



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

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Secretary

January 29, 2015

MEMORANDUM

TO: ENVIRONMENTAL REVIEW COMMISSION
The Honorable Mike Hager, Co-Chair
The Honorable Brent Jackson, Co-Chair

FROM: Neal Robbins, Director of Legislative and Intergovernmental Affairs

SUBJECT: 2013-2014 Solid Waste and Materials Management Annual Report

DATE: January 29, 2015

Pursuant to G.S. 130A-309.06(c), the Department shall report to the Environmental Review Commission on or before 15 January of each year on the status of solid waste management efforts in the State. Please consider the attached Solid Waste and Materials Management Annual Report as the formal submission of this report.

If you have any questions or need additional information, please contact me by phone at 919.707.8618 or via e-mail at neal.robbs@ncdenr.gov.

cc: Tom Reeder, Assistant Secretary for the Environment
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North Carolina Solid Waste and Materials Management Annual Report FY 2013-2014

A comprehensive report outlining the state's efforts regarding solid waste and materials management, recycling and the status of waste management facilities, with additional report contributions from the state departments of Administration and Transportation.



NORTH CAROLINA SOLID WASTE AND MATERIALS MANAGEMENT ANNUAL REPORT FISCAL YEAR 2013-14

This consolidated annual report is required by the North Carolina General Assembly. The report combines several annual reports that were once issued separately by the N.C. Department of Environment and Natural Resources, including the Comprehensive Solid Waste Management Report, the Scrap Tire Disposal Account Report, the White Goods Management Report and the Solid Waste Management Trust Fund Report. This report also includes information from the N.C. Department of Transportation regarding its use of recycled materials in contracts and data from the N.C. Department of Administration on bid procedures and purchases of sustainable and efficient supplies and materials.

Solid waste and materials management information in this report comes from 644 (100 county and 544 municipal) local government annual reports and more than 350 solid waste management facilities (including out-of-state facilities). These reports represent activities related to the management of solid waste for the period of July 1, 2013 through June 30, 2014.

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Executive Summary

The Division of Waste Management and the Division of Environmental Assistance and Customer Service are pleased to report that although the population in North Carolina increased by one percent in FY 2013-14 (July 1, 2013 - June 30, 2014), the amount of waste disposed in municipal solid waste landfills and construction and demolition landfills was essentially static.

North Carolina disposed 9,150,471 tons of waste at in-state and out-of-state facilities. This represents a small net increase in disposal of 1,341 tons over the previous fiscal year. In-state municipal solid waste landfills and construction and demolition landfills reported receiving more waste, approximately one percent and fifteen percent respectively, while the amount of waste North Carolina exported out of state decreased by 155,441 tons from the previous year.

In FY 2013-14, the state per capita disposal rate dropped to a record low of 0.93 tons of waste per person per year, and North Carolina continued to dispose of solid waste at a lower rate relative to the last decade. FY 2013-14 was the fourth year in a row reporting disposal at less than one ton per capita. This is most likely due to increased recycling, reduced consumption of some materials and possible ongoing effects of the economic downturn, particularly in the construction industry.

Historically, good economic growth has led to increased waste disposal. Landfill bans and an increase in recycling activity may be keeping waste disposal from rising. Indications are that the North Carolina recycling economy is growing and helping to increase jobs, capital investment, and tax base.

Local Governments recycling programs recorded the largest amount of materials recovery in state history during FY 2013-14. This notable increase is primarily the result of the substantial recovery of vegetative debris that was generated as a result of the ice storms impacting central parts of the state plus storms affecting lower coastal communities.

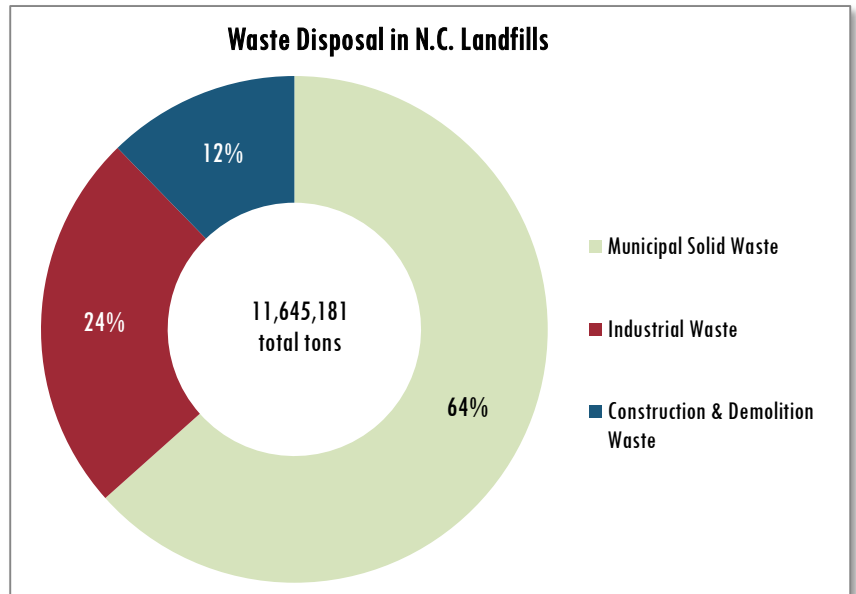
North Carolina's municipal and county recycling programs recovered and diverted more cans, bottles and paper during FY 2013-14 than ever before. These recovery efforts provide materials to satisfy a strong demand by industry in North Carolina and beyond for recovered materials as feedstock to manufacturing processes.

Data for much of the information in this report along with other subsidiary reports is available on the web at <http://portal.ncdenr.org/web/wm/sw2014>.

Department of Environment and Natural Resources - Solid Waste Management

Waste types handled at North Carolina facilities include municipal solid waste, industrial waste, construction and demolition waste, land-clearing waste, scrap tires, medical waste, compost, and septage. North Carolina disposed of a total of 9,150,471 tons of municipal solid waste [MSW] and construction and demolition [C&D] waste in waste management facilities located within the state and out-of-state. This represents an increase of 1,341 tons from the previous fiscal year.

The N.C. Department of Revenue reported Solid Waste Tax collection of \$17,200,782 which equates to 8,600,391 tons of taxable solid waste going into landfills within North Carolina and, through transfer stations, going to landfills in neighboring states.



Revenue from the Solid Waste Tax was distributed to:

- Inactive Hazardous Sites Cleanup Fund - 50% is used to fund the assessment and remediation of pre-1983 landfills,
- Local Governments – 18.75% to counties and 18.75% to municipalities to assist them with their waste and materials management programs, and
- 12.5% to the General Fund.

Industrial landfills, which contain primarily combustion byproducts of coal at power plants and pulp mill sludges at paper plants, accommodate the disposal of 2,829,820 tons of waste from adjacent industrial complexes.

Key Findings

- The state per capita disposal rate remains below one ton per person.
- North Carolina-permitted solid waste management MSW landfills and C&D landfills received a total of 8,815,361 tons of solid waste for fiscal year 2013-14. Waste originating from South Carolina and Virginia equaled 189,565 tons.
- North Carolina exported 528,627 tons for fiscal year 2013-14, a 155,441 ton decrease from the previous year. Exported solid waste was sent to South Carolina, Virginia, Tennessee and Georgia.
- Recycling of traditional recyclable materials increased 0.4 percent from FY 2012-13 to FY 2013-14. This net increase is significant because it occurred despite the continued decline in the generation of discarded paper. Public recovery of all grades of paper fell by 1.1 percent compared to the previous year, while local government collection of most container materials – e.g. plastic, aluminum and glass, increased 3.3 percent in FY 2013-14.
- North Carolina communities operated curbside recycling programs in FY 2013-14, a record high, and these programs provided nearly 1.9 million households with access to public recycling services. Curbside recycling has replaced drop-off recycling as the method that collects the majority of cans, bottles and paper recycled by public programs in the state.

- The rate of electronic materials collection increased to 3.87 pounds per capita in FY 2013-14, and the combined efforts of local government and private sector electronics recycling activities recovered over 19,000 tons of materials, the largest amount recorded in state history.

Departmental Considerations

- The Department should encourage the diversion of identified large solid waste streams, such as food and wood wastes, from large generators of these wastes.
- The Department should review the current permitting framework associated with new waste management technologies and procedures.
- The Department should work to expand collection of recyclable materials to meet the demand of growing recycling markets in North Carolina.

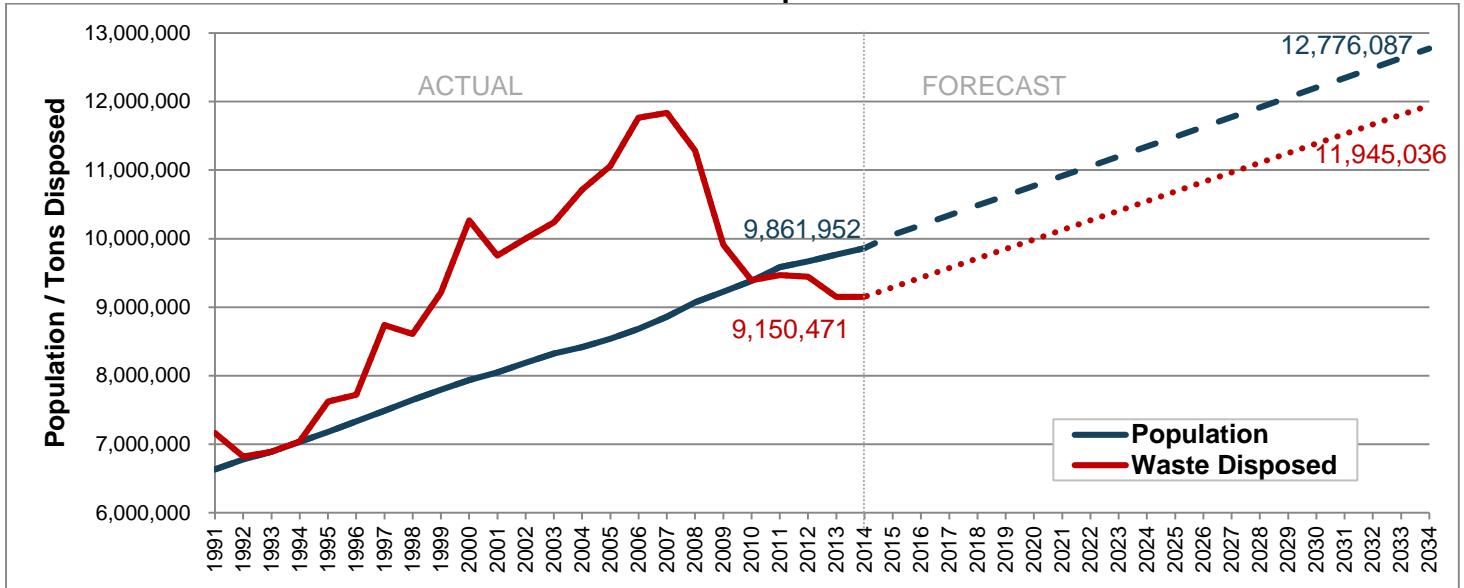
Municipal Solid Waste and Construction and Demolition Debris Disposal

Fiscal Year	Tons of waste disposed	NC population	Tons of waste per person in a year	Per capita waste change from Base Year 1991-92	Per capita waste change from previous year
2013-14	9,150,471	9,861,952	0.93	-13.1%	-1.1%
2012-13	9,149,130	9,765,229	0.94	-12.1%	-4.1%
2011-12	9,443,380	9,669,244	0.98	-9.0%	-1.0%
2010-11	9,467,045	9,586,227	0.99	-8.0%	-1.0%
2009-10	9,395,457	9,382,609	1.00	-6.4%	-6.8%
2008-09	9,910,031	9,227,016	1.07	0.4%	-13.7%
2007-08	11,284,712	9,069,398	1.24	16.3%	-6.9%
2006-07	11,837,104	8,860,341	1.34	24.8%	-1.4%
2005-06	11,765,183	8,682,066	1.36	26.6%	4.9%
1991-92*	7,257,428	6,781,321	1.07		
1990-91	7,161,455	6,632,448	1.08		

* Baseline Year

In past years, disposal consisting of municipal solid waste, waste from residences and businesses and C&D waste, waste which comes from the home and building construction trade has consistently shown strong upward trends. However, beginning in FY 2006-07, disposal rates started to fall and have declined every year on a per capita basis. The gap between future waste disposal and population has narrowed. The following graph shows that if per capita disposal remains static (it is presently 0.93 tons of waste per person per year), in twenty years the disposal amount will be 11,945,036 tons.

North Carolina Solid Waste Disposal 20-Year Forecast



Municipal Solid Waste (MSW) Landfill Capacity

The total remaining capacity of all North Carolina MSW landfills measures approximately 371 million cubic yards, equating to approximately 234 million tons. This represents a decrease from last year. The estimate was obtained using 0.63 tons of waste per cubic yard of air space. The capacity does not include waste exported to out-of-state landfills. The state capacity equals 31 years of waste disposal if North Carolina's rate of landfill use remains steady at approximately 7.3 million tons per year. Continued efforts to increase recycling and material diversion should help the state maintain strong landfill capacity. Much of the state's capacity is not available statewide due to permit conditions, franchise arrangements, service areas and distances. Although overall state capacity is sufficient, some regions have limited waste disposal capacity. Those areas may experience higher disposal costs and possible disruptions in service as facilities close or fuel costs make transport of waste to distant facilities prohibitive.

Industrial Landfill Disposal

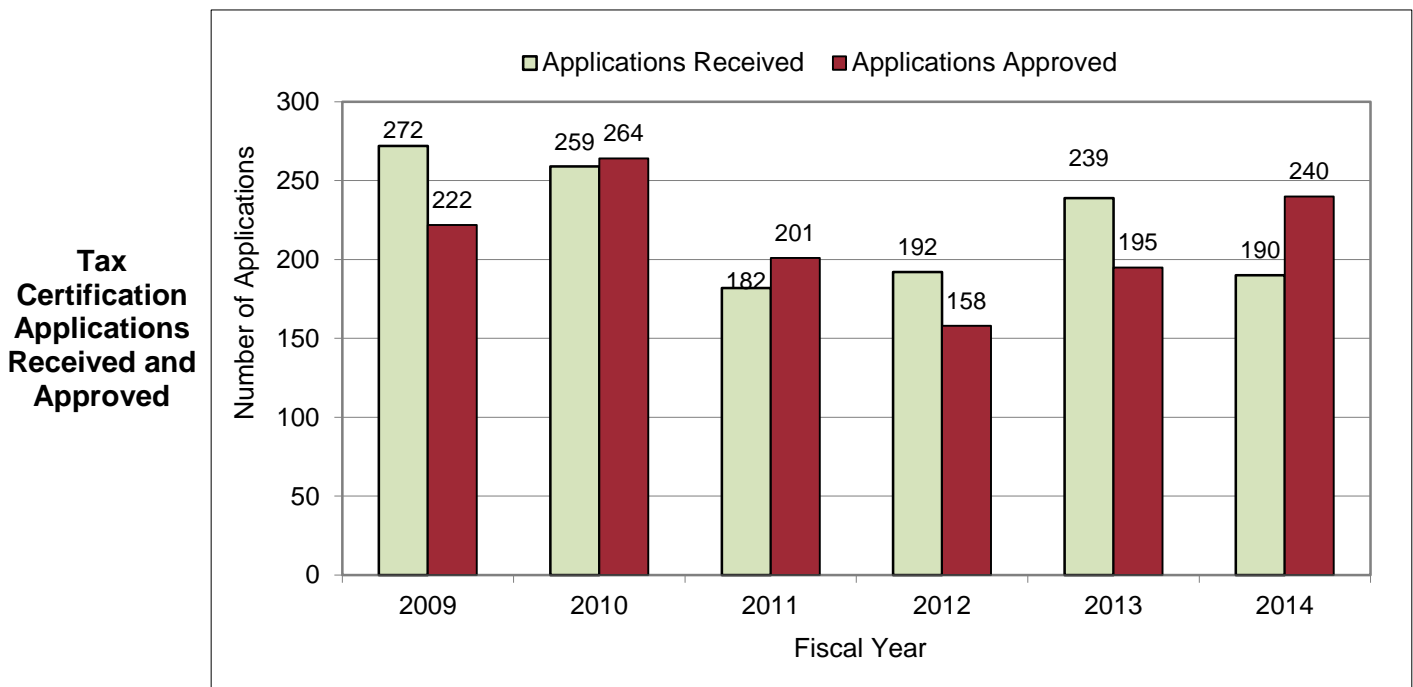
Permit Number	County	Permit Name	Tons in FY 2103-14
7302-INDUS-1988	Person	Duke Energy Roxboro Steam Electric Plant	651,928
1809-INDUS-	Catawba	Duke Energy Marshall Steam Plant FGD	358,612
4406-INDUS-1984	Haywood	Blue Ridge Paper Products, Inc.	340,021
8106-INDUS-2009	Rutherford	Duke Energy Cliffside Steam Plant CCP Landfill	331,893
8505-INDUS-	Stokes	Duke Energy Belews Creek FGD Residue Landfill	246,904
3612-INDUS-2008	Gaston	Duke Energy-Allen Steam Plant RAB Ash Landfill	244,329
8504-INDUS-	Stokes	Duke Energy Belews Creek Craig Rd Landfill	226,596
2402-INDUS-1972	Columbus	International Paper	196,064
4204-INDUS-1994	Halifax	Halifax County Coal Ash Landfill	117,307
1812-INDUS-2008	Catawba	Duke Energy Marshall Steam Plant	87,995
9401-INDUS-2008	Washington	Domtar Paper Company Landfill, Lined #3	13,644
9703-INDUS-1981	Wilkes	Louisiana-Pacific Corporation	12,230
6004-INDUS-1981	Mecklenburg	Duke Energy McGuire	2,298

7602-INDUS-1983	Randolph	Eveready Battery	0
7305-INDUS-2012	Person	Duke Energy Mayo (under construction during FY)	0
TOTAL			2,829,820

In North Carolina, onsite land disposal of waste at industrial sites requires a permit from the Division of Waste Management. Currently, there are 15 industrial landfills permitted to receive various kinds of industrial waste. The largest volume of waste disposed into industrial landfills is at electric power plants and consists of coal combustion waste generated in the boiler systems. Secondary in volume is the paper product industry, which receives sludge and wood ash from the processing of wood pulp and from the boiler system.

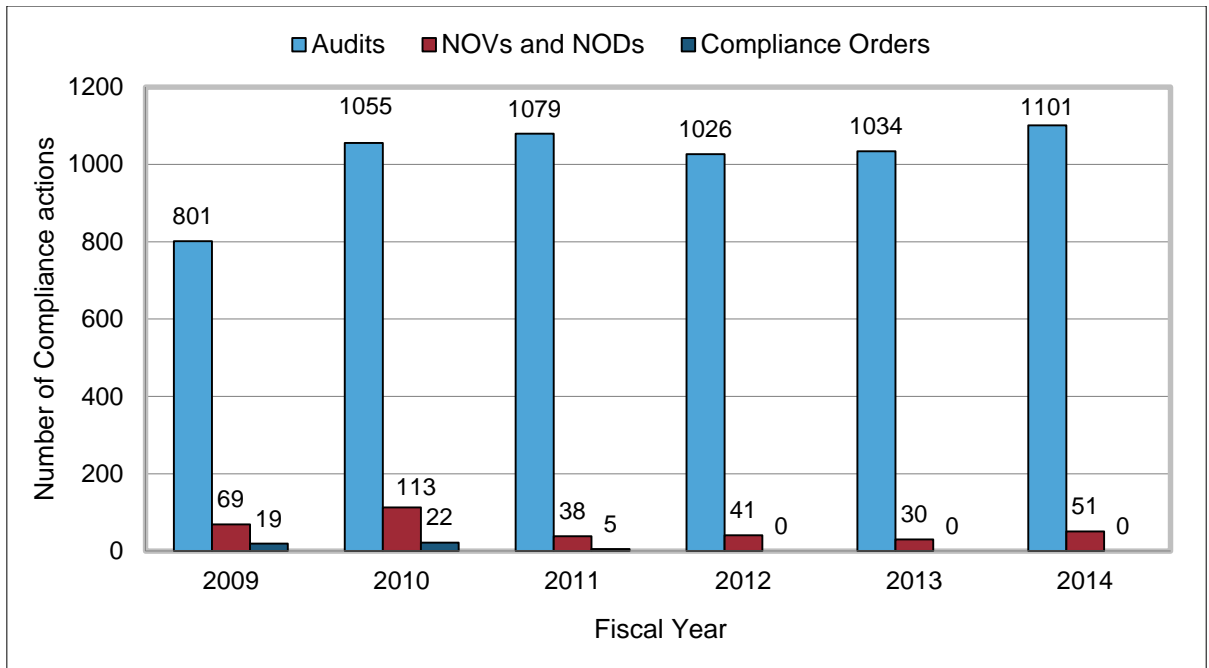
Evolving Trends in Management of Waste and Materials

The department continues to acknowledge and accommodate the changing nature of solid waste materials management in North Carolina. New and different waste streams have emerged for recycling and recovery, including asphalt shingles, or construction and demolition debris, wood waste, and flue gas desulfurization residue. Working with the private sector, these activities are permitted and managed in a manner that is safe for public health and the environment. In addition, the solid waste facility owners continue to add services for recovery of materials that expands recycling beyond the traditional white goods, used oils and tires. Increasingly, construction and demolition streams and traditional land clearing or other inert debris waste types are being diverted from disposal. Regulations will be necessary to maintain a solid, well-developed materials management program in the state. An increase in the numbers of tax certifications on an annual basis continues after a slump in 2011. This signifies the new and continuing trend of businesses which include a recycling component.

