graham MPO

The Burlington-Graham MPO (BGMPO) includes Burlington, Graham, Elon College, Gibsonville, Mebane, Haw River, Whitsett, Green Level, Village of Alamance, and Alamance County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Ms. Atefe Northcutt, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Burlington-Graham MPO.

Cabarrus-Rowan MPO

The Cabarrus-Rowan MPO includes Concord, Kannapolis, China Grove, Cleveland, Faith, Granite Quarry, Harrisburg, Landis, Midland, Mount Pleasant, Rockwell, Salisbury, Spencer and Rowan and Cabarrus Counties. This MPO experienced no boundary adjustments during the last year, but a new Memorandum of Understanding is underway to add East Spencer to the MPO. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Ms. Linda Dossé, P.E., Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Cabarrus-Rowan MPO.

Capital Area MPO

The Capital Area MPO consists of the all the area inside of Wake County, and parts of Franklin, Granville, Harnett, and Johnston Counties, which includes the municipalities of Angier, Apex, Bunn, Cary, Clayton, Creedmoor, Franklinton, Fuquay-Varina, Holly Springs, Knightdale, Morrisville, Raleigh, Rolesville, Wake Forest, Wendell, Youngsville, and Zebulon. The current Memorandum of Understanding establishing the structure and revised membership of the MPO is on file within the Transportation Planning Branch. Please contact Ms. Rupal Desai, Transportation Engineer with the Transportation Planning Branch, with any questions or comments relevant to the Capital Area MPO.

Durham-Chapel Hill-Carrboro MPO

The Durham – Chapel Hill – Carrboro Urban Area MPO consists of the Durham, Chapel Hill, Carrboro, Durham County (all), Hillsborough, Orange County (part) and Chatham County (part). This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. At this time, the DCHC MPO considering a boundary expansion next year and has been actively studying it and soliciting interest. Please contact Mr. Jamal Alavi, P.E., Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Durham – Chapel Hill – Carrboro MPO.

Fayetteville Area MPO

The Fayetteville Area MPO includes the City of Fayetteville, the Towns of Hope Mills and Spring Lake, Fort Bragg Military Reservation, Pope Air Force Base, the urban portion of Cumberland County, portion of Harnett County, and portions of Hoke County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Darius Sturdivant, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Fayetteville Area MPO.

French Broad River MPO

The French Broad River MPO includes the City of Asheville, Town of Biltmore Forest, Town of Black Mountain, Buncombe County, Town of Canton, Town of Clyde, Village of Flat Rock, Town of Fletcher, Haywood County, Henderson County, City of Hendersonville, Town of Laurel Park, Town of Mills River, Town of Maggie Valley, Town of Montreat, Town of.Waynesville, Town of Weaverville, and Town of Woodfin. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Linh Nguyen, P.E., Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the French Broad River MPO.

Gaston Urban Area MPO

The Gaston Urban Area MPO consists of the following member governments: Belmont, Bessemer City, Cramerton, Dallas, Gaston County, Gastonia, Lowell, McAdenville, Mount Holly, Ranlo, Spencer Mountain, and Stanley. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Ms. Shannon Ransom, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Gaston Urban Area MPO.

Goldsboro MPO

The Goldsboro Metropolitan Planning Organization includes the City of Goldsboro, Wayne County, the Village of Walnut Creek and the Seymour Johnson Air Force Base. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. James Upchurch, Transportation Engineering Supervisor with the Transportation Planning Branch, for any questions or comments relevant to the Jacksonville Urban Area MPO.

Greater Hickory MPO

The Greater Hickory MPO includes the municipalities of Brookford, Cajah's Mountain, Catawba, Cedar Rock, Claremont, Conover, Connelly Springs, Drexel, Gamewell, Glen Alpine, Granite Falls, Hickory, Hildebran, Hudson, Lenoir, Long View, Maiden, Morganton, Newton, Rhodhiss, Rutherford College, Sawmills, Valdese and the urbanized areas of Alexander, Burke, Caldwell and Catawba Counties. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the

MPO is on file within the Transportation Planning Branch. Please contact Ms. Sarah Smith, P.E., Transportation Engineering Supervisor with the Transportation Planning Branch, for any questions or comments relevant to the Greater Hickory MPO.

Greensboro MPO

The Greensboro Urban Area MPO includes most of Guilford County, towns of Summerfield, Stokesdale, Oak Ridge, Pleasant Garden, and Sedalia, excluding the Gibsonville, Whitsett, High Point, and Jamestown areas. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Michael Abuya, EIT, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Greensboro Urban Area MPO.

Greenville Urban Area MPO

The Greenville Urban Area MPO includes the City of Greenville, the Towns of Winterville and Ayden, the Village of Simpson, and surrounding areas of Pitt County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Ms. Elena Talanker, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Greensboro Urban Area MPO.

High Point MPO

The High Point Urban Area MPO includes High Point, Thomasville, Archdale, Jamestown, Trinity, Forsyth County and portions of Guilford, Davidson and Randolph Counties. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Wayne Davis, P.E., Ph.D., Transportation Engineering Supervisor with the Transportation Planning Branch, for any questions or comments relevant to the High Point Urban Area MPO.

Jacksonville Urban Area MPO

The Jacksonville Urban Area MPO includes all incorporate areas of the City of Jacksonville and portions of Onslow County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Ms. Tammye Fontenot, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Jacksonville Urban Area MPO.

Mecklenburg-Union MPO

The Mecklenburg-Union MPO consists of all of Mecklenburg County and the urbanized portions of Union County. Member jurisdictions include Charlotte, Cornelius, Davidson, Huntersville, Matthews, Mint Hill and Pineville in Mecklenburg County, and Indian Trail, Monroe, Stallings, Waxhaw, Weddington, Wesley Chapel and Wingate in Union County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation

Planning Branch. Please contact Mr. Jonathan Parker, P.E., Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Mecklenburg-Union MPO.

Rocky Mount Urban Area MPO

The Rocky Mount Urban Area MPO consists of the City of Rocky Mount, Town of Nashville, part of Edgecombe County, and part of Nash County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Ms. Anna Meares. Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Rocky Mount Urban Area MPO.

Wilmington MPO

The Wilmington MPO consists of the City of Wilmington, the Town of Carolina Beach, the Town of Kure Beach, the Town of Wrightsville Beach, New Hanover County, the Town of Belville, the Town of Leland, the Town of Navassa, Brunswick County and Pender County. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and revised membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. James Upchurch, Transportation Engineering Supervisor with the Transportation Planning Branch for any questions or comments relevant to the Wilmington MPO.

Winston Salem MPO

The Winston-Salem MPO includes Winston-Salem, Bermuda Run, Bethania, Clemmons, Kernersville, King, Lewisville, Rural Hall, Tobaccoville, Walkertown, and parts of Davidson, Davie and Stokes Counties. This MPO experienced no boundary adjustments during the last year. The current Memorandum of Understanding establishing the structure and membership of the MPO is on file within the Transportation Planning Branch. Please contact Mr. Andy Bailey, Transportation Engineer with the Transportation Planning Branch, for any questions or comments relevant to the Winston-Salem MPO.

DWR
Division of Water Resources

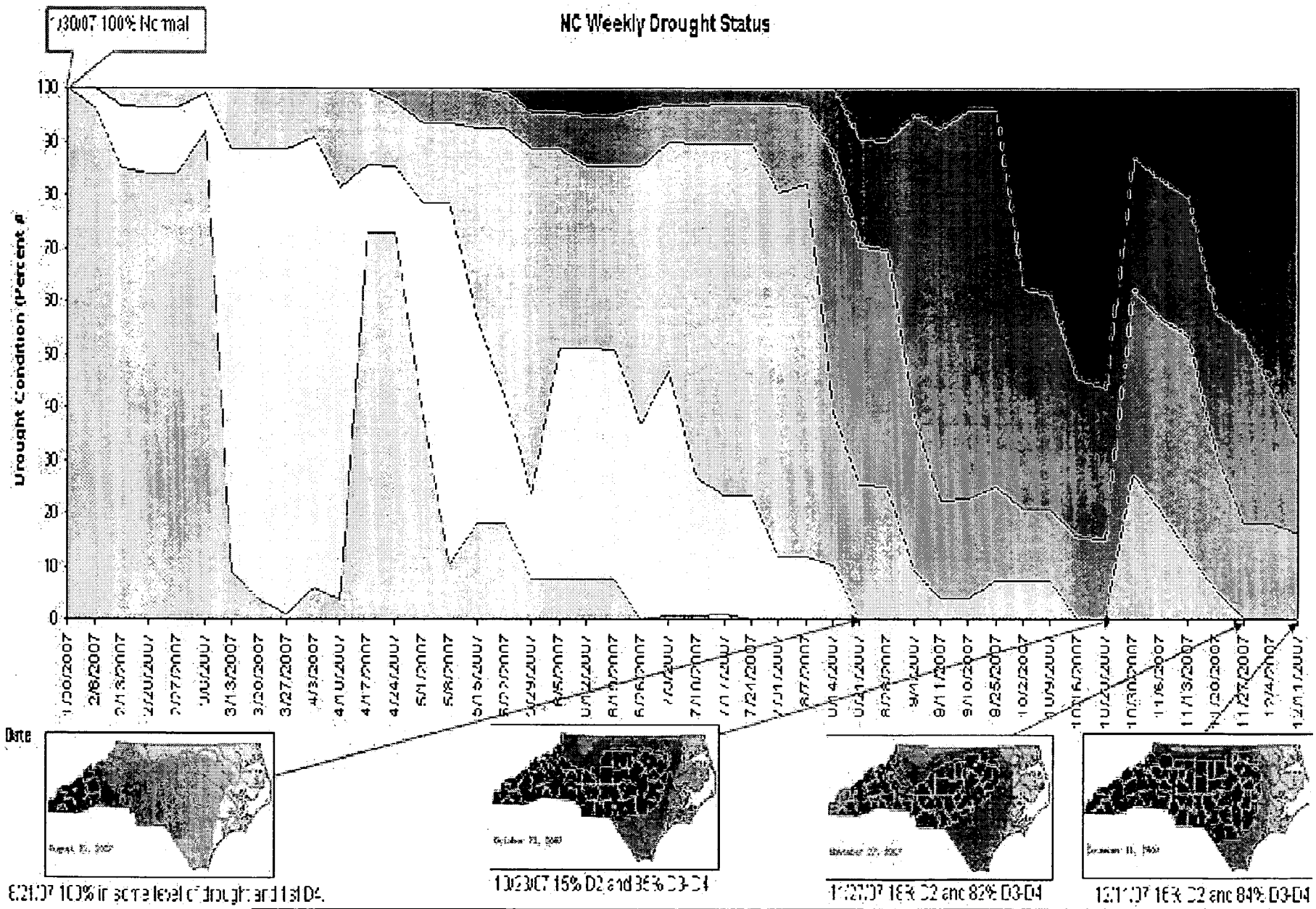
Environmental Review Commission

Drought Update

Division of Water Resources

December 19, 2007

Exhibit F


NC Weekly Drought Status
1/30/07 100% Normal
Drought Condition (Percent A
100
90
80
70
60
50
40
30
20
10
0
Date
8/21/07 100% in some level of drought and 1st D4.
10/23/07 15% D2 and 35% D3-D4
11/27/07 16% D2 and 82% D3-D4
12/11/07 16% D2 and 84% D3-D4
Normal D0 - Abnormally Dry D1 - Moderate Drought D2 - Severe Drought D3 - Extreme Drought D4 - Exceptional Drought

Unofficial Rainfall Estimates

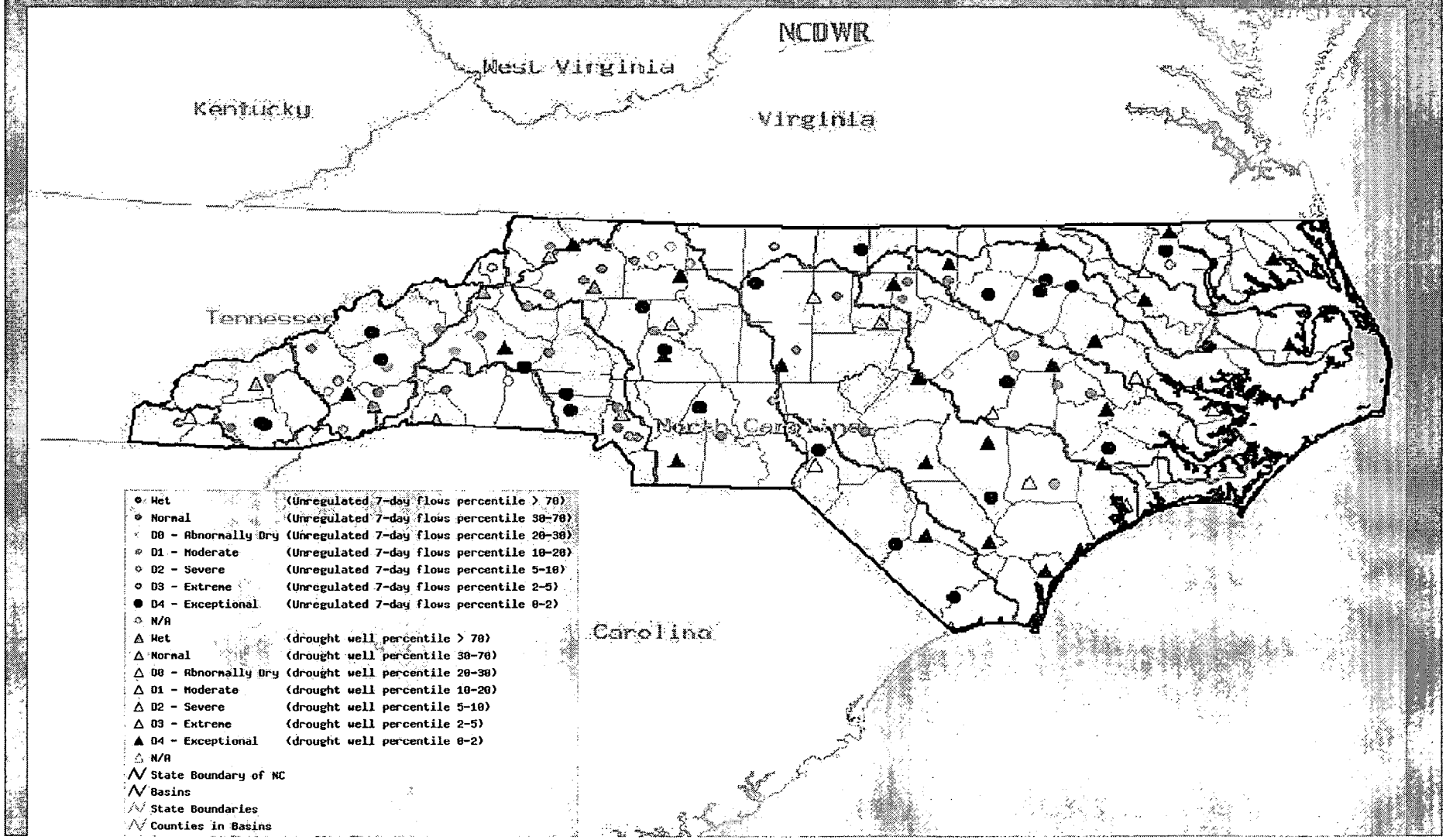
No 17, 2007 through Dec 16, 2007

	Total Rainfall	Departure from Normal	Pct of Normal	Rank	Driest on Record
North Carolina Statewide	1.79"	-1.67	52%	8th driest	0.85" (1933)

180-Day Precip for North Carolina
Jun 20, 2007 through Dec 16, 2007

	Total Rainfall	Departure from Normal	Pct of Normal	Rank	Driest on Record
North Carolina Statewide	16.12"	-8.89	64%	1st driest	18.21" (2001)

Current Conditions
Ground Water Levels & Streamflows



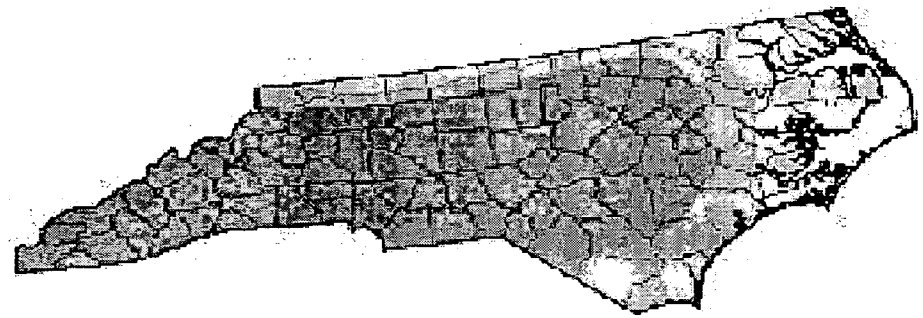
Current Conditions
Drought Monitor

U.S. Drought Monitor
North Carolina

December 11, 2007
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.0	100.0	100.0	100.0	84.0	66.2
Last Week (12/04/2007 map)	0.0	100.0	100.0	99.5	81.9	56.2
3 Months Ago (09/18/2007 map)	0.0	100.0	100.0	96.2	77.4	4.0
Start of Calendar Year (01/02/2007 map)	98.5	1.5	0.0	0.0	0.0	0.0
Start of Water Year (10/02/2007 map)	0.0	100.0	100.0	92.8	79.4	37.7
One Year Ago (12/12/2006 map)	100.0	0.0	0.0	0.0	0.0	0.0



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://drought.unl.edu/dm

USDA

National Drought Mitigation Center

Released Thursday, December 13, 2007

Author: Brian Fuchs, National Drought Mitigation Center

Current Conditions
Public Water Supply Systems

Water Conservation level summary data

	Systems		Population	
Status	Number	Percent	Number	Percent
Not Restricted	292	46.50	1,331,621	19.64
Voluntary Conservation	163	25.96	1,683,363	24.82
Mandatory Conservation	173	27.55	3,766,188	55.54
Emergency	0	0.00	0	0.00
Total	628		6,781,172	

Tier 1

Public Water Supply Systems

	Facility	Population	County	River Basin
1	Bessemer City	5,318	GASTON	Catawba River
2	Blowing Rock	1,637	WATAUGA	New River
3	Boone	16,406	WATAUGA	New River
4	Durham	287,000	DURHAM	Neuse River
5	Hendersonville	47,442	HENDERSON	French Broad River
6	Lenoir	21,676	CALDWELL	Catawba River
7	Mars Hill	4,350	MADISON	French Broad River
8	Marshall	1,326	MADISON	French Broad River
9	Monroe	31,234	UNION	Yadkin River
10	Raleigh	409,542	WAKE	Neuse River
11	Robbinsville	2,895	GRAHAM	Little Tennessee River
12	Tryon	5,512	POLK	Broad River
13	Valdese	5,922	BURKE	Catawba River
14	Yadkinville	5,001	YADKIN	Yadkin River
		845,261		

Public Water Supply Systems

Weekly Water Use Reduction Compared to August

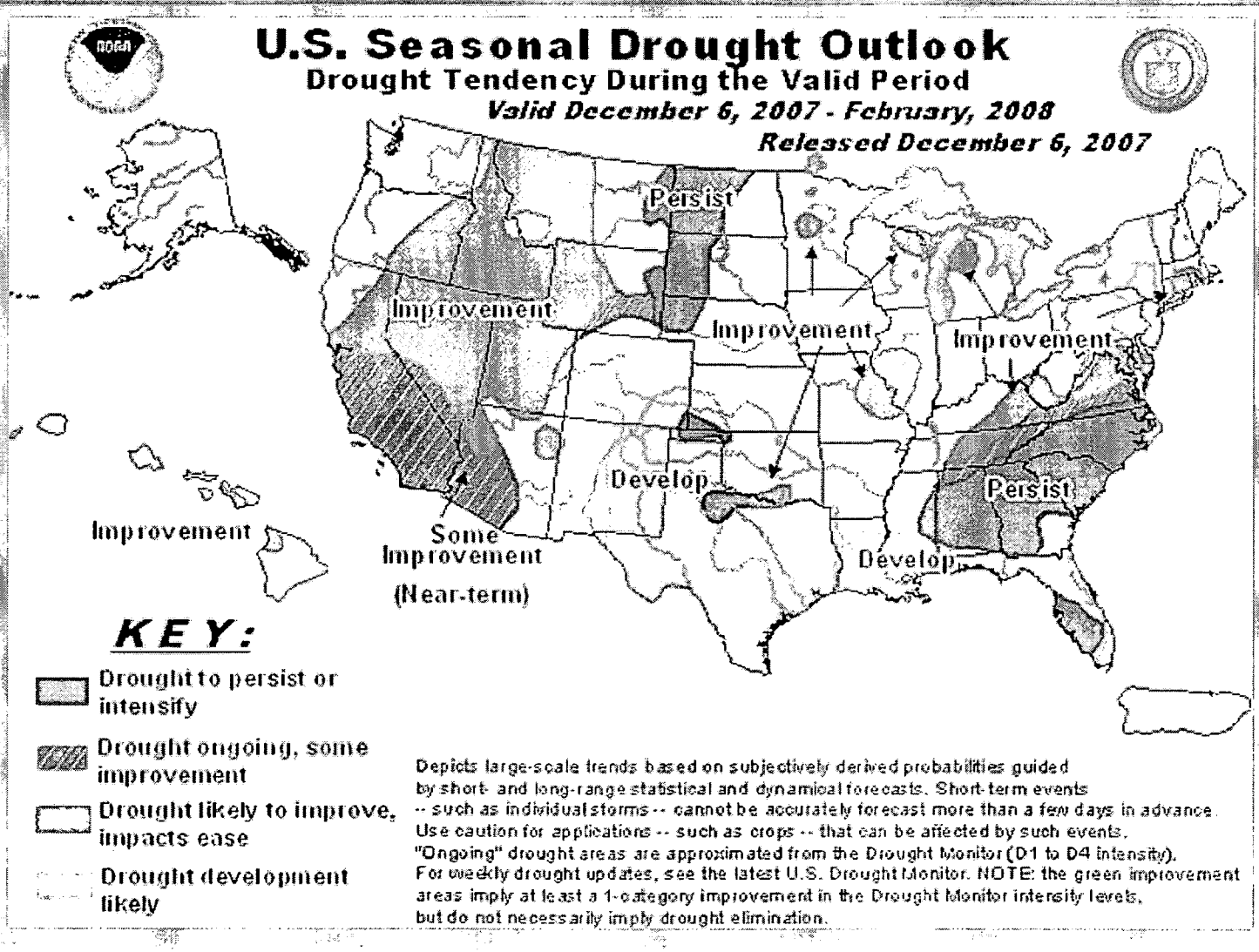
System	2007-12-10	2007-12-03	2007-11-26	2007-11-19
Charlotte-Mecklenburg		-36.79%	-38.79%	-40.78%
Raleigh	-35.22%	-36.06%	-34.99%	-37.33%
Durham		-39.98%	-37.23%	-38.34%
Winston-Salem	-24.98%		-28.49%	-31.47%
Greensboro		-29.42%	-29.55%	-35.49%
Fayetteville	-35.37%	-35.76%	-36.62%	-35.09%
Onslow County		-21.95%	-22.67%	-17.96%
Davidson Water	-30%	-32.61%	-27.93%	-30.28%
Wilmington	-49.56%			-50.84%
Cary	-40.42%	-40.63%	-43.16%	-45.13%
Asheville			-13.24%	-13.05%

Water Sources Task Force

http://www.ncwater.org/Drought_Monitoring/wstaskforce.php

County	Current Advisory	Emergency Water Restrictions	Voluntary Water Restrictions	Mandatory Water Restrictions	Tier 1	Tier 2	Affected Population	Current Week / Water Use (% Change from last week)
WAKE	Exceptional (D4)		Bayleaf/Stonebridge (Drought) JAMISON PARK S/D (Drought) RIDGEBROOK BLUFF S/D (Drought) Wake County/RTP South (Other)	Apex (Other) Cary (Other) Holly Springs (Drought) Knightdale (Other) Morrisville (Other) Raleigh (Drought) SUN RIDGE FARM S/D (Drought) Wake Forest (Other) Wendell (Other) Zebulon (Other)	Raleigh		618,674	Apex 2,250,714 (+1.29%) Cary 10,045,714 (+0.36%) Holly Springs 1,530,000 (+1.32%) Morrisville 1,535,714 (+1.13%) Raleigh 40,628,571 (+1.32%) Wake County/RTP South 447,143 (+1.29%)

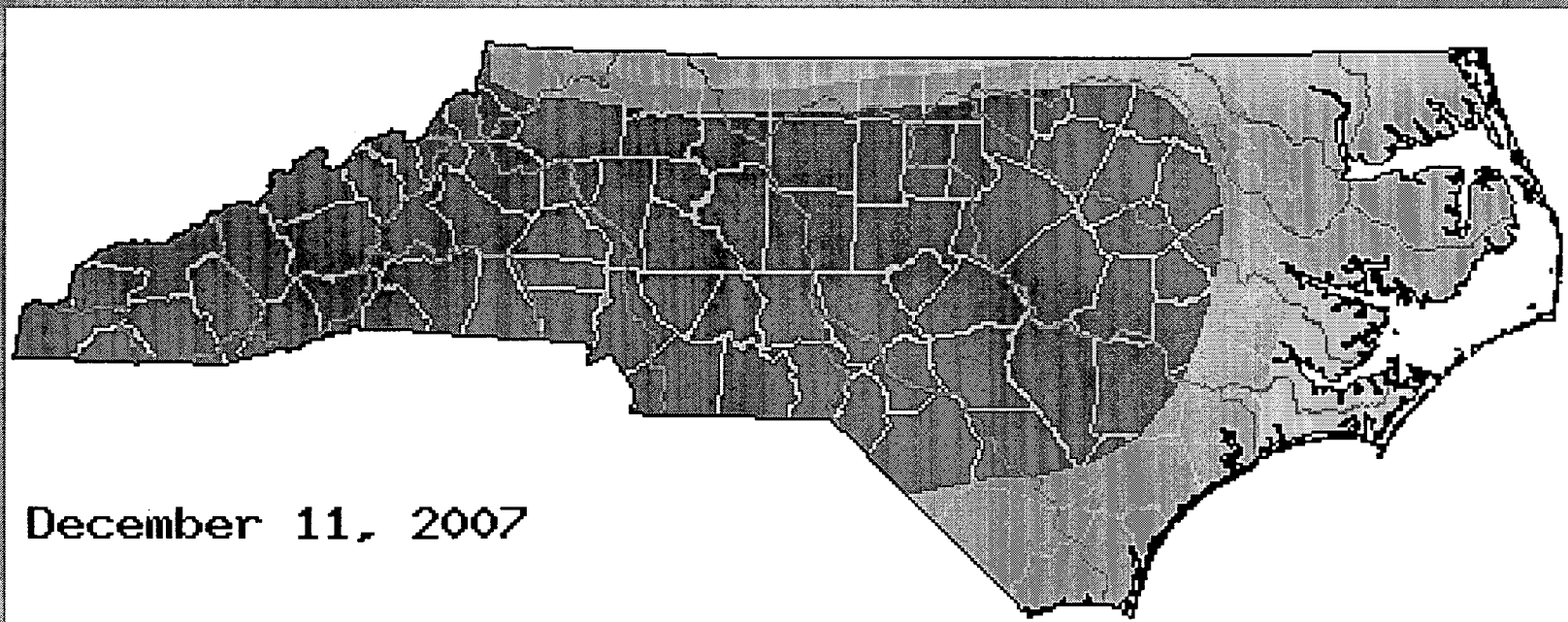
Forecast


U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid December 6, 2007 - February, 2008
Released December 6, 2007
Persist
Improvement
Improvement
Improvement
Develop
Persist
Develop
Improvement
Some Improvement
(Near-term)
KEY:
Drought to persist or intensify
Drought ongoing, some improvement
Drought likely to improve, impacts ease
Drought development likely
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

Corps Projects
Current Conditions

Lake	Total Dec. Rainfall Inch	17 Dec Level ft-msl	Guide Curve Level ft-msl	Dist. Below Guide Curve Feet	Avg. Dec Inflow cfs	Inflow Percent of Normal
Falls	1.20	241.7	251.5	-9.8	51	9
Jordan	1.18	211.7	216.0	-4.3	180	13
Scott	0.85	1028.7	1030.0	-1.3	150	27
Kerr	1.10	294.2	295.5	-1.3	1,874	28

Questions



- NC Drought Management Advisory Council - http://www.ncdrought.org/
- Water Sources Task Force - http://www.ncwater.org/Drought_Monitoring/wstaskforce.php

Exhibit G

RESIDENT INSPECTOR PROGRAM

2007 ANNUAL REPORT

Presented to

The Environmental Review Commission

September 1, 2007

NCDENR
North Carolina Department of
Environment and Natural Resources

HAZARDOUS WASTE SECTION

North Carolina Department of Environment and Natural Resources

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RESIDENT INSPECTOR PROGRAM
2007 ANNUAL REPORT

This annual report is presented to the Environmental Review Commission pursuant to Article 9, G.S. 130A 295.02(m). The report covers the activities of the Resident Inspector Program from July 1, 2006 through June 30, 2007.

I. OVERVIEW

The Resident Inspector Program has been operating for more than 16 years in the Division of Waste Management. This program monitors all aspects of the commercial hazardous waste facilities in North Carolina and assures compliance with all laws and rules administered by the Department of Environment and Natural Resources. It may also enforce laws or rules administered by any other state agency through a memorandum of agreement.

The Resident Inspector Program was established "... to enhance the ability of the Department to protect the public health and the environment by providing the Department with the authority and resources necessary to maintain a rigorous inspection and enforcement program at commercial hazardous waste facilities" [G.S. 130A-295.02(f)]. Under the program, commercial facilities, which receive and process a wide variety of hazardous waste from large quantity, small quantity and small quantity conditionally exempt generators, are subject to an inspection frequency of two, four or six times per month. This level of inspection presence helps to ensure a high compliance rate at these facilities, where the management of hazardous waste is their primary business.

II. PROGRAM STAFFING

For this fiscal year, the program was comprised of two resident inspectors assigned to home duty stations, one administrative assistant, a program supervisor and two part-time resident inspectors. The Resident Inspector Program resides within the Hazardous Waste Section's Compliance Branch. (See Attachment 1 for the Organization Chart)

III. THE RESIDENT INSPECTOR

Most state agencies perform their compliance monitoring inspections as required from their specific respective regulations. The Resident Inspector Program, however, is unique in that its inspections utilize a multimedia approach. This approach covers all regulatory responsibilities for which DENR is authorized, such as hazardous waste management and treatment requirements, workplace safety, air emissions requirements, wastewater treatment and discharge requirements.

There are inherent overlaps of DENR's regulatory requirements with regulations administered by other departments. Two examples include the North Carolina adopted federal regulations enforcing the Department of Labor's Occupational Safety & Health Act and the Department of Transportation's hazardous materials transportation regulations. Deviations from these regulations could adversely affect public health and the environment, as well as a facility's compliance with air, water or hazardous waste management regulations. As part of the Resident Inspector Program's comprehensive approach to monitoring commercial hazardous waste facilities, resident inspectors also evaluate these sites for potential violations in these other regulatory areas. When necessary, they make recommendations to the facilities and/or make referrals to the authorized agency or agencies. The mandated frequency of inspection at each facility gives resident inspectors the time needed to achieve this high degree of oversight.

To prepare resident inspectors for their multimedia approach to inspections, initial training typically consists of Hazardous Waste Operations and Emergency Response (40 hours), Environmental Surveillance, RCRA Hazardous Waste Training, Hazardous Materials Transportation and the care and use of Level B / Personal Protective Equipment.

Annual training for resident inspectors includes an 8-hour Health & Safety Basic Refresher, Level B Update and Environmental Surveillance Update. Depending upon the inspector's area of expertise and responsibility, other miscellaneous training may be received, including Hazardous Waste Incineration, Ambient Air Monitoring, Air Pollution Control Devices, Chemical Safety Audit, DOT Hazardous Materials Transport, OSHA Inspector's Course, Hazardous Materials Management, Emergency Management and various EPA regulatory workshops.

IV. SUBJECT FACILITIES

To be subject to oversight by the Resident Inspector Program, the facility must be a commercial hazardous waste facility. The term "commercial," as it relates to a hazardous waste facility, is defined as a facility "... that accepts hazardous waste from the general public or another person for a fee" [G.S. 130A-290(a)(3)]. Presently, there are 11 permitted commercial hazardous waste treatment, storage and disposal facilities in North Carolina under the jurisdiction of the Resident Inspector Program.

On the evening of Oct. 5, 2006, a fire broke out in the hazardous waste storage area of EQ - North Carolina, a commercial hazardous waste facility located in Apex, NC. This fire, consuming the majority of the hazardous waste in storage at that time, resulted in the evacuation of approximately 16,000 residents from their homes. The Resident Inspectors and various other members of the Hazardous Waste Section's Compliance Branch provided on-site coverage overseeing the facility's cleanup and waste disposal. Oversight coverage during this period ranged from 24 hours per day to being present only when EQ-NC operational personnel were present (HWS staff were present at all times when cleanup and disposal activities were conducted by EQ – NC). In total, for the five month effort at EQ-NC, the Resident Inspectors expended 1,500 man-hours with an additional 3,900 man-hours provided by other HWS staff.

The cause of the fire is still unknown at this time and the incident remains under review by the Chemical Safety Board, whose findings will be issued by calendar year end. A preliminary report by the Chemical Safety Board in June 2007 indicated that a box of unspent oxygen generators is likely to have contributed to the intensity of the fire. Based on subsequent findings, the Division of Waste Management has issued an Administrative Order with Penalty and a notice of intent to terminate EQ-NC's Part "B" RCRA Permit.

V. FACILITY CATEGORY RANKINGS

Each commercial hazardous waste treatment, storage and disposal facility is ranked to determine its required inspection fees and minimum inspection frequency as required under **15A NCAC 13A .0116**. The frequency of the inspections at each facility is dependent upon its qualification as a "special purpose" commercial hazardous waste facility and the category ranking assigned to it, which is based on such factors as the capacity of the facility, the nature of the hazardous waste and the type of treatment being performed. Currently, all existing commercial hazardous waste treatment, storage and disposal facilities in North Carolina qualify as "special purpose" facilities. (See Attachment 2 for current category rankings and primary waste treatment activities for these facilities.) The designated categories of 1, 2 or 3 correspond to a minimum inspection frequency of two, four or six times per month respectively.

VI. FUNDING & EXPENSES

The Resident Inspector Program is funded by fees collected from the commercial hazardous waste facilities. These fees are based upon each facility's category ranking and volume (tons) of hazardous waste handled. The category ranking system is designed to be an indirect measure of the costs associated with oversight at each commercial hazardous waste facility. While the commercial hazardous waste facilities' total tonnage throughput has decreased approximately 11percent this year, Program fees remained approximately unchanged from the previous year due to a facility ranking change. Resident Inspector Program operating expenses have increased due to increases in transportation / fuel costs. Due to the staffing demands to cover the EQ-NC fire and cleanup, it remained necessary for the Resident Inspector Program supervisor to conduct a portion of the required inspections. Only through the assistance of two Hazardous Waste Section inspectors (part-time) did the Resident Inspector Program meet the required minimum number of inspections mandated.

For FY 2006-2007, the budget was developed using anticipated revenues from Resident Inspector Program fees of approximately $275,000. The actual hazardous waste tonnage received by three of the commercial facilities significantly decreased over the previous year but was partially offset by one facility's tonnage increase. All other facilities remained relatively unchanged. (A detailed list of the individual tonnages received by each of the commercial hazardous waste facilities in FY 2006-2007 can be found in Attachment 3.) The actual Resident Inspector Program receipts in FY 2006-2007 totaled $295,000, while Resident Inspector Program expenses were held to $248,000.

VII. INSPECTION GOALS & ACHIEVEMENT

During FY 2006-2007, the Resident Inspectors conducted a total of 456 inspections, which includes 175 additional inspections of EQ-NC as part of the cleanup and waste disposal following the October incident, exceeding the required minimum of 450 inspections. These inspections included routine site inspections as well as specific inspections to monitor cleanup activity and other inspections to assist in improving compliance performance by other facilities. (A detailed list of the inspections performed by program staff at the commercial hazardous waste facilities in FY 2006-2007 can be found in Attachment 4.)

VIII. ENFORCEMENT & COMPLIANCE

Enforcement Activities

In general, the commercial hazardous waste facilities continue to be cooperative and, in most cases, have rapidly responded with corrective action in most cases when deficiencies or violations were cited or recommendations made. When either of these actions does not result in timely and consistent compliance, a more severe enforcement action is taken, such as a notice of violation or a compliance order with administrative penalty.

During the past fiscal year, resident inspectors issued two Notices of Violation to a commercial facility and one Compliance Order (see Attachment 5 for current and historic enforcement tracking). The overall compliance rate for the commercial facilities is 98.6 percent.

Compliance Assistance Activities & Homeland Security

Compliance assistance activities offered under this program are conducted routinely during the inspectors' site visits. Since the inspectors visit these facilities at least semi-monthly, they have the opportunity to become very familiar with the operations of each facility and may offer compliance assistance in several ways. Inspectors identify trouble areas observed at each and all of the other facilities and work with each facility toward permanent solutions. If a facility begins to have compliance problems, the inspectors increase scrutiny of these problem areas during each visit to keep the facility's compliance awareness high. Inspectors communicate frequently with facility management and front-line workers to clarify the permit and current regulatory requirements, the reasons for the requirements, and the potential risks incurred for noncompliance. Inspectors continue to develop, schedule and facilitate roundtable training workshops customized for each specific facility. These workshops cover the most frequent deficiencies observed overall at commercial facilities, the most frequent violations observed at their particular facility, any potential areas of concern and positive facility operations.

If a facility repeats a violation, the primary inspector and program supervisor will set up an informal enforcement conference with the local facility compliance managers, the plant manager, and, if applicable, the corporate compliance officers. They discuss the facility's current compliance issues and work with the facility to find a permanent solution, which may include formal enforcement.

IX. PUBLIC MEETINGS / HEARINGS & PERMIT RENEWALS

The Resident Inspector Program staff continues to observe and assist/support public meetings/hearings that involve the operation of and proposed modifications to the commercial hazardous waste facilities in this state. A continuing program goal is for the staff to be fully aware of public concerns and to be conscious of these concerns during oversight efforts at these facilities. Program staff members have provided assistance in facility compliance audits by generators, consultants, other agencies and the public. Program staff work with area schools to provide information in the classroom about environmental responsibility and how the facilities help with that responsibility.

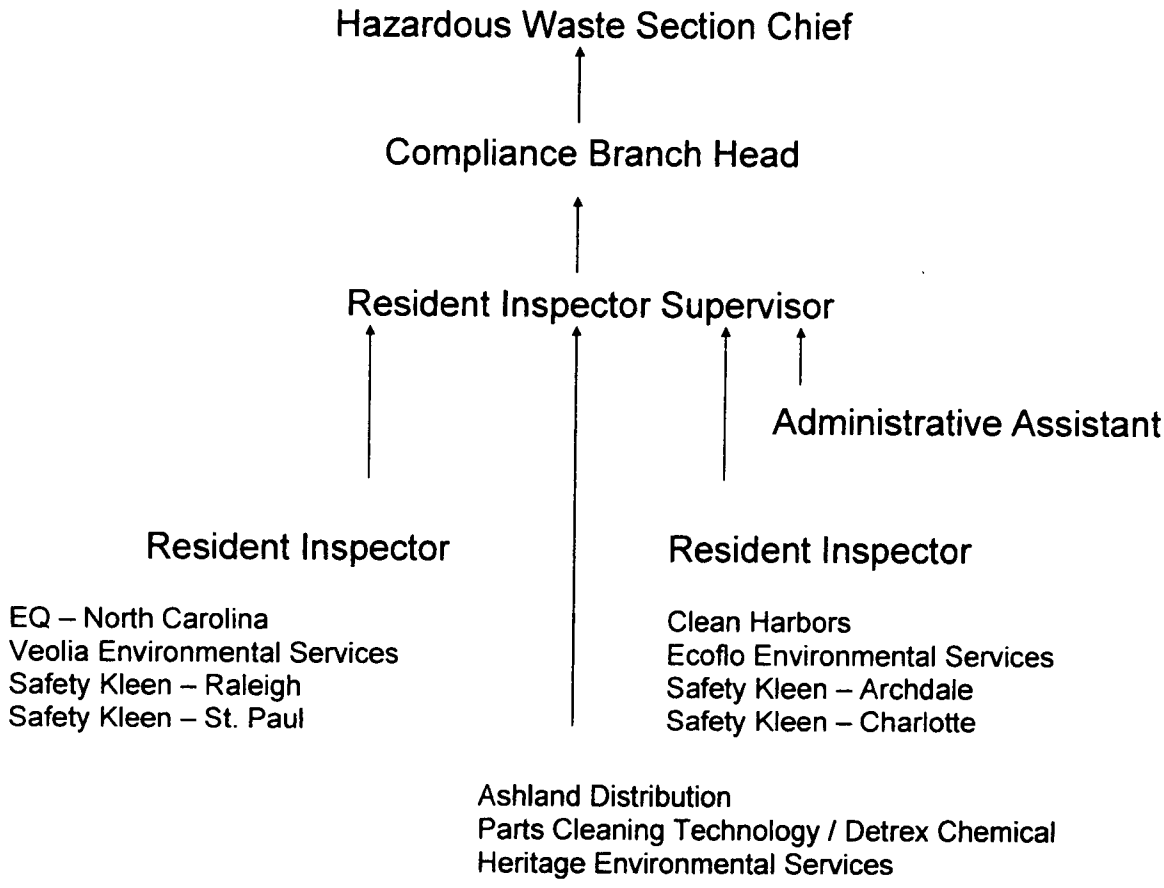
The Resident Inspector Program staff continues to work with the Facility Management Branch (the permitting arm of the Hazardous Waste Section) and each commercial hazardous waste facility during the permit renewal/application process and other compliance reviews, such as closure of a permitted unit (storage tank, processing area, container storage area, etc.). The purpose of this joint effort is to provide clarification, address areas of concern, and assist in ensuring the permit application accurately reflects the facility as it is operated.

X. SUMMARY

At the conclusion of the program's 16th year, the Resident Inspector staff continues to provide rigorous oversight of the commercial hazardous waste facilities in this state. This is reflected in the facilities' overall compliance rate of 98.6 percent. The staff is constantly seeking new approaches and initiatives to improve the department's ability to protect public health and the environment. Additionally, the staff worked with the Governor's Task Force and the NC General Assembly to expand the current regulations governing the commercial TSD facilities. On June 26, 2007, Gov. Easley signed House Bill 36 into Session Law 2007-107. The major components of the law include increased assurance requirements, strengthened information-sharing requirements and enhanced technical requirements to improve the overall safety and security of commercial hazardous waste management facilities. The Resident Inspector Program will face new challenges in implementing the additional requirements of this law and will assist in the rulemaking process as required for this law. To ensure that new regulatory requirements are fully understood by the facilities so they can be implemented rapidly and correctly, the staff will continue to educate and instruct as the new requirements are enacted. With proactive approaches, such as workshops, program oversight and compliance assistance efforts, the Resident Inspectors will continue to target a high level of compliance at the commercial hazardous waste facilities in North Carolina.

ATTACHMENTS

ORGANIZATIONAL CHART



ATTACHMENT 2
RESIDENT INSPECTOR PROGRAM

Commercial Hazardous Waste Facilities

CATEGORY RANKINGS & PRIMARY TREATMENT

(FY 2006-2007)

FACILITY	CURRENT CATEGORY RANKING	Primary Waste Treatment
Ashland Distribution Co.	2*	Container Storage
Clean Harbors	3	Hazardous Waste Consolidation, Fuels Blending, Container Storage
Detrex Chemical / Parts Cleaning Technologies	2	Chlorinated Solvent Reclamation
ECOFLO, Inc.	3	Hazardous Waste Consolidation, Fuels Blending, Container Storage
EQ – North Carolina	2	Container Storage
Heritage Environmental Services	3	Hazardous Waste Consolidation, Fuels Blending, Container Storage
Safety-Kleen / Archdale	1	Mineral Spirits Reclamation
Safety-Kleen / Charlotte	1	Mineral Spirits Reclamation
Safety-Kleen / Raleigh	1	Mineral Spirits Reclamation
Safety-Kleen / St. Pauls	1	Mineral Spirits Reclamation
VEOLIA Environmental Services	2	Container Storage

* Following the annual facility ranking review, the Ashland Distribution facility was re-designated as a Category 2 effective April 1, 2007.

ATTACHMENT 3
RESIDENT INSPECTOR PROGRAM

Commercial Hazardous Waste Facilities

ANNUAL HAZARDOUS WASTE TONNAGE RECEIVED REPORT

(FY 2006/2007)

COMMERCIAL FACILITY	Tons Received 2006/2007	Tons Received 2005/2006	Tons Received 2004/2005	Tons Received 2003/2004	Tons Received 2002/2003
ASHLAND	2,986.51	3,933.47	3,624.00	3,164.72	3,363.58
CLEAN HARBORS	14,784.00	10,561.87	8,593.29	4,039.98	4,199.94
DETREX	1,030.17	742.13	522.68	674.57	1,017.31
ECOFLO	1,790.19	3,961.10	4,938.21	6,126.56	4,916.60
EQ–North Carolina	2,995.66	7,345.74	6,626.97	3,221.14	152.52
HERITAGE E. S.	21.66	5.85	0.00	431.28	920.54
SK-ARCHDALE	374.39	435.90	474.00	498.00	564.50
SK-CHARLOTTE	352.78	411.20	423.00	472.00	493.20
SK-RALEIGH	335.66	391.60	406.60	449.90	512.00
SK-ST. PAULS	258.34	288.80	317.80	319.73	339.90
VEOLIA E. S.	1,503.45	1,530.00	1,248.24	1,297.00	1,245.00
TOTAL	26,432.81	29,607.66	27,174.79	20,694.88	17,726.09

ATTACHMENT 4
RESIDENT INSPECTOR PROGRAM

Commercial Hazardous Waste Facilities

INSPECTION TOTALS

(FY 2006/2007)

FACILITY	REQUIRED INSPECTIONS	ACTUAL INSPECTIONS
Ashland Distribution Co.	30*	32
Clean Harbors	72	72
Detrex Chemical / Parts Cleaning Tech.	48	50
ECOFLO, Inc.	72	72
EQ - North Carolina	12**	12+
Heritage Environmental Services	72	73
Safety-Kleen / Archdale	24	24
Safety-Kleen / Charlotte	24	24
Safety-Kleen / Raleigh	24	24
Safety-Kleen / St. Pauls	24	24
Veolia Environmental Services	48	49
TOTAL	450	456

* [nine months as Category 1 = 18] + [three months as Category 2 = 12] = Total 30
** Normal hazardous waste operations were halted following the October 5, 2006 fire.
+ Normal operation inspections ceased after that date and an additional 1500 man-hours were accrued by the Resident Inspectors conducting on-site inspections [oversight operations were conducted during cleanup and remediation of the site].

ATTACHMENT 5
RESIDENT INSPECTOR PROGRAM

ENFORCEMENT OVERVIEW at COMMERCIAL HAZARDOUS WASTE FACILITIES (7/1/91 through 6/30/07)

FACILITY	NOVs FY 06-07	NOVs To Date	Compliance Orders FY 06-07	Compliance Orders To Date
ASHLAND	0	13	1	1
CLEAN HARBORS [1]	0	15	0	0
DETREX	0	12	0	1
ECOFLO	0	9	0	0
ENVIROCHEM [2]	0	10	0	1
EQ–North Carolina[2]	2	2	1	2
HERITAGE ES	0	30	0	3
SK-ARCHDALE [3]	0	14	0	0
SK-CHARLOTTE [3]	0	17	0	0
SK-RALEIGH [3]	0	11	0	0
SK-ST. PAULS [3]	0	15	0	0
VEOLIA ES [4]	0	11	0	1
GIANT [5] **CLOSED**	0	12	0	0
SOLITE [6] **CLOSED**	0	8	0	1
TOTALS	1	179	2	10

1 Clean Harbors (formerly owned by Safety-Kleen Technical Services; formerly owned by Laidlaw)
2 EQ-North Carolina (formerly owned by EnviroChem Environmental Services, Inc.)
3 SK = Safety-Kleen Corporation
4 Veolia Environmental Services (formerly known as ONYX)
5 Giant Resource Recovery (formerly owned by Oldover Corp.) - CLOSED September 2004
6 Solite Corporation has ceased operation as a hazardous waste burner - CLOSED January 2003

Exhibit H

Report to the North Carolina General Assembly on the Inactive Hazardous Sites Program

October 2007

Superfund Section
Division of Waste Management
North Carolina Department of Environment and Natural Resources

http://www.wastenotnc.org

EXECUTIVE SUMMARY

The Inactive Hazardous Sites Program was created by the North Carolina General Assembly to identify, control and correct properties contaminated with hazardous substances.

