

Strategic Transportation Investments Implementation

REPORT

August 15, 2013

Executive Summary

In 2013 the North Carolina General Assembly (General Assembly) created the Strategic Transportation Investments Act (STI) to strengthen the state's economy and provide a new formula to direct construction funds through strategic transportation investments. Governor Patrick McCrory signed the Act on June 26, 2013. The law requires the North Carolina Department of Transportation (the Department) to report to the Joint Legislative Transportation Oversight Committee (JLTOC) and the Fiscal Research Division no later than August 15, 2013, on the Department's recommended formulas that will be used in the prioritization process to rank highway and non-highway projects. The Department's Prioritization Office (SPOT) shall develop the prioritization processes and formulas for all modes of transportation. The report will include a statement on the process used by the Department to develop the formulas, include a listing of external partners consulted during this process, and include feedback from a group of key planning partners, known as the Prioritization 3.0 (P3.0) workgroup, on the Department's proposed recommendations.

After the STI legislation was introduced in early April 2013 the P3.0 workgroup convened on a weekly basis to provide input and recommendations on the implementation of the Department's prioritization process under a proposed STI. Department staff from each mode (highways, aviation, bicycle-pedestrian, ferry, public transportation and rail) worked extensively with the P3.0 workgroup to identify quantitative scoring criteria unique to their respective mode and consistent with proposed requirements cited in STI.

The P3.0 workgroup recommendations were presented to the Department's Board of Transportation (BOT) on July 10, 2013. The BOT subsequently requested additional information be provided at a public meeting on July 23, 2013 in an effort to further understand the scoring criteria associated with each mode of transportation and to understand the overall implementation process. At its August 7th meeting, the BOT fully concurred with the P3.0 workgroup recommendations as cited in the following tables:

Highway Scoring

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Statewide Mobility	[Travel Time] Benefit/Cost = 30% Congestion = 30% Economic Competitiveness = 10% Safety = 10% <u>Multimodal [& Freight + Military] = 20%</u> Total = 100%	--	--
Regional Impact	[Travel Time] Benefit/Cost = 30% Congestion = 30% <u>Safety = 10%</u> Total = 70%	15%	15%
Division Needs	[Travel Time] Benefit/Cost = 20% Congestion = 20% <u>Safety = 10%</u> Total = 50%	25%	25%

Note: Divisions 1, 2, 3, 4 have approved different criteria and weights for their respective areas (refer to Appendix A1, Highway Scoring slides.

Aviation Scoring

Funding Category	Quantitative Data (75 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Statewide Mobility	NCDOA Project Rating = 40% FAA Airport Capital Improvement Plan = 40% Local Investment Index = 10% Federal Investment Index = 10% Total = 100%	--	--
Regional Impact	NCDOA Project Rating = 40% FAA Airport Capital Improvement Plan = 20% Local Investment Index = 5% Federal Investment Index = 5% Total = 70%	15%	15%
Division Needs	NCDOA Project Rating = 30% FAA Airport Capital Improvement Plan = 10% Local Investment Index = 5% Volume/Demand Index = 5% Total = 50%	25%	25%

Bicycle & Pedestrian Scoring

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Division Needs	Access = 10% Constructability = 5% Safety = 15% Demand Density = 10% <u>Benefit/Cost = 10%</u> Total = 50%	25%	25%

Ferry Scoring

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact <i>(Note: all vessels are excluded from this category)</i>	Safety [Route Health Index] = 15% Benefit/Cost [Travel Time] = 15% Accessibility/Connectivity = 10% Asset Efficiency = 10% <u>Capacity/Congestion = 20%</u> Total = 70%	15%	15%
Division Needs	Safety [Route Health Index] = 15% Benefit/Cost [Travel Time] = 15% Accessibility/Connectivity = 10% <u>Asset Efficiency = 10%</u> Total = 50%	25%	25%

Public Transit Scoring (Expansion)

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact	Benefit/Cost = 45% Vehicle Utilization Data = 5% System Safety = 5% Connectivity = 5% <u>System Operational Efficiency = 10%</u> Total = 70%	15%	15%
Division Needs	Benefit/Cost = 25% Vehicle Utilization Data = 5% System Safety = 5% Connectivity = 5% <u>System Operational Efficiency = 10%</u> Total = 50%	25%	25%

Public Transit Scoring (Facilities)

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact	Age of Facility, Facility Demand, Park & Ride, Bus Shelter = 40% Benefit-Cost = 5% System Operational Efficiency = 5% <u>Facility Capacity = 20%</u> Total = 70%	15%	15%
Division Needs	Age of Facility, Facility Demand, Park & Ride, Bus Shelter = 30% Benefit-Cost = 5% System Operational Efficiency = 5% <u>Facility Capacity = 10%</u> Total = 50%	25%	25%

Public Transit Scoring (Fixed Guideway)

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact	Mobility = 20% Cost Effectiveness = 15% Economic Development = 20% <u>Congestion Relief = 15%</u> Total = 70%	15%	15%
Division Needs	Mobility = 15% Cost Effectiveness = 15% Economic Development = 10% <u>Congestion Relief = 10%</u> Total = 50%	25%	25%

Rail Scoring (Track and Structures)

Funding Category	Quantitative Data (100 point scale)			Local Input	
		Freight	Passenger	Division Rank	MPO/RPO Rank
Statewide Mobility (Class I Freight Only)	Benefit/Cost = Econ. Comp. = Capacity/Congestion = Safety = Accessibility = Connectivity = Mobility =	20% 10% 15% 15% 10% 10% <u>20%</u> Total = 100%	--	--	--
Regional Impact (Freight & Passenger)	Benefit/Cost = Capacity/Congestion = Safety = Accessibility = Connectivity = Mobility =	10% 15% 15% 10% 5% <u>15%</u> Total = 70%	10% 25% 15% -- -- <u>20%</u> Total = 70%	15%	15%
Division Needs (Freight & Passenger)	Benefit/Cost = Capacity/Congestion = Safety = Accessibility = Connectivity = Mobility =	10% 10% 10% 5% 5% <u>10%</u> Total = 50%	10% 15% 10% -- -- <u>15%</u> Total = 50%	25%	25%

Rail Scoring (Freight Intermodal Facilities / Intercity Passenger Service & Stations)

Funding Category	Quantitative Data (100 point scale)			Local Input	
		Freight	Passenger	Division Rank	MPO/RPO Rank
Regional Impact (Intercity Passenger Service Only)	Benefit/Cost = Capacity/Congestion = Connectivity = Mobility =	-- -- -- --	15% 25% 10% <u>20%</u> Total = 70%	15%	15%
Division Needs (Facilities/ Intercity Passenger Service & Stations)	Benefit/Cost = Capacity/Congestion = Connectivity = Mobility =	10% 15% 10% <u>15%</u> Total = 50%	10% 15% 10% <u>15%</u> Total = 50%	25%	25%

Normalization

For Prioritization 3.0 Only (Initial Implementation of Strategic Transportation Investments)

- Statewide Mobility (only) – No normalization, scores are stand-alone for comparison (highway, aviation, freight rail)
- Regional Impact & Division Needs – Allocate funds to Highway and Non-Highway modes based on minimum floor or percentages

Mode	NCDOT Recommendation	Historical Budgeted	Historical Expenditures
Highway	90% (min.)	93%	96%
Non-Highway	4% (min.)	7%	4%

Note: The Department will continue to research and seek recommendations on the topic of Normalization with national experts. The Department will also request the assistance of an outside agency to conduct a statistical analysis of project scores after all quantitative scores are completed in 2014. Any conclusive findings from this research and analysis will be incorporated into Prioritization 4.0.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
TABLE OF CONTENTS.....	6
SECTION I. INTRODUCTION.....	7
SECTION II. PROCESS.....	8
SECTION III. P3.0 WORKGROUP RECOMMENDATIONS	10
SECTION IV. DEPARTMENT RECOMMENDATIONS.....	14
SECTION V. NORMALIZATION AND PROGRAMMING	15
SECTION VI. P3.0 WORKGROUP FEEDBACK ON DEPARTMENT'S RECOMMENDATIONS.....	18
SECTION VII. P3.0 PRIORITIZATION SCHEDULE AND PRIORITIZATION 4.0.....	18
APPENDICES	19
Appendix A – Highway and Non-Highway Scoring Criteria	20
Appendix A1 – Highway	32
Appendix A2 – Aviation	72
Appendix A3 – Bicycle and Pedestrian	93
Appendix A4 – Ferry.....	109
Appendix A5 – Public Transportation	126
Appendix A6 - Rail.....	156
Appendix B – Local Input Points	171
Appendix C – P3.0 Workgroup	172

SECTION I. INTRODUCTION

The Department manages a strategic project prioritization process. The 3rd generation of this process, Prioritization 3.0, is underway and is building upon the Department's emphasis on being a data driven and results oriented Agency. Strategic prioritization incorporates input from local government partners and the public and provides scores for transportation projects across the state. Project scores are based on transportation needs and are used as input into the development of the Department's State Transportation Improvement Program (STIP). This effort has helped the Department make better use of its limited dollars and share its decision making in a more accessible and transparent manner. The process has also strengthened the partnership with local communities and transportation advocates throughout the state and has helped lay the groundwork for Session Law 2013-183 / Strategic Transportation Investments (STI), first introduced in the General Assembly in April 2013. STI was passed with overwhelming bipartisan support and signed by Governor Patrick McCrory on June 26, 2013. The bill further elevates the use of transportation criteria and input of local communities to determine project priorities and directs the use of dollars from the state's Highway Trust Fund for construction. The 33-page legislation can be found at:

<http://www.ncleg.net/Sessions/2013/Bills/House/PDF/H817v10.pdf>.

Subsequently a technical corrections bill was passed and signed into law. That legislation can be found at:

<http://www.ncleg.net/Sessions/2013/Bills/House/PDF/H92v6.pdf>.

The law requires the North Carolina Department of Transportation (the Department) to report to the Joint Legislative Transportation Oversight Committee (JLTOC) and the Fiscal Research Division no later than August 15, 2013, on the Department's recommended formulas that will be used in the prioritization process to rank highway and non-highway projects. The Department's Prioritization Office (SPOT) shall develop the prioritization processes and formulas for all modes of transportation. The report will include a statement on the process used by the Department to develop the formulas, include a listing of external partners consulted during this process, and include feedback from a group of key planning partners, known as the Prioritization 3.0 (P3.0) workgroup, on the Department's proposed recommendations.

SECTION II. PROCESS

The Department's strategic prioritization process is updated every 2 years and, from its inception, has incorporated input and feedback from key planning partners in North Carolina. A workgroup of such partners and internal Department staff has guided previous versions of prioritization and through facilitated discussion has strived to reach decisions by consensus. For the 3rd generation of prioritization the P3.0 workgroup was convened in May 2012 and met monthly. Department staff shared the following member roles and responsibilities at their initial meeting.

- Assist in developing the project submittal approach and scoring methodology for the prioritization process.
- Provide input on the software interface used for project submittal and project rankings.
- Regularly attend and participate in Prioritization workgroup meetings. All meetings will be scheduled during the workday. If unable to attend, the member commits to sending an alternate. Teleconferencing will try to be arranged for most meetings but member in-person attendance is strongly preferred.
- Review all documents and other information sent by SPOT prior to meeting attendance.
- Be prepared to comment on material at workgroup meetings.
- Help SPOT establish a working relationship with external partners, stakeholders, the public and internal NCDOT business units affected by the Strategic Prioritization Process.
- Serve as a liaison between the Prioritization workgroup and your representative organization/unit; solicit input, comments, feedback from your representative organization/unit between monthly workgroup meetings and for specific timetables when key decisions must be made.
- Be prepared to share a summary of your representative organization/unit's input with the entire workgroup.
- Attempt to reflect the full range of affected interests from your respective organization/unit.
- Assist in framing the issues, options, and next steps for stakeholders.
- Assist NCDOT with how to best prepare for and respond to reactions anticipated from other stakeholders and from the public on prioritization related decisions.
- Promote attendance from among your member organizations/unit and other stakeholders at NCDOT sponsored information/presentation sessions.

Note: Additional information regarding the P3.0 workgroup (including member responsibilities, representation and meeting schedules) can be found in Appendix C.

When House Bill 817 was introduced on April 11, 2013 the proposed legislation clearly outlined the use of the P3.0 workgroup recommendations in implementing the prioritization process under the new law. Therefore the P3.0 workgroup focused its efforts on reviewing their role and providing recommendations consistent with proposed requirements. In response to those requirements the P3.0 workgroup meetings increased both in frequency

(once per week) and in length (most meetings required full day commitments from workgroup members). This aggressive schedule and the constantly evolving bill proceedings led to the need to also expand the workgroup to ensure members were as up-to-date as possible on potential bill changes. Representatives of the Governor's Office, Department of Commerce, and NC Legislative staff (from the Senate, House, and the non-partisan Fiscal Research Division) were invited to participate as advisory members of the workgroup. The SPOT office facilitated the weekly meetings, provided Agenda topics and presentations, and circulated summaries of each meeting. Due to the number of topics required to review under the draft requirements of the bill, many meetings resulted in lengthy discussions and a number of meetings extended beyond their scheduled end times. The long deliberations did not deter workgroup members from staying committed to the process. They offered a level of professional and practitioner based input which provided real world examples of the implications of proposed scoring criteria, measures, and weights across all modes of transportation. Along with recommendations for the quantitative scoring criteria and weights the workgroup also recommended the percentage split of local input points (for Regional Impact and Division Needs categories) be evenly divided between Metropolitan and Rural Planning Organizations and NCDOT Divisions. This division of local input percentages highlights the equal importance, partnership and role of point assignment by professional staff in the Department and in local agencies within the prioritization process.

Workgroup members reflected the diverse views of their respective organizations (such as regional and local government) and advocacy interests (for urban and rural areas). The result of these contrasting viewpoints also led to differences of opinion on the use and weights of certain criteria and disagreements on the nature of specific requirements and potential transportation impacts of Session Law 2013-183. However, based on feedback from an August survey, the P3.0 workgroup members overall were satisfied with the results of the Department led process. Members noted the collaborative and inclusive method by which feedback was used to guide and develop P3.0 workgroup recommendations. Members also noted unanimity was not the case with all decisions however a consensus based approach did result in "everyone has to give and take" versus a vote taking approach which could have "resulted in an unbalanced product".

Throughout this time the SPOT office responded to requests from workgroup members for additional options, information, and recommendations to address requirements in the proposed legislation. The P3.0 workgroup's recommendations (with an emphasis on a consensus based approach) were offered to the Department and are outlined in Section III of this report.

SECTION III. P3.0 WORKGROUP RECOMMENDATIONS

On July 1st, the P3.0 workgroup provided its recommendations for the prioritization process under the proposed legislation to the Department. The recommendations included scoring criteria, measures, and weights for all modes, a normalization process and the basis for local input points provided to each MPO/RPO and NCDOT Division. A summary of these recommendations for each criteria and its respective percent weight is given below. Additional technical details on the methodology to score and measure each criterion are listed in Appendix A and more details on recommended local input points are listed in Appendix B.

Highway Scoring

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Statewide Mobility	[Travel Time] Benefit/Cost = 30% Congestion = 30% Economic Competitiveness = 10% Safety = 10% <u>Multimodal [& Freight + Military] = 20%</u> Total = 100%	--	--
Regional Impact	[Travel Time] Benefit/Cost = 30% Congestion = 30% Safety = 10% Total = 70%	15%	15%
Division Needs	[Travel Time] Benefit/Cost = 20% Congestion = 20% Safety = 10% Total = 50%	25%	25%

Note: Divisions 1, 2, 3, 4 have approved different criteria and weights for their respective areas (refer to Appendix A1, Highway Scoring slides)

Aviation Scoring

Funding Category	Quantitative Data (75 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Statewide Mobility	NCDOA Project Rating = 40% FAA Airport Capital Improvement Plan = 40% Local Investment Index = 10% <u>Federal Investment Index = 10%</u> Total = 100%	--	--
Regional Impact	NCDOA Project Rating = 40% FAA Airport Capital Improvement Plan = 20% Local Investment Index = 5% <u>Federal Investment Index = 5%</u> Total = 70%	15%	15%
Division Needs	NCDOA Project Rating = 30% FAA Airport Capital Improvement Plan = 10% Local Investment Index = 5% <u>Volume/Demand Index = 5%</u> Total = 50%	25%	25%

Bicycle & Pedestrian Scoring

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Division Needs	Access = 10% Constructability = 5% Safety = 15% Demand Density = 10% <u>Benefit/Cost = 10%</u> Total = 50%	25%	25%

Ferry Scoring

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact <i>(Note: all vessels are excluded from this category)</i>	Safety [Route Health Index] = 15% Benefit/Cost [Travel Time] = 15% Accessibility/Connectivity = 10% Asset Efficiency = 10% <u>Capacity/Congestion = 20%</u> Total = 70%	15%	15%
Division Needs	Safety [Route Health Index] = 15% Benefit/Cost [Travel Time] = 15% Accessibility/Connectivity = 10% <u>Asset Efficiency = 10%</u> Total = 50%	25%	25%

Public Transit Scoring (Expansion)

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact	Benefit/Cost = 45% Vehicle Utilization Data = 5% System Safety = 5% Connectivity = 5% <u>System Operational Efficiency = 10%</u> Total = 70%	15%	15%
Division Needs	Benefit/Cost = 25% System Spare Ratio = 5% Vehicle Utilization Data = 5% Connectivity = 5% <u>System Operational Efficiency = 10%</u> Total = 50%	25%	25%

Public Transit Scoring (Facilities)

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact	Age of Facility, Facility Demand, Park & Ride, Bus Shelter = 40% Benefit-Cost = 5% System Operational Efficiency = 5% <u>Facility Capacity = 20%</u> Total = 70%	15%	15%
Division Needs	Age of Facility, Facility Demand, Park & Ride, Bus Shelter = 30% Benefit-Cost = 5% System Operational Efficiency = 5% <u>Facility Capacity = 10%</u> Total = 50%	25%	25%

Public Transit Scoring (Fixed Guideway)

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact	Mobility = 20% Cost Effectiveness = 15% Economic Development = 20% Congestion Relief = 15% Total = 70%	15%	15%
Division Needs	Mobility = 15% Cost Effectiveness = 15% Economic Development = 10% Congestion Relief = 10% Total = 50%	25%	25%

Rail Scoring (Track and Structures)

Funding Category	Quantitative Data (100 point scale)			Local Input	
		Freight	Passenger	Division Rank	MPO/RPO Rank
Statewide Mobility (Class I Freight Only)	Benefit/Cost = 20% Econ. Comp. = 10% Capacity/Congestion = 15% Safety = 15% Accessibility = 10% Connectivity = 10% Mobility = 20% Total = 100%		--	--	--
Regional Impact (Freight & Passenger)	Benefit/Cost = 10% Capacity/Congestion = 15% Safety = 15% Accessibility = 10% Connectivity = 5% Mobility = 15% Total = 70%	10% 25% 15% -- -- 20% Total = 70%	10% 15% 10% -- -- 15% Total = 50%	15%	15%
Division Needs (Freight & Passenger)	Benefit/Cost = 10% Capacity/Congestion = 10% Safety = 10% Accessibility = 5% Connectivity = 5% Mobility = 10% Total = 50%	10% 15% 10% -- -- 15% Total = 50%	10% 15% 10% -- -- 15% Total = 50%	25%	25%

Rail Scoring (Freight Intermodal Facilities / Intercity Passenger Service & Stations)

Funding Category	Quantitative Data (100 point scale)			Local Input	
		Freight	Passenger	Division Rank	MPO/RPO Rank
Regional Impact (Intercity Passenger Service Only)	Benefit/Cost = -- Capacity/Congestion = -- Connectivity = -- Mobility = -- Total = 70%	--	15% 25% 10% 20% Total = 70%	15%	15%
Division Needs (Facilities/ Intercity Passenger Service & Stations)	Benefit/Cost = 10% Capacity/Congestion = 15% Connectivity = 10% Mobility = 15% Total = 50%	10% 15% 10% 15% Total = 50%	10% 15% 10% 15% Total = 50%	25%	25%

Normalization

For Prioritization 3.0 Only (Initial Implementation of Strategic Transportation Investments)

- Statewide Mobility (only) – No normalization, scores are stand-alone for comparison (highway, aviation, freight rail)
- Regional Impact & Division Needs – Allocate funds to Highway and Non-Highway modes based on minimum floor or percentages

Mode	NCDOT Recommendation	Historical Budgeted	Historical Expenditures
Highway	90% (min.)	93%	96%
Non-Highway	4% (min.)	7%	4%

Note: The Department will continue to research and seek recommendations on the topic of Normalization with national experts. The Department will also request the assistance of an outside agency to conduct a statistical analysis of project scores after all quantitative scores are completed in 2014. Any conclusive findings from this research and analysis will be incorporated into Prioritization 4.0.

SECTION IV. DEPARTMENT RECOMMENDATIONS

The P3.0 workgroup recommendations were presented to the BOT on July 10th. The BOT requested additional information and a public meeting to be held on July 23rd to further understand the P3.0 workgroup recommendations. At the July 23rd meeting Department staff presented detailed information regarding the scoring criteria, weights, measures for all modes and an explanation of the normalization process and local input scoring. The BOT provided comments to indicate it was satisfied with the recommendations from the P3.0 workgroup. The BOT asked staff to consider one request to provide MPOs/RPOs/Division Engineers the opportunity to assign local input points in two rounds in the prioritization schedule (vs. current single round proposed). Staff agreed to review this option with the P3.0 workgroup at its scheduled July 29th meeting.

Prior to the July 29th meeting, a technical corrections bill to the new law was introduced. Some of the changes involved new requirements for public comment and clarified the BOT's expected involvement in the P3.0 process. These were shared with the P3.0 workgroup on July 29th along with potential options to address the BOT's recommendation. The conclusion of the July 29th P3.0 workgroup meeting was to recommend accepting all the recommendations presented to the BOT on July 23rd, including only one round of assigning local input points. A key factor in only one round of assigning local input points is that local officials' internal public comment periods/hearings require a minimum of 30-days. There would not be sufficient time to advertise for comments, accept and review comments and incorporate them into the local input scoring within the allowable timeframe of P3.0. The workgroup also asked Department staff for clarification on the funding category eligibility of rail freight intermodal facilities and passenger stations under the technical corrections bill. The intent of the legislation is for these facilities and stations to only be eligible under the Division Needs category. This clarification, along with only holding one round of local points assignment, were provided as part of the overall recommendations to the BOT on August 7, 2013. Therefore, there is agreement between the BOT and the P3.0 workgroup on all recommendations to implement P3.0.

SECTION V. NORMALIZATION AND PROGRAMMING

Normalization describes the process of evaluating and comparing project scores from one transportation mode to another. In the P3.0 process, each mode uses different quantitative scoring criteria, different measures for those criteria and then assigns different weights to those criteria. The result is a variety of quantitative scores that are generated. Therefore, a methodology must be developed to effectively compare the value of projects in one mode against the value of project scores in another mode. Since more than one mode can compete for the same funding, a normalization methodology is needed to help determine which projects move from prioritization to programming.

Lengthy discussions within the workgroup and research provided by the SPOT office resulted in several options for normalization. One option was to have no normalization, i.e., each project score (regardless of mode) would stand on its own with one score compared directly against another score. However, the basis for comparison would be weak due to the fact that different modes use different scoring criteria, weights and measures. Another option was to review a group of the top projects from each mode and conduct a benefit-cost analysis to essentially arrive at a comparison between modes. This was rejected by the P3.0 workgroup due to an over reliance on a single criteria and the inconsistency produced based on the requirements of the proposed projects. Another option was to conduct a statistical analysis of the scores within each mode and then conduct a “normalization” procedure between modes based on accepted statistical analysis practice. This option showed the most promise. However, for the analysis to be statistically valid, the entire set of project scores in each mode would need to be available. Due to the pending submittal of new projects in early 2014, this option could not be applied. The workgroup however did reach consensus that a statistical analysis approach be considered for use in the next generation of Prioritization (P4.0).

Another option presented to the workgroup was to use an interim solution for P3.0. The Department reviewed historic spending of highway and non-highway modes. The data was reported from the financial office of the Department. Table 1 below indicates the percentage of recent historical construction dollars budgeted for highways and non-highways. Table 1 also indicates the percent of dollars actually expended (compared to the budget amount) for highway and non-highway projects.

Table 1

Mode	Proposed Minimums for Regional Impact and Division Needs Categories	Historical Budgeted	Historical Expenditures
Highway	90% (minimum)	93%	96%
Non-Highway	4% (minimum)	7%	4%

The differences between budget and expenditure amounts are the result of varying rates of project delivery success, and the Department’s “cash flow” management process. These numbers are not likely to be the same over any period of time however this past historical spending pattern does provide an indicator for how funding percentages could be used in the future. This information provided the context for the P3.0 workgroup to propose the following interim solution - no normalization would be used in the Statewide Mobility category since so few modes compete for those funds. Therefore, the quantitative scores

(compared against each other) and funds available would form the basis for programming projects from this category.

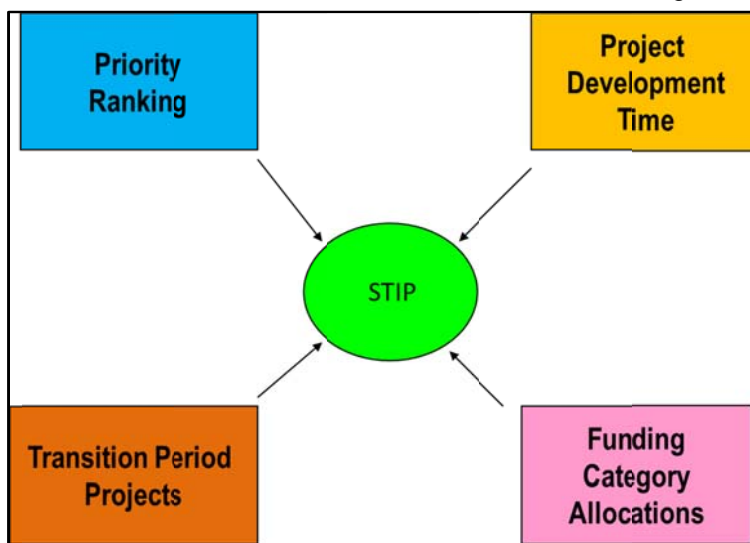
However, a minimum percentage of funding (or floor) will guide the programming process in the combined Regional Impact and Division Needs categories. As reflected in Table 1 the anticipated funding for the highway mode will be a minimum of 90% of the combined programmed funds for the Regional Impact and Division Needs categories. The anticipated combined funding for these same two categories for non-highway modes will be a minimum of 4%.