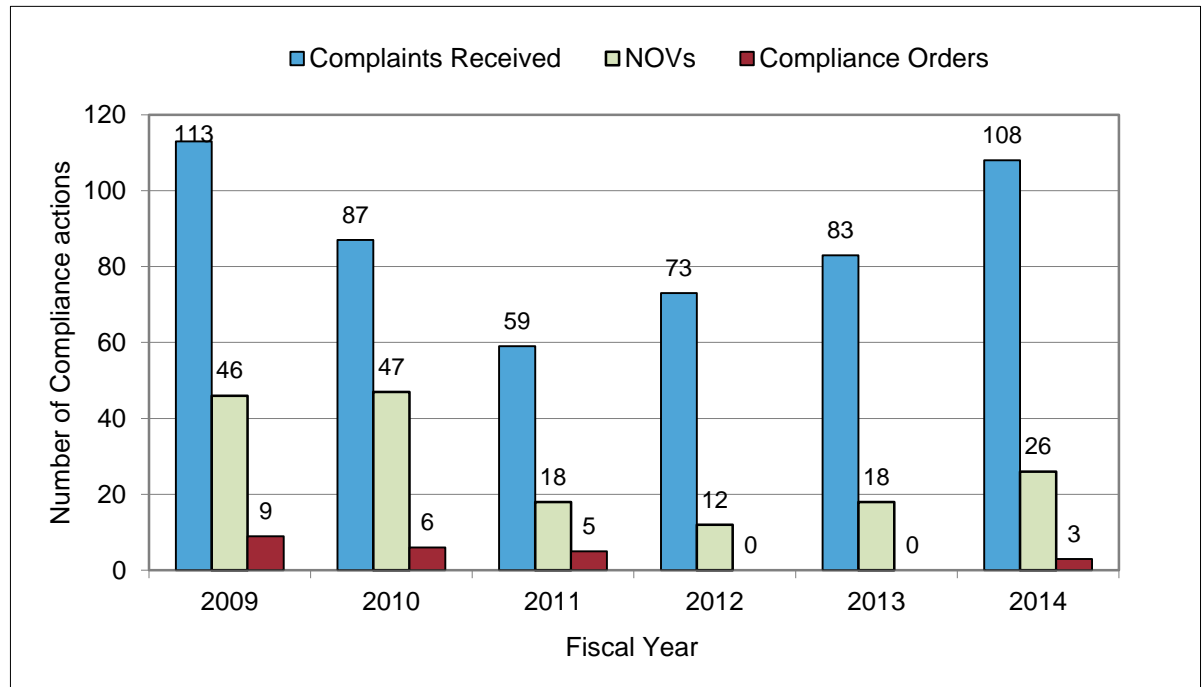


Compliance at permitted or notified sites and at illegal disposal sites has been steady since a high in FY 2009-10. Compliance level is often a direct function of customer service and education of the regulated community and public by department staff.

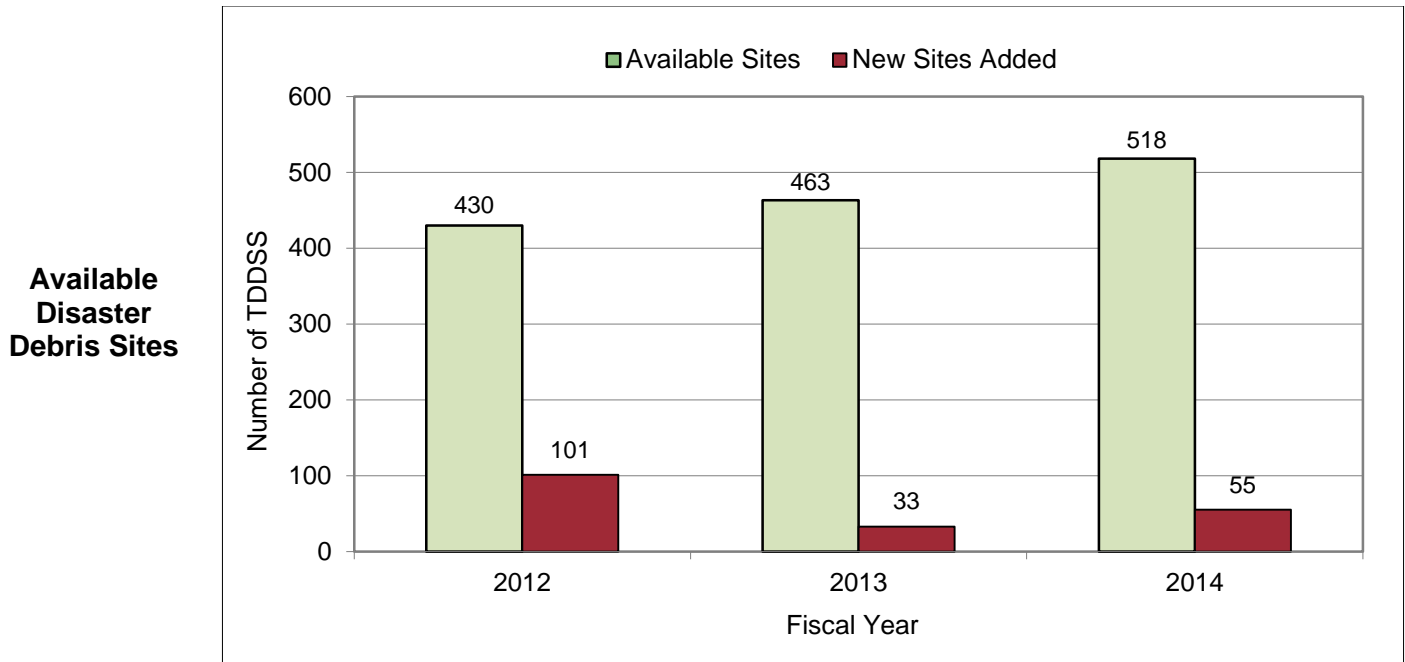
Regulated Facility Compliance



Illegal Site Compliance



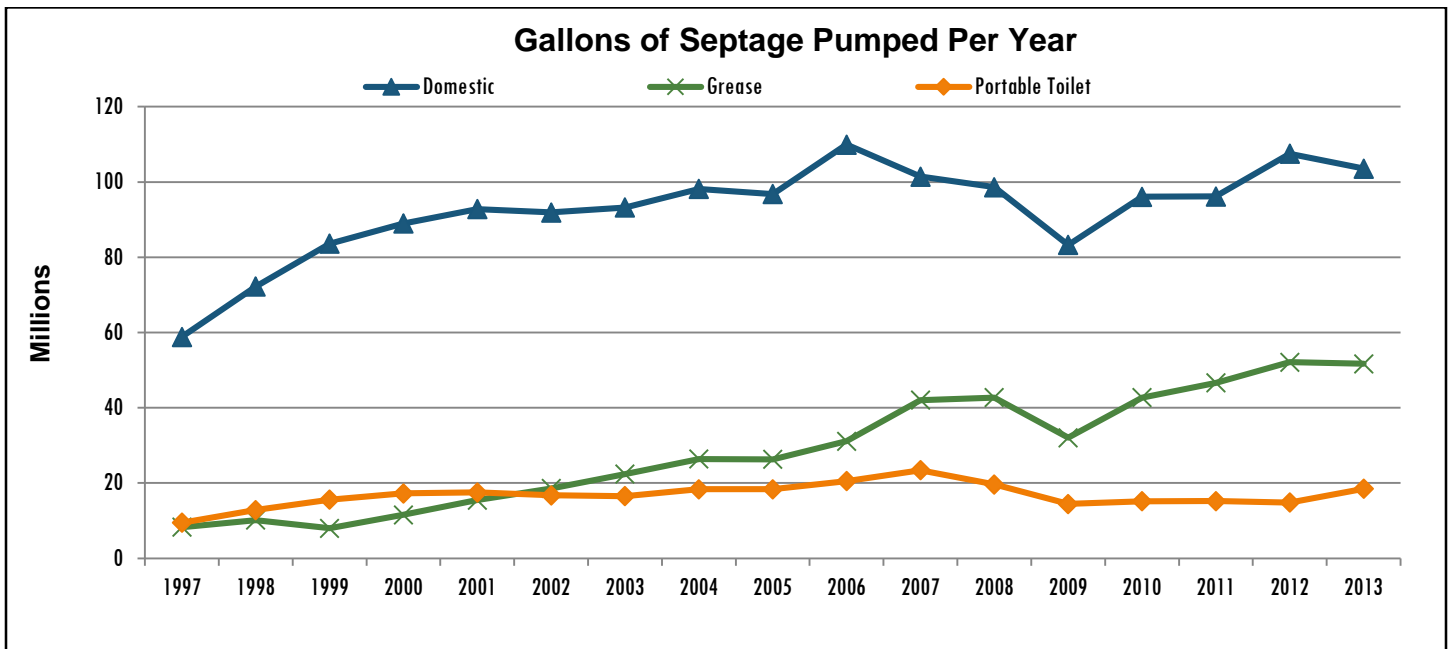
The department continues to work with local governments to foster the message that disaster preparedness is essential, given the history of storm destruction in North Carolina.



Composting and Land Application

Major areas of emphasis concerning composting and land application include permitting and compliance activities associated with septage and solid waste compost facilities. The program also assists waste generators with evaluations of wastes and by-products that can be land-applied for beneficial uses and the best management practices to be followed for each by-product to assure protection of public health and the environment. Some examples of beneficially reused waste include wood ash and tobacco dust.

The volume of septage pumped in FY 2013-14 (173,720,604 gallons total) shows that the overall volume of septage is increasing towards the industry high figures from FY 2006-07. Grease septage volumes managed by permitted septage firms continue to increase, in part due to local government programs that require restaurants to have their grease traps pumped more frequently.



Compost Facilities in FY 2013-14 saw a continued interest in the diversion of organics from the municipal solid waste stream. Fourteen solid waste compost facilities accepted food waste in FY 2013-14, for a total reported tonnage of 38,014. An additional 18,351 tons of food processing residuals were accepted by solid waste compost facilities.

Department of Environment and Natural Resources - Local Government Waste Reduction Activities and Recycling Markets

Annual reports received from North Carolina counties and municipalities provide data on public source reduction, reuse, recycling and composting activities statewide as well as other aspects of solid waste management. Data from these reports helps to produce a picture of waste reduction, recycling and materials management efforts in North Carolina. This data offers information that helps to gauge the breadth and relative effectiveness of local government programs in diverting materials from disposal and delivering those materials to industry for reprocessing. Data from these annual reports also helps to document the trends in recycling and reuse program implementation and the evolving nature of public materials recovery efforts in North Carolina.

Source Reduction and Reuse Programs

The total number of local governments operating a source reduction and/or reuse program increased by one during Fiscal Year 2013-14 (July 1, 2013 – June 30, 2014), up from 107 total programs in FY 2012-13 to 108 programs. Promoting source reduction and local reuse options continues to be a cost effective method for helping citizens reduce the amount of solid waste that is discarded. Source reduction and reuse programs are typically popular with residents, and these programs can often be operated with minimal staff time which can primarily be devoted to education and outreach.

Local Source Reduction /Reuse Programs								
Program Type	FY 2006-07	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
Backyard Composting Programs	53	48	53	54	54	56	51	52
Source Reduction Programs	68	67	65	74	80	86	81	71
Public Reuse Programs	42	42	45	42	43	48	39	46
Total Local Governments with Source Reduction or Reuse Programs	95	97	96	105	108	113	107	108

Local Government Recovery

The following table documents local government materials recovery operations over the past ten years. Local government recovery showed a substantial increase during FY 2013-14 when compared to the previous year, and data for the year reflects that FY 2013-14 represents the largest amount of local government recycling efforts in state history. The notable increase in the recovery of organics is largely the result of severe weather events during FY 2013-14. Highlights from the table below will be examined in greater detail later in this chapter.

Local Government Recovery (Tons) and Performance Measures					
Material	FY 2004-05	FY 2005-06	FY 2006-07	FY 2007-08	FY 2008-09
Total Paper	303,514	292,641	305,615	321,019	342,008
Total Glass	44,003	45,421	51,883	56,837	69,446
Total Plastics	18,320	18,177	19,373	22,298	23,947

Total Metal*	109,612	108,488	96,884	84,740	69,242
Total Organics**	583,101	619,494	631,393	554,576	593,323
Special Wastes***	6,690	6,955	8,304	7,195	8,433
Electronics and Televisions***	N/A	N/A	N/A	N/A	N/A
Construction and Demolition Debris	20,292	24,001	40,352	59,501	33,209
Tires****	113,670	146,177	187,273	142,160	147,055
Other	5,677	7,743	5,558	6,753	8,474
Totals	1,204,879	1,269,097	1,346,635	1,255,079	1,295,137
Per Capita Recovery (lbs.)	282.13	292.35	303.97	276.77	280.73
Recovery Ratio (Recycling: Disposal)	0.11	0.11	0.11	0.11	0.13

Local Government Recovery (Tons) and Performance Measures (continued)					
Material	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
Total Paper	343,031	347,622	344,758	321,819	318,183
Total Glass	75,124	86,163	96,819	117,237	115,997
Total Plastics	29,206	36,047	36,670	39,322	44,407
Total Metal*	61,251	57,681	51,545	51,662	49,525
Total Organics**	589,482	635,495	706,560	604,889	842,282
Special Wastes***	7,225	7,085	6,961	6,496	6,870
Electronics and Televisions***	4,574	7,452	14,688	14,160	14,786
Construction and Demolition Debris	20,832 ^t	26,303 ^t	93,858 ^t	71,225	86,311
Tires****	119,177	97,323	121,552	120,013	136,943
Other	1,948	1,098	1,616	1,725	1,061
Totals	1,251,848^t	1,302,27^t	1,475,028^t	1,348,548	1,616,334
Per Capita Recovery (lbs.)	266.84^t	271.70^t	305.10^t	276.19	327.79
Recovery Ratio (Recycling: Disposal)	0.13^t	0.14	0.16	0.15	0.18

* Includes white goods, aluminum cans, steel cans and other metals.

** Includes yard waste, pallets, wood waste and food waste.

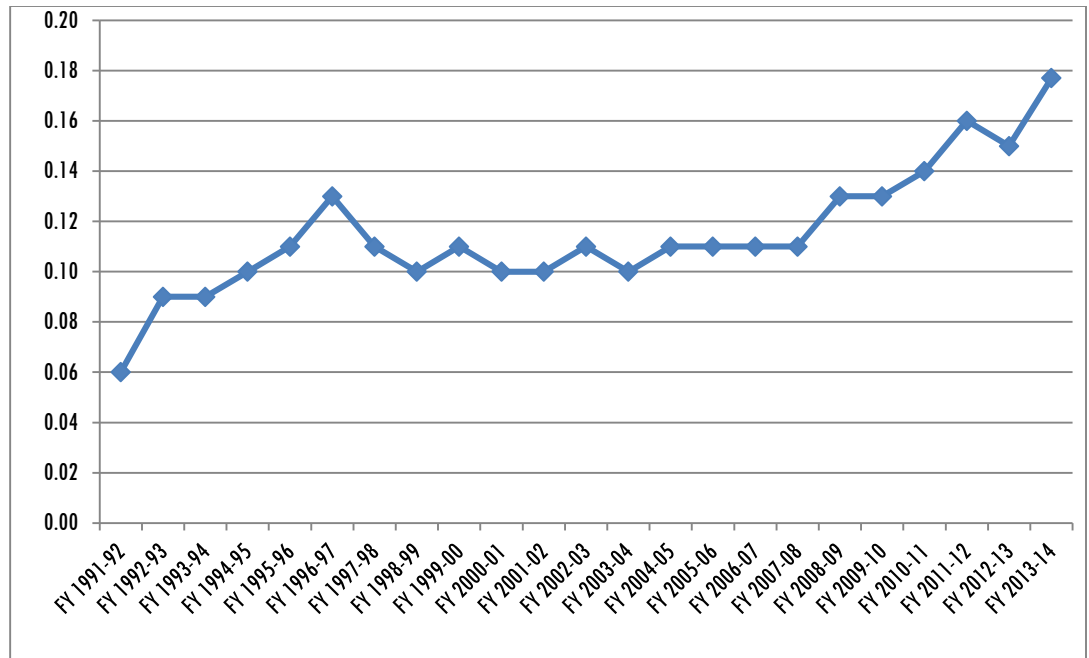
*** For FY 2000-01 through FY 2008-09 Special Wastes includes electronics, used oil, oil filters, antifreeze, paint and batteries. Beginning in For FY 2009-10 and beyond Special Wastes excludes electronics and includes recovery from the programs described in the Special Waste Management section in this chapter.

**** For FY 2010-11 and beyond the tons of tires recovered includes only tires managed by N.C. local governments. In FY2009-10, this figure inadvertently included some tires from out-of-state sources and in fiscal years prior to FY 2009-10 the Tires figure reported included all tires recovered at the private tire facilities in North Carolina, including those tires received at those facilities from sources outside of North Carolina.

^t Construction and Demolition Debris Tonnages, Total Recovery, and Per Capita Recovery for FY 2009-10, 2010-11, and 2011-12 were all revised in 2013 as a result of decreased Construction and Demolition Debris Recovery due to reporting errors. This change also resulted in a revised Recycling: Disposal Recovery Ratio for FY 2009-10.

The ratio of local government recycling to overall state disposal is used to examine the success of materials recovery from year to year relative to landfilling. For FY 2013-14 this ratio increased substantially over FY 2012-13. Several factors combined to create this result, including the earlier mentioned increase in the recovery of yard waste that is reflected in the "Total Organics" row in the above table, and which resulted from the series of storm events during FY 2013-14. Another important factor that contributed to the increase in the recycling to disposal ratio is the continued decrease in the amount of materials disposed of in landfills. The following chart demonstrates the changing ratio of materials recovery when compared to disposal in North Carolina and highlights the increasing relevance of materials recovery through the past decade.

**Ratio of Recycling to Disposal
FY 1991-92 to FY 2013-14**

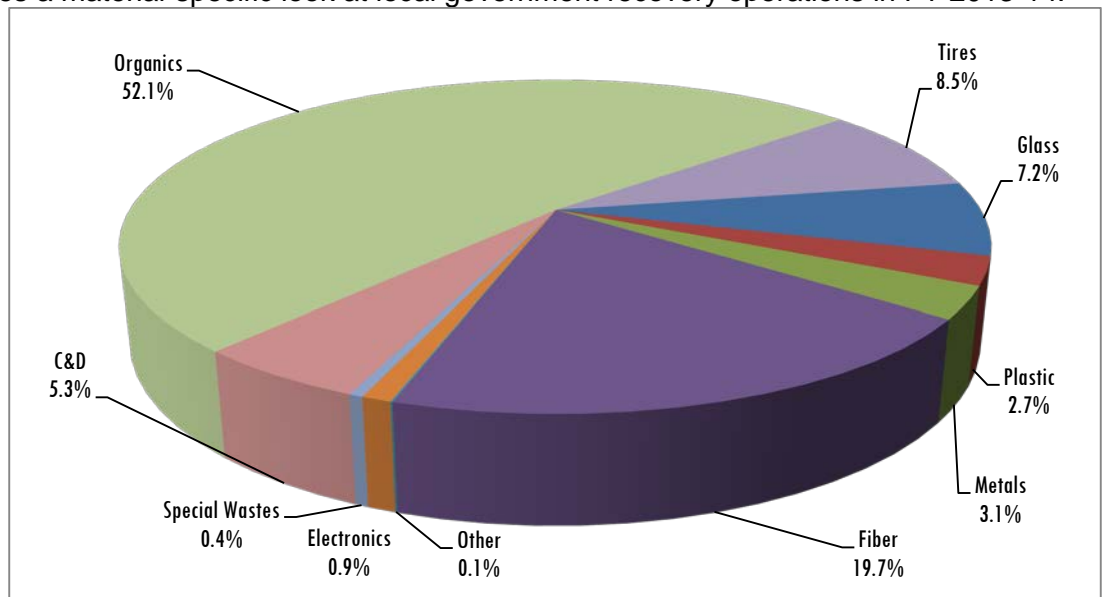


Recovery of Particular Materials

Significant demand exists in North Carolina and beyond for recovered materials as feedstock for a wide variety of industries. Public recycling programs play an increasingly important role in providing materials to the supply chain for private manufacturing.

The following chart provides a material-specific look at local government recovery operations in FY 2013-14.