To date, 1,788 chemical spill or disposal sites and old, unlined dumps or landfills have been catalogued that are not being addressed by other environmental authorities. Of this number, 1,351 still require work to address their hazards. In addition, the program gained another 1100 to 2000 sites with a recent consolidation of remediation programs into the Division of Waste Management within the Department of Environment and Natural Resources. The Inactive Hazardous Sites Branch (the Branch) is in the process of reviewing and merging data records on these sites. A more precise cataloging will be available in a few months.

Currently there are 669 old non-permitted unlined landfills requiring action. The locations of the landfills are still being determined. The Branch has received state funds to hire contractors to locate these landfills, collect information on property use, and determine the potential for exposure. The Branch has also received federal funding for one full-time equivalent position to coordinate these contracts and to conduct the work in the 20 counties not eligible for the state funding. The location and conditions survey will be complete in the contract-eligible counties in early 2008.

Of the old dumps inspected thus far, 77 percent have a residence, school, church, day care or drinking water source on or within 1,000 feet of the landfill. More than 100 have drinking water wells within 500 feet. Based on observations at sites investigated by the USEPA and the North Carolina Division of Waste Management, most of North Carolina's unlined landfills can be expected to have groundwater contamination. These landfills pose threats from contaminated groundwater reaching drinking water wells and from hazardous substances and methane vapors off-gasing from the waste and contaminated groundwater, making it into structures on or near the landfill thereby posing health threats and explosion hazards.

Senate Bill 1492, enacted this session, establishes a state-wide tax on waste disposal to address the hazards posed by these sites. The provisions of the bill which relate to the assessment and abatement of contamination at these unpermitted landfills go into effect in July 2008.

Limited funds are available for non-landfill orphan site assessment and cleanup. The Branch has been able to collect some funds through bankruptcy claims for a few sites. All currently available funds are dedicated to specific site actions. Insufficient funds remain to address other orphan inactive hazardous substance or waste disposal sites.

To increase the program's effectiveness, the General Assembly authorized the use of private environmental consulting firms to oversee voluntary cleanup actions. Registered Environmental Consultants (RECs) are providing supervision for cleanup work on 33 sites. State staff audit a portion of the REC's work activities. In addition, oversight of remedial actions at two sites is being provided by federally-funded staff and oversight of work at 34 former

manufactured gas plant sites is being provided through an agreement with a consortium of utilities and municipalities that funds two staff members.

The following summarizes site cleanup activities over the past reporting year.

Sites Identified	
Chemical spill or disposal sites	1,119
Old unlined dumps and landfills	669
Total Number Sites Identified	**1,788**
Sites With All Work Complete Since last status report in 10/06	6
Total Number Sites Requiring No Further Action	**437**
Note: Two sites reactivated this year based on new evidence of contamination. Another site no longer has "no further action" status, but is being addressed by another agency. A fourth was an error addition and was removed from the inventory.	
Ongoing Cleanup Actions	
Ongoing REC-Supervised Site Cleanup Actions	33
Ongoing Priority Cleanup and MGP Actions Supervised by State Staff	96
Total	**129**

The Inactive Hazardous Sites Response Act requires annual reporting to the General Assembly. All of the reporting requirements specified under N.C.G.S. 130A-310.10 are met in this report.

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I. THE INACTIVE HAZARDOUS SITES INVENTORY AND THE INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST

The Inactive Hazardous Sites Branch is part of the North Carolina Department of Environment and Natural Resources' Division of Waste Management. It implements the Inactive Hazardous Sites Response Act of 1987. This act requires DENR to maintain a catalog of inactive hazardous substance or waste disposal sites. There are currently 1119 chemical spill sites and 669 old unlined landfills cataloged. Of these, 437 sites now have all work completed and are assigned "No Further Action" status. Six sites completed all work and were assigned "No Further Action" status this reporting year. Table 1, on the following page, provides a list of sites added to that inventory since the last program report in October 2006. Table 2, on page 3, provides a list of sites assigned "No Further Action" status.

N.C.G.S. 130A-310.2 requires that sites catalogued in the Inactive Hazardous Sites Inventory be prioritized based on their threat to public health and the environment. After discovery, sites are first cataloged in the "Evaluations Pending" category of the Inactive Hazardous Sites Inventory until their rank is determined. Site rankings are determined using the rules found in 15A NCAC 13C .0200. Once ranked, sites are transferred to the Inactive Hazardous Waste Sites Priority List. This list is provided in an appendix to this report. The entire inventory can be provided upon request.

TABLE 1. INACTIVE HAZARDOUS SITES INVENTORY
LIST OF NEW SITES ADDED FY06-07

ID Number	*Site Name*	*City*	*County*
NONCD0001171	AB-TECH	ENKA	BUNCOMBE
NONCD0000045	ALCAN PACKAGING	ASHEVILLE	BUNCOMBE
NONCD0001183	AMERICAN DRY CLEANERS	CHAPEL HILL	ORANGE
NCD045924065	AMF/HATTERAS YACHTS	NEW BERN	CRAVEN*
NONCD0001165	ARNOLD, CHARLES RESIDENCE	WAKE FOREST	WAKE
NONCD0001170	ARROW DRIVE-CRABTREE CREEK	RALEIGH	WAKE
NONCD0001174	ARROW LAUNDRY	CHARLOTTE	MECKLENBURG
NONCD0000076	BELK BLDG EXPANSION SITE	CHARLOTTE	MECKLENBURG
NCD062550082	CARPENTER CO - CONOVER PLANT	CONOVER	CATAWBA
NONCD0001184	CARTER'S CLEANERS	ABERDEEN	MOORE
NONCD0001167	CENTRAL GRAIN-CHAPANOKE	HERTFORD	PERQUIMANS
NONCD0001166	CENTRAL GRAIN-MORGANS CORNER	ELIZABETH CITY	PASQUOTANK
NCN000409889	CERTIFIED PLATING	GASTONIA	GASTON
NONCD0001162	CHAMPION FINISHING CO	ASHEVILLE	BUNCOMBE
NONCD0001156	CLEAN-CLEAN DRY CLEANERS	ROCKY MOUNT	NASH
NCD047371794	COASTAL LUMBER CO	NEW BERN	CRAVEN
NONCD0001164	COOPERAGE TRACT	BELHAVEN	BEAUFORT
NONCD0001185	CSX-NUTT ST	WILMINGTON	NEW HANOVER
NONCD0001180	CTI OF NC, INC	WILMINGTON	NEW HANOVER
NONCD0001155	D&G PROPERTIES-SLAUGHTERHOUSE PARCEL	NAVASSA	BRUNSWICK
NONCD0001060	DIXIE MACHINE & TOOL CO	GREENSBORO	GUILFORD
NCD009305699	GTE SYLVANIA, INC	SMITHFIELD	JOHNSTON*
NONCD0001059	HARRIS TRUCKING EQUIPMENT (FORMER)	NEW BERN	CRAVEN
NONCD0001075	HIGGINS TOWNSHIP FIRING RANGE	MARION	MCDOWELL
NCD981748403	HOME DEPOT-PRO CLEANERS	HIGH POINT	GUILFORD
NONCD0001159	HYDRO TUBE SOUTH	PITTSBORO	CHATHAM
NONCD0001172	HYMAN YOUNG GREENHOUSE	ASHEVILLE	BUNCOMBE
NONCD0001093	KIDDE FIRE FIGHTING	ANGIER	HARNETT
NONCD0001118	KIDDE TECHNOLOGIES	WILSON	WILSON
NONCD0001173	LEBANON CHEMICAL	HERTFORD	PERQUIMANS
NONCD0001169	LIBERTY FABRICS (FORMER)	JAMESVILLE	MARTIN
NONCD0001175	MIDTOWN SQUARE VALET DRY CLEANERS	CHARLOTTE	MECKLENBURG
NONCD0001176	MURFREESBORO VENEER	MURFREESBORO	HERTFORD
NCN000409895	ORE KNOB MINE	JEFFERSON	ASHE
NONCD0001178	PACKER PROPERTY	WHITEVILLE	COLUMBUS
NONCD0001161	PEELE'S SERVICE STATION/HONORA MANNING	JAMESVILLE	MARTIN
NONCD0001177	PINE RD RAVINE DISPOSAL	BADIN	STANLY
NONCD0001168	RIVER CITY CONSTRUCTION CO	WASHINGTON	BEAUFORT
NONCD0001154	ROBERT BOSCH TOOL CORP	LINCOLNTON	LINCOLN
NONCD0001157	ROBERT BOSCH TOOL CORP	GREENVILLE	PITT
NCD986232676	ROCK-TENN MARION FOLDING	MARION	MCDOWELL
NONCD0001163	SMITH'S AEROSPACE	ASHEVILLE	BUNCOMBE
NONCD0001080	SOUTH EUGENE CLEANERS	GREENSBORO	GUILFORD
NONCD0001158	STATE LINE HONDA	MOYOCK	CURRITUCK

ID Number	*Site Name*	*City*	*County*
NONCD0001052	THOMASVILLE FURNITURE	WEST JEFFERSON	ASHE
NCN000410007	TRANSYLVANIA TANNING CO	BREVARD	TRANSYLVANIA
NONCD0001160	TRAWICK ROAD	RALEIGH	WAKE
NONCD0001153	UNITED AGRI PRODUCTS DISTRIBUTION	LAURINBURG	SCOTLAND
NONCD0001103	WALTER KIDDE PORTABLE EQUIPMENT	MEBANE	ALAMANCE
NCN000407582	WEST PHARMACEUTICAL SERVCES	KINSTON	LENOIR
NONCD0001054	WILLIAMS AUTO CENTER	BRIDGETON	CRAVEN
NONCD0001179	WILMINGTON IRON WORKS (FORMER)	WILMINGTON	NEW HANOVER

* Site previously cataloged and assigned "no further action status" was reopened due to new information.

TABLE 2. INACTIVE HAZARDOUS SITES INVENTORY SITES RECEIVING NO FURTHER ACTION STATUS FY06-07

ID Number	*Site Name*	*City*	*County*
NCN000407241	CHADBOURN BATTERY	CHADBOURN	COLUMBUS
NCD986188498	DURA-BUILT ENGINES CO	COATS	HARNETT
NONCD0000050	HWY 268 MIRROR WASTE DUMP	NORTH WILKESBORO	WILKES
NONCD0000056	JAMES LANDFILL	LAURINBURG	SCOTLAND
NCN000407364	QUARTER MASTER AUTO DETAIL	KERNERSVILLE	FORSYTH
NCD980839716	RIVERDALE HOMES/EARL GETTS	DURHAM	DURHAM

II. SITES THAT MAY OR ARE KNOWN TO REQUIRE USE OF THE INACTIVE HAZARDOUS SITES CLEANUP FUND

Purpose of the Fund

The Inactive Hazardous Sites Cleanup Fund is used to: (1) address imminent hazard sites; (2) pay for assessment and cleanup when responsible parties do not comply with orders to clean up sites; (3) pay for assessment and cleanup of sites that do not have financially-viable responsible parties (orphan sites); and (4) pay for state-contracted survey and legal assistance necessary to prepare notices of Inactive Hazardous Substance or Waste Disposal Sites where owners do not comply with orders to conduct such work. The state must attempt to recover its expenditures from responsible parties in the first, second and fourth cases.

The Inactive Hazardous Waste Sites Priority List helps determine priorities for cleanup. Responsible parties for top priority sites are encouraged to voluntarily clean up their sites. When a responsible party does not comply with a request and subsequent order to clean up a site, the State must perform the cleanup using the Inactive Hazardous Sites Cleanup Fund. The demand for state funds to conduct site cleanups depends on two factors: (1) how often responsible parties refuse to comply with orders to conduct cleanup and (2) the number of sites that lack financially-viable responsible parties. To date, the program has been successful in obtaining cleanup by responsible parties. Funds are mainly needed for orphan sites where the responsible party either cannot be located or has no financial resources.

The statute requires that the program report the list of sites known to require funds and the list of sites suspected to require funds for cleanup. Determining if responsible parties exist (and thus, if funds are needed) is often a complex and lengthy process. This information can become dated as owners and operators of the facilities change over time. To avoid the need to update the information several times, responsible party research is not done until a site is next in priority for action. For this reason, the total number of orphan sites on the Inactive Hazardous Waste Sites Priority List requiring state funds is not presently known.

Orphan Chemical Sites

In previous years, limited assessments and cleanup actions have been conducted using the Inactive Hazardous Sites Cleanup Fund (the Fund) at priority sites not having financially-viable responsible parties. In FY 06-07, the Fund was used to conduct a groundwater assessment at the Riverdale Homes Site in Durham, Durham County, to ensure no contamination remained. The site has now been assigned "no further action" status. The Branch also began investigation of an area of contaminated private wells known as the Rim Lake Area in Fayetteville in September 2007. An assessment of additional potable wells and a source evaluation is underway at this site.

The Inactive Hazardous Sites Branch has also recovered some funds to address specific sites through bankruptcy claims. Approximately $450,000 was obtained through a claim for six Burlington Industry properties. While the amount of funds is limited, the funds will be used to remove sources of contamination, thereby reducing the further spread of groundwater contamination and encouraging natural attenuation processes. Approximately $26,000 was recovered to address two former Cone Mills sites. The Branch has also recovered approximately

$940,000 in funds through a bankruptcy claim against Texfi, Inc. that is being used to remove sources of contamination at the Fayetteville property.

Inactive Hazardous Sites Cleanup funds have also been used to conduct an ongoing interim cleanup measure at the Texfi site in Fayetteville, Cumberland County. Groundwater contaminated with hazardous substances migrated from Texfi to the adjoining City of Fayetteville's Hoffer Water Plant property. The contaminated groundwater has been in contact with the city's primary finished drinking water holding tank. This concrete tank sits, in part, below the groundwater table. In addition, the city's drinking water intakes on the Cape Fear River, 450 feet downstream from the Texfi property, and a city park adjoining the Texfi property, are also concerns. The interim measure involved construction of a subsurface barrier wall in 2001 to prevent additional flow of contaminated water toward the tank. Extraction wells were installed to remove contaminated water that had already passed on to the water plant property around the tank. Groundwater contaminant concentrations on the tank side of the wall have been reduced approximately 95% as a result of this action. Thus far, analyses indicate the drinking water has not been affected.

Funds of up to $50,000 were authorized in each fiscal year 04-05 and 05-06 from the state's National Priorities List Cost Share Fund to continue the monitoring and maintenance of the Texfi interim measure. An appropriation of $100,000 was provided in FY 06-07 for monitoring and cleanup of the site. If the entire $100,000 is dedicated to monitoring only, funds are sufficient to conduct this work through August 2009. Some of the $100,000 may be needed to supplement the bankruptcy funds being used to address contaminant source material.

There is a risk that the barrier wall will fail overtime. Thus, it is important to remove the source of the groundwater contamination on the Texfi property. The sources are solvents in the subsurface. Settlement of North Carolina's bankruptcy claim against the Texfi estate mandated that a portion of the proceeds from the estate's law suits and property sales are to be set aside to conduct the removal of contaminant sources. On June 20, 2006, when the final disbursement of funds was received from the bankruptcy trustee, a total of approximately $940,000 became available to conduct the source remediation. A pilot test for determining whether the preferred treatment technology will work at the site was initiated in November 2006 and will continue to run through November 2007. If successful, full-scale implementation will then follow. This technology involves subsurface injection of materials that are designed to break down the source material. In addition to the chemical solvents in the subsurface, abandoned chemicals in tanks, drums, and other containers have been removed as part of this work. After treating the sources contributing to groundwater contamination, it could take many years before significant reductions in groundwater contaminant concentrations occur.

Unlined Landfills

A total of 669 unpermitted, unlined landfills have been cataloged. Requirements for permitting of landfills did not go into effect until January 1983. Based on information on permitted, unlined landfills, the majority are expected to have groundwater contaminated with hazardous substances. Hazardous waste disposal regulations did not exist until the 1980s. Therefore, these older unpermitted landfills have an even larger chance of posing threats from releases of hazardous substances.

The Branch has received state and federal funds to determine the location and the current property and surrounding property use at these sites. Location and use information has been collected on 414 landfills thus far. Of those inspected, 77% have a house, school, day care, church or drinking water source within 1000 feet of the landfill.

Almost without exception, these landfills were operated either by private individuals with limited financial resources or by counties and municipalities that operated in the public interest and did not make a profit. Thus, these sites may be considered to have no responsible parties available to pay for any corrective measures required.

These landfills pose threats from contaminated groundwater reaching drinking water wells and from hazardous substances and methane vapors off-gasing from the waste and contaminated groundwater, making it into structures on or near the landfill thereby posing health threats and explosion hazards.

For these reasons, the legislature enacted S1492 which establishes a state-wide tax on waste disposal to address the hazards posed by these sites. The provisions of the bill which relate to the assessment and abatement of contamination at these unpermitted landfills go into effect July 2008.

Cleanup Funds Needed

Currently 68 sites, of which 43 are higher priority cases, have been identified that have no financially-viable responsible parties and require further action. As explained earlier in this chapter, the total number of orphan sites is not presently known.

The Branch has also recently gained another 1,100 to 2,000 sites with a recent consolidation of remediation programs into the Division of Waste Management in DENR. As part of this reorganization, the Branch has been consolidating site data formerly managed by the Division of Water Quality into the Inactive Hazardous Sites Inventory. This report does not reflect those changes. Additional record sorting is required before the merged catalog will be complete. Based on reviews conducted thus far of the transferred site information, many sites are expected to be priorities and many may be orphaned. Preliminary review of some of these cases has already indicated about 30 sites with potential drinking water well issues and no responsible parties.

Orphan site work can include assessment only, small-to-large soil and waste cleanup, water line installation or larger groundwater restoration projects. An average cost-per-site was determined by first calculating the average cost for orphan soil cleanup actions conducted by the Branch and averaging that figure with an average site cleanup cost for several state programs published by the Association of State and Territorial Solid Waste Management Officials, adjusting for inflation. That figure comes to $510,798 per site. The total cost for cleanup is estimated then to be $34,734,264 for 68 orphan sites or $21,964,314 for 43 higher priority orphan sites.

As of July 1, 2007, the balance of the Inactive Hazardous Sites Cleanup Fund totaled $1,041,068. Of this, $851,703 is bankruptcy proceeds dedicated to conducting contaminant source

remediation at the Texfi-Fayetteville site. An additional $100,511 is committed to continue the operation and maintenance of the Texfi interim remedy. $25,968 of the total is bankruptcy proceeds dedicated to addressing two Cone Mills sites. The remaining $62,886 will be used to address another priority, leaving no remaining funds. The $383,131 in remaining bankruptcy proceeds for the six Burlington Industry sites is held in separate trust funds.

III. NATIONAL PRIORITIES LIST SITES REQUIRING A STATE COST SHARE

National Priorities List sites are those hazardous substance or waste disposal sites that are priorities for cleanup under the federal Comprehensive Environmental Response, Compensation and Liability Act, more commonly known as Superfund. North Carolina has 31 NPL sites.

The NPL includes both sites with financially-viable responsible parties and orphan sites. Cleanup costs are financed either by responsible parties or by a federal trust fund with a state cost share. When the federal trust fund is used, CERCLA requires North Carolina to pay 10 percent of the cleanup cost plus 100 percent of the cost to operate and maintain the remediation system.

Table 3 provides a list of the North Carolina NPL sites, their locations, investigation/cleanup status, estimated costs, and projected start dates for cleanup. Part I of Table 3, found on page 9, includes those sites where the Federal Trust Fund/North Carolina cost share is required. A summary of North Carolina's cost share obligations is provided at the end of this part. Part II of Table 3, found on page 11, includes the status of responsible party funded cleanups.

TABLE 3. NORTH CAROLINA NATIONAL PRIORITIES LIST SITES
PART 1 – SITES WHERE FEDERAL TRUST FUND/NORTH CAROLINA COST SHARE IS REQUIRED

NPL Site	*City/County*	*Operable Unit*	*Cleanup Status*	*Estimated Cost*	*Cleanup Start Date***
ABC One Hour Cleaners	Jacksonville, Onslow	OU1-Groundwater	RA	$3,760,000	In Progress
		OU2-Soil	RA	$750,000	In Progress
Barber Orchard	Waynesville, Haywood	OU1-Soil	RD	$24,300,000	2008
		OU2-Groundwater	FS	Not Determined	Not Determined
Benfield Industries	Waynesville, Haywood	Entire Site		$6,729,200	
		Soil	RA		Complete
		Groundwater	RA		In Progress
Blue Ridge Plating	Arden, Buncombe	Entire Site	RA	$1,357,600	In Progress
Cape Fear Wood Preserving	Fayetteville, Cumberland	Entire Site		$24,407,574	
		Soil	Complete		Complete
		Groundwater	RA		In Progress
Carolina Transformer	Fayetteville, Cumberland	Soil/Sediment	RA	$22,000,000	Complete
		Groundwater	RD	$328,300	2007
Davis Park Road TCE	Gastonia, Gaston	Groundwater	RA	$3,873,299	In Progress
FCX, Inc.-Statesville	Statesville, Iredell	OU1-Groundwater	RA	$4,161,525	In Progress
		OU2-Soil	Complete	$6,000,000	Complete
FCX, Inc.-Washington	Washington, Beaufort	OU1-Groundwater	RD	$255,791	2008
		OU2-Soil/Surface Water/Sediment	Complete	No Cost Share	Complete
North Belmont PCE	Belmont, Gaston	Groundwater	RA	$7,535,000	In Progress
Potter's Septic Tank Service	Maco, Brunswick	Entire Site		$8,350,000	
		Soil	Complete		Complete
		Groundwater	RA		In Progress
Ram Leather	Mint Hill, Mecklenburg	Entire Site	RD	$2,244,800	2007

TABLE 3. NORTH CAROLINA NATIONAL PRIORITIES LIST SITES
PART 1 – SITES WHERE FEDERAL TRUST FUND/NORTH CAROLINA COST SHARE IS REQUIRED

NPL Site	*City/County*	*Operable Unit*	*Cleanup Status*	*Estimated Cost*	*Cleanup Start Date***
Sigmon's Septic Tank	Statesville, Iredell	Entire Site	RD	$2,189,000	2007
Ward Transformer	Raleigh, Wake	OU1	FS	$11,989,000	2008
		OU2	TCRA		In Progress

FS - Feasibility Study
OU - Operable Unit
RA - Remedial Action
RD - Remedial Design
RI - Remedial Investigation
TCRA – Time Critical Removal Action

SUMMARY OF NORTH CAROLINA COST SHARE REQUIREMENTS
As of July 1, 2007

Estimated total cost of pending/ongoing federal trust fund/N.C. cost share cleanups:	$116,970,689*
N.C.'s 10 percent cost share for pending/ongoing cleanups:	$11,697,069*
Fund disbursements for cost share payments:	$6,414,660
Current fund balance:	$6,748,772
Encumbered amount of the fund balance for cost share payments:	$5,282,409

* This number will increase due to remedial action cost estimates not being available for all sites. Also, other sites may be added to the National Priorities List which will require a state cost share.

** Date applies to either entire site or operable unit.

TABLE 3. NORTH CAROLINA NATIONAL PRIORITIES LIST SITES
PART II - RESPONSIBLE PARTY FUNDED CLEANUPS

NPL Site	*City/County*	*Operable Unit*	*Cleanup Status*
Aberdeen Pesticides	Aberdeen, Moore	OU1 & OU4 - Soils-All Sites	Complete
		OU3-Groundwater for FC, TS, F6	O & M
		OU5-Groundwater for Rt 211 & McIver	O & M
Bypass 601/Martin Scrap	Concord, Cabarrus	OU1-Soil/Sediment at Martin Scrap	O & M
		OU2-Off-Site Soil/Sediment	Complete
		OU3-Groundwater	O & M
Charles Macon Lagoon and Drum	Cordova, Richmond	Soil	Complete
		Groundwater	O & M
Celanese Corporation	Shelby, Cleveland	OU1-Groundwater	O & M
		OU2-Soil	Complete
		Surface Water	Complete
Chemtronics, Inc.	Swannanoa, Buncombe	Soil	O & M
		Groundwater	O & M
FCX, Inc.	Statesville, Iredell	OU3-Burlington Industries Site	RA In Progress
Geigy Chemical	Aberdeen, Moore	Soil	Complete
		Groundwater	O & M
General Electric/ Shepherd Farm	East Flat Rock, Henderson	Soil	O & M
		Groundwater	O & M
		Surface Water/Sediment	Complete
Jadco-Hughes	Belmont, Gaston	Soil/Sediment	O & M
		Groundwater	O & M
JFD Electronics/ Channel Master	Oxford, Granville	Soil	Complete
		Groundwater	O & M

TABLE 3. NORTH CAROLINA NATIONAL PRIORITIES LIST SITES
PART II - RESPONSIBLE PARTY FUNDED CLEANUPS

NPL Site	*City/County*	*Operable Unit*	*Cleanup Status*
Koppers Company, Inc.	Morrisville, Wake	Soil	Complete
		Groundwater	O & M
		Surface Water	Complete
Martin Marietta/Sodyeco	Charlotte, Mecklenburg	Soil	O & M
		Groundwater	O & M
National Starch & Chemical	Salisbury, Rowan	OU1-Groundwater in Western Part of Site	O & M
		OU2-Trench Area Soil/Surface Water	Complete
		OU3-Area 2 Groundwater/Wastewater Treatment Area/Surface Water/ Sediments in NE Tributary	O & M
		OU4-Area 2 Soil/Wastewater Treatment Lagoon Area	O & M
New Hanover County Airport	Wilmington, New Hanover	Groundwater	RA In Progress
NCSU	Raleigh, Wake	Soil	Complete
		Groundwater	O & M
Reasor Chemical	Castle Hayne, New Hanover	Entire Site	RA In Progress
USMC Camp LeJeune	Jacksonville, Onslow	Multiple Units	Various Stages
Cherry Point	Cherry Point, Craven	Multiple Units	Various Stages

O & M - Operation and Maintenance
OU – Operable Unit
RA – Remedial Action

IV. RESPONSIBLE PARTY VOLUNTARY SITE REMEDIAL ACTION

When the Inactive Hazardous Sites Branch solicits the cooperation of responsible parties in taking action at a priority site, most parties agree to voluntarily conduct a cleanup with Branch approval. In addition to these voluntary actions, responsible parties and owners often come forward on their own to initiate an approved assessment and/or remedial action. Due to the number of volunteers and very limited staff resources, the Branch was authorized by the General Assembly to privatize its oversight role at lower priority, voluntary site remedial actions. Sites with more severe public health threats or concerns are still reviewed by state staff.

The privatized portion of the voluntary cleanup program is called the Registered Environmental Consultant, or REC Program. Under this program, a responsible party hires an REC to both conduct, and to certify the regulatory compliance of, a site's assessment and cleanup. In order for a firm to qualify as an REC, it must demonstrate that it meets certain regulatory qualifications criteria. The REC certification replaces state oversight. The state audits a portion of the REC projects to ensure the integrity of the program. The state sanctions RECs where necessary. A state staff auditor is funded through fees collected from the voluntary participants.

A current list of sites which have parties conducting assessments and cleanups in accordance with administrative agreements with the state is provided in Table 4 on the following page. Table 5, found on page 15, is a list of additional, ongoing, Branch-directed priority actions not under consent agreements.

TABLE 4. SITES UNDERGOING VOLUNTARY REMEDIAL ACTION BY RESPONSIBLE PARTIES

ID Number	*Site Name*	*City*	*County*
NONCD0000040	ABBOTT LABORATORIES	LAURINBURG	SCOTLAND
NONCD0000039	ABITIBI-PRICE CORPORATION	ROARING RIVER	WILKES
NCD024462327	ACADEMY STEEL DRUM	MATTHEWS	MECKLENBURG
NCD042423087	APOLLO CHEMICAL CORPORATION	GRAHAM	ALAMANCE
NCD047257472	APPLIED RESEARCH GROUP, INC.	CHARLOTTE	MECKLENBURG
NCD986188787	ASHEVILLE COAL GAS PLANT #1	ASHEVILLE	BUNCOMBE
NONCD0000032	ASHEVILLE COAL GAS PLANT #2	ASHEVILLE	BUNCOMBE
NCD072003635	ATHOL MANUFACTURING COMPANY	BUTNER	GRANVILLE
NCD003193588	BARBOUR BOAT WORKS, INC.	NEW BERN	CRAVEN
NONCD0000002	BURLINGTON COAL GAS PLANT	BURLINGTON	ALAMANCE
NCD986171965	CARO-KNIT	WILMINGTON	NEW HANOVER
NCD000830646	CAROLINA P&L CO. SUTTON STEAM	WILMINGTON	NEW HANOVER
NCD000608117	CELANESE CORPORATION/FIBERS TECH	CHARLOTTE	MECKLENBURG
NCD986188803	CHARLOTTE COAL GAS PLANT NO. 2	CHARLOTTE	MECKLENBURG
NONCD0001082	CMI FLYASH DISPOSAL (PARCEL 2)	ELKIN	SURRY
NONCD0001092	CMI WWTP (PARCEL1)	ELKIN	SURRY
NCD986197333	CONCORD COAL GAS PLANT	CONCORD	CABARRUS
NONCD0001097	COPES-VULCAN, INC	CHARLOTTE	MECKLENBURG
NONCD0001061	CP&L NORTHERN DIVISION COMPLEX	GARNER	WAKE
NCD062567623	DIAMOND SHAMROCK CORP/HENKEL PROCES	CHARLOTTE	MECKLENBURG
NCD981861743	DUKE POWER/GREENSBORO GAS PLANT	GREENSBORO	GUILFORD
NCD000813519	DUKE UNIVERSITY	DURHAM	DURHAM
NCD986173938	DURHAM GAS PLANT	DURHAM	DURHAM
NCD986197267	ELIZABETH CITY COAL GAS	ELIZABETH CITY	PASQUOTANK
NCD986197341	FAYETTEVILLE COAL GAS/RAY AVE	FAYETTEVILLE	CUMBERLAND
NONCD0000017	FLAKT PRODUCTS	WINSTON-SALEM	FORSYTH
NONCD0000029	FLEET AEROSPACE CORP./AERONCA	CHARLOTTE	MECKLENBURG
NCD986188829	GASTONIA COAL GAS PLANT	GASTONIA	GASTON
NCD051322980	GENERAL ELECTRIC CO.	CHARLOTTE	MECKLENBURG
NCD003163730	GENERAL INSTRUMENT CORP.	FAIRVIEW	BUNCOMBE
NONCD0001069	GENERAL MARBLE COMPANY	LINCOLNTON	LINCOLN
NCD986197309	GOLDSBORO COAL GAS PLANT #1	GOLDSBORO	WAYNE
NONCD0001083	GOLDSBORO COAL GAS PLANT #2	GOLDSBORO	WAYNE
NONCD0001089	GREENSBORO COAL GAS PLANT #1	GREENSBORO	GUILFORD
NCD986188886	GREENVILLE COAL GAS PLANT	GREENVILLE	PITT
NCD981922362	GREIF, INC	BLADENBORO	BLADEN
NCD986232379	GRESHAMS LAKE INDUSTRIAL PARK	RALEIGH	WAKE
NCD051739209	HARRELSON RUBBER COMPANY	ASHEBORO	RANDOLPH
NONCD0001084	HENDERSON COAL GAS PLANT	HENDERSON	VANCE
NCD039102959	HEVI-DUTY ELECTRIC/GENERAL SIG	GOLDSBORO	WAYNE
NONCD0001085	HICKORY COAL GAS PLANT	HICKORY	CATAWBA
NCD986188837	HIGH POINT COAL GAS PLANT	HIGH POINT	GUILFORD
NCD051745685	HOLDING POND FOR WASTE/USS	GREENSBORO	GUILFORD

TABLE 4. SITES UNDERGOING VOLUNTARY REMEDIAL ACTION BY RESPONSIBLE PARTIES

ID Number	*Site Name*	*City*	*County*
NCD003215696	HUNT MANUFACTURING	STATESVILLE	IREDELL
NONCD0001093	KIDDE FIRE FIGHTING	ANGIER	HARNETT
NCD986197366	KINSTON COAL GAS PLANT	KINSTON	LENOIR
NCD986197358	LEXINGTON COAL GAS PLANT	LEXINGTON	DAVIDSON
NONCD0001056	LITTLE MOUNTAIN LANDFILL	TRYON	POLK
NCD003183167	LONG MANUFACTURING	TARBORO	EDGECOMBE
NCD055359079	MASONITE CORP. FIBERBOARD DIV.	SPRING HOPE	NASH
NONCD0001086	MT AIRY COAL GAS PLANT	MT AIRY	SURRY
NCD986197259	NEW BERN COAL GAS PLANT	NEW BERN	CRAVEN
NCD003520301	OVERCASH MACHINE SHOP, INC.	STATESVILLE	IREDELL
NCD055162069	PELTON & CRANE PLANT (FORMER)	CHARLOTTE	MECKLENBURG
NONCD0001020	PRECISION FABRICS GROUP, INC	GREENSBORO	GUILFORD
NCD986188894	RALEIGH COAL GAS PLANT NO. 1	RALEIGH	WAKE
NCD986188902	RALEIGH COAL GAS PLANT NO. 2	RALEIGH	WAKE
NONCD0001087	REIDSVILLE COAL GAS PLANT	REIDSVILLE	ROCKINGHAM
NCD053009510	RELIANCE UNIVERSAL OF KENTUCKY	LENOIR	CALDWELL
NONCD0001108	RENTAL UNIFORM SERVICE	ASHEVILLE	BUNCOMBE
NCD986197325	ROCKY MOUNT COAL GAS PLANT NO. 1	ROCKY MOUNT	NASH
NCD986197317	ROCKY MOUNT COAL GAS PLANT NO. 2	ROCKY MOUNT	NASH
NCD981933096	ROCKY MOUNT, OLD AIRPORT	ROCKY MOUNT	NASH
NCD986197283	SALISBURY COAL GAS PLANT #1	SALISBURY	ROWAN
NONCD0001088	SALISBURY COAL GAS PLANT #2	SALISBURY	ROWAN
NCD003234549	SCM PROCTOR SILEX/WEAREVER	SOUTHERN PINES	MOORE
NCD003229358	SCM PROCTOR-SILEX/WEAREVER	MOUNT AIRY	SURRY
NCN000407206	SHULIMSON BROTHERS SCRAP YARD	ASHEVILLE	BUNCOMBE
NCD083678631	SINCLAIR AND VALENTINE CO.	CHARLOTTE	MECKLENBURG
NCD053488557	SOUTHERN WOOD PIEDMONT COMPANY	GULF	CHATHAM
NCD058517467	SOUTHERN WOOD PIEDMONT COMPANY	WILMINGTON	NEW HANOVER
NCD986197291	STATESVILLE COAL GAS PLANT	STATESVILLE	IREDELL
NCD986176444	STROH/CHITTY FARM	WINSTON-SALEM	FORSYTH
NONCD0001101	STRONGHAVEN WAREHOUSE	MATTHEWS	MECKLENBURG
NCD986166700	TOISNOT SWAMP	WILSON	WILSON
NCD980557623	UNIVERSITY OF NC/ARPT WASTE DISP	CHAPEL HILL	ORANGE
NCD053485991	VARCO-PRUDEN BUILDINGS	KERNERSVILLE	FORSYTH
NONCD0001103	WALTER KIDDE PORTABLE EQUIPMENT	MEBANE	ALAMANCE
NCD986197275	WASHINGTON COAL GAS PLANT	WASHINGTON	BEAUFORT
NCD986188910	WILMINGTON COAL GAS PLANT	WILMINGTON	NEW HANOVER
NCD986188845	WINSTON-SALEM COAL GAS PLANT NO. 1	WINSTON-SALEM	FORSYTH
NCD986188852	WINSTON-SALEM COAL GAS PLANT NO. 2	WINSTON-SALEM	FORSYTH

TABLE 5. ADDITIONAL, ONGOING, STATE-DIRECTED PRIORITY ACTIONS NOT UNDER VOLUNTARY ADMINISTRATIVE AGREEMENTS

ID Number	*Site Name*	*City*	*County*
ID NOT YET ASSIGNED	ALCATEL	CLINTON	SAMPSON
NONCD0001081	ALCOA NARROWS POWERHOUSE	BADIN	MONTGOMERY
ID NOT YET ASSIGNED	ALMONT SHIPPING	WILMINGTON	NEW HANOVER
ID NOT YET ASSIGNED	BADIN LAKE FAMILY BOAT		DAVIDSON
ID NOT YET ASSIGNED	BLUE RIDGE CLEANERS	BOONE	WATAUGA
NCD003189024	BORDEN CHEMICAL	FAYETTEVILLE	CUMBERLAND
NONCD0000061	BULL MOUNTAIN RD	BLUE RIDGE PKWY	BUNCOMBE
NONCD0000695	BURNT MILL CREEK LDFL	WILMINGTON	NEW HANOVER
NCD981750425	BUXTON DUMP	BUXTON	DARE
NCD986188027	CHAMPION LDFL #3	CANTON	HAYWOOD
NCD980844732	CLAYTON BALL FIELD	CLAYTON	JOHNSTON
NONCD0000016	CMC HOLDING	ELKIN	SURRY
ID NOT YET ASSIGNED	COOKSON FIBERS	ANSONVILLE	ANSON
NONCD0000021	CRABTREE MEADOWS	BLUE RIDGE PKWY	MCDOWELL
ID NOT YET ASSIGNED	DUPONT	FAYAETTEVILLE	CUMBERLAND
ID NOT YET ASSIGNED	FAIRCHILD INDUSTRIES	WINSTON-SALEM	FORSYTH
ID NOT YET ASSIGNED	FLEET SUPPLY	WINSTON-SALEM	FORSYTH
ID NOT YET ASSIGNED	FORMER WILMINGTON SHIPYARD	WILMINGTON	NEW HANOVER
NCD000773515	GA-PACIFIC	BOWDENS	DUPLIN
NCD000773507	GA-PACIFIC	ENFIELD	HALIFAX
NCD003158094	GLEN RAVEN MILLS	BURNSVILLE	YANCEY
NONCD0001064	GUILFORD MILLS	FUQUAY-VARINA	WAKE
NCD980558035	HOMINY CREEK LANDFILL	ASHEVILLE	BUNCOMBE
NCD980729677	KNOB CREEK FLYASH	BREVARD	TRANSYLVANIA
NONCD0001173	LEBANON CHEMICAL	HERTFORD	PERQUIMANS
NCD088563242	MONSANTO/ROHM & HAAS	FAYETTEVILLE	CUMBERLAND
ID NOT YET ASSIGNED	NCDOT SITE 73	JEFFERSON	ASHE
NONCD0001112	OLD JOHNS RIVER RD DUMP	BLUE RIDGE PKWY	WATAGUA
NCD144192606	PARKER-ZENITH	ABERDEEN	MOORE
ID NOT YET ASSIGNED	PAZIUK WAREHOUSE	WILMINGTON	NEW HANOVER
ID NOT YET ASSIGNED	PIONEER MILL DEVELOPMENT		CABARRUS
ID NOT YET ASSIGNED	POND VIEW LANE	DURHAM	DURHAM
ID NOT YET ASSIGNED	POWDER METALS	ABERDEEN	MOORE
NCD040047425	PRILLIMAN CHEMICAL	FAYETTEVILLE	CUMBERLAND
ID NOT YET ASSIGNED	SANTERO HOT MIX ASPHALT	WINSTON-SALEM	FORSYTH
NCD093338119	SCM CORP/GLIDDEN COATINGS	CHARLOTTE	MECKLENBURG
ID NOT YET ASSIGNED	SEVEN LAKES	SEVEN LAKES	MOORE
NCD990715658	SOUTHERN MANUFACTURING	CHARLOTTE	MECKLENBURG
NONCD0000022	SPINDALE REFUSE DISPOSAL	SPINDALE	RUTHERFORD
NCD003167780	SPRAGUE ELECTRIC	LANSING	ASHE
NONCD0000679	STURGEON CITY	JACKSONVILLE	ONSLOW

NONCD0001062	SWAIM'S TRUCK PARTS	HENDERSON	VANCE
ID NOT YET ASSIGNED	THOMSON CROWN WOOD		DAVIE
ID NOT YET ASSIGNED	TOYOTA OF BOONE	BOONE	WATAUGA
NCD082362989	TUNGSTEN QUEEN MINE	TUNGSTEN	VANCE
ID NOT YET ASSIGNED	VEMCO MUSIC CO	FAYETTEVILLE	CUMBERLAND
NONCD0001110	WOODSON-TENET LAB	GOLDSTON	CHATHAM

Note: There are about 65 additional sites with active ongoing bankruptcy claims, new site screenings, requests for "no further action reviews," or other ongoing evaluations for action. In addition, many other sites were transferred to the Branch with the consolidation of remediation programs into the Division of Waste Management. Staff are working to transition the lower priority voluntary cleanups to the Branch's Registered Environmental Consultant Program for privatized oversight.

V. IMMINENT HAZARD SITES

The N.C. Department of Environment and Natural Resources and the USEPA are committed to addressing imminent hazard sites when identified. Table 6 provides a list of sites where imminent hazards have been discovered, or where abatement activities have continued, in fiscal year 06-07. Their location, a site description, status and funding source are also provided.

TABLE 6. SUMMARY OF IMMINENT HAZARD SITES

Site	*City/ County*	*Site Description*	*Status*	*Funding Source*
Industrial Metal Alloy	Winston-Salem/Forsyth	Formerly a solder manufacturing operation. Highly elevated lead, arsenic and antimony present in soils at the property. Adjoining residential lots are also contaminated.	The USEPA has conducted some sampling and held a public meeting. The USEPA has approved a Sampling Plan and Removal Action Plan prepared by the responsible party. The responsible party began implementation of the Sampling Plan in June 2007.	USEPA/ Responsible Party
Rhoderia Drive Wells	Stallings/ Union	Buried drums in a residential area. USEPA previously connected residents to city water.	USEPA completed removal of buried drums and some soil cleanup. The state has requested further soil excavation be performed. USEPA's response is pending.	USEPA
Synthron Chemical Fire	Morganton/ Burke	An explosion and fire occurred on January 31, 2006 on the property. An individual was fatally injured. Sampling indicates several hazardous substances remain at the property.	The USEPA conducted demolition of the buildings then segregated, categorized and removed hazardous materials from the site including those in tanks, reactors, bulk and other containers. All work is now complete.	USEPA
Texfi Industries	Fayetteville/ Cumberland	Chlorinated solvent groundwater contaminant plume has migrated from a former textile mill to the City of Fayetteville's water plant property. The city's finished drinking water holding tank sits in contact with contaminated groundwater. The city's drinking water intakes on the Cape Fear River are 450 feet downstream from the Texfi property line.	The State constructed a subsurface barrier wall in 2001 to prevent further contaminant migration to the holding tank area and installed extraction wells to remove contaminated groundwater in the area of the tank. Concentrations have been reduced. The State has been provided special appropriated funds to continue to operate the extraction wells and monitor the groundwater on the City's property. The State is addressing the source area through use of funds from a bankruptcy settlement. A pilot test is underway in the source area employing enhanced reductive dechlorination. Wastes in drums and tanks have been removed.	State

VI. SUMMARY OF THE INACTIVE HAZARDOUS SITES CLEANUP FUND AND NATIONAL PRIORITIES LIST COST SHARE FUND

Inactive Hazardous Sites Cleanup Fund
As of July 1, 2007

Deposits (06-07)	
Interest	$48,757
No further action review fees	$0
Special Appropriation for Texfi-Fayetteville monitoring	$100,000
Emergency Response Cap Excess	$11,555
Total Deposits	**$160,312**
Withdrawals (06-07)	
Texfi Industries-Fayetteville emergency abatement contract	$49,810
Texfi Industries-Fayetteville source remediation contract	$89,511
Reversion (8/06) of unspent 05-06 funds to NPL Cost Share Account	$15,200
Orphan priority site sampling/removal contract	$14,807
Total Withdrawals	**$169,328**
Current Balance	**$1,041,068**
Obligations	
Texfi emergency abatement contract	$100,511
Texfi source remediation contract	$851,703
Orphan priority site sampling/removal contract (includes Cone Mills)	$88,854
Total Current Obligations	**$1,041,068**
Effective Balance	**$0**
Orphan Cleanup Cost Requirements (see Chapter II for more details)	
Funds needed for 43 priority orphan sites identified	$21,964,314
Funds needed for 25 additional orphan sites identified	$12,769,950
Orphan Site Cleanup Costs	**$34,734,264**

Funding Notes:
An additional $448,272 was recovered through a bankruptcy claim that is dedicated toward addressing six former Burlington Industries contaminated sites. This money has been deposited in two separate special trust funds. The work will be conducted under the orphan sampling/removal contract. A total of $65,141 of these funds was spent this fiscal year.

National Priorities List Cost Share Fund
As of July 1, 2007

Estimated cost of federal trust fund/N.C. cost share cleanups	$116,970,689
N.C.'s 10 percent cost share for pending/ongoing cleanups	$11,697,069*
Fund disbursements for cost share payments	$6,414,660
Current balance	$6,748,772
Encumbered amount of the fund balance for cost share payments	$5,282,409
Effective Balance	**$1,466,363***

* Cleanup cost estimates are not yet available for all sites. The cost share figure will increase as cost estimates become available. Also, other sites may be added to the National Priorities List that will require a state cost share. This account will also be required to pay for the state's operation and maintenance obligations which will begin in the next few years at some sites. Aside from interest, the fund has no continuing source of income.