This interim solution for P3.0 includes the expectation that the Department will pursue an independent consultant to review and provide recommendations on a normalization procedure later in 2014 and in preparation for P4.0. The BOT accepted this initial normalization solution on August 7, 2013.

The results of the P3.0 process do not necessarily mean that projects will be programmed in the order of their score and rank. Over a 10-year time frame, funding will be provided to the highest scoring projects. However, there are other considerations and factors in developing the actual program (see Figure A). A major factor in deciding when the top scoring projects are funded is the project delivery time. Projects need to fulfill a series of environmental and preliminary engineering requirements, right-of-way must be purchased, utility relocation (where applicable) must be addressed, and final plans must be developed for lettings. The time period to accomplish these activities can be lengthy. Construction funding cannot be allocated to projects before these preconstruction activities have taken place.

Figure A

Funding constraints in state and federal statutes also direct that certain projects are only eligible for certain funding categories. Projects in these special categories need to be scheduled and their budget requirements accounted for in the appropriate STIP category and year to achieve a fiscally constrained program. Finally (per the law) there are a select number of projects (Transition Period Projects) that are scheduled to be obligated for construction prior to July 1, 2015. The funding required for these projects need to be accounted for when budgeting for other projects.

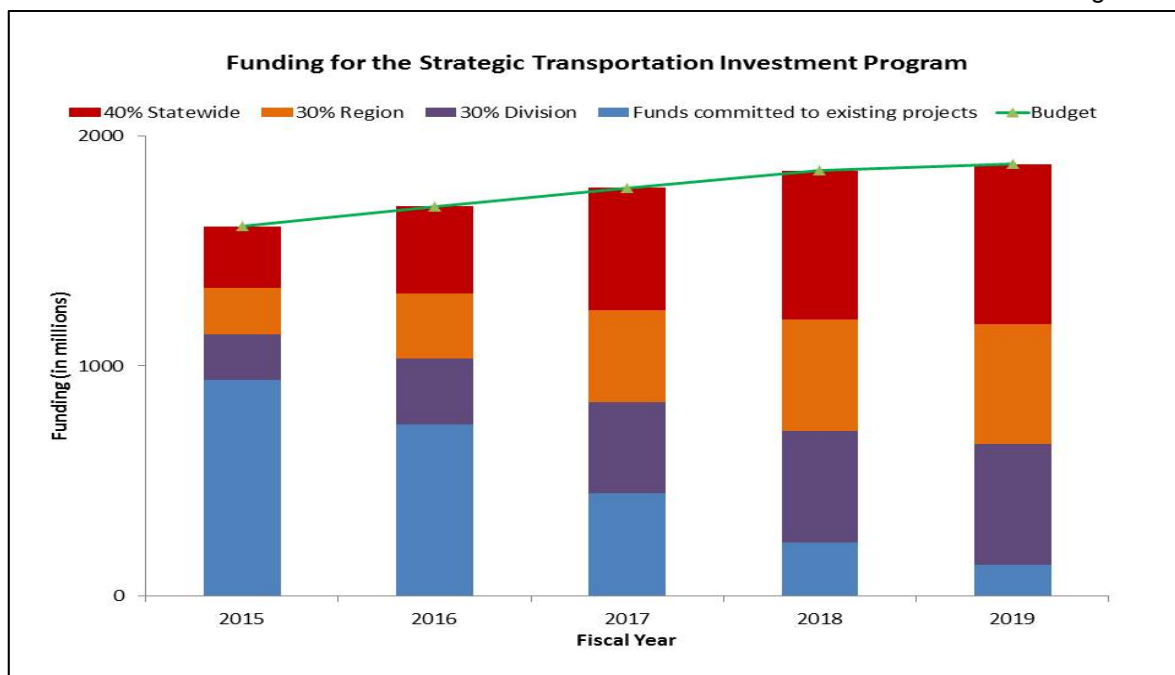


The Department “cash flows” to advance the STIP. That is, major projects are not fully funded when let for construction. Instead these projects are budgeted for over 2 to 4 years to allow the funds allocated to a project to more closely match the expected payouts to contractors.

The Department closely monitors and projects cash needs for the future to ensure that there will be adequate future funds to meet these commitments. It is currently anticipated that over 50% of the funds anticipated to be available in fiscal years 2015-2016 will be spent paying for contracts let in prior years. The projects scheduled to be let by July 2015, will

represent a significant commitment of future STI program dollars (see Figure B). These funds will be taken “off the top” and the remaining funds will be distributed under the 40% Statewide, 30% Regional, and 30% Division formula. This is a normal business practice and allows the Department to effectively manage their cash balances.

Figure B



The above factors will be considered when ensuring the minimum percentages for highway and non-highway modes will be met. Using the above constraints, the intended approach is to develop draft programming schedules by mode. The total programmed amounts by mode will be then be reviewed and compared to the minimum percentages. Since the number of submitted projects and costs far exceed anticipated budget it is not expected to be a concern about meeting the minimums outlined above.

One of the benefits the Department will realize from Session Law 2013-183 is the ability to align the federal and state required STIP with the five and ten-year NCDOT Work Plan. While federal requirements only require a minimum of 4 years for a STIP, state requirements have driven the Department to use a seven year time frame for the STIP. Under the STI the Department can make the federal STIP a five year document and use the remaining 5 years (i.e., years 6-10) as the basis for a Developmental Work Plan. This sets up the Department to meet both state and federal statutory budget requirements for the first five years, and apply fiscal constraint targets to the second five year period.

SECTION VI. P3.0 WORKGROUP FEEDBACK ON DEPARTMENT'S RECOMMENDATIONS

As a result of the July 23rd public meeting and the P3.0 Workgroup's July 29th meeting along with the clarifications regarding local input points and rail facilities/stations there was agreement between the P3.0 workgroup and the BOT on all items under review. Thus, no further feedback was needed from the P3.0 workgroup.

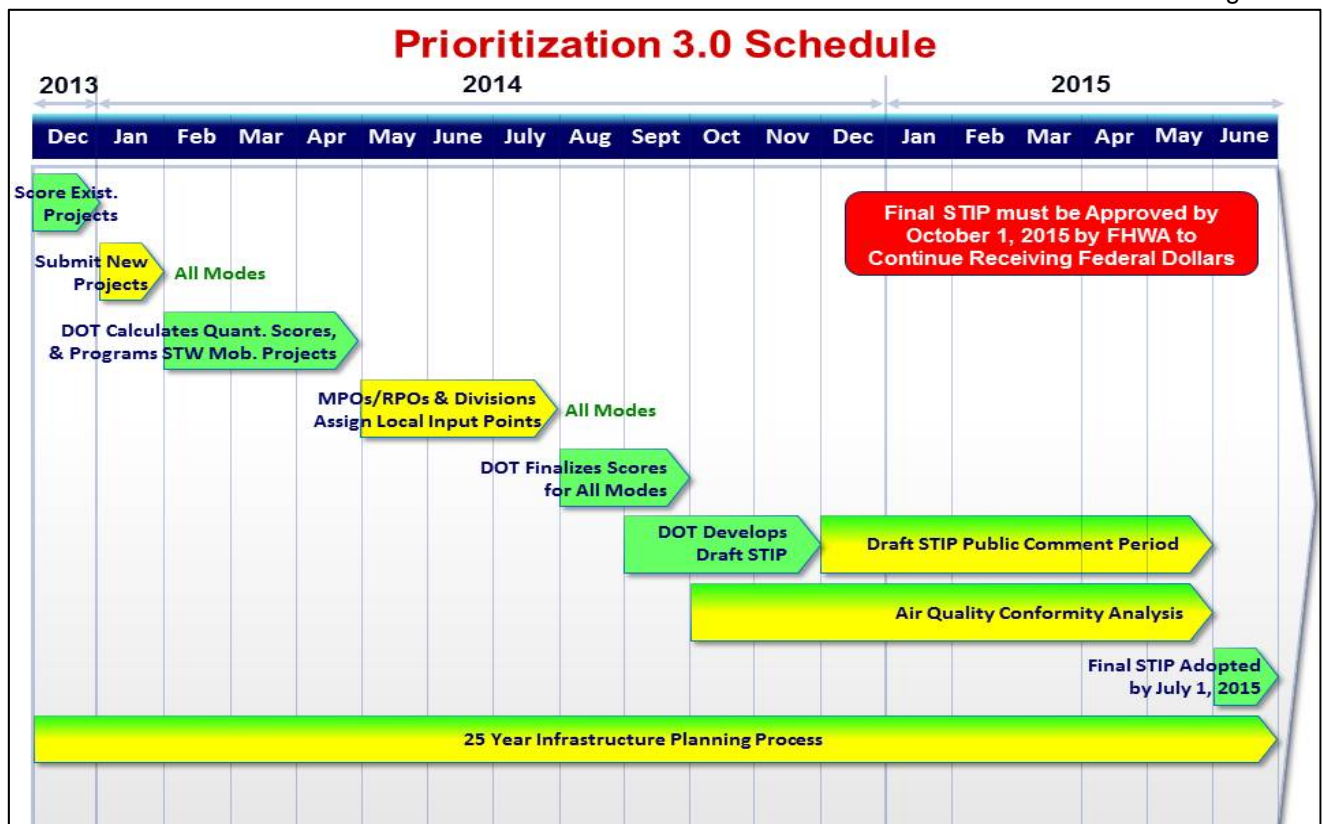
SECTION VII. P3.0 PRIORITIZATION SCHEDULE AND PRIORITIZATION 4.0

Figure C below outlines the timeline to implement P3.0. The Department will continue to coordinate between internal staff and key planning partners to meet the timelines established in the schedule. A series of technological enhancements are being implemented by the Department to streamline how projects are submitted, scored, and published both as input into the programming process and for public consumption.

The technical corrections bill contained provisions to improve the prioritization process. The Department has been directed to use the workgroup to develop these improvements and representation requirements were outlined. The Department will follow these requirements in assembling a P4.0 Workgroup.

Beginning on December 1, 2016, the Department will report annually to the JLTOC on any changes made to the prioritization process and resulting impact to the STIP.

Figure C



APPENDICES

Appendix A – Highway and Non-Highway Scoring Criteria

Scoring Overview – Development of Criteria and Approach

Scoring criteria, measures, and weights for each transportation mode were developed as a result of reviewing the requirements introduced in the draft Strategic Transportation Investments bill. Department staff and P3.0 workgroup members drew upon their professional expertise and experience in evaluating proposed approaches in a time sensitive manner. Workgroup members took a deliberative approach and scrutinized proposed criteria to ensure a quantitative methodology was used for scoring projects. Criteria scoring approaches for each transportation mode are outlined and additional descriptions of each criteria are found in each respective subsection in this Appendix.

Highway – Appendix A1

The workgroup recognized nearly all the eligible highway criteria in the draft bill were already in use in the Department's existing strategic prioritization process. This was an indication that previous highway scoring models have gained a level of acceptance and the criteria are considered to be consistently and fairly used throughout the state. The only new criteria was accessibility and connectivity to employment centers, tourist destinations, or military installations. With the exception of the economic competitiveness factor, the selected criteria were quantitatively measurable today. The economic competitiveness criteria was an output of an economic model which measured anticipated future benefits. However, the inputs to the model were travel time savings and construction costs which are provided by today's available data. The highway approach was built to score projects on a 100 point scale.

Aviation – Appendix A2

The NC Division of Aviation (NCDOA) developed the NC General Aviation Airport Development Plan in 2003. This plan provides eligible airports the guidance to determine what projects are eligible for funding as well as the projects that are needed to meet minimum and recommended FAA criteria to protect safety, preserve infrastructure health, and enhance mobility. The NCDOA Project Rating utilizes the core of this criterion to evaluate each airport project request independently based on the need and purpose of the project. The criteria produced a prioritized list of projects ranging from the highest ranking project, receiving 75 points, to the lowest, receiving one point. Federal Aviation Regulation (FAR) Order 5100.39, Airport Capital Improvement Plan (ACIP), is FAA's primary tool for prioritizing projects. Recognizing this, the division synchronized their point system with the NCDOA Rating seventy-five point rating scale. This criterion is appropriately named FAA ACIP. The next two criteria, Local Investment Index and Federal Investment Index, deal with ratios of the local funds or federal funds going toward the proposed project as compared to the total state investment. The intent is to award higher points toward projects that have lower percent state participation, therefore, leveraging the State's investment. Lastly, the Volume/Demand Index provides higher points toward projects where there is more aircraft traffic and higher number of jobs located near the site.

The Division of Aviation researched several national publications, other state's criteria, met with current and former airport directors, and multiple lead aviation planners from across the country while developing these criteria.

Data sources required to score projects include the airport's FAA approved Airport Layout Plan (ALP), FAA Master Record Data (which is based aircraft, aircraft operations, and recorded Instrument Flight Rule (IFR) operations). US Census data is also used to synthesize the number of jobs near the airport project site.

Bicycle and Pedestrian – Appendix A3

The Bicycle and Pedestrian Division began with the methodologies used during Prioritization 1.0/2.0 processes and began developing a methodology for P3.0 prior to the introduction of House Bill 817. The previous workgroup discussions had already produced a good framework for quantifying and ranking bicycle and pedestrian projects. Most of these concepts for scoring projects were identified through a survey of NC MPO/RPO and national methodologies (FHWA research) for ranking bicycle and pedestrian projects.

Bicycle and pedestrian division staff took the concepts developed by the workgroup and created the specific measures and found more reliable data sources to match. Data sources to be used largely come from the US Census (population/employment data), the NCDOT bicycle and pedestrian crash database, NCDOT roadway data containing posted speeds, and local inputs (destination types, ROW acquisition, project costs, etc.).

Similar to highway projects, quantitative scores for bicycle and pedestrian projects will be generated through a geographic information system. The scoring range is 0-100 scale per criteria as the user uploads data per project. Therefore, normalizing a set of scores after input is not an option for bicycle and pedestrian projects. The study of a range of historic or estimated project scores caused staff to improve the methodology to keep the bulk of project scores within a reasonable range of a 50% score.

Ferry – Appendix A4

As a result of Session Law 2013-183 Ferry Division personnel worked vigorously with SPOT and other experts to develop a data centric methodology for evaluating projects and establishing a scoring system to rank these projects on a 100 point scale. The initial efforts included, but were not limited to the following:

- Extensive review of existing data that has been historically collected.
- Development of new review and rating methodologies to better define traits and characteristics related to the Ferry Division assets and operations (of which there was no pre-existing assessment system in place).
- Extensive analysis of this data to understand its true meaning and to use that understanding to better develop scoring methodologies that fairly treat all ferry routes even though they have differing characteristics (i.e. commuter, tourist, & mix).

Based on the input of numerous parties and the Prioritization 3.0 workgroup the Ferry staff continued to improve the *quantitative* aspects associated with the scoring methodologies including the following adjustments:

- Banded scoring ranges were abandoned. This resulted in improved quantitative results in 3 different criteria (Safety, Connectivity/Accessibility, & Capacity/Congestion).
- A modified point system for Benefit Cost criteria was produced which resulted in more evenly distributed scoring based on real world conditions.
- Direct ratio approach (based on real world costs) was implemented with Asset Efficiency criteria.

Public Transportation – Appendix A5

Public Transportation Division's (PTD) overall approach to develop criteria and set up formulas/measures utilized Federal Transit Administration (FTA), National Transit Database (NTD), Federal Highway Administration (FHWA), Institute for Transportation Research and Education (ITRE), Ernst & Young, and Operating Statistics (OPSTATS) collected from transit systems. PTD coordinated and collaborated with community transportation systems, urban transit systems (i.e. CATS and TTA), Metropolitan Planning Organizations (MPOs), Rural Planning Organizations (RPOs), and FTA. PTD will rely on data from the National Transit Database and operating statistics (OPSTATS) from the Institute for Transportation Research and Education (ITRE). The methodology used to stay within the 100 point scale reflected calculations based on quantitative data produced by the criteria formulas.

Rail – Appendix A6

Rail Division staff worked toward a 100 point scale and researched proposed Rail criteria and solicited input from the railroad industry and other rail planning experts. Research of project appraisal frameworks was also conducted on an international basis. Limited data and data driven measure were located. Available nonproprietary data elements and economic models that could be used were identified and selected for utilization. The TREDIS model was selected for benefit/cost and economics competitive scoring to be consistent with model used for highway scoring.

Capacity/congestion, mobility, safety, accessibility and connectivity criteria were selected in addition to those scored through TREDIS. Those criteria were developed using railroad track charts, the NC Statewide Authoritative Railway and Highway (SARAH) database, ridership & other studies, track capacity studies and facility design standards. The objective was to evaluate projects based on their total and relative benefits to the state. To maintain consistency and maximize use of raw data, only daily volume data was used and logarithmic functions were employed to scale criteria scores as required by the law.

Following the August 7, 2013 BOT meeting the Department published an expanded version of its recommended scoring criteria, measures and weights. The following table provides abbreviated definitions/descriptions of scoring criteria for highways and non-highway modes.

Highway Scoring

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Statewide Mobility	<p>[Travel Time] Benefit/Cost = 30%</p> <ul style="list-style-type: none"> Travel time savings the project is expected to provide over 30 years divided by the cost of the project to NCDOT <p>Congestion = 30%</p> <ul style="list-style-type: none"> Comparison of the existing traffic volume to the existing capacity of the roadway (depending on data availability, Congestion may be measured by comparing congested travel speeds to uncongested speeds) <p>Economic Competitiveness = 10%</p> <ul style="list-style-type: none"> Estimate of the number of long-term jobs and the % change in economic activity within the NCDOT Division the project is expected to provide over 30 years <p>Safety = 10%</p> <ul style="list-style-type: none"> Evaluation of the number, severity, and frequency of crashes along the roadway <p>Multimodal [& Freight + Military] = 20%</p> <ul style="list-style-type: none"> Measure of existing congestion along key military and truck routes, and routes that provide connections to transp. terminals <p>Total = 100%</p>	--	--
Regional Impact	<p>[Travel Time] Benefit/Cost = 30%</p> <ul style="list-style-type: none"> Travel time savings the project is expected to provide over 30 years divided by the cost of the project to NCDOT <p>Congestion = 30%</p> <ul style="list-style-type: none"> Comparison of the existing traffic volume to the existing capacity of the roadway (depending on data availability, Congestion may be measured by comparing congested travel speeds to uncongested speeds) <p>Safety = 10%</p> <ul style="list-style-type: none"> Evaluation of the number, severity, and frequency of crashes along the roadway <p>Total = 70%</p>	15%	15%
Division Needs	<p>[Travel Time] Benefit/Cost = 20%</p> <ul style="list-style-type: none"> Travel time savings the project is expected to provide over 30 years divided by the cost of the project to NCDOT <p>Congestion = 20%</p> <ul style="list-style-type: none"> Comparison of the existing traffic volume to the existing capacity of the roadway <p>Safety = 10%</p> <ul style="list-style-type: none"> Evaluation of the number, severity, and frequency of crashes along the roadway <p>Total = 50%</p>	25%	25%

Note: Divisions 1, 2, 3, 4 have approved different criteria and weights for their respective areas (refer to Appendix A1, Highway Scoring Slides).

Aviation Scoring

Funding Category	Quantitative Data (75 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Statewide Mobility	<p>NCDOA Project Rating = 40%</p> <ul style="list-style-type: none"> Projects prioritized and classified within NC Division of Aviation (NCDOA) established project categories. Assigns point values based on priority of the project and need of the project <p>FAA Airport Capital Improvement Plan = 40%</p> <ul style="list-style-type: none"> Federal Aviation Administration Airport Capital Improvement Plan (ACIP) Rating. Ratings based on critical airport development and capital needs within National Airspace System (NAS) <p>Local Investment Index = 10%</p> <ul style="list-style-type: none"> A measurement of the project's local funds compared to state funds and provides greater points for projects that have a higher % of local funding sources (i.e. local or public-private funds) <p>Federal Investment Index = 10%</p> <ul style="list-style-type: none"> A measurement of the project's federal funds compared to state funds and provides greater points for projects with higher % of federal funds verses state funds <p>Total = 100%</p>	--	--
Regional Impact	<p>NCDOA Project Rating = 40%</p> <ul style="list-style-type: none"> Projects prioritized and classified within NC Division of Aviation (NCDOA) established project categories. Assigns point values based on priority of the project and need of the project <p>FAA Airport Capital Improvement Plan = 20%</p> <ul style="list-style-type: none"> Federal Aviation Administration Airport Capital Improvement Plan (ACIP) Rating. Ratings based on critical airport development and capital needs within National Airspace System (NAS) <p>Local Investment Index = 5%</p> <ul style="list-style-type: none"> A measurement of the project's local funds compared to state funds and provides greater points for projects that have a higher % of local funding sources (i.e. local or public-private funds) <p>Federal Investment Index = 5%</p> <ul style="list-style-type: none"> A measurement of the project's federal funds compared to state funds and provides greater points for projects with higher % of federal funds verses state funds <p>Total = 70%</p>	15%	15%

Aviation Scoring (Continued)

Funding Category	Quantitative Data (75 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Division Needs	<p>NCDOA Project Rating = 30%</p> <ul style="list-style-type: none"> Projects prioritized and classified within NC Division of Aviation (NCDOA) established project categories. Assigns point values based on priority of the project and need of the project <p>FAA Airport Capital Improvement Plan = 10%</p> <ul style="list-style-type: none"> Federal Aviation Administration Airport Capital Improvement Plan (ACIP) Rating <p>Local Investment Index = 5%</p> <ul style="list-style-type: none"> A measurement of the project's local funds compared to state funds and provides greater points for projects that have a higher % of local funding sources (i.e. local or public-private funds) <p>Volume/Demand Index = 5%</p> <ul style="list-style-type: none"> Index representing traffic (aircraft operations) plus employment density (jobs near the airport). Identifies projects where there is more traffic and in areas with more user demand <p>Total = 50%</p>	25%	25%

Bicycle & Pedestrian Scoring

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Division Needs	<p>Access = 10%</p> <ul style="list-style-type: none"> This criterion measures community benefit as a result of constructing the proposed project, and is measured by the quantity and significance of destinations associated with the proposed project. Access benefit is also measured by the proximity of the proposed project to the most important end destination <p>Constructability = 5%</p> <ul style="list-style-type: none"> This criterion measures the readiness of a project to be constructed in the near term. Factors such as secured right-of-way, environmental impact, and preliminary engineering work complete are used to calculate this score <p>Safety = 15%</p> <ul style="list-style-type: none"> This criterion uses bicycle and pedestrian crash data and speed limit information along project corridors to determine the existing safety need <p>Demand Density = 10%</p> <ul style="list-style-type: none"> This criterion measures user benefit as a result of constructing the proposed project, and it is measured by the density of population and employment within a walkable or bike-able distance of the proposed project <p>Benefit/Cost = 10%</p> <ul style="list-style-type: none"> This criterion adds the Access and Demand scores together to create a combined benefit score, and then the benefit is divided into the cost of the project to NCDOT <p>Total = 50%</p>	25%	25%

Ferry Scoring

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact <i>(Note: all vessels are excluded from this category)</i>	<p>Safety [Route Health Index] = 15%</p> <ul style="list-style-type: none"> The safety analysis of the ferry route based an Asset Health Index that is determined based on the condition ratings of the vessels and the ramps & gantries <p>Benefit/Cost [Travel Time] = 15%</p> <ul style="list-style-type: none"> Travel time savings determined by comparing the travel hours saved by utilizing the various ferry routes instead of taking the shortest available alternative route <p>Accessibility/Connectivity = 10%</p> <ul style="list-style-type: none"> A measurement of the accessibility and connectivity provided by the various routes based on the number of points of interest within travel radii of 10, 20, & 30 miles <p>Asset Efficiency = 10%</p> <ul style="list-style-type: none"> An evaluation of the cost effectiveness of asset operations in respect to continued maintenance on an asset versus the replacement costs of the subject asset <p>Capacity/Congestion = 20%</p> <ul style="list-style-type: none"> A measure of the capacity/congestion by an evaluation of the vehicles that are left behind each time a ferry vessel departs compared to the total numbers of vehicles carried by the route in a year <p>Total = 70%</p>	<p>15%</p>	<p>15%</p>
Division Needs	<p>Safety [Route Health Index] = 15%</p> <ul style="list-style-type: none"> The safety analysis of the ferry route based an Asset Health Index that is determined based on the condition ratings of the vessels and the ramps & gantries <p>Benefit/Cost [Travel Time] = 15%</p> <ul style="list-style-type: none"> Travel time savings determined by comparing the travel hours saved by utilizing the various ferry routes instead of taking the shortest available alternative route <p>Accessibility/Connectivity = 10%</p> <ul style="list-style-type: none"> A measurement of the accessibility and connectivity provided by the various routes based on the number of points of interest within travel radii of 10, 20, & 30 miles <p>Asset Efficiency = 10%</p> <ul style="list-style-type: none"> An evaluation of the cost effectiveness of asset operations in respect to continued maintenance on an asset versus the replacement costs of the subject asset <p>Total = 50%</p>	<p>25%</p>	<p>25%</p>

Public Transit Scoring (Expansion)