Characterization of Local Government Recovery



In FY 2013-14 organics continued to represent the single largest category of materials recovered by local governments, followed by fiber and tires. The generation of organic materials can be erratic because the largest component of the organics stream, vegetative debris (yard waste), has the potential to vary widely from year to year due to annual weather conditions and storm events. In general the recovery of organics is accomplished through mulching and composting programs, though organics recovery also includes efforts to manage other materials such as clean wood (unpainted and untreated dimensional lumber), pallets, food waste, and oyster shells. During FY 2013-14 the recovery of organics constituted just over 52 percent of total local government recovery. See the section on Yard Waste Management later in this chapter for a detailed look at the vegetative debris component of organics recovery. As also illustrated above, fiber and tires were

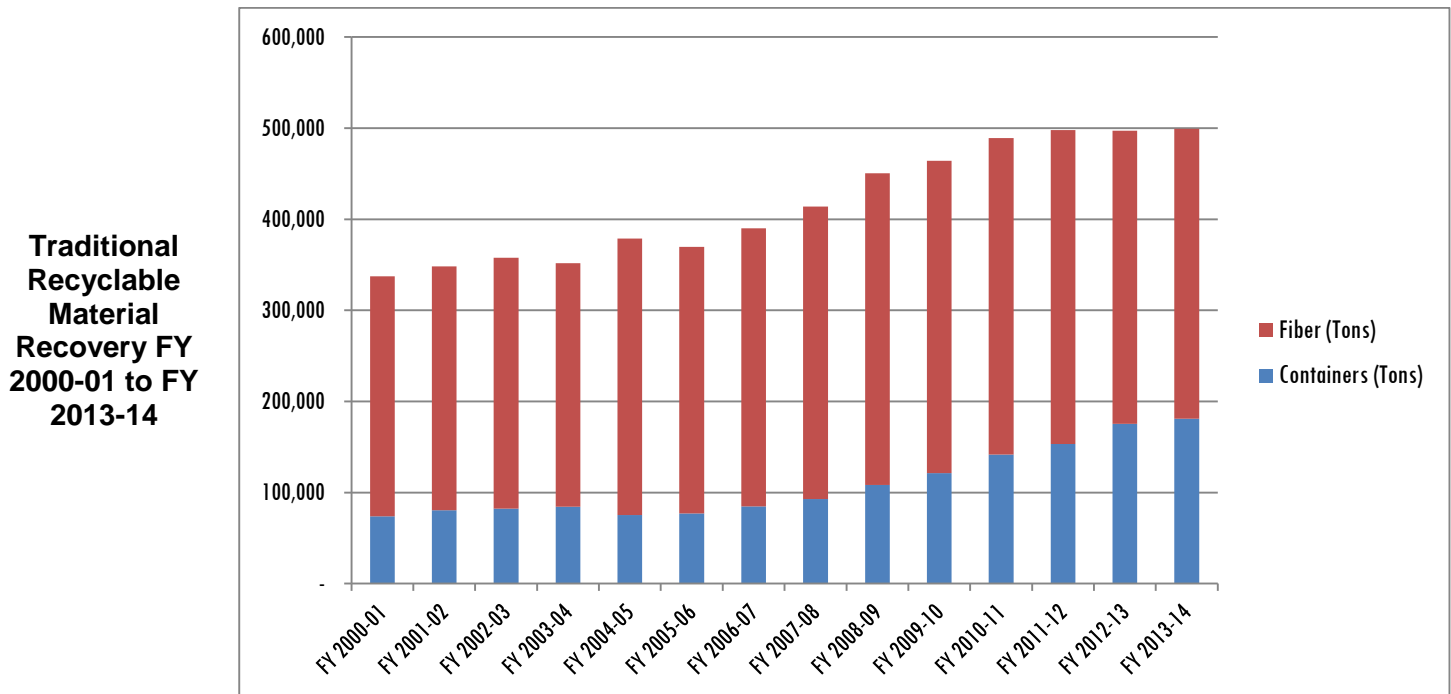
the next two largest categories of materials recovered in FY 2013-14, contributing 19.7 percent and 8.5 percent respectively. Electronics and televisions are measured separately from other special wastes and combined represent just under one percent of total recovery.

Recovery of Traditional Materials

“Traditional” recyclable materials include fiber or paper (corrugated cardboard, magazines, newspapers, office fiber and residential mixed paper) and containers (aluminum beverage cans, glass bottles and jars, plastic bottles and containers and steel food containers).

An examination of the recovery of traditional materials in FY 2013-14 again highlights the evolving nature of the amounts and types of materials collected by public recycling programs across the state. The amount of recovered containers increased by 3.3 percent when compared to FY 2012-13, while total fiber (or paper) recovery declined for the third year in a row, down by 1.1 percent compared to the previous year. The continued decrease in the circulation of printed newspapers, the downsizing of those papers still in print, and the falling circulation of magazines have all contributed to an overall decline in the amount of paper recovered by public recycling programs. Data from the America Forest & Paper Association and the EPA Waste Characterization Report shows that newsprint generation nationwide fell by a calculated 34% between 2006 and 2011. Despite the decline in paper recovery, paper still represents nearly two thirds (63.7%) of the traditional materials recovered by local governments in FY 2013-14.

Overall, the recovery of traditional materials in FY 2013-14 showed a slight uptick of 0.4 percent when compared to the previous year, FY 2012-13. This increase, especially in spite of the net decline in paper recovery, illustrates the growing success of public recycling efforts. Citizens across North Carolina have increasing access to public recycling services, and those services are becoming increasingly effective. The following chart documents the trend in the recovery of traditional materials over the past 14 years and illustrates the growing importance of container recovery.

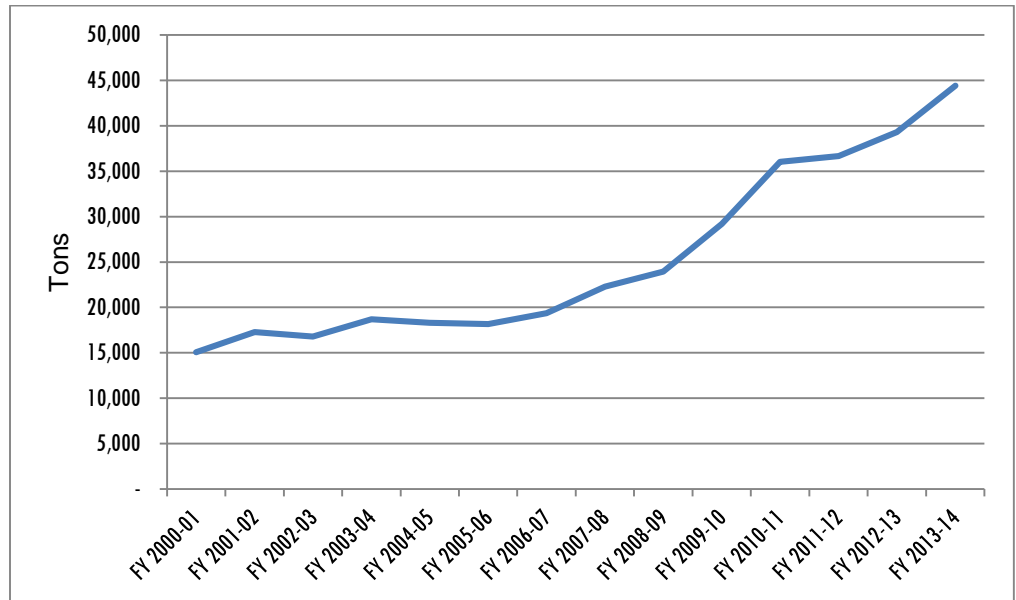


Plastic Recycling In North Carolina

North Carolina’s disposal ban on plastic bottles became effective on Oct. 1, 2009. Plastic bottle recovery has experienced significant growth since the disposal ban took effect, and while the impact of the disposal ban on recovery of plastics appears to have tapered off in recent years, the ban remains a potent tool in driving plastic bottle recovery activities. The Department of Environment and Natural Resources continues to examine the

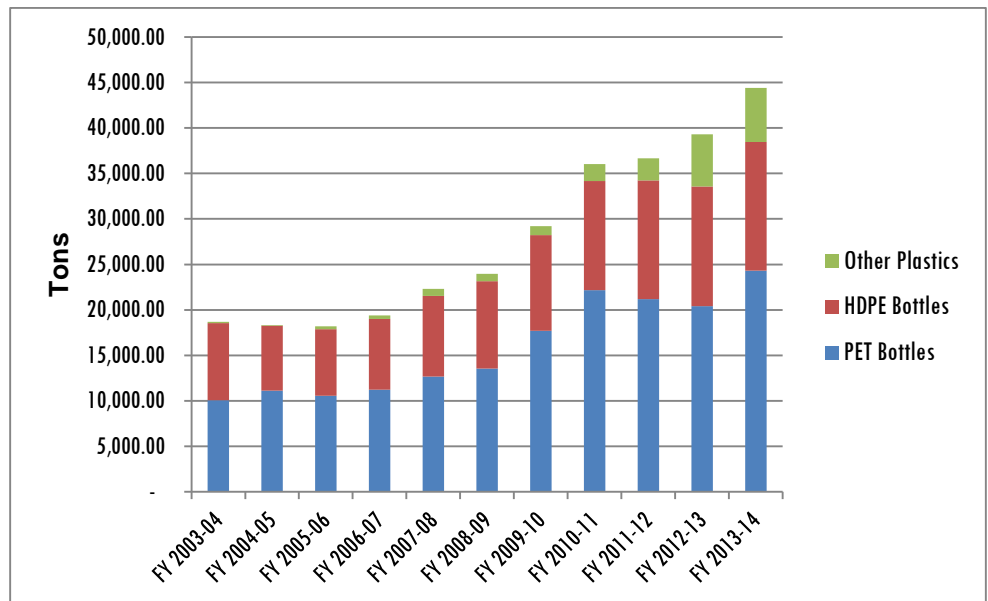
effectiveness of public efforts to recover plastics, especially as the demand for recovered plastic resin remains very strong and North Carolina-based manufacturers are forced to look beyond the state for feedstock. The following chart illustrates the increased public recovery of plastic over the past 14 fiscal years.

Plastics Recovery FY 2000-01 to FY 2013-14



Plastic bottles made of Polyethylene Terephthalate (PET) and High-Density Polyethylene (HDPE) resins represented nearly 87 percent of the public plastics recovery in FY 2013-14. The recovery of non-bottle plastic containers such as cups, tubs and “clam-shell” style plastic containers (e.g. blueberry container), plus the recovery other plastic resins like Polypropylene (PP) are a growing proportion of the plastics recycling stream in North Carolina, and these same materials are becoming increasingly important feedstocks for the broader plastics recycling industry. The following table illustrates the increased recovery of these “Other Plastics” over the last 11 fiscal years.

Plastics Recovery by Resin Type FY 2003-04 to FY 2013-14

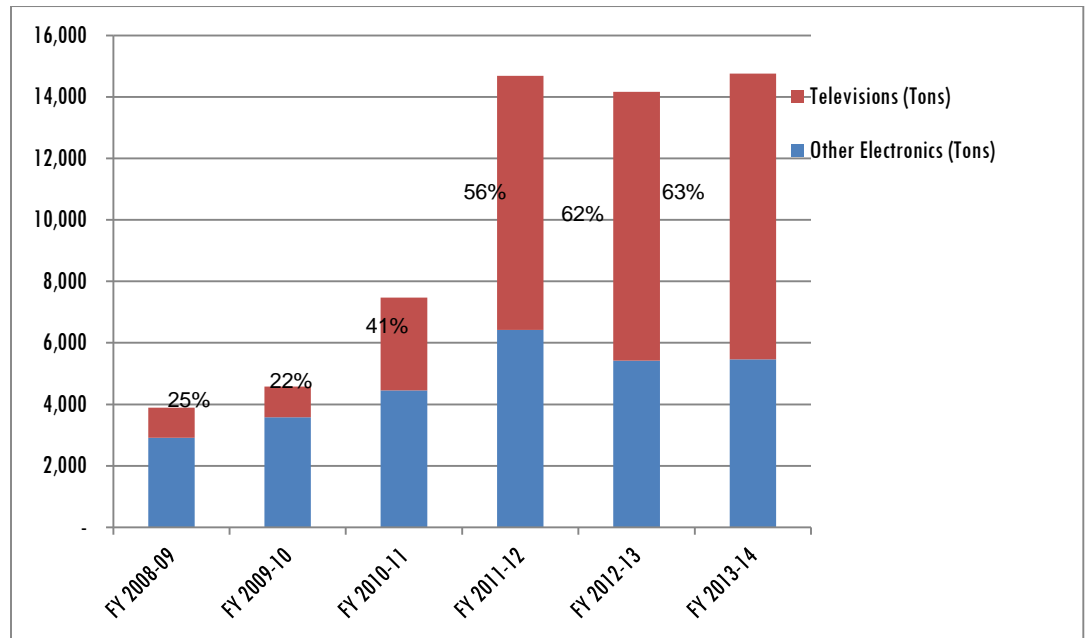


Public Electronics Recycling

During FY 2013-14 there were 119 independent local government electronics recycling programs operating across the state. Local governments provide electronics recycling service in response to citizen demand for

responsible “e-waste” management options and to help the public comply with the state’s disposal ban on computer equipment and televisions that went into effect on July 1, 2011. Data on public electronics recycling efforts measures the collection of televisions and of “other electronics” which include computers, printers, scanners and other devices that connect to computers, along with computer monitors, cell phones, stereos, video players and other low grade electronic devices. Compared to the previous year, the combined total amount of electronics and televisions recovered by local governments during FY 2013-14 increased slightly, up by 4.4 percent. Televisions represented 63 percent of the material collected during FY 2013-14 while other electronics constituted 37 percent. The following table examines public electronics recycling efforts since FY 2008-09 and shows the relative amounts of televisions and other electronics recovered each year.

Public Electronics Recovery FY 2008-09 to FY 2013-14



As demonstrated by the percentages overlaid on the television data in the diagram above, televisions have continued to constitute a proportionally larger amount of the total electronics collected and managed by public programs. In FY 2008-09, televisions represented just 25.4 percent of total public electronics recovery, whereas in FY 2013-14 televisions represented 63.0 percent of total public electronics recovery. While televisions constitute the majority of the total electronics equipment managed by public programs, local government programs that have been collecting televisions for the longest period of time and that also publicize the availability of recycling for other types of electronics collect fewer televisions in proportion to the total amounts of electronic materials recovered. The following table shows the proportion of televisions recovered by three long-running electronics recycling programs in the Triangle region of North Carolina.

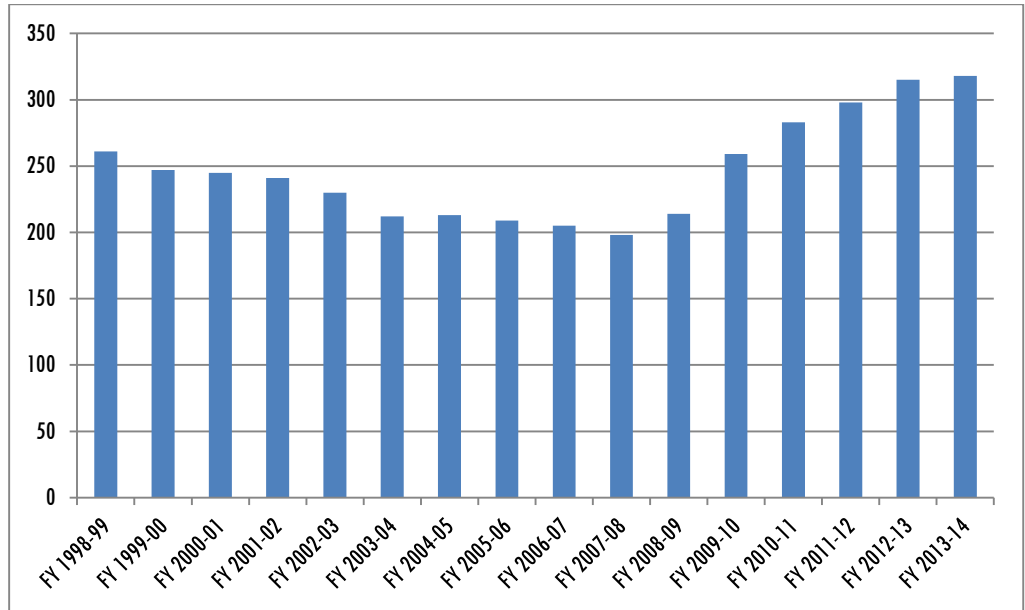
FY 2013-14	Television (Tons)	Other Electronics (Tons)	Television Percentage
Orange County	129	308	29.5%
Wake County	1180.44	924.37	56.1%
Chatham County	86.21	72.41	54.4%

Public Curbside Recycling Programs in North Carolina

The number of publicly operated curbside recycling programs in North Carolina continued its upward trend during FY 2013-14, climbing to a new high of 318 total programs. Access to efficient recyclable materials processing facilities, coupled with the ease and efficiency of collecting commingled (single-stream) recyclables using carts, has enabled the continued growth and effectiveness of curbside recycling programs across North Carolina. These factors have helped to make curbside recycling more affordable and this has allowed

communities across the state to implement new curbside recycling programs and to sustain long-running curbside recycling programs.

Local Government Curbside Recycling Programs FY 1998-99 to FY 2013-14



The number of North Carolina households served by curbside recycling grew again in FY 2013-14 to over 1.885 million, up from 1.841 million during FY 2012-13. The continued growth in the number of households served by curbside recycling has been a sustained trend, even during years when the state experienced a decrease in the total number of individual curbside recycling programs operated by local governments. Excluding yard waste, nearly half of all public recycling tonnage is now collected by curbside recycling programs; whereas curbside recycling accounted for just above one third of public recycling nine years ago (curbside recycling recovered 47.9 percent of non-yard waste recyclables in FY 2013-14 versus 35.7 percent of non-yard waste recyclables in FY 2005-06).

Types of Public Recycling Efforts

Public recycling programs use a variety of strategies to recover materials including curbside and drop-off collection, and by operating or sponsoring programs that collect materials from businesses. Public programs can also offer services that manage special wastes and can also operate recycling programs that target specific waste streams such as construction and demolition debris or food waste.

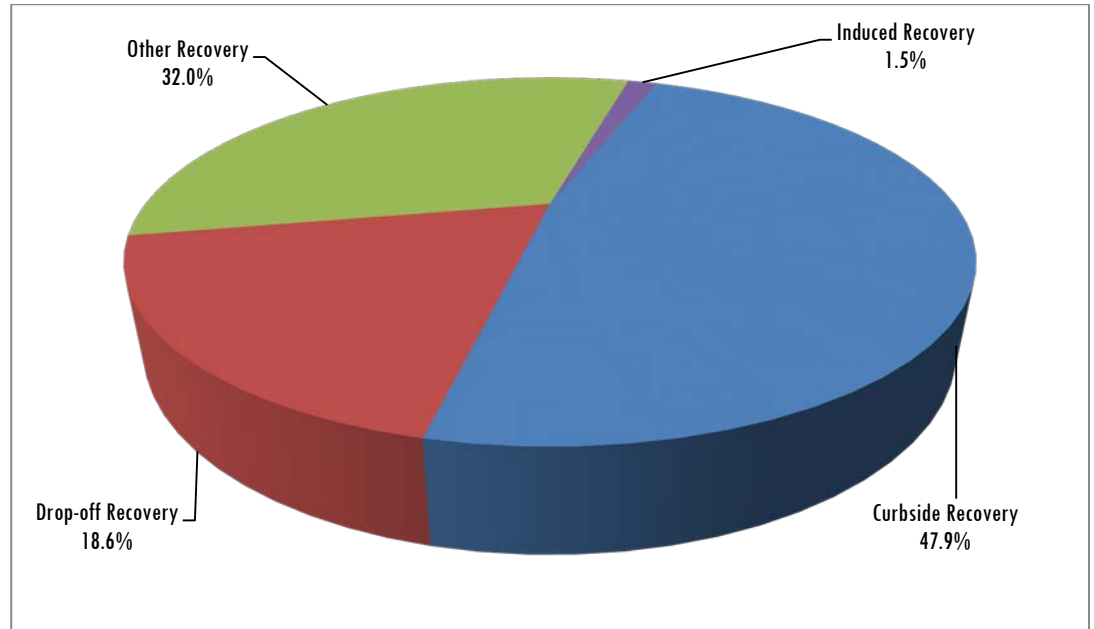
As indicated earlier, an increasing number of North Carolinians and an increasing amount of the materials recovered in North Carolina are handled by public curbside recycling programs. Despite this, drop-off recycling programs remain a critical component of waste reduction system in the state, especially when it comes to providing recycling services to rural areas and for the collection of special wastes.

In FY 2013-14, information was gathered for the second year on the use of public recycling strategies that encourage and or facilitate recycling without necessitating that local governments directly or contractually operate collection efforts. Examples of these strategies include local disposal bans on materials like corrugated cardboard, mandatory recycling ordinances, or licensed hauler systems where service providers are required to offer recycling collection as a condition of doing business in a jurisdiction. These types of strategies induce or encourage the growth of private sector recovery activity and infrastructure without requiring that local governments physically operate a recovery program. In FY 2013-14, approximately 10,000 tons of recyclables were recovered through these types of strategies. This local government “induced” recycling equated to 1.5 percent of the materials recovered last year (excluding yard waste).

The following chart illustrates relative contributions of the various types of public recovery operations during FY 2013-14 as determined by the proportion of overall tonnage collected through each sector. Yard waste and

tires are not included in this dataset, and “other” recycling programs include services such as multifamily, commercial and school recycling efforts.

Recovery by Program Type, FY 2013-14



Special Waste Management

In addition to collecting traditional materials like paper, bottles, and cans, a number of North Carolina counties and municipalities operated programs in FY 2013-14 to divert “special wastes” from landfills, including not only automotive-related materials such as oil and antifreeze but also common household discards such as batteries, fluorescent lamps, and used cooking oil. The general theme in the collection of these materials in North Carolina is one of consistency. With some variability, many local governments have stable, long-standing programs collecting special wastes from the public.

This stability is reflected in the relatively level amount of collected special waste material over the years, with a few trends worth noting. In general, automotive wastes have seen a slow decline as fewer North Carolinians act as “do-it-yourselfer” in vehicle maintenance and as materials such as lead acid batteries gain enough commodity value for citizens to bypass public recycling programs and take them directly to scrap yards. Still, local governments consistently divert a large amount of automotive discarded material from disposal each year, as shown the table below. These local programs are an important method of supporting the statewide disposal bans on oil, oil filters, antifreeze, and lead acid batteries.