APPENDIX

INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST
2007

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD980848667	ONE HOUR KORETIZING	4404 ROXBORO ROAD	DURHAM	DURHAM	62.56	groundwater	organics
NONCD0000022	SPINDALE REFUSE DISPOSAL	OLD BALL PARK ROAD	SPINDALE	RUTHERFORD	59.73	soil	organics
						soil	metals
						groundwater	metals
NCN000407672	BEACON MANUFACTURING	2425 US HWY 70	SWANNANOA	BUNCOMBE	58.93	surface water	organics
						soil	organics
						soil	metals
						groundwater	organics
						groundwater	metals
NCN000407302	WILMINGTON GUN CLUB (FORMER)	MILITARY CUTOFF ROAD	WILMINGTON	NEW HANOVER	57.68	soil	metals
						surface water	metals
						sediment	metals
						groundwater	metals
NCD003184710	CAROLINA CREOSOTING CORPORATION	EASTBROOK ROAD	LELAND	BRUNSWICK	57.17	soil	organics
						groundwater	organics
NONCD0001100	SIMPSON WELL CONTAMINATION	8 EASTWOOD DRIVE	BELMONT	GASTON	56.35	groundwater	organics
NCD000605303	FEDERAL PAPER BOARD CO., INC.	865 JOHN L RIEGEL RD	RIEGELWOOD	COLUMBUS	56.08	groundwater	organics
						groundwater	metals
NCD981864614	ULAH BATTERY/BATTERY PILES	SR 1219/DINAH RD	ASHEBORO	RANDOLPH	55.64	soil	acids
						soil	metals
NONCD0001098	NATIONAL TEXTILES, LLP	REEP DRIVE	MORGANTON	BURKE	54.94	surface water	organics
						soil	organics
						groundwater	organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0000072	SUMMIT SPRINGS	TABOR RD EXT	HENDERSONVILLE	HENDERSON	53.00	soil	metals
						groundwater	metals
NCN000407584	SOUTHERN METALS RECYCLING, INC	1002 SOUTH FRONT STREET	WILMINGTON	NEW HANOVER	52.56	soil	metals
						groundwater	metals
NCD980729677	KNOB CREEK FLYASH DISPOSAL	SR 1540	BREVARD	TRANSYLVANIA	52.53	soil	metals
NCD986166692	HARWELL ROAD SEPTIC PIT	HARWELL ROAD	GASTONIA	GASTON	52.37	groundwater	organics
NCD003167780	SPRAGUE ELECTRIC COMPANY	HWY 194	LANSING	ASHE	52.33	groundwater	organics
						groundwater	metals
						soil	metals
NCN000407775	ROYSTER FERTILIZER	1690 NE ROYSTER RD	LELAND	BRUNSWICK	52.02	soil	metals
						groundwater	metals
						soil	organics
						groundwater	organics
						surface water	metals
NCD088563242	MONSANTO COMPANY/ROHM & HAAS	CEDAR CREEK RD	FAYETTEVILLE	CUMBERLAND	51.78	sediment	metals
						groundwater	organics
NCN000407333	TRIAD USED AUTO SALES	1520 ALAMANCE CHURCH RD	GREENSBORO	GUILFORD	51.53	groundwater	organics
						groundwater	metals
						soil	organics
						soil	metals
NCD980558035	HOMINY CREEK LANDFILL	RHODODENDRON PK	ASHEVILLE	BUNCOMBE	51.23	known/suspected	
NONCD0001025	TOOMEY PROPERTY	1020 HICKORY GROVE ROAD	SPRINGWOOD	GASTON	51.23	groundwater	organics
						soil	organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD982117590	CUSTOM PROCESSING AND MANUF	1110 SURRETT DRIVE	HIGH POINT	GUILFORD	51.04	groundwater	organics
						soil	organics
						groundwater	metals
NONCD0000016	CMC LANDFILL	EAST MAIN STREET	ELKIN	SURRY	51.02	soil	organics
						groundwater	organics
NCD986178226	TEXFI INDUSTRIES, INC	601 HOFFER DRIVE	FAYETTEVILLE	CUMBERLAND	50.55	groundwater	organics
						soil	organics
NCD093338119	SCM CORP. GLIDDEN COATINGS & RESINS	3926 GLENWOOD DRIVE	CHARLOTTE	MECKLENBURG	50.29	groundwater	organics
NCD986172518	OLD MOUNT HOLLY ROAD PCE SITE	OLD MT HOLLY RD & FREEDOM DR	CHARLOTTE	MECKLENBURG	50.26	groundwater	organics
NCD980503163	UNION COUNTY LANDFILL	OLIVE BRANCH ROAD	MONROE	UNION	49.91	surface water	metals
						groundwater	organics
						groundwater	metals
						soil	organics
						surface water	organics
						soil	metals
						soil	cyanide
						soil	pesticides
						surface water	cyanide
NCN000407480	HORTON IRON & METAL	2216 US HWY 421 N	WILMINGTON	NEW HANOVER	49.83	groundwater	metals
						surface water	pesticides
						surface water	metals
						soil	metals
						sediment	pesticides
						sediment	metals
						groundwater	pesticides
NCD981750425	BUXTON DUMP	.5 MILES WEST OF BACK RD	BUXTON	DARE	49.81	groundwater	organics
						soil	organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD980558027	POND ROAD LANDFILL 2	POND ROAD	ASHEVILLE	BUNCOMBE	49.79	known/suspected	
NCD003231545	SHERWOOD TREATING CO., INC.	1660 SILAS CREEK PKWAY	WINSTON-SALEM	FORSYTH	49.78	groundwater	metals
						soil	metals
NCD003220969	WHITE FURNITURE CO.	201 E CENTER ST	MEBANE	ALAMANCE	49.76	groundwater	metals
						soil	metals
						soil	organics
NCD047371794	COASTAL LUMBER CO	934 N CRAVEN ST	NEW BERN	CRAVEN	49.73	soil	inorganics
						groundwater	inorganics
NONCD0000004	STURGEON CITY PROPERTY	4 COURT STREET	JACKSONVILLE	ONSLOW	49.67	sediment	metals
						groundwater	organics
NCD038551263	TRI-COUNTY COMMUNITY COLLEGE	OFF US 64 E SOUTH OF NC 1	MURPHY	CHEROKEE	49.66	groundwater	organics
						soil	organics
NCD000813592	GA-PACIFIC CORP/HDWD SAW	PLYWOOD DR	PLYMOUTH	WASHINGTON	49.53	sediment	organics
						soil	pesticides
						groundwater	pesticides
						groundwater	metals
						groundwater	organics
						soil	organics
						soil	metals
						sediment	metals
NONCD0001052	THOMASVILLE FURNITURE	151 SMETHPORT DRIVE	WEST JEFFERSON	ASHE	49.51	soil	inorganics
						groundwater	organics
						soil	metals
NCD980502991	JACKSONVILLE LANDFILLS	(SEVERAL LOCATIONS)	JACKSONVILLE	ONSLOW	49.36	groundwater	metals
						groundwater	organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD000772046	MOBIL OIL CORP/KOCH REFINING	3335 RIVER RD	WILMINGTON	NEW HANOVER	49.07	groundwater	metals
						soil	metals
						groundwater	organics
NC0001279710	WOODY WILSON BATTERY/ASHLEY HTS	HWY 211	ASHLEY HEIGHTS	HOKE	49.02	soil	metals
						soil	organics
NCD986171379	NEW HAVEN DRIVE TCE	NEW HAVEN DRIVE	GASTONIA	GASTON	48.98	groundwater	organics
NCD980557987	SWANNANOA LANDFILL	HWY 70 E	SWANNANOA	BUNCOMBE	48.93	groundwater	organics
						soil	organics
NCD000770487	JOHNSON CONTROLS GLOBE BATTERY	OLD GREENSBORO ROAD	WINSTON-SALEM	FORSYTH	48.85	surface water	metals
						soil	organics
						sediment	metals
NCSFN0407074	NC MARITIME MUSEUM	310 FRONT ST	BEAUFORT	CARTERET	48.84	sediment	organics
						sediment	metals
						sediment	pesticides
NCD986175636	ASHE PATTERN SHOP (FORMER)	4411 BEATY ROAD	GASTONIA	GASTON	48.82	groundwater	organics
NCD980729412	CAROLINA TANK CLEANING COMPANY	HWY 68-4 MI N OF I-40	GREENSBORO	GUILFORD	48.53	soil	metals
						soil	organics
NONCD0000085	JONES & PRESNELL STUDIO	433 LAWTON ROAD	CHARLOTTE	MECKLENBURG	48.48	groundwater	organics
NCD986175628	LEE'S MOTOR WORKS	BEATY ROAD	GASTONIA	GASTON	48.48	soil	organics
						surface water	organics
						groundwater	organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD000623223	MARTIN MANUFACTURING PROPERTIES	E MAIN ST US 17	WILLIAMSTON	MARTIN	48.40	groundwater	metals
						groundwater	organics
NCD986186518	OLD ATC REFINERY	801 SURRY STREET	WILMINGTON	NEW HANOVER	48.40	soil	metals
						soil	organics
						sediment	metals
						groundwater	metals
NCD042269134	SOUTHERN SCREW/FARLEY METALS	1225 BARKLEY RD	STATESVILLE	IREDELL	48.40	soil	metals
						soil	bases
						groundwater	metals
						groundwater	cyanide
						groundwater	organics
NCD981474158	SWEETEN CREEK DRUM SITE	115 SWEETEN CREEK ROAD	ASHEVILLE	BUNCOMBE	48.40	soil	metals
NCD041230418	AMP INCORPORATED	3900 REIDSVILLE ROAD	WINSTON-SALEM	FORSYTH	48.35	sediment	cyanide
						soil	cyanide
						sediment	metals
						surface water	metals
						soil	metals
						soil	organics
NCD986188027	CHAMPION LANDFILL #3	SR 1550 I40	CANTON	HAYWOOD	48.25	soil	metals
NCD986185411	OLD WESTERN NC FAIRGROUNDS	BTWN US 176 & SOUTHER RR	EAST FLAT ROCK	HENDERSON	48.18	groundwater	organics
						soil	pesticides
						soil	organics
						groundwater	metals
NCD980600449	SED, INC. RADAR ROAD	500 RADAR ROAD	GREENSBORO	GUILFORD	48.18	soil	organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD003163888	HENREDON FURNITURE	HENREDON RD	MORGANTON	BURKE	48.17	groundwater	organics
						soil	organics
NCD041414780	FIELDCREST MILLS INC./NC FINISHING	US 29/70 N	SPENCER	ROWAN	48.07	soil	organics
						soil	metals
						groundwater	organics
						groundwater	metals
NCD091572073	NATIONAL STARCH & CHEMICAL CO	HWY 74/76 WEST	LELAND	BRUNSWICK	48.04	known/suspected	
NCD045924032	WEST POINT PEPPERELL LUMBERTON	CHESTNUT ST EXTN	LUMBERTON	ROBESON	48.02	soil	organics
						groundwater	organics
NCD065288847	CF NITROGEN, INCORPORATED	HWY 45	WINTON	HERTFORD	47.99	groundwater	metals
						soil	metals
NCD024477556	WINSTON CONTAINER COMPANY	4732 MORRIS FIELD RD	CHARLOTTE	MECKLENBURG	47.89	soil	organics
NONCD0001094	ALLISON MANUFACTURING CO	930 OLD CHARLOTTE ROAD	ALBEMARLE	STANLY	47.87	groundwater	organics
						soil	organics
NCD008839276	MONEY-WORTH, INC	US 70 E	SWANNANOA	BUNCOMBE	47.87	known/suspected	
NONCD0000023	CAROLINA P&L CO. FAYETTEVILLE	CUMBERLAND RD & OWEN DR	FAYETTEVILLE	CUMBERLAND	47.78	surface water	organics
						soil	organics
						groundwater	organics
NONCD0001058	ELECTRONICS COMPONENT CORPORATION	200 ELECTRONICS PARKWAY	BURGAW	PENDER	47.78	groundwater	organics
NONCD0001081	ALCOA-NARROWS POWERHOUSE	PINE STREET	BADIN	MONTGOMERY	47.77	soil	organics
						soil	metals

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD980848840	SCOTT'S CREEK BATTERY SITE	402 HOWELL ROAD	NEW BERN	CRAVEN	47.75	soil	metals
NCD980557870	CALDWELL COUNTY ABANDONED WASTE	NC HWY 90	LENOIR	CALDWELL	47.69	groundwater groundwater	metals organics
NCD003448610	GALVAN INDUSTRIES, INC.	HWY 49	HARRISBURG	CABARRUS	47.62	groundwater soil	metals metals
NCN000409881	PAYNE RD SOLVENTS	105 PAYNE RD	BESSEMER CITY	GASTON	47.59	groundwater soil	organics organics
NCD990883001	MONARCH FURNITURE CORPORATION	300 SCIENTIFIC ST	JAMESTOWN	GUILFORD	47.40	soil groundwater	metals metals
NCD986180917	SPANN PROPERTY	US HIGHWAY 25	HENDERSONVILLE	HENDERSON	47.26	known/suspected	
NONCD0001029	R & D LAMINATORS INC	HOLLOMAN ROAD (SR 1187)	AHOSKIE	HERTFORD	47.21	groundwater	organics
NCD024895864	STEWART-WARNER CORP/BASSICK-SACK	2941 INDIANA AVE	WINSTON-SALEM	FORSYTH	47.19	soil	organics
NCD980557557	ASHEBORO LANDFILL	OFF OF OLD US 64	ASHEBORO	RANDOLPH	47.10	soil	metals
NCD037160439	TOASTMASTER, INCORPORATED	OLD LAUREL HILL CHURCH RD	LAURINBURG	SCOTLAND	47.08	groundwater groundwater soil soil groundwater soil	cyanide organics organics metals metals cyanide
NCD986176030	RHODERIA DRIVE WELLS	LAKEWOOD & RHODERA DRIVE	STALLINGS	UNION	46.98	groundwater soil	organics metals

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD044444735	CROMPTON & KNOWLES CORP.	SPENCER MT RD	LOWELL	GASTON	46.97	soil	organics
						soil	metals
NCD986231967	TOM SADLER ROAD WELLS	TOM SADLER RD	CHARLOTTE	MECKLENBURG	46.92	groundwater	organics
						groundwater	metals
						soil	metals
NCD003183571	WINTERVILLE MACHINE WORKS, INC.	209 S MILL ST	WINTERVILLE	PITT	46.90	soil	metals
NONCD0001173	LEBANON CHEMICAL	ALBERMARLE ST	HERTFORD	PERQUIMANS	46.89	soil	organics
						groundwater	organics
						soil	pesticides
						groundwater	pesticides
NCN000407188	US 1-15/501 ABERDEEN	US 1 - US 15/501	ABERDEEN	MOORE	46.88	soil	metals
						groundwater	organics
NONCD0000081	TRITON, INC	1610 SOUTH WARD BLVD	WILSON	WILSON	46.84	groundwater	organics
						groundwater	metals
NCD000830653	CAROLINA P&L CO. ROXBORO STEAM	SR 1377	ROXBORO	PERSON	46.79	known/suspected	
NONCD0001001	CLOSED CITY OF HENDERSON LDFL	NC 39 & ST. ANDREWS CHURCH RD	HENDERSON	VANCE	46.74	groundwater	organics
						groundwater	metals
NCD003233673	HOOVER REPAIR SHOP	461 N SOUTH STREET SR1669	MT AIRY	SURRY	46.69	groundwater	cyanide
						soil	metals
						soil	cyanide
						groundwater	metals
NCD980518211	IRT/IBM CORPORATION	4101 S I-85	CHARLOTTE	MECKLENBURG	46.67	groundwater	metals

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD003197704	SALT WOOD PRODUCTS, INC.	SR 1005	COVE CITY	CRAVEN	46.59	soil	organics
						soil	metals
						groundwater	organics
						groundwater	metals
NONCD0001155	D&G PROPERTIES-SLAUGHTERHOUSE	ROYSTER RD	NAVASSA	BRUNSWICK	46.57	soil	metals
						groundwater	metals
NCD072012354	SINGER CO/FURNITURE DIV WASHINGTON	STATE ROAD 1175	CHOCOWINITY	BEAUFORT	46.57	groundwater	organics
						sediment	organics
						groundwater	pesticides
						soil	organics
						groundwater	metals
NCD041519364	TEXASGULF CHEMICALS COMPANY	HWY 306 NORTH	AURORA	BEAUFORT	46.56	soil	organics
						groundwater	pesticides
						soil	pesticides
						groundwater	organics
						sediment	metals
						sediment	organics
						surface water	metals
NCD003184249	UNION CARBIDE CORP/EVEREADY	264 BYPASS-EVANS ST EXTN	GREENVILLE	PITT	46.52	groundwater	metals
						groundwater	organics
NC5210022906	USA RESERVE XVIII AIRBORNE CORPS	405 FISHER ST	MOREHEAD CITY	CARTERET	46.51	known/suspected	
NONCD0001049	LEXINGTON FURNITURE IND. PLNT #7	178 LFI COMPLEX LANE	LEXINGTON	DAVIDSON	46.43	groundwater	organics
						groundwater	metals
NCD980844336	UNION CARBIDE BATTERY	5400 HOVIS ROAD	CHARLOTTE	MECKLENBURG	46.30	surface water	organics
						soil	metals

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCN000409811	ELECTRIC MOTOR & TRANSFORMER	1900 S SANDERS ST	RALEIGH	WAKE	46.21	soil	organics
						groundwater	organics
NONCD0001128	RESOLUTION PACKAGING	468 CAROLINA AVE	MARION	MCDOWELL	46.21	groundwater	metals
NONCD0001023	HEAVY EQUIPMENT SCHOOL	HEAVY EQUIPMENT ROAD	CHARLOTTE	MECKLENBURG	46.20	groundwater	organics
NCSFN0406906	OLD STAKE ROAD	OLD STAKE ROAD	CHADBOURNE	COLUMBUS	46.17	groundwater	metals
						soil	metals
NCD003149663	RADIATOR SPECIALTY COMPANY	1900 WILKINSON BLVD	CHARLOTTE	MECKLENBURG	46.16	sediment	organics
						sediment	metals
						soil	metals
						soil	organics
						groundwater	organics
NCD049772023	H & S PROCESSORS, INC.	NC HIGHWAY 150 WEST	LINCOLNTON	LINCOLN	46.11	groundwater	organics
NCD003216462	UNION CARBIDE CORP/EVEREADY	800 ALBEMARLE RD	ASHEBORO	RANDOLPH	45.97	soil	organics
						groundwater	organics
NONCD0001112	OLD JOHN'S RIVER ROAD DUMP	MILE MARKER 296.1, BR PKWY	BLOWING ROCK	WATAUGA	45.81	soil	organics
						soil	metals
NCD003467099	CONE MILLS CORP/GRANITE FINISHING	OLD HWY 70	HAW RIVER	ALAMANCE	45.72	groundwater	organics
						soil	metals
NCD003213030	DOUGLAS BATTERY MANUFACTURING CO.	500 BATTERY DR	WINSTON-SALEM	FORSYTH	45.69	groundwater	metals
NCD144192606	PARKER-ZENITH	TAYLOR STREET	ABERDEEN	MOORE	45.67	groundwater	organics

APPENDIX. INACTIVE HAZARDOUS WA SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0001074	OLD FORD BLDG	FIFTH ST	TABOR CITY	COLUMBUS	45.62	groundwater	metals
						soil	organics
						soil	metals
NCD981015746	CAROLINA ALUMINUM/HERBERT TAYLOR	SR 1125	ROPER	WASHINGTON	45.33	soil	organics
NCD003167988	MARANTZ PIANO CO INC/ANEVKA, INC	HWY 64/70 E	MORGANTON	BURKE	45.30	soil	metals
						soil	organics
						groundwater	metals
						groundwater	organics
NCD024600579	SUPERIOR PRODUCTS COMPANY	HWY 70A	GREENSBORO	GUILFORD	45.25	soil	metals
NCN000409779	WAYNE AGRICULTURAL WORKS	700 S JOHN ST	GOLDSBORO	WAYNE	45.25	groundwater	metals
						groundwater	organics
NONCD0001174	ARROW LAUNDRY	4735 MONROE RD	CHARLOTTE	MECKLENBURG	45.15	soil	organics
						groundwater	organics
NCD981861214	CHARLOTTE TRANSPORTATION TERMINAL	2246 OLD STEELE CREEK RD	CHARLOTTE	MECKLENBURG	45.07	groundwater	organics
NCD981473150	CHERRY MT STREET DRUM	602 CHERRY MOUNTAIN	FOREST CITY	RUTHERFORD	45.07	soil	metals
NCN000407830	CLOROX CHEMICAL	800 GESCO ST	CHARLOTTE	MECKLENBURG	45.07	surface water	pesticides
						surface water	metals
						surface water	organics
						sediment	metals
						sediment	organics
						sediment	pesticides
						soil	metals
						soil	pesticides
						soil	organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0001022	GIBBS ELECTROPLATING - OLD LOCATION	2229 N DAVIDSON	CHARLOTTE	MECKLENBURG	45.07	groundwater	organics
						groundwater	metals
						soil	organics
						soil	metals
NCD980728745	OSHIELDS FLY ASH	SR 1510	BREVARD	TRANSYLVANIA	44.80	known/suspected	
NCD066327313	FINETEX, INC.	I85 HACKETT ST EXIT	SPENCER	ROWAN	44.77	soil	organics
						groundwater	organics
NONCD0001011	JUNG CORPORATION	718 INDUSTRIAL PARK AVE	ASHEBORO	RANDOLPH	44.77	groundwater	organics
NCD986228054	KANNAPOLIS PCE SPILL	ENOCHVILLE ROAD	KANNAPOLIS	CABARRUS	44.71	groundwater	organics
NCD981863228	SCHERER, R.P.	2021 E. ROOSEVELT BLVD.	MONROE	UNION	44.71	groundwater	organics
						soil	organics
NCD002560159	THIELE-ENGDAHL, INCORPORATED	1100 FAIRCHILD RD	WINSTON-SALEM	FORSYTH	44.71	soil	organics
						soil	metals
NCD990734055	HERCOFINA/CAPE INDUSTRIES	HWY 421 N	WILMINGTON	NEW HANOVER	44.62	soil	organics
						soil	metals
						groundwater	organics
						groundwater	metals
NCD980502983	HOPE MILLS LANDFILL	SR 1003/WIRE ROAD	HOPE MILLS	CUMBERLAND	44.50	groundwater	metals
NCD981468622	FORK SWAMP/GRADY WHITE BOAT	SR 1725	AYDEN	PITT	44.49	soil	organics
NCD093334969	S & S METALS RECYCLING COMPANY	SHORTCUT ROAD/SR 2455	GOLD HILL	CABARRUS	44.49	surface water	metals
						soil	metals

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0000060	WATTS REGULATOR-GENERAL AIDES SITE	WITHROW ROAD	FOREST CITY	RUTHERFORD	44.49	soil	metals
NONCD0001116	REPUBLIC SERVICES OF NC	312 JACK SHERMAN RD	ROUGEMONT	PERSON	44.48	groundwater	organics
NCD042091215	RJR TECH COMPANY	SR 1502/HAM AVE	MERRY HILL	BERTIE	44.48	known/suspected	
NONCD0001079	LES MYERS PARK	LAWNDALE AVENUE EXT.	CONCORD	CABARRUS	44.42	soil	metals
NCD040047425	PRILLAMAN CHEMICALS	WORTH STREET	FAYETTEVILLE	CUMBERLAND	44.36	soil groundwater groundwater soil	organics metals organics metals
NCD981928088	TEXFI INDUSTRIES, INC/NEW BERN	SR 1317/BOSCH STREET	NEW BERN	CRAVEN	44.30	groundwater	organics
NC0000195743	JIMMY GREEN METALS	BARN HILL CHURCH ROAD	NASHVILLE	NASH	44.29	soil	metals
NCD042891663	MITCHELL ENGR CO/CECO BLDG. DIV.	BYPASS 301	ROCKY MOUNT	NASH	44.27	groundwater soil	organics metals
NCD084167444	STANADYNE, INC/DIESEL SYSTEMS	405 WHITE ST	JACKSONVILLE	ONSLOW	44.22	soil soil	metals organics
NONCD0001034	GEORGE STREET PESTICIDE	SOUTH GEORGE STREET	GOLDSBORO	WAYNE	44.16	groundwater soil	pesticides pesticides
NCD083674713	HULL SERVICE STATION/PHILLIPS 66	HIGHWAY 274 SOUTH	VALE	LINCOLN	44.07	groundwater	organics
NONCD0001054	WILLIAMS AUTO CENTER	401 D STREET	BRIDGETON	CRAVEN	43.93	soil soil groundwater	organics metals metals

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0000038	AYCOCK PROPERTY	SR 1162 & 1103	WILSON	WILSON	43.92	groundwater	organics
NCD003164464	UNIROYAL INC/UNIROYAL CHEMICAL	214 W RUBY AVE	GASTONIA	GASTON	43.79	soil	organics
NCD009305699	GTE SYLVANIA, INC.	INDUSTRIAL PARK DR	SMITHFIELD	JOHNSTON	43.47	soil groundwater	organics organics
NCD003149556	CTS OF ASHEVILLE, INC.	MILLS GAP RD	SKYLAND	BUNCOMBE	43.44	soil soil surface water surface water	organics metals metals organics
NCN000407447	ABERDEEN CONTAMINATED GWTR	SR 211	ABERDEEN	MOORE	43.39	groundwater	organics
NONCD0001045	FREIGHTLINER	1800 N MAIN ST	MT HOLLY	GASTON	43.38	soil groundwater	metals metals
NCD053487765	STRATFORD METAL FINISHINGS, INC.	807 S MARSHALL ST	WINSTON-SALEM	FORSYTH	43.38	soil	metals
NONCD0000043	GREAT LAKES CARBON CORPORATION	307 JAMESTOWN ROAD	MORGANTON	BURKE	43.36	groundwater groundwater	metals organics
NCD062571658	HONEYWELL MICRO SWITCH DIV.	1 HICKORY DRIVE	MARS HILL	MADISON	43.33	soil soil	organics metals
NCD082363102	HELENA CHEMICAL COMPANY	HARRY MALLEY RD	LAURINBURG	SCOTLAND	43.32	soil groundwater	metals pesticides
NONCD0001046	B&H RECYCLERS	7526 US 74 W	POLKTON	ANSON	43.31	soil groundwater	organics organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD060306727	RICHARDS WC COMPANY, INC.	101 EAST MAPLE STREET	ABERDEEN	MOORE	43.31	soil soil	metals organics
NCD986211274	STONEY FORK CREEK DRUM DUMP SITE	MT. ZION ROAD	DEEP GAP	WILKES	43.31	known/suspected	
NCD986232676	ROCK-TENN MARION FOLDING	33 BURGIN ST	MARION	MCDOWELL	43.30	groundwater	metals
NCD980557946	FAIRVIEW LANDFILL	FAIRVIEW ROAD	FAIRVIEW	BUNCOMBE	43.19	known/suspected	
NONCD0001095	MOSES CONE MEMORIAL PARK	BLUE RIDGE PKWY	BLOWING ROCK	WATAUGA	43.19	soil	metals
NCD981022072	BETTIS PROPERTY	1/2 MI. E OF BETTIS RD &	EARL	CLEVELAND	43.16	known/suspected	
NCD986197374	OLD RANDLEMAN TOWN DUMP	WALKER MILL ROAD /SR 1961	RANDLEMAN	RANDOLPH	43.05	groundwater soil	metals organics
NCSFN0406953	G&B/FARMER PROPERTY	DOUG HILL FARM RD (SR 1100)	SCOTLAND NECK	HALIFAX	43.04	soil soil	organics metals
NONCD0000027	MEADOWVIEW ROAD	MEADOWVIEW ROAD	GREENSBORO	GUILFORD	43.04	groundwater	organics
NCD986172617	FORBES ROAD WELLS	501 FORBES ROAD	GASTONIA	GASTON	43.02	surface water groundwater	organics organics
NCD048401087	HOOKER FURNITURE	1212 THROWER ROAD	PLEASANT GARDEN	GUILFORD	43.00	groundwater soil groundwater	metals organics organics
NONCD0001102	ENQUIRER JOURNAL	500 W JEFFERSON ST	MONROE	UNION	42.99	groundwater	organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCN000407196	ROWAN ROAD LANDFILL	ROWAN ROAD	CLINTON	SAMPSON	42.98	soil	pesticides
						soil	organics
						surface water	organics
						surface water	metals
						soil	metals
NCD003230836	DUKE REFINING CORPORATION	2020 JARRELL STREET	HIGH POINT	GUILFORD	42.87	groundwater	organics
						sediment	organics
						soil	organics
NONCD0001113	SOUTHERN STATES (FORMER)	125 LINE AVE	GREENVILLE	PITT	42.81	groundwater	pesticides
						soil	organics
NONCD0000025	RANGE ROAD BURN SITE	RANGE ROAD	BUTNER	GRANVILLE	42.80	soil	organics
						soil	metals
NONCD0001090	OLD MILL BLDG	301 FOURTH AVE EAST	HENDERSONVILLE	HENDERSON	42.75	groundwater	organics
NCN000407197	LEARY BROTHERS STORAGE (FORMER)	VIRGINIA & BROAD STREET	EDENTON	CHOWAN	42.74	soil	organics
						soil	metals
						groundwater	metals
						groundwater	organics
NONCD0001016	ROYSTER-CLARK FERTILIZER PLANT	SR 1321	OAK CITY	MARTIN	42.74	soil	organics
						groundwater	pesticides
						groundwater	inorganics
NCD000615872	AMP INCORPORATED	1260 SHANNON-BRADLEY RD	GASTONIA	GASTON	42.72	soil	organics
						soil	metals
						groundwater	metals
NCD981014517	DYNATECH	TOOMEY AVE	CHARLOTTE	MECKLENBURG	42.60	sediment	metals
						groundwater	metals

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0001105	WETSIG YACHTS	4022 MARKET STREET	WILMINGTON	NEW HANOVER	42.60	soil	metals
						groundwater	metals
NCD130708126	CONSOLIDATED WAREHOUSE	8300 MOORES CHAPEL RD	CHARLOTTE	MECKLENBURG	42.58	soil	organics
						groundwater	organics
						surface water	organics
NCD003198967	GENERAL ELECTRIC CO/CAROLINA	900 N GEORGE ST	GOLDSBORO	WAYNE	42.53	groundwater	metals
NCD051853547	AUSTIN FOODS	ONE QUALITY LANE	CARY	WAKE	42.43	soil	pesticides
						soil	organics
						groundwater	organics
						groundwater	pesticides
NCN000409865	FORSHAW CHEMICALS	650 STATE ST	CHARLOTTE	MECKLENBURG	42.43	surface water	pesticides
						soil	organics
						surface water	metals
						soil	metals
						surface water	organics
						soil	pesticides
NONCD0001117	HILLSIDE SHOPPING CENTER	1077 FAYETTEVILLE ST	ASHEBORO	Randolph	42.43	groundwater	organics
NCD045924339	ACME UNITED CORPORATION	HWY 117	FREMONT	WAYNE	42.36	groundwater	metals
NCSFN0407140	CARDINAL CONTAINER SERVICES	138 WALSER ROAD	LEXINGTON	DAVIDSON	42.30	groundwater	metals
						groundwater	organics
NCN000409854	ROMATIC MANUFACTURING	402 E ROSE ST	SANFORD	LEE	42.27	sediment	metals
						sediment	organics
NCD000830612	CAROLINA P&L CO. MAYO STEAM	HWY 501	ROXBORO	PERSON	42.13	soil	metals

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NC0002374445	GASTONIA INDUSTRIAL TRUCK	HEMPHILL ROAD	GASTONIA	GASTON	42.08	groundwater	organics
NCD043711977	CHEMICAL LEAMAN TANK LINES, INC.	6600 WEST MARKET STREET	GREENSBORO	GUILFORD	42.05	groundwater	organics
NONCD0001072	J & C DYEING	1000 WEST GROVER STREET	SHELBY	CLEVELAND	41.98	groundwater soil groundwater	organics metals metals
NCD002571438	ABC ENGRAVERS	724 NORTH I-85	CHARLOTTE	MECKLENBURG	41.91	groundwater soil groundwater	metals metals organics
NCD980557698	GREENVILLE CITY LANDFILL	FIFTH STREET & CEMETERY RD	GREENVILLE	PITT	41.86	soil	metals
NCD981932023	TARBORO-EDGECOMBE AIRPORT	HWY 44	TARBORO	EDGECOMBE	41.81	soil	organics
NCN000407243	WOODY'S SALVAGE YARD	4139 CLINTON RD	VANDER	CUMBERLAND	41.80	known/suspected	
NCD003155587	SCOTT AVIATION OF MONROE/TOOL SERV	309 W. CROWELL ST	MONROE	UNION	41.73	groundwater soil	organics metals
NCD981031578	RAINBOW DRIVE BATTERY	SR 1646	KANNAPOLIS	CABARRUS	41.66	soil	metals
NCD981030893	MUSIC CLUB PESTICIDE SITE	SE QUADRANT OF INT US 17	WILLIAMSTON	MARTIN	41.61	soil	pesticides
NCD991278730	SQUIBB E R & SONS	FLOWERS RD	KENLY	JOHNSTON	41.61	groundwater	organics
NCD986166734	OLD BEAUFORT CO. LANDFILL	FLANDERS FILTERS ROAD	WASHINGTON	BEAUFORT	41.57	groundwater	metals
NCD000830620	CAROLINA P&L CO. WEATHERSPOON STEAM	74 EAST	LUMBERTON	ROBESON	41.55	known/suspected	

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0000073	H. M. WADE FURNITURE	SOUTH GRAHAM STREET	CHARLOTTE	MECKLENBURG	41.50	groundwater	organics
NONCD0001125	RALEIGH TTA-DILLON PARCEL A	102 S WEST ST	RALEIGH	WAKE	41.50	soil	metals
						groundwater	organics
						soil	organics
						soil	inorganics
NONCD0001126	RALEIGH TTA-DILLON PARCEL B	S WEST ST	RALEIGH	WAKE	41.50	groundwater	organics
						soil	organics
NCD002972966	REA MAGNET WIRE COMPANY	OLD LAUREL HILL CHURCH RD	LAURINBURG	SCOTLAND	41.49	soil	organics
						surface water	organics
NCD982124646	GREGSON FUNITURE INDUSTRIES	206 E FRAIZER AVENUE	LIBERTY	RANDOLPH	41.48	soil	organics
						groundwater	metals
						surface water	metals
						soil	metals
NCD003195161	CORNING GLASS WORKS	3900 ELECTRONICS DRIVE	RALEIGH	WAKE	41.47	known/suspected	
NC0002178580	VC CHEMICAL-ALMONT WORKS	2400 US 421 NORTH	WILMINGTON	NEW HANOVER	41.47	soil	metals
NCD980557854	FMC/NIAGARA PESTICIDES	OLD ST HWY 11 NORTH	AYDEN	PITT	41.44	soil	organics
						soil	pesticides
NONCD0001127	RALEIGH TTA-DILLON PARCEL C	510 & 602 W MARTIN ST	RALEIGH	WAKE	41.40	soil	organics
						groundwater	organics
NCD055165609	PANTASOTE INC. FILM/COMPOUND DIV.	1508 S CENTER ST	HICKORY	CATAWBA	41.38	groundwater	organics
						groundwater	metals
						soil	metals

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD991278755	MARTIN'S BATTERY SALVAGE, INC.	ASHLAND RD	KANNAPOLIS	CABARRUS	41.22	soil	metals
NONCD0000047	MEADS AIRFIELD PESTICIDES	SR 1100	WEEKSVILLE	PASQUOTANK	41.22	soil	pesticides
NCD986171445	BENFIELD CHEMICALS	OLD CANTON CLYDE HWY	CANTON	HAYWOOD	41.20	soil soil soil	organics pesticides metals
NONCD0001099	C & L SURPLUS	1868 HWY 64 W	HAYESVILLE	CLAY	41.20	sediment	metals
NCD980848782	MADISON COUNTY CYANIDE SITE	RT 2/HWY 63		MADISON	41.20	known/suspected	
NCD062664883	REINCO CHEMICAL COMPANY	EAST 11 ST	ROANOKE RAPIDS	HALIFAX	41.20	soil groundwater	organics organics
NCD024817827	HENREDON FURNITURE	ALTAPASS ROAD	SPRUCE PINE	MITCHELL	41.19	soil soil	metals organics
NCD981016280	DURHAM ANIMAL CLINIC	4306 ROXBORO ROAD	DURHAM	DURHAM	41.13	groundwater	organics
NCD054283189	HOOVER MACHINE SHOP	RATCHFORD ROAD	GASTONIA	GASTON	41.09	groundwater	organics
NCD001704980	WILMINGTON BRANCH/BORDEN/SMITH	NAVASSA ROAD	NAVASSA	BRUNSWICK	40.81	soil groundwater	organics organics
NCD062566047	FASCO CONTROLS CORPORATION	SR 1926	SHELBY	CLEVELAND	40.78	soil soil	organics metals
NONCD0001107	CONE MILLS - FLORENCE PLANT	FLORENCE & DEPOT RDS	FOREST CITY	RUTHERFORD	40.75	groundwater soil	organics organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0001077	CATAWISSA LUMBER CO	301 LOCUST ST	WEST JEFFERSON	ASHE	40.72	groundwater	organics
NONCD0001040	DOMESTIC LAUNDRY/WASHBURN	801 S MCDOWELL STREET	CHARLOTTE	MECKLENBURG	40.71	groundwater	organics
NCD075570820	PLYMOUTH WOOD TREATING COMPANY	N HWY 45	PLYMOUTH	WASHINGTON	40.68	groundwater	metals
NCD000605097	STATESVILLE ROAD LANDFILL	HWY 21 STATESVILLE ROAD	CHARLOTTE	MECKLENBURG	40.61	soil	metals
NCD982119463	DAYCO LANDFILL CRYME COVE ROAD	SR 1134	WAYNESVILLE	HAYWOOD	40.52	soil	organics
NCD981927908	KIDD LANE BATTERY DISPOSAL	3607 KIDD LANE	CHARLOTTE	MECKLENBURG	40.49	soil	metals
NC0000998344	HICKORY GROVE ROAD TCE	HICKORY GROVE ROAD	MCADENVILLE	GASTON	40.46	groundwater	organics
NCD003235066	NEW AGE FURNITURE CO/MILLER TOOL	PROSPECT STREET	LEXINGTON	DAVIDSON	40.42	known/suspected	
NCD082362989	TUNGSTEN QUEEN MINE/ATLAS MINE	SR 1348	TOWNSVILLE	VANCE	40.34	soil	metals
NONCD0000031	INDEPENDENCE MALL OUTPARCEL	OLEANDER & FORDHAM RDS	WILMINGTON	NEW HANOVER	40.19	groundwater	organics
NCD980838379	ROWE CORP PROPERTY/BOULIGNY SITE	433 W MOREHEAD ST	CHARLOTTE	MECKLENBURG	40.18	soil groundwater	metals metals
NCD986172492	CRESTLINE CONTAMINATED WELLS	ROUTE 211	ABERDEEN	MOORE	40.12	groundwater groundwater	metals organics
NONCD0001124	RALEIGH TTA-WILSON PARCEL	200 S WEST ST	RALEIGH	WAKE	40.07	groundwater	organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD093334894	BURLINGTON INDUSTRIES, INC.	PHOENIX STREET	STATESVILLE	IREDELL	40.03	soil groundwater	metals organics
NCD003158094	GLEN RAVEN MILLS	EAST MAIN STREET	BURNSVILLE	YANCEY	40.02	soil	metals
NCD986166379	PILOT MOUNTAIN TIRE FIRE	DAVENPORT ROAD	PILOT MOUNTAIN	SURRY	39.94	known/suspected	
NCSFN0406911	CAROLINA ASSOCIATED MILL	766 HWY 10 W	NEWTON	CATAWBA	39.88	soil	metals
NCN000407700	SPRINGS ROAD GO CART TRACK	4254 SPRINGS RD	CONOVER	CATAWBA	39.86	sediment surface water	organics organics
NONCD0000012	WHITE'S GRAVEL PIT	1515 HWY 49 SOUTH	CONCORD	CABARRUS	39.83	soil	metals
NCD986223170	MCBESS INDUSTRIES	OLD HWY 321	HIGH SHOALS	GASTON	39.75	sediment soil	metals organics
NCD980839757	INDIAN GRAVE GAP DRUM DISPOSAL	APPROX 2 MLS N OF SR 1513	LENOIR	CALDWELL	39.69	surface water	metals
NCD986172500	MCLEAN BROTHERS FARM	SR 1415	WAGRAM	SCOTLAND	39.67	soil soil	organics pesticides
NCD048958615	KELLY-SPRINGFIELD TIRE CO/GOODYEAR	NAVASSA RD	FAYETTEVILLE	CUMBERLAND	39.64	soil	organics
NCD986170694	POULOS GROUNDWATER CONTAMINATION	SOUTH BOULEVARD	CHARLOTTE	MECKLENBURG	39.63	groundwater	organics
NONCD0001041	MITCHELL & BECKER	1928 SOUTH BOULEVARD	CHARLOTTE	MECKLENBURG	39.56	soil groundwater groundwater	metals metals organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NC0001402213	ELLIS JUNK YARD	NEEDMORE DRIVE	HAYESVILLE	CLAY	39.52	soil soil	organics metals
NCD980502827	BROWN #1	SR 1504 VANDERBILT RD	PISGAH FOREST	TRANSYLVANIA	39.30	soil	metals
NCD079066833	LENOIR REFINING COMPANY	263 PENNTON AVE NW	LENOIR	CALDWELL	39.26	soil	organics
NCD003216397	HIGHLAND INDUSTRIES/BURLINGTON IND.	215 DRUMMOND ST/SR 2089	KERNERSVILLE	FORSYTH	39.25	groundwater soil	organics organics
NCD003154960	FLEMING LABORATORIES	2205 THRIFT ROAD	CHARLOTTE	MECKLENBURG	39.24	soil groundwater	organics organics
NCD119168813	ANILOX ROLL COMPANY	4840 WALLACE NEAL RD	CHARLOTTE	MECKLENBURG	39.13	soil	metals
NCD981863277	PERRY BUILDERS - RALEIGH RD	2846 RALEIGH RD	HENDERSON	VANCE	39.05	surface water	metals
NCD980557649	GOLDSBORO MUNICIPAL LANDFILL	117 BYPASS	GOLDSBORO	WAYNE	39.01	known/suspected	
NCD033978396	ATEC INDUSTRIES	PERKINS DRIVE	ROXBORO	PERSON	38.92	groundwater soil groundwater soil	organics organics metals metals
NCD980557607	GLASS, EH COUNTY LANDFILL	1103 NEALTOWN ROAD	GREENSBORO	GUILFORD	38.91	known/suspected	
NCD982115040	PERRY BUILDERS - MOBILE TRACT	NICHOLAS ST & SKENES AVE	HENDERSON	VANCE	38.91	surface water	metals
NCN000407686	CARALEIGH PHOSPHATE AND FERTILIZER	1601 LAKE WHEELER ROAD	RALEIGH	WAKE	38.87	soil	metals

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Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD089914311	MILLER BREWING CO/CONT DIV	1900 BARNES ST	REIDSVILLE	ROCKINGHAM	38.85	soil	pesticides
						groundwater	pesticides
NCD075582197	AMORE/WORTH CHEMICAL	2418 EAST PETTIGREW ST	DURHAM	DURHAM	38.82	groundwater	organics
						soil	organics
NONCD0000079	OLD PINEHURST HOTEL CLEANERS	MCCASKILL ROAD	PINEHURST	MOORE	38.79	groundwater	organics
NONCD0000001	STANLY NEWS & PRESS	237 W NORTH STREET	ALBEMARLE	STANLY	38.78	soil	metals
NONCD0001110	WOODSON-TENET LABORATORIES	17570 HWY 902	GOLDSTON	CHATHAM	38.76	sediment	metals
						soil	metals
						surface water	metals
NONCD0001122	CABARRUS ROUNDABOUT	CABARRUS AVE & OLD CHARLOTTE	CONCORD	CABARRUS	38.69	soil	metals
						groundwater	metals
NONCD0000083	CHEESMAN PROPERTY	3251 GREGORY ROAD	ROCKWELL	CABARRUS	38.68	known/suspected	
NCD105797922	TECHNIBILT/DIV OF WHITTAKER	EAST PEACE ST	NEWTON	CATAWBA	38.61	soil	metals
						soil	organics
NONCD0001018	HWY 49 BATTERY DUMP	NC HIGHWAY 49	CHARLOTTE	MECKLENBURG	38.47	soil	metals
						groundwater	metals
NONCD0000015	CENTRAL TRANSPORT COMPANY	215 SAMPSON ST	WILMINGTON	NEW HANOVER	38.45	surface water	metals
NONCD0000044	CHEMICAL AND SOLVENTS, INC.	2804 PATTERSON STREET	GREENSBORO	GUILFORD	38.45	soil	organics
NCD986190239	CHEROKEE OIL	925 SOUTH SUMMIT AVE	CHARLOTTE	MECKLENBURG	38.45	soil	metals

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Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD081428104	SUN CHEM CORPORATION/GPI DIV	2400 0LD LEXINGTON ROAD	WINSTON-SALEM	FORSYTH	38.41	soil soil	organics metals
NCD052553641	WEYERHAEUSER CO/LEWISTON	HWY 308 W	LEWISTON	BERTIE	38.38	soil	metals
NONCD0001121	R & R PLATING	OLD WILMINGTON RD	WHITEVILLE	COLUMBUS	38.37	soil	metals
NCD980557615	UNIVERSITY OF NC/OLD SANITARY LDFL	AIRPORT ROAD	CHAPEL HILL	ORANGE	38.25	groundwater	organics
NONCD0001148	UNION CARBIDE	HWY 42	CLAYTON	JOHNSTON	38.19	soil	organics
NCD004520136	EATON CORPORATION	ROUTE 501 SOUTH	ROXBORO	PERSON	38.14	groundwater	organics
NCD001871854	FRUEHAUF TRAILER CORPORATION	310 DALTON	CHARLOTTE	MECKLENBURG	38.12	groundwater	organics
NONCD0000055	GLISSON ENTERPRISES	HWY 903	GREENVILLE	PITT	38.12	known/suspected	
NONCD0000076	BELK BLDG EXPANSION SITE	205 E INDEPENDENCE BLVD	CHARLOTTE	MECKLENBURG	38.05	soil groundwater	organics organics
NONCD0001080	SOUTH EUGENE CLEANERS	611 S EUGENE ST	GREENSBORO	GUILFORD	38.05	groundwater soil	organics organics
NONCD0001076	SOUTHSIDE INVESTMENTS LLC	2222 SOUTH BLVD	CHARLOTTE	MECKLENBURG	38.05	groundwater soil soil groundwater	organics metals organics metals
NONCD0000003	VAN WATERS & ROGERS	ATANDO INDUSTRIAL PARK	CHARLOTTE	MECKLENBURG	38.05	soil groundwater	organics organics

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Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0000030	COLLINS AND AIKMAN	327 EAST ELM ST.	GRAHAM	ALAMANCE	38.04	groundwater	organics
NONCD0000066	WAKE AUTO PARTS (FORMER)	3520 TRYON RD	RALEIGH	WAKE	38.03	soil	metals
NCD980844732	CLAYTON BALL FIELD	SR 1709	CLAYTON	JOHNSTON	37.98	soil	pesticides
NCD980557953	FISHBURNE LANDFILL	AIRPORT ROAD	FLETCHER	BUNCOMBE	37.98	groundwater	organics
NCD980503148	SOUTHCHEM LANDFILL	750 EAST MARKHAM AVE	DURHAM	DURHAM	37.98	soil surface water surface water sediment	pesticides pesticides organics pesticides
NONCD0001064	GUILFORD MILLS PLANT	200 DICKENS ROAD	FUQUAY-VARINA	WAKE	37.89	groundwater	organics
NCN000407491	P&B DISTRIBUTION CHEMICAL FIRE	744 CHATHAM RD	WINSTON-SALEM	FORSYTH	37.89	soil soil	organics metals
NCD980559983	PPG IND., INC./WKS 52	WASHBURN SWITCH ROAD	SHELBY	CLEVELAND	37.89	known/suspected	
NCD003148889	CHAMPION INTERNATIONAL/CANTON MILL	NEWFOUND STREET	CANTON	HAYWOOD	37.79	groundwater	organics
NCD053010724	ICI - AMERICAS, INC.	2130 N TRYON	CHARLOTTE	MECKLENBURG	37.67	known/suspected	
NCN000409780	INDUSTRIAL METAL ALLOY	20 E ACADIA AVE	WINSTON-SALEM	FORSYTH	37.67	soil sediment	metals metals
NCD986171270	HESTA CARILLON PROJECT	WEST TRADE STREET	CHARLOTTE	MECKLENBURG	37.61	groundwater	organics
NONCD0000074	TEXTILE CHEMICAL FACILITY	GRAHAM STREET	CHARLOTTE	MECKLENBURG	37.60	groundwater	organics

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Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NC0001606250	CRISTEX DRUM	INDUSTRIAL DR & PINE TREE RD	OXFORD	GRANVILLE	37.58	groundwater	organics
NCN000407564	WATHA FIRING RANGE	3311 SHILOH RD	WATHA	PENDER	37.54	groundwater	metals
NONCD0000024	GAITHER TRANSOU PROPERTY	1202 GUILFORD COLLEGE RD	GREENSBORO	GUILFORD	37.52	soil soil	organics metals
NCD062548995	QUORUM KNITTING	REEMS CREEK RD	WEAVERVILLE	BUNCOMBE	37.35	soil	organics
NCD981928021	HOLLINGSWORTH PROPERTY	BROADFOOT AVE & CLARK ST	FAYETTEVILLE	CUMBERLAND	37.34	soil	pesticides
NCD980503056	FLEMINGTON LANDFILL	FAYETTEVILLE AVE	WILMINGTON	NEW HANOVER	37.25	groundwater	organics
NCD986171338	PEELE CO. PESTICIDE DISPOSAL	NC 42 EAST	CLAYTON	JOHNSTON	37.13	soil soil	metals pesticides
NONCD0000057	WATTS, LEVI PROPERTY	103 FAIRBLUFF ROAD	TABOR CITY	COLUMBUS	37.09	known/suspected	
NCD101750305	INDUSTRIAL PLASTICS, INC.	CLOVER & MCONNELL ROAD	GREENSBORO	GUILFORD	36.97	groundwater	metals
NCD980503098	PFIZER INC/SKATE STADIUM	4500 BLOCK OF HIGH POINT	GREENSBORO	GUILFORD	36.93	known/suspected	
NCD986166759	WILSON SEPTIC PITS	SR 1131	HICKORY	CATAWBA	36.90	soil soil	organics metals
NCN000409783	WHITIN ROBERTS PLANT #2	202 MAPLE AVE	SANFORD	LEE	36.89	soil	organics
NCD067428821	SIEMENS-ALLIS, INC/SWITCHGEAR DIV	5000 WOMACK ROAD	SANFORD	LEE	36.86	sediment groundwater	organics metals

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Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD981022288	C&T REFINERY	4800 SOUTH BOULEVARD	CHARLOTTE	MECKLENBURG	36.80	soil	organics
NCD081332900	INX (FORMER) FACILITY	3200 & 3210 CULLMAN AVE	CHARLOTTE	MECKLENBURG	36.75	soil soil	metals organics
NCD982095093	JAY'S CLEANERS	1803 N MAIN ST	KANNAPOLIS	ROWAN	36.75	soil	organics
NCD003196847	NATIONAL SPINNING COMPANY	WEST 3RD STREET	WASHINGTON	BEAUFORT	36.61	groundwater	organics
NCD981929813	CARBONTON ROAD DRUM SITE	2816 CARBONTON ROAD	SANFORD	LEE	36.60	soil	metals
NCD044447639	CROWN CENTRAL PETROLEUM CORP.	7720 MOUNT HOLLY ROAD	PAW CREEK	MECKLENBURG	36.59	soil groundwater	organics organics
NCD980559975	GA-PACIFIC CORP/RESIN DIV	AMPAC RD	CONWAY	NORTHAMPTON	36.49	groundwater soil	organics organics
NCD024577421	NORTH CAROLINA SALVAGE CO.	HWY 117 SOUTH	GOLDSBORO	WAYNE	36.38	soil	metals
NCD986188001	CHAMPION INTERNATIONAL LANDFILL #1	SR 1571 & 1573	CANTON	HAYWOOD	36.35	soil	organics
NCD000830919	CAROLINA P&L CO. CAPE FEAR STM	SR 1916	MONCURE	CHATHAM	36.33	groundwater	metals
NCD980712038	SED, INC. SWING COURT	SWING COURT	GREENSBORO	GUILFORD	36.30	known/suspected	
NONCD0000065	CMI INDUSTRIES	304 EAST MAIN STREET	ELKIN	SURRY	36.25	soil groundwater	organics organics
NCD991279118	MEREDITH/BURDA, INC.	ST JAMES CHURCH RD	NEWTON	CATAWBA	36.12	soil	metals