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact	Benefit/Cost = 45% <ul style="list-style-type: none"> Assesses the projected ridership for the life of the expansion vehicle relative to the cost of the vehicle to the state Vehicle Utilization Data = 5% <ul style="list-style-type: none"> Examines how systems are maximizing current fleet System Safety = 5% <ul style="list-style-type: none"> Compares system safety statistics to the national average Connectivity = 5% <ul style="list-style-type: none"> Measures the connectivity of the proposed expansion of service to destinations (education, medical, employment, retail, other transfers) System Operational Efficiency = 10% <ul style="list-style-type: none"> Compares the number of trips to revenue hours reported Total = 70%	15%	15%
Division Needs	Benefit/Cost = 25% <ul style="list-style-type: none"> Assesses the projected ridership for the life of the expansion vehicle relative to the cost of the vehicle to the state Vehicle Utilization Data = 5% <ul style="list-style-type: none"> Examines how systems are maximizing current fleet System Safety = 5% <ul style="list-style-type: none"> Compares system safety statistics to the national average Connectivity = 5% <ul style="list-style-type: none"> Measures the connectivity of the proposed expansion of service to vital destinations System Operational Efficiency = 10% <ul style="list-style-type: none"> Compares the number of trips to revenue hours reported Total = 50%	25%	25%

Public Transit Scoring (Facilities)

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact	Age of Facility, Facility Demand, Park & Ride, Bus Shelter = 40% <ul style="list-style-type: none"> Age: examines the age of the facility compared to the useful life of the facility Facility Demand: measures the demand for new or expanded maintenance and operations facilities Park & Ride: compares utilization to cost to state to construct Bus Shelter: examines current demand (boardings and alightings) at the proposed shelter location Benefit-Cost = 5% <ul style="list-style-type: none"> Examines the benefit (trips) relative to the cost of the project to the state System Operational Efficiency = 5% <ul style="list-style-type: none"> Compares the number of trips to revenue hours reported Facility Capacity = 20% <ul style="list-style-type: none"> Identifies the need for additional capacity by comparing proposed capacity, current usage, and current capacity Total = 70%	15%	15%

Public Transit Scoring (Facilities) Continued

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Division Needs	Age of Facility, Facility Demand, Park & Ride, Bus Shelter = 30% <ul style="list-style-type: none"> Age: examines the age of the facility compared to the useful life of the facility Facility Demand: measures the demand for new or expanded maintenance and operations facilities Park & Ride: compares utilization to cost to state to construct Bus Shelter: examines current demand (boardings and alightings) at the proposed shelter location Benefit-Cost = 5% <ul style="list-style-type: none"> Examines the benefit (trips) relative to the cost of the project to the state System Operational Efficiency = 5% <ul style="list-style-type: none"> Compares the number of trips to revenue hours reported Facility Capacity = 10% <ul style="list-style-type: none"> Identifies the need for additional capacity by comparing proposed capacity, current usage, and current capacity Total = 50%	25%	25%

Public Transit Scoring (Fixed Guideway)

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact	Mobility = 20% <ul style="list-style-type: none"> Measures the project usage (annual trips) Cost Effectiveness = 15% <ul style="list-style-type: none"> Measures the cost effectiveness of the project per trip over the life of the project Economic Development = 20% <ul style="list-style-type: none"> Measures the new employment and population growth in the fixed guideway corridor over 20 years Congestion Relief = 15% <ul style="list-style-type: none"> Travel time savings the project is expected to provide over 30 years divided by the cost of the project Total = 70%	15%	15%
Division Needs	Mobility = 15% <ul style="list-style-type: none"> Measures the project usage (annual trips) Cost Effectiveness = 15% <ul style="list-style-type: none"> Measures the cost effectiveness of the project per trip over the life of the project Economic Development = 10% <ul style="list-style-type: none"> Measures the new employment and population growth in the fixed guideway corridor over 20 years Congestion Relief = 10% <ul style="list-style-type: none"> Travel time savings the project is expected to provide over 30 years divided by the cost of the project Total = 50%	25%	25%

Rail Scoring (Track and Structures)

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Statewide Mobility (Class I Freight Only)	Benefit/Cost = 20% <ul style="list-style-type: none"> Benefits associated with emissions savings, fuel savings, travel time savings divided by the project cost to the state Economic Competitiveness = 10% <ul style="list-style-type: none"> High-level relative measure of the anticipated statewide benefits of project improvements in numbers of jobs Capacity/Congestion = 15% <ul style="list-style-type: none"> Percentage that the existing track segment is over-capacity Safety = 15% <ul style="list-style-type: none"> Crash potential for railroad/highway at-grade crossings Accessibility = 10% <ul style="list-style-type: none"> Measures the potential for new or improved accessibility to rail service for industries by a freight rail project Connectivity = 10% <ul style="list-style-type: none"> Values projects on strategic corridors, carrying military, ports, intermodal and transload traffic Mobility = 20% <ul style="list-style-type: none"> Measures either the change in percentage of available capacity or travel time savings provided by project Total = 100%	--	--
Regional Impact (Freight / Passenger)	Benefit/Cost = 10% (freight) / 10% (passenger) <ul style="list-style-type: none"> Benefits associated with emissions savings, fuel savings, travel time savings divided by the project cost to the state Capacity/Congestion = 15% (freight) / 25% (passenger) <ul style="list-style-type: none"> Percentage that the existing track segment is over-capacity Safety = 15% (freight) / 15% (passenger) <ul style="list-style-type: none"> Crash potential for railroad/highway at-grade crossings Accessibility = 10% (freight only) <ul style="list-style-type: none"> Measures the potential for new or improved accessibility to rail service for industries by a freight rail project Connectivity = 5% (freight only) <ul style="list-style-type: none"> Values projects on strategic corridors, carrying military, ports, intermodal and transload traffic Mobility = 15% (freight) / 20% (passenger) <ul style="list-style-type: none"> Measures either the change in percentage of available capacity or travel time savings provided by project Total = 70%	15%	15%

Rail Scoring (Track and Structures) Continued

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Division Needs (Freight / Passenger)	Benefit/Cost = 10% (freight) / 10% (passenger) <ul style="list-style-type: none"> Benefits associated with emissions savings, fuel savings, travel time savings divided by the project cost to the state Capacity/Congestion = 10% (freight) / 15% (passenger) <ul style="list-style-type: none"> Percentage that the existing track segment is over-capacity Safety = 10% (freight) / 10% (passenger) <ul style="list-style-type: none"> Crash potential for railroad/highway at-grade crossings Accessibility = 5% (freight only) <ul style="list-style-type: none"> Measures the potential for new or improved accessibility to rail service for industries by a freight rail project Connectivity = 5% (freight only) <ul style="list-style-type: none"> Values projects on strategic corridors, carrying military, ports, intermodal and transload traffic Mobility = 10% (freight) / 15% (passenger) <ul style="list-style-type: none"> Measures either the change in percentage of available capacity or travel time savings provided by project Total = 50%	25%	25%

Rail Scoring (Freight Intermodal Facilities / Intercity Passenger Service & Stations)

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Regional Impact (Intercity Passenger Service Only)	Benefit/Cost = 15% <ul style="list-style-type: none"> Benefits associated with emissions savings, fuel savings, travel time savings divided by the project cost to the state Capacity/Congestion = 25% <ul style="list-style-type: none"> Percentage that the existing facility is over-capacity Connectivity = 10% <ul style="list-style-type: none"> Values projects based on type and value of connections to intercity passenger service, commuter service, bus service and parking Mobility = 20% <ul style="list-style-type: none"> Values daily volumes in relation to catchment area population Total = 70%	15%	15%

Rail Scoring (Freight Intermodal Facilities / Intercity Passenger Service & Stations) Continued

Funding Category	Quantitative Data (100 point scale)	Local Input	
		Division Rank	MPO/RPO Rank
Division Needs (Facilities/ Intercity Passenger Service & Stations)	Benefit/Cost = 10% <ul style="list-style-type: none"> Benefits associated with emissions savings, fuel savings, travel time savings divided by the project cost to the state Capacity/Congestion = 15% <ul style="list-style-type: none"> Percentage that the existing facility is over-capacity Connectivity = 10% <ul style="list-style-type: none"> Values passenger projects based on type and value of connections to intercity passenger service, commuter service, bus service and parking Values projects serving military, port, intermodal and transload traffic and % of NC population in catchment area Mobility = 15% <ul style="list-style-type: none"> Values daily volumes in relation to catchment area population Total = 50%	25%	25%

Normalization

For Prioritization 3.0 Only (Initial Implementation of Strategic Transportation Investments)

- Statewide Mobility (only) – No normalization, scores are stand-alone for comparison (highway, aviation, freight rail)
- Regional Impact & Division Needs – Allocate funds to Highway and Non-Highway modes based on minimum floor or percentages

Mode	NCDOT Recommendation	Historical Budgeted	Historical Expenditures
Highway	90% (minimum)	93%	96%
Non-Highway	4% (minimum)	7%	4%

Note: The Department will continue to research and seek recommendations on the topic of Normalization with national experts. The Department will also request the assistance of an outside agency to conduct a statistical analysis of project scores after all quantitative scores are completed in 2014. Any conclusive findings from this research and analysis will be incorporated into Prioritization 4.0.



Appendix A1 – Highway



Highway Project Scoring Overview

	Statewide Mobility	Regional Impact	Division Needs
Eligible Projects:	<ul style="list-style-type: none"> Statewide 	<ul style="list-style-type: none"> Statewide Regional 	<ul style="list-style-type: none"> Statewide Regional Division
Overall Weights:	100% Quantitative Data	70% Quantitative Data / 30% Local Input	50% Quantitative Data / 50% Local Input
Eligible Quant. Criteria	<ul style="list-style-type: none"> Benefit-Cost Congestion Economic Comp. Safety Freight Multimodal Pavement Condition Lane Width Shoulder Width 	<ul style="list-style-type: none"> Benefit-cost Congestion Safety Freight Multimodal Pavement Condition Lane Width Shoulder Width Accessibility and connectivity to employment centers, tourist destinations, or military installations 	<ul style="list-style-type: none"> Benefit-cost Congestion Safety Freight Multimodal Pavement Condition Lane Width Shoulder Width Accessibility and connectivity to employment centers, tourist destinations, or military installations
Notes:	Projects Selected Prior to Local Input	Quant. Criteria can be different for each Region	Quant. Criteria can be different for each Division



Highway Scoring – Eligible Quantitative Criteria

<u>Criteria</u>	<u>Existing Conditions</u>	<u>Project Benefits (Future Conditions)</u>
- Congestion (Volume / Capacity Ratio + AADT)	✓	
- Benefit/Cost (Travel Time Savings / Project Cost)		✓
- Safety Score (Critical Crash Rates, Density, Severity)	✓	
- Pavement Score (Pavement Condition Rating)	✓	
- Lane Width (Existing Width vs. Standard Width)	✓	
- Shoulder Width (Existing Width vs. Standard Width)	✓	
- Multimodal (Military, Transportation Terminals & Trucks)	✓	
- Economic Competitiveness (Jobs + Value Added in \$)		✓
- Accessibility / Connectivity (TBD)	✓	



HIGHWAY Scoring

All projects scored on 0-100 point scale for each criteria

For projects on new location, existing data comes from a “parallel route”

- Parallel Route defined as the roadway(s) motorists currently use to travel between the beginning and end of the project

All quantitative scores will be calculated automatically by application (SPOT On!line) – user will be able to see preliminary scores shortly after project entry



HIGHWAY – Congestion

Funding Category

Criteria Weight

Statewide Mobility

30%

Regional Impact

30%

Division Needs

20%

Purpose – measure existing level of mobility along roadways by indicating congested locations and bottlenecks

$$((\text{Existing Vol.} / \text{Capacity Ratio} \times 100) \times 60\%) + ((\text{Existing Vol.} / 1,000) \times 40\%)$$

Note: The use of Travel Time Index, which is a comparison of actual congested speeds from GPS devices to ideal travel speed, is continuing to be investigated for use in P3.0. Based on input from NCDOT's traffic engineers, this measure may replace the use of Volume/Capacity ratio in the above equation.



HIGHWAY – [Travel Time] Benefit-Cost

Funding Category

Criteria Weight

Statewide Mobility	30%
Regional Impact	30%
Division Needs	20%

Purpose – measure the expected travel time savings benefits of the project over a 30 year period against the estimated project cost to NCDOT

Travel Time Savings over 30 years in \$ / Project Cost to NCDOT

- Travel Time Savings calculated using comparison if project was implemented today then multiplied by 30 years
- In Future versions of Prioritization, NCDOT intends to use a Statewide Travel Demand Model, which is currently under development, to predict travel time savings over 30 years
- Project Cost consists of Construction, Right-of-Way, and Utilities costs
- Cost can be lowered if other funds are committed to project by locals



HIGHWAY – Safety

Funding Category

Criteria Weight

Statewide Mobility

10%

Regional Impact

10%

Division Needs

10%

Purpose – measure existing safety conditions along/at the project

**Segments → (Crash Density x 33%) + (Severity Index x 33%) +
(Critical Crash Rate x 33%)**

Intersections → (Crash Frequency x 50%) + (Severity Index x 50%)

- All data provided by Mobility & Safety Division (3 year moving average)
- Higher scores indicate poorer conditions



HIGHWAY – Pavement Condition

Funding Category

Criteria Weight

Statewide Mobility

--

Regional Impact

--

Division Needs

--

Purpose – measure the existing pavement condition along the project

100 – Pavement Condition Rating

- Based on 2012 Pavement Condition Survey
- Higher scores indicate poorer pavement condition



HIGHWAY – Lane Width

Funding Category

Criteria Weight

Statewide Mobility

--

Regional Impact

--

Division Needs

--

Purpose – measure the existing lane width vs. DOT design standard

Existing Lane Width – DOT design standard Lane Width

- Greater the difference, the higher points the project receives
 - 1 ft difference = 25 pts
 - 2 ft difference = 50 pts
 - 3 ft difference = 75 pts
 - 4+ ft difference = 100 pts
- Does NOT mean that project will be constructed to design standard



HIGHWAY – [Paved] Shoulder Width

Funding Category

Criteria Weight

Statewide Mobility

--

Regional Impact

--

Division Needs

--

Purpose – measure the existing paved shoulder width vs. DOT design standard

Existing Paved Shoulder Width – DOT design standard Paved Shoulder Width

- Greater the difference, the higher points the project receives
 - 1 ft difference = 25 pts
 - 2 ft difference = 50 pts
 - 3 ft difference = 75 pts
 - 4+ ft difference = 100 pts
- Does NOT mean that project will be constructed to design standard



HIGHWAY – Multimodal [& Freight + Military]

Funding Category

Criteria Weight

Statewide Mobility

20%

Regional Impact

--

Division Needs

--

Purpose – measure existing congestion along key military and truck routes, and routes that provide connections to transp. terminals

25% - Volume/Capacity Ratio on projects on Non-Interstate STRAHNET Routes

25% - Volume/Capacity Ratio on projects on routes that provide direct connection (property line) to a transportation terminal along a roadway with an access point (airport, seaport, rail depot, ferry terminal, transit terminal, major military base, and freight intermodal terminal - includes air/truck/rail/pipeline terminals)

50% - Truck Volumes / 100

(V/C Ratio [Non-Interstate STRAHNET] x 25%) + (V/C Ratio [Route connecting to Transportation Terminal] x 25%) + (Truck Volumes / 100 x 50%)



HIGHWAY – Economic Competitiveness

Funding Category

Criteria Weight

Statewide Mobility

10%

Regional Impact

N/A

Division Needs

N/A

Purpose – measure the economic benefits the transportation project is expected to provide in economic activity (GDP) and jobs over 30 yrs

Score based on Output from **TREDIS® (Economic Impact Model)**

- Primary inputs are Travel Time Savings, Location, and Freight Traffic
- Output is # of long-term jobs created (50%) + Value added in \$ (50%) based on % change in the NCDOT Division Economy
 - Includes wages increased, increased productivity
 - Accounts for current economic conditions (includes use of labor statistics)
 - Results based on 30 year forecast using Moody's Analytics data
- Does NOT include contingent (prospective) development
- **Criteria is not intended to evaluate projects for recruiting purposes**



HIGHWAY – Accessibility / Connectivity

Funding Category

Criteria Weight

Statewide Mobility

N/A

Regional Impact

--

Division Needs

--

Purpose – measure how to improve connections between rural areas and employment centers, tourist destinations, or military installations (connecting people and places)

3 options proposed:

1. Accessibility / Connectivity Index with rural areas defined as municipalities with population between 2,500 and 20,000 people
2. Accessibility / Connectivity Index with rural areas defined as municipalities with population between 1,500 and 20,000 people
3. Evaluation of projects 20 minutes outside of employment centers

Measure was not finalized for P3.0 and will be re-evaluated in P4.0



HIGHWAY – Accessibility / Connectivity – cont.

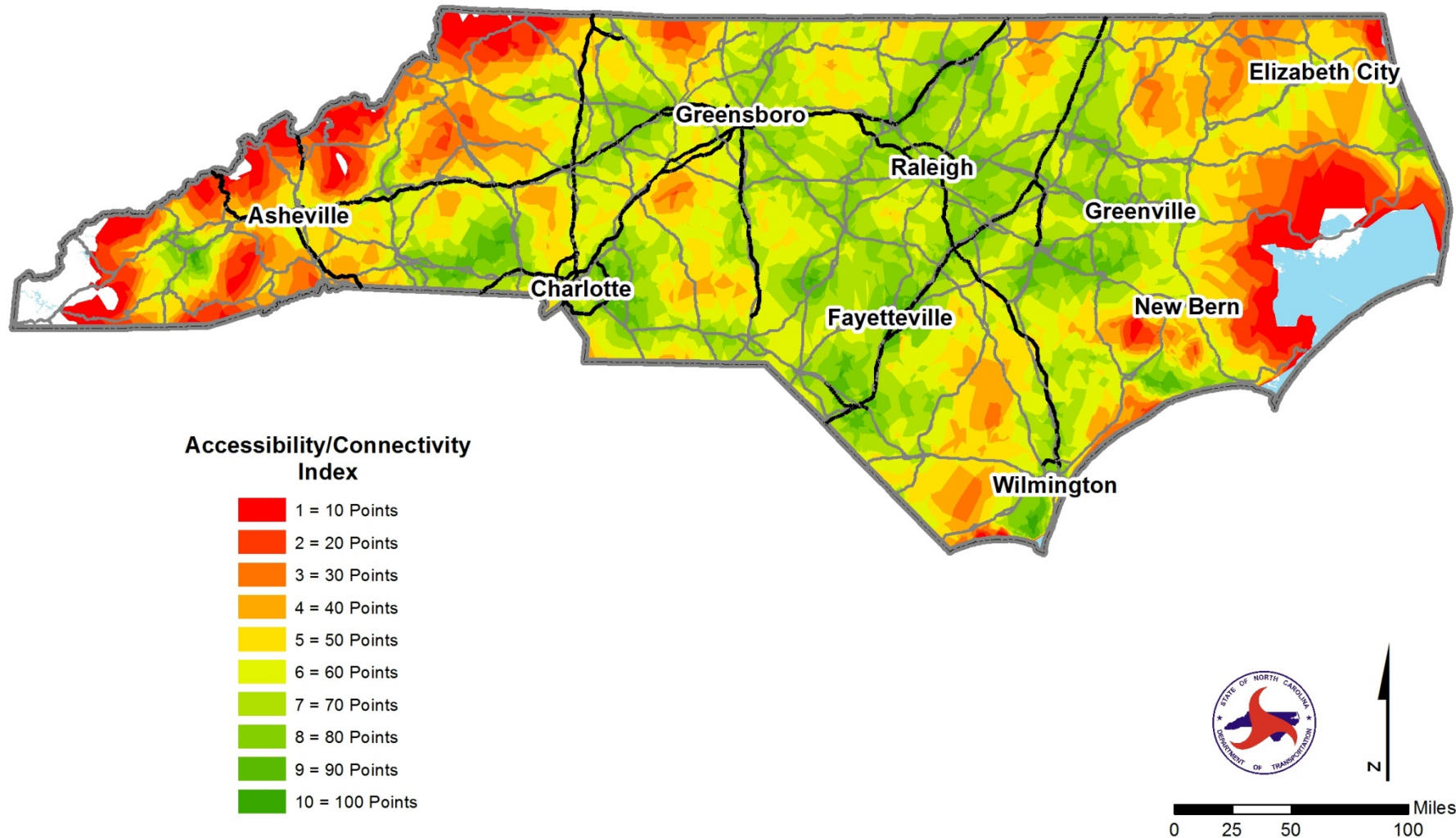
Option 1 – Accessibility / Connectivity Index with rural areas defined as municipalities with population between 2,500 and 20,000 people

Score based on Accessibility / Connectivity Index Map

- Activity Center and Census Block Groups with 5,000+ Jobs
 - Activity Centers include cities over 20,000 people, military bases, ports, UNC campuses, trauma centers, top tourist destinations
- Rural Area (Rural Population Center) = Municipality with population between 2,500 and 20,000
- Map illustrates overlap of drive times from Activity Centers/Block Groups and Rural Population Centers

Accessibility/Connectivity Scoring Criteria Scoring Overlay

(Rural Population Centers with 2,500 to 20,000 people)





HIGHWAY – Accessibility / Connectivity – can't

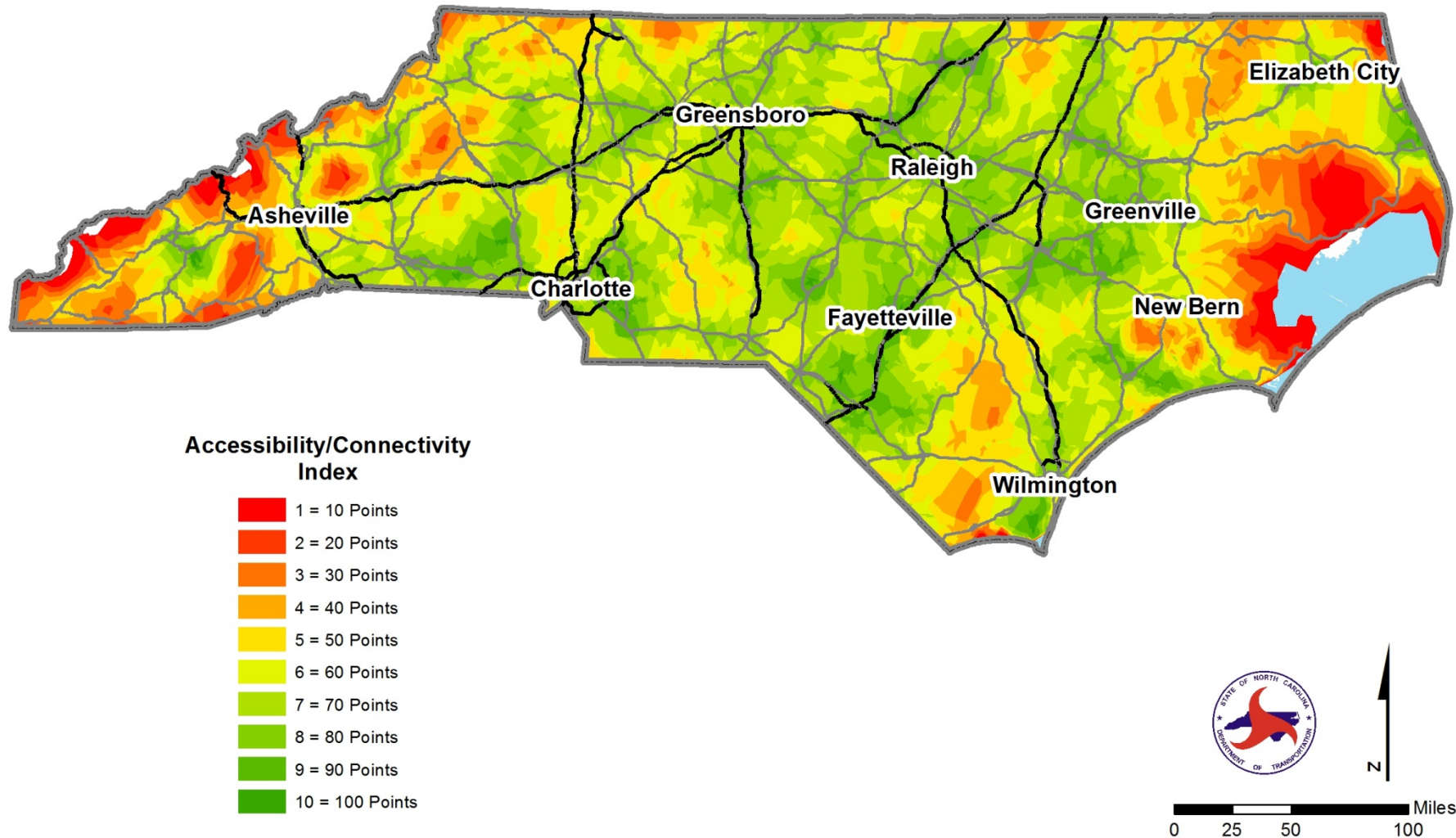
Option 2 – Accessibility / Connectivity Index with rural areas defined as municipalities with population between 1,500 and 20,000 people

Score based on Accessibility / Connectivity Index Map

- Activity Center and Census Block Groups with 5,000+ Jobs
 - Activity Centers includes cities over 20,000 people, military bases, ports, UNC campuses, trauma centers, top tourist destinations
- Rural Area (Rural Population Center) = Municipality with population between 1,500 and 20,000
- Map illustrates overlap of drive times from Activity Centers/Block Groups and Rural Population Centers
- New approach – not previously discussed with Workgroup

Accessibility/Connectivity Scoring Criteria Scoring Overlay

(Rural Population Centers with 1,500 to 20,000 people)





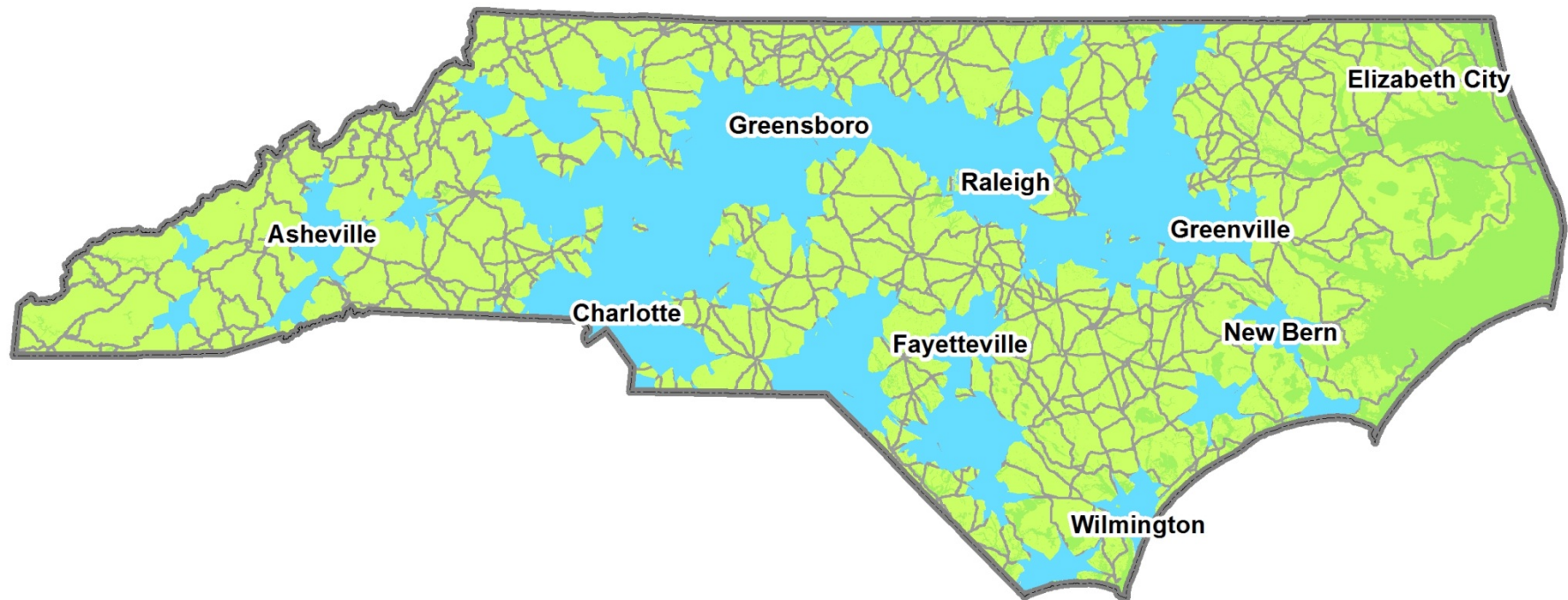
HIGHWAY – Accessibility / Connectivity – Cont.