Two special waste materials seeing growth in collection programs and tonnage are lights containing mercury (LCMs) and used cooking oil. DENR encourages local collection of both materials through technical and financial assistance programs in order to protect North Carolina water quality and sewer systems, as well as reduce landfill disposal and capture commodities for recycling. For this year’s report, DENR changed its analytical methodology regarding LCMs, working with communities to separate data on these materials from household hazardous waste to better track trends in LCM collection. As shown in the table below, LCM programs have been steadily growing in number and in the amount of material collected. Similarly, used cooking oil collection also continues to expand as more communities offer citizens alternatives to pouring this material down the drain or putting it in garbage cans. Cooking oil collection jumped 60 percent from FY 2012-13 to FY 2013-14.

A consistent minority of local governments continue to operate household hazardous waste (HHW) programs to reduce the toxicity of disposed waste. The slight uptick in HHW programs in FY 2013-14 reflects better reporting of municipal/county partnerships but also new programs in Randolph, Richmond and Wilson counties. HHW tonnage changed very little from the previous year, again underscoring the steady nature of overall special waste programs. Except for somewhat newer types of recyclable or divertible materials such as LCMs and used cooking oil, the established patterns of special waste collection will likely continue in coming years.

Local Government Special Waste Management, FY 2000-10 to FY 2013-14					
	FY2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
Used Motor Oil					
Number of programs	131	129	129	127	128
Gallons collected	845,270	858,389	860,785	762,066	729,623
Oil Filters					
Number of programs	103	106	105	104	104
Tons collected	137.2	167.89	184.41	166.97	160.2
Antifreeze					
Number of programs	74	72	74	71	79
Gallons collected	28,054	39,089	35,159	22,916	25,400
Lead Acid Batteries					
Number of programs	98	96	93	91	93
Tons collected	787.52	500.87	362.69	316.23	350.94
Dry Cell Batteries					
Number of programs	NA	36	37	34	38
Tons collected	NA	41.30	45.37	33.91	27.51
Paint					
Number of exchange programs	NA	17	21	13	17
Number of other collection programs	NA	13	13	9	11
Total tons collected	NA	143.27	117.94	111.74	160.21
Pesticide Containers					
Number of programs	NA	60	66	64	60
Tons collected	NA	105.49	118.32	143.45	128.03
Pesticides					
Number of programs	NA	16	16	16	14
Tons collected	NA	7.48	14.03	14.12	11.77
Lights Containing Mercury					
Number of programs	NA	33	48	58	62
Tons collected	NA	28.81	37.93	53.01	92.88
Propane Tanks					
Number of programs	NA	NA	37	46	41
Tons collected	NA	NA	47.22	61.33	63.47
Other Special Wastes					
Number of programs	NA	6	8	7	9
Tons collected	NA	7.14	1.71	.66	3.17
Used Cooking Oil					
Number of programs	NA	NA	55	61	74
Tons collected	NA	NA	142.15	133.05	213.28
Household Hazardous Waste					

Number of communities with programs	52	53	57	59	67
Number of permanent sites	20	20	20	20	20
HHW tons collected	3,382.74	3,116.44	2,905.63	3,239	3,241.07
Total cost reported	\$3,787,369	\$3,763,970	\$3,860,467	\$4,517,330	\$4,914,609
Conversions: Oil, 1 gal = 7.4 lbs; Antifreeze, 1 gal = 8.42 lbs; Lead Acid Battery, 1 battery = 35.9 lbs; Paint, 1 gal = 11.5lbs; propane tank = 18 lbs; 1 gallon of used cooking oil = 7.5 lbs.					

Yard Waste Management

NC DENR adjusted its local government report form for FY 2013-14 to more accurately capture data on the disposition of yard waste materials. Many local yard waste collection programs take their material to private facilities that divert it from disposal into mulch and compost. Previous State Solid Waste and Material Management Reports recognized this issue but did not formally include that tonnage in the overall yard waste diversion figure. In addition, DENR also changed the report form to reflect that some communities send collected and processed yard waste to boiler fuel markets. Previously, many of these tonnages would have been attributed to local government mulch/compost operations, but the change in the reporting process this year has allowed DENR to show those materials in a separate diversion category. A very large portion of the tonnage previously attributed to local government mulch/compost operations but now identified as fuel comes from three counties in particular: Mecklenburg County (84,035 tons in FY 2013-14), Cumberland County (24,235 tons), and Pitt County (13,508 tons).

The figure for diverted yard waste for FY 2013-14 is substantially higher than the previous year, as shown in the table below. Some of this increase results from the report changes noted above, but also it reflects the twin impacts of ice storms that generated a large amount of yard waste in the upper Piedmont and storms also affecting lower coastal communities such as Wilmington. Eighty-seven local governments indicated having to manage storm disaster debris in FY 2013-14, which added approximately 150,000 tons to the normal amount of yard waste managed by North Carolina communities each year.

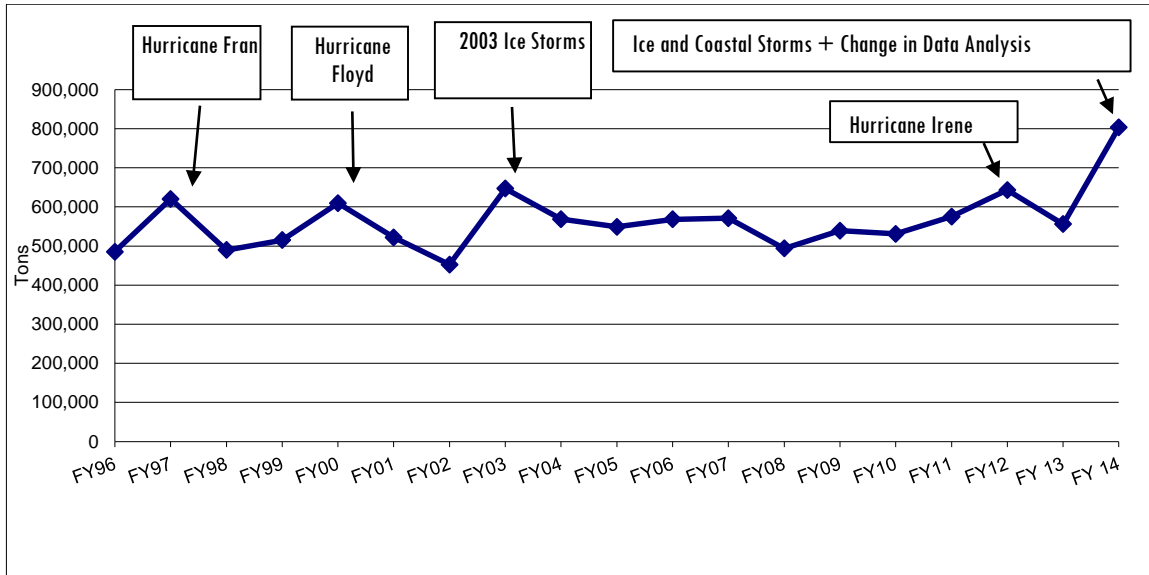
Overall, the combined diversion of yard waste by local government programs in FY 2013-14 was 803,536 tons, a 44.5 percent increase from the previous year due to changed data analysis and storm events. The amount of yard waste diverted from disposal since the implementation of state's yard waste disposal ban in January 1993 is now at a cumulative 10.8 million tons of material, equivalent to 17.4 million cubic yards of landfill space.

It is also likely that some portion of the local government-collected yard waste going to Land Clearing and Inert Debris (LCID) landfills is converted to mulch, compost, or biomass fuels. Thus the tonnage reported in the table below for "total disposal diversion" almost certainly undercounts the actual total.

Local Government Yard Waste Management FY 2012-13 and FY 2013-14		
Destination of Materials	FY 2012-13 Tons Managed	FY 2013-14 Tons Managed
End Users (direct delivery)	28,751	25,503
Local Mulch/Compost Facility	527,138	470,553
Local Government Yard Waste Diverted by Private Mulch and Compost Facilities.	NA	103,883
Wood/Yard Waste Fuel Markets	NA	203,597
Total Disposal Diversion*	555,889	803,536
Other Public Facility**	177,743	164,919

Local Government Yard Waste Taken to Private Facilities Where Material End-use is Unknown or is Disposed.	120,986	15,917
LCID Landfill	142,814	161,018
Yard Waste Totals	819,689	980,471
* 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, particularly "Local/Compost Facility."		

Local Government Diversion of Yard Waste From Disposal, FY1995-96 to FY 2013-14



Recycling Markets and Prices

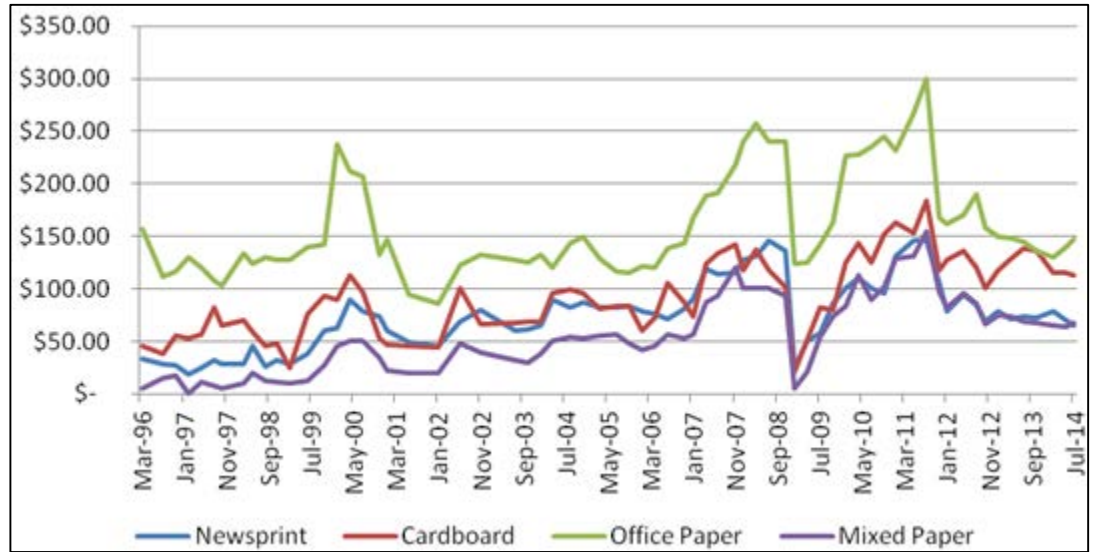
Recycling commodity prices for paper and container materials (aluminum, plastic, steel and glass) continued a long trend of stagnation in FY2013-14, with little overall improvement from the previous two years. The average gross revenue for the "basket" of materials moving through a typical Material Recovery Facility (MRF) actually declined to around \$85-90/ton. General weakness in paper markets, due in part to a slower growing Chinese economy, helped hold down MRF material values, despite some bright spots for commodities such as HDPE and aluminum. Increasing challenges in the processing and selling of glass also become a more prominent challenge for MRFs in FY 2013-14.

The table below shows the price trends for FY 2013-14 based on quarterly surveys of MRFs in three regions in North Carolina. This year's table converts the traditional reporting of individual glass colors to a mixed color glass category, which is what MRFs now typically produce. However, DENR collection of information on mixed glass color prices only began in the last quarter of FY2013-14, yielding just one data point for the fiscal year. Nevertheless, that data point accurately represents the overall trend in glass pricing for the year and demonstrates the drag on profitability that glass values are causing at MRFs.

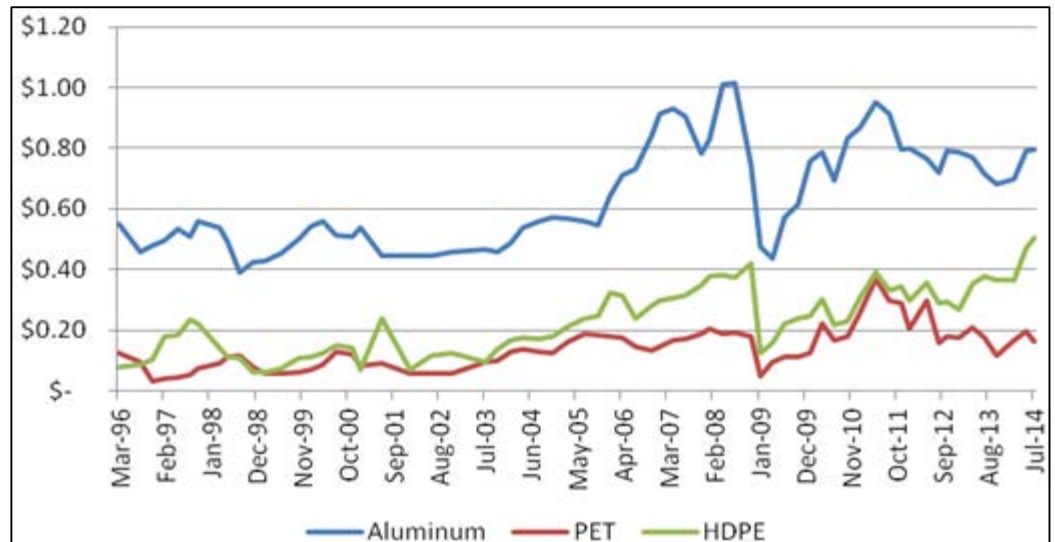
Recycling Market Prices Received by Major N.C. Processors, FY 2013-14					
Material	Summer 2013	Fall 2013	Winter 2013-14	Spring 2014	Summer 2014
Aluminum Cans, lbs., loose	\$0.72	\$0.68	\$0.70	\$0.79	\$0.80
Steel Cans, gross tons, baled	\$170	\$158	\$173	\$185	\$160
PET, lbs. baled	\$0.18	\$0.12	\$0.17	\$0.20	\$0.16
HDPE Natural, lbs., baled	\$0.38	\$0.37	\$0.37	\$0.47	\$0.51

Newsprint, ton, baled	\$73	\$79	\$70	\$65	\$78
Corrugated, ton, baled	\$139	\$136	\$115	\$115	\$113
Office paper, ton, baled	\$145	\$136	\$130	\$140	\$148
Mixed paper, ton, baled	\$69	\$67	\$65	\$64	\$67
Mixed glass, ton	NA	NA	NA	NA	\$6

Market Prices Received for Fiber Materials by Major N.C. Processors, 1996 – 2014



Prices Paid to N.C. for Select Container Materials, 1996-2014



Recycling Market Developments in FY 2013-14

Although commodity prices for MRFs remained lackluster, FY 2013-14 saw the addition of a major new facility in Conover, NC, with the opening of Republic’s MRF in the summer of 2014. As in other areas of the state, this investment had major implications for local curbside and drop-off programs in the areas surrounding the MRF, allowing them to begin the conversion to commingled collection.

Republic's MRF was just one of a number of advancements in the North Carolina's recycling economy in FY 2013-14. Horsehead Zinc began operations at its major zinc refining plant in Mooresboro, NC in 2014 after an estimated capital investment of \$250 million. ReVenture, an industrial park northwest of Charlotte, opened its doors with incentives to recycling companies to put their operations on the property. New River Tire in Pilot Mountain added new processing capacity, and construction and demolition recycling got a boost with the opening of two new operations: Todco in Davidson County and Green Recycling Solutions in Maysville. Data from private C&D recycling facilities showed an increase of about eight percent in recovered tonnage, from 208,931 tons in FY 2012-13 to 225,329 tons in FY 2013-14.

The recycling of one kind of construction material, tear-off asphalt shingles, continued to grow across the state, with the NC Department of Transportation reporting 176,721 tons of shingles used in road building in FY 2013-14 (see NC DOT chapter of this report). Plastics recycling also made strides during the fiscal year, with a number of processors expanding capacity, and strides made in the recovery of agricultural and rigid plastics.

Although FY 2013-14 was another year of general expansion in private sector recycling infrastructure, there were also a few lingering problems. Pressure from the negative value markets for Cathode Ray Tube (CRT) glass from televisions and computer monitors contributed to the bankruptcy of one of the state's largest electronics recycling processors, Creative Recycling, as well as a few instances of CRT stockpiling at other processors. Flat and limited markets for construction materials such as drywall and wood waste posed some challenges for C&D recyclers, and the state's glass processors also struggled with declining quality of MRF glass. Although food waste composting continued to be an active area of entrepreneurial interest and some composters saw increasing streams of new material, one facility north of Charlotte failed to find enough feedstock to keep its operation going. These setbacks point to work that must be done to improve both the quality and quantity of recycled feedstock, and the need for some concentrated market development for certain materials in certain areas of the state.

That work is one of the goals of DENR's Recycling Business Development Grant (RBDG) program. In FY 2013-14, RBDG grant funding supported food waste capacity growth at four of the most prominent composting facilities and helped spur a number of significant C&D recycling projects. Plastics recycling also received support, including the opening of Ply Gem's new product manufacturing facility in Fair Bluff as well as processing capacity expansions for range of recyclable resins. Other major focus areas included electronics recycling, traditional recyclables collection, shingles, rubber, metals, and industrial discards. The FY 2013-14 grant round was reflective of the wide diversity in North Carolina's recycling economy both in materials and the kinds of companies who continue to grow, add jobs, and create opportunities to divert valuable commodities from disposal.

Department of Environment and Natural Resources - White Goods Management

"White goods" are defined in G.S. 130A-290 as, "refrigerators, ranges, water heaters, freezers, unit air conditioners, washing machines, dishwashers, clothes dryers and other similar domestic and commercial large appliances." In 1993, the North Carolina General Assembly passed a white goods management law because white goods were difficult to dispose and contained greenhouse gasses, in particular, chlorofluorocarbon refrigerants (CFCs). To fund this statute, the General Assembly imposed a \$3 tax on new white goods purchases.

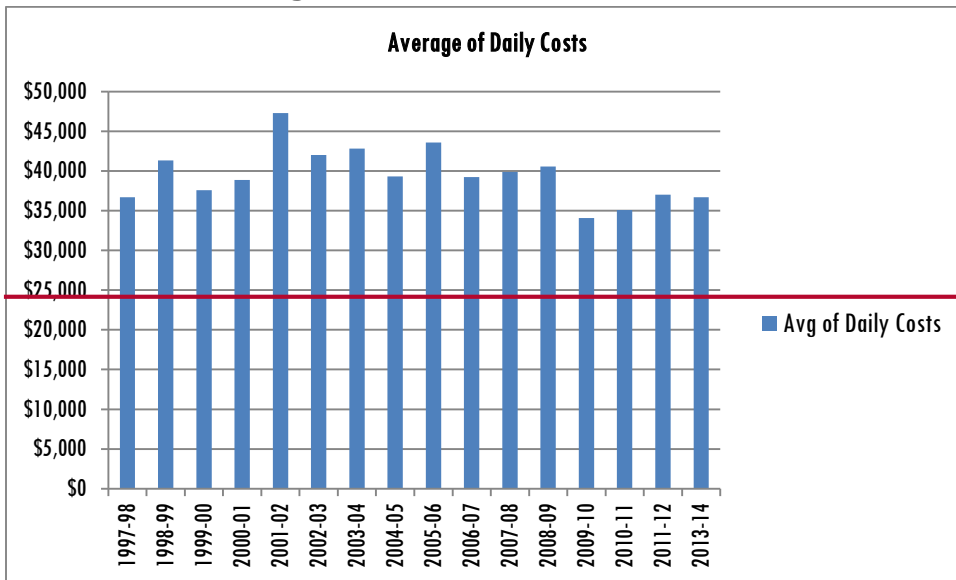
Counties were mandated to manage white goods by providing at least one disposal site, at no cost to citizens, and to arrange for the removal of CFCs. The majority of the white goods tax revenue, 72% less forfeited funds, was distributed to county governments for use in running their programs. Forfeited funds, which previously would go to White Goods Disposal Account, are sent to the General Fund per Session Law 2013-360, after August 1, 2013.

Counties that forfeited their White Goods Distributions:

County governments with unspent funding exceeding 25% of what they received over the past year became ineligible to receive funding, creating forfeited funds which went into the White Goods Management Account.