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Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0001009	SINGER PLANT #2	VIRGINIA STREET	LENOIR	CALDWELL	36.09	soil	organics
NCD986188019	CHAMPION LANDFILL #2	SR 1539	CANTON	HAYWOOD	36.04	soil	organics
NCD981015886	CAROLINA PRODUCTION FINISHING	105 FAIRVIEW RD	ASHEVILLE	BUNCOMBE	35.86	groundwater	organics
NCD981021702	CAMP, LEONARD PROPERTY	SR 2226	EARL	CLEVELAND	35.79	sediment	organics
NCD980557912	GROVE STONE LANDFILL	GROVE STONE ROAD	BLACK MOUNTAIN	BUNCOMBE	35.55	known/suspected	
NONCD0001130	SOUTH MAIN ST SEWER LINE EXT	4660 FOLLANSBEE RD	WINSTON-SALEM	FORSYTH	35.47	soil	metals
NCD070619911	TELEDYNE ALLVAC MONROE PLANT	2020 ASHCRAFT AVE	MONROE	UNION	35.37	soil	metals
NONCD0001111	IDEAL CLEANERS	7209 SANDY FORKS ROAD	RALEIGH	WAKE	35.36	soil groundwater	organics organics
NONCD0001028	GURLEY DRIVE LANDFILL	292 GURLEY DRIVE	CONCORD	CABARRUS	35.30	known/suspected	
NCD067437400	GULF OIL CORPORATION	SR 2813	MCLEANSVILLE	GUILFORD	35.22	surface water	metals
NCD003216413	RALEIGH ROAD FURNITURE CORP	802 WEST CENTER ROAD	LEXINGTON	DAVIDSON	35.22	known/suspected	
NONCD0001115	HAHN DAIRY FARM	LONG RUN FARM RD	MOUNT PLEASANT	CABARRUS	35.20	soil soil	organics metals
NONCD0000088	TRANS TECHNOLOGY	5535 WILKINSON BLVD	CHARLOTTE	MECKLENBURG	35.19	soil groundwater	organics organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD044515211	HAYES-ALBION CORP/BRIGGS-SHAFFNER	3760 KIMWELL DR	WINSTON-SALEM	FORSYTH	35.17	soil	metals
NONCD0000006	LITTLEFIELD LANDFILL	NC 11 SOUTH	AYDEN	PITT	35.16	known/suspected	
NCD072028251	TORPEDO WIRE & STRIP, INC.	INSTRUMENT DR	ROCKY MOUNT	NASH	35.10	soil	metals
NCD044514602	RJR ARCHER, INC.	CUNNINGHAM AVE	WINSTON-SALEM	FORSYTH	35.04	known/suspected	
NCD980559389	TARBORO LANDFILL	BAKER STREET EXTN-SR 1518	TARBORO	EDGECOMBE	35.04	known/suspected	
NCD108702606	HARTSOE BATTERY	2513 LINA AVE	KANNAPOLIS	ROWAN	35.01	soil	metals
NCD003183480	UNION CAMP CORPORATION	524 BROGDEN RD	SMITHFIELD	JOHNSTON	35.01	known/suspected	
NCD041466525	ROCKY MOUNT FIBER DUMP	ATLANTIC AVE EXTENSION	ROCKY MOUNT	EDGECOMBE	34.94	known/suspected	
NCD024459471	GUYTON BATTERY SERVICE	HWY 401 S	CHADBOURN	COLUMBUS	34.92	soil	metals
NCN000407205	TRI-COUNTY AIRPORT	NC 561	AULANDER	HERTFORD	34.92	soil	pesticides
NCD061795696	UNITEX CHEMICALS	520 BROOME RD	GREENSBORO	GUILFORD	34.91	groundwater	organics
NCD981023732	NEUVILLE SOCK PROPERTY	US 64/70 I-40 ACCESS ROAD	HILDEBRAN	BURKE	34.80	soil	metals
NCD986227965	STOLLER CHEMICAL - SEVERN	HIGHWAY 35	SEVERN	NORTHAMPTON	34.73	soil soil	organics pesticides
NCD086326741	TEXACO INC/APEX	APEX & MCCULLERS RDS	APEX	WAKE	34.66	groundwater groundwater	organics metals

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Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0000028	CAROLINA P&L CO. SPRUCE PINE	MOUNTAIN LAUREL DR	SPRUCE PINE	MITCHELL	34.62	known/suspected	
NONCD0001038	BRYANT FARM DRUM DUMP	W OF NC 86 400 FT S OF VA LINE	GATEWOOD	CASWELL	34.61	known/suspected	
NCD000616219	GA-PACIFIC CORP	HWY 177 S	HAMLET	RICHMOND	34.61	known/suspected	
NONCD0001048	LEXINGTON FURNITURE IND. PLNT #2	3979 OLD LINWOOD ROAD	LEXINGTON	DAVIDSON	34.53	groundwater soil	organics organics
NONCD0000075	FOAMEX/REEVES BROTHERS	HWY 115	CORNELIUS	MECKLENBURG	34.50	soil	organics
NCD980557672	PITT COUNTY UTILITY LANDFILL	PORT TERMINAL RD	GREENVILLE	PITT	34.38	known/suspected	
NC0001206473	GLEN RAVEN MILLS	TUCKER STREET C	BURLINGTON	ALAMANCE	34.27	groundwater	organics
NCD040042426	AEROQUIP/FAWN PLASTICS	HIGHWAY 264 ALT.	MIDDLESEX	NASH	34.22	groundwater	organics
NCD093132207	VOICE OF AMERICA RELAY STATION	COUNTY ROAD 1212	GREENVILLE	PITT	34.21	known/suspected	
NCD098765506	SINGER CO/FURNITURE DIV BRYSON	BRYSON WALK	BRYSON CITY	SWAIN	34.16	groundwater	organics
NONCD0001109	FRIENDLY CLEANERS	605 S. PENDER ST	WILSON	WILSON	34.14	soil	organics
NCD083673616	REEVES BROTHERS	RAILROAD AVE	RUTHERFORDTON	RUTHERFORD	34.10	soil	organics
NONCD0000042	SOUTHMET, INC.	NORTH GREENE STREET	GREENVILLE	PITT	34.04	known/suspected	
NCD000006361	SUPERIOR ELECTRO FINISHES	115 EAST POLO ROAD	WINSTON SALEM	FORSYTH	34.04	soil	metals

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0000041	CIBA-GEIGY	WESTINGHOUSE BLVD	CHARLOTTE	MECKLENBURG	34.01	soil groundwater	organics organics
NONCD0001151	MATTHEWS BLDG SUPPLY/ESTUL TOOL	215 AMES ST	MATTHEWS	MECKLENBURG	33.98	groundwater soil	organics organics
NCD986209575	CARDINAL CHEMICAL WAREHOUSE FIRE	NC 211 & NC 72	LUMBERTON	ROBESON	33.96	soil	pesticides
NONCD0001114	CONOVER METAL PRODUCTS	315 S MCLIN CREEK RD	CONOVER	CATAWBA	33.96	soil	metals
NONCD0000061	BULL MOUNTAIN RD DUMP	BLUE RIDGE PKWY MP 373.5		BUNCOMBE	33.80	soil soil	metals organics
NONCD0000078	CAROLINA METAL AND ALLOYS	1016 E. SPRINGFIELD AVENUE	HIGH POINT	GUILFORD	33.72	soil	metals
NCD097361018	KIN PROPERTIES ABANDONED DRUMS	920 EASTWAY DRIVE	CHARLOTTE	MECKLENBURG	33.72	soil	organics
NCD990715658	SOUTHERN MANUFACTURING, INC.	1000 SEABOARD ST	CHARLOTTE	MECKLENBURG	33.72	soil	inorganics
NCD046148318	TEXACO INC/PAW CREEK	410 SADLER RD	PAW CREEK	MECKLENBURG	33.72	known/suspected	
NONCD0001150	CHARLOTTE BATTERY	2926 YOUNGBLOOD ST	CHARLOTTE	MECKLENBURG	33.67	known/suspected	
NCD003196193	PIFER INDUSTRIES, INC.	2210 E PETTIGREW ST	DURHAM	DURHAM	33.67	known/suspected	

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Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD003162500	CONSOLIDATED ENGRAVERS CORP.	311 E 12TH ST	CHARLOTTE	MECKLENBURG	33.51	soil	metals
						sediment	metals
						sediment	organics
						surface water	metals
						surface water	organics
						soil	organics
						groundwater	metals
						groundwater	organics
NCD065295495	TEXFI IMPRESSIONS	PALETOWN RD	GOLDSBORO	WAYNE	33.41	soil	organics
NONCD0000054	MOORES COMPANY	US 1 BUSINESS & SR 1001	HENDERSON	VANCE	33.35	soil	organics
NCD055550560	GULF ADHESIVES & RESINS/PERKINS	1717 WARD STREET	HIGH POINT	GUILFORD	33.33	groundwater	organics
						soil	organics
NCD000281832	SANFORD PLATING COMPANY	SR 1466	SANFORD	LEE	33.32	soil	organics
						soil	metals
NONCD0000097	MORRIS, NORMAN	HIGHWAY 87 NORTH	ELON COLLEGE	ALAMANCE	33.23	soil	metals
NONCD0001119	EDWARDS PROPERTY FOUNDRY SAND	10209 ROZZELLE'S FERRY RD	CHARLOTTE	MECKLENBURG	33.18	soil	metals
NCD054417308	COASTAL CHEMICAL CORP.	NC 42	CLAYTON	JOHNSTON	33.11	soil	pesticides
NONCD0001075	HIGGINS TOWNSHIP FIRING RANGE	NC 226	MARION	MCDOWELL	33.09	soil	metals
NONCD0000096	MASON DRUM STORAGE	42 FIBERVILLE STREET	CANTON	HAYWOOD	32.99	known/suspected	
NCD981928385	JOHN DEERE TRACTOR	HWY 601 AND SR 1413	MOCKSVILLE	DAVIE	32.95	known/suspected	

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0001123	RALEIGH TTA-SE PARCEL	S WEST ST & MORGAN ST	RALEIGH	WAKE	32.94	soil	organics
						groundwater	organics
NCD072018252	GENERAL ELECTRIC CO/MED STEAM	OLD RALEIGH RD	DURHAM	DURHAM	32.88	groundwater	organics
NCD093783876	VANIER GRAPHICS CORPORATION	655 MEADOW RD	EDEN	ROCKINGHAM	32.86	soil	organics
						groundwater	organics
NCD980729479	CAROLAWN COMPANY	1426 W MOUNTAIN ST	KERNERSVILLE	FORSYTH	32.81	soil	organics
NCD000653576	KERN RUBBER CO. URETHANE PLANT	1415 SALISBURY RD S	SALISBURY	ROWAN	32.59	sediment	organics
NCD000623199	TEXACO INC/FAYETTEVILLE	992 SHAW MILL RD	FAYETTEVILLE	CUMBERLAND	32.56	groundwater	organics
NCD002388965	LACKAWANNA LEATHER CO., INC.	HWY 70A WEST	CONOVER	CATAWBA	32.48	groundwater	metals
NCD981472624	US 70 DRUM DUMP	US 70	MORGANTON	BURKE	32.41	soil	organics
NONCD0001036	JOYCETON WATER WORKS WELL #2	300 FT N OF SWANSON RD	LENOIR	CALDWELL	32.38	groundwater	organics
NONCD0001037	JOYCETON WATER WORKS WELL #9	600 FT N OF SWANSON RD	LENOIR	CALDWELL	32.38	groundwater	organics
NCD980502892	CREEK BRIDGE/BORDEN CHEMICAL	US HWY 24-87 (GROVE ST)	FAYETTEVILLE	CUMBERLAND	32.35	known/suspected	
NCD095470332	THONIT A SIMMONS COMPANY	11900 STEELE CREEK ROAD	CHARLOTTE	MECKLENBURG	32.33	soil	metals
						soil	organics
NCD080885551	DAUGHERTY CHEMICAL COMPANY	307 WALKER STREET	DURHAM	DURHAM	32.27	soil	metals

APPENDIX. INACTIVE HAZARDOUS SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD980848766	GIBBS ELECTROPLATING	5210 HOVIS ROAD	CHARLOTTE	MECKLENBURG	32.27	soil	metals
NCD980847123	HURT RESIDENCE	HWY 64	MORGANTON	BURKE	32.27	soil	organics
NCD980502793	APEX SANITARY LANDFILL	HIGHWAY 55	APEX	WAKE	32.16	known/suspected	
NCD982098774	CAL-TONE PAINTS	5115 NEW BERN AVE	RALEIGH	WAKE	31.94	soil	organics
NONCD0001006	WESTINGHOUSE TURBINE	WESTINGHOUSE ROAD	CHARLOTTE	MECKLENBURG	31.94	soil	organics
NCD003221868	CENTURY FURNITURE COMPANY	401 11TH ST NW	HICKORY	CATAWBA	31.90	soil	metals
NONCD0000084	THERMO PRODUCTS, INC.	800 JONES STREET	DENTON	DAVIDSON	31.77	soil soil	metals organics
NCD980799019	CHEROKEE OIL	1201 BERRYHILL ROAD	CHARLOTTE	MECKLENBURG	31.76	soil soil surface water	metals organics metals
NCD980559330	NASH COUNTY LANDFILL/SR 1524	SR 1524	RED OAK	NASH	31.76	known/suspected	
NCD083669952	STORY BURIAL AREAS/UNION CHEMICAL	6101 ORR ROAD	CHARLOTTE	MECKLENBURG	31.76	groundwater	organics
NONCD0000059	DAYCO COCHRAN LANDFILL	RT 1 HYATT CREEK ROAD	WAYNESVILLE	HAYWOOD	31.71	soil	organics
NCSFN0407143	AMERICAN ELEMENTS	500 WALLACE ST	FARMVILLE	PITT	31.68	soil	metals
NCD986180883	CCFC PESTICIDE DISPOSAL	607 HILLSBOROUGH STREET	OXFORD	GRANVILLE	31.67	known/suspected	

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD980557847	KAISER ACME FARMARKET	SR 1870	RIEGELWOOD	COLUMBUS	31.60	groundwater soil	organics pesticides
NONCD0001177	PINE RD RAVINE DISPOSAL	PINE RD	BADIN	STANLY	31.53	soil soil soil soil	organics inorganics metals cyanide
NCD980845119	BUCKHORN PESTICIDES	NC 581 & NC 42	WILSON	WILSON	31.36	soil soil	organics pesticides
NCD003229762	STRUCTURAL WOODS PRESERVING CO.	HWY 22	COLERIDGE	RANDOLPH	31.34	soil groundwater	metals metals
NCSFN0406924	VC CHEMICAL	STANBACK FERRY RD	WADESBORO	ANSON	31.34	soil	metals
NCD000828566	TARTAN MARINE PROPERTY	NC HIGHWAY 77 & SR 2032	HAMLET	RICHMOND	31.33	soil	metals
NCD981863814	LANCASTER PLATING	802 EDWARDS ROAD	LILLINGTON	HARNETT	31.32	soil	metals
NONCD0001096	SALISBURY TOWNSHIP SHOPPING CENTER	AVALON & E INNES DR	SALISBURY	ROWAN	31.31	groundwater	organics
NONCD0001015	MARY CIRCLE BATTERY	ZION CHURCH & MARY CRL	CONCORD	CABARRUS	31.18	soil	metals
NCD096165121	TEXACO INC/GREENSBORO	HWY 421 & CHIMNEY ROCK RD	GREENSBORO	GUILFORD	31.08	soil groundwater	organics organics
NCD045451473	ACE CHEMICAL CORPORATION	9801 YORK ROAD	CHARLOTTE	MECKLENBURG	31.05	groundwater soil	organics organics
NCD049845266	STANLEY CASE GOODS (FORMER)	HWY 211	WEST END	MOORE	31.01	groundwater	organics

APPENDIX. INACTIVE HAZARDOUS SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0000019	SIR WALTER GUN CLUB	US 64	RALEIGH	WAKE	30.96	soil	metals
NONCD0000070	BENFIELD SANITATION SERVICE	1809 W FRONT ST	STATESVILLE	IREDELL	30.87	known/suspected	
NCD980843460	GRANT CREEK WWTP	CRUSE ROAD	SALISBURY	ROWAN	30.66	soil	organics
NCD003195963	WESTINGHOUSE ELEC METER & LIGHT	US 1 N	RALEIGH	WAKE	30.57	soil soil	metals organics
NONCD0001060	DIXIE MACHINE & TOOL CO	2204 PATTERSON ST	GREENSBORO	GUILFORD	30.46	soil	organics
NCD024740433	EC MANUFACTURING	413 N. POLK STREET	PINEVILLE	MECKLENBURG	30.45	soil	metals
NONCD0001033	AMERICAN CONTRACT COATINGS	HWY 55	APEX	WAKE	30.43	known/suspected	
NONCD0001067	CC DICKSON	1524 SOUTH BOULEVARD	CHARLOTTE	MECKLENBURG	30.43	groundwater soil	organics organics
NCD003938586	CORNING GLASS WORKS	310 NORTH COLLEGE ROAD	WILMINGTON	NEW HANOVER	30.37	known/suspected	
NCD981031693	KEENER LANDFILL	SR 1820	CLINTON	SAMPSON	30.30	soil	organics
NCSFN0406962	VINEGAR HILL LEAD SITE	HWY 701 N	TABOR CITY	COLUMBUS	30.30	soil	metals
NONCD0001065	OLD CHARLOTTE LDFL/VANGUARD	SEVENTY SEVEN CENTER DRIVE	CHARLOTTE	MECKLENBURG	30.26	groundwater	organics
NC0000998336	CP PROPERTIES	2350 BROWN ROAD	SANFORD	LEE	30.23	soil sediment soil	metals metals organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD000616516	SCOVILL INC/SECURITY PRODUCTS	HWY 74 E	MONROE	UNION	30.21	soil soil	metals organics
NCD003186004	INTERNATIONAL PAPER/RICHMOND	2215 S. WILMINGTON STREET	RALEIGH	WAKE	30.10	soil groundwater	organics organics
NONCD0001175	MIDTOWN SQUARE VALET DRY CLEANERS	401 S INDEPENDENCE BLVD	CHARLOTTE	MECKLENBURG	30.06	soil groundwater	organics organics
NCD024762668	BUSH BROTHERS PLATING INC/GREER	107 NE MARKET ST	REIDSVILLE	ROCKINGHAM	30.05	known/suspected	
NCD981748403	HOME DEPOT-PRO CLEANERS	2310 N MAIN STREET	HIGH POINT	GUILFORD	30.05	groundwater	organics
NONCD0000035	CHAPEL STREET BATTERY DUMP	CHAPEL STREET	KANNAPOLIS	ROWAN	30.00	known/suspected	
NCD980557722	HARRISBURG BATTERY	HIGHWAY 49	HARRISBURG	CABARRUS	30.00	soil	metals
NCD067392175	TRAMCO, INC.	SR 1611	CONNELLY SPRINGS	BURKE	29.87	soil	organics
NCD057248759	PATCH RUBBER POND	GRACE BOULEVARD	ROANOKE RAPIDS	HALIFAX	29.82	soil	organics
NCD003213568	LIBERTY FURNITURE CORP/CHROMCRAFT	HWY 421	LIBERTY	RANDOLPH	29.60	soil	organics
NCD986170678	WOOD ROAD DRUM BURIAL	CIRCLE WOOD RD/SR 2641	GASTONIA	GASTON	29.44	known/suspected	
NCD049845548	REICHHOLD CHEMICAL, INC.	SR 1916	MONCURE	CHATHAM	29.33	soil	organics
NCD003218161	CORNELL-DUBILIER ELECTRONICS	2652 DALYRUMPLE STREET	SANFORD	LEE	29.02	soil groundwater	organics organics

APPENDIX. INACTIVE HAZARDOUS SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0001106	MICROTRON ABRASIVES, INC	10242 RODNEY BLVD	PINEVILLE	MECKLENBURG	28.94	groundwater soil	organics organics
NCD991278714	CAROCHEM, INC.	540 GULF ST	DURHAM	DURHAM	28.72	soil	organics
NCD002464691	ALLIANCE CAROLINA TOOL AND MOLD	SR 3495-GLENN BRIDGE RD	ARDEN	BUNCOMBE	28.70	groundwater	organics
NONCD0001050	LEXINGTON FURNITURE IND. PLNT #12	3301 COTTON GROVE LANE	LEXINGTON	DAVIDSON	28.59	soil	organics
NCD980843528	TOWN CREEK REGIONAL WWTP	HEILIGTOWN ROAD	SALISBURY	ROWAN	28.50	known/suspected	
NCD048184451	BURLINGTON HOME CHAIR	HIGHWAY 268	RONDA	WILKES	28.49	known/suspected	
NCD000828616	USS AGRI-CHEMICALS FARM SERVICE	HWY 701	WHITEVILLE	COLUMBUS	28.45	known/suspected	
NCD003149291	GASTON COUNTY DYEING MACHINE CO.	HWY 27 EAST	MOUNT HOLLY	GASTON	28.34	groundwater	organics
NCD991277922	GASTON COUNTY DYEING MACHINE CO.	200 S MAIN ST	STANLEY	GASTON	28.34	groundwater	organics
NCD003186178	COASTAL CHEMICAL CORP.	EVANS ST EXT	GREENVILLE	PITT	28.33	soil	pesticides
NCD991278581	BURLINGTON FURNITURE/LUMBER PL	US 64 EAST	LEXINGTON	DAVIDSON	28.12	known/suspected	
NCD980483275	HELENA CHEMICAL COMPANY	DENNIS STREET EXTENSION	ENFIELD	HALIFAX	28.04	soil soil soil	metals pesticides organics
NONCD0001149	VC CHEMICAL	2700 ANGIER AVE	DURHAM	DURHAM	27.95	soil soil	metals organics

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD003151651	WILLARD SMELTING CO.	101 NEWBERN ST	CHARLOTTE	MECKLENBURG	27.86	soil	metals
NCD991278839	NORTH STATE CHEMICALS	3301 SPRING GARDEN ST	GREENSBORO	GUILFORD	27.60	soil soil	organics metals
NCD990867855	FAWN PLASTICS CO., INC.	317 JEFFREYS ROAD	ROCKY MOUNT	NASH	27.52	known/suspected	
NONCD0001030	BLR	2911 LEE AVENUE	SANFORD	LEE	27.50	groundwater soil	organics organics
NONCD0000013	CAROLINA HARDWOODS	158 FACTORY STREET	WILLIAMSTON	MARTIN	27.49	surface water	metals
NCD024770125	BURLINGTON FURNITURE	ATOAH STREET	ROBBINSVILLE	GRAHAM	27.10	soil	organics
NONCD0000091	DUKE POWER/WALNUT COVE	POWER HOUSE ROAD	WALNUT COVE	STOKES	26.95	known/suspected	
NCD980557664	BURLINGTON INDUSTRIES, INC.	US 1 NORTH	RALEIGH	WAKE	26.86	soil	organics
NCD024468597	CHARLOTTE STEEL DRUM	2900 WEST TRADE STREET	CHARLOTTE	MECKLENBURG	26.67	known/suspected	
NCD003213881	BENDIX CORPORATION	I-85 INNES ST EXIT	SALISBURY	ROWAN	26.36	soil	metals
NCD986166288	WOODY'S TIRE FIRE	HIGHWAY 321	GASTONIA	GASTON	26.35	known/suspected	
NCD990868168	INMONT CORP/BASF CORPORATION	1701 W WESTINGHOUSE BLVD	CHARLOTTE	MECKLENBURG	26.22	groundwater soil	organics organics
NCD003218492	CAROLINA RUBBER HOSE COMPANY	1801 SOUTH RAILROAD	SALISBURY	ROWAN	26.04	soil soil	organics metals

APPENDIX. INACTIVE HAZARDOUS SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD003464765	VAUGHAN-BASSETT FURNITURE CO.	ROUTE 268 EAST	ELKIN	SURRY	25.93	soil	organics
NONCD0001039	OVERCASH GRAVEL & GRADING CO. INC.	1150 SHELTON ROAD	CONCORD	CABARRUS	25.71	known/suspected	
NCD980602791	SALVAGE OIL OF AMERICA	1227 MCLEOD STREET	ROCKINGHAN	RICHMOND	25.68	soil	organics
NCD000822130	HARRELSON RUBBER COMPANY	HWY 220 SOUTH	ASHEBORO	RANDOLPH	25.45	known/suspected	
NCD990715070	NEW HANOVER CY & CAROLINA LDFL	SR 1534/DOW RD	CAROLINA BEACH	NEW HANOVER	25.42	known/suspected	
NCD003200656	FEATHER PROCESSORS, INC	HWY 117 NORTH	ROSE HILL	DUPLIN	25.30	soil	metals
NCD003148798	DAYCO CORP	BALSAM RD	WAYNESVILLE	HAYWOOD	25.26	soil groundwater	organics organics
NCD980503031	MILAN YARD LANDFILL	NORTH ST. EXT. MILAN ROAD	FAYETTEVILLE	CUMBERLAND	25.25	soil	organics
NCD000609974	UNION OIL CO. SE TERM	6801 W MARKET ST	GREENSBORO	GUILFORD	24.94	soil groundwater	organics organics
NCSFN0406894	STALLINGS SALVAGE	SECREST AVE	MONROE	UNION	24.89	known/suspected	
NCD067191262	FIRESTONE TIRE AND RUBBER COMPANY	HWY 301	WILSON	WILSON	24.45	soil	organics
NCD981003957	HENSON LANDFILL	US HIGHWAY 221 SOUTH	FOREST CITY	RUTHERFORD	24.35	soil	organics
NCD980559355	NASH COUNTY LANDFILL/SR 1145	STATE RD 1145	SPRING HOPE	NASH	24.18	known/suspected	

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NONCD0000048	WALKER DRUM DISPOSAL	WYATTS CHURCH GROVE ROAD	GOLD HILL	ROWAN	23.80	soil	metals
						soil	organics
NCD077821296	SOUTHERN RESIN/US INDUSTRIES INC	1510 DENTON ROAD	THOMASVILLE	DAVIDSON	23.62	groundwater	organics
NCD003189024	BORDEN CHEMICAL FAYETTEVILLE PLANT	1411 INDUSTRIAL DR	FAYETTEVILLE	CUMBERLAND	23.51	groundwater	metals
						groundwater	organics
NCD982174492	NATIONAL PIN	SR 1572	SARATOGA	WILSON	23.37	known/suspected	
NCD077838589	THOMASVILLE FOREST PRODUCTS	CLARKSBURY CHRUCH ROAD	THOMASVILLE	DAVIDSON	23.10	soil	metals
NCD980838551	MCDOWELL FIREMAN ASSOCIATION SITE	SR 1214 GREENLEE ROAD	MARION	MCDOWELL	23.09	known/suspected	
NCD096158696	BURLINGTON INDUSTRIES, INC.	6008 HIGH POINT RD	GREENSBORO	GUILFORD	22.43	soil	organics
						groundwater	metals
						groundwater	organics
						soil	bases
NCD980557888	LENOIR CITY LANDFILL	904 VIRGINIA STREET	LENOIR	CALDWELL	22.42	soil	organics
NCD980502934	FAYETTEVILLE LANDFILL	GRAY STREET	FAYETTEVILLE	CUMBERLAND	21.97	known/suspected	
NCD071579528	FORBUSH METAL	SPEER BRIDGE ROAD	YADKINVILLE	YADKIN	21.90	soil	cyanide
						soil	organics
						soil	metals
NCD980503106	SANITATION SERV LAND	SR 1743	SAINT PAULS	ROBESON	21.66	known/suspected	
NONCD0001027	CROWDERS MOUNTAIN STATE PARK	CROWDERS MOUNTAIN STATE PK	GASTONIA	GASTON	21.57	known/suspected	

APPENDIX. INACTIVE HAZARDOUS SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD003236841	WARLICK PAINT COMPANY	945 MONROE ST	STATESVILLE	IREDELL	21.47	known/suspected	
NCD986232213	SUMMIT RESOURCE MANAGEMENT	3501 GRIBBLE ROAD	STALLINGS	UNION	21.45	surface water soil soil	organics organics inorganics
NCD000776732	SAFETY-KLEEN CORP 3-031-02	HWY 41W	WALLACE	DUPLIN	21.26	known/suspected	
NCD003223799	CLAYTON-MARCUS CO., INC.	HWY 127 N	BETHLEHEM	ALEXANDER	21.11	soil soil soil	metals cyanide organics
NCD054284518	STANDARD PACKAGING CORPORATION	HWY 73 W	MT GILEAD	MONTGOMERY	21.07	known/suspected	
NCD003214574	SPRUANCE SOUTHERN, INC.	HWY 8	WINSTON-SALEM	FORSYTH	20.81	known/suspected	
NCD046149019	HISTRAND CHEMICAL, INC.	HWY 9	LENOIR	CALDWELL	20.72	known/suspected	
NONCD0001062	SWAIM'S TRUCK PARTS & SERVICE	WELCOME AVENUE	HENDERSON	VANCE	20.15	soil soil	metals organics
NCD980559637	BEAUNIT CORP./DYING & FINISHING	LINEBERGER STREET	LOWELL	GASTON	19.99	known/suspected	
NCD980502850	CABARRUS DISPOSAL COMPANY, INC.	SR 1152	CONCORD	CABARRUS	19.86	known/suspected	
NONCD0001005	TRANSEASTERN CORP.	509 S LODGE ST	WILSON	WILSON	19.56	known/suspected	
NCD048462881	ARMOLOY CO OF NC/HI-TECH	1603 SALISBURY ROAD	STATESVILLE	IREDELL	19.37	known/suspected	
NCD003152659	REICHHOLD CHEMICAL, INC.	161 BUFFALO AVENUE	CONCORD	CABARRUS	19.32	known/suspected	

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD003162666	CANNON MILLS COMPANY/FIELDCREST	HWY 29 & 601	KANNAPOLIS	CABARRUS	19.31	known/suspected	
NCD053528170	LAURENS GLASS/BALL-INCON GLASS PACK	US 1 SOUTH	HENDERSON	VANCE	19.23	groundwater	organics
NCD981921083	SWIFT ADHESIVES	9724 INDUSTRIAL DRIVE	PINEVILLE	MECKLENBURG	19.19	known/suspected	
NCD003225620	HIGH POINT FURNITURE INDUSTRIES	CORPORATION DRIVE	HIGH POINT	GUILFORD	19.14	soil	organics
NONCD0000014	BOISE CASCADE	SR 1916	MONCURE	CHATHAM	18.86	known/suspected	
NCD057037178	PFIZER INC/COTY DIVISION	COX MILL RD & HWY 42 E	SANFORD	LEE	18.48	soil	organics
NONCD0000092	FUNDER AMERICA	200 FUNDER RD	MOCKSVILLE	DAVIE	18.33	known/suspected	
NCD067178707	FAWN PLASTICS CO., INC.	RT 264 BUSINESS	MIDDLESEX	NASH	17.34	soil	organics
NONCD0000034	ASHEVILLE INDUSTRIES	20 GLEN BRIDGE RD(SR3495)	ARDEN	BUNCOMBE	16.30	soil	organics
NCD071567259	WEYERHAEUSER CO/MONCURE	STATE ROAD 1916	MONCURE	CHATHAM	16.04	known/suspected	
NONCD0001129	MARBLE RD PAINT DISPOSAL	MARBLE RD	STATESVILLE	IREDELL	15.84	known/suspected	
NONCD0000053	CAROLINA MARBLE CO.	INDIAN MOUND ROAD	ALBEMARLE	STANLY	15.28	surface water	
NONCD0000099	PARTON'S MOTOR COMPANY	2800 SOUTH YORK ROAD	GASTONIA	GASTON	15.22	known/suspected	
NONCD0000082	CAPE FEAR CHEMICALS/HL BRICE	HWY 701 S	ELIZABETHTOWN	BLADEN	11.48	soil	pesticides

APPENDIX. INACTIVE HAZARDOUS WASTE SITES PRIORITY LIST (In Order By Score)

Id Number	*Site Name*	*Site Address*	*City*	*County*	*Score*	*Medium*	*Contaminant*
NCD081333858	HOLSTON ENERGY INC/HOLSTON FUEL	HWY 19A/235 BYPASS	WAYNESVILLE	HAYWOOD	7.70	soil	organics

Annual Report to the North Carolina General Assembly

The NC Brownfields Program

October 2007

NCDENR

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

Division of Waste Management
www.wastenotnc.org

North Carolina Brownfields Program
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Brownfields Property Reuse Act - Annual Report to the General Assembly

October 2007

Executive Summary

This report to the General Assembly is required by the Brownfields Property Reuse Act (BPRA) of 1997 (G.S. 130-310.30 *et seq.*) and describes the activities and status of the N.C. Brownfields Program for Federal Fiscal Year (FFY) 2007. In celebration of the completion of the program's tenth year, the Department of Environment and Natural Resources (DENR) is pleased to report continued success in the state's efforts to revitalize and safely reuse brownfields properties through the N.C. Brownfields Program and its partnership with the U.S. Environmental Protection Agency (EPA). The program continues to be a model of high return on public investment in the way relatively small sums of public funds are spent to leverage large sums of private investment in brownfields redevelopment. DENR receives no state-appropriated funds for the program. To date, all of the public dollars spent are federal funds from a cooperative agreement with the U.S. EPA. With these funds, the program has facilitated over $2.2 billion in committed private investment in brownfields redevelopment.

In previous years, the program was characterized by expansion in order to accommodate increasing demands for program services by the development community. In late FFY 2006, in response to increasing demands for program services, three additional brownfields positions were created that would be funded by initiation of the BPRA's existing fee provisions. However, due to uncertainty regarding the level of funding under the EPA cooperative agreement, the program felt it unwise to fill those newly created positions. In addition, one of the program's existing project manager positions was vacated on February 1, 2007. Due to concerns regarding federal funding, this position remains vacant. The cumulative effect of these challenges resulted in five fewer brownfields agreements being completed during FFY 2007 than during the previous year, an increased project load for existing staff, and a longer overall processing time-frame.

A portion of original EPA grant funding has been committed in FFY 2008 to partially restore funding, and the program is now in the process of filling three positions (Environmental Engineer, Hydrogeologist and an Environmental Senior Specialist). The program was amended to increase the fees paid by developers obtaining a brownfields agreement, and is planning to utilize funds that have accumulated in the BPRA Implementation Account to further supplement staffing during FFY 2008.

Program activity for the one-year period from October 1, 2006 through September 30, 2007 can be summarized with the following statistics:

- Program applications received: 50 (22 fewer than the 72 received during FFY 2006)
- Brownfields agreements finalized: 19 (5 fewer than the 24 finalized during FFY 2006)
- Estimated capital investment: $626 million (up from $383 million reported for FFY 2006)

The total number of completed agreements since the inception of the program now stands at 107. More important than the numbers themselves is what they represent: that the state brownfields agreement remains a sought-after mechanism for removing the barriers prospective developers encounter in obtaining financing on these environmentally-impaired brownfields properties.

Background

Redeveloping brownfields properties has become increasingly popular as developers and local governments realize that these properties offer viable opportunities to bring economic growth, public health protection, jobs, and quality-of-life benefits to cities and rural areas. Brownfields are abandoned, idled or underutilized properties where environmental contamination hinders redevelopment due to concerns about environmental liability. The BPRA gives DENR the authority to enter into brownfields agreements with prospective developers who did not cause or contribute to site contamination. The BPRA modifies the environmental liability barrier for prospective developers and motivates them to bring these properties and their hindrances to DENR's attention. DENR partners with the prospective developer to evaluate the possible risks associated with site contamination, and then negotiates a brownfields agreement stipulating the steps necessary to make the site safe for a specific intended reuse. The result is a redevelopment project that works economically and also protects public health and the environment.

Because brownfields agreements afford prospective developers liability protection for as long as they make and maintain the site safely for its intended reuse, the specter of open-ended financial uncertainty is lifted. This economic shield allows prospective developers to obtain financing previously unavailable for these properties.

Thus, the BPRA allows DENR to distinguish between prospective developers of brownfields properties and the properties' polluters. Instead of mandating that the site be cleaned to current standards, the BPRA requires developers who did not cause or contribute to the contamination to make the site safe for reuse. The program must examine the risks to public health or the environment posed by the site. Then, DENR determines what the prospective developer must do to ensure safe redevelopment. These actions can range from land-use restrictions to cleanup, or a mixture of both. In addition to holding prospective developers accountable to their agreements, DENR reserves the right to enforce against those parties responsible for the original contamination. The process is summarized below in Table 1.

Table 1. Summary of the Brownfield Process

Step 1 – A prospective developer (PD) with a brownfields site which it desires to buy or sell for the purposes of redevelopment, and for which it needs liability protection, submits a Brownfields Property Application. DENR determines if the PD, the subject property and the proposed redevelopment project are eligible under the BPRA statute. PD pays initial $2,000 fee at the time its project is deemed eligible by DENR.

Step 2 - DENR reviews existing site data to determine the risk posed by contamination at the site. If the data are insufficient to evaluate such risk, DENR advises the PD on further site assessment to gather the necessary data.

Step 3 - DENR determines what actions are necessary to make the site suitable for the PD's intended reuse and includes these actions in a draft brownfields agreement. The PD and DENR negotiate the provisions of the draft brownfields agreement and other required statutory documents.

Step 4 - The brownfields agreement is publicly noticed with a 30-day public comment period.

Step 5 - The brownfields agreement is finalized after any public comments are considered and incorporated. Prior to the execution of the finalized brownfields agreement, the PD pays the secondary $3,500 fee. The PD uses the final brownfields agreement, which provides liability protection, to obtain financing for the project. Liability protection is contingent upon the completion of the actions required by the brownfields agreement. The brownfields agreement makes the site eligible for the brownfields property tax incentive.

The ancillary brownfields property tax incentive for prospective developers allows them to recoup funds spent on assessment and cleanup. The program motivates the market to recycle these sites to productive reuse, while preserving or reducing the use of pristine or undeveloped "greenfields" property. While the environmental benefits are obvious, most redevelopments also create a significant number of jobs and put properties back on the tax rolls. This dual economic-environmental gain benefits the state, local government, and the brownfields developer. In the ten years since the BPRA was enacted, and as these benefits have become better known, the program's popularity and demand for its services have increased dramatically.

The overall result is a winning scenario for both the environment and economic development. Risk reductions and cleanups are achieved at sites that could have harmed the public or the environment, and prospective developers redevelop abandoned properties that once had little hope for productive reuse. The public benefits of job creation, improved quality of life in the surrounding neighborhoods, local tax base expansion and contribution to the general fund are other positive impacts. By the end of FFY 2007, more than $2.25 billion in capital investment has been committed to redevelop abandoned properties that afflict urban and rural landscapes.

The program also supports smart growth, sustainability and the One North Carolina Naturally agenda. Every project that reuses property, whether it is in an urban center or a rural area, preserves green space. Often it also reduces suburban sprawl and supports sustainable urban development. In a very real sense, for each brownfield redeveloped, a greenspace is saved. The properties that have received the 107 completed agreements are estimated to represent approximately 2,200 acres, and the other 116 in the pipeline represent another 2,700 acres. This is, in effect, acreage that is being recycled into reuse rather than pristine greenspace that is being developed and put at risk for future contamination.

Program Status

The program is preparing to receive its fourth year of funding from the U.S. EPA under its State Response Program Cooperative Agreement authorized under the federal brownfields act. The program is currently short one project manager from the full complement of staff under its planned cooperative agreement budget. That budget calls for 4.5 brownfields project managers, an environmental toxicologist, and an IT database professional. The present staff members are all fully engaged in processing and tracking of brownfields agreements. However, federal funds are diminishing, and the program continues to consider other funding sources to meet its future needs.

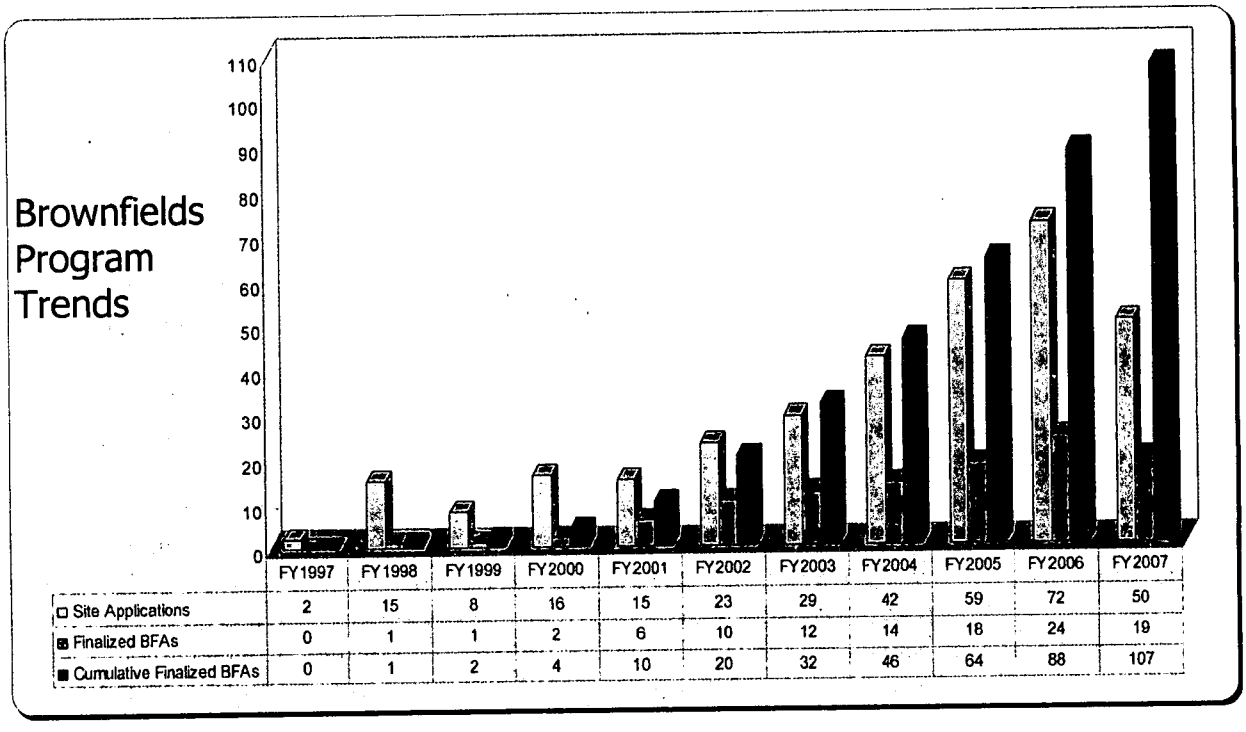
During FFY 2007, the program experienced its second occurrence of staff turnover, as one project manager left state employment effective February 1, 2007. Before that position was vacated, efforts began to re-fill it and to hire one additional project manager and one environmental specialist. However, those efforts were put on hold in March 2007 when the program became aware of a possible federal budget shortfall. By the end of September 2007, additional federal assistance was committed by the U.S. EPA, and the effort to fill these three positions has resumed. Although the program continued to benefit from efforts made to increase the efficiency of internal communication and to streamline agreement processing procedures, the loss of a project manager contributed to a reduced number of completed brownfields agreements for FFY 2007, from 24 to 19 this year.

During FFY 2007, the program received 50 applications for projects seeking entry into the program and a brownfields agreement for a specific brownfields redevelopment project. This compares to 72 applications received during FFY 2006.

During FFY 2007, the program completed 19 brownfields agreements. This is 5 fewer than last year's 24 (a 21% decrease). This decrease can likely be attributed, in part, to the program having one less project manager for eight months of FFY 2007, the increased workload for each project manager with an average of 22 active projects each, and in tracking land use restrictions and other activities at properties for which there is a completed brownfields agreement. Many agreements have frameworks where developers continually contact the program during redevelopment activities. The maintenance workload is increasing as the number of agreements rises.

Table 2 below shows the program's statistical trends since the BPRA became effective in 1997. One can see the steady upturn in demand for the program in the number of brownfields applications through FFY 2006 and the down-turn in applications for FFY 2007. Even with the lower number of agreements completed in FFY 2007, the number of cumulative brownfields agreements is clearly still on the rise.

Table 2. Brownfields Program Trends



	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007
Site Applications	2	15	8	16	15	23	29	42	59	72	50
Finalized BFAs	0	1	1	2	6	10	12	14	18	24	19
Cumulative Finalized BFAs	0	1	2	4	10	20	32	46	64	88	107

Federal brownfields act resources have facilitated an increase in the number of staff and a corresponding increase in the number of agreements completed over the past few years. However, the demand created by the existing and new projects continues to grow and is taxing the ability of the existing staff to provide services and brownfields agreements to developers in a timely manner. Because of these factors, and in combination with reductions in federal resources, the program cannot grow or keep up with obligations as they exist today. Hence, increased resources commensurate with the demand remain key to the continued success of the program. Current plans for accomplishing this are discussed in greater detail in the Improving Effectiveness section below.

Local interest in brownfields continues to grow and local governments in this state continue to have great success in competing for EPA brownfields grant funds. The federal grants for brownfields assessment and cleanup totaling $2.0 million were awarded by the U.S. EPA to North Carolina local governments in 2007 (increased from $1.45 million in 2006), including Robeson County and the cities of Greensboro, Greenville, Hickory and Sanford.

Among Region 4 states, only Florida local governments were awarded more individual EPA brownfields grants than North Carolina (and only *one* more grant), but the total grant funding awarded in both states was the same and topped the list in the Region. These local brownfields activities will serve to strengthen local interest in brownfields redevelopment and will certainly further increase interest in developers seeking brownfields agreements from DENR as these communities begin their local brownfields redevelopment efforts. Moreover, these grant funds dovetail with DENR's efforts to support brownfields redevelopment because the U.S. EPA

continues to recommend that these grantees seek entry into DENR's Brownfields Program in order to best utilize their grant funds. In this way, DENR's efforts are truly in concert with those of EPA and local government.

Outreach and Education

The program is largely market-driven in that prospective developers bring their redevelopment projects to the program in order to break liability barriers for financing. One of the on-going goals of the program is to educate the development community, lenders and local governments regarding the program's existence and usefulness as a tool for both private and public redevelopment stakeholders. We have again done so this year and efforts to increase awareness of the program continue to bring new redevelopment opportunities and their attendant public benefits into the program.

Through our staff person in Asheville, the program participated heavily in the outreach efforts sponsored by the Land-of-Sky Regional Council and the Western Piedmont Council of Governments. Likewise, our staff person in Charlotte fulfills important outreach functions at various private and public redevelopment-focused functions. Brownfields staff continue to conduct outreach at conferences and programmatic information booths and attend meetings held by EPA for local governments in order to meet and serve their interest in brownfields redevelopment. The program also has made concerted efforts to continually improve information offered on its web site (**www.ncbrownfields.org**) and receives consistent positive feedback on the informative nature of this important outreach component.

Cooperation with Local Government

The Brownfields Program has long held the strategy that brownfields redevelopment is largely a local issue, and therefore has made strong efforts to coordinate with local governments. The success of its cooperative agreement with the City of Charlotte that placed a DENR employee in city offices in May of 2002 was the culmination of much work with local governments. This provides direct face-to-face cooperation with the developers, lenders, and economic developers in that locality. This formula has enabled the completion of 40 brownfields agreements in the Charlotte area.

Seeking to duplicate this success in western North Carolina, in 2004 the program placed a project manager in the offices of the Land-of-Sky Regional Council in Asheville. Several projects came into the program as a result of this placement, and it has continued to yield very positive results. The project manager has improved the program's local effectiveness and developers have brought numerous projects to the program as a result. The manager is a participating member of the Land-of-Sky's Regional Brownfields Team and coordinates efforts with Land-of-Sky to encourage brownfields redevelopment in partnership with them. As part of the mutual benefits of such a relationship, the Land-of-Sky Regional Council continues to grow its federal brownfields grants such that to date they have received more federal grant funding than any other local government in the state.

Site Summaries

For brief descriptions of all brownfields projects in the program as of September 30, 2007, please see the Appendix. The table there is divided into three sections: active eligible projects, projects pending eligibility, and projects with finalized brownfields agreements.

Active eligible projects have been deemed eligible for a brownfields agreement under BPRA statutory criteria. These developers are working with DENR in some stage of data gathering, analysis or agreement negotiation. As of September 30, 2007, there were 116 active projects. Projects at this stage receive guidance from DENR as the developers gather the additional data needed to ensure protection of public health and the environment. Once research is complete, DENR analyzes the data, then drafts and negotiates the terms of the brownfields agreement with the prospective developer. At most of these sites, DENR is waiting for additional data requested by the program.