Option 3 – Evaluation of projects 20 minutes outside of employment centers

Score based on Existing Volume on eligible roadways → Volume / 200

- Goal is to improve connections between rural areas and employment centers
- Employment centers defined as Census Block Groups with 2,500+ jobs
- Projects within 20 minute drivetime likely to score well based on other criteria
- Existing freeways are not eligible as they already provide a high-level of connectivity

Accessibility / Connectivity Criteria Eligible Routes



- Within 20 Minute Driving Time
- Outside 20 Minute Driving Time
- Other US and NC Routes

Eligible routes are all US, NC, and SR routes located in green area on map, except existing freeways



0 25 50 100 Miles



Example Projects - Illustrate Scoring Process

TIP	Route	From	To	Description	County	Div	Eligibility
R-2248E	I-485	NC 115	I-85 North	Construct Freeway on New Location	Mecklenburg	10	Statewide
I-4744	I-40	SR 1728 (Wade Ave)	I-440/US 1/64	Widen Roadway	Wake	5	Statewide
R-2554BA	US 70 (Goldsboro Bypass)	East of SR 1300 (Salem Church Rd)	East of SR 1556 (Wayne Memorial Dr)	Construct Freeway on New Location	Wayne	4	Statewide
R-4463B	NC 43 Connector	US 70	NC 43/55	Construct Roadway on New Location	Craven	2	Regional
R-2911B	US 70	Iredell County Line	SR 1001 (Old Amity Hill Road)	Widen Roadway	Rowan	9	Regional
R-2519A	US 19E	East of SR 1336 (Jacks Creek Rd)	NC 80	Widen Roadway	Yancey	13	Regional
U-3810	SR 1406 (Piney Green Rd)	NC 24	US 17	Widen Roadway	Onslow	3	Division
U-4909	SR 2643 (Union Cross Rd)	SR 2691 (Wallburg Rd)	SR 2632 (Sedge Garden Rd)	Widen Roadway	Forsyth	9	Division
R-3833A	SR 1100 (Brawley School Rd)	SR 1177 (Chuckwood Rd)	US 21	Widen Roadway	Iredell	12	Division

Notes: Projects listed have recently been completed or are currently under construction
Values shown for scoring on subsequent slides are based on 2010 data



Example Projects – Congestion Score

TIP	Project	Existing Volume	Existing Capacity	Volume / Capacity Ratio	Congestion Score
R-2248E	I-485 New Location	117,000	140,000	0.84	90.40
I-4744	I-40 Widening	94,000	70,000	1.34	97.60
R-2554BA	US 70 (Goldsboro Bypass)	31,000	60,000	0.52	43.60
R-4463B	NC 43 Connector	24,000	40,000	0.60	45.60
R-2911B	US 70 Widening	9,000	16,000	0.56	37.20
R-2519A	US 19E Widening	14,000	16,000	0.88	58.40
U-3810	SR 1406 (Piney Green Rd) Widening	20,000	16,000	1.25	68.00
U-4909	SR 2643 (Union Cross Rd) Widening	16,000	16,000	1.00	66.40
R-3833A	SR 1100 (Brawley School Rd) Widening	18,000	16,000	1.13	67.20



Example Projects – [Travel Time] Benefit-Cost Score

TIP	Project	Travel Time Savings over 30 years (\$)	Project Cost	Other Funding	Cost to NCDOT	Benefit/Cost Score
R-2248E	I-485 New Location	\$4,859,808,000	\$206,836,000	\$0	\$206,836,000	23.50
I-4744	I-40 Widening	\$3,502,916,000	\$59,910,000	\$0	\$59,910,000	58.47
R-2554BA	US 70 (Goldsboro Bypass)	\$2,060,655,000*	\$335,731,000*	\$0	\$335,731,000*	6.14
R-4463B	NC 43 Connector	\$963,071,000*	\$67,415,000*	\$0	\$67,415,000*	14.29
R-2911B	US 70 Widening	\$108,246,000	\$23,544,000	\$0	\$23,544,000	4.60
R-2519A	US 19E Widening	\$457,696,000	\$72,288,000	\$0	\$72,288,000	6.33
U-3810	SR 1406 (Piney Green Rd) Widening	\$219,185,000	\$97,235,000	\$0	\$97,235,000	2.25
U-4909	SR 2643 (Union Cross Rd) Widening	\$81,080,000	\$90,308,000	\$0	\$90,308,000	0.90
R-3833A	SR 1100 (Brawley School Rd) Widening	\$106,009,000	\$64,347,000	\$0	\$64,347,000	1.65

*Full benefits of the project are not realized until entire new location roadway is complete. Travel Time Savings and Cost values are based on the entire project.



Example Projects – Safety Score

TIP	Project	Crash Density	Severity Index	Critical Crash Rate	Safety Score
R-2248E	I-485 New Location	78.80	61.60	71.70	70.69
I-4744	I-40 Widening	87.20	48.70	87.20	74.36
R-2554BA	US 70 (Goldsboro Bypass)	71.10	67.70	61.40	66.73
R-4463B	NC 43 Connector	73.10	56.90	48.80	59.59
R-2911B	US 70 Widening	91.50	91.50	33.80	72.26
R-2519A	US 19E Widening	58.80	62.70	23.50	48.33
U-3810	SR 1406 (Piney Green Rd) Widening	97.50	67.40	74.90	79.93
U-4909	SR 2643 (Union Cross Rd) Widening	100.00	81.50	48.10	76.53
R-3833A	SR 1100 (Brawley School Rd) Widening	100.00	59.30	55.60	71.63



Example Projects – Pavement Score

TIP	Project	Pavement Condition Rating	Pavement Score
R-2248E	I-485 New Location	96.96	3.04
I-4744	I-40 Widening	100.00	0.00
R-2554BA	US 70 (Goldsboro Bypass)	81.34	18.66
R-4463B	NC 43 Connector	59.05	40.95
R-2911B	US 70 Widening	93.31	6.69
R-2519A	US 19E Widening	75.37	24.63
U-3810	SR 1406 (Piney Green Rd) Widening	99.59	0.41
U-4909	SR 2643 (Union Cross Rd) Widening	95.44	4.56
R-3833A	SR 1100 (Brawley School Rd) Widening	100.00	0.00



Example Projects – Lane Width Score

TIP	Project	Existing Lane Width	DOT Design Lane Width	Lane Width Score
R-2248E	I-485 New Location	12	12	0
I-4744	I-40 Widening	12	12	0
R-2554BA	US 70 (Goldsboro Bypass)	12	12	0
R-4463B	NC 43 Connector	12	12	0
R-2911B	US 70 Widening	12	12	0
R-2519A	US 19E Widening	12	12	0
U-3810	SR 1406 (Piney Green Rd) Widening	12	12	0
U-4909	SR 2643 (Union Cross Rd) Widening	12	12	0
R-3833A	SR 1100 (Brawley School Rd) Widening	10	12	50



Example Projects – [Paved] Shoulder Width Score

TIP	Project	Existing Paved Shoulder Width	DOT Design Paved Shoulder Width	[Paved] Shoulder Width Score
R-2248E	I-485 New Location	10	10	0
I-4744	I-40 Widening	10	10	0
R-2554BA	US 70 (Goldsboro Bypass)	4	4	0
R-4463B	NC 43 Connector	4	4	0
R-2911B	US 70 Widening	4	4	0
R-2519A	US 19E Widening	4	4	0
U-3810	SR 1406 (Piney Green Rd) Widening	2	4	50
U-4909	SR 2643 (Union Cross Rd) Widening	2	4	50
R-3833A	SR 1100 (Brawley School Rd) Widening	2	4	50



Example Projects – Multimodal [& Freight + Military] Score

TIP	Project	Volume / Capacity Ratio	Non-Interstate STRAHNET Route?	Direct Connection to Trans. Terminal?	Truck Volume	Multimodal [& Freight + Military] Score
R-2248E	I-485 New Location	0.84	No	No	12,900	50.00
I-4744	I-40 Widening	1.34	No	No	10,300	50.00
R-2554BA	US 70 (Goldsboro Bypass)	0.52	Yes	No	3,100	28.50
R-4463B	NC 43 Connector	0.60	No	No	2,300	11.50
R-2911B	US 70 Widening	0.56	No	No	1,100	5.50
R-2519A	US 19E Widening	0.88	No	No	1,400	7.00
U-3810	SR 1406 (Piney Green Rd) Widening	1.25	No	Yes	600	28.00
U-4909	SR 2643 (Union Cross Rd) Widening	1.00	No	No	500	2.50
R-3833A	SR 1100 (Brawley School Rd) Widening	1.13	No	No	500	2.50



Example Projects – Economic Competitiveness Score

TIP	Project	Travel Time Savings (per yr)	Div	Long-term Employment	% Change in Economic Value Added	Economic Competitiveness Score
R-2248E	I-485 New Location	7,040,533	10	1,640	0.1072%	100.00
I-4744	I-40 Widening	5,074,767	5	1280	0.0959%	97.93
R-2554	US 70 (Goldsboro Bypass)	2,995,867	4	970	0.2348%	98.55
R-4463B	NC 43 Connector	1,404,233	2	470	0.1175%	73.65
R-2911B	US 70 Widening	156,200	9	40	0.0070%	5.75
R-2519A	US 19E Widening	665,733	13	220	0.0699%	45.84
U-3810	SR 1406 (Piney Green Rd) Widening	328,000	3	90	0.0132%	10.92
U-4909	SR 2643 (Union Cross Rd) Widening	121,333	9	30	0.0049%	4.04
R-3833A	SR 1100 (Brawley School Rd) Widening	158,633	12	50	0.0102%	7.56



Example Projects – Accessibility / Connectivity Score

TIP	Project	Option 1 Score (Rural Center 2,500-20,000 pop.)	Option 2 Score (Rural Center 1,500-20,000 pop.)	Existing Volume	Eligible Route?	Option 3 Score
R-2248E	I-485 New Location	73.21	74.56	117,000	N	0
I-4744	I-40 Widening	71.99	79.96	94,000	N	0
R-2554BA	US 70 (Goldsboro Bypass)	88.01	88.16	31,000	N	0
R-4463B	NC 43 Connector	57.62	63.77	24,000	N	0
R-2911B	US 70 Widening	63.63	66.65	9,000	N	0
R-2519A	US 19E Widening	26.41	66.41	14,000	Y	70
U-3810	SR 1406 (Piney Green Rd) Widening	84.13	88.22	20,000	N	0
U-4909	SR 2643 (Union Cross Rd) Widening	61.79	61.79	16,000	N	0
R-3833A	SR 1100 (Brawley School Rd) Widening	51.47	60.00	18,000	N	0



Highway Scoring Criteria and Weights

Funding Category	<u>QUANTITATIVE</u>	<u>LOCAL INPUT</u>	
	Data	Division Rank	MPO/RPO Rank
Statewide Mobility	[Travel Time] Benefit/Cost = 30% Congestion = 30% Economic Competitiveness = 10% Safety = 10% <u>Multimodal [& Freight + Military] = 20%</u> Total = 100%	--	--
Regional Impact	[Travel Time] Benefit/Cost = 30% Congestion = 30% <u>Safety = 10%</u> Total = 70%	15%	15%
Division Needs	[Travel Time] Benefit/Cost = 20% Congestion = 20% <u>Safety = 10%</u> Total = 50%	25%	25%



Highway Scoring Criteria and Weights – Divisions 1 & 4

Funding Category	<u>QUANTITATIVE</u>	<u>LOCAL INPUT</u>	
	Data	Division Rank	MPO/RPO Rank
Statewide Mobility	[Travel Time] Benefit/Cost = 30% Congestion = 30% Economic Competitiveness = 10% Safety = 10% <u>Multimodal [& Freight + Military] = 20%</u> Total = 100%	--	--
Regional Impact	[Travel Time] Benefit/Cost = 20% Congestion = 15% Safety = 15% Lane Width = 10% <u>Shoulder Width = 10%</u> Total = 70%	15%	15%
Division Needs	[Travel Time] Benefit/Cost = 10% Congestion = 10% Safety = 10% Lane Width = 10% <u>Shoulder Width = 10%</u> Total = 50%	25%	25%



Highway Scoring Criteria and Weights – Divisions 2 & 3

Funding Category	<u>QUANTITATIVE</u>	<u>LOCAL INPUT</u>	
	Data	Division Rank	MPO/RPO Rank
Statewide Mobility	[Travel Time] Benefit/Cost = 30% Congestion = 30% Economic Competitiveness = 10% Safety = 10% <u>Multimodal [& Freight + Military] = 20%</u> Total = 100%	--	--
Regional Impact	[Travel Time] Benefit/Cost = 20% Safety = 25% <u>Multimodal [& Freight + Military] = 25%</u> Total = 70%	15%	15%
Division Needs	Congestion = 20% Safety = 20% <u>Multimodal [& Freight + Military] = 10%</u> Total = 50%	25%	25%



Example Projects – Statewide Mobility Scores

TIP	Project	Congestion (30%)	[Travel Time] Benefit Cost (30%)	Safety (10%)	Econ. Comp. (10%)	Multimodal [& Freight + Military] (20%)	Total Quant. Score (100%)
R-2248E	I-485 New Location	90.40	23.50	70.69	100.00	50.00	61.24
I-4744	I-40 Widening	97.60	58.47	74.36	97.93	50.00	74.05
R-2554BA	US 70 (Goldsboro Bypass)	43.60	6.14	66.73	98.55	28.50	37.15
R-4463B	NC 43 Connector	--	--	--	--	--	--
R-2911B	US 70 Widening	--	--	--	--	--	--
R-2519A	US 19E Widening	--	--	--	--	--	--
U-3810	SR 1406 (Piney Green Rd) Widening	--	--	--	--	--	--
U-4909	SR 2643 (Union Cross Rd) Widening	--	--	--	--	--	--
R-3833A	SR 1100 (Brawley School Rd) Widening	--	--	--	--	--	--



Example Projects – Regional Impact Scores

TIP	Project	Congestion (30%)	[Travel Time] Benefit Cost (30%)	Safety (10%)	Total Quant. Score (70%)
R-2248E	I-485 New Location	90.40	23.50	70.69	41.24
I-4744	I-40 Widening	97.60	58.47	74.36	54.26
R-2554BA	US 70 (Goldsboro Bypass)	43.60	6.14	66.73	21.59
R-4463B	NC 43 Connector	45.60	14.29	59.59	23.93
R-2911B	US 70 Widening	37.20	4.60	72.26	19.77
R-2519A	US 19E Widening	58.40	6.33	48.33	24.25
U-3810	SR 1406 (Piney Green Rd) Widening	--	--	--	--
U-4909	SR 2643 (Union Cross Rd) Widening	--	--	--	--
R-3833A	SR 1100 (Brawley School Rd) Widening	--	--	--	--



Example Projects – Division Needs Scores

TIP	Project	Congestion (20%)	[Travel Time] Benefit Cost (20%)	Safety (10%)	Total Quant. Score (50%)
R-2248E	I-485 New Location	90.40	23.50	70.69	29.85
I-4744	I-40 Widening	97.60	58.47	74.36	38.65
R-2554BA	US 70 (Goldsboro Bypass)	43.60	6.14	66.73	16.62
R-4463B	NC 43 Connector	45.60	14.29	59.59	17.94
R-2911B	US 70 Widening	37.20	4.60	72.26	15.59
R-2519A	US 19E Widening	58.40	6.33	48.33	17.78
U-3810	SR 1406 (Piney Green Rd) Widening	68.00	2.25	79.93	22.04
U-4909	SR 2643 (Union Cross Rd) Widening	66.40	0.90	76.53	21.11
R-3833A	SR 1100 (Brawley School Rd) Widening	67.20	1.65	71.63	20.93



Local Input Points

Use in Regional Impact and Division Needs categories only

Points to allocate to projects across all modes as an MPO/RPO TAC Member and communication with Division Engineer

of Points = 1000 points + additional points based on population

Separate Allocation of Points for Regional Impact Category and Division Needs Category

- Point allocation is the same for each

100 point cap for any one project; points can also be donated across Regions/Divisions



Example Projects – Local Input Points – Division 15

Illustrative Example Only: Division 15 has **500** points to allocate to projects

Remaining Points →			500	500
TIP	Project	Eligibility	Regional Impact Local Input Points	Division Needs Local Input Points
R-2248E	I-485 New Location	Statewide	100	0
I-4744	I-40 Widening	Statewide	Funded in Statewide Mobility	
R-2554BA	US 70 (Goldsboro Bypass)	Statewide	100	0
R-4463B	NC 43 Connector	Regional	60	80
R-2911B	US 70 Widening	Regional	40	20
R-2519A	US 19E Widening	Regional	70	50
U-3810	SR 1406 (Piney Green Rd) Widening	Division	--	100
U-4909	SR 2643 (Union Cross Rd) Widening	Division	--	80
R-3833A	SR 1100 (Brawley School Rd) Widening	Division	--	30
	Non-Highway Projects	Regional	130	60
	Non-Highway Projects	Division	--	80



Example Projects – Div. 15 Statewide Mobility Total Scores

TIP	Project	Total Quant. Score (100%)			Total Score (100%)
R-2248E	I-485 New Location	61.24			61.24
I-4744	I-40 Widening	74.05			74.05
R-2554BA	US 70 (Goldsboro Bypass)	37.15			37.15
R-4463B	NC 43 Connector	--	--	--	--
R-2911B	US 70 Widening	--	--	--	--
R-2519A	US 19E Widening	--	--	--	--
U-3810	SR 1406 (Piney Green Rd) Widening	--	--	--	--
U-4909	SR 2643 (Union Cross Rd) Widening	--	--	--	--
R-3833A	SR 1100 (Brawley School Rd) Widening	--	--	--	--



Example Projects – Div. 15 Regional Impact Total Scores

TIP	Project	Total Quant. Score (70%)	Division Points (15%)	MPO/RPO Points (15%)	Total Score (100%)
R-2248E	I-485 New Location	41.24	100	100	58.89
I-4744	I-40 Widening	Funded in Statewide Mobility			
R-2554BA	US 70 (Goldsboro Bypass)	21.59	100	80	42.11
R-4463B	NC 43 Connector	23.93	60	90	39.25
R-2911B	US 70 Widening	19.77	40	20	22.84
R-2519A	US 19E Widening	24.25	70	100	42.48
U-3810	SR 1406 (Piney Green Rd) Widening	--	--	--	--
U-4909	SR 2643 (Union Cross Rd) Widening	--	--	--	--
R-3833A	SR 1100 (Brawley School Rd) Widening	--	--	--	--



Example Projects – Div. 15 Division Needs Total Scores

TIP	Project	Total Quant. Score (50%)	Division Points (25%)	MPO/RPO Points (25%)	Total Score (100%)
R-2248E	I-485 New Location	29.85	0	0	14.93
I-4744	I-40 Widening	Funded in Statewide Mobility			
R-2554BA	US 70 (Goldsboro Bypass)	16.62	0	0	8.31
R-4463B	NC 43 Connector	17.94	80	60	43.97
R-2911B	US 70 Widening	15.59	20	30	20.30
R-2519A	US 19E Widening	17.78	50	20	26.39
U-3810	SR 1406 (Piney Green Rd) Widening	22.04	100	100	61.02
U-4909	SR 2643 (Union Cross Rd) Widening	21.11	80	70	48.06
R-3833A	SR 1100 (Brawley School Rd) Widening	20.93	30	90	40.47



Appendix A2 – Aviation



Aviation





STI - Eligibility for Airports

(1) **Statewide Airport - Commercial Service Airports**

- International Service or 375,000 enplanements
- Federal Aviation Administration's National Plan of Integrated Airport Systems (NPIAS)
- \$500,000 per airport per project per year
- Charlotte Douglas International Airport, Raleigh Durham International Airport, Piedmont Triad International Airport, Wilmington International Airport

(2) **Regional Impacts - Commercial Service Airports**

- NPIAS airports that are not included in subdivision (1) of this section
- \$300,000 per airport per project per year
- Asheville Regional Airport, Albert J. Ellis Airport, Costal Carolina Airport, Pitt-Greenville Airport, Fayetteville Regional Airport

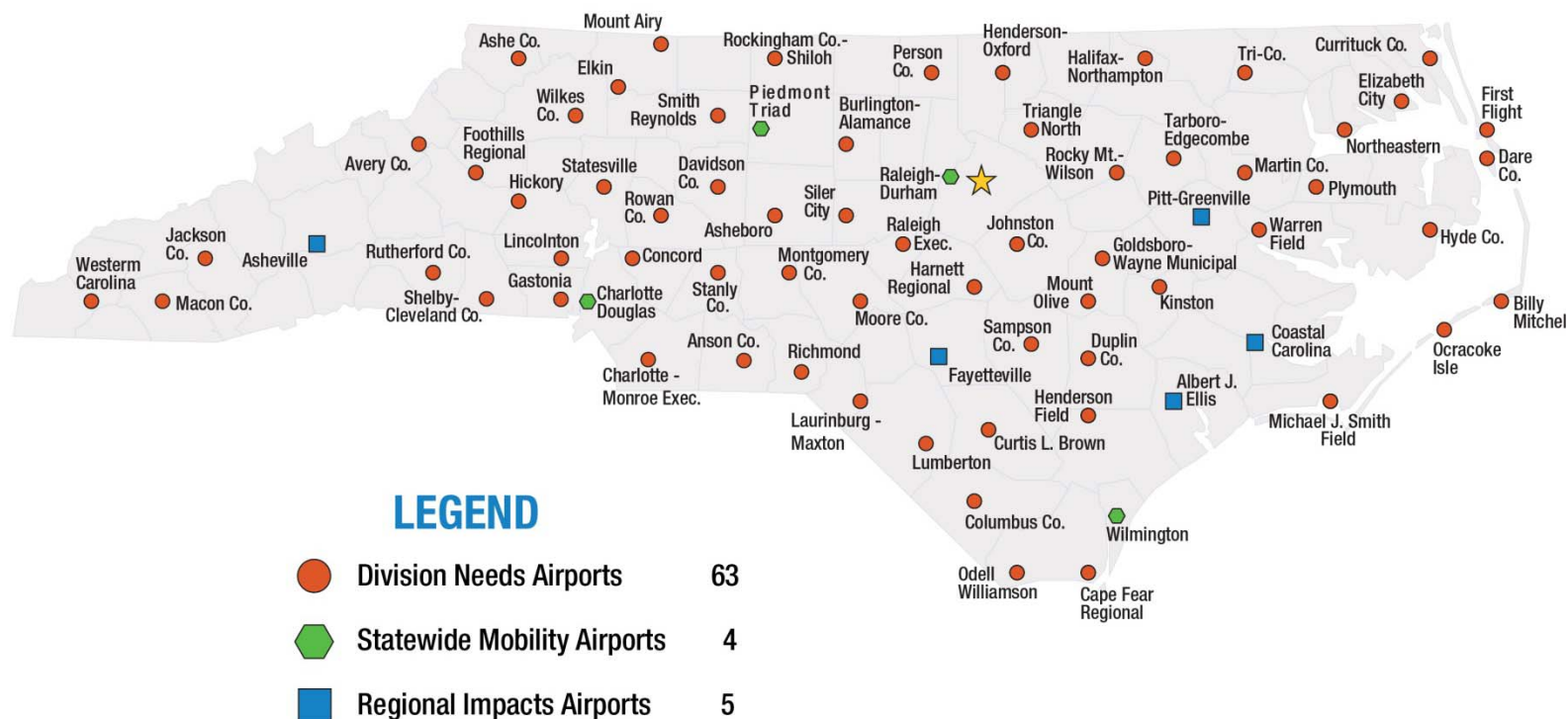
(3) **Division Needs – General Aviation Airports**

- NPIAS airports that are not included in subdivision (1) or (2)
- General aviation airports
- Statewide total funding not to exceed \$18,500,000



North Carolina Airports

(72 Publicly Owned / Publicly Operated)





Proposed Aviation Criteria

Criteria	Statewide Mobility	Regional Impacts	Division Needs
	% Wt	% Wt	% Wt
NCDOA Project Rating	40	40	30
FAA ACIP Rating	40	20	10
Local Investment Index	10	5	5
Federal Investment Index	10	5	
Volume / Demand Index			5
	100%	70%	50%



Aviation – Project Rating

- **Definition:** Projects prioritized and classified within Division of Aviation (NCDOA) project categories. The NCDOA project prioritization is based data driven process that that was published to all the airport in 2006.
- **Why use this criteria:** Assigns point values based on priority and need of the project.
- **Source:** NC Airport Development Plan, airport's FAA approved Airport Layout Plan, and the NC Airport System Plan.
- **Scoring based on points assigned to project as evaluated by NCDOA minimum and recommended criteria.**
- **Recommended Weights:** 40% Statewide, 40% Regional, 30% Division.