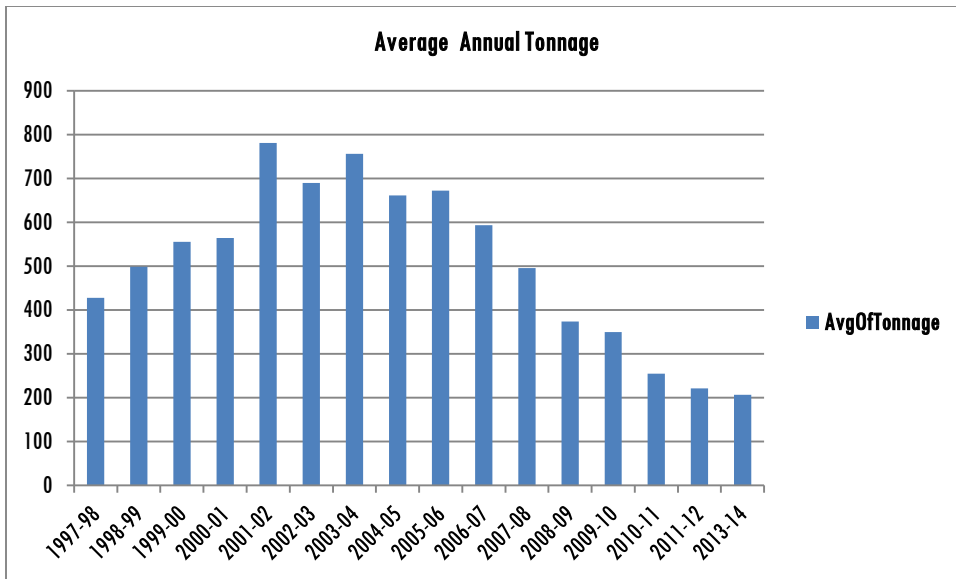
Anson	Avery	Beaufort	Bertie
Burke	Cabarrus	Cherokee	Edgecombe
Forsyth	Halifax	Harnett	Henderson
Hoke	Jackson	Jones	Lincoln
Martin	Mecklenburg	Pender	Richmond
Rowan	Sampson	Tyrrell	

White Goods Program Data



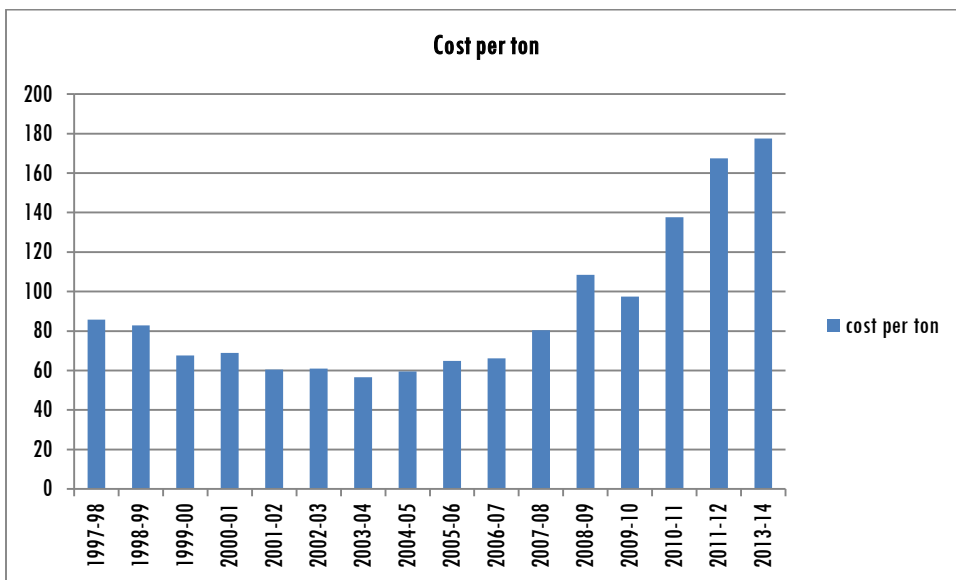
County average of daily operational costs

This graph demonstrates that, through the time period shown, costs have been fairly stable, with slight variations with fuel and labor through economic fluctuations.



Tonnage of Scrap Metal and Appliances

This graph demonstrates that through the decade, average tonnage collected by counties has decreased as the value of scrap metal rose.



Average costs per ton by counties to manage white goods

This graph demonstrates that as daily operational costs have remained fairly steady and tonnages of scrap metal collected by counties has fallen, the cost to manage a ton of white goods and scrap metal has increased.

White Goods Disposal Account

County governments can apply for grants for white good program cost overruns, white goods clean ups, and capital improvement grants. There was no need for cleanup grants this fiscal year because the high value of the metals resulted in small local businesses removing all abandoned appliances.

White Goods Tax Collection/Distributions	
Net Tax Collections by the Department of Revenue	\$4,424,018.28
Department of Revenue Cost of Collecting	\$314,966.75
To General Fund (includes \$752,745.93 plus forfeited from ineligible counties)	\$1,084,144.81
To White Goods Disposal Account (20% of Revenue)	\$334,674.50
To White Goods Disposal Account (Forfeited County Distributions)	\$77,464.79
To Solid Waste Management Trust Fund (8% of Revenue)	\$330,701.84
Distributions to Counties (72% of Revenue)	\$3,271,754.88

White Goods Disposal Account		
Balance of Funds as of July 1, 2013		\$2,035,856.46
Debits		
Cost Overrun Grants to County Programs	[\$218,187.2	
Site Cleanup Grants	\$0	
Capital Improvement Grants	[\$149,263.6	
Total Debits		[\$363,450.91]
Credits		
Distributions to White Goods Disposal Acct	\$286,398.6	
Forfeited tax revenue collected in July by DOR per SL 2013-360,	\$125,740.6	
Total Credits		\$412,139.29
Ending Balance June 30, 2014		\$2,084,544.84

Cost Overruns			
County	Tax Proceeds Reported	Requested Amount	Award Amount October 2013
Brunswick	\$16,261.05	\$3,901.54	\$3,901.54
Camden	\$1,465.00	\$2,730.00	\$2,730.26
Columbus	\$8,512.47	\$10,078.21	\$9,574.30
Currituck	\$3,490.65	\$902.90	\$902.90
Graham	\$1,320.20	\$112.00	\$112.00
Lenoir	\$8,757.11	\$14,253.53	\$13,540.85
Mitchell	\$2,288.57	\$13,033.17	\$13,033.17
Orange	\$20,045.94	\$14,256.69	\$13,543.86
Rockingham	\$13,812.88	\$5,711.34	\$5,425.77
Scotland	\$5,319.31	\$3,278.01	\$3,278.01
Stanly	\$8,996.58	\$7,047.03	\$6,694.68
Stokes	\$0.00	\$9,549.66	\$9,072.18
Washington	\$1,928.18	\$3,466.82	\$3,466.82
Total			\$85,276.34
County	Tax Proceeds Reported	Requested Amount	Award Amount May 2014
Bladen	\$5,910.02	\$731.05	\$731.05
Chatham	\$11,041.31	\$1,146.84	\$1,012.37
Currituck	\$4,022.79	\$3,348.79	\$3,348.76
Lenoir	\$9,994.73	\$22,446.14	\$21,323.83
McDowell	\$10,946.24	\$7,626.67	\$7,626.67
Mitchell	\$2,597.13	\$17,059.97	\$17,059.97
Nash	\$16,127.50	\$781.99	\$781.99
Orange	\$23,062.00	\$16,177.00	\$15,368.15
Rockingham	\$15,679.46	\$5,220.03	\$4,749.01
Rutherford	\$11,467.72	\$18,223.28	\$18,223.28
Scotland	\$6,090.69	\$2,327.47	\$2,188.68
Stanly	\$10,219.40	\$26,647.01	\$25,314.66
Stokes	\$4,249.40	\$7,658.61	\$7,275.68
Warren	\$3,499.14	\$986.92	\$881.26
Washington	\$2,113.36	\$3,095.64	\$3,025.58
Total			\$128,910.94

Capital Improvements		
County	Purpose	Amount
Pitt County	White Goods Truck	\$68,305.50
City of Albemarle	Roll-off Truck	\$79,500.00
Transylvania County	CFC Equipment	\$1,458.13
Total		\$149,263.63

Recent Changes and Future Direction

Legislative changes to the White Goods program were made according to Session Law 2013-360. The Department of Revenue sent the portion of the White Goods tax distributed after August 1, 2013, which previously went to the White Goods Management Account and all forfeited funds, to the General Fund. All distributions to county governments continue to be made quarterly. The White Goods program will continue to function as it has in the past, awarding grants as needed for cost overruns, capital improvements, and cleanups until funding is exhausted or until June 30, 2017, whichever occurs first.

Department of Environment and Natural Resources - Scrap Tire Management

Scrap tires were banned from disposal in landfills by G.S. 130A-309.10 in 1990. The Solid Waste Section administers the Scrap Tire Management Program and manages the Scrap Tire Disposal Account. This account was created by the 1993 General Assembly. Its purpose is to provide each county with funds for the disposal of scrap tires at no cost to citizens and businesses. To fund this statute, the General Assembly imposed a tax, 1% on the sale of new large tires and 2% on the sale of new small tires. The money is used to provide additional funding to counties for the cleanup of illegal tire dumps and for when counties incur deficits in their scrap tire programs. 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 other ineligible tires and county program efficiency in using their allocated funds when making decisions about grant awards.

County Tire Disposal

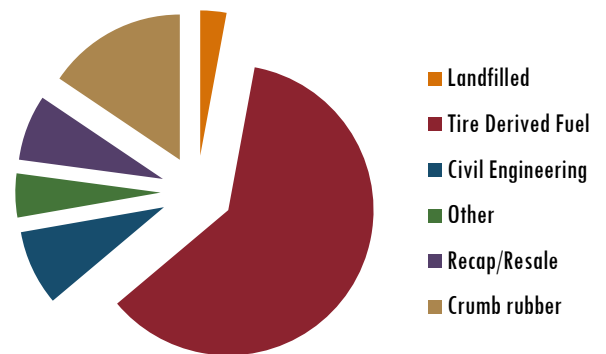
Ninety-eight (98) county programs, including one regional program [Carteret, Craven and Pamlico (CRSWMA)] reported that they generated 166,915 tons of scrap tires North Carolina, of which 3,170 tons were sent to other states.

Counties reported spending a total of \$11,100,250.56 for scrap tire management and disposal. Of the total spent, \$10,206,085.26 was for direct disposal costs and \$894,165.30 was for other costs, such as labor or equipment costs. 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

NC tire processors reported they received 163,745 tons of scrap tires from NC counties and 16,669 tons tires from other states. In In FY 2013-14, 170,995 out of 180,717 tons or roughly 95% of scrap tires managed by North Carolina counties were processed, recycled or reused. Reuse or disposal is as follows:

Final disposal/recycling of tires in NC (in tons)	
Tires disposed of in a landfill	9,722
Tires used as fuel	105,360
Tires used as crumb rubber	26,203
Tires re-used or re-capped	12,937
Tires used in civil engineering	18,277
Tires used for other purposes	8,218



Scrap Tire Disposal Account

Distributions of Scrap Tire Tax Revenue	
Net Tax Collections by the Dept. of Revenue	\$17,115,447.70
Dept. of Revenue Cost of Collecting	\$276,730.17
Solid waste management trust fund (8%)	\$365,294.11
Scrap tire disposal account and General fund (17%)	\$776,429.98
Inactive hazardous sites cleanup fund (2.5%)	\$114,154.41
Bernard Allen Memorial emergency drinking water fund	\$114,154.41
Amount distributed to counties (70%)	\$11,980,813.40
General Fund	\$3,764,781.39

Account Balance		
Balance of Funds as of July 1, 2013		\$3,289,526.38
Administration of program	\$3,347.93	
Cost Overrun Grants to Counties	\$1,006,767.96	
Clean Up Grants to Counties	\$155,211.64	
Total Debits		\$1,165,222.53
Transfer from General Fund	\$420,000.00	
Deposit of Tax Revenue August 2013	\$776,249.98	
Total Credits		\$1,196,249.98
Ending Balance June 30, 2014		\$3,320,553.83

Cost Overrun

The first cost-overrun grant cycle (Table 1) for the FY 2013-14 included grants to 37 counties. The second grant cycle (Table 2) included grants to 39 counties. The two grant cycles in 2013-14 totaled \$1,006,767.96.

Table 1: County Tire Cost Over-Run Grants Awarded July 2013			
County	Requested Amount	Distribution Reported	Award Amount
Alamance	\$3,018.70	\$86,939.84	\$3,018.70
Ashe	\$15,144.60	\$15,630.60	\$14,387.37
Bladen	\$10,795.57	\$20,033.71	\$10,255.79
Brunswick	\$7,355.99	\$62,777.76	\$7,355.99
Camden	\$3,515.71	\$5,654.79	\$3,515.71
Catawba	\$15,118.39	\$88,342.57	\$15,118.39
Cherokee	\$7,124.11	\$15,560.49	\$7,124.11
Chowan	\$14,533.83	\$8,433.44	\$14,533.83
Clay	\$423.04	\$5,962.01	\$423.04
Columbus	\$11,088.02	\$32,863.42	\$10,533.62
CRSWMA	\$17,708.28	\$105,945.32	\$17,708.28
Currituck	\$10,966.52	\$13,476.07	\$10,418.19
Duplin	\$1,532.90	\$33,900.12	\$1,532.90
Edgecombe	\$26,489.87	\$31,969.69	\$26,489.87
Forsyth	\$10,847.47	\$202,273.89	\$10,305.10
Gaston	\$8,213.19	\$118,274.58	\$7,391.87
Graham	\$6,443.78	\$5,096.78	\$6,443.78
Halifax	\$16,640.67	\$31,005.28	\$16,640.67
Haywood	\$16,895.78	\$34,018.77	\$16,050.99
Hertford	\$3,507.32	\$13,945.17	\$3,507.32
Lenoir	\$30,328.68	\$33,807.89	\$30,328.68
Lincoln	\$15,407.77	\$45,043.46	\$13,866.99
Macon	\$12,881.54	\$19,640.99	\$12,237.46
Mecklenburg	\$9,329.09	\$536,179.85	\$8,396.18
Mitchell	\$11,519.11	\$8,835.29	\$10,943.15
Montgomery	\$640.24	\$15,881.96	\$640.24
New Hanover	\$33,618.73	\$117,857.35	\$33,618.73
Northampton	\$6,595.13	\$12,450.67	\$6,595.13
Pender	\$7,282.94	\$30,458.10	\$7,282.94
Randolph	\$20,469.61	\$81,450.92	\$19,446.13
Richmond	\$2,674.74	\$26,480.77	\$2,674.74
Rutherford	\$3,477.00	\$38,982.00	\$3,477.00
Surry	\$12,124.09	\$41,936.39	\$12,124.09
Warren	\$6,966.38	\$11,902.92	\$6,966.38
Washington	\$10,325.99	\$7,443.95	\$10,325.99
Wilkes	\$19,890.84	\$39,666.15	\$18,896.30
Wilson	\$7,177.52	\$46,385.10	\$7,177.52

Table 2: County Tire Cost-Overrun Grants Awarded Jan 2014

County	Requested Amount	Distribution Reported	Award Amount
Alamance	\$1,948.76	\$94,749.48	\$1,948.76
Alleghany	\$5,944.15	\$6,875.87	\$5,646.94
Ashe	\$21,960.57	\$17,034.67	\$20,862.54
Bladen	\$9,599.52	\$21,833.30	\$9,119.54
Brunswick	\$13,106.42	\$68,416.97	\$13,106.42
Camden	\$5,539.25	\$6,162.75	\$5,262.29
Catawba	\$20,451.90	\$96,278.22	\$20,451.90
Cherokee	\$12,891.84	\$16,958.26	\$12,891.84
Chowan	\$17,040.99	\$9,191.01	\$17,040.99
Clay	\$402.44	\$6,497.56	\$402.44
Cleveland	\$5,420.21	\$61,005.65	\$5,149.20
CRSWMA	\$20,403.98	\$114,993.51	\$20,403.98
Currituck	\$19,688.05	\$14,686.60	\$18,703.65
Dare	\$36,025.84	\$21,254.36	\$36,025.84
Duplin	\$11,439.08	\$36,945.42	\$10,867.13
Edgecombe	\$31,000.57	\$34,841.47	\$31,000.57
Forsyth	\$33,258.84	\$220,443.78	\$31,595.90
Gates	\$8,902.66	\$7,419.40	\$8,902.66
Halifax	\$17,570.61	\$33,790.43	\$17,570.61
Haywood	\$20,453.58	\$37,074.61	\$19,430.90
Hertford	\$7,624.38	\$15,197.84	\$7,624.38
Macon	\$6,752.80	\$21,405.30	\$6,752.80
Mecklenburg	\$74,048.98	\$584,343.85	\$66,644.08
Mitchell	\$15,853.96	\$9,628.94	\$15,853.96
New Hanover	\$29,800.14	\$128,444.26	\$29,800.14
Northampton	\$3,143.91	\$13,369.00	\$3,143.91
Orange	\$7,341.24	\$84,341.58	\$6,607.12
Perquimans	\$3,253.01	\$8,408.94	\$3,253.01
Pitt	\$21,023.22	\$105,764.28	\$21,023.22
Randolph	\$21,576.32	\$88,767.51	\$20,497.50
Richmond	\$11,667.41	\$28,859.49	\$11,084.04
Rutherford	\$28,504.13	\$42,483.87	\$27,078.92
Sampson	\$2,860.39	\$39,597.86	\$2,860.39
Scotland	\$12,009.83	\$22,380.56	\$11,409.34
Warren	\$12,788.16	\$12,972.14	\$12,788.16
Washington	\$11,289.40	\$8,112.63	\$11,289.40
Wayne	\$10,845.90	\$76,846.40	\$10,303.60
Wilkes	\$11,968.55	\$43,229.29	\$11,370.12
Wilson	\$13,246.60	\$50,551.78	\$13,246.60

Tire Cleanups

27 nuisance tire sites (Table 3) were cleaned in 25 counties, one regional authority and two municipalities using \$155,211.64 in funds.

Table 3: County Clean Up Grants		
Municipality	Amount	Date
Alamance County Landfill	\$137.04	7/16/2013
Durham, City Of	\$18.20	7/16/2013
Gulford County Finance	\$10,375.47	7/16/2013
Union County Public Works	\$217.60	7/16/2013
Alamance County Landfill	\$183.74	8/7/2013
Chatham County	\$1,180.54	8/7/2013
Madison County Solid Waste	\$3,542.86	8/29/2013
Rockingham County Utilities	\$5,167.69	8/29/2013
Iredell County Finance Office	\$18.40	9/10/2013
Union County Public Works	\$70.52	10/21/2013
Alamance County Landfill	\$72.58	10/31/2013
New Hanover County Finance	\$905.58	11/4/2013
Hertford County Finance Office	\$3,138.64	11/14/2013
Alamance County Landfill	\$1,474.80	12/10/2013
Chatham County	\$900.81	12/10/2013
Orange County Solid Waste Dept.	\$53.00	1/14/2014
Rutherford County Solid Waste	\$706.84	1/14/2014
Woodfin, Town Of	\$106,880.00	1/28/2014
Alamance County Landfill	\$70.44	2/11/2014
Alamance County Landfill	\$6,162.67	2/25/2014
Catawba County Finance	\$649.73	3/18/2014
Haywood County Solid Waste	\$9,162.60	3/18/2014
Coastal Regional Solid Waste	\$2,031.29	5/6/2014
Iredell County Finance Office	\$242.40	5/13/2014
Alamance County Landfill	\$271.15	5/21/2014
Union County Public Works	\$581.38	6/17/2014
Chatham County	\$995.67	6/25/2014

Department of Environment and Natural Resources - Electronics Management Program

North Carolina General Statute 130A-309.130 established the Electronics Management Program directs manufacturers of electronics, retailers, consumers, and state and local governments to share accountability for the responsible recycling and reuse of electronic equipment.

The law covers computer equipment and televisions intended for consumer use. Computer equipment includes desktop and portable computers, monitors and video displays for computers, printers, scanners or combination printer-scanner fax machines, mice, keyboards and other peripherals. Household items such as cell phones, video recorders, cable or satellite boxes, and all commercial devices such as printers and data networking systems are not covered devices under the law.

Manufacturers' Responsibilities

Before selling equipment in North Carolina, manufacturers must register with the state and pay a registration fee, which is dependent upon the type of equipment and recycling plan level. Television and computer equipment manufacturers have different recycling obligations under the law. Television manufacturers are assigned a target weight to recycle based on their market share. Computer manufacturers are required to have a plan in place to make recycling of computers available to consumers. The law is designed to provide electronics recycling opportunities for the "consumer," defined as an occupant of a dwelling who used the equipment for personal or home business use. A nonprofit organization with fewer than 10 employees is also considered a consumer.

Television manufacturers pay an annual fee of \$2,500. Each television manufacturer is obligated to recycle or arrange for the recycling of its market share of televisions and must annually report the weight of televisions they recycled or arranged to recycle.

Computer manufacturers pay an initial fee of \$10,000 to \$15,000 and then an annual fee of \$2,500 - \$15,000, depending on the level of their plan. Computer equipment manufacturers must provide a plan which will provide a mechanism through which consumers can recycle their equipment. The plans must provide for free and reasonably convenient recycling. The related recycling and transportation must be accomplished using environmentally sound management practices. Manufacturers must provide a consumer recycling education program and a toll-free phone number. Each registered computer equipment manufacturer must also submit an annual report detailing the total weight of computer equipment collected for recycling and reuse for the previous year and summarizing the actions implemented from an approved plan.

Retailer's Responsibilities

Effective July 1, 2011, retailers in North Carolina may only sell televisions, computers, printers, scanners, printer-scanner-fax combinations, mice, keyboards, and other computer peripherals which display the manufacturer label of a registered manufacturer in compliance with the electronics management law.

State Agencies and Governmental Entities Responsibilities

State agencies and governmental entities in North Carolina may only buy televisions, computers, printers, scanners, printer-scanner-fax combinations, mice, keyboards, and other computer peripherals which are produced by registered manufacturers in compliance with the electronics management law. A list of manufacturers who are in compliance, updated whenever a change occurs, can be viewed on the following webpage: <http://portal.ncdenr.org/web/wm/sw/electronics>

Recycling Rates within North Carolina

Data on the recycling of computer equipment and televisions comes from two major sources: manufacturer reports and local government solid waste annual reports. The table below presents information reported by manufacturers who are registered in North Carolina.