Projects pending eligibility are in the initial stage of the brownfields process as they apply for entry into the program. Sites in this category have yet to meet the requirements under the statute for eligibility for a brownfields agreement. For sites in this category, the program has requested clarification or additional information from prospective developers regarding a site. Normally, developers respond to these requests for clarification, the sites are usually deemed eligible, and are then quickly moved into the active eligible category. As of September 30, 2007, 36 sites were in this category.

Projects with finalized brownfields agreements have completed the public notice phase of the brownfields process and either have a signed brownfields agreement or are waiting for the agreement to be executed. As of September 30, 2007, 107 projects were in this category, 19 of which were completed in the one year period from October 1, 2006 to September 30, 2007.

Improving Effectiveness

Throughout its existence, the Brownfields Program has provided a high economic development value for the federal funds it uses. The program's 107 brownfields agreements and 116 other projects in the pipeline represent in excess of $2.25 billion in committed private redevelopment investment. The high ratio to which the federal funds have been successfully leveraged into private development dollars for brownfields redevelopment is just one measure of the effectiveness and efficiency of the BPRA.

The program is at a crossroads regarding resources and must address this issue for continued success in supporting the brownfields redevelopment economy of the state. By adding needed staff over the years, the program has significantly increased its volume capacity for brownfields agreements. The program has always recognized that encouraging brownfields redevelopment means that it must maintain the capability to respond quickly and provide brownfields agreements within timeframes that help developers make time-critical business decisions. The trend lines discussed above clearly show that demand for brownfields agreements continues to grow, while future federal resources are anticipated to be level or slightly decreased. The

program cannot serve the increasing numbers of applicants with the same effectiveness it traditionally has, so the fee plan was further evaluated to support the staffing levels need to maintain the current projects and develop new Brownfield Agreements.

The Brownfields Property Reuse Act requires that the program collect a $2,000 initial fee plus an additional fee equivalent to all costs to the Department. The brownfields program has historically defrayed the expenses of the program by using purely federal funds without cost to the Department. These funds grew from $100,000 in 1999 to nearly $1,000,000 in recent years. Therefore, in the past the program could grow in capacity through these federal funds and not have to pass on any fees to the prospective developer other than the statutory $2,000 initial fee. The program purposefully maintained these fees as low as possible in order to encourage developers to come into the program. However, as federal funds have leveled off, the growth in demand for program services has grown dramatically over the years. In response, the program was amended to include the payment of an additional $3,500 fee prior to the execution of the final brownfields agreement. The program now employs its statutory authority for imposing both fees, and prospective developers will be bearing more of the resource burden for the program as a result. By administering the new fee structure and obtaining as many federal dollars as possible, the program believes expanding the staff with the three (3) positions previously outlined will result in increased productivity in FFY 2008. Increasing staff will result in better project distribution and therefore less pressure on existing staff; the ability of the program to process more projects; and a return to faster project turnaround times, which is one of the programs more attractive qualities to the economic development community.

The program strongly believes that increased cooperation between DENR and local governments has yielded significant benefits and is a trend it wants to continue to strengthen. DENR has recognized the effectiveness of placing a staff person in the City of Charlotte offices and has duplicated that effort by placing a staffer in the offices of the Land-of-Sky Regional Council in Asheville. It is actively exploring the opportunity to affect a similar cooperative effort either in the Winston-Salem/Greensboro or Wilmington area.

Internally, as the program has more and more projects, its data management needs have increased commensurately. The program has been developing a business automation application along with a project inventory tracking database. This system is being developed as a completely web-based tool consistent with DENR's initiative to share program information across programs and with the public via the Internet. The first two modules of this application, the Project Tracking and Project Reporting modules, have been developed, implemented and are being actively used by program staff. They are available to other DENR programs as well. The database has enhanced program efficiency and is assisting the program in tracking project status, as well as tracking land use restrictions placed on the properties. In addition, the online Brownfields Property Application has been enhanced to capture more information upfront in the process in a format conducive to develop the brownfields agreement language, which will reduce the project managers' time constructing the agreement.

Fund Status

The Brownfields Property Reuse Act Implementation Account authorized under the statute receives the initial $2,000 fee charged to prospective developers at the time of eligibility and the

secondary $3,500 fee prior to the execution of the brownfields agreement. These funds are used by DENR to defray the cost of the program. For the reporting year from October 1, 2006 through September 30 2007, the Brownfields Property Reuse Act Implementation Account had a beginning balance of $187,390, receipts from fees and interest of $57,863 and disbursements of $34,699. This yields an ending balance in the fund of $210,854. In previous years, this fund has not been large enough to be used for hiring staff. It is now large enough to be used for such purposes and will fit into DENR's current plans for fee-funded positions for the program along with additional outreach, software, database development needs.

Further Information

For additional information on the Brownfields Program and how it works, please visit our Web site at **www.ncbrownfields.org**.

APPENDIX

Status Summary of Brownfield Projects as of September 30, 2007

Appendix A

Status Summary of Brownfield Projects as of September 30, 2007

Project Inventory is divided into three segments as follows:

Active eligible projects have been deemed eligible for a brownfields agreement under BPRA statutory criteria. These developers are working with DENR in some stage of data gathering, analysis or agreement negotiation.

Projects pending eligibility are in the initial stage that sites are in as they enter the program. Sites in this category have yet to meet the requirements under the statute for eligibility for a brownfields agreement.

Projects with finalized brownfields agreements have completed the public notice phase of the brownfields process and either have a signed brownfields agreement in-place or are waiting for the agreement to be executed.

ACTIVE ELIGIBLE PROJECTS (116)

ABBOTT LABORATORIES
16900 Aberdeen Road
Laurinburg, Scotland Co.
PD: Marketta, LLC and QualPak, LLC

AIRPORT EXXON
3305 North Liberty St.
Winston-Salem, Forsyth Co.
PD: Mrs. Becky Flowers

ALLISON MANUFACTURING
930 Old Charlotte Road
Albemarle, Stanly County
PD: NCSC Properties, LLC

ALMONT SHIPPING – NEW
Hanover & Cowan Streets
Wilmington, New Hanover Co.
PD: Riverfront Holdings, LLC

AMERICAN TOBACCO HISTORIC DISTRICT
Blackwell & Pettigrew Streets
Durham, Durham County
PD: SBER Development Holdings, LLC

AMP FACILITY
1126 Church Street
Greensboro, Guilford Co.
PD: Church Street Medical, LLC

ARROW LAUNDRY II
1933 E. 7th St. & 1928 E. 8th St.
Charlotte, Mecklenburg Co.
The Conformity Corporation

ASHEVILLE ICE PLANT
90 Riverside Drive
Asheville, Buncombe County
PD: Ice Plant of Asheville, LLP

ASHEVILLE INDUSTRIES
1829 Hendersonville Road
Arden, Buncombe County
PD: Monarch Main LLC

ASHEVILLE WASTE PAPER
304 Lyman Street
Asheville, Buncombe County
PD: Daniel B. Sellers

ATHERTON MILL PROPERTY
2000-2140 South Boulevard
Charlotte, Mecklenburg Co.
PD: Edens & Avant Investments LP

AVONDALE MILLS
700 West Main Street
Burnsville, Yancey Co.
PD: Tyner Construction Co.

BASF Facility
4330 Chesapeake Drive
Charlotte, Mecklenburg Co.
PD: U.S. Polymers, Inc.

BAXTER OIL
619 Spartanburg Hwy
Hendersonville, Henderson Co.
PD: Jones Commercial Properties, Inc.

BENDIX HEAVY VEHICLE FACILITY
727 Bendix Drive
Salisbury, Rowan Co.
PD: DDSM Properties, LLC

BROMMA PROPERTY II
2285 Durham Road
Roxboro, Person Co.
PD: Daniel Talbert, Sr.

BURLINGTON TEXTILE MANUFACTURING
700 Quality Road
Fayetteville, Cumberland Co.
PD: CC of Fayetteville

BUSS COATING
PD: SALT Investments, LLC and S&S Holdings of Lenoir, LLC
511 Creekside Drive
Lenoir, Caldwell County

C.C. MANGUM
6105 Chapel Hill Road
Raleigh, NC
PD: CCM 54, LLC

CAMPBELL-EVERHART SITE
Thurmond Road
New Bern, Craven county
PD: Brice's Creek Bible Church

CANAC KITCHENS
401, 403, 603, 607 Meacham Rd; and 2001 Speedball Rd., Statesville, Iredell Co.
PD: Canac Kitchens U.S. Limited

CANNON VILLAGE
1 Lake Circle Drive
Kannapolis, Cabarrus Co.
PD: Castle & Cooke Kannapolis, LLC

CAROLINA CREOSOTING CORP
Eastbrook Drive
Leland, Brunswick County
PD: E.G. Dale Enterprises

CEDAR CREEK
3468 Cedar Creek Road
Fayetteville, Cumberland Co.
PD: DAK Resins, LLC

CELANESE DRP
2300 Archdale Avenue
Charlotte, Mecklenburg County
PD: Easlan Capital of Charlotte

CHATHAM PARK
NC Hwy. 268
Elkin, Surry Co.
PD: Town of Elkin

CHOWAN VENEER COMPANY
259 Coke Avenue
Edenton, Chowan Co.
PD: Southern Bank & Southern BancShares

CLIFFSIDE MILLS PROPERTY
272 Main Street
Cliffside, Rutherford County
PD: Cliffside Mills LLC

COLOR-TEX INTERNATIONAL
2555 Hwy 29 North,
Salisbury, Rowan County
PD: North Carolina Warehouse LLC

CONITRON FACILITY
3761 Old Glenola Road
Trinity, Randolph Co.
PD: United Furniture Industries NC, LLC

CRS Facility
1224 Isley Drive
Gastonia, Gaston Co.
PD: Gastonia Investments V, LLC

CULTURAL ARTS CENTER
205 McDonald Street, and
Old Braswell Library
344 Falls Road
Rocky Mount, Nash County, NC
PD: Imperial Centre Partners, LP

DIXIE TRUCKING
3606 N. Graham Street
Charlotte, Mecklenburg Co.
PD: M.H.O.C., LLC

DOBLIN MASTERCRAFT
2128 S. Sterling Street
Morganton, Burke Co.
PD: Burke County

EASTWAY CROSSING PHASE I
3014 Eastway Drive
Charlotte, Mecklenburg Co.
PD: Blaine Lake, LLC

EASTWAY CROSSING PHASE II
3124 Eastway Drive
Charlotte, Mecklenburg Co.
PD: Blaine Lake, LLC

EDMUNDS MANUFACTURING
1016 Battleground Avenue
Greensboro, Guilford County
PD: Carroll Investment Properties, LLC

ELK MOUNTAIN LANDFILL
Elk Mountain Road
Woodfin, Buncombe Co.
PD: Town of Woodfin

ELLIS ROAD PROPERTY
603 Ellis Road
Durham, Durham Co.
PD: Carolina Biodiesel, LLC

FABRICTEX
376 Clarks Creek Road
Lincolnton, Lincoln County
PD: CCR Real Estate Holdings, LLC

FERGUSON ENTERPRISES
101 W. Tremont Avenue
Charlotte, Mecklenburg Co.
PD: Tremont Partners, LP

FIELDCREST BLANKET MILL
206 Warehouse Street
Eden, Rockingham County
PD: Riverwalk Development, LLC

GLEN RAVEN MILLS
114 Raven Circle
Kings Mountain, Cleveland Co.
PD: Consortium for Progress

GLENCOE MILL
2362 River Road
Burlington, Alamance Co.
PD: Historic Preservation Foundation of NC

GOLDTEX PLANT FACILITY
401 Patetown Road
Goldsboro, Wayne Co.
PD: Scouts, LLC

GREY HOSIERY MILL
Fourth & Laurel Streets
Hendersonville, Henderson Co.
PD: Old Mill Arts Committee

GUILFORD MILLS – HORNADAY
5644 Hornaday Road
Greensboro, Guilford Co.
PD: Tower Investments, LLC

HOLMES PROPERTY
450 & 498 Carolina Pines Avenue, and
500 Granite Road
Raleigh, Wake County
PD: South Saunders Redevelopment LLC

HOME INNOVATIONS SITE
Hwy 52 S & Ratliff Gin Road
Morven, Anson Co.
PD: Dan River Inc.

HUNT MANUFACTURING
2301 Speedball Road
Statesville, Iredell County
PD: Speedball Road LLC

J & C DYE & FINISHING CO.
101 W. Grover Street
Shelby, Cleveland Co.
PD: Cornerstone Investment Group, LLC

JDS UNIPHASE (CREE)
3026 Cornwallis Road
Research Triangle Park, Wake County
PD: Cree, Inc.

LAROCHE SITE
500 Broome Road
Greensboro, Guilford County
PD: TBREC, LLC

LEARY BROTHERS STORAGE CO.
101 Virginia Road
Edenton, Chowan Co.
PD: Virginia Road, LLC

L. I. Building, LLC
449 Tollingwood Road
Haw River, Alamance Co.
L. I. Building, LLC

LOWES OF NORTH HICKORY
1430 2nd Street NE
Hickory, Catawba Co.
PD: Lowe's Home Centers, Inc.

MERCHANDISE MART
2500 E. Independence Boulevard
Charlotte, Mecklenburg Co.
PD: University Park Baptist Church

MIDTOWN MALL
401 S. Independence Road
Charlotte, Mecklenburg Co.
PD: Midtown Redevelopment Partners, LLC

MILLENNIUM FUND
923, 955, 967 Brookstown Avenue
Winston-Salem, Forsyth County
PD: The Millennium Fund

MITCHELLS FORMAL WEAR
115-145 Scaleybark Road
Charlotte, Mecklenburg County
PD: Crosland Centre Associates

NACCO MATERIALS
2040 Morganton Boulevard SW
Lenoir, Caldwell Co.
PD: SV Lim Holdings, LLC

NEWCO FIBER PROPERTY
430 E. 36th Street
Charlotte, Mecklenburg Co.
PD: RM 36th Street Investors

NORTH COLLEGE STREET PROPERTY
900 N. College Street
Charlotte, Mecklenburg Co.
PD: SilverGirls, LLC

NORTH HILLS MALL
4217 Six Forks Road
Raleigh, Wake Co.
PD: North Hills Mall Ownership Org., LLC

North Mangum Street Property
601, 603, 605, 607 N. Mangum;
103, 107, 109 Broadway
Durham, Durham Co.
TTP V, LLC

NORTH TERMINAL
River Road
Wilmington, New Hanover County
PD: State Ports Authority

NU-TREAD TIRE CO.
545 Foster Street
Durham, Durham Co.
PD: Durham CREDO-1, LLC

OLD WNC FAIRGROUNDS
Location: Intersection of James Street and
Mill Street
East Flat Rock, Henderson County
PD: Henderson County Public Schools

OMC/BOMBARDIER
185 Altec Drive
Burnsville, Yancey Co.
PD: Jemsite Development, LLC

PADGETTE LANE PROPERTY
105 Padgette Lane
Carrboro, Orange County
PD: Downtown Urban Ventures, LLC

PARK BOAT COMPANY
Intersection of W. Third and Van Norden Streets
Washington, Beaufort County
PD: Washington Center LLC

PELTON & CRANE PLANT
200 Clanton Road
Charlotte, Mecklenburg County
PD: Clanton Partners I, LLC

PTRP – CAMEL CITY CLEANERS/MGP
401 East Third Street
Winston-Salem, Forsyth Co.
PD: PTRP Holdings, LLC

PIEDMONT TRIAD RESEARCH PARK
Various properties east and south of downtown Winston-Salem
Winston-Salem, Forsythe County
PD: PTRP Holdings, LLC

POND ROAD LANDFILL
PD: Sonia Gribble
79 Pond Road
Asheville, Buncombe County

PRAIRIE PLASTICS
Location: 5210 Zmax Road
Harrisburg, Cabarrus County
PD: Speedway Motorsports, Inc

R.W. McCOLLUM SITE
107 West Meadowbrook Road
Greensboro, Guilford County
PD: Mr. David Cooke

RAY PAVING COMPANY
991, 995, & 1000 NC Hwy 98
Wake Forest, Wake Co.
Wake Forest Federal Savings & Loan Assc.

REA ASPHALT PLANT
2701 Youngblood Street
Charlotte, Mecklenburg Co.
PD: South End Silos, LLC

REXNORD INDUSTRIES
1000 Chain Road
Morganton, Burke County
PD: ForSite Development

ROWE BOULIGNY
Mint Street & Morehead Street
Charlotte, Mecklenburg Co.
PD: NC DOT

SCOTLAND MEMORIAL HOSPITAL
PD: City of Laurinburg
5.3 Acres
600 McLean Street
Laurinburg, Scotland County

SCOTT AVIATION
309/310 W. Crowell Street
Monroe, Union County
PD: City of Monroe

SHARON CLEANERS SITE
1504 E. 4th Street
Charlotte, Mecklenburg Co.
PD: Torrence Street Partners, LLC

SOUTH ELM STREET
44 properties along South Elm St.
Greensboro, Guilford County
PD: City of Greensboro, Dept. of Housing and Urban Development

SOUTH END TRANSIT ORIENTED DISTRICT
2316 South Boulevard
Charlotte, Mecklenburg Co.
PD: Cherokee Investment Partners IV, LLC

SOUTH TERMINAL
3334 River Road
Wilmington, New Hanover County
PD: NC State Ports Authority

SOUTHSIDE PROPERTIES
2208 South Boulevard #2222
Charlotte, Mecklenburg Co.
PD: Atlantic Realty Partners, Inc.

SPARTA TEAPOT MUSEUM
48, 90, 114 West Whitehead St; and 111 West Doughton Street
Sparta, Alleghany County
PD: New River Community Partners

STRATFORD METAL FINISHING
807 S. Marshall Street
Winston-Salem, Forsyth County
PD: City of Winston-Salem

TALLEY LAUNDRY MACHINE CO.
1708 Fairfax Road
Greensboro, Guilford Co.
PD: SEF Group, LLC

TEXFI-NEW BERN
Bosch Boulevard
New Bern, Craven County
PD: MGR, LLC

TFI FINISHING BUILDING WEST
1200 Patterson Avenue
Winston-Salem, Forsyth Co.
PD: City of Winston-Salem

TOWN & COUNTRY RENT-A-CAR
5324 East Independence Boulevard
Charlotte, Mecklenburg Co.
PD: SRE North Carolina-2, LLC

TOWN OF ELIZABETHTOWN
415 Peanut Road
Elizabethtown, Bladen Co.
PD: Mayor Kenneth R. Kornegay

UNIVERSAL STAINLESS
10801 Nations Ford Road
Charlotte, Mecklenburg Co.
PD: ADH Properties, LLC

VIRGINIA MILLS PLANT
2703 Swepsonville-Saxapahaw Rd.
Swepsonville, Alamance Co.
PD: Virginia Mills Associates, LLC

VIRKLER FACILITY
1000 & 1010 Pressley Road
Charlotte, Mecklenburg Co.
Sirius Investments

WATER'S OIL
Highway 17 South
Washington, Beaufort Co.
PD: Bridge Harbor, LLC

WEST END VILLAGE
Properties on N. Broad, W. Fourth, W. Fifth, North Green, N. Spring Streets and Brookstown Avenue, Winston-Salem, Forsyth County

WILMINGTON SCRAP IRON & METAL
710 S. 6th Street
Wilmington, New Hanover Co.
PD: Indie Ice Company, LLC

YORKSHIRE AMERICAS PLANT
1602 N. Main Street
Lowell, Gaston Co.
International Process Plants & Equipment

PROJECTS PENDING ELIGIBILITY (36)

Project	City	County
Wallace Commons	Salisbury	Rowan County
Progress Energy	Raleigh	Wake County
Pillowtex Plant 4 and Substation	Kannapolis	Cabarrus County
Syncot Fibers	Charlotte	Mecklenburg County
Double Oaks Apartments	Charlotte	Mecklenburg County
Triangle Drive Property	Raleigh	Wake County
B&H Sheet Metal	Asheville	Buncombe County
Ecusta Mill Property	Pisgah Forest	Transylvania County
RBC Tower Parking Deck	Raleigh	Wake County
Abernethy Lumber	Charlotte	Mecklenburg County
Cochrane Furniture	Lincolnton	Lincoln County
Raleigh Convention Center	Raleigh	Wake County
Ciba Specialty Chemicals	Albemarle	Stanly County
C.P. Properties	Sanford	Lee County
Color Works, Inc.	Greensboro	Guilford County
Pugh Auto Crushing Company	Thomasville	Davidson County
Baker Property, Former	Holly Springs	Wake County
Texfi-Haw	Haw River	Alamance County
Navassa Slaughterhouse	Navassa	Brunswick County
Flowserve Facility	Statesville	Iredell County
Elkins Chrysler	Durham	Durham County
Heritage Square	Durham	Durham County
Unity Oil Company	Durham	Durham County
Walgreens Shopping Center	Salisbury	Rowan County
Wrights Executive Sales	Durham	Durham County
Walmart-Garner	Garner	Wake County
Purser Drive – Garner	Garner	Wake County
Traders Chevrolet	Greensboro	Guilford County
Lexington Furniture – 2	Lexington	Davidson County
Lexington Furniture – 1	Lexington	Davidson County
Raleigh Dialysis Center	Raleigh	Wake County
Carolina Counters	Locust	Stanly County
Cone Mills Granite	Haw River	Alamance County
Cone Mills Plant	Greensboro	Guilford County
Heatcraft Facility	Wilmington	Wilmington County
North Hills Mall	Raleigh	Wake County

FINALIZED BROWNFIELDS AGREEMENTS (107)
(either in force or pending signature)

PD = Prospective Developer; RP = Responsible Party

301 FAYETTEVILLE STREET 301 Fayetteville Street Raleigh, Wake Co. PD: Highwoods Properties	The property consists of 0.833-acres with former retail uses including two "cleaning" establishments. The PD intends to redevelop the property into a 33-story structure for retail, office, banking/financial services, parking, and multi-family residential use.
A GREAT ESCAPE 1806 Funtime Blvd. Winston-Salem, Forsyth County PD: A Great Escape LLC	Prospective developer wants to purchase this approximately 5-acre abandoned amusement park (miniature golf and go cart track), which is located on edge of a former municipal landfill, refurbish it, and re-open it with in same use.
ABC ENGRAVERS 724 Montana Drive Charlotte, Mecklenburg Co. PD: Holden Business Park, LLC	Former engraving and plating facility with known chromium and chlorinated solvent contamination in soil and groundwater. PD intends to redevelop the site as an office complex.
ALAMAC AMERICAN 1885 Alamac Road Lumberton, Robeson Co. PD: Alamac American Knits, LLC	The former knit textile manufacturing facility has perchloroethylene contamination associated with former drycleaning operations. The PD is using the facility to also manufacture knit textiles but does not use perchloroethylene on the premises.
ALAMAC KNIT FABRIC NC Hwy 125 Hamilton, Martin Co. PD: Penco Products, Inc.	106-acre former textile manufacturing facility with known soil and groundwater contamination involving chlorinated solvents. Site is undergoing active remediation under NC DWQ. Intended reuse is as a non-polluting school locker manufacturing facility that will employ some 350 workers.

ALCAN PACKAGING FOOD
1600 Westinghouse Blvd.
Charlotte, Mecklenburg County
PD: Alcan Packaging Food & Tobacco

Approximately 9-acre parcel in a industrial portion of Charlotte. The soil and groundwater are impacted from historic operations with n-propyl acetate and n-propyl alcohol. The PD intends to sell the property for redevelopment of industrial and commercial uses.

ALPHA MILLS
312 E. 12th Street
Charlotte, Mecklenburg Co.
PD: Crosland, Inc.

A 5.77-acre parcel that was historically a textile mill. Most recently the site was the former Consolidated Group Incorporated engraving facility. The site has known soil, groundwater, surface water, and sediment impacts from historical site operations. PD intends to redevelop the property for residential apartments with compatible commercial and retail development.

AMERICAN CYANAMID
2200 Donald Ross Road
Charlotte, Mecklenburg Co.
PD: DRR of the Carolinas, LLC

The property has been vacant since approximately 1975, prior to which it operated as a resin and textile manufacturing company. The PD intends to redevelop the 4.1-acre parcel into parking for trailers, cars, and commercial vehicles and; in the future to commercial and light industrial facilities.

ANCHOR MILL
404 Church Street
Huntersville, Mecklenburg Co.
PD: Town of Huntersville

Abandoned textile manufacturing facility with known metals contamination in soil, and lead, chlorinated solvent, and petroleum hydrocarbon contamination in groundwater. PD intends to redevelop the 32-acre site as a mixed-use transit village that reuses the old mill building and adds new office, retail, and residential components.

ANDREX INDUSTRIES
180 Deaverview Road
Asheville, Buncombe Co.
PD: Milkco, Inc.

A 9-acre light manufacturing site formerly used as a textile production facility that operated a knitting, weaving and cutting business along with dry cleaning, shrinking and packaging of fabrics. Tetrachloroethylene groundwater contamination from drycleaning operations being remediated by RP with pump-and-treat system. PD is adjacent property owner, a milk processing and distributing plant. Initial plan is to use part of property for truck and trailer parking. Within 3 years they plan to demolish Andrex buildings and expand the Milkco Plant to double capacity within 8 years.

ARCHDALE MARKETPLACE
5801 South Boulevard
Charlotte, Mecklenburg Co.
PD: Eastbourne Investments, Ltd.

Approximately 13-acre parcel known as Archdale Marketplace Shopping Center. Groundwater is contaminated at the Property due to historical site operations by an A&P grocery store, Sno-White Cleaners, and K-mart auto service center. PD intends to redevelop the property for commercial and retail.

ARROW LAUNDRY & CLEANERS
4735 Monroe Road
Charlotte, Mecklenburg County
PD: Lake City Tractor Supply

The Brownfields Property consists of approximately 16.5 acres and comprises eight parcels at four addresses. The Brownfields Property is surrounded by land in commercial and residential use. Groundwater under portions of the Brownfields Property is contaminated. The businesses that formerly operated on the Brownfields Property included a textile manufacturing plant, a service station and a

	drycleaner. Prospective Developer plans to redevelop the Brownfields Property for commercial, retail, residential, office and open space use.
ASHEVILLE MICA 75 Thompson Street Asheville, Buncombe County PD: T. R. Enterprises	The former mica plant consists of four existing structures and approximately 3.0-acres. It has both soil and groundwater contamination from an on-site aboveground storage tank and possible off-site sources. The PD has committed itself to redevelopment for no uses other than residential, retail, office, common space, parking, pet park, and greenway purposes.
ATS MANUFACTURING FACILITY Hwy 321 & Rankin Lake Rd Gastonia, Gaston Co. PD: WDL Holdings, LLC	Past uses at the 6.65-acre property have included knitting operations, a furniture store, and remanufacturing of rear wheel drive transmissions. Groundwater is contaminated at the site with chlorinated solvents. The PD intends to remove the existing structures, an unoccupied single-story manufacturing building and residence, and redevelop the Brownfields Property for a mix of retail and other commercial uses.
BALDOR ELECTRIC 3821 Barringer Drive Charlotte, Mecklenburg Co. **PD: K. Brown Trust**	Former electric motor and motor component assembly and manufacturing facility with solvent impacted soil and groundwater. PD intends to redevelop the property for use as industrial condominiums.
BOULIGNY SITE 2320 N. Davidson Street Charlotte, Mecklenburg Co. PD: NODA Properties, LLC	Approximately 3.5-acre parcel that was the former R.H Boulingy facility. The site has known groundwater impacts from chlorinated solvents. PD intends to redevelop the property for mixed-use development with commercial, retail, industrial and residential.
BROMMA PROPERTY II 2285 Durham Road Roxboro, person Co. PD: Daniel Talbert, Sr.	The Brownfields Property is located at 2285 Durham Road, Roxboro, Person County, North Carolina, and is approximately 11.6 acres in size. Prospective Developer has committed himself to redevelopment of the Brownfields Property for no uses other than retail and commercial businesses, including restaurants and warehousing/distribution firms, and medical and other office space. The Brownfields Property was developed in the late 1950s by an entity that manufactured plastic crates and steel products. Bromma, Inc. purchased the Brownfields Property in 1992 and manufactured cargo spreaders (large metal clasps used to load and unload cargo ships) there until May 11, 2004.
BROWN'S SOLVENT CO. 2935 Griffith Street Charlotte, Mecklenburg Co. PD: Estate of K. C. Bell	Former paint and solvent formulation facility with known solvent-impacted soil and groundwater. PD intends to initially renovate & reuse the existing structure for office/warehouse use, and ultimately raze the building and redevelop the site as a mixed office/retail complex in keeping with other redevelopment taking place in Charlotte's South End.

BURKHART CAROLINA
1703 Dabney Drive
Henderson, Vance Co.
PD: MPP Properties, Inc.

Former pickle processing and packing facility with chloride impacted soil and groundwater and minor solvent contamination in groundwater. PD intends to redevelop the property for commercial retail use. Simultaneously, the responsible party will implement groundwater remediation at the site under separate action. The PD's development will provide an impervious cap on the site, further assisting remedial efforts.

BURLINGTON – JAMESTOWN
6008 High Point Road
Jamestown, Guilford Co.
PD: Alberdingk Boley, Inc.

A 22-acre site containing a abandoned chemical formulation facility operated in support of Burlington Industries textile manufacturing operations. Known chlorinated and petroleum hydrocarbon contamination exists in site soil and groundwater and is being addressed under a consent order with DENR. PD intends to redevelop the property as polyurethane and polyacrylate emulsions manufacturing facility.

BURLINGTON MILLS
476 S. Main Street
Mooresville, Iredell Co.
PD: Cherokee Investment Partners, LLC

Abandoned textile manufacturing facility with known petroleum hydrocarbon contamination in soil and groundwater, and chlorinated solvent contamination in groundwater. PD intends to redevelop the site as an auto racing industry complex with office, flex, shop, and R&D space.

C. C. DICKSON
1520 South Boulevard
Charlotte, Mecklenburg Co.
PD: C. K. Land Development

A large mixed use development on a former industrial services firm adjacent to a manufactured gas plant. Ground floor retail and studio with Office and residential units above. Project is in vicinity of Camden Square and provides redevelopment to economically depressed area. Capping and land use restrictions regarding PAHs in soil and chlorinated solvents in soil and groundwater.

CAL-TONE PAINTS FACILITY
5115 New Bern Avenue
Raleigh, Wake Co.
PD: Arbor New Bern Avenue, LLC

Soil and groundwater on this 2.75-acre site are contaminated with metals and petroleum constituents. Prior uses include agricultural and more recently paint manufacturing. The PD is planning a mixed-use redevelopment including commercial, industrial, and residential.

CAMDEN ROAD
1600 Camden Road
Charlotte, Mecklenburg Co.
PD: Harris Murr & Vermillion, LLC

Approximately 0.25-acre parcel in Historic SouthEnd of Charlotte. The site has known groundwater impacts from historical site operations as a gas station, tire repair, plumbing repair, and other uses. PD intends to redevelop the property for commercial and retail purposes

CAMDEN SQUARE
127 W. Worthington Avenue
Charlotte, Mecklenburg Co.
PD: Camden Square Associates

Abandoned Knitting and Printing Operations rebuilt into the "Design Center of the Carolinas". Development supported by the Wilmore Community as a vital redevelopment in an economically depressed area. Land Use restrictions for chlorinated solvents in groundwater.

CAMDEN SQUARE ADDITION 307 W. Worthington Avenue Charlotte, Mecklenburg Co. PD: Camden Square Associates	This project will add, by amendment, 4.5 acres to the first brownfields agreement completed in North Carolina, Camden Square, in Charlotte's South End redevelopment corridor. Contamination includes VOC- and SVOC-impacted soil and groundwater. Intended reuse is for mixed office and retail.
CAMDEN SQUARE AMENDMENT W. Worthington Avenue Charlotte, Mecklenburg Co. PD: Camden Square Associates	By amending the Brownfields Agreement, this project served to add residential to the uses approved under the Agreement for a portion of the Property. Prospective Developer conducted additional environmental assessment to evaluate the potential for vapor intrusion in the area of planned residential use, and will install a vapor barrier beneath the slab-on-grade construction.
CAROLINA LOG BUILDINGS Howard Gap Road Fletcher, Henderson Co. PD: Town of Fletcher	Former wood treating facility with known pentachlorophenol contamination in soil and groundwater. PD intends to redevelop the 30-acre site as the new heart of the Town of Fletcher to include various office and retail uses.
CAROLINA PRODUCTION FINISHING 105 Fairview Road Asheville, Buncombe Co. PD: Western Investments Co.	Former textile finishing facility with metals contamination in both soil and groundwater. PD intends to redevelop the site for warehousing and as a sewing operation. PD is in the process of reviewing DENR's draft brownfields agreement for this site.
CENTRAL PARK LANDFILL Salem and Main Streets Winston-Salem, Forsyth Co. PD: Salem Recreational Fields	Former municipal landfill for the City of Winston-Salem. Site is 7.23 acres in size, and has been used as a city park since the 1950s. Low levels of chlorinated solvents, with no surficial soil contamination. PD intends to redevelop the site for soccer and a softball field for the adjoining Salem Academy and College so their current fields can be used for additional building space. A passive methane collection system will be installed prior to installation of the recreational fields.
CHARLOTTE TANK TRUCK Border Drive Charlotte, Mecklenburg Co. PD: WR Deal Holdings LLC	The approximately 2.23-acre site has been used as a business to repair tanker truck chassis, with groundwater contamination potentially migrating from an off-site source. The PD intends to redevelop the property for commercial purposes.
CHEROKEE OIL 925 S. Summit Avenue Charlotte, Mecklenburg Co. PD: M & J Equities, LLC	Approximately 2-acre site was formerly a non-permitted hazardous waste storage facility and the site of an EPA removal action. Known arsenic, oil & grease, and solvent contamination exists in site soil and groundwater. PD intends to redevelop the property as a nightclub and parking facility.

CHESTER STREET PROPERTY
N. Chester Street
Gastonia, Gaston County
PD: City of Gastonia

Site contained former Carson Dry Cleaner located in the center city area of Gastonia. Property has known chlorinated solvents contamination in the soil and groundwater. PD intends to redevelop the site in commercial retail uses.

CHOWAN VENEER
259 Coke Avenue
Edenton, Chowan Co.
PD: Southern Bank & Southern Bancshares (NC)

The Brownfields Property is located at 259 and 262 Coke Avenue, Edenton, Chowan County, North Carolina and comprises approximately 12.4 acres. The Prospective Developer has committed itself to redevelopment for no uses other than residential, commercial office or commercial retail use. Chowan Veneer Company, Inc. has owned the Brownfields Property since before its January 1, 1959 incorporation, and manufactured hardwood veneers there until February or March 2005. On April 26, 2005, Chowan Veneer Company, Inc. filed for protection, in the Eastern (federal) District of North Carolina, under Chapter 7 of the U.S. Bankruptcy Code. The site is currently vacant. The groundwater is contaminated with petroleum constituents.

CITY WEST COMMONS
1506 West Boulevard
Charlotte, Mecklenburg Co.
PD: CMDC Westover No. 1, LLC

Dilapidated shopping center seized in a drug raid by the U.S. Dept. of Justice that has been approved for transfer to the city of Charlotte. Site had VOC and chlorinated solvent contamination in soil and groundwater. The City intends to transfer the property to a not-for-profit development corporation to redevelop the site as commercial retail shopping facility.

CONBRACO FACILITY
701 Matthews-Mint Hill Rd
Matthews, Mecklenburg County
PD: Carlton Development

The site is the former sediment and runoff basin for the former Conbraco Facility. The site was remediated in the EPA Superfund Program and given a "No Further Remedial Action Planned (NFRAP)" status. PD intends to redevelop the site as a medical office with other commercial uses.

COSTCO
Costco Wholesale Corporation
14.8 acres
2838 Wake Forest Road
Raleigh, Wake County

The former Pepsi manufacturing and bottling company was located on this site until it relocated in 2002. The southeastern portion of the property covers about 2.6 acres of a former City of Raleigh 44-acre municipal landfill. The former Alcatel site is upgradient and a potential source of chlorinated solvents found in the groundwater. Prospective Developer plans to build a 149,000 SF Costco membership warehouse and a membership gasoline station outparcel on the property.

COTTON MILL SQUARE
801 Merritt Drive
Greensboro, Guilford Co.
PD: Carl Johnson

Former cotton mill and manufacturing facility with chlorinated solvent contamination in soil and groundwater. PD intends to redevelop the site in mixed commercial retail/office and residential.

CUMBERLAND SHOPPING CENTER
709 E. Market Street
Greensboro, Guilford Co.
PD: Project Homestead

Site of former shopping center and dry cleaners with chlorinated solvent impacted soil and groundwater. PD is a not-for-profit community development corporation. The PD has performed soil remediation activities and intends to redevelop the site with affordable residential housing.

DAYCO FACILITY
2150 South Main Street
Waynesville, Haywood County
PD: Haywood Advancement Foundation

The property was formerly operated as a large industrial rubber manufacturer and has both chlorinated solvent and petroleum contamination in the soil and groundwater. The PD intends to redevelop the 35.942-acre site into a mixed commercial-retail development.

DON CHRISTIAN PROPERTY
Main Street
Carrboro, Orange County
PD: Main Street Properties

This approximately 0.5-acre underused site had been in use as a bulk oil facility and gas station since the 1920s and is currently in use as an auto repair shop. The site contains petroleum hydrocarbon impacts in soil and groundwater. PD intends to reuse the property in commercial/retail use as part of the renovation and expansion of the existing, adjoining shopping center.

DYNATECH INDUSTRIES
2213 Toomey Avenue
Charlotte, Mecklenburg Co.
PD: R. G. Automation, Inc.

Former plating facility with metals-impacted soil and groundwater. EPA conducted soil removal activities at the site and has classified it as NFRAP. PD intends to redevelop the property for use as mixed office/retail complex.

EAST GANNON PROPERTY
102 East Gannon Avenue
Zebulon, Wake Co.
PD: Berkshire-Hudson Capital XI, LLC

This property consists of four parcels of land totaling 1.75 acres with four existing structures (former restaurant, current auto sales, auto service garage and hair salon). Site planned to be redeveloped into a stand-alone Eckerd Drug Store, with other surrounding complimentary retail tenants. Soil and groundwater are contaminated with petroleum constituents from above ground storage tanks used by previous gas station.

EAST PARK – BOYER
1607 E. 4th Street
Charlotte, Mecklenburg Co.
PD: Torrence Street Partners, LLC

Approximately 0.39-acre parcel that is a portion of the East Park Development Project, with known chlorinated solvent and gasoline contamination. PD intends to redevelop the site as a pedestrian urban infill multiple use development with commercial, residential, recreational and common open space. The site is part of the City of Charlotte's East Park re-development zone.

EAST PARK – CRAVER
1609 Elizabeth Avenue
Charlotte, Mecklenburg Co.
PD: Providence Road Land Partners, LLC

Approximately 0.65-acre parcel that is a portion of the East Park Development Project, with known chlorinated solvent and gasoline contamination. PD intends to redevelop the site as a pedestrian urban infill multiple use development with commercial, residential, recreational and common open space. The site is part of the City of Charlotte's East Park re-development zone.

EAST PARK – DOROTHY HALL 1423 E. 4th Street Charlotte, Mecklenburg Co. PD: 1427 East Fourth Street, LLC	Approximately 0.8-acre parcel that is a portion of the East Park Development Project, with known chlorinated solvent and gasoline contamination. PD intends to redevelop the site as a pedestrian urban infill multiple use development with commercial, residential, recreational and common open space. The site is part of the City of Charlotte's East Park re-development zone.
EAST PARK – JOAL REALTY 1534 Elizabeth Avenue Charlotte, Mecklenburg Co. PD: Joal Realty	Part of the 24-acre site encompassing a six-block area with known chlorinated solvent contamination. PD intends to redevelop the site as a model for urban infill mixed use development with an emphasis on the needs of pedestrians in an urban setting. The site is part of the City of Charlotte's East Park re-development zone located between the CBD and the historic residential neighborhoods of Elizabeth and Myers Park.
EAST PARK – KOSSOVE 1515 E. 4th Street Charlotte, Mecklenburg Co. PD: David Kossove	Part of the 24-acre site encompassing a six-block area with known chlorinated solvent contamination. PD intends to redevelop the site as a model for urban infill mixed use development with an emphasis on the needs of pedestrians in an urban setting. The site is part of the City of Charlotte's East Park re-development zone located between the CBD and the historic residential neighborhoods of Elizabeth and Myers Park.
ECUSTA 1 Ecusta Road Pisgah Forest, Transylvania Co. PD: Ecusta Business Development Centers, LLC	In its prime, this 540-acre site was the world's largest non-wood pulp and specialty paper manufacturing facility. Closed since late 2002, the site has known metals, caustic and solvent contamination. PD intends to re-start flax pulping operations and to market the pulp to paper manufacturers. PD may also undertake other uses of site buildings and facilities, including office space and possible use of excess wastewater treatment capacity by local municipalities.
ELECTRONICS COMPONENTS CORP. 513 S. Dudley Street Burgaw, Pender County PD: MoJo Properties, LLC	The approximately 5-acre site was first developed in 1966 as a facility for manufacturing small transformers. The property was idled in 1999. Site groundwater is contaminated with chlorinated solvents. Prospective Developer intends to reuse the site to manufacture sound equipment and other music related equipment.
ERWIN SQUARE 2211 Hillsborough Road Durham, Durham Co. PD: WP East Acquisitions, LLC	This approximately 6-acre property is a portion of a decommissioned former Burlington Industries site, other portions of which have already been redeveloped. There is known chlorinated solvent contamination in groundwater, and these impacts are being addressed under an approved Division of Water Quality corrective action plan. PD intends to redevelop the site in high-density residential use.

FISHBURNE EQUIPMENT
Airport Road
Arden, Buncombe Co.
PD: R. & P. Van Praag

Former metal fabrication and tobacco press manufacturing facility with suspected VOC contamination in soil and groundwater, based on detection of these compounds on adjoining, downgradient property, the former Buncombe County landfill. PD intends to redevelop the site for light manufacturing/assembly, warehousing, and public storage uses.

FLEMINGTON LANDFILL
US Hwy 421 North
Wilmington, New Hanover Co.
PD: Cape Fear Soccer Association

Site of a closed (1979), privately operated domestic and industrial solid waste landfill with VOC-impacted soil and groundwater. Intended reuse is for a soccer complex. This is the first former landfill property proposed for redevelopment under the NC brownfields statute, and the project's feasibility and technical challenges are being carefully evaluated.

FLORENCE MILL
186 Mill Street
Forest City, Rutherford County
PD: Florence Mill Redevelopment

Consisting of approximately 8.2 acres, the Florence (Cone) Mill is a former industrial mill that went out of business in 2001. The property also has a number of former mill warehouses that are vacant, as well as dry cleaner properties that are separate from the Cone Mill but included in Prospective Developer's submittal. Site impacts include petroleum contaminated soil and PCE impacts to site soil and groundwater. The PD intends to redevelop the property into a town hall, residences, restaurant, cinema, and pavilion with open space.

FLYNT FABRICS MILL PROPERTY
202 S. Nash Street
Hillsborough, Orange County
PD: Falk Companies

Former Flynt Fabrics, a textile dyeing and finishing operation, closed in late 2000. Potential, but not confirmed, contamination at the site includes asbestos, lead, peroxide, acetic acid, #5 fuel oil, dyes, salts, bleaches, cleaners, and oils. Prospective Developer desires to purchase the old mill and parking portion of the Property and redevelop it in residential use.

FONTAINE 5th WHEEL
3883 South Church Street
Rocky Mount, Nash County
PD: New Standard Corporation

This former metals fabrication/manufacturing facility has been vacant since 2001 and the property contains chlorinated solvent and petroleum contamination in soil and groundwater. Prospective Developer intends to reuse the three site buildings for metal stamping, fabrication and assembly operations.

FOOD LION
Waughtown & Sprague Streets
Winston-Salem, Forsyth Co.
PD: Food Lion, Inc.

A new large supermarket placed on the site of an abandoned grocery store in urban Winston-Salem. Project had strong community support as a quality of life issue as the community had no supermarket. Land use restrictions for chlorinated solvent contamination in groundwater. Brownfield Assessment determined the source to be nearby drycleaner.

FULFLEX, INC. PROPERTY
500 E. 7th Street
Scotland Neck, Halifax County
PD: Town of Scotland Neck

Approximately 20-acres property contains a vacant 100,000 SF building, the site of rubber product manufacturing until 2002. Fulflex is the responsible party and is currently working with the Aquifer Protection program to remediate a petroleum and chlorinated solvent plume. The town plans to make site improvements to attract a new manufacturing tenant, who will purchase the site at a reduced rate if they bring enough jobs to the area.

GATEWAY AT OLD SALEM
1198 S. Broad Street
Winston-Salem, Forsyth County
PD: Southeast Gateway Ventures

Project size is approximately 51 acres. The property is planned for mixed-use redevelopment including offices, commercial/retail space, residences, a YWCA , a private school and parking. Contamination is from a former Duke Power Plant substation (PCBs, PAHs in soil) and groundwater contamination from a number of sources, mainly petroleum but with a few chlorinated solvents. Cleanup of contamination at the Duke Power facility under the Inactive Hazardous Sites Program is almost complete. The Duke Power site comprises only a portion of this large brownfields redevelopment project.

GENERAL WOOD
1901 Wood Treatment Road
Leland, Brunswick County
PD: Leland Land, LLC

A 120-acre pole treatment facility (creosote, chromated copper arsenate (CCA) and pentachlorophenol (PCP)) under Chapter 11 bankruptcy that is currently under RCRA jurisdiction. PD's intent is to be able to distinguish old from new contamination and then continue with pole treatment (CCA and PCP only). Groundwater contamination mainly associated with creosote and petroleum. Metal and PCP contamination in soil.

GRIFFITH STREET PROPERTY
565 Griffith St. & 536 Jetton St.
Davidson, Mecklenburg Co.
PD: Five Six Five, LLC

Prior industrial operations resulted in soil and groundwater contamination by petroleum and VOCs. The PD plans to redevelop the facility as a charter school and as retail and commercial space.

GUILFORD MILLS
W. Wendover Avenue
Greensboro, Guilford Co.
PD: Wendover Crossing, LLC

A 55-acre site containing former textile manufacturing facility with known VOC contamination in soil and groundwater. PD intends to redevelop the property in mixed retail uses. Public benefits include the creation of an estimated 500 jobs and substantial tax roles increases.

GUILFORD MILLS - W. MARKET STREET
4925 W. Market Street
Greensboro, Guilford County
PD: Kim's Greensboro Real Estate, LLC

A 19.8-acre vacant textile facility with ancillary buildings. Minor groundwater contamination associated with former underground storage tanks. Other non-UST contamination has been documented but information has not yet been sent to us. PD plans to use the site for general commercial property.

HAMILTON PROPERTY
216 Dunavant Street
Charlotte, Mecklenburg Co.
PD: Rush Family, LLC

As small, dilapidated property bought for the expansion of Cost Effective Maintenance Inc., a small business in the South End area of Charlotte. Expansion into this property allowed CEM to stay in Charlotte instead of move to suburbs. Land use restrictions for chlorinated solvent contamination in groundwater.

HILLSBOROUGH VENTURES
3011 Hillsborough Street
Raleigh, Wake Co.
PD: Hillsborough Ventures, LLC

Project involves redeveloping an area of parking lots and dilapidated, underused retail structures. Land use restrictions are in place for the petroleum hydrocarbon and chlorinated solvent contamination in soil and groundwater. PD intends to redevelop the property as mixed residential (private student dormitory for N.C. State University) and retail complex.

HILLSBOROUGH VENTURES ADDITION
3 Concord St, 24 McKnight Ave, 3101 Stanhope Dr
Raleigh, Wake Co.
PD: Hillsborough Ventures, LLC

Prospective developer added acreage to the footprint of original Hillsborough Ventures project, which involves redeveloping an area of parking lots and dilapidated, underused retail structures adjacent to N.C. State University for mixed residential (private student dormitory) and retail uses.

HISTORIC COTTON MILL
191 Riverside Drive
Asheville, Buncombe Co.
PD: RiverLink, Inc.

A 2.63-acre site formerly occupied by a cotton mill that operated from the 1900s but has been abandoned for many years. PD will conduct environmental assessment to determine if the site has any contamination. PD intends to redevelop the site in mixed commercial/retail and residential uses. This project is part of the Asheville French Broad Riverfront Plan.

HOME DEPOT – SOUTH BOULEVARD
4750 South Boulevard
Charlotte, Mecklenburg County
PD: CNR Properties, RLLLP

A 12-acre site currently occupied by a produce grocer and office rental store (1 acre), parking (7 acres), abandoned plant nursery (1 acre); the rest is undeveloped. Operations at adjacent Academy Steel Drum (ASD) from 1947-69 included the disposal of wastes and sludge from drums into pits/lagoons. The location of the lagoons and overflow drainage is suspected to have been partially on subject property. After ASD burned in 1969 the property was thoroughly re-graded with contaminated soil moved around. Elevated concentrations of lead, chromium, and PCBs in soil along with lead, 2-chlorophenol, and trichloroethene. PD plans to lease property to Home Depot for construction of a new Home Depot home improvement retail store.