NCDOA Project Points

Master Project Categories	Tier 1 - Minimum Infrastructure	Tier 2 - Recommended Infrastructure
Runway Approach / Safety Area /Protection Zones	71 -75	23 - 25
Pavement Condition - Airfield	67 – 70	---
Pavement Construction/Expansion/Modifications - Runway	61 – 66	16 - 22
Visual Navigational Aids/Other Part 77 Obstructions	58 – 60	---
Airfield Lighting & Signage – Runway	55 – 57	14 - 15
Instrument Navigational Aids / Weather Reporting Equip	50 – 54	9 - 13;
Pavement Construction/Expansion/Modifications – Taxiway & Apron	44 – 49	7 - 8;
Terminal Building	41 – 43	6
Airfield Lighting & Signage – Taxiway & Apron	35 – 40	3 - 5;
Ground Communication	33 - 34	2
Approach Lighting	31 – 32	1
Aircraft Rescue & Fire Fighting (ARFF) Equipment	30	---
Storage Buildings	28 – 29	---
Wildlife Safety & Security Fencing	27	---
Aircraft Fuel Facilities	26	---

NOTE: Refer to the NC Airport Development Guide Priority System, Numerical Priority Descriptions.



Aviation – FAA ACIP

- **Definition:** Federal Aviation Administration Airport Capital Improvement Plan (ACIP) rating.
- **Why use this criteria:** The ACIP rating serves as the primary planning tool (for the FAA) for systematically identifying, prioritizing and assigning funds to critical airport development and associated capital needs for the National Airspace System (NAS).
- **Source:** Federal Aviation Regulation (FAR) Order 5100.39, Airport Capital Improvement Plan.
- **Scores adjusted to 75 point scale to match NCDOA project rating.**
- **Recommended Weights:** 40% Statewide, 20% Regional, 10% Division.



FAA Airport Capital Improvement Plan Point Matrix

NPIAS-ACIP Standard Descriptions, ACIP Codes, and National Priority Ratings		Airport Code			
		A	B	C	D
Category	Project Description	5	4	3	2
Equipment	Acquire Aircraft Rescue and Fire Fighting Vehicle [Part 139 only]	98	95	93	90
Runways	<Apply Friction Course/Groove> Runway	86	84	82	80
Runways	Construct Runway {name} (environmental mitigation)	76	74	72	70
Runways	Rehabilitate Runway {name}	72	70	68	66
Runways	Rehabilitate Runway <Lighting/Electrical Vault>	72	70	68	66
Taxiways	Rehabilitate Taxiway	68	66	64	62
Taxiways	Rehabilitate Taxiway {name} Lighting	68	66	64	62
Apron	Construct {name} (environmental mitigation)	66	64	62	60
Apron	Rehabilitate {name}	62	60	58	56
Apron	Construct {name}	56	54	52	50
Runways	<Construct/Extend/Improve> Runway {name} Safety Area [Non-Primary Airports]	50	48	47	45
Runways	Install Runway Lighting (HIRL, MIRL, TDZ, LAHSO or CL)	50	48	47	45
Runways	<Extend/Widen/Strengthen> Runway {name} [to meet standards]	50	48	47	45
Taxiways	Construct Taxiway {name} [includes relocation]	50	49	47	46
Taxiways	Install Taxiway {name} Lighting (e.g., SMGCS, reflectors, MITL)	47	45	44	42
New Airports	Construct New Airport	44	43	41	40
Equipment	Acquire Aircraft Rescue and Fire Fighting Safety Equipment{describe} [Not part 139]	41	40	38	37
Terminal Development	Expand Terminal Building	40	39	37	35
Terminal Development	Construct Terminal Building	40	38	37	35
New Airports	Acquire [existing] Airport	35	34	32	31
Buildings	Construct/Expand/Improve/Modify/Rehabilitate> {describe} Building	34	32	31	29

Airport Code: Primary Commercial Service Airports

A – Large and Medium Hub
B – Small and Non Hub

Non Primary Commercial Service, Reliever, and General Airports

Based Aircraft or Itinerant Operations

A – 100 or 50,000 C – 20 or 8,000
B – 50 or 20,000 D – <20 and <8,000



5100.39A Appendix 5

Point Values for AIP Airport and ACIP Work Codes

A = Airport Code (2 to 5 pts.):

Primary Commercial Service Airports

A - Large and Medium Hub = 5 pts
B - Small and Non Hub = 4 pts

Non Primary Commercial Service, Reliever, and General Aviation Airports

Based Aircraft/Transient Operations
A - 100 or 50,000 = 5 pts
B - 50 or 20,000 = 4 pts
C - 20 or 8,000 = 3 pts
D - <20 and <8,000 = 2 pts

P = Purpose Points (0 to 10 pts)

C = Component Points (0 to 10 pts)

CA = Capacity = 7pts
EN = Environment = 8pts
OT = Other = 4pts
PL = Planning = 8pts
RE = Reconstruction = 8pts
SA = Safety/Security = 10pts
SP = Statutory Emphasis Programs = 9pts
ST = Standards = 6pts

AP = Apron = 5pts
BD = Building = 3pts
EQ = Equipment = 8pts
FI = Financing = 0pts
GT = Ground Transportation = 4pts
HE = Helipad = 9pts
HO = Homes = 7pts
LA = Land = 7pts
NA = New Airport = 4pts
OT = Other = 7pts
PB = Public Building = 7pts
PL = Planning = 7pts

RW = Runway = 10pts
SB = Seaplane = 9pts
TE = Terminal = 1pt
TW = Taxiway = 3pts
VT = Vertiport = 4pts

T = Type Points: (0 to 10 pts)

60 = Outside 65 DNL = 0pts
65 = 65 - 69 DNL = 4pts
70 = 70 - 74 DNL = 7pts
75 = Inside 75 DNL = 10pts
AC = Access = 7pts
AD = Administration Costs = 0pts
AQ = Acquire Airport = 5pts
BO = Bond Retirement = 0pts
CO = Construction = 10pts
DI = De-icing Facilities = 6pts
DV = Development Land = 6pts
EX = Extension/Expansion = 6pts
FF = Fuel Farm Development = 2pts
FR = RW Friction = 0pts

IM = Improvements = 8pts
IN = Instrument Approach Aid = 7pts
LI = Lighting = 8pts
MA = Master Plan = 9pts
ME = Metropolitan Planning = 7pts
MS = Miscellaneous = 5pts
MT = Mitigation = 6pts
NO = Noise Plan/Suppression = 7pts
OB = Obstruction Removal = 10pts
PA = Parking = 1pt
PM = People Mover = 3pts
RF = ARFF Vehicle = 10pts
RL = Rail = 3pts

SE = Security Improvement = 6pts
SF = RW Safety Area = 3pts
SG = RW/TW Signs = 9pts
SN = Snow Removal Equipment = 4pts
SR = Sensors = 8pts
ST = State Planning = 3pts
SV = Service = 6pts
SZ = Safety Zone (RPZ) = 8pts
VI = Visual Approach Aids, Aid = 8pts
VT = Construct V/Tol RW/Vent Plan = 2pts
WX = Weather Reporting Equipment = 8pts

NPIAS-ACIP Standard Descriptions, ACIP Codes, and National Priority Ratings

6100.38A
Appendix 6

PROJECT DESCRIPTION	ACIP Codes			Airport Code			
	Purpose	Component	Type	A	B	C	D
				5	4	3	2
APRON							
Construct (name) Apron	CA	AP	CO	58	54	52	50
Expand (name) Apron	CA	AP	EX	47	46	44	42
Construct (name) Apron (environmental mitigation)	EN	AP	CO	58	54	52	50
Rehabilitate (name) Apron	RE	AP	IM	57	53	50	48
Construct (name) Apron	ST	AP	CO	48	44	41	41
Expand/Upgrade (name) Apron	ST	AP	IM	42	41	39	38
Install (name) Apron Lighting	ST	AP	LI	42	41	39	38
BUILDINGS							
Construct/Expand/Improve/Modify/Rehabilitate Aircraft Rescue & Fire Fighting Building (10)	SA	BD	EX	73	71	68	66
Construct/Expand/Improve/Modify/Rehabilitate (described) Building	ST	BD	MS	34	32	31	29
Construct/Expand/Improve/Modify/Rehabilitate Snow Removal Equipment/Chemical Storage	ST	BD	SN	41	39	38	36
EQUIPMENT							
Acquire Driver's Enhanced Vision System	ST	EQ	MS	41	40	38	37
Acquire Interactive Training System	OT	EQ	MS	29	24	23	22
Acquire Aircraft Rescue & Fire Fighting Vehicle (required by Part 139 only)	SA	EQ	RF	98	96	93	90
Acquire Aircraft Rescue & Fire Fighting Safety Equipment (described) (required by Part 139)	SA	EQ	RF	98	96	93	90
Acquire Security Equipment/Fire Fighting Vehicle (e.g., access control) (required by Part 107)	SA	EQ	SE	88	85	81	79
Acquire Aircraft Landing Equipment	ST	EQ	LI	43	41	40	38
Acquire/Install/Rehabilitate Emergency Generator	ST	EQ	LI	47	45	44	42
Acquire Aircraft Rescue & Fire Fighting Safety Equipment (described) (not required by Part 139)	ST	EQ	MS	41	40	38	37
Acquire Equipment (e.g., Sweepers, etc.)	ST	EQ	MS	41	40	38	37
Acquire Aircraft Rescue & Fire Fighting Vehicle (not required by Part 139)	ST	EQ	RF	92	89	87	85
Acquire Security Equipment/Fire Fighting Vehicle (e.g., access control) (not Part 107)	ST	EQ	SE	43	41	40	38
Acquire Snow Removal Equipment/Use Trucks/etc.	ST	EQ	SN	48	47	45	44
Acquire Friction Measuring Equipment	ST	EQ	SR	47	45	44	42
Install Weather Reporting Equipment (describe, e.g., AWOS)	ST	EQ	WX	47	45	44	42
FINANCE							
Administrative Costs (FFC)	OT	FI	AD	8	0	0	0
Financing Costs	OT	FI	BD	18	0	0	0
GROUND TRANSPORTATION							
Construct/Expand/Improve/Modify/Rehabilitate Inter/Intra Terminal People Mover	CA	GT	PM	39	37	36	34
Construct/Expand/Improve/Modify/Rehabilitate Inter/Intra Terminal People Mover	OT	GT	PM	18	17	16	15
Construct/Expand/Improve/Modify/Rehabilitate Access Rail	CA	GT	RL	39	37	36	34
Construct/Expand/Improve/Modify/Rehabilitate Access Rail	OT	GT	RL	18	17	16	15
Construct/Expand/Improve/Modify/Rehabilitate Access Road	CA	GT	AC	48	46	44	42
Construct/Expand/Improve/Modify/Rehabilitate Access Road	OT	GT	AC	23	22	21	20
Construct/Expand/Improve/Modify/Rehabilitate Service Road	OT	GT	SV	22	21	20	19
HELIPORT							
Construct/Expand/Improve/Modify/Rehabilitate Helipad/heliport	CA	HE	CO	63	61	59	57
Construct/Expand/Improve/Modify/Rehabilitate Helipad/heliport	ST	HE	CO	52	50	49	47
RESIDENCE							
Noise Mitigation measures for residences outside 65 DNL	EN	HO	80	48	44	42	40
Noise Mitigation measures for residences within 65 - 69 DNL	EN	HO	68	54	52	50	48
Noise Mitigation measures for residences within 70 - 74 DNL	EN	HO	70	63	61	59	57
Noise Mitigation measures for residences within 75 DNL	EN	HO	75	70	68	66	64
LAND							
Acquire land/development for noise compatibility/relocation (if relocated) outside 65 DNL	EN	LA	80	48	44	42	40
Acquire land/development for noise compatibility/relocation (if relocated) within 65 - 69 DNL	EN	LA	68	54	52	50	48
Acquire land/development for noise compatibility/relocation (if relocated) within 70 - 74 DNL	EN	LA	70	63	61	59	57
Acquire land/development for noise compatibility/relocation (if relocated) within 75 DNL	EN	LA	75	70	68	66	64
Acquire land/development for development/relocation (not parcels and/or # relocated)	ST	LA	23	41	40	39	37
Acquire miscellaneous land (describe, e.g., land for outer marker, relocate road)	ST	LA	MS	42	39	37	36
Acquire land/development for approaches (not parcels and/or # relocated)	ST	LA	SZ	48	44	42	41



Aviation – FAA ACIP - Equation

$$\text{Priority Equation} = k5 * P * (k1 * A + k2 * P + k3 * C + k4 * T)$$

A = Large and Medium Hub = 5 pts

B = Small and Non Hub = 4 pts **Priority**

$$\text{Number} = .25P(A + 1.4P + C + 1.2T) \text{Non Primary Commercial}$$

k1	=	1.00
k2	=	1.40
k3	=	1.00
k4	=	1.20
k5	=	0.25
k6	=	0.00



Aviation – Local Investment Index

- **Definition:** Provides greater points for those projects that have a higher % of local funding sources (i.e. local or public-private funds).
- **Why use this criteria:** Lessens burden on state capital dollars and measures financial commitment of the airport to the project.
- **Source:** Quantified at project request stage by the airport sponsor.
- **Scoring:** Number of points based on % of local funds compared to state funds toward the project. Examples:

Project Cost	FAA Funds	State Funds	Local Funds	State Share	Points Awarded
\$1,000,000	\$0	\$900,000	\$100,000	90%	10
\$1,000,000	\$0	\$800,000	\$200,000	80%	20
\$4,000,000	\$3,100,000	\$500,000	\$400,000	56%	44

- **Recommended Weights:** 10% Statewide, 5% Regional, 5% Division.



Aviation – Federal Investment Index

(Statewide Mobility and Regional Impact airports only)

- **Definition:** A measurement of the project's federal funds compared to state funds, and provides greater points for projects with higher % of federal funds vs. state funds.
- **Why use this criteria:** To prioritize projects with greater return on investment for state funding participation.
- **How it is measured:** Federal participation for the project compared to state participation toward the project cost.
- **Source:** FAA Airport Improvement Program, NCDOA, and the airport Capital Improvement Plan.
- **Scoring:** Range of points depending on ratio of federal to state investment.
- **Recommended Weights:** 10% Statewide, 5% Regional.



Aviation – Federal Investment Index Examples

Project Cost	FAA Funds	State Funds	Local Funds	State Share	Points Awarded
\$500,000	\$0	\$450,000	\$50,000	100%	0
\$1,000,000	\$700,000	\$200,000	\$100,000	22%	78
\$4,000,000	\$3,300,000	\$300,000	\$400,000	8%	92
\$6,000,000	\$4,900,000	\$500,000	\$600,000	9%	91



Aviation – Volume / Demand Index

(Division Needs Airports Only)

- **Definition:** Index representing traffic (aircraft operations) plus employment density (jobs near the airport).
- **Why use this criteria:** Identifies projects where there is more traffic and in areas with more user demand.
- **How it is measured:** Based aircraft, aircraft operations, recorded Instrument Flight Rule (IFR) operations, and employees within 10 miles or 15 minute average daily drive time of the airport.
- **Source:** NCDOT GIS, FAA Criteria, U.S. Census and NC Airport System Plan.
- **Scoring on a 100-point scale**
 - Range of points are 20 to 100.
- **Recommended Weight:** 5% Division.



Aviation – Volume / Demand Index

Measure	Point Range	Weight
BA = Based Aircraft	1 - 5	40%
TO = Total Operations	1 - 5	20%
IO = Instrument Flight Rules Operations	1 - 5	20%
ED = Employment Density	1 - 5	20%

Index Formula:

$$\text{Total Points} = [(BA \times 40\%) + (TO \times 20\%) + (IO \times 20\%) + (ED \times 20\%)] \times 20$$



Aviation – Volume / Demand

Based Aircraft (BA)	Points
≥ 100	5
50 – 99	4
25 – 49	3
10 – 24	2
0 – 9	1

Total Operations (TO)	Points
≥ 75 K	5
≥ 50 K	4
≥ 20 K	3
≥ 10 K	2
0 – 9,999	1

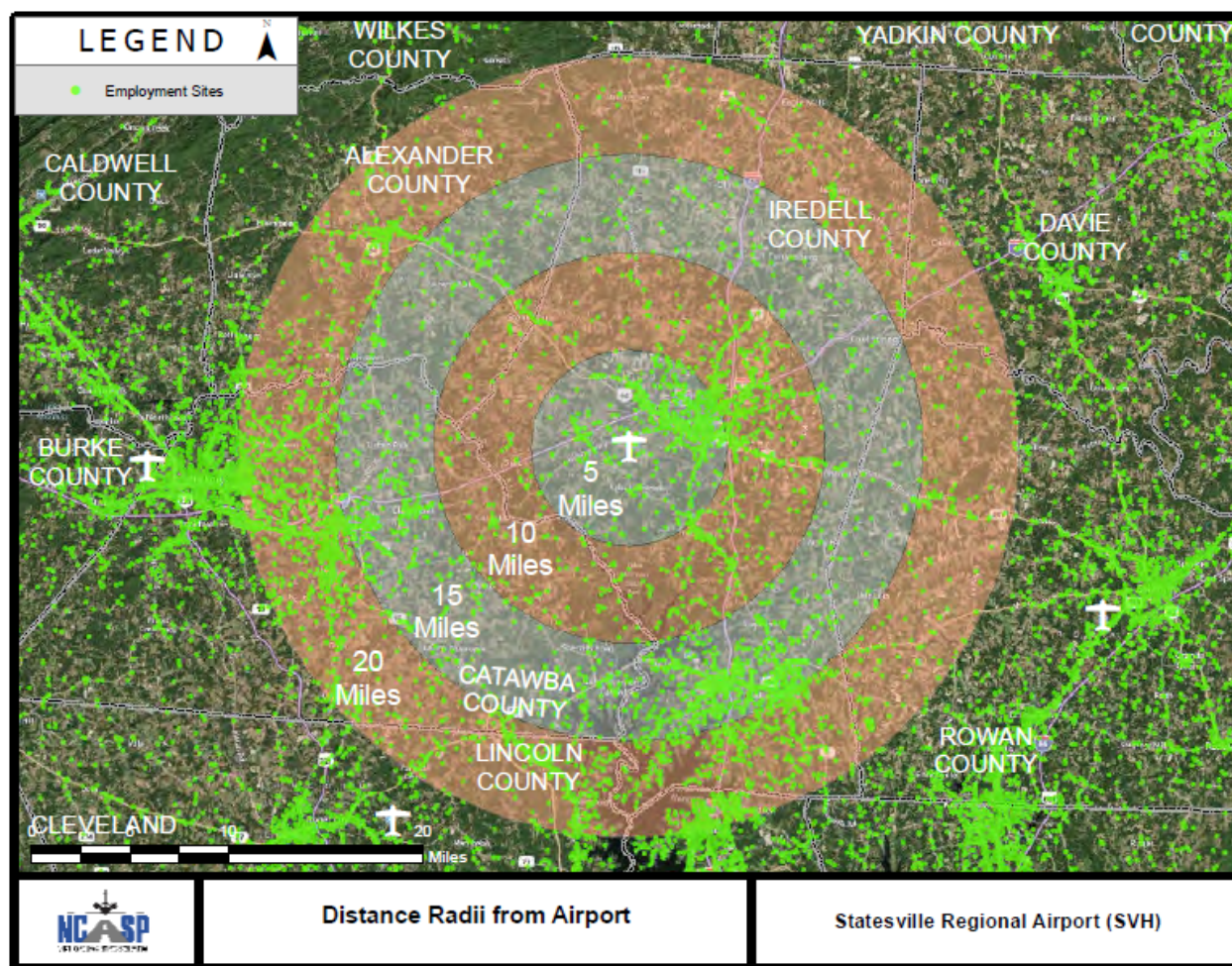
Instrument Flight Rules (IFR) Operations (IO)	Points
≥ 25 K	5
≥ 10 K	4
≥ 2 K	3
≥ 1 K	2
0 - 999	1

10 Mile Employ Den (ED)	Points
≥ 80 K	5
≥ 40 K	4
≥ 20 K	3
≥ 10 K	2
< 10 K	1

IFR flight plans are filed with the FAA and the quantity is measured by the airport facility.



Aviation – Demand (Employment Density)





Aviation Project Scoring Examples (1 of 2)

Project and Airport Info					NCDOA Development Category Criteria			FAA ACIP Criteria (FAA Order 5100.39A)
Fund Eligibility	Project Description	Airport ID	Airport	Cost	NCDOT Development Category	NCDOT Dev. Cat Priority	NCDOA Rating Points	FAA ACIP Model Criteria Points (*Total)
							(Weighted 40% of Project Score)	(Weighted 40% of Project Score)
Statewide	TAXIWAY M EXTENSION	GSO	Piedmont-Triad Int'l	\$ 12,000,000	PAVEMENT CONSTRUCTION/ EXPANSION	1	48	39
							(Weighted 40% of Project Score)	(Weighted 20% of Project Score)
Regional	APRON EXPANSION	PGV	Pitt-Greenville	\$ 1,460,000	AIRCRAFT/ APRON	1	47	34
							(Weighted 30% of Project Score)	(Weighted 10% of Project Score)
Division	LAND FOR RUNWAY PROTECTION ZONE	SUT	Cape Fear Regional Jetport	\$ 2,000,000	RUNWAY PROTECTION ZONES	1	71	33



Aviation Project Scoring Examples (2 of 2)

	Project and Airport Info				Local Invest Index		Fed Invest Index		Airport Users Index	Total Score
Fund Eligibility	Project Description	Airport ID	Airport	Cost	State to Local Investment %	Local Investment Points	State to Federal Investment %	Federal Investment Points	Volume/ Demand Points	Weighted Project Score (per Eligibility Fund)
						(Weighted 10% of Project Score)		(Weighted 10% of Total Score)	n/a	Max Statewide Points = 100
Statewide	TAXIWAY M EXTENSION	GSO	Piedmont-Triad Int'l	\$ 12,000,000	29%	71	4.9%	95	n/a	51.5
						(Weighted 5% of Project Score)		(Weighted 5% of Project Score)	n/a	Max Regional Points = 70
Regional	APRON EXPANSION	PGV	Pitt Greenville	\$ 1,460,000	67%	33	29.6%	70	n/a	30.8
						(Weighted 5% of Project Score)		n/a	(Weighted 5% of Project Score)	Max Division Points = 50
Division	LAND FOR RUNWAY PROTECTION ZONE	SUT	Cape Fear Regional Jetport	\$ 2,000,000	90%	10	n/a	n/a	64	28.3



Proposed Aviation Criteria

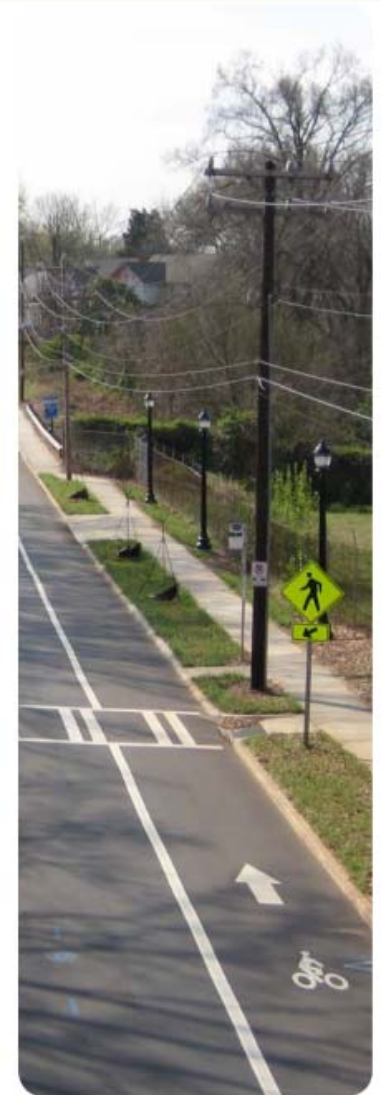
Criteria	Statewide Mobility	Regional Impacts	Division Needs
	% Wt	% Wt	% Wt
NCDOA Project Rating	40	40	30
FAA ACIP Rating	40	20	10
Local Investment Index	10	5	5
Federal Investment Index	10	5	
Volume / Demand Index			5
	100%	70%	50%



Appendix A3 – Bicycle and Pedestrian



Bicycle and Pedestrian





Bicycle and Pedestrian Prioritization

All future bicycle and pedestrian projects, independent of roadway projects, will require a local match.