Type of Collection	Computer Equipment Manufacturers (lbs)	Television Manufacturers (lbs)
Mail-back Program	10,843	0
Retail Collection	385,986	1,486,137
Scheduled Collection Events	18,422	204,025
Permanent drop-off through local government programs	2,021,220	17,944,363
Permanent drop-off sponsored by manufacturers	3,271,610	3,230,356
Total	5,708,081	22,616,652

As in previous years, permanent drop-off and retail drop-off locations are the option that consumers utilize for the majority of their electronics recycling. Although mail-back programs are an important option for rural areas with fewer drop-off locations available, the weight collected through these programs continues to be relatively small. Additionally whereas most computer and peripheral manufacturers offer a free mail-back option to citizens, television manufacturers do not. Almost 80% of televisions being recycled by consumers are brought to local government programs.

County and Municipal Collection Programs	FY 2009-10 (tons)	FY 2010-11 (tons)	FY 2011-12 (tons)	FY 2012-13 (tons)	FY 2013-14 (tons)
Televisions	993.48	3,019.39	6,423.58	8,739.47	9,314.94
Other Electronics	3,580.15	4,432.15	8,264.91	5,419.81	5,470.99
Total	4,573.63	7,451.54	14,688.49	14,159.28	14,785.93

Local government recycling programs data show only a slight increase in televisions and other electronics collected by counties and municipalities from FY2012-13 to FY2013-14. Since these programs have been in place for several years, the overall weight of materials appears to be stabilizing. Televisions continue to make up 63% of the total weight collected through local government programs; counties with programs that have been in place longer than 5 years are seeing closer to 50% television weight. Counties with newer programs or which have fewer other options for consumers (such as retail drop-off or non-profits accepting televisions for recycling) are still seeing much higher percentages.

Overall Recycling of Electronics	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14
Manufacturer Televisions (non-local government collections) (tons)	NA	1,754.23	2,732.96	1,623.54	2,460.26
Manufacturer Computer Equipment (non-local government collections) (tons)	NA	2,895.82	3,996.03	2,098.88	1,843.43
Local Government Televisions (tons)	993.48	3,019.39	8,264.91	8,739.47	9,314.94
Local Government Other Electronics (tons)	3,580.15	4,432.15	6,423.58	5,419.81	5,470.99
TOTAL (tons)	4,573.63	12,101.59	21,417.48	17,881.70	19,089.62
Total Pounds Per Capita	0.98	2.5	4.43	3.66	3.87

Compliance and Enforcement of Electronics Laws

A small number of companies have not registered or paid their fees. These companies are ineligible to market their products in North Carolina. Citizens and government agencies can check the Division of Waste Management website, <http://portal.ncdenr.org/web/wm/sw/electronics>, to determine which companies may sell in North Carolina.

The Division of Waste Management and the Division of Environmental Assistance and Outreach have been coordinating with manufacturer stakeholder groups, as well as a national consortium of states with electronics programs – Electronics Recycling Coordination Clearinghouse (ERCC), to seek ways to streamline and automate reporting requirements for North Carolina. Manufacturer reporting requirements vary greatly from state to state. North Carolina has joined with other states in allowing manufacturers to register via web access at <http://www.ecycleclearinghouse.org>.

Electronics Management Fund

The Electronics Management Fund, administered by the Division of Waste Management, consists of computer and television manufacturers' registration and annual fees. The majority of the fund is used to subsidize local government electronics recycling programs. Fees paid into the electronics management fund are used to support approved electronics management programs within North Carolina counties. The television equipment funds and up to 10 percent of the computer equipment funds that may be used to administer the program.

Electronics Management Fund		
Balance of Funds as of July 1, 2013		\$402,942.27
Debits		
Distributions to Local Government Programs	[\$600,000.00]	
Cost of Market Share Data	[\$5,350.71]	
ERCC Membership	[\$10,000.00]	
Administrative and Salary Costs	[\$48,818.31]	
Total Debits		[\$664,169.02]
Credits		
Computer Equipment Manufacturer Fees	\$617,500.00	
Television Manufacturer Fees	\$87,500.00	
Total Credits		\$705,000.00
Ending Balance June 30, 2014		\$443,773.25

Distributions to Local Governments from the Electronics Management Fund

Beginning in January 2013, the electronics programs were required to prove to the Division of Waste Management that all recycling of computer equipment and televisions is being conducted by R2 or e-Steward certified facilities in order to receive future distributions. The funding is to be used only for management of electronics. Local governments, 88 Local Governments with Approved Electronics Recycling Plans received their per capita share of a total \$600,000 in distributions from the Electronics Management Fund in February 2014. The distribution amounts can be viewed at <http://portal.ncdenr.org/web/wm/sw/electronics> and are shown below.

Electronic Management Distribution FY 2013-14			
County	Distribution	County	Distribution
Alamance	\$10,074.06	Jones	\$701.89
Alexander	\$2,470.41	Lee	\$3,908.97
Alleghany	\$729.20	Lenoir	\$3,925.04
Anson	\$1,762.57	Lincoln	\$5,257.41
Bladen	\$2,323.95	Macon	\$2,244.40
Brunswick	\$7,452.09	Madison	\$1,394.66
Buncombe	\$16,215.13	Martin	\$1,596.14
Burke	\$5,854.30	McDowell	\$2,993.31
Cabarrus	\$7,373.14	Mecklenburg	\$63,643.59
Caldwell	\$5,499.23	Mitchell	\$1,018.09
Camden	\$663.34	Moore	\$5,978.42
Carteret	\$4,506.33	Nash	\$7,487.01
Catawba	\$10,327.17	New Hanover	\$13,875.58
Chatham	\$4,282.10	Northampton	\$1,423.03
Cherokee	\$1,819.17	Onslow	\$12,556.17
Chowan	\$981.00	Orange	\$9,229.73
Clay	\$709.43	Pamlico	\$873.35
Cleveland	\$6,536.76	Pasquotank	\$2,659.65
Columbus	\$3,842.19	Perquimans	\$905.35
Concord, City of	\$5,386.42	Person	\$2,604.84
Craven	\$6,948.17	Pitt	\$11,423.02
Cumberland	\$21,905.06	Polk	\$1,351.15
Currituck	\$1,597.85	Randolph	\$9,425.46
Dare	\$2,302.13	Richmond	\$3,067.96
Davidson	\$10,477.54	Robeson	\$8,927.62
Davie	\$2,743.89	Rockingham	\$6,147.89
Durham, City of	\$15,642.38	Rowan	\$8,521.03
Edgecombe	\$2,585.53	Rutherford	\$4,498.46
Forsyth	\$23,599.98	Sampson	\$2,393.18
Franklin	\$4,012.99	Scotland	\$4,024.16
Gaston	\$13,730.11	Stanly	\$3,150.55
Gates	\$790.63	Stokes	\$951.70
Graham	\$581.75	Swain	\$2,194.55
Granville	\$3,837.50	Transylvania	\$276.92
Guilford	\$33,639.45	Tyrrell	\$3,011.29
Halifax	\$3,590.99	Vance	\$62,750.36
Harnett	\$7,998.40	Wake	\$1,371.78
Haywood	\$3,919.49	Warren	\$854.31
Henderson	\$7,162.94	Washington	\$3,480.43
Hertford	\$1,628.67	Watauga	\$8,225.20
Hyde	\$378.09	Wayne	\$4,598.50
Iredell	\$10,769.86	Wilkes	\$5,375.25
Jackson	\$2,705.74	Wilson	\$4,241.44
Johnston	\$11,577.88	Yadkin	\$2,526.15

Total of Distribution: \$600,000.00

Recommendations for Changes to the Electronics Law

Changing the computer manufacturers Recycling Plan requirements for Level II plans to allow for physical collection sites in 10 of the 30 most populated municipalities would increase access to recycling collection sites in communities that currently have fewer recycling options. By allowing physical collection sites in smaller communities, manufacturers seeking to work together to maintain compliance would also have greater flexibility and consumer access to recycling collection sites for unwanted electronics would be improved. The Level II plan currently requires manufacturers to “*maintain physical collection sites to receive discarded computer equipment from consumers in the 10 most populated municipalities in the State.*”

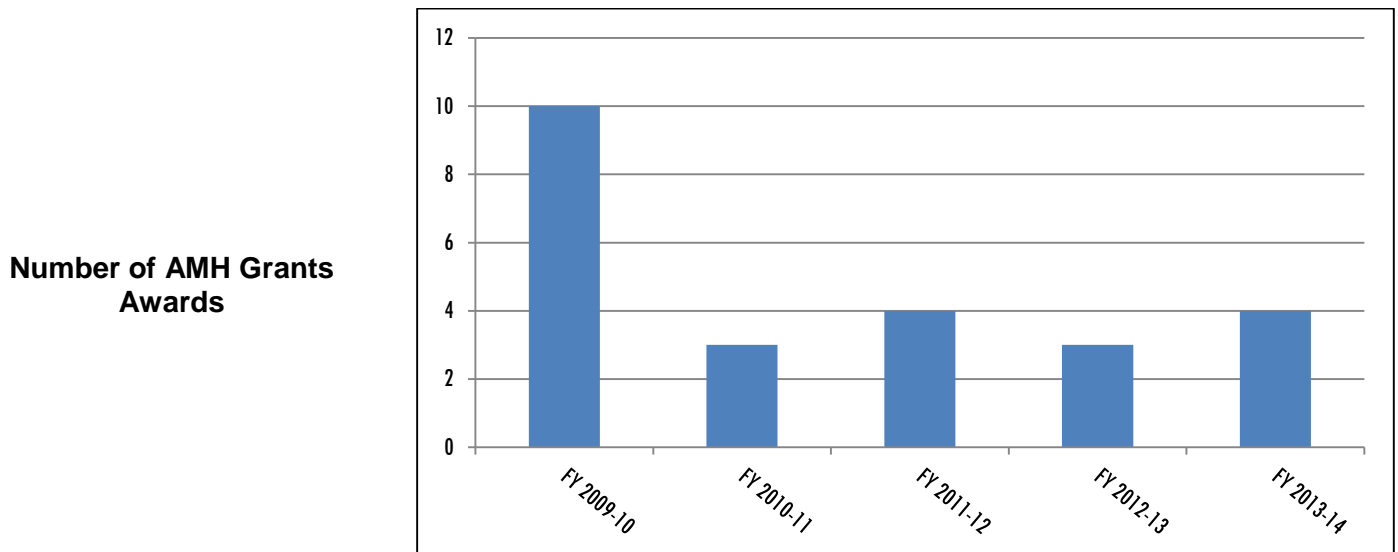
Department of Environment and Natural Resources - Abandoned Manufactured Homes (AMH) Program

As established in G.S. 130A-309.111, the Division of Environmental Assistance and Customer Service (DEACS) operates a grant program that provides funding to North Carolina counties to facilitate identification, deconstruction, recycling and disposal of abandoned manufactured homes which are deemed unfit, unsafe, and hazardous. The Abandoned Manufactured Homes Grant Program Request for Proposals (RFP) was originally developed and made available to North Carolina counties in October 2009, and FY 2013-14 was the fifth year of grant program operation.

Important legislative changes came into effect during FY 2013-14 that impacted the AMH grant program. In August 2013, the NC General Assembly adopted Session Law 2013-409, which repealed the requirement that local governments develop and maintain a comprehensive solid waste management plan. Session Law 2013-409 also streamlined and simplified the process counties must follow to create a written plan for the management of abandoned manufactured homes. Such a plan is a prerequisite for becoming eligible for an AMH Grant. Despite this change, the AMH Grant program did not experienced a significant increase in the number of counties inquiring about or seeking AMH grant funding.

AMH Grants Awarded By Fiscal Year

As mentioned above, the AMH Grant Program has been operational for five fiscal years. The chart below illustrates the number of grants awarded during each of these five years.



The four new AMH grant contracts initiated during FY 2013-14 total an expenditure of \$80,000 from appropriations.

During FY 2013-14, DEACS changed the AMH Grant Program to allow for an initial grant contract length of up to two years, whereas previously initial contracts were limited to one year terms. This step was an acknowledgement of how long it takes some counties to complete work on their AMH projects. As a result of this change, two of the four grants awarded during FY 2013-14, Iredell and Harnett Counties, opted for two year grant contracts.

AMH Program Statistics

Each AMH grant program participant must submit an annual report to the state every August that documents and summarizes county program information from the previous fiscal year. Based on the August 2014 grantee reports, the following table shows the total number of AMH units deconstructed and the resulting amount of waste disposed and recycled in FY 2013-14.

Statistics for AMH Program for Fiscal Year 2013-14	
Units Deconstructed	37 Units
Materials Landfilled	525.64 Tons
Materials Recycled (percentage of total tonnage)	59.61 Tons (11.3 %)
Mercury Thermostats Recovered	4 Thermostats

The number of units deconstructed in FY 2013-14 declined substantially when compared to FY 2012-13, down from 95 units to 37 units. Along with the decline in units managed, the tonnages of materials landfilled and recycled were also significantly lower than the previous year. Program activity in FY 2013-14 mostly reflects activity by grants issued in earlier years because three of the four new grants issued in FY 2013-14 were initiated just before the fiscal year ended on June 30, 2014.

The following table examines the individual AMH grants that were active during FY 2013-14 and the productivity of those programs.

AMH Grant Program Participants during FY 2013-14						
County	Contract Start Date	Contract End Date	Grant Award	County Costs during FY	Responsible Party Fees Collected	# Units Deconstructed during FY
Burke	2/26/2010	2/28/2014	\$40,000	\$598.28	\$1,100.00	2
Franklin	2/26/2010	2/28/2015	\$40,000	\$3,323.00	\$1,443.00	4
Bertie	5/3/2010	5/1/2015	\$40,000	\$1,025.29	\$0.00	1
Iredell	11/29/2010	11/30/2013	\$25,000	\$5,133.50	\$1,258.50	3
Onslow	3/1/2012	2/28/2015	\$37,500	\$9,450.00	\$0.00	5
Jackson	9/17/2012	9/16/2014	\$40,000	\$5,400.00	\$1,300.00	1
Warren	10/15/2012	10/14/2014	\$37,500	\$6,732.63	\$1,190.00	3
Alamance	12/1/2012	11/30/2014	\$40,000	\$28,700.00	\$1,300.00	18
Alamance	6/9/2014	6/8/2015	\$24,000	\$0.00	\$0.00	0
Henderson	6/20/2014	6/19/2015	\$16,000	\$0.00	\$0.00	0
Iredell	6/20/2014	6/19/2016	\$16,000	\$0.00	\$0.00	0
Harnett ¹	7/1/2014	6/30/2016	\$24,000	\$0.00	\$0.00	0

Program Participant Highlights, FY 2013-14

As noted in the Grant Program Participant table above, Alamance, Burke and Iredell Counties all completed work on existing AMH Grants during FY 2013-14. Grant extensions were made during this period for Franklin, Bertie, Onslow, Jackson, and Alamance Counties so those counties could continue work on existing grants.

New “repeat grants” went into effect for Alamance, Harnett, Henderson and Iredell Counties at the end of the fiscal year. No work was completed and no invoices were submitted prior to the end of the fiscal year for these four grants, and any AMH deconstruction activities conducted under these grants will be reported in next year’s report.

Two counties, Bertie and Jackson, reported deconstructing only one AMH unit during the fiscal year. After completing work on their one unit, Jackson County decided to relinquish the remaining money from the grant back to the state and withdraw from participation in the AMH Program on September 16, 2014. The county cited a number of issues when withdrawing from the AMH Grant Program such as difficulty in establishing ownership of AMH units and the high expense of recycling due to a lack of recyclers in this rural area as reasons for this action.

Additional Information on the AMH Program

In addition to providing AMH grant funding, DEACS continues to offer technical assistance to county AMH programs. Examples of technical assistance provided during FY 2013-14 include answering questions on AMH program requirements, assisting communities with the preparation of proposals for AMH grant funding, providing guidance on improving the amount of recyclables recovered during deconstruction, and answering questions regarding eligibility for funding. DEACS staff also presented information on the AMH Grant Program at two meetings of the NC Association of Housing Code Officials (or NCAHCO) during the spring of 2014.

Counties face significant challenges when attempting to make their AMH programs effective. Convincing property owners and/or responsible parties to commit to removal / deconstruction of an AMH unit can be a particular problem in communities where program participation is entirely voluntary, and is especially problematic in cases where responsible parties face a financial obligation associated with AMH deconstruction. Another challenge is identifying AMH ownership where units are very old, where multiple owners have existed in the past, and where properties have complex inheritance, foreclosure or other related issues as a result of an owner or owners being deceased.

Counties that are able to use planning, zoning or code enforcement strategies to encourage and or incentivize participation in deconstruction efforts continue to have the most success with their AMH programs. In an attempt to respond to the challenge of identifying AMH Unit owners, some counties use various means of determining ownership including NCDOT Vehicle Records, county tax records, and or deed recordation. Some counties have developed waivers or other documents allowing owners of real property occupied by AMH units to proceed with deconstruction absent other proof of ownership.

The counties operating AMH programs with state grant assistance continue to report that their programs are well received by citizens. DEACS anticipates continuing the AMH program in FY 2014-15. However, the

elimination of the Solid Waste Management Trust Fund and a reduction in funds available for the state recycling grant program will result in a reduced amount of funding for AMH grants and will limit the number of grant awards the program can make in any one fiscal year. However, to date the demand for AMH grant funding has not exceeded funds available, and the AMH program does not currently have a waiting list of communities seeking grant funding.

Department of Administration - Environmentally Preferred Purchasing

For more information regarding this report, please contact:

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The Department of Administration continues to promote the purchase and use of sustainable, efficient supplies and products. As the Department progresses with this effort, 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 Purchase and Contract Web site: <http://www.ncpandc.gov/>

Solicitations advertised by the Division to Comply with the Session Laws 1993 {G.S. 130A - 309.14(a3)}

Presently, bids advertised in the Division of Purchase and Contract contains 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 that result in waste reduction, if their procurement is both practicable and cost-effective.

Recycling and Source Reduction information provided by the contractors on bids received during the 2013-14 fiscal year indicate the sustainable features or criteria of those products. Sustainable attributes include Reduction, More Efficient, More Durable, Longer Lasting, Reusable, Refillable, Refurbished, Repairable, Recyclable, Washable, and Less Toxic than their traditional counterparts. Efficient resource use includes Energy Star for electric energy demand and reduced water consumption.

Refer to the Examples of Sustainable Open Market Awards and the listing of the Statewide Term Contracts with the applicable sustainable features identified.

Table 1 IPS purchase awards by the type and dollar amounts awarded by the Division of Purchase and Contract

IPS Commodity Purchase Awards by Bid Type	Number Awards by Bid Type	Percentage Number Awards by Bid Type	Awarded Dollars by Bid Type	Percentage Awarded Dollars by Bid Type
Agency RFP	270	20.06%	\$153,720,409.34	20.68%
Contractual Services	2	0.15%	\$811,201.00	0.11%
Agency Specific Term Contracts	129	9.58%	\$130,407,718.37	17.54%
Open Market Purchases	375	27.86%	\$81,693,870.47	10.99%
Quotes	211	15.68%	\$30,905,016.04	4.16%
Agency Wavier	1	0.07%	\$487,500.00	0.07%
Term Contracts	27	2.01%	\$206,079,431.63	27.72%
Waivers	331	24.59%	\$139,356,174.08	18.74%
Grand Totals	1346	100%	\$743,461,320.93	100.00%

NC E-Procurement @ Your Service

As of June 30th, 2014, the enterprise-wide system has 49,530 registered vendors, and 9,207 users representing 193 entities across the State. This includes state agencies, hospitals and institutions, community colleges, K-12 public schools, universities and local governments. NC E-Procurement @ Your Service continues to contribute to a sustainable environment through significant reductions in hard copy document reproduction (paper, printers and supplies) through the use of electronic business transactions and electronic documents. NC E-Procurement also continues to support State priorities for environmentally preferable products with over 75,046 catalog items clearly marked as "Recycled" of the total 183,830 catalog items, as of October 2, 2014.

Purchasing Compliance Reviews

North Carolina Administrative Code (01 NCAC 05B .1605) mandates that the Division of Purchase and Contract conduct compliance reviews on purchasing practices of all state agencies (institutions, hospitals, community colleges, universities, and state agencies). All compliance reviews, except universities, are conducted utilizing data from the NC E-Procurement System. Electronic data reduces the necessity of conducting most phases of the analysis on-site; thereby increasing efficiency, as well as reducing travel costs, fuel emissions, and operating expenses.

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 NC allows vendors to register to receive electronic notification of solicitations. Vendor Link had 28,329 registered vendors as of June 30, 2014. The system continues to grow with the addition of users increasing to 552 agencies, schools and institutions with 1606 purchasers registered in the system, who posted 1,121 completed solicitations using the database from July 1, 2013 to June 30, 2014.

Examples of Sustainable Open Market Awards

Used Workstations – Refurbished workstations were purchased in the amount of \$52,123.68 for the Division of Employment Security Commission offices. The purchase included an 80% discount for the refurbished equipment. This is an example of reuse of recycled resources.

Recycled Printing Paper – State Transportation Maps were purchased for the Department of Transportation in the amount of \$435,000.00. The paper employed was 50% pre-consumer and 50% postconsumer content. This is an example of the use of recycled materials.

Water Quality – Four water quality meters with multi-parameter measurements were purchased for the Department of Environmental and Natural Resources. Measurement parameters available include PH level, dissolved oxygen, water conductivity, water temperature and depth. Instrumentation purchased for \$29,808.20 will be used to measure water quality related to the February 2014 coal ash spill investigation. This is an example of efforts to conserve the quality of the State's natural resources.