INDUSTRIAL PLASTICS
4810 Clover Road
Greensboro, Guilford County
PD: Standard Tools & Equipment

The site comprises 17.77-acres and had a variety of industrial operations since the 1970s. The PD intends to redevelop the Brownfields Property for non-residential commercial and/or industrial uses.

KIDD LANE BATTERY DISPOSAL
3607 Kidd Lane
Charlotte, Mecklenburg Co.
PD: Joshua's Farm

Abandoned dairy farm with historical lead battery disposal operations. The approximately 1-acre parcel is adjacent to a 22-acre horse & animal farm area for the Joshua's Farm Operations. The site has a limited area with lead contamination in the surficial soils. PD intends to redevelop the area as a parking lot for the horse and animal farm operations.

LEWITH TEXTILE
3539 Wilkinson Boulevard
Charlotte, Mecklenburg Co.
PD: CMDC Wilkinson No. 1, LLC

Project involves the redevelopment of 50+ acres of abandoned and underused commercial and industrial property, including the former Lewith Textile facility. Contaminants include Petroleum hydrocarbon and chlorinated solvents in soil and groundwater. PD intends to redevelop the site as an industrial park for light manufacturing and warehousing/distribution.

MALLARD CREEK
3021 Driwood Court
Charlotte, Mecklenburg Co.
PD: Colonial Realty, Ltd.

A 21-acre site adjacent to former auto service station and chainsaw service center operations. Petroleum hydrocarbon and chlorinated solvent contamination in groundwater, sourced from underground and aboveground storage tanks releases on the adjacent site, has migrated onto the subject property. PD intends to redevelop the property as an apartment complex.

MIDTOWN MALL
401 South Independence Blvd.
Charlotte, Mecklenburg Co.
PD: Midtown Redevelopment

The Brownfields Property consists of two (2) parcels located at 401 South Independence Boulevard and 431 South Kings Drive, Charlotte, North Carolina; they bear Mecklenburg County tax parcel identification numbers 12522701 and 12522801, respectively. The Brownfields Property comprises approximately 10.3 acres and is the site of the former Midtown Square Mall. Prospective Developer intends to effect mixed use redevelopment of the Brownfields Property that may include commercial, retail, office, residential and institutional uses, as well as parking structures and open space. Groundwater and soil are contaminated at the Brownfields Property due to past activities.

MODEL LINEN
PD: QUB Studios
120 West Lewis Street
Greensboro, Guilford Co.

The site was used to manufacture wood stoves and has low levels of chlorinated solvents in the groundwater. The site will be redeveloped as a photographic studio and other commercial space.

MTE HYDRAULICS
105 Chickasaw Road
(intersection of Chickasaw Rd. & Pearson's Turnpike (state Hwy 2663)
Gastonia, Gaston County
PD: Liberty Land, LLC

A 9.76-acre parcel in Gastonia. The site has known soil and groundwater impacts from historical site operations which included the manufacturing of hydraulic components and brake pads and other uses. Prospective Developer intends to upgrade the property for manufacturing purposes and additional commercial use.

NATIONAL TEXTILES
100 Reep Drive
Morganton, Burke Co.
PD: Reep Drive, LLC

This former textile plant has contaminated soil and groundwater, likely from previous operations which included two drycleaning machines to clean textiles with perchloroethylene. The approximately 32-acre site will be redeveloped by the PD as a furniture manufacturing facility.

OXFORD PRINTING
8 Industry Drive
Oxford, Granville Co.
PD: FHO Partners, LLC

Former textile printing and finishing facility with VOC contamination in groundwater. PD has conducted remediation of floor drain contents. PD intends to redevelop the site for industrial/distribution use.

PARKER HANNIFIN
12415 Capital Boulevard
Wake Forest, Wake Co.
PD: St. Ives 220 Commercial, LLC

A 33-acre former air control devices manufacturing facility with known Trichloroethene contamination in soil and groundwater resulting from former wastewater treatment operations. PD intends to redevelop the site in mixed commercial, retail, and office space uses. Responsible party is currently undertaking assessment and remediation within RCRA and N.C. Hazardous Waste Section oversight.

PILOT MILLS
1121 Haynes Street
Raleigh, Wake Co.
PD: Capital Way, Inc, & Hedgehog Holdings, LLC

Abandoned, condemned turn-of-the-century textile mill in Downtown Raleigh redeveloped into office space and preserved on the National Register of Historic Places. Land use restrictions for chlorinated solvent in groundwater and capping of mercury in soils.

PPD HEADQUARTERS
SW corner of Harnett and Front Streets
Wilmington, New Hanover County
PD: River Ventures, LLC

Approximately 8-acre site is a small portion of the ~ 40-acre Almont Shipping site that will all eventually be redeveloped once Almont moves to the Wilmington Port Authority. Almont has been a dealer in bulk commodities (saltcake, urea, potash, phosphate, etc.). The site as a whole has been in business for almost a hundred years, with warehouses currently on this property being built in the late 1970s. Prior to that time it was operated as a fuel depot with large ASTs located on the site. Contamination from the adjacent CSX property spill of 2.2 million gallons of diesel in 1982 is suspected, although a Phase II assessment is currently underway. PD intends to demolish the buildings on site in order to construct a 400,000 SF office building.

QUALITY METAL PRODUCTS
1111 Oates Road
Gastonia, Gaston Co.
PD: Wede Corporation, LLC

This 11- acre site contains an abandoned facility of 48,000 square feet formerly used as for metal fabrication. Parts cleaning activities resulted in solvent impacts to site soil and groundwater. PD intends to refurbish the facility for metal fabrication utilizing high-tech, non-contaminating methods.

REA ASPHALT PLANT
2701 Youngblood Street
Charlotte, Mecklenburg Co.
PD: South End Silos, LLC

The Brownfields Property consists of three (3) parcels located at 2701 Youngblood Street in CharlotteThe Brownfields Property comprises 8.551 acres and is the site of the former Rea Construction Asphalt Plant. Prospective Developer intends to effect mixed use redevelopment of the Property that may include commercial, office, retail and residential uses. Groundwater and soil are contaminated at the Brownfields Property due to past activities.

REDMAN HOMES
Redman Road
Mebane, Orange Co.
PD: Barber & Ross Co.

Former mobile home manufacturing facility with metals and solvent contamination in soil and groundwater. PD has performed drum removal and soil remediation activities. PD intends to redevelop the site as a manufacturing facility to produce windows and doors.

REEVES SITE
8900 Research Drive
Charlotte, Mecklenburg County
PD: Linda Wolfe, Paul Ferrigan

Approximately 20-acres parcel that was historically the former Reeves Brother Facility that operated as a textile research and development laboratory. The site has known groundwater impacts from chlorinated solvents. PD intends to redevelop the property for commercial and light industrial uses.

RUSAK PROPERTY
3331 Griffith Street
Charlotte, Mecklenburg Co.
PD: CharMeck Board of Education

A 1.21-acre parcel that is adjacent to the Marie G. Davis Middle School. The site is contaminated from historical operations as a metal plating facility. The PD intends to incorporate the adjacent parcels into the new middle school construction. The brownfields parcel will be the plaza entrance.

SALEM UNIFORM
4015 N. Cherry Street
Winston-Salem, Forsyth County
PD: Winston Weaver Co. Inc.

2.53-acre site that has been vacant for many years. Was leased out from 1967-83 to Salem Uniform and from 1983-86 to Cintus Corporation who purchased the assets for Salem Uniform. During a Limited Site Assessment for petroleum USTs, high levels of PCE were discovered, probably from dry cleaning solvents. PD is currently leasing space, but would like to improve it for use for fertilizer storage and other commercial usage.

SANFORD WWTP
1351 Douglas Drive
Sanford, Lee Co.
PD: S. Wornnom & G. Perkins

Former municipal wastewater treatment plant site with petroleum impacted sewer sludge and metals impacts in site soils and low concentrations of volatile and semi-volatile compounds in groundwater. PD intends to redevelop the property in commercial use, including restaurant, retail space and a multi-screen movie theater.

SCHLAGE LOCK FACILITY
3551 North Wesleyan Blvd.
Rocky Mount, Nash County
PD: Community Resource Exchange

49.15 acre/196,000 square foot former manufacturing facility for lock/doorknob plating and assembly that used PCE as a degreasing solvent. Working with the Hazardous Waste Section as site is a RCRA TSD post-closure facility with active voluntary GW remediation system (Ingersoll-Rand is RP). Chlorinated solvents (PCE, TCE, 1,2-DCE, toluene and acetone are main constituents of concern in both soil and groundwater. PD is non-profit organization who needs loan in order to make improvements to former manufacturing facility in order to provide tenant space for non-profit organizations and possible outparcels for commercial retail businesses.

SHULER PROPERTY
US 23/74 & Hyatt Creek Road
Waynesville, Haywood Co.
PD: Waynesville Commons Retail Assoc, LLC

The property comprises 4.494-acres and was formerly a Drive-In Movie Theater, after which the property was used to dump construction and demolition debris. The PD has committed itself to redevelopment for no uses other than a roadway that provides access to the Brownfields Property to the west, and for restaurants, banks, retail shops, gas station uses, other commercial uses with prior written DENR approval, and offices, plus contiguous accessory uses such as parking areas and service drives.

SINGER COMPANY
357 Amilite Way
Chocowinity, Beaufort Co.
PD: DMB NC 2, LLC

Abandoned rural manufacturing facility with lead and phthalate contamination in soil and groundwater. The brownfields agreement provides for partial site remediation. PD intends to redevelop the site with mixed retail and light industrial uses.

SMITH METAL & IRON
725 W. 4th Street
Charlotte, Mecklenburg Co.
PD: City of Charlotte

Former site of a scrap metal yard and of a waste cell created for the temporary disposal of impacted soil removed during the construction of the adjoining Carolina Panther's practice field. The waste in the cell has been removed, and minor chlorinated solvent impacts remain in site groundwater. PD intends to redevelop the site in high density residential with additional office, entertainment, and retail potential.

SMITH PROPERTY
309 Campbell Street
Shelby, Cleveland Co.
PD: Cleveland County

Project involves the redevelopment of an area occupied by seven underused and dilapidated residential homes with petroleum hydrocarbon and chlorinated solvent contamination in groundwater. PD has the support of local residents to reuse the site as a parking lot serving the Cleveland County Offices.

SONOCO FLEXIBLE PACKAGING FACILITY
2203 Hawkins Street
Charlotte, Mecklenburg Co.
PD: Harris Murr & Vermillion, LLC

It is believed that groundwater and soil are contaminated at the Brownfields Property due to historical activities. The PD intends to redevelop the property for commercial (including retail and office), residential and ancillary purposes.

SOUTH TRYON STREET
2036 S. Tryon Street
Charlotte, Mecklenburg Co.
PD: Citiline, LLC

A 2.88-acre parcel near historic SouthEnd. PD intends to redevelop the property for commercial purposes such as office and showroom condominiums. Groundwater is contaminated at the Property due to historical site operations as industrial/warehouse storage.

SOUTHERN MANUFACTURING
1000 Seaboard Street
Charlotte, Mecklenburg Co.
PD: Fiber Mills, LLC

This 9-acre site located in inner Charlotte was a former asbestos tile manufacturing facility. Asbestos was discontinued in 1986, and the facility was closed in 1999. The site has asbestos contamination in soils. Intended reuse of the site includes an outdoor amphitheater, a technical business park, or a mixed-use development with industrial, commercial, and residential uses.

STATE FARM ROAD
660 State Farm Road
Boone, Watauga Co.
PD: Glen Wilde, LLC

Project involves the redevelopment of property occupied by a rural residence with chlorinated solvent contamination in groundwater and in a spring from an off-site source. PD intends to redevelop the site as a medical office complex.

STONEVILLE FURNITURE CO.
525 S. Henry Street
Stoneville, Rockingham County
PD: Community Resource Exchange

The site is a 22.5 acre historic furniture manufacturer that was idled in 2003. PD plans to redevelop the facility for light industrial, warehousing and flex space, thereby creating at least 200 jobs and greatly improving the tax base. The site has chlorinated solvent impacts to soil and groundwater.

TARTAN MARINE
S. NC Hwy 177
Hamlet, Richmond Co.
PD: Chair Specialist Co.

Former boat manufacturing facility with lead contamination in soil. Additional site sampling conducted by the PD has shown previous soil removal actions have left no health-based lead problems. PD intends to redevelop the site as a chair and table base manufacturing facility.

TERRELL MACHINE
3030 South Boulevard
Charlotte, Mecklenburg Co.
PD: SESCO Group-Carolina Bldg., LLC

Site of former textile manufacturing and gear box machining operations, property in Charlotte's South End district is being redeveloped with ground floor retail and office/residential above. Remedial actions to eliminate hot spot contamination included soil removal and groundwater pump and treat. Land use restrictions are in place to address chlorinated solvent contamination remaining in groundwater.

V F Site
2831 Wilson Park Road
Statesville, Iredell Co.
PD: Statesville Partnership LLC

This former textile plant has chlorinated solvent contamination as a result of on site drycleaning operations. The PD plans to upgrade the property for light manufacturing or distribution facility.

VANIER GRAPHICS
655 E. Meadow Road
Eden, Rockingham Co.
PD: A. C. Furniture Co.

Former printing facility with petroleum and chlorinated hydrocarbon contamination in the soil and solvent contamination in the groundwater. Developer intends to redevelop the site as a furniture assembly and upholstering facility.

WEST MOREHEAD 1310 W. Morehead Street Charlotte, Mecklenburg Co. PD: Addison Investments, LLC	Former automobile repair and maintenance facility with chlorinated solvent contamination in soil and groundwater. Developer intends to redevelop the site, to include both facility renovation and new construction for use as commercial office/retail.
WILLARD LEAD FACILITY 101 New Bern Street Charlotte, Mecklenburg Co. PD: Harris Murr & Vermillion, LLC	Groundwater at the approximately 4.5-acre site is contaminated with chlorinated solvents, while soil shows metals contamination. The majority of the property has been vacant since 1996, the PD intends to redevelop the property into residential, retail, and possibly other commercial uses.
WILMINGTON CONVENTION CENTER 525 Nutt Street Wilmington, New Hanover Co. PD: River Ventures, LLC	The property is a former industrial site, approximately 9.22 acres that was most recently used as a petroleum receiving facility for CSX Transportation. Soil and groundwater at the site are contaminated with metals and petroleum constituents. The PD plans to redevelop the property into a publicly owned convention center, parking deck and open space. The redevelopment plans also include a proposed privately owned hotel and restaurant.
WILSON LANDFILL US Hwy 301 South Wilson, Wilson Co. PD: Dillon Properties, LLC	This underused 14-acre site was formerly occupied by a wastewater treatment facility owned and operated by the City of Wilson. The site has known metals contamination in groundwater. Developer intends to redevelop in mixed commercial, warehousing, and residential uses.

NC DENR
EXPRESS PERMIT REVIEW PROGRAM

The Express Permit Review Program authorized by G.S. 134-B-279.13 began as a pilot in the Raleigh and Wilmington regions in 2004. It was expanded statewide in 2005. The following permits and certification are included in this program: Water Quality State Stormwater permits, Water Quality Wetland 401 Certifications and Stream Determinations, Water Quality Non-Discharge Wastewater Permits, Land Quality Erosion and Sedimentation Control Plans and Coastal Area Management Act major permits. This year Express review began on a limited basis to Water Quality Alternative Sewer permits. Future program expansion will be in response to the interest of communities and engineers.

GOAL-EXPRESS PERMIT REVIEW

To provide quicker, more predictable environmental permit application review, without compromising the quality.

Keys to success:

- Experienced, well- trained DENR permit staff dedicated to reviewing express projects.
- High quality applications, with the necessary documentation for decisions without significant delays awaiting information.
- Owner-involvement—including meetings with consultants, DENR staff would improve understanding of the review process and reinforce the need for complete applications.
- Higher fees charged for express would fully support the program.
- Increased customer service would open the door to better communication.

Exhibit J

Exhibit K

Express Permits by Program
2006 versus 2007
(Jan. through Nov. only)

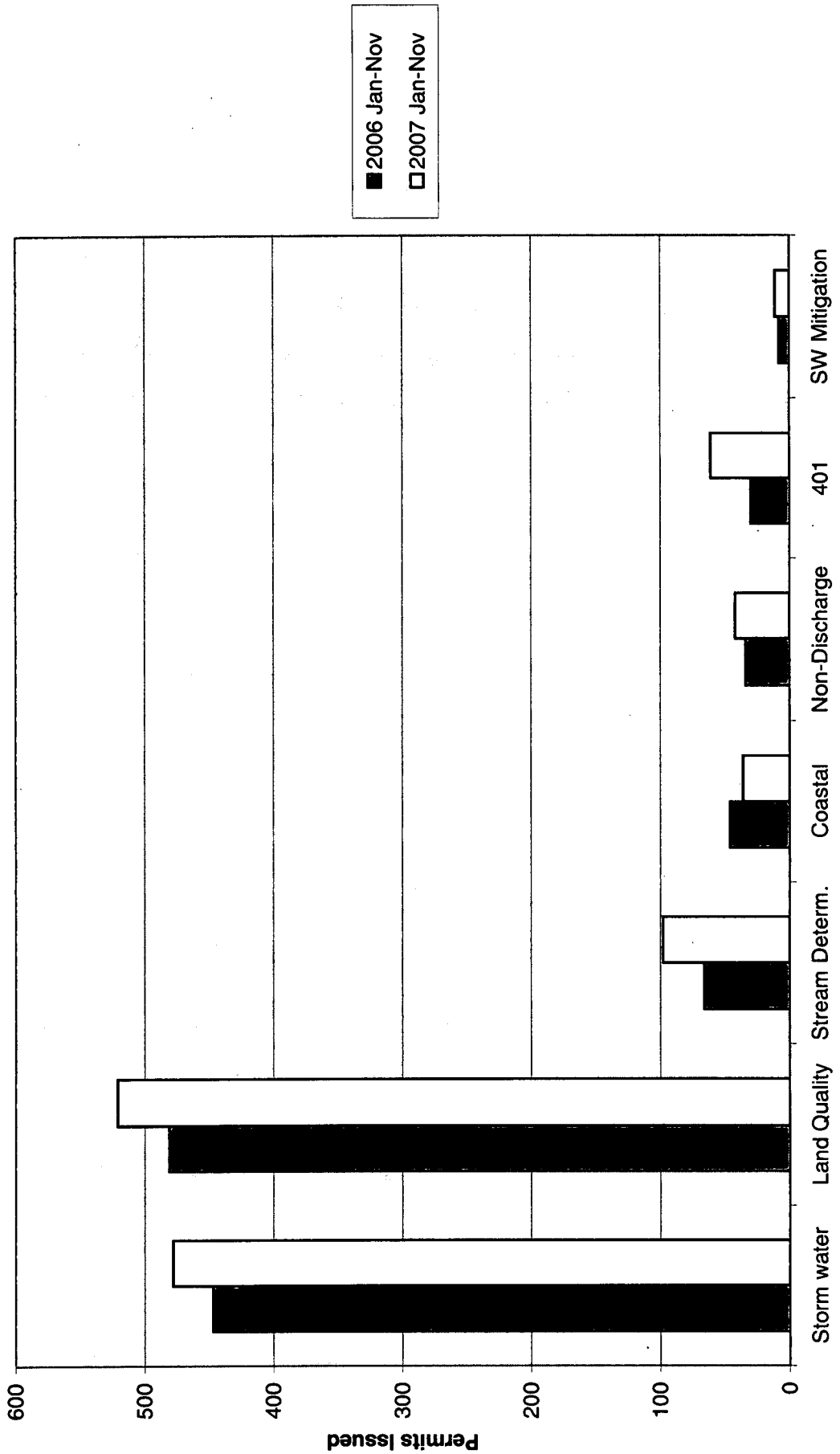


Exhibit M

STATE OF NORTH CAROLINA

TITLE V AIR QUALITY PERMIT PROGRAM

ACCOUNTABILITY REPORT

PURSUANT TO

N.C.G.S. 143-215.3A(c)

15A NCAC 2Q .0206(f)

40 CFR 70.9

NOVEMBER 2007

DIVISION OF AIR QUALITY

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

B. Keith Overcash, P.E.
Director

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EXECUTIVE SUMMARY

The largest industrial facilities with emissions of air pollution in North Carolina are subject to the Title V permits program. The Title V program (referring to "Title V" of the Federal Clean Air Act), established in 1994, consolidates all Federal and state air quality regulations for a particular facility into a single permit. The Federal Clean Air Act requires the Title V program be funded entirely from fees collected from those facilities.

The enclosed annual report discusses the costs and other aspects of North Carolina's Title V permit program.

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INTRODUCTION

North Carolina state law requires that the Department of Environment and Natural Resources (DENR):

> "... shall report to the Environmental Review Commission and the Fiscal Research Division on the cost of the Title V Program on or before 1 November of each year. The reports shall include, but are not limited to, fees set and established under this Article, fees collected under this Article, revenues received from other sources for environmental permitting and compliance programs, changes made in the fee schedule since the last report, anticipated revenues from all other sources, interest earned and any other information requested by the General Assembly." (NCGS 143-215.3A, attached as Appendix A)

This report describes the Title V Permit Program in North Carolina as carried out by DENR's Division of Air Quality. The report focuses on funding and staffing issues. It does not cover Title V permit programs under the jurisdiction of local air pollution control programs in Buncombe, Forsyth, and Mecklenburg counties.

Congress established the Title V Permit Program under the Federal Clean Air Act (1990 Amendments), primarily as a way to consolidate all air regulations affecting major emitters of air pollution into a single document. Under the Clean Air Act, Title V permits are required for certain industry groups as designated by the EPA as well as facilities that emit at least:

- 100 tons per year of any regulated pollutant, or
- 10 tons per year of any hazardous air pollutant, or
- 25 tons per year of any combination of hazardous air pollutants.

This Accountability Report includes:

- A discussion of program accomplishments and goals
- A discussion of current issues affecting the Title V program
- A detailed description of the Title V permit fee structure for calendar year 2008
- A detailed, line-item budget for state fiscal year 2007
- An account of Title V receipts and expenditures from state fiscal years 1992 to 2007
- Various appendices, including a list of acronyms used in this report
- An organization chart for total staff in the Division of Air Quality and Title V related positions

CURRENT STATUS AND RECENT ACCOMPLISHMENTS

A historical perspective of North Carolina's Title V Permit Program is included in Appendix B. This section focuses on the program's current status and recent accomplishments.

The Title V permit program encompasses the full range of activities associated with implementing the program, including:

- Reviewing, issuing, modifying, and renewing Title V permits
- Advising the regulated community on applicability issues
- Routinely inspecting permitted facilities
- Responding to citizens' complaints or concerns
- Gathering emissions inventory data
- Operating a network of air monitors
- Performing public outreach, including issuing daily air quality advisories to citizens
- Long-range planning (including computer modeling) to maintain adequate air quality for future generations
- Working with legislators and appointed officials to ensure adequate statutory and regulatory authority to carry out the DAQ's mission
- Taking enforcement actions against violators, including assessing penalties, revoking permits, and taking legal action to close down the worst offenders

The DAQ has a total staff of 303 managers, engineers, scientists, technicians, and administrators. About 10% of the positions are vacant at any time due to turnover. Although almost every position in the Division has some Title V responsibility, the full-time equivalent (FTE) staff dedicated to the Title V program is about 138 positions. The remaining staff is responsible for non-Title V permits, area sources, mobile sources, and toxics programs; these activities are funded with receipts outside of the Title V program and are not the subject of this report. The DAQ staff size has been relatively stable for about ten years and no growth in staff is anticipated in the future.

DENR operates a Small Business Assistance Program, employs a Small Business Ombudsman, and appoints a Compliance Advisory Panel to conduct citizen overview of small business activity. Title V fees also fund these programs, although they operate independent of the DAQ.

The DAQ reports its activities to the US EPA on a federal fiscal year (FFY) basis. In the most recently completed FFY (October 1, 2006 through September 30, 2007), the DAQ

- Completed action on 392 Title V permit applications
- Inspected 100% of permitted Title V facilities (357 inspections)
- Issued 112 Notices of Violations (NOV) to 87 different facilities
- Initiated 40 enforcement actions against 35 facilities, resulting in penalties of over $560,000 (penalties collected are transferred to local schools)

PROGRAM ISSUES

The most pressing issue facing the Title V program is its long-term funding, which has forced the DAQ to initiate rulemaking for the purpose of increasing the Title V fees. Other issues facing the program include

- New Federal regulatory programs
- Better documentation of staff time charged to Title V
- Program review by the Office of the State Auditor
- Personnel issues, including potential retirements

Title V permit fee increases

The DAQ has initiated a rulemaking process that will result in an increase in the Title V permit fees. This is the first non-inflationary fee increase since the Title V permit program was established in 1994.

Salary costs represent the major expense related to the Title V permit program. The North Carolina General Assembly approved salary increases for state employees in 2006 and 2007. Employee fringe benefits, office space, and other support costs are paid from the Title V permit fees on a pro rata basis relative to the total positions in the Division and are subject to inflation. Title V permit fees have not kept up with these rising expenses.

In pursuing the fee increase, the Division

- Discussed the concept with affected industries this past summer. DAQ received feedback from the regulated community on an early draft of the fee increase rule change and phased the increase over a longer period of time based upon that feedback.
- Took the draft rule to the Environmental Management Commission (EMC) in September.
- Held a public hearing in November. The EMC did not receive <u>any</u> adverse comments on the proposed rule change during the recent public comment period on the proposed rule.
- Anticipates that the EMC will approve the rules at their January 2008 meeting.
- Anticipates the fee increases would become effective in February/March 2008.

Appendix C discusses the fee increase in more detail. No new positions are established by the proposed fee increase.

New Federal regulatory programs

Title V permits are valid for five years after issuance, but it is rare that a Title V permit expires without being modified. Oftentimes the permit is modified at the facility's request, due to an expansion or a change in their process. But revised Federal regulations are also responsible for many permit modifications. Each of these modifications requires a careful review by a permit engineer.

A list of the most common Federal regulations would include:

- Maximum Available Control Technology (MACT)
- Reasonably Available Control Technology (RACT)
- Compliance Assurance Monitoring (CAM)
- Clean Air Interstate Rule (CAIR)
- Clean Air Mercury Rule (CAMR)
- Best Available Retrofit Technology (BART)

Although listed on a single line above, a Federal regulatory program may actually entail dozens of different rules, each specific to a particular industry or industrial process. These rules are under constant change, due to new technologies, new science, court challenges, and other factors.

Additionally, the US EPA:

- Has issued new national ambient air quality standards for fine particles,
- Has proposed new national ambient air quality standards for ozone, and
- May be required to regulate greenhouse gas emissions.

The DAQ must modify its strategy to ensure attainment with each of these evolving standards, which may require new regulations for existing and new industrial sources.

The point being, and the reason it is listed as a program issue, it is a continual challenge for an air quality engineer to maintain his/her expertise on emerging technologies and regulatory requirements. Losing experienced engineers and training new recruits is not only demanding for the Division, but can create delays in industrial expansion as facilities wait for their permit. Worse, it can expose citizens to unhealthy environmental conditions if an engineer misses a requirement that should be included in the facility's permit.

New accounting procedures for timesheets

In the summer of 2006, the US EPA conducted a routine review of the state's Title V program. The EPA was critical of the manner in which Division employees accounted for time spent on Title V work versus other work. Specifically, the EPA was concerned that non-Title V funds were potentially being used to fund Title V expenses. The Federal Clean Air Act requires that the Title V permit program be fully funded by Title V fees and no other funding sources. To be clear, the EPA did not specifically accuse the Division of misusing funds, but they were concerned about that potential. In response, the Division revamped its timesheet procedures beginning with the October 2006 pay period. Each employee was assigned two different funding codes (one Title V and one non-Title V), and was given a table of activities indicating which activities were to be charged to which funding code. DAQ believes we have resolved this issue to EPA's satisfaction.

Program Review by the Office of the State Auditor

The last annual report of November 2006 indicated the DAQ would develop and research staffing levels in both the permitting section and the entire Division. The Director has agreed to allow the

Office of the State Auditor to conduct an audit of the DAQ Central Office permitting procedures to gain insight into and improve efficiency in issuing Title V permits. The audit is scheduled from late Fall 2007 through Spring 2008 and will include training and review by the North Carolina State University (NCSU) Industrial Extension Service (IES). The primary purpose of NSCU IES involvement is to introduce "Lean Office" concepts to the permitting process. If successful, it is hoped that these concepts can be extended to non-Title V permitting as performed by DAQ Regional Offices.

Personnel issues, including potential retirements

For the first time in its history, the DAQ is facing serious turnover among its managers and most-experienced technical staff. The air program was first established in the late 1960s and expanded in the '70s and '80s by hiring mostly young engineers – there were no experienced air quality engineers in those days. Those initial hires are now reaching retirement age. For example, the primary engineer ("guru") for developing the air rules retired in 2007 with 39 years of service. There are many other examples where the Division faces losing long-time air quality staff with 30+ years of service

The Division is concerned with losing this "corporate knowledge," and also wants to ensure an orderly succession of its senior managers. We realize that, like other state agencies, the DAQ has a bit of a "silo mentality". Employees tend to stay in one area of the program, developing tremendous expertise in that aspect, but perhaps lacking the breadth of experience that would benefit them as a senior manager.

To improve this situation, the Division has initiated a trial "rotation" program where employees are reassigned for six months to a position in another branch of the Division. The employees are expected to totally immerse themselves in the new position, leaving their former duties to another employee who has rotated into that position. The program is currently voluntary, and both managers and staff are eligible to participate. In two years, about a dozen employees have participated, and the program has generally been successful. There are some productivity losses as participants move up the learning curve in their new position and as they develop working relations with the affected staff. However, participants have responded very positively to the new perspective they gain on how various work products of the Division fit together – which was a primary goal of the initiative. Other DENR divisions have taken notice and are interested in initiating their own rotation programs.

CALENDAR YEAR 2007 PERMIT FEES TABLE

Notes and explanation

The federal Clean Air Act requires that the entire cost of the Title V Permit Program, including both direct and other related expenses, be funded by facilities' permit fees and that Title V permit fees be used only for this purpose. The Clean Air Act set a presumptive minimum in 1990 of $25 per ton of air pollutant emissions. Annually, EPA publishes an update to the presumptive minimum, which includes a cost-of-living increase. In September 2007, EPA's update increased the presumptive minimum to $41.96.

The Clean Air Act Advisory Council established by the General Assembly recommended in 1992 that, because of the amount of work required to issue every Title V permit, regardless of the facility's emissions, half of the total title V fees come from an application fee (an annual flat fee for each permit) and the other half of the revenue come from annual per-ton charges.

The table on the following page provides the projected receipts for DAQ for FFY-09 using the presumptive minimum and DAQ's system, which follows the recommendations of the Clean Air Act Advisory Council.

CALENDAR YEAR 2008 PROJECTED TITLE V PERMIT FEES

ESTIMATES BASED ON PRESUMPTIVE MINIMUM

Title V Presumptive Minimum	276904 Tons	$41.96	=	$11,618,891.84
ESTIMATES BASED ON NC FEES RULE				$8,215,864.40
		Average Title V $/ton		$29.67

NC Estimates (Based on calculations below)

		% of Presumptive		70.71%
TITLE V	Annual Fees	Permits	Fee Rate	Fee Subtotal
	Basic	399	$6,311.00	$2,518,089.00
	Tons/Tonnage Factor	276904	$18.10	$5,011,962.40
	Non-Attainment	0	$3,297.00	$0.00
TITLE V	Application fees			
	Significant Modification	56	$8,910.00	$498,960.00
	Minor Modification	163	$867.00	$141,321.00
	Ownership Change	14	$62.00	$868.00
	New	5		
	PSD or NSR/NAA	3	$13,488.00	$40,464.00
	PSD & NSR/NAA	0	$26,235.00	$0.00
	Construction Notices	21	$200.00	$4,200.00

TITLE V EXPENDITURE BUDGET

STATE FISCAL YEAR 2007

June 29, 2007

ACCOUNT	ACCOUNT DESCRIPTION	Expenditure
531212	SPA-REG SALARIES-RECPT	$6,286,489
531412	OT PAY - RECEIPTS	$8
531412001	STRAIGHT-TIME OT - RECPT	$9,397
531462	EPA&SPA-LONGVTY PAY-REC	$85,837
531512	SOCIAL SEC CONTRIB-RECPT	$469,198
531513	SOCIAL SEC CONTRIB-UNDES	$31
531522	REG RETIRE CONTRIB-RECPT	$449,716
531562	MED INS CONTRIB-RECPTS	$421,415
531572	UNEMP COMP PAYMENTS TO ES	$1,918
531628	ST DISABILITY PMT-RECEIP	$5,158
531631	WRKER COMP-MED PAYMENTS	$2,732
532110	LEGAL SERVICES	$166,827
532133	EMPLOYEE/EMPLOYMENT PHYSIC	$35,186
532140	OTH INFORMATION TECH SVC	$0
532160	ENGINEERING SERVICES	$0
532170	ADMIN SERVICES	$19,267
532170002	ADMIN SVC-TEMP AGENCY SV	$38,336
532183	LABORATOY SER AGREEMENT	$32,390
532185	WASTE REM/RECY SER AGREE	$2
532199	MISC CONTRACTUAL SERVICE	$0
532210	ENRG SER -ELECTRICAL	$7,325
532310001	REP BLDG-AC SYSTEMS	$4,250
532331	REPAIRS-MOTOR VEHICLES	$1,556
532333	REPAIRE-OTHER EQUIPMENT	$125
532410001	MAINT AGREEMNT-BLDG-HVAC	$220
532430	MAINT AGREEMENT-EQUIP	$42,244
532441	MAINT AGRMT-OTHER SOFTWR	$1,150
532443	MAINT AGRMT-OTHER DP EQP	$390
532490	MAINT AGREEMENT-OTHER	$313
532512	RENT/LEASE-BLDINGS/OFFIC	$15,564
532513	RENT/LEASE-OTH FACILITIE	$0
532521	RENT/LEASE-MOTOR VEHICLE	$0
532590	RENT/LEASE OTHER PROPERT	$1,500
532712	TRANS AIR-OUT STATE,IN U	$7,609
532714	TRANSP-GRND - IN STATE	$16,251
532715	TRANS GRND-OUT STA,IN US	$1,704
532717	TRANSP OTHER - IN STATE	$22
532718	TRANS OTH-OUTSTATE, IN U	$106
532721	LODGING - IN STATE	$11,805

TITLE V EXPENDITURE BUDGET

STATE FISCAL YEAR 2007

June 29, 2007

ACCOUNT	ACCOUNT DESCRIPTION	Expenditure
532722	LODGING-OUT STATE, IN US	$15,021
532724	MEALS - IN STATE	$6,006
532725	MEALS-OUT OF STATE,IN US	$4,045
532727	MISC - IN STATE	$361
532728	MISC - OUT STATE, IN US	$268
532811	TELEPHONE SERVICE	$7,453
532814	CELLULAR PHONE SERVICES	$13,466
532840	POSTAGE, FREIGHT & DELIV	$1,279
532840001	POST,FR&DEL-MAILING SVCS	$2,613
532840003	POST,FR&DEL-POSTAL METER	$848
532850	PRINT,BIND,DUPLICATE	$2,070
532860	ADVERTISING	$3,762
532860007	ADVERTIS-NEWSPAPER	$17,192
532911	PROPERTY-INSURANCE	$0
532912	MOTOR VEHICLE INSURANCE	$0
532930	REGISTRATION FEES	$8,739
532942	OTHER EMP EDUCATIONAL EX	$6,030
533110	GENERAL OFFICE SUPPLIES	$7,059
533120	DATA PROCESSING SUPPLIES	$7,508
533130	PHOTOGRAPHIC SUPPLIES	$650
533150	SECURITY & SAFETY SUPP	$927
533210	JANITORIAL SUPPLIES	$1,299
533240	CARPENTRY & HARDWARE SUP	$575
533250	AGRICULTURL/ANIMAL SUPPL	$0
533290	OTHER FACILITY & HARDWAR	$157
533310	GASOLINE	$71
533340	TIRES & TUBES	$1,260
533350	MOTOR VEH REPLCEMNT PART	$0
533510	CLOTHING 7 UNIFORMS	$480
533640	OPTICAL SUPPLIES	$0
533710	SCIENTIFIC SUPPLIES	$7,309
533720	EDUCATIONAL SUPPLIES	$150
533900	OTHER MATERIALS & SUPP	$268
534511	FURN-OFFICE	$8,887
534521	OFFICE EQUIPMENT	$0
534523	EQUIP-SCIENTIFIC/MEDICAL	$106,920
534530	OTHER DP EQUIPMENT	$0
534534	PC/PRINTER EQUIPMENT	$0
534535	SERVER EQUIPMENT	$0
534539	OTHER EQUIPMENT	$1,110

TITLE V EXPENDITURE BUDGET

STATE FISCAL YEAR 2007

June 29, 2007

ACCOUNT	ACCOUNT DESCRIPTION	Expenditure
534630	LBRRY&LRNING RESRCE COLL	$995
534711	OTHER COMPUTER SOFTWARE	$0
534713	PC SOFTWARE	$450
535830	MEMBERSHIP DUES&SUBSCRIP	$884
535890	OTHER ADMIN EXPENSES	$0
535900	OTHER EXPENSES	$10,040
536929	OTHER CONT/GRT-ED-INST	$63,410
536961	AID TO COUNTIES	$10,500
538010	DEPENDENT CARE-OP TFR	$9,720
538102	I 1615	$40,188
538111	TRANSFER TO CODE 14300	$252,403
538129	TFR TO REG FIELD OFFIC	$0
TOTAL		$8,758,386

HISTORY
TITLE V FEES/ASSESSMENTS AND EXPENDITURES
(MILLIONS $)

State Fiscal Year	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07
Beginning Cash Balance Available	0.0	0.6	1.8	1.7	2.8	4.5	5.5	5.7	5.4	4.8	4.5	5.6	4.7	4.1	3.4	1.9
Fees Beginning '95/Assessments before	0.9	3.9	3.5	6.3	7.9	7.6	9.3	7.8	7.9	8.7	9.1	7.7	8.2	7.9	7.8	7.6
Salary	0.1	0.9	2.3	3.6	4.2	4.7	5.1	5.8	6.0	6.4	5.9	6.0	6.2	6.7	7.2	7.7
Travel		0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Supplies	0.1	0.3	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.5	0.2	0.1	0.1
Equipment	0.1	1.1	0.3	0.5	0.3	0.2	0.4	0.3	0.4	0.2	0.1	0.3	0.1	0.1	0.1	0.1
Contracts		0.3	0.4	0.2	0.1	0.2	0.3	0.1	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3
Other (Rent, Utilities, Reg Office fund,etc)			0.3	0.4	0.7	0.6	0.9	0.8	0.8	1.2	0.7	0.9	0.6	0.5	0.4	0.1
Small Business Ombudsman's			0.2	0.2	0.3	0.3	0.1	0.3	0.3	0.3	0.3	0.4	0.1	0.1	0.0	0.1
Transfer to DENR Agencies					0.2	0.3	0.4	0.6	0.4	0.4	0.4	0.3	0.8	0.7	1.0	0.2
Total Expenses	0.3	2.7	3.6	5.2	6.2	6.6	7.5	8.1	8.5	9.0	7.9	8.5	8.8	8.7	9.2	8.7
Refund to Sources							1.6									
Year End Cash Balance Available	0.6	1.8	1.7	2.8	4.5	5.5	5.7	5.4	4.8	4.5	5.7	4.8	4.1	3.3	2.0	0.8

APPENDIX A

Historical Perspective

The Clean Air Act Amendments of 1970, reviewed and amended by Congress in 1977 and 1990 formed the basis of the federal air pollution control program currently in place. Health-based national ambient air quality standards are the strategic basis of the Clean Air Act. The standards were to be met through the application of control technology that would reduce emissions continuously and result in improved air quality. Costs of technological capability were to be subordinated to public health protection requirements. Also, all requirements were to be national, with no facility having a competitive edge by having to meet less stringent controls. The United States Environmental Protection Agency (US EPA) is responsible for carrying out the program.

Prior to the 1990 Clean Air Amendments, EPA set two kinds of National Ambient Air Quality Standards (NAAQS) specifying maximum acceptable levels of pollutants for outdoor air. Primary standards set limits that protect human health; secondary standards provide welfare protection (i.e. plants, animals, aesthetics and materials). EPA set primary and secondary standards for six criteria pollutants: carbon monoxide, nitrogen dioxide, lead, sulfur dioxide, ozone and particulates. Eight substances were listed as hazardous air pollutants: asbestos, beryllium, mercury, vinyl chloride, radionuclides, inorganic arsenic, benzene, and coke oven emissions. National Emissions Standards for Hazardous Pollutants (NESHAPS) were promulgated for sources of seven of these pollutants.

Most air pollution comes from either stationary sources, such as factories, power plants and smelters, or mobile sources such as cars, trucks and airplanes. To limit mobile source pollution, controls were established for automobile emissions. EPA also set standards that applied to new industrial plants and existing ones that were substantially modified. Additionally, state governments were required to draw up State Implementation Plans (SIP's) that set out other measures to achieve acceptable air quality.

Under the Federal Clean Air Act Amendments of 1990, Congress mandated the Title V Permit Program primarily for regulating major air pollution sources; that is, sources with greater than 100 tons per year of the six criteria air pollutants and/or greater than 10 tons per year of any of the 189 Hazardous Air Pollutants (HAPs) or 25 tons per year of combined HAPs. The North Carolina Environmental Management Commission (EMC) established the state Title V Permit Program in 1994 in accordance with state and federal laws and with guidance from the N.C. Clean Air Act Advisory Council. The state Division of Air Quality (DAQ) carries out the program, which received interim approval from the US EPA on December 15, 1995 and final approval in October 2001.

The DAQ in implementing the program was required to issue permits to existing major stationary facilities. The DAQ issued all permits to all existing facilities by the end of 2004. The DAQ is also required to issue permits to new major stationary facilities.

In North Carolina, the General Assembly enacted laws in 1991 and 1993 authorizing the Title V program. The legislature also established the North Carolina Clean Air Act Advisory Council to develop the programs needed to comply with the Clean Air Act, including the structure of the Title V

permit fees. The Clean Air Act Advisory Council issued a final report in August 1992, and the Environmental Management Commission followed the council's recommendations in adopting rules for the state Title V Permit Program in 1994. The EPA gave interim approval to North Carolina's Title V Permit Program on December 15, 1995, with final approval pending certain rules changes, which have been submitted to EPA. EPA gave final approval in October 2001. The Division of Air Quality started receiving Title V permit applications after EPA's interim approval of the program on December 15, 1995. Facilities were given until December 1996 to submit their applications or they would be considered in violation of the permitting rules. Applications received during the aforementioned timeframe were processed as "Initial Title V Applications" and all other Title V applications received after December 1996 were processed as "First Time Title V Applications." By January 1998, DAQ had 475 Title V applications under review.

Implementation of CAA 1990 - A Historical Perspective

Since program approval, the DAQ has processed (closed-out) a total of 4063 applications to date. To date DAQ has issued 78 First Time Title V permits and is currently reviewing 232 applications. Currently, DAQ has 339 (EPA TOPS Report 6-30-07) operating facilities classified as Title V facilities.

Accomplishments - Historical Perspective

1. The DAQ has established a Title V Permit Program based on rules adopted by the EMC (15A NCAC 02Q .0500). The program meets the requirements of state law (N.C.G.S. §§143-215.3 and 143-215.108) that authorized the program in North Carolina and set up the North Carolina Clean Air Act Advisory Council. The EPA gave interim approval to the program in 1995, and following the DAQ's revision to the Title V regulations, EPA gave final program approval in October of 2001.

2. In 2002 the DAQ revised the Title V application forms including the development of special forms for the renewal of Title V permits. These revised forms are intended to facilitate the application process, and they have been placed on the Division's website http://daq.state.nc.us/

3. The Federal Clean Air Act requires that Title V permit holders pay fees sufficient to cover the cost to administer the permitting program. The DAQ has developed and maintained a permit and emissions fee schedule that has historically generated an appropriate amount of revenue to carry out the Title V permitting program. The DAQ will continue to evaluate the fee structure to ensure that the necessary fees are collected.

In 1994 DAQ conducted its first comprehensive emissions inventory for facilities in North Carolina. This comprehensive inventory process has been repeated every three years for all non-Title V facilities until January 2003, when the inventory requirement was changed to every five years for non-Title V facilities. Title V facilities continue to be required to submit an inventory annually. This emission information is stored on a computer database that DAQ uses to calculate fees and for use in

regulatory planning. The DAQ has developed an electronic on-line inventory reporting system that has been available to Permittee's since 2003.

DAQ has provided a range of options to qualify facilities as non-Title V facilities. Many facilities have taken advantage of these options, which is one of the reasons why the number of Title V facilities is much less than initial estimates; that is, 339 operating Title V facilities now versus the 2000 estimated in the Clean Air Act Advisory Council's Final Report. For example, the DAQ established the synthetic minor program so facilities could avoid the Title V permitting program by taking permitted emission limits and/or operating restrictions. Also, the EMC adopted and EPA approved exclusionary rules to allow reasonable potential emission calculations in cases where standard methods would produce unreasonably high potential emissions thus subjecting such facilities to Title V.

APPENDIX B

NC GENERAL STATUTES RELATED TO THE TITLE V PERMIT PROGRAM

§ 143-215.3. General powers of Commission and Department; auxiliary powers.

(a) Additional Powers. – In addition to the specific powers prescribed elsewhere in this Article, and for the purpose of carrying out its duties, the Commission shall have the power:

(1d) The Commission may adopt and implement a graduated fee schedule sufficient to cover all direct and indirect costs required for the State to develop and administer a permit program which meets the requirements of Title V. The provisions of subdivision (1b) of this subsection do not apply to the adoption of a fee schedule under this subdivision. In adopting and implementing a fee schedule, the Commission shall require that the owner or operator of all air contaminant sources subject to the requirement to obtain a permit under Title V to pay an annual fee, or the equivalent over some other period, sufficient to cover costs as provided in section 502(b)(3)(A) of Title V. The fee schedule shall be adopted according to the procedures set out in Chapter 150B of the General Statutes.

a. The total amount of fees collected under the fee schedule adopted pursuant to this subdivision shall conform to the requirements of section 502(b)(3)(B) of Title V. No fee shall be collected for more than 4,000 tons per year of any individual regulated pollutant, as defined in section 502(b)(3)(B)(ii) of Title V, emitted by any source. Fees collected pursuant to this subdivision shall be credited to the Title V Account.

b. The Commission may reduce any permit fee required under this section to take into account the financial resources of small business stationary sources as defined under Title V and regulations promulgated by the United States Environmental Protection Agency.

c. When funds in the Title V Account exceed the total amount necessary to cover the cost of the Title V program for the next fiscal year, the Secretary shall reduce the amount billed for the next fiscal year so that the excess funds are used to supplement the cost of administering the Title V permit program in that fiscal year.

§ 143-215.3A. Water and Air Quality Account; use of application and permit fees; Title V Account; I & M Air Pollution Control Account; reports.

(a) The Water and Air Quality Account is established as a nonreverting account within the Department. Revenue in the Account shall be applied to the costs of administering the programs for which the fees were collected. Revenue credited to the Account pursuant to G.S. 105-449.125, 105-449.134, and 105-449.43 shall be used to administer the air quality program. Except for the following fees, all application fees and permit administration fees collected by the State for permits issued under Articles 21, 21A, 21B, and 38 of this Chapter shall be credited to the Account:

(1) Fees collected under Part 2 of Article 21A and credited to the Oil or Other Hazardous Substances Pollution Protection Fund.

(2) Fees credited to the Title V Account.

(3) Repealed by Session Laws 2005-454, s. 7, effective January 1, 2006.
(4) Fees collected under G.S. 143-215.28A.
(5) Fees collected under G.S. 143-215.94C shall be credited to the Commercial Leaking Petroleum Underground Storage Tank Cleanup Fund.

(a1) The total monies collected per year from fees for permits under G.S. 143-215.3(a)(1a), after deducting those monies collected under G.S. 143-215.3(a)(1d), shall not exceed thirty percent (30%) of the total budgets from all sources of environmental permitting and compliance programs within the Department. This subsection shall not be construed to relieve any person of the obligation to pay a fee established under this Article or Articles 21A, 21B, or 38 of this Chapter.