- Federal funding typically requires 20% match
- State law prohibits state match for bicycle and pedestrian projects (except for Powell Bill)

Bicycle and projects may only compete at the Divisions Needs level

ROW is not an included project cost to NCDOT

Minimum project cost requirement - \$100,000

Plan adoption is used as an initial project screening question (project must be specifically identified in a locally adopted bicycle plan, pedestrian plan, greenway/multi-use plan, or SRTS action plan)



Bicycle and Pedestrian - Scoring Criteria

	STI Methodology (Bike/Ped)	MPO/RPO - Common Scoring Criteria	National Study of DOTs
Access	✓	✓	✓
Adopted Plan	☐	✓	✓
Benefit-cost	✓		
Connectivity		✓	✓
Demand/Density	✓	✓	✓
Livability / Health			✓
Multimodal			✓
Constructability	✓	✓	
Regional / Multi-jurisdictional		✓	
Safety	✓	✓	✓
Social Equity			✓



Bicycle and Pedestrian – Division Needs

Criteria	Proposed Weight
Safety	15%
Access	10%
Density	10%
Constructability	5%
Benefit-Cost	10%



Bicycle/Pedestrian Criteria – Safety

- **Definition:** Projects or improvements where bicycle or pedestrian accommodations are non-existent or inadequate for safety of users
- **Why use this criteria?** To reduce vehicle-bicycle/pedestrian crash rates or improve safety
- **How its Measured –Crash history and posted speed limits**
- **Source:** DBPT 2007-2011 geocoded crash data, NCDOT (Road Characteristics data or Other)
- **Proposed Scoring Scale (0-100)**
 - Bike/Pedestrian Crashes: 50% weight (0-100 pts)
 - Posted Speed Limits 50% weight (0-100 pts)
- **Recommended Weighted % per Criteria: 15%**



Bicycle/Pedestrian Criteria – Safety calculation (15%)

- Proposed Scoring Scale (0-100)**

Bike/Pedestrian Crashes: 50% weight (0-100 pts)

Bicycle or pedestrian crashes within last 5 years along the corridor. For multi-use projects, both bike and pedestrian crash data will be used. For new off-road facilities, crash data for parallel routes will be used.

Number of Crashes	50% Weight x Total Pts
5 or more crashes	100
4 crashes	80
3 crashes	60
2 crashes	40
1 crash	20

Posted Speed Limits 50% weight (0-100 pts)

Posted speed limit.

Posted Speed Limit	50% Weight x Total Pts
55 and over	100
40 to 50	50
30 to 40	25
25	10



Bicycle/Pedestrian Criteria – Access

- **Definition:** Destinations likely to draw or generate high volumes of cyclists or pedestrians
- **Why use this criteria?** To identify projects with most opportunity for mode share
- **How its Measured – Type of and distance to destination**
- **Source:** Destination: Destination Type Local Input
- **Proposed Scoring Scale (0-100)**

Destination Type: 50 % weight (0-100pts)

Primary centers: municipal/transit center, employment center, universities, mixed-use commercial, national/state tourist destinations, high-density residential/multi-family, sports venue (10 pts each, maximum 70 pts)

Secondary centers: lower-density residential developments, fixed-guideway facilities, minor employment centers, schools, parks, municipal building (5 pts each, maximum 30 pts)

Distance to Prime Destination: 50% weight (0-100pts)

Pedestrian – 0 miles (100 pts.) to 0.5 miles (0 pts.) / Bicycle – 0 miles (100 pts.) to 1.5 (0 points)

- **Recommended Weighted % per Criteria: 10%**



Bicycle/Pedestrian Criteria – Access calculation (10%)

- Proposed Scoring Scale (0-100)

Destination Type (within 0.5 miles of pedestrian facility / within 1.5 miles of bicycle facility)		50% Weight x Total Pts
Major Centers (municipal center, transit station, major employment center, mixed use commercial, university or college, tourist destination, high-density multi-family residential, high-density residential neighborhood, arts, entertainment or sports venue) – Each Destination = 10 points with cap of 70 points		Based on cumulative points of both primary and secondary centers.
Secondary Centers (minor employment center, schools, parks, municipal site, fixed-guideway / fixed-route systems, low-density multi-family residential, low-density residential neighborhood) – Each Destination = 5 points with cap of 30 points		
Distance to Prime Destination – Distance is measured from the length of the un-built facility to the described destination		50% Weight x Total Pts
Mode	Miles to Destination	Point Scale
Pedestrian	0.0 to 0.5	100 to 0
Bicycle	0.0 to 1.5	100 to 0



Bicycle/Pedestrian Criteria – Demand/Density

- **Definition:** Areas with significant residential or employment density
- **Why use this criteria?** To support access criteria and identify projects with most user benefit
- **How its Measured** –Persons and Employees per Sq. Mi w/in 1½ mi bicycle, 1/2 mi pedestrian facility
- **Source:** 2010 US Census and Local Employment Dynamics
- **Proposed Scoring Scale (0-100)**
 Range of points depending on density of residential population or employees
- **Recommended Weighted % per Criteria: 10%**



Bicycle/Pedestrian Criteria – Demand/Density calculation (10%)

- Persons and employees per square mile within 1.5 miles of a bike facility and 0.5 miles of a pedestrian facility are calculated. Calculated by dividing buffered population by square miles of buffered region around the project and application of scaling factor. -- $(\text{buffered population} / \text{buffered area}) / 100 (*3)$
- Proposed Scoring Scale (0-100)**

Persons per Square Mile	50% Weight x Total Pts
Point Scale	0 to 100
Employees per Square Mile	50% Weight x Total Pts
Point Scale	0 to 100



Bicycle/Pedestrian Criteria – Constructability

- **Definition:** Readiness of project to be administered and maintained by the local government
- **Why use this criteria?** To identify projects which can be easily and quickly implemented
- **How its Measured – ROW Acquisition, PE, Environmental Impacts**
- **Source:** Local Input and Highway Division Input
- **Proposed Scoring Scale (0-100)**
 - Percentage of ROW Acquired: 50% weight (0-100 pts)
 - Percentage of Preliminary Engineering/Project Design Work Completed: 25% weight (0-100 pts)
 - Estimated Environmental Impacts (CE Type I/II, EA, EIS): 25% weight (0-100 pts)
- **Recommended Weighted % per Criteria: 5%**



Bicycle/Pedestrian Criteria – Constructability calculation (5%)

- **Proposed Scoring Scale (0-100)**

- Percentage of ROW Acquired
- Percentage of Preliminary Engineering/Project Design Work Completed
- Estimated Environmental Impacts

		Points/Scale	Weight
Right-of-Way Acquired	0 to 100%	0 to 100	50%
Preliminary Engineering/ Project Design	0 to 100%	0 to 100	25%
Environmental Impacts	CE Type I/II	100	25%
	EA	50	
	EIS	0	



Bicycle/Pedestrian Criteria – Benefit/Cost (10%)

- **Definition:** Ratio of calculated user benefit divided by NCDOT project cost
- **Why use this criteria?** To evaluate cost-effectiveness
- **Proposed Scoring Scale (0-100)**

Calculated Score, normalized on range of 0-100

Calculation:

$$(\text{Access Points} + \text{Demand/Density Points}) / \text{Estimated Project Cost to NCDOT} = \text{Project Benefit-Cost}$$

- **Recommended Weighted % per Criteria: 10%**



Bicycle/Pedestrian Example Projects

	Project	Safety				Access				Demand/Density	
		Crashes	Speed Limit			Destination	Distance				
		Weighted Points (50%)	Weighed Points (50%)	Total Points (100 Max)	15% Overall Weight	Weighed Points (50%)	Weighed Points (50%)	Total Points (100 Max)	10% Overall Weight	Total Points (100 Max)	10% Weight
B i k e	Jacksonville - construct off-road multi-use path along Marine Blvd.	40	10	50	7.5	45	35	80	8.0	53	5.3
P e d	Burlington - install sidewalks & improve safety along Front Street	0	10	10	1.5	28	40	68	6.8	80	8.0

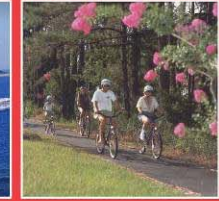
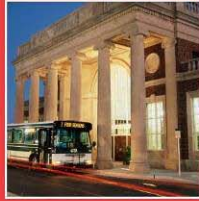
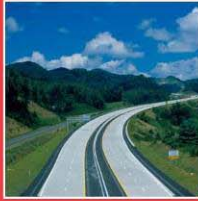


Bicycle/Pedestrian Example Projects (cont.)

			Constructability					Benefit/Cost		Total Points (50 Max)
			ROW	PE	Env. Doc.			(Access+Density)/ Cost		
	Project	Cost Estimate	Weighed Points (50%)	Weighed Points (25%)	Weighed Points (25%)	Total Points (100 Max)	5% Overall Weight	B/C Points (100 Max)	10% Weight	
Bike	Jacksonville - construct off-road multi-use path along Marine Blvd.	\$754,303	45	0	25	70	3.5	35	3.5	27.9
Ped	Burlington - install sidewalks & improve safety along Front Street	\$720,000	3	1	25	29	1.4	41	4.1	21.8



Appendix A4 – Ferry



FERRY DIVISION





Proposed Ferry Project Scoring Overview

	Statewide Mobility	Regional Impact	Division Needs
	N/A	State maintained routes, excluding replacement of all vessels	Replacement of vessels
Eligible Projects:	N/A	Regional	Regional Division
Overall Weights:	N/A	70% Quantitative Data / 30% Local Input	50% Quantitative Data / 50% Local Input
Quant. Criteria:	N/A	<ul style="list-style-type: none"> • Safety 15% • Benefit-Cost 15% • Accessibility/Connectivity 10% • Asset Efficiency 10% • Capacity/Congestion 20% 	<ul style="list-style-type: none"> • Safety 15% • Benefit-Cost 15% • Accessibility/Connectivity 10% • Asset Efficiency 10%



Ferry Criteria – Safety

- **Definition:** Asset Health Index (AHI) Ratings inclusive of vessels and ramps & gantries
- **Criteria:** Integrity of vessels and ramps & gantries. Vessels are reviewed annually and full inspections completed every three years. Ramps and gantries are inspected every two years.
- **Sources:** Ferry Division (Vessel Health Ratings) and Structures Management (NBIS Reports)
- **Quantitative measurement:** Ferry System Asset Health
- **Scoring Scale: (0-100 points)**
 - The raw score of the asset health index is used to determine this score.
 - $AHI = 100 - [(Avg. \text{ Vessel Health Ratings}) * 50\% + (Avg. \text{ Ramp \& Gantry Ratings}) * 50\%]$.
 - The formula subtracts the average ratings from 100 to provide a final score to accurately reflect where the needs are based on condition.
- **Weighted %:** 15%



Ferry Criteria – Safety

Measurement of Asset Integrity

Route	Ramp & Gantry *	Pro-rata 50%	Vessel Condition *	Pro-rata 50%	Route Integrity Score	Final Score (100-Route Integrity Score)
Hatteras Inlet	48	24	58	29	53	47
Currituck – Knotts Island	63	31.5	45	22.5	54	46
Pamlico River	47	23.5	65	32.5	56	44
Cedar Island – Ocracoke	57	28.5	66	33	61.5	38.5
Cherry Branch - Minnesott	66	33	60	30	63	37
Swan Quarter – Ocracoke	66	33	66	33	66	34
Southport – Ft Fisher	70	35	71	35.5	70.5	29.5
Division Average**						39.43

* Average rating converted to 100 point scale

**Applies to non-route specific projects, ex. Shipyard, Tugs, etc.



Ferry Criteria – Benefit Cost

- **Definition:** Travel time savings
- **Criteria:** Captures highway hours (i.e. travel time) saved by ferry users when they utilize the ferries instead of having to drive around and take an alternative route.
- **Source:** National mapping software
- **Quantitative measurement:** Most likely alternate highway route if ferry route is not utilized.
- **Scoring Scale: (0-100 points)**
 - 1 point per each 10,000 hours saved, not to exceed 100 points.
- **Weighted %:** 15%



Ferry Criteria – Benefit Cost: Travel Time Savings

Actual Score: Total Hours / 10,000 = 1 Point
 Final Score = Actual score unless capped at 100*

Route	Main Hwy Rtes	Land Mins	Ferry Mins	Mins Saved	Veh Avg FY08-12	Total Mins	Total Hrs	Actual Score	Final Score
Hatteras Inlet	US264	210	40	170	371,124	63,091,080	1,051,518	105.15	100*
Cherry Branch - Minnesott	NC101-NC306 - US70	69	25	49	249,187	12,210,163	203,503	20.35	20.35
Cedar Island – Ocracoke	NC101-US70-NC55	290	135	155	66,773	10,349,815	172,497	17.25	17.25
Southport – Ft Fisher	NC133 – NC211 - US13	76	35	41	172,041	7,053,681	117,561	11.76	11.76
Pamlico River	US264 - NC99	78	30	48	74,229	3,562,992	59,383	5.94	5.94
Swan Quarter – Ocracoke	US 264	210	150	60	28,376	1,702,560	28,376	2.84	2.84
Currituck – Knotts Island	NC168 - NC615	80	45	35	25,914	906,990	15,117	1.51	1.51
Division Average**									22.81

Source: Land Minutes-Mapquest.com

**Applies to non-route specific projects, ex. Shipyard, Tugs, etc.



Ferry Criteria – Connectivity / Accessibility

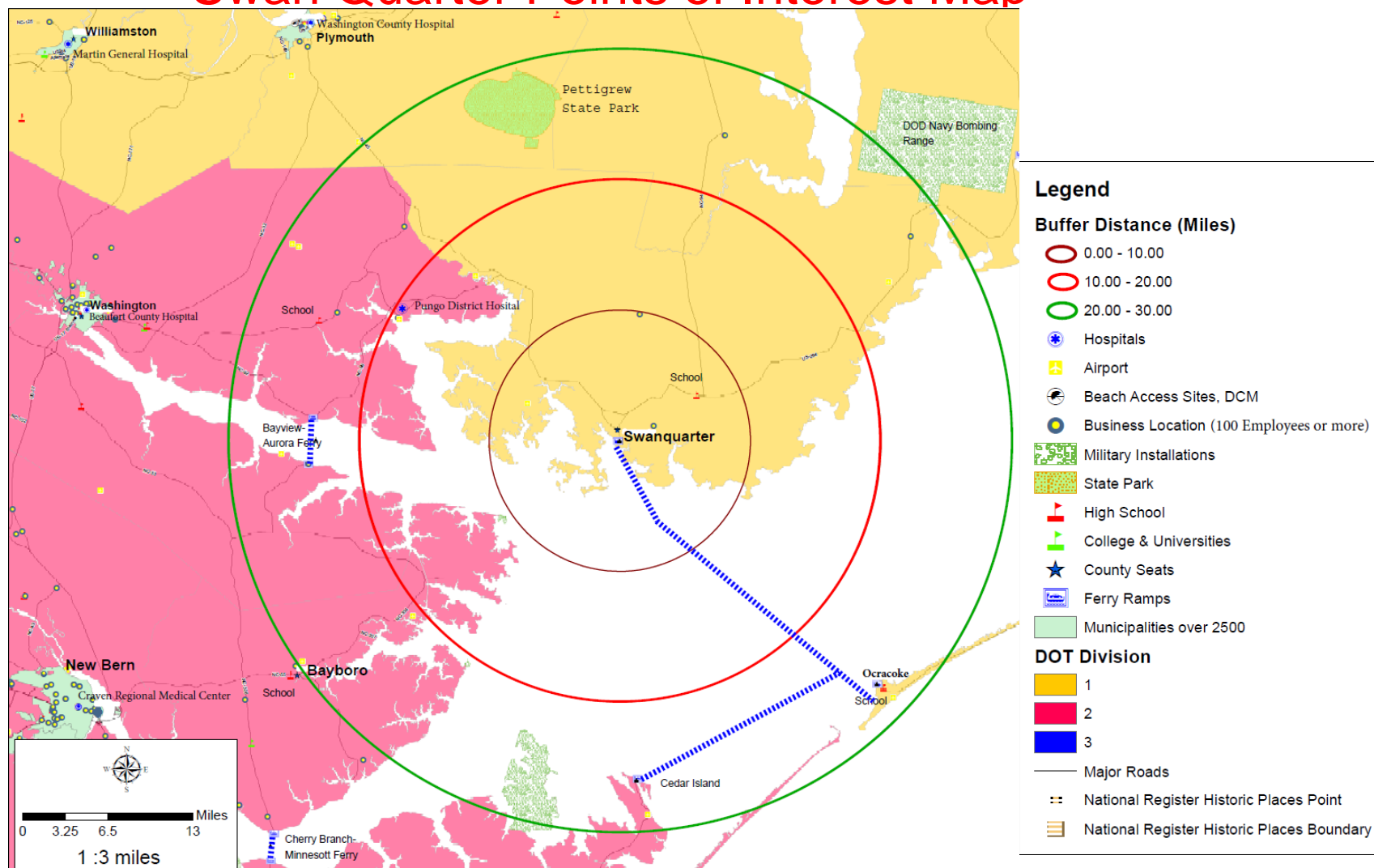
- **Definition:** Accessibility to jobs, services and other points of interest.
- **Criteria:** Important destinations within concentric radii (10, 20, 30 miles) are tallied to determine the impacts of the ferry route in regards to connecting people to their intended destinations.
- **Source:** Points of Interest (POI) maps surrounding ferry routes. Data collected from Department of Commerce.
- **Quantitative measurement:** POI relative to travel area surrounding each route. Count of points of interest within concentric rings surrounding route.
- **Scoring Scale: (0-100 pts.):** The number of POI within 3 concentric rings (regions) has been determined and mapped for each ferry route. The number of POIs is then scaled by a multiplying factor (to help produce a score that is reflective of both the number of POI and the proximity of the respective POI. The scaling is as follows:
 - Ring 1 scaled by multiplier of 75%.
 - Ring 2 scaled by multiplier of 50%.
 - Ring 3 scaled by multiplier of 25%

The scores for each ring are then added to produce a cumulative score for each respective route.
- **Weighted %:** 10%



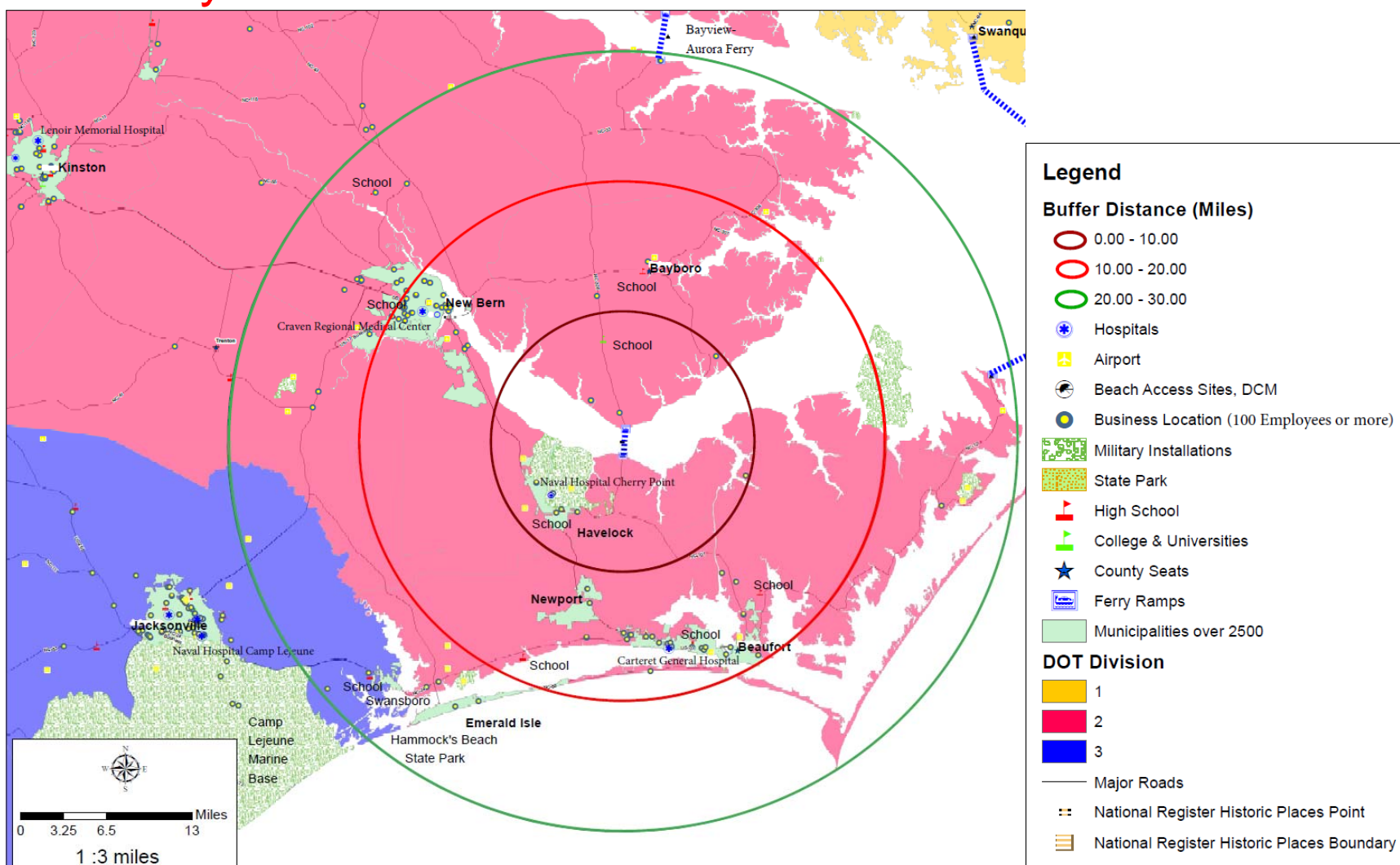
Swan Quarter Points of Interest Map

Note:
For Large
Sound
Routes,
the POI
Scores for
each
terminus
were
averaged
to
produce
scores for
the entire
route
itself.





Cherry Branch–Minnesott Beach Points of Interest





Ferry Criteria – Connectivity and Accessibility

Relative to Jobs, Services, & Other Points of Interest

Route	Route Profile	Ring 1 POI	Ring 2 POI	Ring 3 POI	Total POI	Ring 1 Score	Ring 2 Score	Ring 3 Score	Total Score
Southport - Ft Fisher	Commuter	23	84	105	212	17.25	42.00	26.25	85.50
Cherry Branch - Minnesott	Commuter	20	95	48	163	15.00	47.50	12.00	74.50
Bayview - Aurora	Commuter	4	28	92	124	3.00	14.00	23.00	40.00
Currituck - Knotts Island	Commuter	8	34	21	63	6.00	17.00	5.25	28.25
Cedar Island	Mix	6	4	27	37				
Ocracoke	Mix	2	2	14	18				
Swan Quarter	Mix	5	5	22	32				
Swan Quarter - Ocracoke	Mix	4.5	4	21.25	29.25	3.38	2.00	5.31	10.69
Cedar Island - Ocracoke	Mix	4	3	20.5	27.5	3.00	1.50	5.13	9.63
Hatteras	Tourist	5	5	1	11				
South Dock	Tourist	4	9	6	19				
South Dock - Hatteras	Tourist	4.5	7	3.5	15	3.38	3.50	0.88	7.75
Division Average*									36.62

Sources: Points of Interest Maps

*Applies to non-route specific projects, ex. Shipyard, Tugs, etc.



Ferry Criteria – Asset Efficiency

- **Definition:** Cost effectiveness of maintenance vs. replacement.
- **Criteria:** Maintenance costs at 60% of replacement cost is *critical*.
- **Sources:** SAP/BSIP and like purchase histories.
- **Quantitative measurement:** (3 year maint. cost) / (pro-rated 3 year replacement cost).
- **Scoring Scale for current maintenance:** (0-100 points)
 The percentage score of the ratio of the total amount of maintenance expenditures for the respective asset compared to a 3 year pro-rated cost for replacement of the asset.
- **Weighted %:** 10%
- **General Note:** Nationwide Asset Management guidelines for this ratio are as follows:
 - If less than 40%, then asset is not considered for replacement.
 - If greater than or equal to 40% but less than 50% then consider for possible replacement.
 - If greater than or equal to 50% but less than 60%, then replacement is needed.
 - If greater than or equal to 60%, then replacement is critical to sustaining operations.



Ferry Criteria – Asset Efficiency

COST EFFECTIVENESS OF CONTINUED MAINTENANCE VS. REPLACEMENT

Method: Comparing three year average of maintenance costs against three year prorated cost of new purchase over for that 3 year period

Asset	Asset Useful Life (AUL)	Cost for Replacement	Per year Replace cost	3 year Replace cost	3 Year Average Maint Cost	Result	Score
River Class Ferry	30	12,000,000	400,000	1,200,000	695,000	57.92%	57.92
Sound Class Ferry Replacement*	30	16,000,000	533,333	1,600,000	845,000	52.81%	52.81
Tug Albemarle Replacement	30	5,000,000	166,667	500,000	205,000	41.00%	41.00
Hatteras Ramp/Gantry	30	4,200,000	140,000	420,000	20,000	4.76%	4.76

Estimated for illustration



Ferry Criteria – Capacity / Congestion

- **Definition:** Evaluation of traffic left and number of trips.
- **Criteria:** Establishes need to enhance capacity and reduce congestion.
- **Sources:** Based on monthly traffic report
- **Quantitative measurement:** Counts of individual vehicles left in queue vs. vehicles loaded and carried from origin to destination.
- **Scoring Scale:** (0-100 points)
This score is the percentage of the vehicles left behind at each departure as compared to the total number of vehicles carried by the route in a year timeframe.
- **Weighted %:** 20%



Ferry Criteria – Capacity / Congestion

FY 2012 Vehicles Transported / Left Behind

Route	Total Vehicles Carried (TVC)	Vehicles Left Behind (VLB)	Yearly Average Percentage (VLB/TVC)*100	Final Score
Hatteras Inlet	264,508	118,447	44.78	44.78
Southport – Ft Fisher	177,499	15,839	8.9	8.90
Swan Quarter – Ocracoke	36,295	738	2.03	2.03
Cedar Island – Ocracoke	60,672	1,099	1.81	1.81
Cherry Branch - Minnesott	231,948	1,762	0.76	0.76
Pamlico River	69,750	239	0.34	0.34
Currituck – Knotts Island	23,593	24	0.10	0.10
Division Average**	864,265	138,148	15.98	15.98

**Applies to non-route specific projects, ex. Shipyard, Tugs, etc.

-- This scoring criteria only applies for projects that are eligible for Regional Impact funds.