Retro-fit Mobile Command Center – A retro-fit of a Department of Justice mobile command center for observation and long term investigations included plumbing, electrical and communications updates for interoperability with existing equipment. A \$14,700 savings were negotiated from the original cost estimate. The \$152,288.00 total cost of the retro-fit was a significant reduction from the \$750,000.00 cost for a new mobile command center. This is an example of reuse of resources.

Reconditioned Washer Extractor – A reconditioned Braun 200/250 was purchased for \$47,687.50 to replace an existing washer extractor currently used to process hospital linens in Cape Fear Valley, Johnston, Highsmith, and Bladen areas. Extractors remove water from laundry to reduce dryer times and lower natural gas costs. Additionally, it means finishing operations will require less cycle time and less energy. The savings of the reconditioned equipment was \$35,267.19 less than a new unit.

Recycled Plastic Lumber – An agency specific term contract was bid for recycled plank stock needed by the Department of Public Safety for use in products manufactured by Correction Enterprises. Plank stock is manufactured with a range of 95% postindustrial and postconsumer recycled HDPE (high density polyethylene). This multi-layered non-porous material resists deterioration from moisture, UV light exposure and is inherently resistant to wood penetrating insects. Material is also very durable with a stain resistant

surface that also serves to resist permanent markings such as graffiti. Lumber is provided with a 50 year warranty for surface defects. This is an example of using recycled materials that are longer lasting in an outdoor environment.

Vehicle Light Bars - A three year agency specific term contract was awarded to supply traffic warning LED type vehicle bar lights to the Department of Transportation. These bar lights offer more functionality (light patterns other than available with only strobe lamps employed), energy efficiency (reduced electrical load on the car's alternator and battery), and significantly decrease maintenance (long life solid state LED display 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. This is an example of the use of energy efficient products.

Virtual Reality Welding Trainer Unit - Educational training tool that is designed to accelerate welding training of various types of simulated welding equipment through the utilization of virtual reality was purchased for Robeson Community College. Unit allows students to practice their welding technique in a simulated and immersive environment. Trainer reduces material waste (base welding material, welding consumables, electrodes, shielding gas, consumable parts) and saves energy from the welding process. There are no welding fumes or exhaust of environmentally conditioned air during the simulated welding process. This is an example of reduction in materials and energy consumption.

Electrofishing Equipment - A three year agency specific term contract was awarded to supply electrofishing equipment for sampling fisheries' stock for the Wildlife Resources Commission, Marion Fish Hatchery. Equipment includes the control box, generator, booms, arrays, dropper tubes, and junction box. This unique system uses the most advanced technology and safety features on the market. Fisheries biologists are able to use incrementally pulsed current rather than preset pulsed current thus less risk for spinal damage to fish when entering the electric field. The hatchery captures fish to restock the public water to sustain and supplement natural populations. Fish are also captured for abundance of fish studies and create fisheries none naturally exist. This is an example of efforts to conserve and supplement the quality of the State's natural resources.

Used Caterpillar 320DL Excavator – A 2007 long reach excavator was purchased for the Department of Wildlife Resources for \$134,000.00. The average price of a new 2013 Caterpillar 320DL is \$207,000.00. The used vehicle was determined to meet the user's needs at a significant savings. This is an example of reuse of resources.

Used Sterling LT-8500 Dump Truck – A tandem dump truck was purchased for the Department of Wildlife Resources for \$60,032.50. The estimated price of a new 2013 model 320DL is \$135,500.00. The used vehicle was determined to meet the user's needs at a significant savings. This is an example of reuse of resources.

Used Clamshell Bucket – A 20 yard heavy equipment bucket was purchased for the NC State Ports Authority for \$76,891.23. The price of a new piece of bucket of the same size and capacity is \$180,552.33. The used vehicle was determined to meet the user's needs at a significant savings. This is an example of reuse of resources.

Used Featherlite Enclosed Dry Van Office Trailer – A 2008 trailer was purchased for the Department of Public Safety for \$260,000.00. A new trailer with the same specifications was estimated to cost \$680,000.00 to \$1.2 Million. The used vehicle was determined to meet the user's needs at a significant savings. This is an example of reuse of resources.

Refurbished Surgical Light - Two refurbished Amsco SQ240 dual ceiling mounted surgical lights were purchased for Coastal Carolina Community College including installation and delivery. Ceiling mount suspension light fixtures provide 360 degree rotational positioning, cool, shadow reduced, color corrected illumination appropriate for surgical procedures. Recycled fixtures are used for training purposes in education programs.

Energy Efficient Lighting – Interior strip lights purchased for \$85,013.60 were supplied for the retrofit of some Central Prison’s older facilities. Strip fixtures containing high-output, energy efficient LEDs are configured for retrofit of fluorescent 2 foot long, T5 and T8 diameter lamps in a compact, low-profile form factor. LED strip lamps offer long life, high lumen outputs and are available in various lengths. This is an example of the selection of reduced energy consumption lighting.

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 wide range of sustainable or environmentally friendly products. Examples of the 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.
- Appliances, Domestic, 045A – The majority of refrigerators, washers, and dishwashers covered by this contract are Energy Star Qualified.
- Automotive, Industrial Parts and Supplies, 060A - Some products included have recycled materials with 10%-20% post-consumer content.
- 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 10. Core (junk) batteries are considered to be an environmental hazard and are otherwise expensive to properly remove. The Division of Surplus, State Surplus Property collected state-wide from state agencies and local governments 604,000 pounds of wet cell batteries that were recycled during the 2012 to 2013 fiscal year. Recycled quantities data has not been provided for the 2013-14 fiscal year.
- 2014 Models Passenger Cars, 070A – Cars are available in 4 and 6 cylinder gasoline engines with flex fuel (E85) compatible models. Contract includes a plug-in hybrid car (Ford Fusion).
- 2014 Law Enforcement Vehicles, 070B - Cars are typically four door, available in 6 and 8 cylinder engines and some are flex fuel (E85) compatible. According to the Steel Recycling Institute, 67.7% of a vehicle is steel or iron. Of that steel or iron, 26.6% is postconsumer material...
- Conventional School and Activity Buses, 070C; Conventional Activity Buses, 070D – Vehicles typically contain approximately 20% postconsumer recycled material by weight and 80% of the vehicle by weight is recovered for reuse. Used school buses are usually sold or are used for spare parts.
- 2014 Model Year Trucks, Vans, Utility Vehicles, Crossovers-Conventional Fuels and AFVs, TC # 070G – All diesel trucks and vehicles are required to additionally operate using B20 bio-diesel fuel. Gasoline fueled vehicles were also bid with flex fuel as an alternative category. Awarded flex fuel vehicles

comply with the intent of Senate Bill 2051. Vehicles noted as Flex Fuel or E85 can use both pure gasoline and E85 fuel.

- Neighborhood Electric Vehicles, 070N - Neighborhood Electric Vehicles (NEV) are battery operated vehicles that are "street legal" for use on roads with a posted speed limit of 35 MPH or less. There are 14 different NEV models available from this contract from eight suppliers offering the brands; GEM, E-Ride, Columbia, Cushman, Polaris, and Star brand vehicles. The contract vehicles are offered with a price range of \$10,232 to \$30,123 and include an extended warranty. Because these vehicles do not consume hydrocarbon fuel they produce zero direct emissions. These vehicles are considered good additions to agency fleets to help meet petroleum reduction goals.
- Golf Cars, 070P – Electric and gas fueled vehicles are available with two, four and six passenger models. Models are made with components of 85-90% recycled steel, plastic and aluminum.
- Light Transit Vehicles, 070U – Vehicles accommodate public transportation needs and are Americans with Disabilities Act (ADA) compliant. Engines meet current EPA emissions guideline. Alternate fuel/engine options include flex fuel (E85), propane and gas/electric motor hybrid engines.
- Remanufactured Toner Cartridges, 207A - Currently common use Hewlett Packard and Lexmark cartridges are remanufactured to equivalency with the original OEM performance. New Brother Brand drum assemblies and toner hopper assemblies were also added. Product specifications are being transitioned from mandated construction requirements to the use of product and vendor performance requirements. This is expected to allow a wider variety of brands and models to be covered as requested by the contract users. This contract reduces the number of reusable cartridges added to the waste stream.
- Ballasts, 285B – Ballasts of all types are available, including electronic types that are more energy efficient, support variable illumination and reduce electromagnetic radiation. A link is provided to Federal Energy Management Program (FEMP) that illustrates a return on investment for retrofitting with more energy efficient lamps and ballasts. Electronic ballasts contain no PCB's and can be disposed of in the trash. Reduced product shape and size (form factor) also minimizes packaging and metal enclosure requirements.
- LED Lighting, 285C – Contract consists of lamps for cove lighting, area lighting, down lights, troffers and wall packs employing LED illumination for energy savings. Packaging is 60% recycled materials. Technology utilizes LED illumination for energy savings.
- Energy Saving Devices, 285D – Contract includes T8 size tubular fluorescent retrofit kits, LED exit signs, LED exit sign retrofit kits, occupancy/vacancy sensors, electronic dimmable ballasts, and controls. Products utilize LED illumination and dimmable ballasts for energy savings.
- Paper, Computer and Labels, 395B - Computer paper contains from 30% to 50% recycled with 30% post-consumer content.

- Propane Tankwagon, 405A – Contract vendors have reported 4,520,477 gallons were purchased last year of this clean burning fuel.

- Oils, Lubricants, Greases, and Antifreeze, 405H – The following synthetic, bio-degradable, and recycled lubricants were reported as supplied under this contract: Biodegradable Bar & Chain Oil (48 gallons), Biodegradable Two Cycle Oil (36 gallons), Synthetic Motor Oil (1,669 gallons), Biodegradable Hydraulic Oil (1180 Gallons), Synthetic Gear Lubricant (15,955 Pounds), Synthetic Automatic Transmission Fluid (1,717 Gallons), and Synthetic Grease (2,715 Pounds). Additional synthetic type oils and transmission fluids have been added to the contract to allow increased service life to reduce consumption and decrease maintenance cycles. This year 26,515 gallons were purchased of Diesel Exhaust Fluid (DEF), an aqueous urea solution used in diesel engines to lower nitrogen oxides concentration in exhaust emissions. Nitrogen oxides, like hydrocarbons, are precursors to the formation of ozone and also contribute to the formation of acid rain. Covered by an agency specific contract the Division of Surplus, State Surplus Property collected and disposed of waste oil and antifreeze with 321,000 gallons of motor oil recycled for the 2012-13 fiscal year. Waste oil and antifreeze data has not been provided for the 2013-14 fiscal year.

- Propane Transport, 405K – Contract vendors have reported 1,752,028 gallons were purchased last year of this clean burning fuel.

- B-20 Transport, 405L - B20 blended fuel contains 80% diesel fuel and 20% virgin soy or reprocessed vegetable oil. This means that of the reported 6,737,604 gallons of B20 blended fuel purchased, 1,347,520 gallons were produced from plant mater. This results in a reduction of crude oil consumption.

- Gasohol, E-10 Transport, 405M - E-10 blended fuel contains 90% unleaded gasoline and 10% ethanol. This means that of the 9,109,122 gallons of E10 blended fuel reported as purchased, 910,912 gallons were derived from ethanol. This results in a reduction of crude oil consumption.

- Pipeline Natural Gas, 405N – Contract vendors have reported 3,232,977 dekatherms as purchased last year of this clean burning fuel.

- Ultra-Low Sulfur Diesel Transport, 405P – Contract offers 15 ppm of sulfur content compared to 500 ppm sulfur content on the previous low sulfur diesel contract. Transport loads are over 6,000 gallons per delivery, and are typically used heavily by the Department of Public Instruction and the Department of Transportation. Approximately 2,958,744 gallons were reported as purchased. This will help to provide compliance with clean air mandates.

- Ultra-Low #2 Sulfur Diesel Tankwagon, 405Q - Identical to the 405P contract except in form of delivery. Tankwagon loads are less than 6,000 gallons down to a minimum of 500 gallons. Approximately 150,357 gallons were reported as purchased. This will help to provide compliance with clean air mandates.

- E-85 Flex Fuel, 405R - E-85 blended fuel contains 15% unleaded gasoline and 85% ethanol derived from corn production. This alternative fuel is provided in transport quantities of 6000 gallons or more. This means that of approximately 59,928 gallons of the blended E85 fuel reported as purchased 50,938 gallons were derived from ethanol which reduces crude oil consumption.
- E-10 Tankwagon, 405S - E-10 blended fuel contains 90% unleaded gasoline and 10% ethanol. Tankwagon loads are less than 6,000 gallons down to a minimum of 500 gallons. This means that of approximately 64,072 gallons of the blended E10 fuel purchased, 6,407 gallons were derived from ethanol which reduces crude oil consumption.
- Ultra-Low Sulfur Diesel #2 Emergency Transport, 405T – Contract offers 15 ppm of sulfur content compared to 500 ppm sulfur for the standard diesel #2 fuel. This contract is used in emergency cases when there is a pipeline interruption. The ultra-low sulfur content will help to provide compliance with clean air mandates. No sales were required from this contract during the fiscal year.
- E-10 Emergency Transport, 405U – E-10 blended fuel offers 90% unleaded gasoline and 10% ethanol. This contract is used in emergency cases when there is a pipeline interruption. The ethanol blend can reduce crude oil consumption. No sales were required from this contract during the fiscal year.
- Bio-Diesel Fuel, B-20 Tankwagon, 405V – B20 blended fuel contains 80% diesel fuel and 20% virgin soy or reprocessed vegetable oil. Tankwagon loads are less than 6,000 gallons down to a minimum of 500 gallons. This means that of 236,347 gallons purchased, 47,269 gallons are derived from plant mater. This results in a reduction of crude oil consumption.
- E-85 Tankwagon, 405X - E-85 blended fuel contains 15% unleaded gasoline and 85% ethanol derived from corn production. Tankwagon loads are less than 6,000 gallons down to a minimum of 500 gallons. From the approximately 19,458 gallons reported sold of the blended E85 fuel, 16,539 gallons were derived from ethanol which reduces crude oil consumption.
- Aviation Fuels, 405Y - Contract includes aviation gasoline (avgas) and Jet A fuels. The aviation gasoline provided has a lower lead content of the fuel. Lead from engine exhaust fumes is classified an irreversibly neurotoxin and the lower lead content gasoline would be less toxic than the traditional formulation. An estimated 7,435 gallons of avgas and 8,504 gallons of Jet A were delivered based upon E-Procurement sales data for the contract during the fiscal year.
- Furniture, Metal, Folding Chairs, Tables, Storage Units, Wood Library Furniture, 420A - Furniture, Desks (Wood), Credenzas, Conference Tables, Etc. & Bookcases, Furniture, 425B & C - Contractors support sustainability through different practices. Mechanical parts can be recycled or replaced, thereby extending service of item. Packaging is recyclable. Products may be ground up into particleboard. Packaging may contain from 15% to 75% post-consumer waste and is reusable. Wood, plastic and metal contain recycled post-consumer content and are recyclable. Product offerings are using more sustainable backs are now becoming available and is more environmentally friendly because it is made partly from soybeans, a renewable methods because they offer a competitive price advantage over

those who use all virgin materials. Soy foam in chair seats and backs are now becoming available and is more environmentally friendly because it is made partly from soybeans, a renewable resource.

- Furniture, Library, Wooden, 420D – Packaging is recycled. Wood scraps from the manufacturing process are either mulched for recycled materials or converted into energy. Manufacturing may use a water based top coat in wood finishing process.
- Furniture Contracts, 425A & 425D - Product offerings are using more sustainable methods because they offer a competitive price advantage over those who use all virgin materials. Soy foam in chair seats and backs are now becoming available and is more environmentally friendly because it is made partly from soybeans, a renewable resource.
- Bedding Mattress Term Contract, 420E - Mattresses comprised of innersprings (similar to the type used primarily in the residential and hospitality bedding industries) now require successful evaluation to the 16 CFR Part 1633, the Consumer Product Safety Commission’s new mattress flammability testing standard, “Standard for the Flammability (Open Flame) of Mattress Sets”. Successful evaluation of products offered continue to require the 16 CFR Parts 1632, Standard for the Flammability of Mattresses and Mattress Pads (directed toward cigarette ignition of mattresses). The revised specifications promote increased safety and durability to extend product life.
- Furniture, Chairs, Ergonomic, 425E – Fabric and chair cushions may contain up to 100% post-consumer recycled content. Packaging contains post-consumer materials, is reusable and recyclable for continued use. Product offerings are using more sustainable methods because they offer a competitive price advantage over those who use all virgin materials. Some manufacturers are now offering soy foam in chair seats and backs as well as recycled wood components. Fabric and chair cushions contain up to 100% post-consumer recycled content with approximately 40% total recycled content for the complete product. Packaging contains up to 100% recycled materials and is recyclable.
- Metal Cabinets, Lateral, Vertical and Storage, 425H - Cabinets contain from 10% to 30% recycled content. Corrugated boxes have a minimum of 50% post-consumer waste and are recyclable.
- Industrial, Medical and Specialty Gases, 430A - Are delivered statewide in reusable cylinders and are exchanged when replacement cylinders are needed.
- Disinfectants, Janitorial Cleaners, Environmental Cleaners, and Odor Counteractants, 435A – Numerous environmentally friendly janitorial cleaners are available through this contract that are Certified Compliant to Green Seal GS-37 Environmental Standard For Cleaning Products For Industrial and Institutional Use, dated September 2011, or the EcoLogo Certification Criteria Document CCD-146, Environmental Standard for Hard Surface Cleaners, dated August 2011. These products include General Purpose Cleaner, Environmentally Friendly Neutral Cleaner, Environmentally Friendly Window and Glass Cleaner, Environmentally Friendly Hydrogen Peroxide, and Environmentally Friendly Cleaner Degreaser. Premoistened towelettes are available to provide an alternative for chemicals from being aerosoled or dispensed in the indoor air. Disinfectants included contain various active ingredients and end use concentrations to allow proper selection for limiting contact and exposure to

amounts required to be efficacious for specific pathogens targeted. All disinfectants are EPA registered for efficacy of pathogens identified by the NC Statewide Program for Infection Control and Epidemiology within health care related facilities. Chemical dilution control equipment for designated products is supported to improve sanitation quality, deliver accurate recommended product dilution and control costs. Contractors are required to provide the product use training and MSDS sheets.

- Maintenance, Repair & Operation Supplies, 445B – Items which were offered under the following contracts are now covered under this contract: Lamps, Large & Specialty (285A), Material Handling Carts/Trucks (560A), Low-Flow Plumbing Fixtures (670A), and Safety Equipment, Eye/Face Protectors (345A). Lamps may contain up to 65% recycled content including glass and mercury. Lamp packaging that may contain 73% recycled content. Some of the lamps are low mercury (TCLP compliant), non-hazardous. Low-flow plumbing fixtures are offered to reduce water consumption.
- Locks, Locking Devices & Accessories, 450B – Product metal content includes 26-31% pre-consumer recycled materials and 4-6% postconsumer recycled materials. Some models support the material and resources credits for Leadership in Energy and Environmental Design (LEED) building certifications.
- External Defibrillators, 465B - Defibrillators can be refurbished and packaging materials can be recycled.
- Incontinent Care Products, Disposable, 475C - Disposable washcloths (wipes) contain a minimum 50% of fully biodegradable paper (cellulose fibers).
- Grounds Maintenance Equipment, 515B – Contract includes, walk behind products/equipment, mowers and lawn & garden tractors, hand held equipment (hand-held type), hand held equipment, tractors, utility vehicles, golf & turf equipment, and other equipment. Equipment is manufactured with typically 20% recycled steel and plastic.
- LED Vehicle Traffic Signal Modules, 550A - Traffic signals and crosswalk notification employing the high efficiency light emitting diode (LED) technology consume 90% less energy than conventional signals, while providing greater reliability, longer life, and low-maintenance performance. Signals are certified for ENERGY STAR certification for reduced energy consumption.
- Traffic Signal Equipment, 550D - Lenses and signal head hardware are compatible with energy efficient LED lamps. Depending on brand, aluminum components may have up to 85% recycled content.
- Traffic Cones and Drums, 550F – Contract includes caution drums and cones with up to 35% recycled content in the plastic body and up to 100% post-consumer recycled content for the rubber support base for either product.
- Trailer-Mounted Solar Powered Flashing Arrow Board, 550G - Agency specific term contract provides availability of a trailer mounted, solar charged 15 lamp LED array arrow board and related parts for the

NC Department of Transportation. Amber lights on panel board are electronically actuated to form various configurations to signal, control, and direct high speed vehicle traffic. Portable solar powered unit includes energy efficient lamps and controls.