(b) The Title V Account is established as a nonreverting account within the Department. Revenue in the Account shall be used for developing and implementing a permit program that meets the requirements of Title V. The Title V Account shall consist of fees collected pursuant to G.S. 143-215.3(a)(1d) and G.S. 143-215.106A. Fees collected under G.S. 143-215.3(a)(1d) shall be used only to cover the direct and indirect costs required to develop and administer the Title V permit program, and fees collected under G.S. 143-215.106A shall be used only for the eligible expenses of the Title V program. Expenses of the Small Business Environmental Advisory Panel, the ombudsman for the Small Business Stationary Source Technical and Environmental Compliance Assistance Program, support staff, equipment, legal services provided by the Attorney General, and contracts with consultants and program expenses listed in section 502(b)(3)(A) of Title V shall be included among Title V program expenses.

(b1) The I & M Air Pollution Control Account is established as a nonreverting account within the Department. Fees transferred to the Division of Air Quality of the Department pursuant to G.S. 20-183.7(c) shall be credited to the I & M Air Pollution Control Account and shall be applied to the costs of developing and implementing an air pollution control program for mobile sources.

(c) The Department shall report to the Environmental Review Commission and the Fiscal Research Division on the cost of the State's environmental permitting programs contained within the Department on or before 1 November of each year. In addition, the Department shall report to the Environmental Review Commission and the Fiscal Research Division on the cost of the Title V Program on or before 1 November of each year. The reports shall include, but are not limited to, fees set and established under this Article, fees collected under this Article, revenues received from other sources for environmental permitting and compliance programs, changes made in the fee schedule since the last report, anticipated revenues from all other sources, interest earned and any other information requested by the General Assembly.

APPENDIX C

TITLE V PERMIT FEE INCREASE

Introduction

The Clean Air Act requires the Title V permit program to be funded entirely through Title V permit fees. Funding for the Title V permit program expenses is required to be available prior to disbursement and must be sustainable.

The General Assembly approved salary increases for state employees in 2006 and 2007. Salary costs represent a major expense related to the Title V permit program. There have also been annual increases in costs such as office space, utilities, and other support costs. The Title V permit program costs increased by 7.3 percent and 6.8 percent for fiscal years 2006 and 2007.

The Division of Air Quality (DAQ) collects Title V permit fees throughout the year and experiences fluctuating operating fund balances. In 2003, the balance brought forward represented 66 percent of annual cash disbursements, 54 percent in 2004, and 21 percent in 2007. The projected balance to be carried into 2008 is 9 percent of cash disbursements made in 2007. This balance will not be sufficient to fund and operate the Title V permit program. The Title V permit program account could potentially run into deficits in 2008 unless additional fees are collected.

Due to these added expenses and the requirement to fund the permit program entirely with the fees collected from the Title V facilities, DAQ has begun a rulemaking process to increase the fees to a level sufficient to fund the program at its current level for the foreseeable future. No new positions are established by the proposed fee increase. If Title V permit fees fail to match Title V operating permit program costs, operating costs are legally required to be reduced to match Title V permit fees. Reduced assets (less Title V funded positions) will influence service response time for Title V permits and the level of effort available to conduct thorough compliance facility inspections. An adequate Title V permit program ensures that the State can retain experienced engineers to issue accurate permits in a timely manner and experienced field inspectors to ensure that facilities are operating in accordance with those permits.

Description of Amended Rules

15A NCAC 02Q .0203, Permit and Application Fees, updates calendar year 1994-based fees that are applicable to Title V air pollution sources. The tonnage factor fee is being raised in four steps beginning on the rule effective date, until it reaches $30.00 per ton on January 1, 2011. A stepped approach was used to increase the Title V tonnage factor fee as recommended by the regulated community. This approach was chosen, opposed to a single large increase, to minimize the sudden impact to the subject fee payers. The related basic permit fee and nonattainment area added fee are being raised to $6,500 and $3,500, respectively.

15A NCAC 02D .0204, Inflation Adjustment, describes the method used for calendar year inflation adjustment of these Title V Permit and Application Fees. This inflation adjustment will be placed on hold until after the phased increase of the tonnage fee in 02Q .0203 is complete.

Authority

Please see Appendix B for reference documents that outline DAQ's authority to adopt fee schedules.

Motivation for the Proposed Rules

The reason for this action is to modify annual permit fees for Title V facilities and the inflation adjustment to ensure that the Clean Air Act requirements associated with the Title V permit program are met. This action is needed to ensure the current level of service quality in the Title V permit program is maintained into the foreseeable future. A fee adjustment will help ensure that the needs of the public, the environment, and industry are met.

"Title V" is the permitting program for major emitters of air pollution. "Title V" refers to Title V of the Federal Clean Air Act. The Clean Air Act requires the Title V program to be funded entirely through Title V permit fees. The United States Environmental Protection Agency (U.S. EPA) audited North Carolina's Title V program in June 2006. They found the technical aspects of the program to be satisfactory, but they did raise questions about whether or not permit fees were paying the entire cost of the program.

The current State rules allow annual permit fees for Title V facilities to be adjusted each year for inflation. However, from 2002 to 2006, no increases were made. Separately, the General Assembly approved salary increases for state employees (almost 10% over two years). No appropriations are made to the DAQ for these salary increases, which amounted to annual recurring expenses to the division of $2 million; these expenses must be paid out of Title V receipts and other non-appropriated funds that DAQ receives. Salary costs represent a major expense related to the Title V program. However, salary increases represents only a portion of costs associated with the Title V program expenses. Salary increases cause the Division's retirement and social security payments to increase. Employee fringe benefits, office space, and other support costs are subject to inflation. Title V costs increased by 7.3 percent and 6.8 percent for fiscal years 2006 and 2007. Funding for the Title V program cost increases is required to be available prior to disbursement and must be sustainable.

Additionally, there is a financial and operational need to carry a forward balance each year to operate the Title V program. Fee receipts are paid annually by facilities throughout the calendar year. In 2003, the balance brought forward represented 66 percent of annual cash disbursements, 54 percent in 2004, and 21 percent in 2007. The projected balance to be carried into 2008 is 9 percent of cash disbursements made in 2007. This balance will not be sufficient to fund and operate the Title V program.

The combination of the Title V fee not keeping up with inflation and the salary and benefit and operational cost increases has seriously depleted the Title V account – in fact, the account could potentially run into deficits in 2008 unless additional fees are collected. The proposed rule will

increase Title V receipts to allow the account to "catch up" to an adequate funding level. This will also enable the Division to demonstrate to the U.S. EPA that the program is entirely funded through permit fees, as required by the Clean Air Act. No new positions are established by the proposed fee increase.

Adequate funding of the Title V program is important to North Carolina's major industries and the environment. An adequate Title V program ensures that the State can retain experienced engineers to issue accurate permits in a timely manner and experienced field inspectors to ensure that facilities are operating in accordance with those permits. It is especially important to maintain the Title V permit program as the U.S. EPA has recently tightened the daily particulate standard, has proposed tightening the ozone standard, and is considering establishing greenhouse gas standards.

A Title V facility's annual fee consists of two or three parts:

- a flat basic permit fee,
- a variable tonnage fee that depends on the facility's actual emissions, and
- a flat, nonattainment area added fee which is applicable only to Title V facilities required to comply with 15A NCAC 02D .0531, 15A NCAC 02D .0900 (Volatile Organic Compounds), or 15A NCAC 02D .1400 (Nitrogen Oxides) and either are in a area designated in 40 CFR 81.334 as nonattainment; or are covered by a nonattainment or maintenance State Implementation Plan submitted for approval or approved as part of 40 CFR Part 52, Subpart II.

Identification of the Affected Sources

Amendments of the Annual Permit Fees in 15A NCAC 02Q .0203 and the Inflation Adjustment in 15A NCAC 02Q .0204 will increase the Title V permit fees of all facilities regulated by the State air quality agency. It does not affect facilities regulated by three local air agencies (Mecklenburg County, Forsyth County, and Western North Carolina). The local air agencies set their own Title V fee amounts.

Establishment of the Baseline

The current State rules allow annual permit fees for Title V facilities to be adjusted each year for inflation using a Code of Federal Regulation method that is based on the Consumer Price Index. The fee was initially set at $14.63 in 1994, and is currently $18.10. The current basic permit fee is $6,311 and the nonattainment area added fee is currently $3,297. The fees charged in 2007 represent the baseline for the purpose of this rulemaking.

Changes from the Baseline

Examining the current size of the Title V industry in North Carolina, the size and cost of the regulatory staff needed to service that industry, and then spreading those costs across industry by the amount of pollution they emit established the proposed fee changes, as shown below.

Year	Tonnage Fee	Basic Permit Fee	Nonattainment Area Added Fee (if applicable)
2007	$18.10	$6,311	$3,297
2008	$22.50	$6,500	$3,500
2009	$25.00	$6,500	$3,500
2010	$27.50	$6,500	$3,500
2011	$30.00	$6,500	$3,500
2012 and thereafter	Annual CPI increase	Annual CPI increase	Annual CPI increase

The following table summarizes revenues raised by the proposed tonnage fee increase. In addition, each facility's basic fee would rise by $189/year, and, if located within a nonattainment area, their added fee would rise by $203/year.

Year	Proposed Tonnage Fee	Total Revenue[1]	Total Impact on All Sources	Impact on Largest Sources[2]	Impact on Small Sources[3]
2007	$18.10	$5,430,000	(Not applicable)		
2008	$22.50	$6,750,000	$1,320,000	$72,600	$330
2009	$25.00	$7,500,000	$2,070,000	$113,850	$520
2010	$27.50	$8,250,000	$2,820,000	$155,100	$710
2011	$30.00	$9,000,000	$3,570,000	$196,350	$890
2012+[4]	$30.60	$9,180,000	$3,750,000	$206,250	$940

[1] "Total Revenue" is calculated by multiplying the tonnage fee by 300,000 tons, a "typical" annual amount based on major source air permits.
[2] Tonnage fees for the largest sources are capped at 4,000 tons per pollutant. The state's three largest sources were each billed for about 16,500 total tons of six different pollutants in their most recent annual bill. Annual increase is the fee increase multiplied by 16,500 tons.
[3] Small Business Title V facilities having less that 75 tons of all pollutant in their most recent annual bill. Annual impact is the fee difference from baseline multiplied by 75 tons.
[4] In 2012 and later years, an annual CPI would be applied. A 2% increase is shown for illustration purposes.

Estimating the Cost to the Existing Affected Sources

A. Summary of Costs/Savings Incurred by the Affected Private Sector Sources:
Industrial facilities holding Title V permits typically emit more than 100 tons per year of a specified air pollutant. These facilities are charged an annual tonnage fee up to 4,000 tons per year per pollutant (i.e., a facility emitting 10,000 tons of a pollutant would pay the same as a facility emitting 4,000 tons of that pollutant). Although most Title V facilities are very large, a facility that emits certain hazardous air pollutants may hold a Title V permit for having the potential to emit as little as 10 tons per year. Thus, the very largest facilities would see their annual tonnage fee per pollutant rise

from $72,400 in 2007 to $90,000 in 2008. Additionally, all facilities, regardless of size, would see their basic permit fee rise from $6,311 to $6,500. Those facilities within a nonattainment area would also see that added fee increased from $3,297 to $3,500.

B. Costs to Small Business:
A small business as defined by the Office of State Budget and Management (OSBM) is a business entity, including its affiliates, that is independently owned and operated, employs fewer than 500 employees or has gross annual sales of less than $6 million. A Title V facility has a potential to emit 100 tons of a single pollutant or 10 tons of a hazardous air pollutant or 25 tons of more than one hazardous air pollutant. There may be facilities that meet the OSBM definition of "small business" that are regulated as Title V facilities. The Clean Air Act does not exempt them from paying Title V fees but the fees can be reduced as noted in G.S. 143-215.3(1d) (see Appendix B).

Typically, the Title V program covers larger businesses, but applicability is dependent on potential emission levels rather than business size. Some smaller businesses, such as manufacturers of bricks, fiberglass, foam rubber, plastics, pharmaceuticals, and textiles along with smaller surface coating operations and landfills, are subject to the Title V program because their potential emissions are high enough to trigger Title V thresholds.

The Clean Air Act defines a "Small Business Stationary Source" as a stationary source that employs less than 100 employees and emits less than 75 tons per year of all regulated pollutants. In absence of employment data, and exclusively judging by emissions data, approximately 25% of the Title V sources in North Carolina emit less than 75 tons per year of all regulated pollutants. The total billable emissions from these 85 Title V facilities represent less than one percent of the total financial impact from increasing the Title V tonnage and permit fees. The average impact to these smaller Title V sources would be $330 in 2008, based on an average of 33 tons per year, for both annual permit fees and tonnage fees. The following table summarizes the aggregate and average impacts on small business stationary sources.

Year	Fee Impact on Smaller Sources	Average Fee Impact
2008	$28,300	$330
2009	$35,300	$420
2010	$42,300	$500
2011	$49,200	$580

Currently, facilities are not required to provide the data (e.g., number of employees, annual sales) in their permit application that would enable DAQ to identify which Title V facilities meet the OSBM and/or Clean Air Act definition of "small business." DAQ will look into the possibility of including that data element in future permit applications.

Conclusion

Title V facilities subject to fee increases will experience total aggregate impacts of $3,750,000 in 2012, based on this economic analysis. This aggregate impact is considered substantial as defined in North Carolina's Administrative Procedures Act in NC *§ 150B-21.4 Fiscal notes on rules*. The amendment to the Title V Annual Permit Fees in 15A NCAC 02Q .0203 will ensure that the North Carolina Title V Permit Program complies effectively with federal Clean Air Act requirements.

APPENDIX D

ACRONYMS

BART	Best Available Retrofit Technology
CAIR	Clean Air Interstate Rule
CAM	Compliance Assurance Monitoring
CAMR	Clean Air Mercury Rule
CFR	Code of Federal Register
DAQ	Division of Air Quality
DENR	Department of Environment and Natural Resources
EMC	Environmental Management Commission
EPA	Environmental Protection Agency
ERC	Environmental Review Commission
FTE	Full Time Equivalent
FFY	Federal Fiscal Year
HAP	Hazardous Air Pollutant
IES	Industrial Extension Service
MACT	Maximum Available Control Technology
NAAQS	National Ambient Air Quality Standard
NCAC	North Carolina Administrative Code
NCGS	North Carolina General Statutes
NCSU	North Carolina State University
NESHAPS	National Emissions Standards for Hazardous Pollutants
NOV	Notice of Violation
PE	Professional Engineer
RACT	Reasonably Available Control Technology
SIP	State Implementation Plan
USEPA	United States Environmental Protection Agency

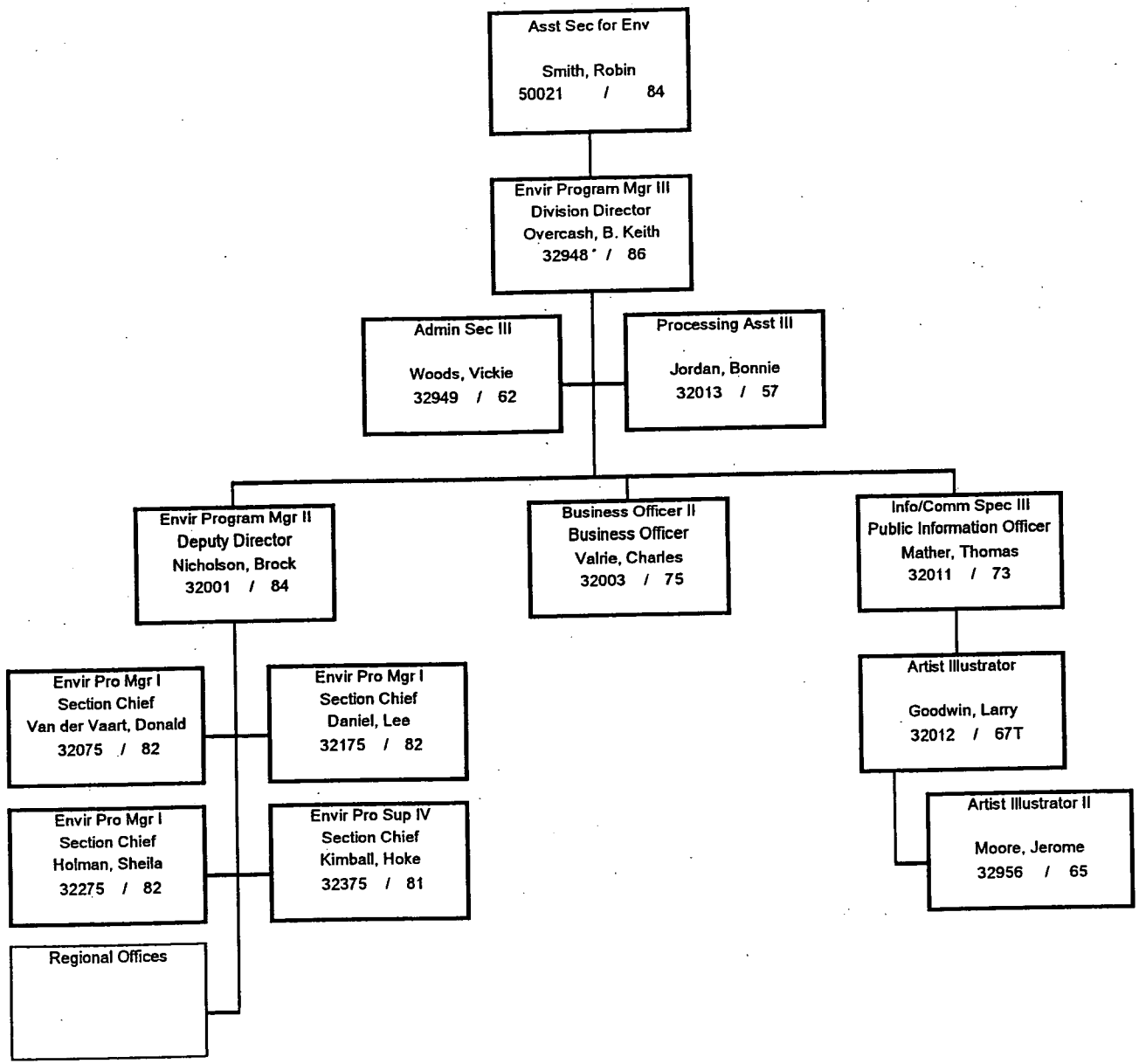
APPENDIX E

ORGANIZATION CHART EXPLANATION

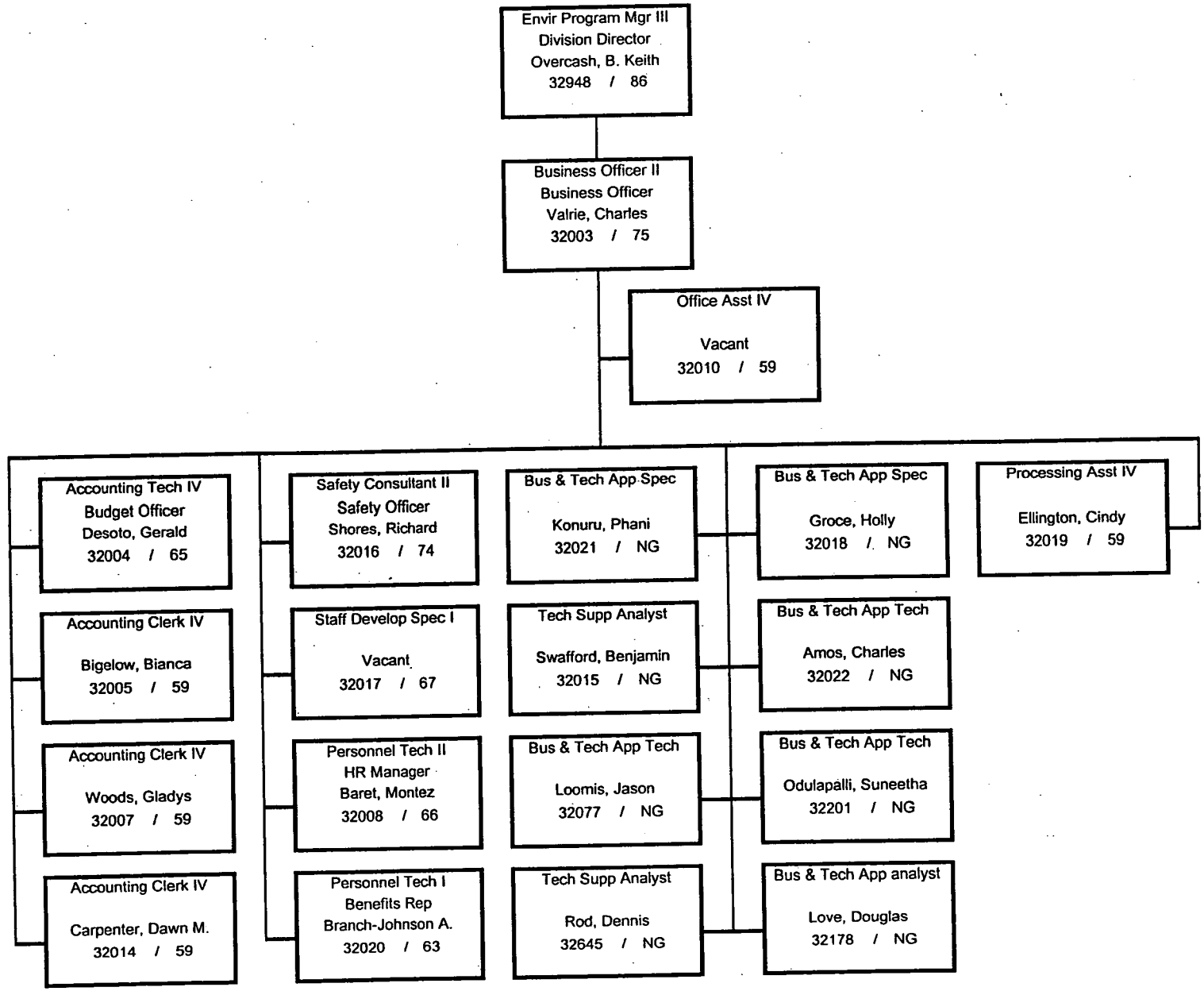
The organization chart shown in this document lists all the positions authorized by State Personnel for the Division of Air Quality. Noting the requirement that all Title V work be funded by Title V fees, each employee is required to code his/her time sheet indicating the amount time spent on different functions. Accordingly, approximately 10% of the division's employees spend all of their time completing Title V tasks, and the other 90% of the staff will spend a portion of their time completing Title V tasks.

A work group established by the Division Director reviewed the work requirements of the Division's employees and determined that 138 FTE's are needed to complete Title V work on an annual basis.

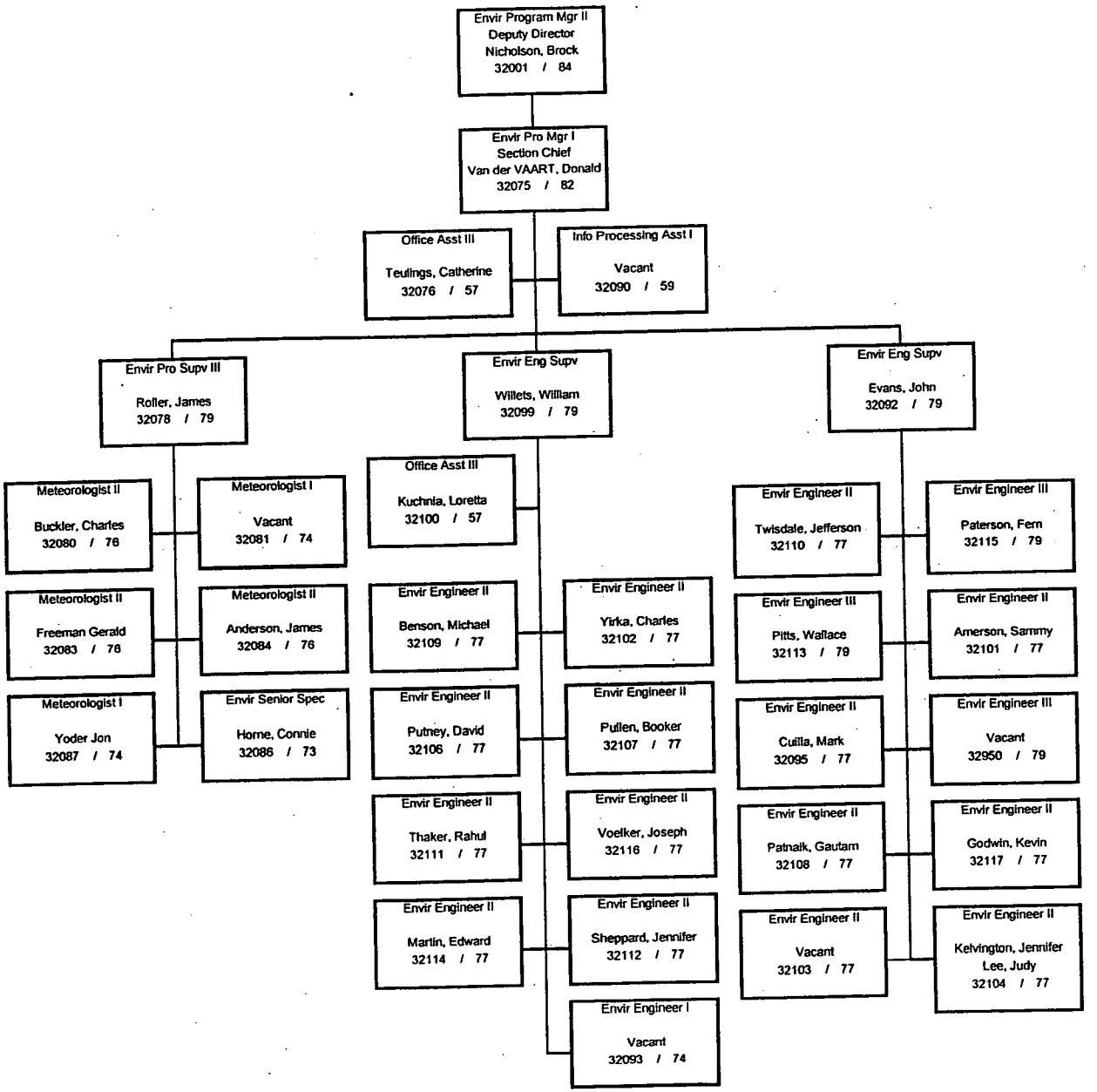
Department of Environment and Natural Resources
Division of Air Quality
Directors Office



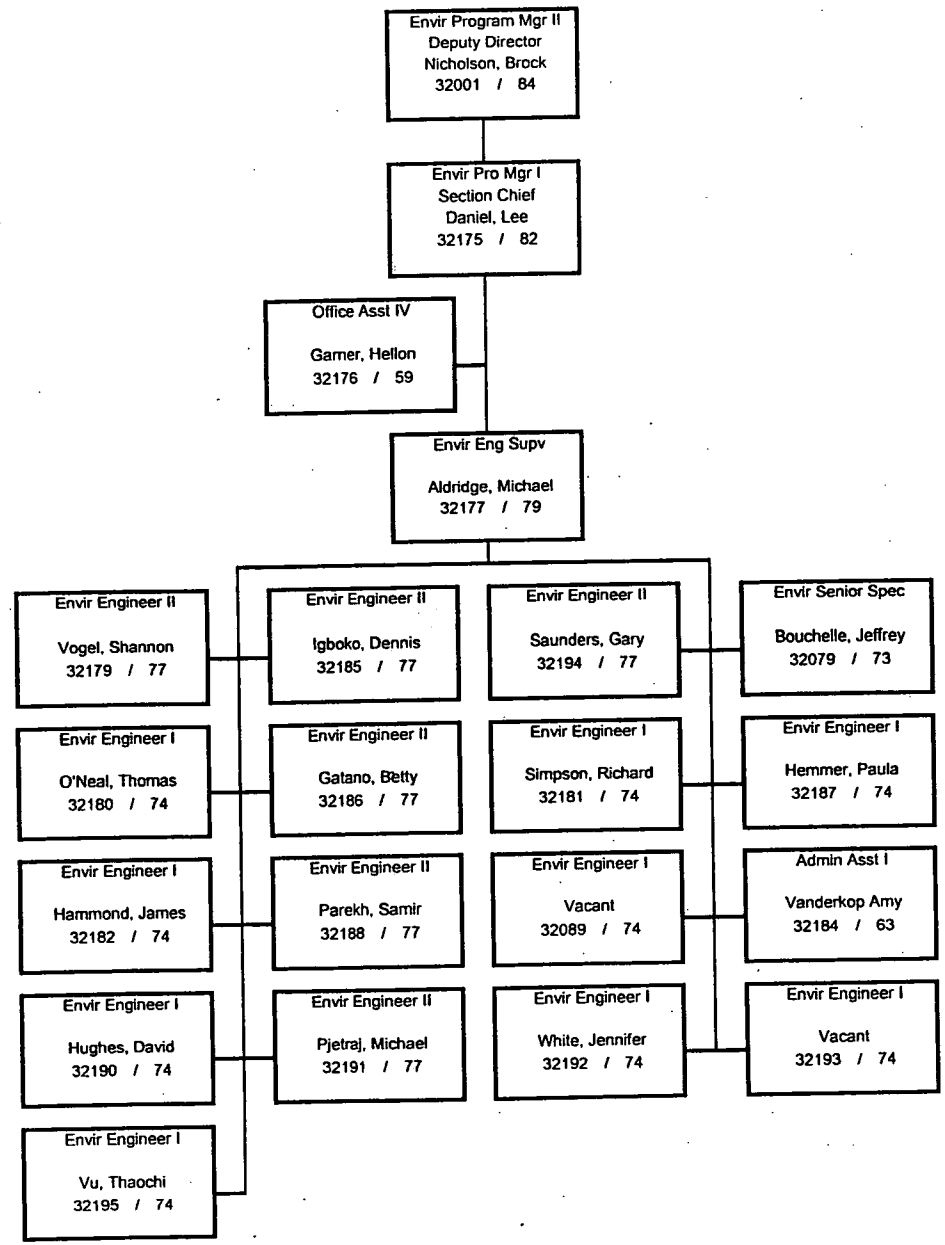
Department of Environment and Natural Resources
Division of Air Quality
Business Office



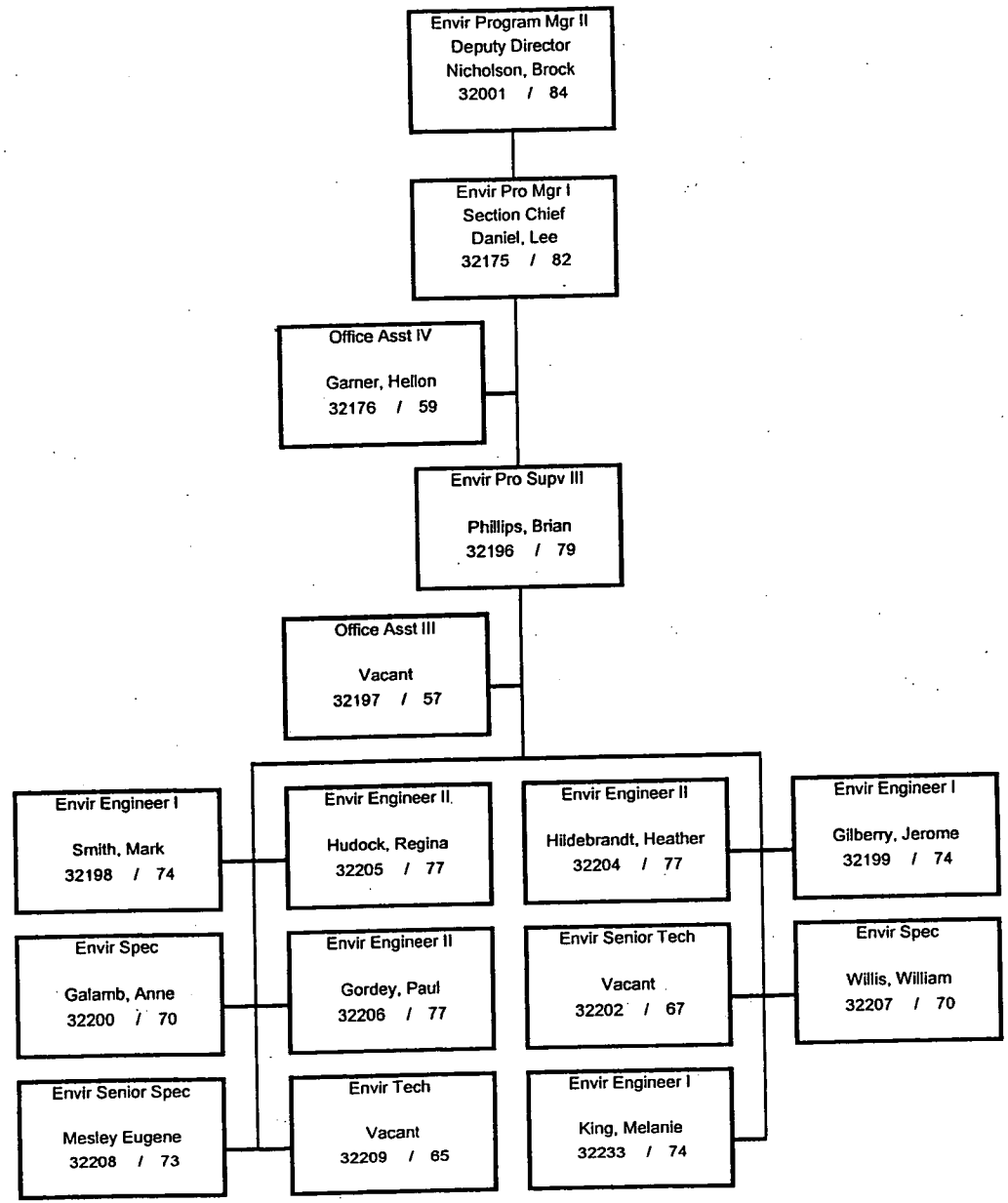
Department of Environment and Natural Resources
Division of Air Quality
Permitting Section



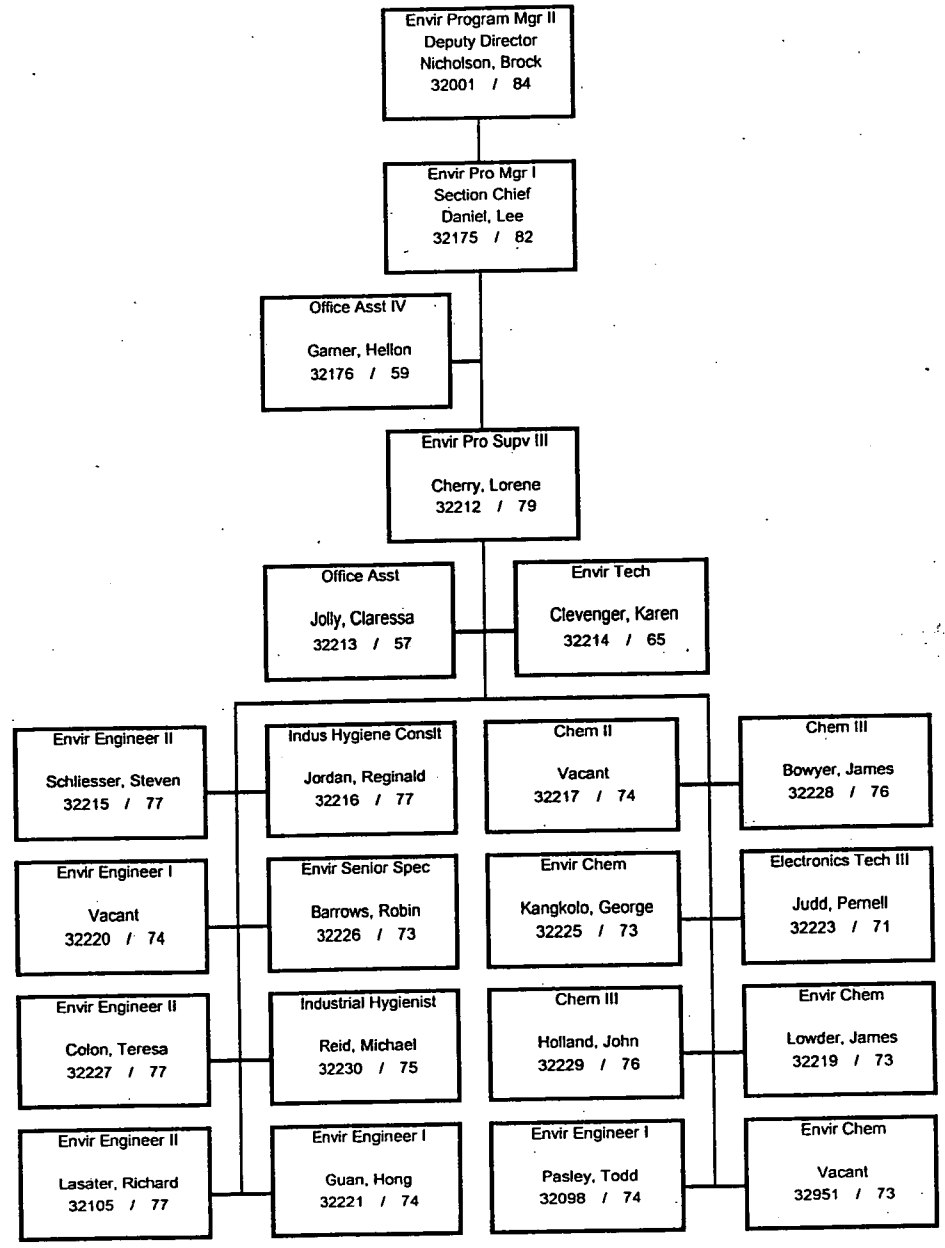
Department of Environment and Natural Resources
Division of Air Quality
Technical Services Section
Stationary Source Branch



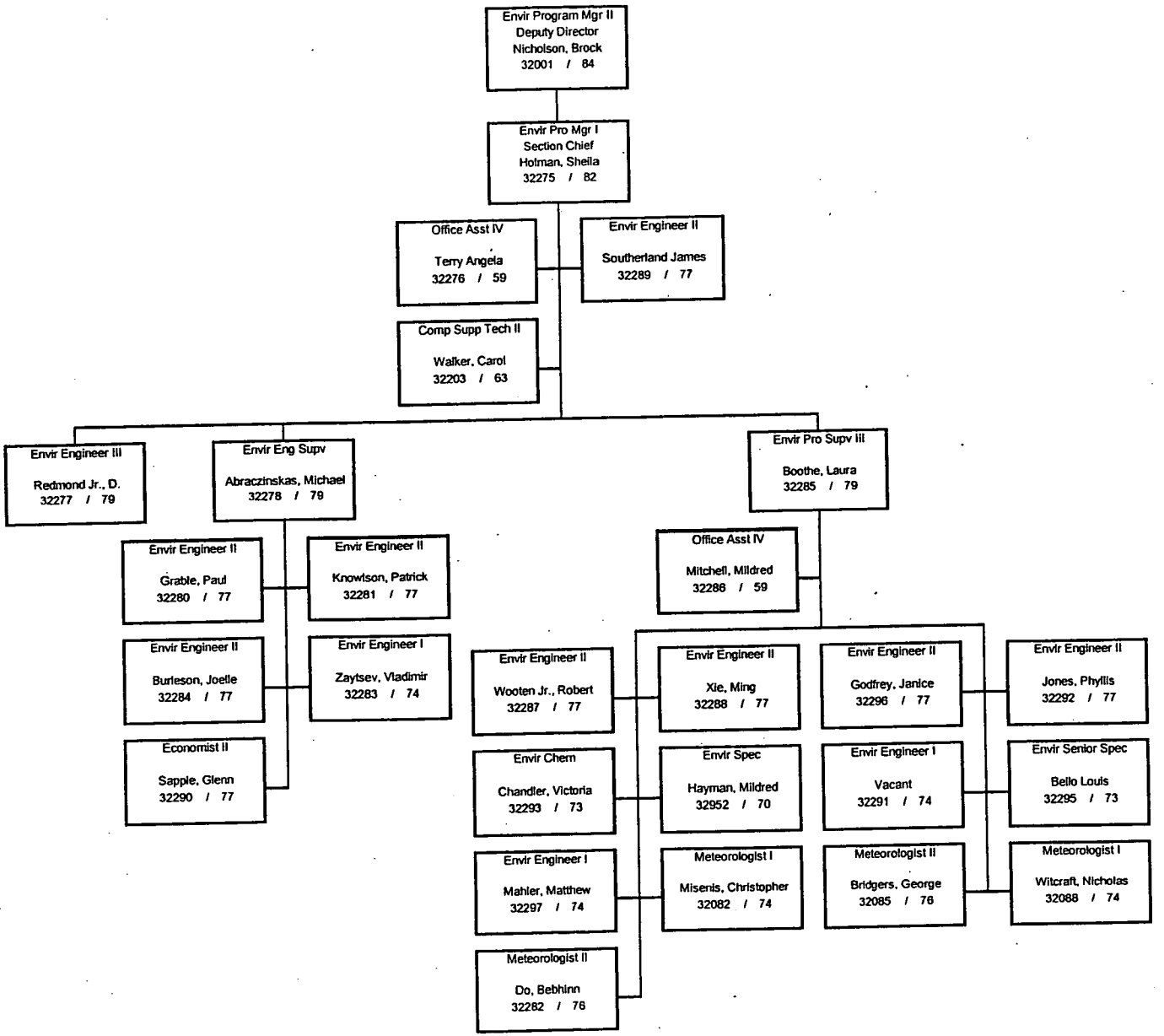
Department of Environment and Natural Resources
Division of Air Quality
Technical Services Section
Mobile Sources Compliance Branch



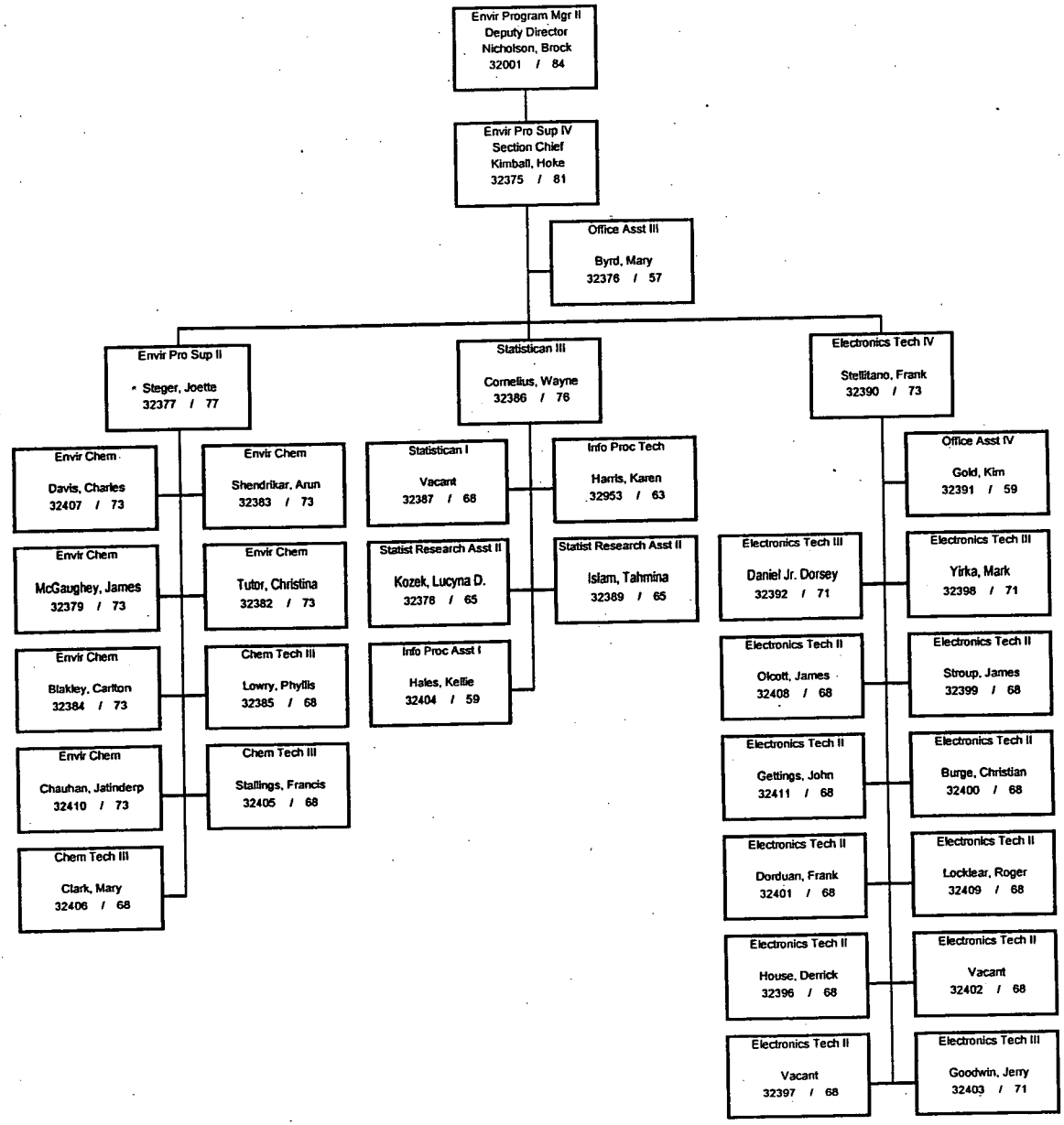
Department of Environment and Natural Resources
Division of Air Quality
Technical Services Section
Toxics Branch



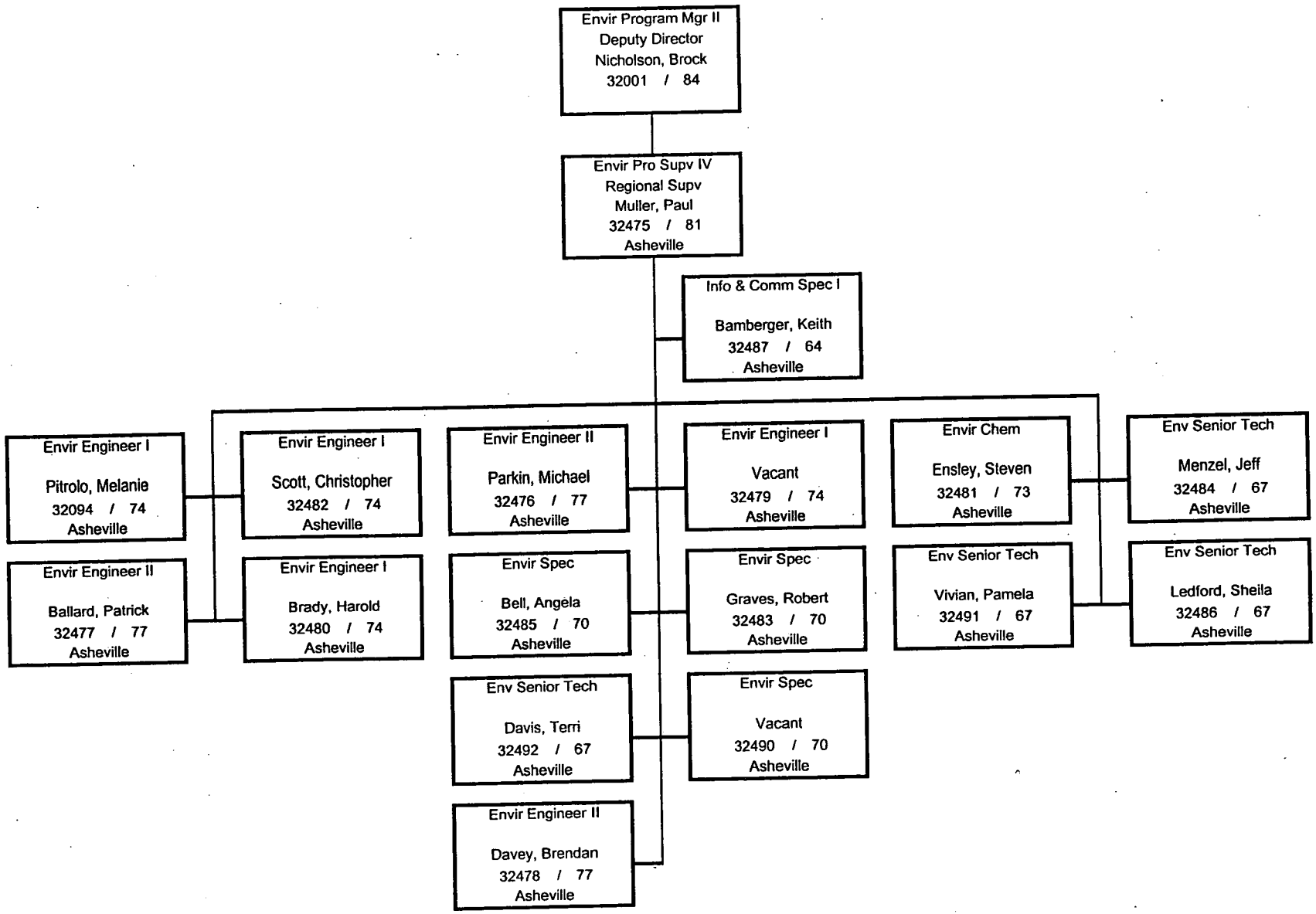
Department of Environment and Natural Resources
Division of Air Quality
Planning Section