Ferry Criteria – Scoring Examples

PROJECT	SAFETY			BENEFIT COST			CONNECTIVITY			ASSET EFFICIENCY			DIVISION NEEDS	CAPACITY/ CONGESTION		REGIONAL IMPACTS
	Health Index Rating	Div Pts 15%	Reg Pts 15%	Travel Time Saved 10k hrs/yr	Div Pts 15%	Reg Pts 15%	Points Of Interest Map Index	Div Pts 10%	Reg Pts 10%	3 Year Comparison Maint Cost/New	Div Pts 10%	Reg Pts 10%		Vehicles Left/Carried x 1,000	Reg Pts 20%	
Ocracoke: Gantry- Repair/Replace**	39.43	5.91	5.91	22.81	3.42	3.42	10.16	1.02	1.02	0.00	0.00	0.00	10.35	1.92	0.38	10.74
New River Class Vessel: KINNAKEET	47	7.05	N/A	100.00	15.00	N/A	7.75	0.78	N/A	13.57	1.36	N/A	24.18	N/A***	0	N/A***
Southport: Replace Dolphins	29.5	4.43	4.43	11.76	1.76	1.76	85.50	8.55	8.55	24.45	2.45	2.45	17.18	8.90	1.78	18.96
Hatteras Ramps/Gantries- Anticipate Fall '13: EMERGENCY	47	7.05	7.05	100.00	15.00	15.00	7.75	0.78	0.78	4.76	0.48	0.48	23.30	44.78	8.96	32.26
Sound Class Vessel Replacement : CEDAR ISLAND	38.5	5.78	N/A	17.25	2.59	N/A	9.63	0.96	N/A	60.16	6.02	N/A	15.34	N/A***	0	N/A***

*DIV: Division Average for Non-Route Specific Projects

**Ocracoke: uses average of OI-CI and OI-SQ scores

*** N/A means that this project is not eligible for points in this category nor can it compete in this funding arena



FERRY – Needs Recommended Criteria

Criteria	Proposed Weight
<u>DIVISION NEEDS 50%</u>	
Safety (Route Health Index)	15%
Benefit-Cost (Travel Time)	15%
Accessibility/Connectivity	10%
Asset Efficiency	10%
<u>REGIONAL IMPACT 70%</u> (Division plus 'Capacity/Congestion')	
Capacity/Congestion	20%



Appendix A5 – Public Transit



Public Transportation





PTD – Prioritization Development Process

- Data Sets (safety recording data, vehicle utilization data, annual trips, service and revenue hours).
- **Sources/Stakeholders:** Federal Transit Administration, National Transit Database, Institute for Transportation Research and Education, NCDOT, Community Transportation Systems, Urban Transit Systems, Metropolitan Planning Organizations, Rural Planning Organizations, and PTD State Management Plan.



Eligibility Definitions

	Statewide	Regional	Division
Public Transportation	N/A	Service spanning two or more counties and serving more than one municipality. Funding amounts not to exceed 10% of regional allocation.	Service not included on Regional. Multimodal terminals and stations serving passenger transit systems.



System Service Definitions

- **Demand Response:** A transit mode comprised of passenger cars, vans or small buses operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations. The majority of these trips are scheduled at least 24 hours in advance. Services are open to the general public and to human service clients.
- **Fixed Route:** A transit service in which vehicles run along an established path at preset times.
 - **Note:** Fixed Route and Demand Response are available in both urban and rural areas.
- **Fixed Guideway:** System of vehicles that can operate only on its own corridor constructed for that purpose (e.g. commuter rail, light rail).



Expansion Vehicles



Expansion Vehicles

Criteria	Regional – Proposed Weight		Division - Proposed Weight	
	Demand Response	Fixed Route	Demand Response	Fixed Route
Benefit-Cost	45%	45%	25%	25%
Vehicle Utilization Data	5%	5%	5%	5%
System Safety	5%	5%	5%	5%
Connectivity	5%	5%	5%	5%
System Operational Efficiency	10%	10%	10%	10%
	70%	70%	50%	50%

Benefit Cost is reflective of the impacts of the project and therefore weighted at a higher percentage.



Expansion Vehicle Criteria: Benefit Cost

- **Definition:** Benefit Cost will assess the projected ridership for the life of the expansion vehicle relative to the cost of the vehicle to the state.
- **Measure:**
 - **Demand Response** - Current annual average trips per vehicle multiplied by the life expectancy of the vehicle and then divided by the amount of state match.
 - **Fixed Route (new route)** - Projected ridership for life of the vehicle divided by the state match.
 - **Fixed Route (headway reduction)** - Route ridership on the existing route for the life of the vehicle divided by the state match.
- **Note:** For consideration of an expansion vehicle, all systems must provide ridership projections. Efficiency benefits for hybrid vehicles will be used to adjust the projected cost of the vehicle to the state. Fuel savings average about \$65,112 for the life of a hybrid vehicle.
- **Scoring Scale:** Trips per dollar.
- **Recommended Weight:**
 - Regional Transit Score – 45%
 - Divisional Transit Score – 25%



Expansion Vehicle Criteria: Vehicle Utilization Data

- **Definition:** Utilization of vehicles within the transit systems' fleet; higher vehicle utilization ratios indicate a greater need and lower ratios indicate a lesser need for expansion vehicles. This criteria recognizes systems that are maximizing their current assets.
- **Measure:**
- **Demand Response:** Maximum vehicles utilized during the peak hour as identified from the vehicle utilization data collection period divided by the total fleet size. (including spares)
- **Fixed Route:** Number of vehicles operated in maximum service divided by the number of vehicles available for maximum service.
- **Scoring Scale:** Vehicle Utilization as reported by National Transit Database or NCDOT Operating Statistics Report.
- **Recommended Weight:**
- Regional Transit Score – 5%
- Divisional Transit Score – 5%



Expansion Vehicle Criteria: System Safety

- **Definition:** Comparing system safety statistics to the national average among comparable systems.
 - **Note:** NTD uses rural and urban criteria, therefore, rural terminology replaces demand response and urban terminology replaces fixed route.
 - Urban systems will use PMT (Million Passenger Miles Traveled). Rural systems will use Million Revenue Miles Traveled.
- **Measure:** $(\text{National average reportable incidents/PMT} - \text{System reported incidents/PMT}) + (\text{National average reportable injuries/PMT} - \text{System reported injuries/PMT}) + (\text{National average reportable fatalities/PMT} - \text{System reported fatalities/PMT}) = \text{Safety Result}$.
- **Scoring Scale:**
 - Urban System = Safety Result
 - Rural System = Safety Result
- **Recommended Weight**
 - Regional Transit Score – 5%
 - Divisional Transit Score – 5%



Expansion Vehicle Criteria: Connectivity/Accessibility

- **Definition:** Connectivity/Accessibility will measure the connectivity of the proposed expansion of service to vital destinations (medical, employment, commercial, education, and other transportation modes).
- **Measure:**
 - The measure will be the projected increase in ridership weighted according to the types of destinations the expansion of service will serve. (20% per destination: medical, employment, commercial, education, and other transportation terminal/transfer)
- **Scoring Scale:**
 - $(\text{Ridership Increase} \times \text{Facility Destination}) / \text{System Ridership} = \text{Weighted \% Increase in Ridership}$.
- **Recommended Weight:**
 - Regional Transit Score – 5%
 - Divisional Transit Score – 5%



Expansion Vehicle Criteria: Operational Efficiency

- **Definition:** To compare the number of trips to the amount of service hours or revenue hours reported.
 - Revenue Hours - the time a vehicle is available to the general public and revenue is generated.
 - Service Hours – the time a vehicle begins service includes revenue and non-revenue operations
- **Note:** Trip information will be obtained from the National Transit Database and ITRE.
- **Measure:** Annual ridership divided by total hours. (Maximum of 100 points)
- **Scoring Scale:**
 - Demand Response = Trips / Service Hours
 - Fixed Route = Trips / Revenue Hours
- **Recommended Weight:**
 - Regional Transit Score – 10%
 - Divisional Transit Score – 10%



Facilities



Facilities

Criteria	Regional - Proposed Weight		Division - Proposed Weight	
	Demand Response	Fixed Route	Demand Response	Fixed Route
Age of Facility Facility Demand Park & Ride Bus Shelter	40%	40%	30%	30%
Benefit Cost	5%	5%	5%	5%
System Operational Efficiency	5%	5%	5%	5%
Facility Capacity	20%	20%	10%	10%
Total	70%	70%	50%	50%



Facilities Criteria: Age of Facilities (Park & Ride and Bus Shelter excluded)

Definition: Replacement, improvement, or construction of a new facility (assumes an industry standard of 45 years as useful life); functionally obsolete facilities will be assigned an age of 45.

Measure: Based on feasibility study and the length of time a system has occupied their current facility.

Scoring Scale: Facility Age / Useful Life

Note: The percentage of the useful life will be used as the score for this criteria.

Recommended Weight:

- Regional Transit Score – 40%
- Divisional Transit Score – 30%



Facilities Criteria: Facility Demand

Definition: Measure of capacity or demand for the new or expanded Maintenance & Operations facilities and transit centers.

Measure: Ratio of peak service vehicles to bus bays (transit centers) or maintenance capacity (maintenance facilities). A ratio of 1 would indicate that you are at capacity and anything greater is over capacity. The percentage over capacity is the score.

Scoring Scale: Peak Service / Capacity

Recommended Weight:

- Regional Transit Score – 40%
- Divisional Transit Score – 30%



Facilities Criteria: Park and Ride Demand

Definition: Park and ride lots benefit traditional bus and rail transit. It also benefits Transportation Demand Management (TDM) modes like vanpools and carpools.

Measure: The number of spaces in lot multiplied by the estimated utilization divided by the state match. Estimated Utilization is determined by feasibility study provide local transit system.

Scoring Scale: $(\text{Number of Spaces} \times \text{Utilization}) / \text{State Match}$

Recommended Weight:

Regional Transit Score – 40%

Divisional Transit Score – 30%



Facilities Criteria: Bus Shelter Demand

Definition: Gauges the relative need for bus shelter installation, including equipment, any right of way need, and if needed sidewalk connection to nearest intersection.

Measure: Compare average boarding and alightings of the stops proposed to upgrades to shelters

Note: Specific stops must be identified and bus stop boarding and alighting data provided.

Scoring Scale:

Score = Average Boardings + Average Alightings

Recommended Weight:

- Regional Transit Score – 40%
- Divisional Transit Score – 30%



Facilities Criteria: Benefit Cost

Definition: Examines the benefit (trips) relative to the cost of the project to the state.

Measure: Annual trips provided by the facility divided by the cost of the project to the state.

Scoring Scale: Annual Trips / State Match

Recommended Weight

- Regional Transit Score – 5%
- Divisional Transit Score – 5%



Facility Criteria: Operational Efficiency

Definition: To compare the number of trips to the amount of service hours or revenue hours reported.

Revenue Hours - the time a vehicle is available to the general public and revenue is generated.

Service Hours – the time a vehicle begins service includes revenue and non-revenue operations

Measure: Annual ridership divided by total hours. (Maximum of 100 points)

Scoring Scale:

Demand Response = Trips / Service Hour

Fixed Route = Trips / Revenue Hour

Recommended Weight:

- Regional Transit Score – 5%
- Divisional Transit Score – 5%



Facilities Criteria: Facility Capacity (All Types)

Definition: Identifies the need for additional usage capacity.

Measure: The difference in the proposed capacity and the current usage compared to the existing design capacity during the peak period.

Scoring Scale:

Facility (Transit & Admin.) = ((proposed capacity – current usage)/existing design capacity) x 33%

Park & Ride = ((proposed capacity – current usage)/existing design capacity) x 33%

Shelters = ((proposed capacity – current usage)/existing design capacity) X 33%

Recommended Weight:

- Regional Transit Score – 20%
- Divisional Transit Score – 10%



Fixed Guideway



Fixed Guideway

Criteria	Regional Proposed Weight	Division Proposed Weight
Mobility	20%	15%
Cost Effectiveness	15%	15%
Economic Development	20%	10%
Congestion Relief	15%	10%
Total	70%	50%



Criteria: Mobility

Definition: Measures project usage.

Measure: Estimated Annual Trips

Scoring Scale: 1 point for every 250,000 trips; this coincides with FTA's "High" ranking for 25 million or more trips.

Recommended Weight:

- Regional Transit Score – 20%
- Divisional Transit Score – 15%



Criteria: Cost Effectiveness

Definition: Cost per trip over the life of the project to evaluate the project investment.

Measure: Measures the cost effectiveness of the project per trip over the life of the project.

Scoring Scale: 100 points for a cost of \$4.00 or less per trip; decreasing by 1 point for each \$0.11 increase per trip.

Recommended Weight:

- Regional Transit Score – 15%
- Divisional Transit Score –15%



Criteria: Economic Development

Definition: Growth in Employment and Population within $\frac{1}{2}$ mile of project stations/stops.

Measure: Measures the new employment and population growth in the fixed guideway corridor over 20 years.

Scoring Scale: 1 point per 1,000 new employees and 1 point per 500 new residents.

Recommended Weight:

- Regional Transit Score – 20%
- Divisional Transit Score – 10%



Criteria: Congestion Relief

Definition: Measure the expected travel time savings benefits of the project over a 30 year period. The measure listed below is borrowed from the roadway projects and will be replaced with FTA defined criteria once that is released. That will ensure consistency with the rest of the fixed guideway criteria.

Measure: Travel Time Savings – time saved between two destination before and after project divide by cost of the project.

Scoring Scale: 0-100 point scale TBD; Max points = 100 (values over 100 are capped)

Recommended Weight:

- Regional Transit Score – 15%
- Divisional Transit Score – 10%



Example Scoring - Fixed Route Expansion

Criteria	Raw Score	Regional Impact		Division Needs	
		Weight	Score	Weight	Score
Benefit- Cost	29.14	45%	13.11	25%	7.29
Vehicle Utilization	78	5%	3.9	5%	3.9
System Safety	0.36	5%	0.02	5%	0.02
Connectivity	2	5%	0.1	5%	0.1
System Operational Efficiency	26.19	10%	2.62	10%	2.62
Total		70%	19.75	50%	13.93



Example Scoring - Facility

Criteria	Raw Score	Regional Impact		Division Needs	
		Weight	Score	Weight	Score
Age of Facility Facility Demand Park & Ride Bus Shelter	55	40%	22	30%	16.5
Benefit Cost	1.45	5%	0.07	5%	0.07
System Operational Efficiency	14.72	5%	0.74	5%	0.74
Facility Capacity	5.28	20%	1.06	10%	0.53
Total		70%	23.86	50%	17.84

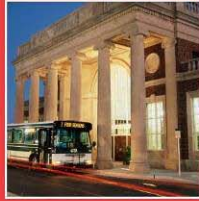
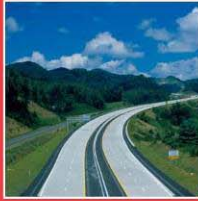


Example Scoring - Fixed Guideway

Criteria	Raw Score	Regional Impact		Division Needs	
		Weight	Score	Weight	Score
Mobility	28	20	5.6	15%	4.2
Cost Effectiveness	0	15%	0	15%	0
Economic Development	100	20%	20	10%	10
Congestion Relief	0.012	15%	0	10%	0
Total		70%	25.6	50%	14.2



Appendix A6 – Rail



Rail





Eligible Project Types by Funding Category

Funding Category	Project Types			
	<i>Freight Track & Structures</i>	<i>Freight Intermodal</i>	<i>Intercity Passenger Track & Structures</i>	<i>Intercity Passenger Service & Stations</i>
Statewide (100% Criteria Score)	Class I <i>sidings, double-track, grade separations, new improved access</i>	<i>Not Eligible</i>	<i>Not Eligible</i>	<i>Not Eligible</i>
Regional (70% Criteria Score)	Same as Statewide	<i>Not Eligible</i>	Rail lines crossing a county line <i>sidings, double-track, grade separation, curve realignment</i>	Rail lines crossing a county line <i>intercity passenger service</i>
Division (50% Criteria Score)	Same as Statewide	Class I - Intermodal or transload facilities	Same as Regional	Same as Regional <i>plus intercity passenger stations</i>



Rail: Benefit-Cost

- Definition:** Benefits associated with emissions savings, fuel savings, travel time savings, & highway-to-rail diversions. B/C value is determined using TREDIS. TREDIS is a national recognized software which can calculate jobs created across multiple transportation modes.

	Statewide	Regional	Division
Freight Track & Structures	20%	10%	10%
Freight Intermodal & Transload Facilities	N/A	N/A	10%
Intercity Passenger Track & Structures	N/A	10%	10%
Intercity Passenger Service (Regional & Division) Stations (Division only)	N/A	15%	10%



Rail: Economic Competitiveness

- **Definition:** High-level relative measure of the anticipated statewide benefits of project improvements. Number of jobs is a TREDIS output.
- **Scoring:** Number of full-time jobs expected in Year 30 after project constructed

Weighted % per Project Type (as recommended by Workgroup):

	Statewide	Regional	Division
Freight Track & Structures	10%	N/A	N/A
Freight Intermodal & Transload Facilities	N/A	N/A	N/A
Intercity Passenger Track & Structures	N/A	N/A	N/A
Intercity Passenger Stations & Service	N/A	N/A	N/A



Rail: Capacity/Congestion

- **Definition:** Percentage that the existing facility is over capacity.
- **Scoring:** $((\text{Current daily volume} / \text{Maximum daily allowable volume}) - 1) * 100$
 - *For a Track & Structures project with multiple rail segments, score is based on the most congested segment.*
 - *For a Intercity Passenger Station or Service project, capacity % for each project element is multiplied by the element's percentage of project cost, summing all elements.*
 - *Log used to scale scores within the range.*
- **Exception:** *Grade Separation projects use Highway Capacity Congestion criteria score.*

Weighted % per Project Type (as recommended by Workgroup):

	Statewide	Regional	Division
Freight Track & Structures	15%	15%	10%
Freight Intermodal & Transload Facilities	N/A	N/A	15%
Intercity Passenger Track & Structures	N/A	25%	15%
Intercity Passenger Service (Regional & Division) Stations (Division only)	N/A	25%	15%



Rail: Safety

- **Definition:** Consideration of crash potential for railroad/highway at-grade crossings.
- **Scoring:** Safety Review Index value (from Rail Division's State Authoritative Rail and Highway - SARAH Database).
 - *For grade separations: multiply by 1 (eliminates risk).*
 - *For at-grade improvements: multiply by 0.5 (reduces risk).*
 - *No credit given if crossing improvements are not part of project.*
 - *Log used to scale scores within the range.*

Weighted % per Project Type (as recommended by Workgroup):

	Statewide	Regional	Division
Freight Track & Structures	15%	15%	10%
Freight Intermodal & Transload Facilities	N/A	N/A	N/A
Intercity Passenger Track & Structures	N/A	15%	10%
Intercity Passenger Stations & Service	N/A	N/A	N/A



Rail: Accessibility

- **Definition:** Measures the potential for new or improved accessibility for industries by a freight rail project. Considers project length, National Highway System (NHS) miles within 5 miles of the rail project centerline, and county unemployment rate.
- **Scoring:** $(\text{Rail Route Miles} + \text{NHS Miles}) \times (1 + \text{Unemployment Rate})$.
 - *Multiply by 1 if project provides new access. Multiply by 0.5 if project provides improved access. No credit given if neither new nor improved access provided.*

Weighted % per Project Type (as recommended by Workgroup):

	Statewide	Regional	Division
Freight Track & Structures	10%	10%	5%
Freight Intermodal & Transload Facilities	N/A	N/A	N/A
Intercity Passenger Track & Structures	N/A	N/A	N/A
Intercity Passenger Stations & Service	N/A	N/A	N/A



Rail: Mobility

- **Definition:** Measures either the change in percentage of available capacity or travel time savings provided by project (for track projects). Measures daily volumes in relation to catchment area population (for freight intermodal projects and intercity passenger service/station projects).
- **Scoring:**
 - *Track (capacity): % change in available capacity for each rail segment, weighted by number of trains per segment.*
 - *Track (travel time): Travel time savings. *Current daily volume.*
 - *For intercity passenger projects, travel time savings is considered for freight & passenger train volumes, and added to automobile travel time savings.*
 - *Intermodal & Intercity Passenger Station/Service: Projected new daily volume*(1+ % NC population in catchment area).*
 - *Log used to scale scores within the range.*

Weighted % per Project Type (as recommended by Workgroup):

	Statewide	Regional	Division
Freight Track & Structures	20%	15%	10%
Freight Intermodal & Transload Facilities	N/A	N/A	15%
Intercity Passenger Track & Structures	N/A	20%	15%
Intercity Passenger Service (Regional & Division) Stations (Division only)	N/A	20%	15%



Rail: Connectivity

- **Definition:** Measures project's connectivity to strategic corridors, intermodal facilities, and stations.
- **Scoring:**
 - **Freight Track:** Mobility score (25% port + 25% intermodal + 25% transload + 25% military).
 - **Freight Intermodal:** $[Projected\ new\ daily\ volume * (25\% \text{ port} + 25\% \text{ intermodal} + 25\% \text{ transload} + 25\% \text{ military})] * 0.5 + [(Number\ of\ NHS\ facilities\ in\ catchment\ area) / (1 + \% \text{ NC population in catchment area})] * 0.5$.
 - **Intercity Passenger Station/Service:** Ridership increase (25% intercity + 25% parking + 25% commuter + 25% bus).

Weighted % per Project Type (as recommended by Workgroup):

	Statewide	Regional	Division
Freight Track & Structures	10%	5%	5%
Freight Intermodal & Transload Facilities	N/A	N/A	10%
Intercity Passenger Track & Structures	N/A	N/A	N/A
Intercity Passenger Service (Regional & Division) Stations (Division only)	N/A	10%	10%

Rail Project Prioritization Criteria Track & Structure Projects

Rail Project Prioritization Criteria Track & Structure Projects		Weighted Score				
		Statewide Freight	Regional		Division	
			Freight	Pax	Freight	Pax
Benefit-Cost	Emissions	20%	10%	10%	10%	10%
	Highway-to-rail diversion					
	Fuel savings					
	Travel time savings					
Economic Competitiveness	Long-term Economic Benefits	10%	-	-	-	-
Capacity/ Congestion	Volume-to-Capacity	15%	15%	25%	10%	15%
Safety	RR/Hwy crossing incidents	15%	15%	15%	10%	10%
Accessibility	New or enhanced accessibility	10%	10%	-	5%	-
Connectivity	Multimodal improvement	10%	5%	-	5%	-
Mobility	Service improvement	20%	15%	20%	10%	15%
Total		100%	70%	70%	50%	50%

Rail Project Prioritization Criteria Freight Intermodal Facilities / Intercity Passenger Service and Stations

Weighted Score

		Statewide Freight	Regional – Intercity Passenger Service only	Division – Facilities / Intercity Service & Stations
Benefit-Cost	<i>Emissions</i> <i>Highway-to-rail diversion</i> <i>Fuel savings</i> <i>Travel time savings</i>	-	15%	10%
Economic Competitiveness	<i>Long-term Economic Benefits</i>	-	-	-
Capacity/ Congestion	<i>Volume-to-Capacity</i>	-	25%	15%
Connectivity	<i>Multimodal improvement</i>	-	10%	10%
Mobility	<i>Service improvement</i>	-	20%	15%
Total		100%	70%	50%



Example - New Class I Siding – Statewide Category

Project constructs a new 2-mile siding along a Class I railroad

Criteria	Raw Score	Statewide Freight Track & Structures Weights	Score (max 100)
Benefit-Cost	0	20%	0
Economic Competitiveness	2	10%	0
Capacity/Congestion	52	15%	8
Safety	0	15%	0
Accessibility	0	10%	0
Connectivity	100	10%	10
Mobility	100	20%	20
Total	n/a	100%	38

Note: Raw scores are the same for all funding categories. Final score variations are determined by applying criteria weighting percentages.



Example - Road Grade Separation – Regional Category

Sugar Creek - Construction of highway bridge over Norfolk Southern mainline in Charlotte

Criteria	Raw Score	Regional Intercity Passenger Track & Structures Weights	Score (max 70)
Benefit-Cost	1	10%	0
Capacity/Congestion	43.2	25%	11
Safety	99	15%	15
Mobility	40.53	20%	8
Total	n/a	70%	34

Note: Raw scores are the same for all funding categories. Final score variations are determined by applying criteria weighting percentages.



Example – Multimodal Station – Division Category

New location/expansion of station and associated track

Criteria	Raw Score	Division Intercity Passenger Stations/Service Weights	Score (max 50)
Benefit-Cost	3.82	10%	0.4
Capacity/Congestion	85	15%	12.8
Connectivity	52.24	10%	5.2
Mobility	25.72	15%	3.8
Total	n/a	50%	22.2

Note: Raw scores are the same for all funding categories. Final score variations are determined by applying criteria weighting percentages.

Appendix B – Local Input Points

Each MPO, RPO, and Division Engineer receives a minimum of 1000 local inputs points plus 100 points awarded for every 50,000 people within their geographic boundary (based on 2010 census data) up to a maximum of 2500 points. The P3.0 workgroup also recommended that the point donation/transfer process (used in P2.0) should continue to be available in P3.0. See the table below for the draft point allocation (at the time of this report, the 2013 MPO/RPO boundaries have not been finalized as a result of the 2010 Census analysis).