- Office Supplies, 615A - Contractors are required to the extent feasible and practical, to offer recycled products, including packaging, especially those having postconsumer waste content. Wherever possible and practical, such products should be identified as such.
- Napkins, Bathroom Tissue & Paper Towels, 640A – All products on the contract are certified to Green Seal standards GS-1 or GS-9, or Ecologo CCD-084 or CCD-086. Paper products are manufactured from 100% recycled fiber, with 40% to 80% of that recycled content being from post-consumer content. Products are manufactured using either elemental chlorine-free or chlorine-free systems. This is an example of the use of recycled materials.
- Office Paper, 645A - Various products contain both post-consumer recycled content from 100% to 30%, and chlorine free copy paper. Other recycled and virgin paper products including envelopes are supported.
- Laminators & Laminating Film, 665A - Some of the film contains 5% post-consumer content. Packaging contains 25%-80% post-consumer content.
- Bags, Plastic, Trash, 665B - Liners contain a minimum of 10% post-consumer or 10% pre-consumer reprocessed copolymer. All the liners awarded were thoroughly evaluated for strength and performance.
- Ammunition, 680A - Brass shell casings can be saved and recycled and others can be reloaded.
- Vending Machines and Money Changers, 740B - Vending machines were purchased for the Department of Health and Human Services are twice as energy efficient as machines made 5 years ago. Equipment features high-efficiency refrigeration, foam-injected insulation and LED display lighting. Refrigerated versus chilled storage space allocation is adjustable for varied product dispensing. Wireless monitoring systems boost efficiency with 24/7 communication and report diagnostics including amount of product needed to refill unit. This is an example of reduced energy consumption with the reduced cost of service/refill trips on an as needed basis. Packaging, refrigerant and metal components may contain recycled content and are recyclable.
- Construction Equipment, 760H – Construction Equipment covers excavators, wheel excavators, track loaders, compact track loaders, wheel loaders, skid steer loaders, backhoe loaders, crawler dozers, crawler loaders, wheel dozers, motor graders, utility cranes, and compactors. Appropriate attachments or equivalent products are included in the contract. Equipment manuals and parts catalogs are provided in hard copy and electronic copies. Engines meet current EPA Tier and emissions guidelines.

- Forestry Equipment, 760L – Equipment includes feller bunchers, knuckleboom loaders, forestry swing machines, and harvesters. Appropriate attachments are included in the contract. Equipment manuals and parts catalogs are provided in hard copy and electronic copies. Engines meet current EPA Tier requirements.

- Tires and Tubes, 863A - Tires depending on manufacturer may contain from 1.55% to 2.5% of recycled materials based on the product attributes, speed rating and performance criteria.

- Teaching Equipment, Electricity/Electronics Courses, 924A - Office paper, cardboard and metal enclosures have recycled content. Documentation may be provided in soft copy instead of hard copy printed materials.

- Recycling Services for Fluorescent Lamps, Ballasts & Other Mercury Containing Devices, 926B – Contract assists agencies and local governments with contracted disposal of discarded electronic products that are diverted from landfill disposal.

- Electronic Equipment Recycling Services, 926C – The State of North Carolina requires that its recycled electronics not contribute to unsafe and environmentally damaging processing practices. The purpose of this contract is to assist Agencies in complying with the State’s electronic recycling requirements by providing recycling service options for end-of-life electronic equipment, including the collection, de-manufacturing, and recycling of computer monitors, televisions, desktop CPUs, laptop computers, printers, scanners, keyboards and mice, copy machines, DVD players, VCRs, stereo systems, tape players, CD players, radios, telephones, cell phones, readers, network equipment, servers, fax machines, electronic games, and other consumer electronics generated by State of North Carolina agencies and other eligible users. Eligible contract users include county and municipal governments, local education agencies, community colleges, state universities, and other local public agencies or authorities. Some recycled products generate a revenue stream that may be used to pay for the recycling of other products. The Division of Surplus, State Surplus Property resold or recycled 595,000 pounds of computer and electronic equipment during the 2012-13 fiscal year. Recycled electronics data has not been provided for the 2013-14 fiscal year.

Items Aiding Waste Reduction Purchased By State Agencies Through Term Contracts and Open Market Purchases

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

Refrigerant Recovery System (filters reusable refrigerant), Recycled Carpet fiber, Recycled Paper fiber, Recycled Content Furniture (not traditional wood),
Printers, Tire Recapping & Repairing Service, Uniforms, Wiping Cloths

More Durable

Classroom Furniture, Electronic Lamps & Ballasts, Vacuum Cleaners, Floor Polish, Grader Slope Attachment, Plastic Lumber, Mattresses, Vertical File Cabinets, Wood Case goods, Wood library furniture

Energy Star – Reduced Energy Consumption

Changeable Message Signs – Solar Powered, Domestic Appliances, Lighting Fixtures, Room Air Conditioners, Lamps, Traffic Signals – LED, Warning Lights - Vehicles Safety, Water Coolers

Flow Plumbing Fixtures for Reduced Water

Consumption – 0.5 GPM lavatory facet nozzles and 1.5 GPM showerheads support the Governor's water conservation initiative during severe water restrictions throughout the state.

Recycled Metals – The Division of Surplus, State Surplus Property resold 1,175,000 pounds of scrap metals collected state-wide from state agencies, and local governments during the 2012-13 fiscal year. Recycled metals data have not been provided for the 2013-14 fiscal year.

Used - Automobiles and trucks

Washable - HVAC Filters, Wiping Cloths

Refillable

Ammunition - Cartridge Refills, Batteries - Vehicle & Storage, Drums – Steel, Fire Extinguishers, Cylinders for Welding, Medical & Specialty Gases
Fuel Tanks, Self-Contained Breathing Apparatus

Repairable

Defibrillators, Musical Instruments, Tire Recapping & Repairing Service

Refurbished/Rebuilt

Medical Diagnostic Equipment & Instrumentation, Remanufactured Toner Cartridges, Scientific Equipment, Sewing Machines

Less Toxic

Alternative Fuel Vehicles, Dry Cell Batteries, Electronic Lamps & Ballasts, Fertilizers/Farm Chemicals, Inks for printing (using non-petroleum based inks), Instructional Art Materials, Marker board 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, and Motor Oil – refined,

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3R Program [Reduce – Reuse – Recycle]

Top- Down Support Leads the way to the success of NCDOT 3R Program:

Secretary of Transportation- Anthony Tata

“NCDOT is focused on better connecting our citizens to greater opportunities, while taking careful steps to protect our natural resources. We strive to find the balance between human, economic, and environmental impacts in every project we do. As part of those efforts we play an important role in encouraging all of our employees to help reduce waste, recycle, and reuse materials when possible.”

Chief Deputy Secretary for Support- Nick Tennyson

“By reducing waste, recycling, and reusing materials - whether on construction sites or day-to-day in the office – we are ensuring that we are operating as efficiently as possible, thereby being good stewards of taxpayer dollars as well as the natural environment.

Commissioner Kelly Thomas:

“As part of our DMV Reform, we are continuously searching for ways to operate more efficiently. Reducing waste, recycling and reusing materials are simple ways we can achieve this goal, while at the same time supporting jobs in this industry and preserving North Carolina’s natural resources.”

FY 2013-14

NCDOT employees continue to demonstrate their commonsense approach to handling its waste stream proves to be very successful in diverting materials from the landfill. NCDOT employees recycled the following for 2013-14 year:

2013-14 Waste Material	Weight
Paper: newspaper, magazines, cardboard, office paper, telephone books, hardback books, etc.	691 tons
Metal: aluminum cans, steel cans, scrap metal, white goods, etc.	4,602 tons
Glass Containers: clear, brown, green, and mixed glass	7 tons
Plastic: PETE #1, HDPE #2, LDPE #4, mixed plastic, etc.	26.3 tons
Commingled Containers: single stream collection of aluminum and steel cans, glass and plastic	76 tons
Electronics: monitors, computers, printers, copiers ,televisions, etc.	63 tons
Organic materials: wooden pallets, other wood, yard waste, food scraps, cooking grease, etc.	1,269 tons
Other materials: lead acid batteries, motor oil, white goods , etc.	614 tons
Grand Total	7,348 tons



2013-14 NCDOT upgraded and added more recycling containers state-wide at our Rest Areas/ Visitor Centers as well as the Ferry Division and Rail Division and it is paying huge dividends in materials collected and recycled from the general public. This year over 98 tons of plastic and glass containers, aluminum cans, newspaper, and cardboard were collected and recycled from these facilities.



2013-14 NCDOT implemented a statewide wide fluorescent light bulb recycling program with great success. The program diverted over 1291 bulbs from the landfill.



2013-14 NCDOT Construction and Demolition Program recycled and reused over 561 tons of waste materials state-wide. NCDOT has develop a state-wide map to make it easier to recycle construction and demolition waste materials go to:

<https://connect.ncdot.gov/resources/Environmental/>

Revenue generated from the sale of recycle waste materials:	
2013-14 Waste Material	Revenue Generated
Recyclable Oil	\$160,089
Recyclable Metal-Non Aluminum	\$532,517
Recyclable Batteries	\$46,665
Recyclable Aluminum	\$63,732
Recyclable Cardboard	\$2,574
Total	\$805,577

NCDOT’s continuous focus on waste management is educating employees on source reduction, reuse, and recycle practices. These practices will continue to lead in significant reduction in our waste stream and less on our environmental foot print on the planet.

FY 2014–15 Goals

NCDOT has set these goals for 2014-15:

- Increasing the number of Construction and Demolition Waste Reduction projects state-wide
- Increasing specifications to allow more reuse of asphalt, hot in place recycling and Highway Construction and Materials System (HICAMS) reporting
- Eliminating mass printing of manuals, documents and forms by placing them online for customers and employees.

Recycling and Solid Waste Management Report for Highway Construction and Maintenance Projects

Executive Summary

This report is a summary of the recycling and solid waste management efforts on highway construction and maintenance projects within the North Carolina Department of Transportation for state fiscal year 2014 (July 1, 2013 - June 30, 2014) as required by G.S. 136-28.8(g) and G.S.130A-309.14(3). These statutes mandate that the Department prepare an annual report on the amounts and types of recycled materials specified or used in

construction and maintenance projects during the previous state fiscal year and review of bid procedures, respectively. The types of recycled materials incorporated into this report would routinely contribute to the consumer and industrial waste streams, compounding the problem of declining space in landfills.

Efforts to utilize recycled and solid waste materials are in response to the requirements of G.S 136-28.8(b) which mandates the Department use recycled materials in highway projects. All applications of recycled materials are to be consistent with economic feasibility, applicable engineering, and environmental quality standards. In addition, the Department continues to comply with Chapter 136 of the General Statutes to encourage the purchase or use of reusable, refillable, repairable, more durable and less toxic supplies and product.

Highway Construction and Maintenance Projects

The Department has utilized crushed concrete as an Aggregate Base Course (ABC) since the mid 1990's with success. The diverted concrete waste from C & D landfills is significant. One project to note is the I-40/440 Fortify Project, fortifyNC.com. The contractor, Granite Construction Co. is crushing; blending and stockpiling the existing concrete asphalt and reusing it on the project as ABC on this 11.5-mile stretch of roadway. To date, the Fortify project has diverted 54,142 tons of concrete from the landfill.

Additionally, the Department is actively seeking a pilot project on which to test crumb rubber in an asphalt application. Crumb rubber is derived from post-consumer automobile tires and manufactures' waste.

NCDOT continues to encourage the use of recycled products in highway construction projects, such as guardrail offset blocks and flexible delineator posts. Glass beads are used for retro-reflective pavement markings and are manufactured from 100% recycled glass.

Reclaimed asphalt pavement (RAP) may constitute up to 50% of the total material used in most recycled asphalt mixtures, and RAP mixtures are used on a majority of projects. Other material used in asphalt mixes are postconsumer and manufacturers waste roofing shingles. Encapsulated fly ash is sometimes used as a concrete component for up to 20% by weight of the required cement content. Some of the notable recycled or solid waste materials utilized this fiscal year are:

- 1,425,955 tons of Reclaimed Asphalt Pavement (RAP) was used as an asphalt mix additive.
- 176,721 tons of Reclaimed Asphalt Shingles (RAS) were used as an asphalt mix additive.
- 21,159 tons of coal combustion fly ash was used in concrete mixes.
- Maintenance personnel across the state continue to reuse products including aggregate base course, concrete pipe, guardrail, signs and posts, and steel beams.

See Table I for quantities of recycled and solid waste materials used during the 2013-14 state fiscal year and Table II for averages from 1989 to date.

Procedure Review

The Department reviews bidding procedures and processes to continuously encourage the purchase and use of recycled and reusable products in construction and maintenance projects. During 2013, the NCDOT Standard Specifications for Roads and Structures Specification 104-13 was revised to include a website which provides Contractors locations to recycle construction waste. Along with this website, the Department provides a reporting form for the Contractors to submit as a tool to capture material types and quantities that are being recycled.

In addition, the Value Management Unit is currently developing a process to identify the recycled content of products submitted by vendors to the department for inclusion on the Department's Approved Products List. This process will also enhance the Department's ability to track the recycled material usage.

North Carolina Department of Transportation
 Recycled Products & Solid Waste Utilization in Construction &
 Maintenance Projects
 Fiscal Year July 1, 2013-June 30, 2014

Table I

Product Category and Description	Usage	Quantity	Unit of Measure
1-Asphalt:			
Reclaimed Asphalt Pavement (RAP)	Asphalt Mix Additive	1,425,955	Tons
Reclaimed Asphalt Shingles (RAS)	Asphalt Mix Additive	176,721	Tons
Reclaimed Asphalt Pavement (RAP)	Shoulder Reconstruction	36,455	Cubic Yards
Hot-In-Place Asphalt Recycling	Pavement	3,138	Square Yards
Full-Depth Reclamation	Pavement	123,008	Cubic Yards
2-Clearing and Grubbing Debris:			
Mulch	Mulch	340	Acres
Mulch	Mulch - Roadside Environmental	2,010	Cubic Yards
Mulch	Erosion Control	19,750	Cubic Yards
3-Coal Combustion Products:			
Fly Ash	Concrete Mix Additive	*21,159	Tons
Fly Ash	Flowable Fill	588	Cubic Yards
4-Concrete:			
Recycled Concrete	Aggregate Base Course (ABC)	59,876	Tons
Recycled Concrete	Fill Material	947	Tons
Crack and Seat	Base Material	200	Tons
5-Glass:			
Recycled Glass Beads	Pavement Markings	7,488	Tons
6-Plastic:			
Recycled Plastic Offset Blocks	Guardrail Offset Blocks	304,018	Each
Recycled Plastic Pipe (All Types and Sizes)	Pipe	1,760	Linear Feet
Recycled Plastic Sign Supports	Sign Supports	100	Each
Recycled Plastic Flexible Delineators	Flexible Delineators	590	Each
7-Scrap Tires:			
Chipped Tires	Embankment Fill	873	Tires
Crumb Rubber	Crack Sealant	44,535	Tires
Tire Sidewalls	Traffic Drum Ballast	2,623	Tires
Whole Tires	Retaining Wall	150	Tires
8-Roadside Environmental:			
Animal Waste	Fertilizer/Soil Amendment	650	Tons
Shredded Hardwood Bark Mulch	Plant Bed Mulch	700	Cubic Yards
Tobacco By-product	Soil Amendment	88	Tons
Pallets	Designer Mulch	320	Cubic Yards

*Estimate based on calculations and percentage of design.

Product Category and Description	Usage	Quantity	Unit of Measure
9-Other:			
Asphalt Millings	Pot holes/Shoulder drop-offs	127	Tons
Scrap Metal		7	Tons
Class B Rip Rap	Road Base	400	Ton
Rubberized RRX Material		40	Linear Feet
Steel Silt Fence Post	Metal	390	Each
Recycled Hot Mix Asphalt	Asphalt	38,466	Sq. Yd.
10-Reused Materials:			
Aggregate Base Course	Aggregate Base Course	21,393	Tons
Concrete Pipe	Concrete Pipe	1,106	Linear Feet
Guardrail	Guardrail	10,621	Linear Feet
Portable Concrete Barrier	Portable Concrete Barrier	46,030	Each
Sign Posts	Sign Posts	6,429	Each
Signal Heads	Signal Heads	700	Each
Signs	Signs	4,300	Each
Steel Beams	Steel Beams	103,675	pounds
Signal Cabinets	Signal Cabinets	8	Each
Cable Guiderail Reset	Guiderail	14,109	Linear Feet
Rip Rap		5	Tons
Timber Bridge Joist	Wood	120	Linear Feet
Timber Bridge Deck	Wood	360	Linear Feet
Sheet Pile	Metal	600	Linear Feet
Prestressed Concrete Cored Slab Beams	Storage Platform for Equipment	20	Each
Concrete Block		350	Each

Table II

Product Category and Description	Usage	Average	Unit of Measure
1-Asphalt:			
Reclaimed Asphalt Pavement (RAP)	Asphalt Mix Additive	383,215	Tons
Reclaimed Asphalt Shingles (RAS)	Asphalt Mix Additive	15,746	Tons
Reclaimed Asphalt Pavement (RAP)	Shoulder Reconstruction	5,791	Cubic Yards
Hot-In-Place Asphalt Recycling	Pavement	128,972	Square Yards
Full-Depth Reclamation	Pavement	11,948	Cubic Yards
2-Clearing and Grubbing Debris:			
Mulch	Mulch	47	Acres
Mulch	Mulch - Roadside Environ.	3,117	Cubic Yards
Mulch	Erosion Control	2,664	Cubic Yards
3-Coal Combustion Products:			
Fly Ash	Concrete Mix Additive	14,271	Tons
Fly Ash	Embankment Fill	34,607	Cubic Yards
Fly Ash	Flowable Fill	56	Cubic Yards
Bottom Ash	Embankment Fill	108	Cubic Yards
4-Concrete:			
Recycled Concrete	Aggregate Base Course (ABC)	2,668	Tons
Recycled Concrete	Fill Material	2,246	Tons
Crack and Seat	Base Material	10,450	Tons
Rubblized Concrete	Base Material	12,441	Tons
5-Glass:			
Recycled Glass Beads	Pavement Markings	3,988	Tons
Crushed Glass	Subdrain Backfill	5	Cubic Yards
Crushed Glass	Aggregate Base	8	Cubic Yards
Crushed Glass	Pipe Foundation	13	Tons
6-Plastic:			
Recycled Plastic Offset Blocks	Guardrail Offset Blocks	137,660	Each
Recycled Plastic Fence Posts (All Sizes)	Fence Posts	333	Each
Recycled Plastic Pipe (All Types and Sizes)	Pipe	2,525	Linear Feet
Recycled Plastic Sign Supports	Sign Supports	5	Each
Recycled Plastic Flexible Delineators	Flexible Delineators	217	Each
7-Scrap Tires:			
Chipped Tires	Embankment Fill	467,717	Cubic Yards
Chipped Tires	Lightweight Aggregate	2,030	Cubic Yards
Crumb Rubber	Crack Sealant	3,472	Pounds
Crumb Rubber	Asphalt Mix Additive	6,258	Pounds
Rubber Mulch	Mulch	144	Cubic Yards
Tire Sidewalls	Traffic Drum Ballast	3,291	Each
Whole Tires	Retaining Wall	180	Tires
Tire Scraps on Roadway	Taken to Tire Recycler	320	Tons
Chipped Tires	Sound Wall Panels	168	Tires
8-Roadside Environmental:			
Animal Waste	Fertilizer/Soil Amendment	44	Tons
Bioremediated Petroleum Affected Soils	Soil Amendment	45	Cubic Yards
Sludge	Soil Amendment	344	Tons
Advanced Alkaline Sludge	Soil Amendment	16,838	Tons

Product Category and Description	Usage	Average	Unit of Measure
Aged Leaf Mold & Yard Debris	Soil Amendment	417	Tons
Ammonium Sulfate Liquid	Fertilizer/Soil Amendment	45	Gallons
Bark mulch	Soil Amendment	313	Tons
Cotton Gin Waste	Soil Amendment	1	Cubic Yards
Hurricane Fran Mulch	Soil Amendment	8,002	Cubic Yards
Hydromulch	Mulch	3,566	Pounds
Lime-Stabilized Municipal Sludge	Soil Amendment	28	Tons
Soil Derived from Demolition Debris	Soil Amendment	344	Tons
Compost Material	Compost Blanket	17	Cubic Yards
Tobacco By-product	Soil Amendment	4	Tons
Pallets	Designer Mulch	13	Cubic Yards
9-Other:			
Asphalt Millings	Pot holes/Shoulder drop-offs	5	Cubic Yards
Scrap Metal	Metal	1,446	Tons
Class B Rip Rap	Road Base	16	Tons
Silt Fence Post	Metal	16	Each
Steel Silt Fence Post	Silt Fence	100	Each
Rubberized RRX Material		2	Linear Feet
Recycled Shoulder & Ditch Material		1,843	Cubic Yards
Timber	Caps	46	Linear Feet
Timber	Flooring	60	Linear Feet
Timber Bridge Deck/Rail		356	Linear Feet
Wood Pallets	Wood Pallets	128	Each
Steel Slag	Base Aggregate	0.48	Tons
Processed Silica	Embankment Fill	8	Cubic Yards
Recycled Polyester Resin	Weedmat	116	Sq. Yd.
Recycled Bridge Items	Decking & Beams (wood)	52	Linear Feet
Reclaimed Asphalt Pavement (RAP)	Patching	10	Tons
Used Unclassified Structure	Borrow	2	Cubic Yards
Mabey Bridge	Bridge	8	Each
Drainage Ditch Excavation	Borrow	7	Cubic Yards
Corrugated Metal Pipe	Metal Pipe	320	Linear Feet
White Roofing Rock	Mulch, Ditch Liner	4,082	Cubic Yards
Aluminum	Traffic Signal Cabinets	566	Each
10-Reused Materials:			
Aggregate Base Course	Aggregate Base Course	5,943	Tons
Concrete Pipe	Concrete Pipe	653	Linear Feet
Guardrail	Guardrail	4,866	Linear Feet
Portable Concrete Barrier	Portable Concrete Barrier	4,252	Each
Sign Posts	Sign Posts	2,575	Each
Signal Heads	Signal Heads	76	Each
Signs	Signs	1,990	Each
Steel Beams	Steel Beams	33,114	Linear Feet
Signal Cabinets	Signal Cabinets	8	Each
Barb Wire Fence Reset		79	Linear Feet
Rip Rap		3	Tons
Timber Bridge Joist	Wood	5	Linear Feet