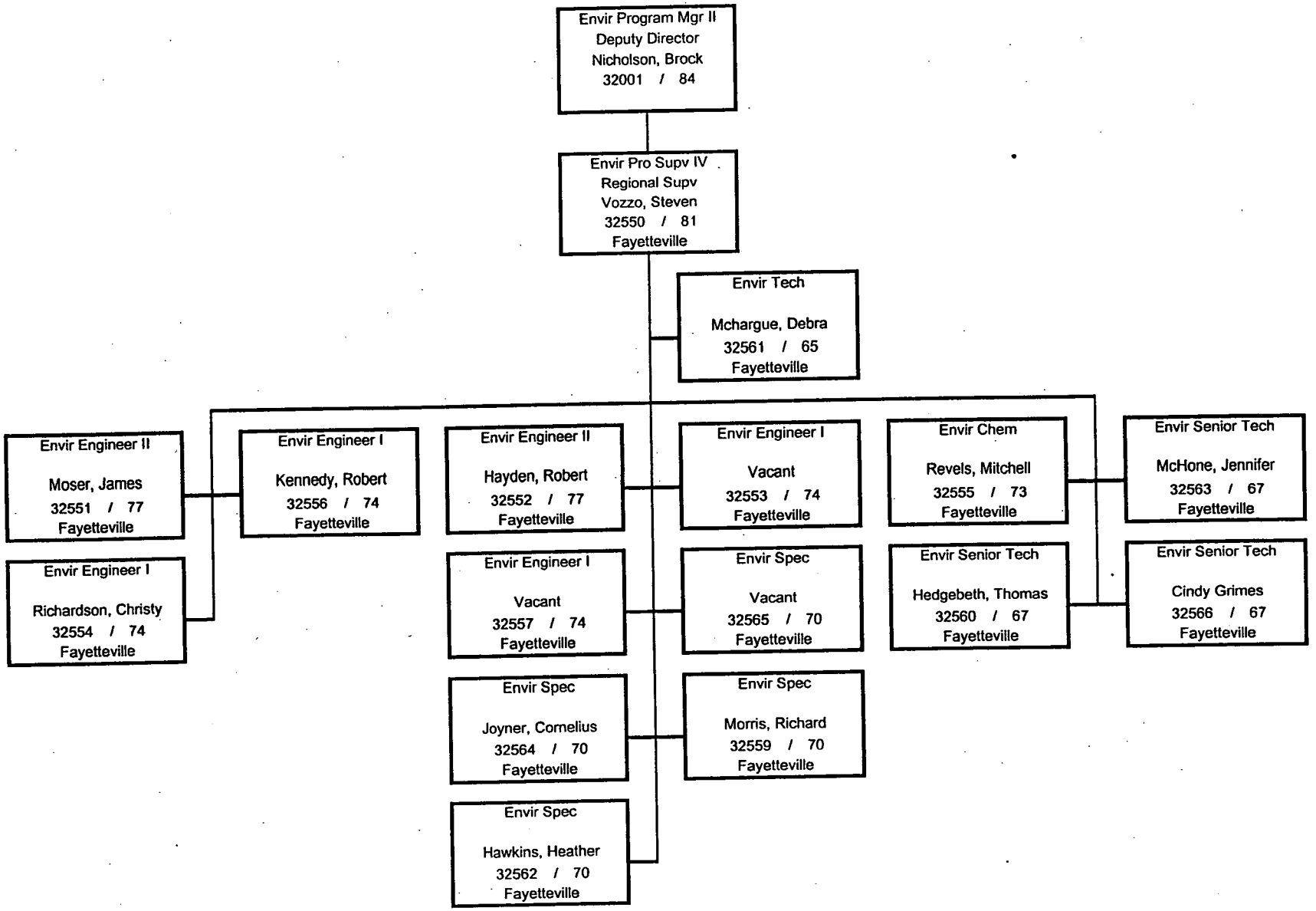
Department of Environment and Natural Resources
Division of Air Quality
Ambient Monitoring Section



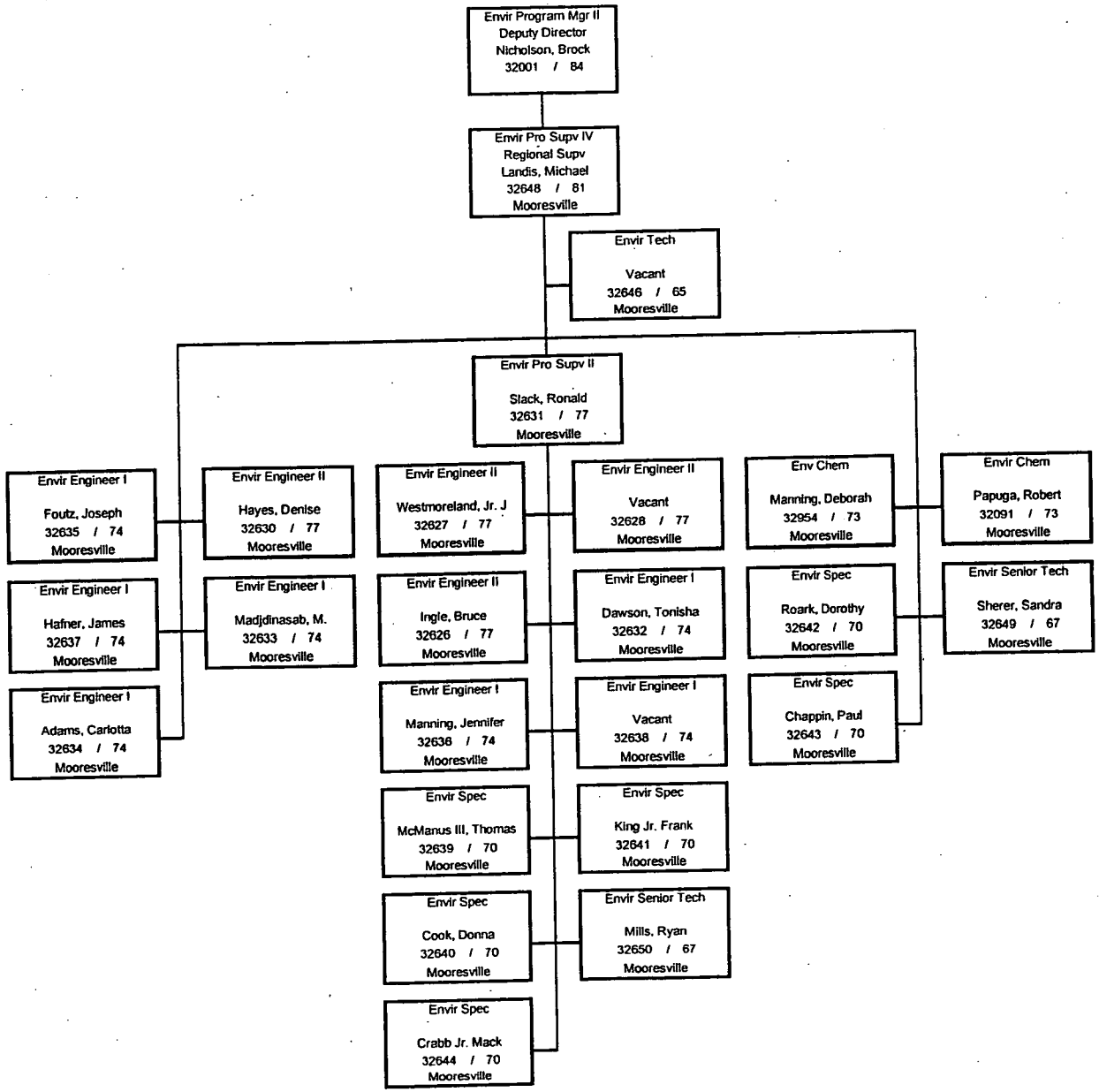
Department of Environment and Natural Resources
Division of Air Quality
Asheville Regional Office



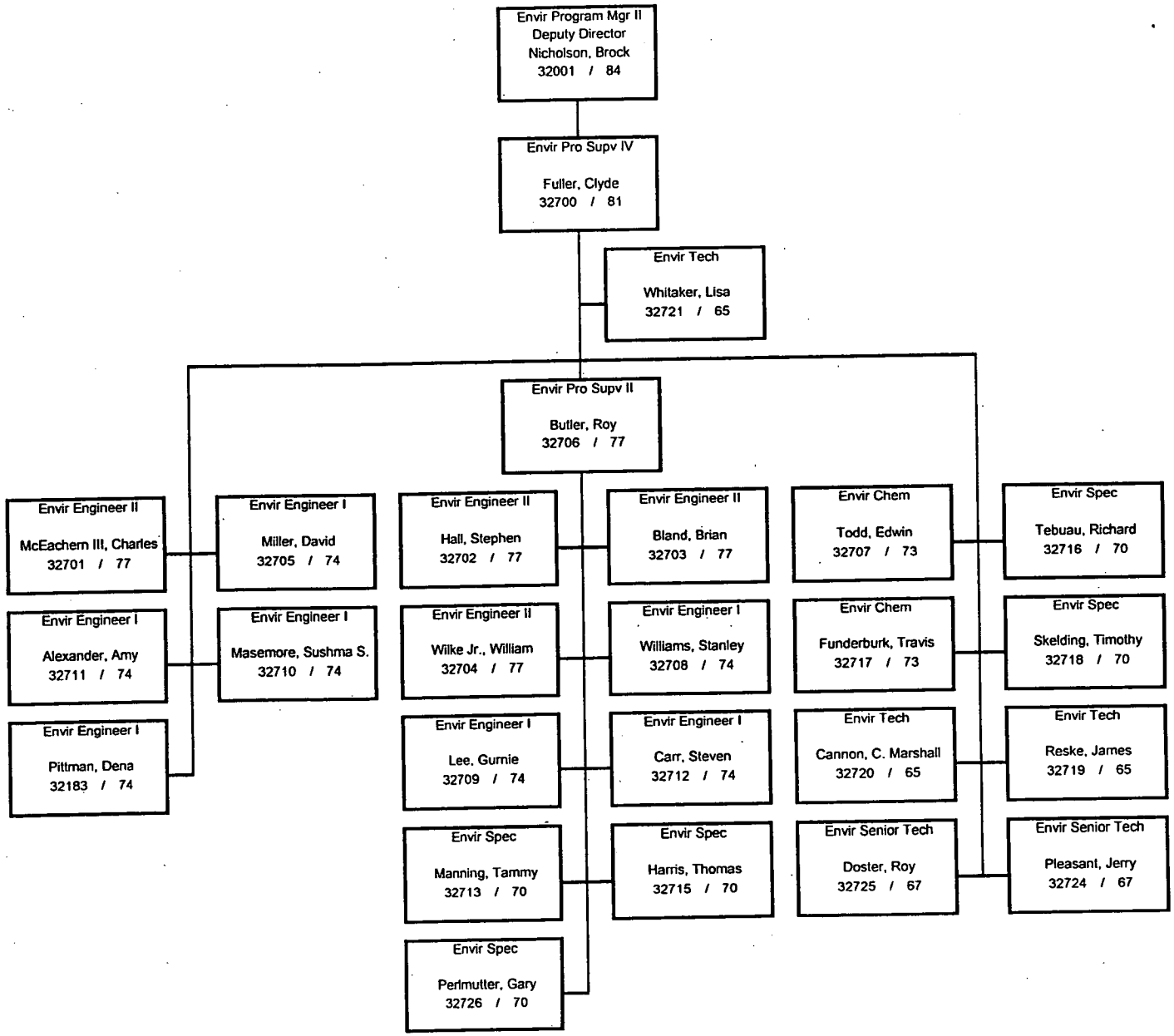
Department of Environment and Natural Resources
Division of Air Quality
Fayetteville Regional Office



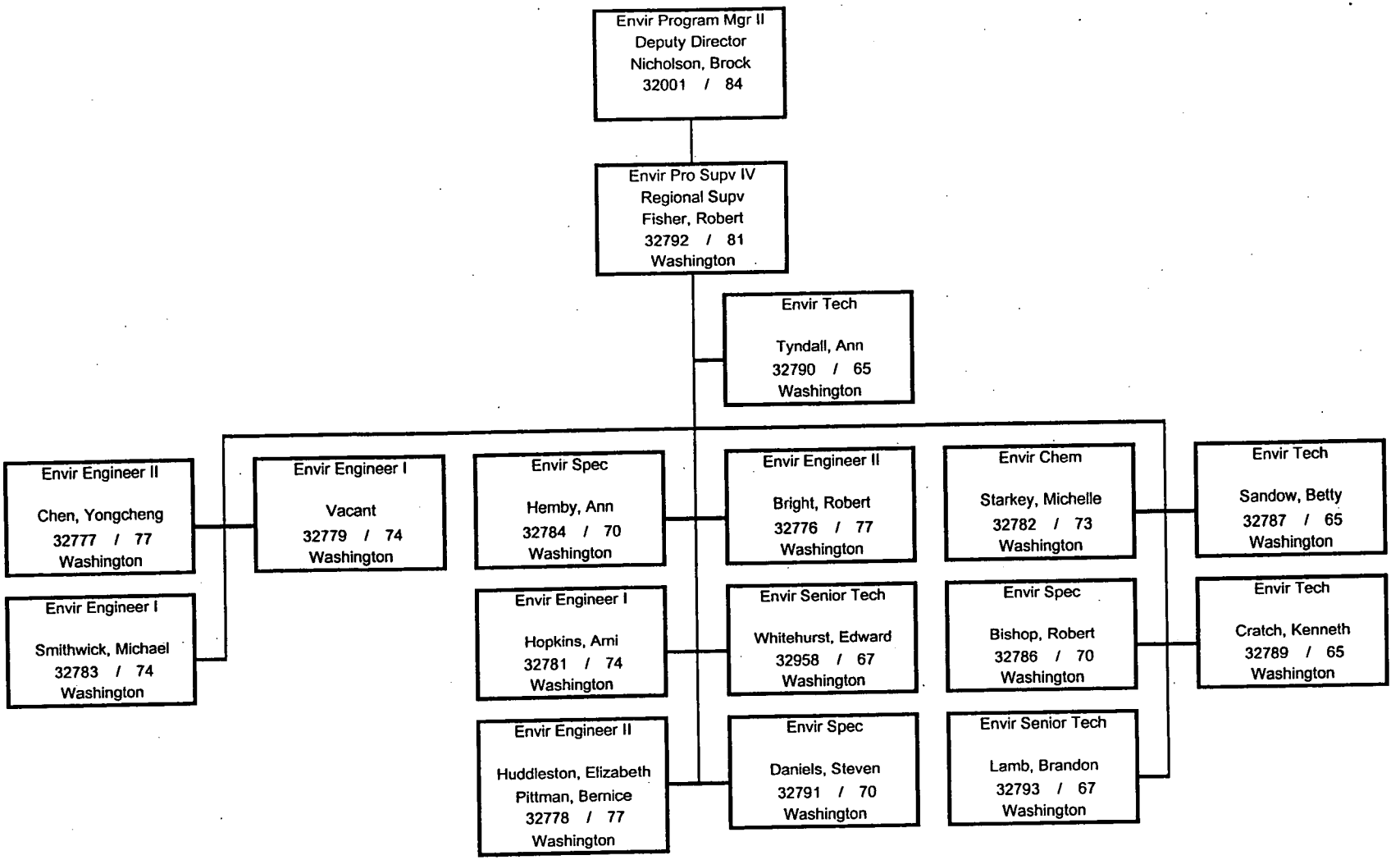
Department of Environment and Natural Resources
Division of Air Quality
Moorseville Regional Office



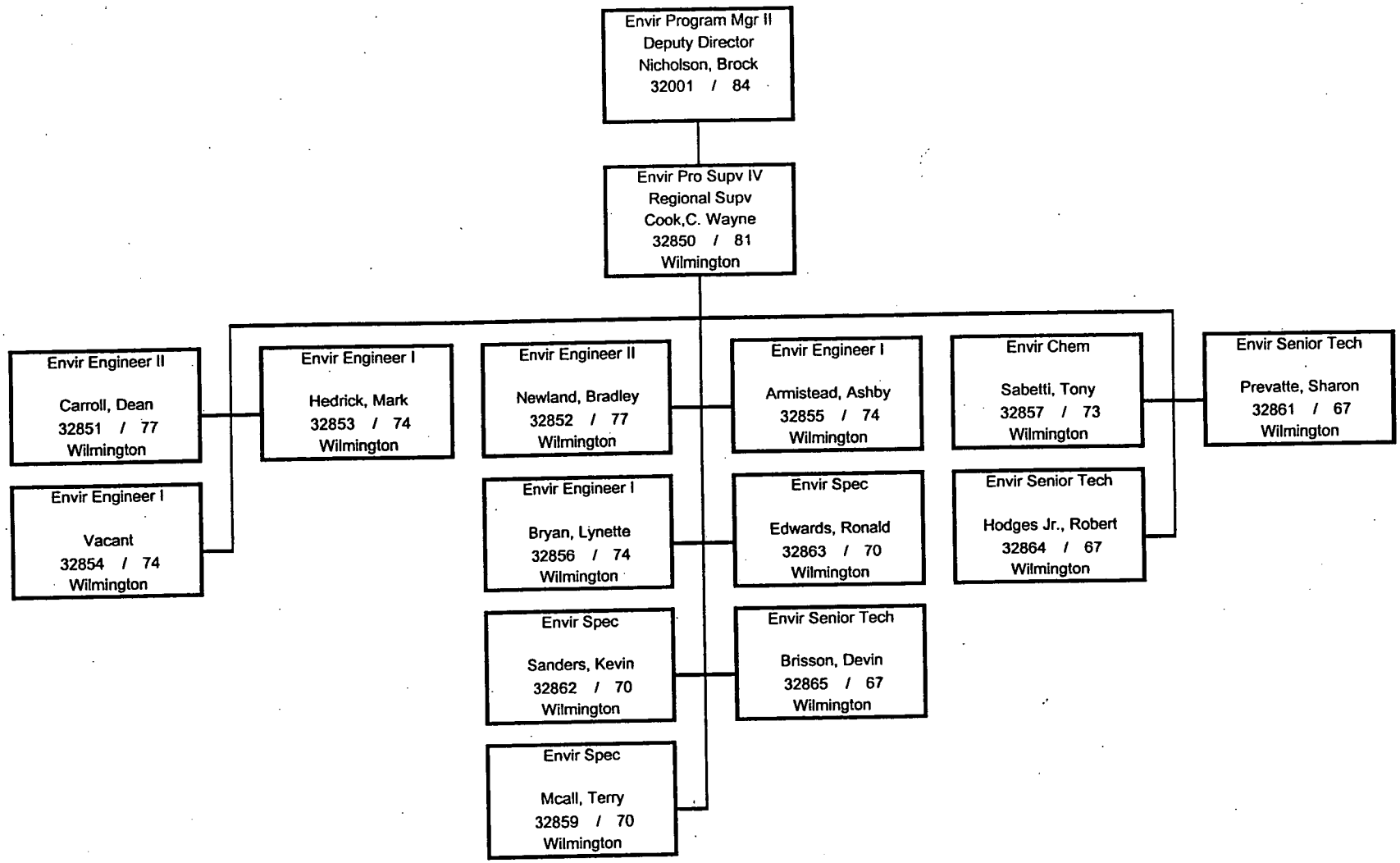
Department of Environment and Natural Resources
Division of Air Quality
Raleigh Regional Office



Department of Environment and Natural Resources
Division of Air Quality
Washington Regional Office



Department of Environment and Natural Resources
Division of Air Quality
Wilmington Regional Office



Department of Environment and Natural Resources
Division of Air Quality
Winston-SDalem Regional Office

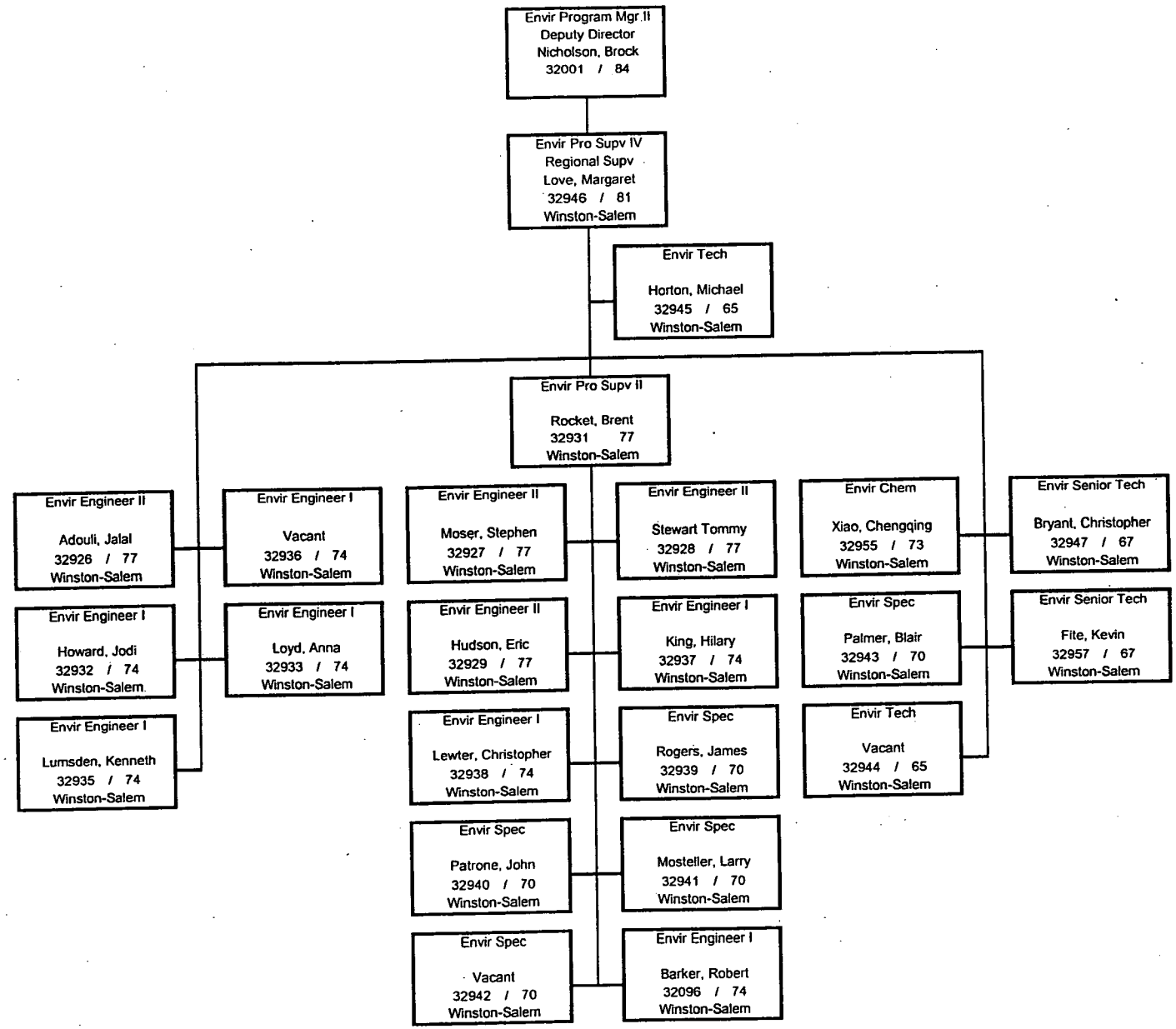


Exhibit N

Title V Permit Program Annual Report

Keith Overcash, PE
Director, Division of Air Quality
December 19, 2007

Title V Permit Program

- Background
- Current status
- Fee increases

Title V Permit Program

- Refers to "Title V" of the Federal Clean Air Act of 1990
- Title V facilities are those which emit
  - 100 tons/year of regulated pollutants, or
  - 10 tons/year of any hazardous air pollutant, or
  - 25 tons/year of all hazardous air pollutants
- *Title V air permit program MUST be funded only by Title V permit fees*

Title V Permit Program

- North Carolina Clean Air Act Advisory Council, Final Report (1992)
  - Program is more than just issuing the initial permit, it includes all aspects of running the program
  - Air modeling, analyzing process change requests, inspections, responding to complaints, evaluating test results, monitoring, public participation, small business assistance, legal counsel

Authority for Title V Permit Fees

- NCGS § 143-215.3A authorizes fees
  - Set by the EMC, 15A NCAC 02Q .0203
- Statute allows a surplus balance
  - Compensate for temporary dips or delays in revenue streams
- Rebates offered to industry if surplus is too large

Title V Permit Program

- North Carolina has 300+ Title V facilities
  - Utilities (Duke Energy, Progress Energy)
  - Manufacturing facilities (Goodyear, Firestone, Triangle Brick, Blue Ridge Paper)
  - Other industrial sites (Nucor, PCS Phosphate)
  - Animal processing plants (Smithfield, Perdue)
  - Public landfills, universities, and hospitals
- Over 600 other facilities have accepted operating restrictions to opt out of the Title V program
  - Still permitted, but not subject to Title V

Title V Permit Program

- Fee structure
  - One-time permit application fee
    - Five-year renewals are no-cost
  - All Title V facilities
    - Annual flat basic permit fee
    - Annual variable tonnage fee
  - Certain Title V facilities, depending on geographical locale
    - Additional annual flat nonattainment area fee, applied in counties that do not attain the Federal air quality standards
  - Caps
    - Variable tonnage fee is capped at 4,000 tons per pollutant

Title V Permit Fees

- Fees were initially set in 1994
  - Annual inflation adjustment is allowed, but not always applied

Year	Tonnage Factor	Basic Permit Fee	Nonattainment Area Added Fee
1994	$14.63	$5,100	$2,600
2007	$18.10	$6,311	$3,297

Title V Program: Looming Deficits

- No Consumer Price Index (CPI) adjustment for a number of years, revenues were flat
- Expenses increased
  - Office space, utilities, other support costs
  - Recent legislative pay raises to employees
    - Zero appropriations
    - Must be met through permit fees
- Increase revenue or decrease expenses

Title V Program: Looming Deficits

- Workload is not decreasing
  - Growing state economy
  - Increasing regulatory demands
    - Tighter environmental standards (ozone, fine particles)
    - New issues (climate change)
- Maintain service to industry and public
  - Timely permit issuance
  - Timely response to concerns

Proposed Permit Fee Increases

- Discussed concept with affected industry this summer
- Took draft rule to the EMC in September
- Public hearing was held in November
- Anticipate that EMC will approve rules in January
- Fee increases would become effective in February/March

Proposed Fee Increases

Year	Tonnage Fee	Basic Permit Fee	Nonatt't Area Added
2007	$18.10	$6,311	$3,297
2008	$22.50	$6,500	$3,500
2009	$25.00	$6,500	$3,500
2010	$27.50	$6,500	$3,500
2011	$30.00	$6,500	$3,500
2012 and on	Ann.CPI	Ann.CPI	Ann.CPI

House Bill 1094 Pilot Project

2007 Annual Report to the North Carolina General Assembly

Terry L. Pierce, Director | Division of Environmental Health

Background

- Several counties experienced backlogs
- Increase in development – "building boom" – lead to favorable conditions for backlogs
- Cherokee County had largest backlog for Improvement Permits
  - 6 to 8 months waiting period
- Several solutions considered to address backlog
  - One proposed solution
    - Using licensed soil scientists to assist with permitting process

Proposal

- "Establish[ed] a pilot program to streamline the process for the issuance of an improvement permit or an authorization to construct for an on-site subsurface wastewater system in certain counties by authorizing local health departments, authorized agents of the Department of Environment and Natural Resources, and **licensed soil scientist to complete soil and site evaluations** in the participating counties."

Criteria for Selection

- A county must meet three criteria to participate in the pilot program:
  1. The population of the county must not exceed 25,000 according to the most recent federal decennial census.
  2. The county must have more than 900 applications for improvement permits or authorizations to construct that are pending before the local health department on the effective date of this act.
  3. The board of county commissioners and the local board of health for the county must both approve a resolution requesting to participate in the pilot program.

Process

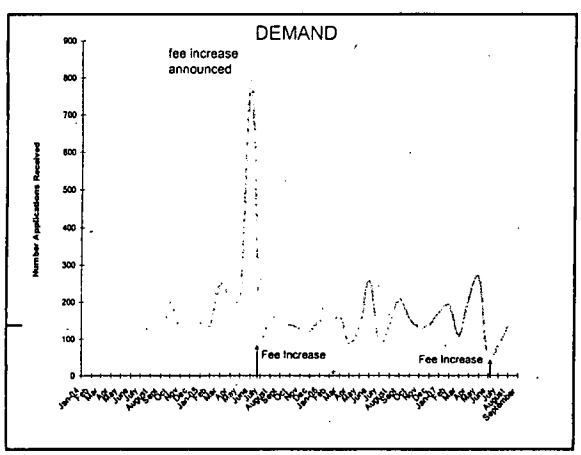
- Cherokee County request for Pilot Project
  - Resolutions by local boards in August 2006
- DEH staff provided:
  - Technical assistance
  - Orientation
  - Interpretation
- Licensed Soil Scientists (LSSs) required to:
  - Register with the health department
  - Provide proof of liability insurance

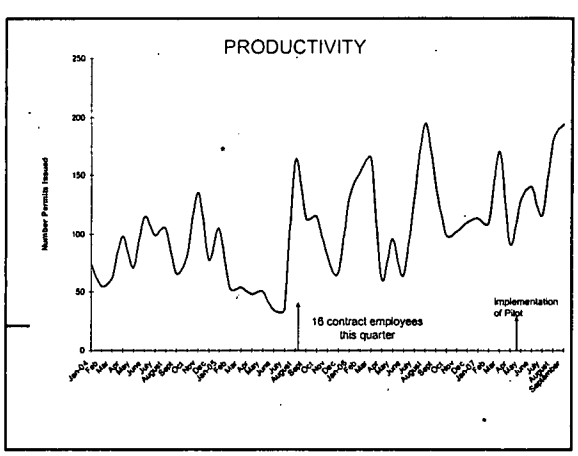
Process

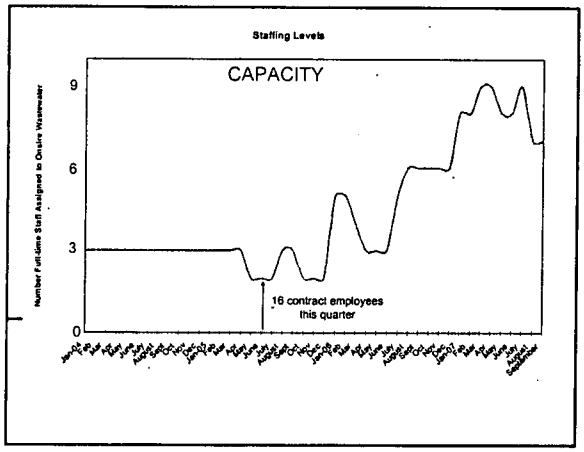
- Approved LSS may submit a completed soil and site evaluation to the health department.
- After determining the site review to be complete, the health department will issue an Improvement Permit (IP).
- The LSS must supply the appropriate information for an IP, and it must be signed and sealed by a licensed soil scientist.
- Upon review of application package for accuracy/completeness, the LHD issued an IP.

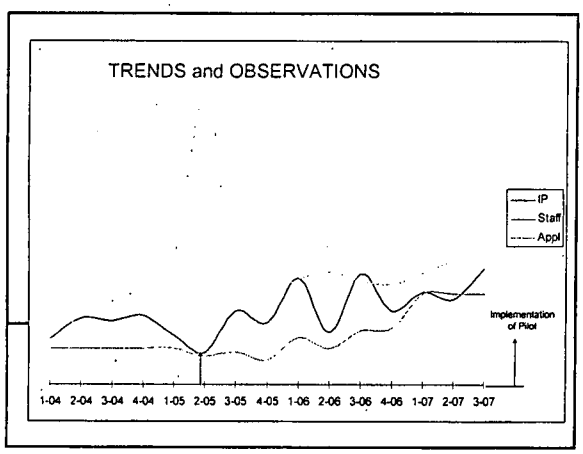
Findings

- Current backlog of applications for improvement permits = 450.
- Full-time Cherokee County employees assigned to on-site wastewater activities increased from three in 2004 to nine in 2007.
- The number of applications peaked in the first quarter of 2005 resulting in a dramatic backlog.
- The number of applications for improvement permits has dropped significantly during the summer of 2007.









Findings

Based on information provided by Cherokee County Health Department

- A total of 117 proposals were received since May 17, 2007.
- 56 proposals were permitted for installation.
- Six proposals were reviewed and are awaiting further information from the consultant.
- Eight of the permits were installed and received operation permits.

Concerns

- Staff limitations
  - Number of proposals being submitted by the LSSs is steadily rising
  - Only one health department LSS staffer was assigned to review work for pilot program

As the number of permits submitted by LSSs continues to rise, existing or new staff will be needed to review proposals for completion.

Evaluation – Criteria

- Three criteria (per legislation)
  i. "the program resulted in a reduction in the length of time improvement permits or authorizations to construct are pending in the participating counties;
  ii. the program resulted in increased system failures or other adverse impacts; and
  iii. the program resulted in new or increased environmental impacts."

Evaluation – Results

- Very few of the systems permitted through this pilot program have been installed.
- The few systems that have been installed have not been in use for a period sufficient to assess any failures or environmental impacts.

Recommendations

- Comments received from Cherokee County government officials.
  - DEH staff have considered suggestions
  - Would like to reevaluate in 2008

Recommendations

- More time is needed to determine the effectiveness of the pilot program as designed in HB 1094.
  - Only four months of data was collected.
- Participating LSSs should receive specific training on how to design, install, inspect and maintain septic systems through the many sources that provide this type of training.

Summary

- Administrative issues
  - Implementation was delayed
  - Clarification on legislation requirements
- Limited data resulting from implementation process
  - Only four months of data was collected this first year.

Summary

- Unable to determine the extent of backlog reduction attributed to the use of private LSSs
- Recommend continuation as currently implemented for at least a full year to determine its effectiveness

Questions?

Terry L. Pierce
Director
Division of Environmental Health
Terry.Pierce@ncmail.net
(919) 733-2870

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

TO: Sen. Dan Clodfelter
Sen. Charlie Albertson
Rep. Pryor Gibson
Rep. Lucy Allen

FROM: William G. Ross, Secretary

RE: HB 1094 (Cherokee County) Pilot Project Report

Session Law 2001-452 requires that the Department of Environment and Natural Resources report to the Environmental Review Commission on the establishment of a pilot program to streamline the process for the issuance of an improvement permit or an authorization to construct for an on-site subsurface wastewater system. Enclosed is this year's report. If you have any questions, please contact Ted Lyon at (919) 715-3274.

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HOUSE BILL 1094 PILOT PROJECT

2007 Annual Report to the North Carolina General Assembly

Presented by:
Division of Environmental Health
N.C. Department of Environment and Natural Resources

December 19, 2007

Purpose:

Session Law 2006-136 (House Bill 1094), ratified on July 10, 2006 and approved on July 19, 2006 "establish[ed] a pilot program to streamline the process for the issuance of an improvement permit or an authorization to construct for an on-site subsurface wastewater system in certain counties by authorizing local health departments, authorized agents of the Department of Environment and Natural Resources, and licensed soil scientist to complete soil and site evaluations in the participating counties."

Background and Process:

The law was passed to allow for the use of private licensed soil scientists (LSSs) to help reduce the backlog of septic system permit applications in participating counties. As the basis of HB 1094, a county must meet three criteria to participate in the pilot program:

1. The population of the county must not exceed 25,000 according to the most recent federal decennial census.
2. The county must have more than 900 applications for improvement permits or authorizations to construct that are pending before the local health department on the effective date of this act.
3. The board of county commissioners and the local board of health for the county must both approve a resolution requesting to participate in the pilot program.

The only county which met these three criteria following the legislation's passage was Cherokee County. Pursuant to Criteria 3, the local board of health approved a resolution on Aug. 14, 2006, and the Cherokee County Commissioners passed a resolution on Aug. 7, 2006.

The Department of Environment and Natural Resources' Division of Environmental Health On-site Water Protection Section staff was assigned the responsibility of providing an orientation for LSSs and local health department employees. The section's staff would also provide interpretation and technical assistance to the local health department and the LSS in accordance with 15A NCAC 18A .1964.

As mandated for establishing this pilot project, licensed soil scientists were required to register with the health department prior to submitting completed soil and site evaluations. The Cherokee County Health Department was required to maintain a list of registered LSSs as the participating county. All licensed soil scientists must maintain licensure in accordance with G. S. 89F – 3.

All licensed soil scientists registered must have in force errors and omissions coverage or other appropriate liability insurance with limits of not less than one million dollars per claim and shall remain in force for at least six years after the date the improvement permit is issued. Participating LSSs are required to submit proof of insurance to the county health department on an annual basis.

Under the guidelines set forth in HB 1094, an approved LSS may submit a completed soil and site evaluation to the health department. After determining the site review to be complete, the health department issues an Improvement Permit (IP). The LSS is required to supply the appropriate information for an IP, and it must be signed and sealed by a licensed soil scientist in accordance with G.S. 89C, 89E or 89F. The application package included:

1. Application. A complete application, in accordance with .1937 (d), provided by the county must be submitted.
2. Soil/Site Evaluation for On-Site Wastewater System. An LSS must submit a completed 'soil/site evaluation for on-site wastewater system form,' which is provided by the county. The form shall include documentation as required in: 130A-335 (e), 15A NCAC 18A. 1939, .1955 and SL 2006-136, Section 2.(d). Documentation must also include any additional information needed by the local health department to issue an improvement permit and an authorization to construct (AC), including but not limited to, trench length and maximum trench depth.
3. Site Plan as defined in 130A.334 (13a).

Once the health department received the application package from a LSS, health department staff reviewed the application for completeness and accuracy. The health department staff has the ability to deny an improvement permit for any application that was incomplete or inaccurate. If the documentation was complete and accurate, the local health department issued an improvement permit, which must bear a statement in accordance with SL 2006-136, Section 2. (g).

All application packages submitted by a LSS and all improvement permits issued based upon work performed by a licensed soil scientist are tracked by the local health department in order to determine the effectiveness of the pilot program.

Initial Findings:

As reported by the Cherokee County Health Department, LSSs from two companies were approved to participate in the 1094 Program in April 2007, and a third company was approved in July of 2007.

Implementation of the project was significantly delayed while the method of obtaining proper liability insurance coverage for the LSSs was pursued. The law calls for six years of coverage after the permit is issued with the required amount of coverage being $1 million per claim. The Cherokee County Attorney worked with the state's Attorney General's Office to develop an affidavit by which the LSS could agree to carry a sufficient policy every year for six years after the permit was issued rather than have to carry six years of insurance in advance. This issue was not resolved until March 2007.

Different interpretations as to the meaning of the law also led to delays in implementation. Division and health department staff worked together with agency attorneys to develop clear explanations and guidance regarding the liability issues outlined in the legislation.

Other delays were the result of planning and providing orientation for health department staff and LSSs and for developing appropriate forms and documentation required for successful project completion.

Many of the initial proposals submitted were for systems that would be installed in off-site easements. The complicated nature of the submittals, along with newness of the program, resulted in only 25 percent of LSS proposals being initially permitted. Time needed to review the

proposals and write the permits took longer for the same reasons. The inexperience of the reviewer and a lack of county staff to review proposals also caused delays. The health department developed a comprehensive review form; however, even with these improvements, approximately 50 percent of the proposals could be permitted upon initial review.

Based on information provided by Cherokee County Health Department staff and the Division of Environmental Health staff, the following occurred as of Aug. 31, 2007.

- A total of 117 proposals were received since May 17, 2007.
- A total of 56 proposals were permitted for installation.
- Six proposals were reviewed and are awaiting further information from the consultant.
- Eight of the permits were installed and received operation permits.
- Current backlog of applications for improvement permits is approximately 450.

Full-time employees assigned to on-site wastewater activities increased from three in 2004 to nine in 2007, and the number of applications peaked in the first quarter of 2005 resulting in a dramatic backlog. The number of applications for improvement permits has dropped significantly during the summer of 2007.

Concerns:

The number of proposals being submitted by the LSSs to the local health department is steadily rising, which is a concern to both the health department and the Division of Environmental Health. The large amount of review work during this pilot program was assigned to only one health department employee. As the number of permits submitted by LSSs continues to rise, existing or new staff will be needed to review proposals for completion. Staff, who would be used to otherwise issue permits, may be pulled out of the field to perform proposal reviews, resulting in a greater backlog of permits.

Evaluation:

According to HB 1094, section 3: "In order to determine the effectiveness of the pilot program, the Department of Environment and Natural Resources shall evaluate whether:

(i) the program resulted in a reduction in the length of time improvement permits or authorizations to construct are pending in the participating counties;
(ii) the program resulted in increased system failures or other adverse impacts; and
(iii) the program resulted in new or increased environmental impacts."

Very few of the systems permitted through this pilot program have been installed. The few systems that have been installed have not been in use for a period sufficient to assess any failures or environmental impacts.

Recommendations:

The Division of Environmental Health proposes the following as recommendations for continuation of the pilot.

1. More time is needed to determine the effectiveness of the pilot program as designed in HB 1094. Because package proposals were not submitted to the Cherokee County Health Department until May, the limited duration of the program resulted in only four months of data being collected.

2. Division staff will continue to provide orientation for LSSs participating in the pilot program. Participating LSSs should receive specific training on how to design, install, inspect and maintain septic systems through the many sources that provide this type of training.

The Division of Environmental Health has received comments and suggestions from Cherokee County government officials to expand and modify this pilot (attachments A1 and A2). Division staff has considered the comments proposed by county officials.

Being that the pilot program has only been in effect for four months, division staff believe that it would be premature to take any action at this time. However, it is recommended that the Cherokee County Pilot Project be extended for another year as currently implemented. At the end of this year, the Division of Environmental Health will reevaluate the above-referenced Cherokee County recommendations.

Summary:

It was May, 2007 before package proposals were submitted to the Cherokee County Health Department, and the limited duration of the program resulted in only four months of data being collected. The short duration reflected above was not sufficient to determine if the use of private LSSs resulted in a significant reduction of length of time improvement permits and authorizations to construct were pending within Cherokee County. The actual duration of proposal submission and approval was limited this year by many administrative aspects that needed to be resolved prior to submission. The time it took to implement the plan within Cherokee County and receive clarification on several interpretation issues limited the ability of the program to analyze reductions in permit wait time or increases in system failures or other adverse impacts. The division does, in fact, recommend for the future implementation of the pilot program that private LSSs who participate in the pilot program receive specific training from outside training sources on how to design, install, inspect and maintain septic systems.

In summary, the Division of Environmental Health suggests that the pilot continues as currently implemented for a full year to determine its effectiveness as designed in HB 1094.

CHEROKEE COUNTY

75 Peachtree Street
Murphy, North Carolina 28906

(828) 837-5527 • (828) 837-9684

Commissioners
Jonathan Dickey
W. David Sumpter, III
Dana Jones

County Manager
David Badger
County Attorney
R. Scott Lindsay

September 18, 2007

Terry L. Pierce, Director
DENR Division of Environmental Health
1630 Mail Service Center
Raleigh, NC 27699-1630

Dear Mr. Pierce:

At the September 17, 2007 Board meeting of the Cherokee County Commissioners Stuart Black LSS, RS presented the HB 1094 Annual Report as presented to the Cherokee County Board of Health and prepared for the Environmental Review Commission in accordance with HB 1094. The Board of Commissioners unanimously endorsed the report for your consideration and reporting to the General Assembly. The Board also encourages the NC Legislature and DENR to take prompt action on the following points:

1. To avoid delays and keep liability with the LSS, he/she should have the responsibility to do the Operation Permits for the IP/AC's that are issued based upon his/her 1094 proposals. That way, field changes could be instantaneous and all liability would belong to the LSS.

2. The LSS's that participate in this program should receive specific training on how to design, install, inspect, and maintain septic systems. Perhaps this should be a separate certification similar to the RS that the EHS's must hold.

3. The NC On-Site Wastewater Section should be responsible for reviewing the LSS's work for quality assurance much the same as they do for EHS's.

4. This pilot program should be tried in other counties that do not have the backlog problems that Cherokee County has. This would give a comparison basis in a "normal" county or a control study.

Sincerely,

Jonathan Dickey

Jonathan Dickey, Chairman
Cherokee County Board of Commissioners

CC: Senator John Snow, Rep. Roger West

Cherokee County Health Department

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Robert C. Wood
Interim Health Director

Branch Office
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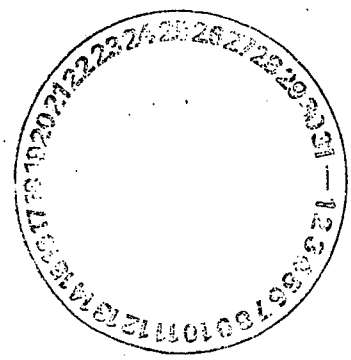

September 11, 2007

Terry L. Pierce, Director
DENR Division of Environmental Health
1630 Mail Service Center
Raleigh, NC 27699-1630

Dear Mr. Pierce,

At our September 10, 2007meeting, the Board of Health we received the 1094 Annual Report Summary prepared by Stuart Black, LSS, RS with our Environmental Health Section. The Board unanimously endorsed the report for your consideration and reporting to the General Assembly. The Board also encourages the NC Legislature and DENR to take prompt action on the following points:

1. To avoid delays and keep liability with the LSS, he/she should have the responsibility to do the Operation Permits for the IP/AC's that are issued based upon his/her 1094 proposals. That way, field changes could be instantaneous and all liability would belong to the LSS.

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Sincerely,

Carlton Van Horn

Carlton Van Horn, DVM, Chairman
Cherokee County Board of Health

CC: Senator John Snow, Rep. Roger West

N.C. Wastewater Discharge Elimination Program

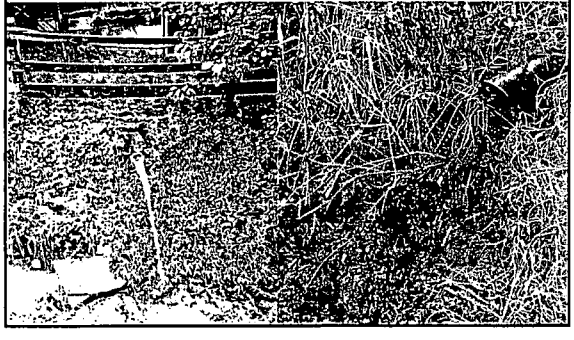
2007 Annual Report to the
North Carolina General Assembly

Walter T. Haven, P.G.

Program Description

- Established pursuant to S.L. 1996-18es2, Section 27.26
- Identify and eliminate discharges from straight pipes and failing septic systems to land surfaces and streams
- Varied funding sources including state appropriations

Examples



Program Accomplishments – 1997 to present

- Five survey projects conducted within first four years (projects are county or basin wide)
- 17 survey projects conducted since January 2002
  - Approximately 11,336 homes visited
  - 1,335 violations were identified

Program Accomplishments – 1997 to present

- New policy implemented in 2006
  - Allowed WaDE personnel to issue repair permits on behalf of the counties
  - Increased the rate that violations are corrected by 44 percent since 2006.
- Nearly 51 percent of all violations identified since 2002 have been corrected with many repair permits having been issued and awaiting system installation.

Program Accomplishments – 1997 to present

- Table 1 contains the WaDE Program statistics for January 2002 through September 2007.

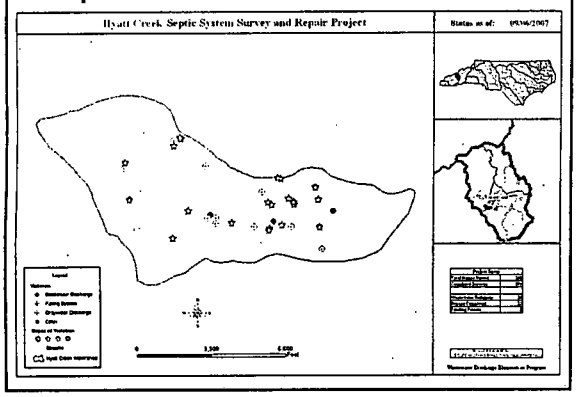
Results	
Total Homes Visited	11,336
Completed Surveys	6,945
Violations	1,335*
Repair Violations Corrected	
Repairs Completed	680*

*These totals include data from the referral program.

2006-2007 Program Overview

- Certified Intern Training (CIT) authorized agents of the state to assist counties with program and permitting.
- Limited to home revisits regarding existing violations
- Haywood Waterways Collaboration to address sedimentation, bank erosion, and bacteria with DEH, DWQ, DOT, Wildlife Resources, EPA, etc.
- Swannanoa River collaborative efforts and septic discharge – in development
- Database and GIS update – tracking and maintenance now in Asheville

Output of GIS Database



Future Directions

- Permanent staff
- WaDE Program expansion into Catawba County
- Statewide expansion and support
  - Geographical scope
  - Impact of straight-piping – both public health and environmental impacts

Discussion

Walter T. Haven, P.G.
Private Water Supply Branch Head
Division of Environmental Health
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