Additionally, the workgroup concluded that each MPO, RPO, and Division Engineer can submit a minimum of 10 new highway projects plus an additional submittal for every 100,000 people within their geographic area, up to 20 new projects. In addition, up to 5 additional projects can be submitted if up to 5 existing projects in the prioritization system are removed (both the MPO/RPO and Division Engineer must agree to remove any project in the prioritization system). Therefore, the maximum any single MPO, RPO, or Division Engineer can submit is 25 (up to 20 new, plus 5 exchanges). The workgroup agreed to the following project submittal amounts for non-highway projects - no limit for the submittal of Aviation and Public Transit projects; a maximum of 10 Ferry projects per MPO, RPO, and Division Engineer and a maximum of 5 Rail projects per MPO, RPO, and Division Engineer. The maximum number of both bicycle and pedestrian projects each MPO/RPO or Division can evaluate in P3.0 is 20. All existing bicycle and pedestrian and public transit projects in the Prioritization system will be removed and need to be resubmitted if desired.

MPO/RPO Name	2010 Census Pop.	P3.0 Pop. (Rounded to nearest 100,000)	Maximum # of New Highway Project Submittals	P3.0 Pop. (Rounded to nearest 50K)	Local Input Points	Division	2010 Census Pop.	P3.0 Pop. (Rounded to nearest 100K)	Maximum # of New Highway Project Submittals	P3.0 Pop. (Rounded to nearest 50,000)	Local Input Points
Albemarle RPO	171,978	200,000	12	150,000	1,300	01	264,551	300,000	13	250,000	1,500
Burlington-Graham MPO	161,833	200,000	12	150,000	1,300	02	490,035	500,000	15	500,000	2,000
Cabarrus Rowan MPO	316,683	300,000	13	300,000	1,600	03	662,023	700,000	17	650,000	2,300
Cape Fear RPO	127,099	100,000	11	150,000	1,300	04	579,818	600,000	16	600,000	2,200
Capital Area MPO	1,346,515	1,300,000	20	1,350,000	2,500	05	1,394,973	1,400,000	20	1,400,000	2,500
Down East RPO	184,432	200,000	12	200,000	1,400	06	661,565	700,000	17	650,000	2,300
Durham-Chapel Hill-Carrboro MPO	397,626	400,000	14	400,000	1,800	07	890,700	900,000	19	900,000	2,500
East Carolina RPO	241,808	200,000	12	250,000	1,500	08	508,916	500,000	15	500,000	2,000
Fayetteville Area MPO	372,142	400,000	14	350,000	1,700	09	740,617	700,000	17	750,000	2,500
French Broad River MPO	397,527	400,000	14	400,000	1,800	10	1,386,464	1,400,000	20	1,400,000	2,500
Gaston Urban Area MPO	382,078	400,000	14	400,000	1,800	11	371,760	400,000	14	350,000	1,700
Goldensboro Urban Area MPO	93,050	100,000	11	100,000	1,200	12	733,422	700,000	17	750,000	2,500
Grand Strand MPO	40,373	50,000	10	50,000	1,100	13	496,197	500,000	15	500,000	2,000
Greater Hickory MPO	300,564	300,000	13	300,000	1,600	14	354,442	400,000	14	350,000	1,700
Greensboro Urban Area MPO	370,312	400,000	14	350,000	1,700						
Greenville Urban Area MPO	134,936	100,000	11	150,000	1,300						
High Country RPO	210,885	200,000	12	200,000	1,400						
High Point Urban Area MPO	283,468	300,000	13	300,000	1,600						
Isothermal RPO	133,365	100,000	11	150,000	1,300						
Jacksonville Urban MPO	140,320	100,000	11	150,000	1,300						
Kerr-Tar RPO	168,248	200,000	12	150,000	1,300						
Land-of-Sky RPO	61,072	100,000	11	50,000	1,100						
Lumber River RPO	225,874	200,000	12	250,000	1,500						
Mid-Carolina RPO	180,745	200,000	12	200,000	1,400						
Mid-East RPO	106,401	100,000	11	100,000	1,200						
Mecklenburg-Union MPO	1,249,746	1,200,000	20	1,250,000	2,500						
New Bern MPO	56,949	100,000	11	50,000	1,100						
Northwest Piedmont RPO	168,875	200,000	12	150,000	1,300						
Peanut Belt RPO	122,701	100,000	11	100,000	1,200						
Piedmont Triad RPO	252,559	300,000	13	250,000	1,500						
Rocky Mount Urban Area MPO	85,452	100,000	11	100,000	1,200						
Rocky River RPO	104,977	100,000	11	100,000	1,200						
Southwestern RPO	147,454	100,000	11	150,000	1,300						
Triangle Area RPO	209,893	200,000	12	200,000	1,400						
Unifour RPO	79,595	100,000	11	100,000	1,200						
Upper Coastal Plain RPO	148,305	100,000	11	150,000	1,300						
Wilmington Urban Area MPO	252,862	300,000	13	250,000	1,500						
Winston Salem Urban Area MPO	408,563	400,000	14	400,000	1,800						

Appendix C – P3.0 Workgroup

Workgroup members represent a variety of organizations and stakeholders from around North Carolina. They provide expertise in areas of transportation planning, engineering, and policy and have contributed (and continue to) professional level input to the Department's prioritization and STI efforts.

All information regarding workgroup member roles/responsibilities, meeting schedule, organizations represented and summaries of each meeting (from the April 29 introduction of STI) are included in this Appendix.

Member Roles and Responsibilities:

Guide the development of the Prioritization 3.0 (P3.0) and the new Strategic Transportation Investments (STI)

- Assist in developing the project submittal approach and scoring methodology for the prioritization process.
- Provide input on the software interface used for project submittal and project rankings.
- Regularly attend and participate in Prioritization workgroup meetings. All meetings will be scheduled during the workday. If unable to attend, the member commits to sending an alternate. Teleconferencing will try to be arranged for most meetings but member in-person attendance is strongly preferred.
- Review all documents and other information sent by SPOT prior to meeting attendance.
- Be prepared to comment on material at workgroup meetings.
- Help SPOT establish a working relationship with external partners, stakeholders, the public and internal NCDOT business units affected by the Strategic Prioritization Process.
- Serve as a liaison between the Prioritization workgroup and your representative organization/unit; solicit input, comments, feedback from your representative organization/unit between monthly workgroup meetings and for specific timetables when key decisions must be made.
- Be prepared to share a summary of your representative organization/unit's input with the entire workgroup.
- Attempt to reflect the full range of affected interests from your respective organization/unit.
- Assist in framing the issues, options, and next steps for stakeholders.
- Assist NCDOT with how to best prepare for and respond to reactions anticipated from other stakeholders and from the public on prioritization related decisions.
- Promote attendance from among your member organizations/unit and other stakeholders at NCDOT sponsored information/presentation sessions.

Workgroup Accomplishments (2012-2013):

- Developed goals around each funding category.
- Deliberated on which criteria were most important for each funding category, based on goals (including referencing earlier P3.0 decisions).
- Provided guidance and direction to Non-Highway staff on criteria and scoring methodologies.
- Reached consensus on project scoring criteria and weights for all modes of transportation.
- Reached consensus on project normalization approach for P3.0.
- Reached consensus on local input points.
- Provided recommendations to NCDOT on project scoring criteria/weights for all modes, project normalization process, amounts for local input points and project submittals.

Workgroup Representation (2012-2013):

Name	Organization	Voting Member	Non-Voting Member
Paul Black	French Broad River MPO	X	
Tyler Meyer	Greensboro Urban Area MPO	X	
Mike Kozlosky	Wilmington Urban Area MPO	X	
Matt Day	Triangle Area RPO	X	
Patrick Flanagan	Eastern Carolina RPO	X	
Bjorn Hansen	*Lake Norman RPO	X	
Stephanie Ayers	NC Ports Authority	X	
Charlie Diehl	NC Global Transpark	X	
Betty Huskins	NC Regional Councils of Government	X	
Johanna Reese	NC Association of County Commissioners	X	
Chris Nida	NC League of Municipalities	X	
Julie White	NC Metro Mayors Coalition	X	
Wally Bowman	NCDOT Division 5	X	
Mike Holder	NCDOT Division 12	X	
Neil Lassiter	NCDOT Division 2	X	
Bobby Walston	NCDOT Aviation Division	X	
John Vine-Hodge	NCDOT Bicycle and Pedestrian Division	X	
Tanya Neeland	NCDOT Ferry Division	X	
Cheryl Leonard	NCDOT Public Transportation	X	
Shirley Williams	NCDOT Rail Division	X	
Van Argabright	NCDOT Program Development Branch	X	
Elena Talenkar	NCDOT Transportation Planning Branch	X	
Mary Scro	NCDOT IT P3.0 Project Manager (advisory role)		X
Uwanna Dabney	Federal Highway Administration (advisory role)		X
Alpesh Patel	NCDOT Strategic Prioritization Office	X	
Don Voelker	NCDOT Strategic Prioritization Office	X	
David Wasserman	NCDOT Strategic Prioritization Office	X	
Kristin Bunn	NC Department of Commerce (advisory role)		X
Hugh Johnson	Governor's Office		X
John Nicholson	Governor's Office (Military Affairs Advisor)		X
Amna Cameron	NC General Assembly – Fiscal Research Division (advisory role)		X
Bryce Ball	NC General Assembly – Fiscal Research Division (advisory role)		X
Beau Memory	NC General Assembly – Staff to Senate President Pro Tempore's Office (advisory role)		X
Mary Jennings	NC General Assembly – Staff to Speaker of the House's Office (advisory role)		X

**Note: In July 2013 Lake Norman RPO became part of a newly expanded Gaston-Cleveland-Lincoln County MPO as a result of boundary changes from the 2010 Census.*

Workgroup Schedule:

- May 8, 2012 – Began work on Prioritization 3.0 (P3.0) – 3rd generation of prioritization process
- June 12, 2012
- July 25, 2012
- August 20, 2012
- October 17, 2012
- November 27, 2012
- February 13, 2013
- March 18, 2013
- April 29, 2013 – *STI introduced; workgroup frequency increased to meet legislative requirements*
- May 13, 2013
- May 20, 2013
- June 3, 2013
- June 10, 2013
- June 17, 2013
- June 24, 2013
- July 1, 2013
- July 29, 2013
- August 12, 2013

Workgroup Meeting Summaries:

Prioritization 3.0 Workgroup Meeting No. 17 Summary Notes - July 29, 2013

Welcome and Opening Remarks

Don thanked the Workgroup members for their continued participation and input to the prioritization process and reviewed the Agenda and goals for the meeting which included updating the non-highway project scoring, discussing the Board of Transportation's input from their July 23 meeting, discussing a potential revised timeline/schedule, outlining the provisions of the technical corrections bill and renewing conversations regarding the requirement in last year's law that NCDOT standardize or approve local methodology used in strategic prioritization.

The Strategic Prioritization Office of Transportation (SPOT) facilitated the discussion which led to the following Workgroup decisions and discussions:

- **Acceptance of all highway and non-highway project scoring criteria, weights and measures as presented to the BOT on July 23.** At the previous P3.0 workgroup on July 1, the Workgroup agreed to project scoring criteria, weights and measures to be presented at the July BOT meetings. Only minor changes were made by staff to those recommendations before being presented to the BOT at their July meetings. The BOT gave tacit approval on July 23 with more formal approval due August 7. The Workgroup agreed with the BOT's recommendations.
- **Local Input (Assignment of Points) Period recommendation to continue a single three-month period to assign local input points from May-July, 2014.** According to the current schedule, MPOs/RPOs/Division Engineers will assign local input points May 1 – July 31, 2014. The BOT at their July 23 meeting requested staff to revisit whether it would be possible to have two periods, one to assign points for Regional Impact category and a separate period to assign points for Division Needs category. SPOT had prepared an option to allow two input periods, however, the available time for local input would not likely exceed 30 days for at least one of the periods. This was due to internal DOT timelines needed to score projects and to meet State and Federal requirements on air quality conformity and STIP due dates. Subsequently, a technical corrections bill was passed and it requires significant public input, hearings and consideration of public comments before the local input points are assigned. These requirements were shared with the Workgroup. The RPO's advised their public involvement procedures require a minimum of 30-day review period and it would simply be impossible to have two periods. It was pointed out that in P4.0 more time will be available and the Department should be able to accommodate two input periods. Also, it was highlighted that each MPO/RPO/Division Engineer has separate points for Regional Impact and Division Needs projects. This will allow local input to be focused on both Regional and Division top priority projects. The Workgroup agreed there are sufficient points available to identify these top priority projects in each category, especially given the limited number of projects that actually are programmed following the prioritization process.
- **Technical Corrections-** The technical corrections law made a few changes to the STI. Items related to the P3.0 workgroup efforts that were discussed included the following:

- Short line railroads are no longer eligible for Regional Impact and Division Needs categories
 - Clarifies that commuter rail, intercity rail and light rail are included in the eligible Regional Impact and Division Needs categories.
 - Metropolitan Planning Funds are excluded from the formula.
 - Requires public involvement, public hearings and need to address public comments in the Division Engineer's local input scoring.
 - Clarifies the Board of Transportation's role in the prioritization process and local input scoring.
 - Specifies future P4.0 Workgroup representatives by organization. Department participants cannot exceed one-half of the workgroup.
- **Local MPO/RPO Methodology – SPOT was requested to report on a couple of best management practices and at least one proposed option of standardizing or approving MPO/RPO methodology to the next P3.0 Workgroup meeting.** Workgroup discussions on this item were suspended earlier this year when the Strategic Transportation Investments (STI) bill was introduced in the legislature. However, the STI bill did not change the requirements regarding MPO/RPO methodologies. SPOT renewed earlier conversations on this topic. Following some discussion, SPOT was requested to bring at least one option back to the next meeting of the Workgroup as well as outline at least two best management practices that have been observed amongst existing MPO/RPO methodologies.
 - **Other-** The Workgroup requested the Department provide a list of projects to be scored in P3.0 across all modes in the current database. The Department agreed to provide this to all MPOs/RPOs/Division Engineers by November 1. Staff also advised there will be training sessions for the MPOs/RPOs/Division Engineers to outline the data needs and expectations of entering data in P3.0 and this training will be held prior to January, 2014.

Future Workgroup meetings

The next WG meeting is scheduled for August 19. A tentative August 12 meeting was discussed and will only be held if the BOT recommendations to the Joint Legislative Transportation Oversight Committee (JLTOC) are different from what the Workgroup agreed to on July 29. The STI requires the Department to report by August 15 to the JLTOC on the Workgroup's feedback on the Department's recommendations. A formal presentation to the JLTOC is anticipated to be Sept. 10. Separate representatives from the MPO association, the RPO association and the Division Engineers have been asked to participate in the Sept. 10 presentation with names to be determined later.

If the recommendations of the BOT on August 7 align with the P3.0 recommendations from July 29 as expected, there will be no reason to meet on August 12. The August 19 workgroup meeting will focus on the MPO/RPO methodologies for strategic prioritization.

Prioritization 3.0 Workgroup Meeting No. 16 Summary Notes - July 1, 2013

Welcome and Opening Remarks

Alpesh thanked the Workgroup members for their continued participation and input to the prioritization process and reviewed the Agenda and goals for the meeting which included gaining the Workgroup's final recommendations on project submittals, number of local input points, a revision to the Normalization approach and review of example project scores for all non-highway modes.

The Strategic Prioritization Office of Transportation (SPOT) facilitated the discussion which led to the following Workgroup (WG) decisions:

- **Project Submittals (Highways)** – Each MPO, RPO, and Division Engineer new project submissions range from 10 to 20. In addition, up to 5 additional projects can be submitted if they are exchanged for existing projects. The number of projects to be submitted is based on (1 project to submit for every 100,000 people). In other words, the maximum any single MPO, RPO, or Division Engineer can submit is 25 (5 exchanged ones plus 20 new ones). Workgroup also agreed to round population to nearest 100,000 (based on 2010 census data).
- **Project Submittals (Non-Highways)** – no cap for submittal of Aviation and Public Transit projects; cap of 10 Ferry projects per MPO, RPO, and Division Engineer and cap of 5 Rail projects per MPO, RPO, and Division Engineer. Maximum number of both bicycle and pedestrian projects each MPO/RPO or Division can evaluate in P3.0 is 20. All existing bicycle and pedestrian and public transit projects in the Prioritization system will be removed and need to be resubmitted if desired.
- **Local Input Points** – 100 points awarded for every 50,000 increment in population (based on 2010 census data) with a maximum of 2500 points for any single MPO, RPO, or Division Engineer. WG also recommended the point donation/transfer process (used in P2.0) should continue to be available in P3.0. See attached table.
- **Normalization** – WG continues to support no normalization for projects eligible under the Statewide Mobility category and supports dividing the remaining dollars available for Regional Impact and Division Needs categories (approximately \$900 million dollars/year) 93% towards highway projects and 7% towards non-highway projects. However the share of highway funding will be no lower than 90% (floor) and can be as high as 96% (ceiling). The share of non-highway projects will be no lower than 4% (floor) and can be as high as 10% (ceiling). The WG also recommended meeting in late March/early April 2014 to evaluate and access the normalization of projects scores.

Discussion at the WG meeting:

Project Submittal Comments

NCDOT needs to clarify the technical correction associated with federal transit dollars which are provided directly to local recipients and would potentially be excluded from the Strategic Mobility Formula (SMF). NCDOT must also clarify the issue whether the total dollars are in question or just the state match/contribution towards a transit project. Public transit staff

and programming staff were requested to revise the correction and send the WG an updated interpretation via email.

WG members discussed how previously submitted non-highway projects will be treated. SPOT explained Aviation and Rail staff will reach out to local operators this fall to receive any new projects and score them and pre-populate the SPOT online tool. Ferry projects submitted previously will also be pre-populated in the SPOT online program however public transit and Bicycle/Pedestrian projects will start with a clean slate and any previous projects must be resubmitted. Any project that the Rail or Aviation staff receives for evaluation will be shared with the affected MPO, RPO and or Division Engineer. Beyond what is already in the SPOT online tool, the MPOs, RPOs, and Division Engineer's will also be able to submit new projects (per any caps recommended by the WG).

Normalization

SPOT staff explained there is no historical basis to recommend a threshold lower than 90% for funding highways (vs. the 85% recommended by the WG at the June 24 meeting). Therefore the division of 93% for highways and 7% for non-highways would still be used for Regional Impact and Division Needs categories with highway funding no lower than 90% (floor) and can be as high as 96% (ceiling). The share of non-highway projects will be no lower than 4% (floor) and can be as high as 10% (ceiling). SPOT office reiterated that this proposal is an interim step and that the Department is willing to conduct a more formal analytical analysis on project scores with the intent to revisit normalization scoring in P4.0.

Discussions and Future WG meetings

Future WG meetings are scheduled for July 29 and August 19. WG members asked that additional guidance be provided at the July meeting regarding how MPOs, RPOs, and Divisions should prepare to address the local prioritization requirements established in the law in July 2012. WG members also asked SPOT staff to provide feedback from July BOT meeting at the July 29th meeting.

Prioritization 3.0 Workgroup Meeting No. 15 Summary Notes - June 24, 2013

Welcome and Opening Remarks

Alpesh Patel thanked everyone for their continued participation in the Workgroup (WG) and for attending today's meeting. A list of attendees can be found at the end of this email. He explained the structure/Agenda of the meeting was to review Rail Division's revised scoring approach (based on June 17 WG input), review the recommendation for the area of analysis for Economic Competitiveness criteria for highway projects and to obtain the WG's recommendations on project normalization, local input points and minimum project submittals. He cited the passing of H817 and the pending Governor's signature of the bill. He referenced July 1 as the deadline for receiving a memo from any area (be it within a Division or Paired Funding Region) that chooses an alternate funding strategy. The primary requirement is unanimous agreement within the area amongst MPOs, RPOs, and Division Engineers (see attached slide). He also pointed out that additional minor scoring/calculation changes requested by the WG for the Bicycle/Pedestrian and Public Transit Divisions are forthcoming and will be circulated via email.

The Strategic Prioritization Office of Transportation (SPOT) facilitated the discussion which led to the following WG decisions:

Rail scoring approach - The WG recommended not using Economic Competitiveness criteria in the Regional Impact and Division Needs categories (but to keep it in Statewide Mobility). Rail Division's percent recommendations for this criterion were shifted to Mobility and Congestion. WG also recognized the 2011 legislative bill which allows for operating costs to be capitalized however they recommended Rail Division not consider use operating costs as part of the calculations in their scoring approach. The WG's recommended final weighted percentages are found in the Rail summary tables in the attached slides. WG recommended Rail Division review (again) their conversion factors and scoring scalability and create scores for additional projects examples by the July 1 WG meeting. WG recommended each of the other Non-highway modal Divisions do similarly.

Economic Competitiveness – WG agreed with SPOT recommendation to use NCDOT Division boundaries at the economic area of analysis for scoring highway projects under the Statewide Mobility category.

Normalization (modes competing for same dollars) – The WG recommended projects eligible under Statewide Mobility category will compete against each other (i.e., a highway project score will compare directly to a rail project score vs. an aviation project score). The total dollars remaining to fund projects which are eligible for Regional Impact and Division Needs categories (approximately \$900 million dollars/year) will be divided 93% towards highway projects and 7% towards non-highway projects. The WG recommended the following minimum and maximum percentages and dollar amounts:

- Highways – 85% or ~\$765 million/year [minimum] and 98% or ~\$882 million [maximum]
- Non-highways – 2% or ~\$18 million/year [minimum] and 15% or ~ \$135 million/year [maximum]

WG recommended when programming these dollars that any federal dollars directed for a specific purpose/program will be programmed first.

Local Input Points – WG recommended equally weighting the percentages between MPO/RPOs and Division's associated with the local input points used to score projects in both Regional Impact and Division Needs categories.

- Regional Impact (30%) - 15% for Division Engineers and 15% for MPOs/RPOs
- Division Needs (50%) – 25% for Division Engineers and 25% for MPOs/RPOs

Discussion at the WG meeting:

Rail Comments

Rail staff reviewed their changes included adding Economic Competitiveness as a scoring component under track and structures and stations for both Regional Impact and Division Needs categories. They also explained the difficulty in adjusting their conversion factors because they currently create a reasonable range for comparing projects. They also explained the 2011 legislative bill (S.L. 2011-145, Section 28.15) which allows for new or expanded inter-city passenger rail service improvements to utilize projected Operating and Maintenance (O&M) expenses as part of the capital costs of a future project. Staff provided scoring examples which did not show significant differences between using O&M vs. not using O&M in the calculations. WG members expressed concerns that other modes are not using O&M in their calculations and only capital/construction related costs should be used. WG also expressed concerns with the resulting point values associated with Economic Competitiveness in the Regional Impact and Division Needs categories. WG expressed concerns over the use of this criterion (which will also be calculated using TREDIS model) for rail projects when corresponding highway projects will not be scored for this criteria in those categories. WG also noted that the use of Economic Competitiveness was not helping to differentiate and create separation amongst similar projects. WG recommended keeping Economic Competitiveness (and associated weights) for Statewide Mobility only and recommended dropping its use in Regional Impact and Division Needs categories. The associated percent weights were adjusted (and spread amongst the capacity/congestion and mobility criteria). See attached slides for final WG recommended criteria and weights.

WG Comments on Scalability in Non-highway Mode Scoring

The WG cited continued concerns with scalability and factors/multipliers used to create 100 point scale for project scores. Example projects provided seem to result in maximum value scores. The WG recommended every non-highway modal division review and adjust their scalability and multipliers for reasonable scoring output and to provide additional project scoring examples by the next (July 1) meeting.

Economic Competitiveness Comments

Don Voelker reviewed SPOT's recommendation to use NCDOT's Division lines as the economic area of analysis for scoring highway projects. He cited again the review of TREDIS scores indicate using Division boundaries provides the best way to show the local economic impact of productivity change and job creation. WG discussion centered around the pros/cons associated with using entire state as an economic analysis area and the fact that not all rural areas would be helped by this recommendation; however economically distressed Divisions and projects in medium size communities would see a scoring benefit from using the Division boundary (vs. entire state). It was also noted that if the entire state of NC is used as the economic area of analysis, the economic competitiveness score is essentially based on the travel time savings the project is expected to provide without regard for the location of the project. WG members also asked SPOT to continue to study possibility of using other boundaries for analysis (such as the county the project and all of its

contiguous counties) for measuring local impact. After additional discussion WG agreed with SPOT recommendation to use NCDOT Division boundaries at the economic area of analysis for scoring highway projects under the Statewide Mobility category

Normalization Comments

SPOT staff reviewed project normalization options (requested by WG at June 17 meeting) and proposed a recommendation which would allow for no normalization of scores in Statewide Mobility category but include funding caps (by dollars or percentages) associated with highway and non-highway modes to apply in the Regional Impact and Division Needs categories. Each cap would have a proposed minimum and maximum percentage to create variance and flexibility for NCDOT programming staff. SPOT's proposed caps were based on historical budgeted allocations (2009-2013 certified budget) for construction/capital projects by mode and included federal plus state dollars. This proposed approach would then allow individual mode projects to compete against each other in a "silo" versus scoring evaluation/comparison across modes. WG discussion included questions regarding eligibility of transit federal funds which do not flow through NCDOT but go directly to local operator. Discussion also included non-highway percentages and dollars historically cited from NCDOT's overall construction budget (~7%) and how that should be used to direct any proposed approach. WG members deliberated over an approach which does not use any type of normalization and if a statistical approach is still valid and can help differentiate good projects from great projects relative to a mean value. WG asked for clarification on the timing of when normalization would be applied (to quantitative scores versus after local input points are assigned) and if other funds such as STP-DA should be excluded from SPOT's recommended approach. WG members also proposed an alternative approach which provides minimum and maximum percentages/dollars to be used for both highway and non-highway projects for Regional Impact and Division Needs categories. The Non-highway percentages/dollars are for a collective total (vs. by individual mode). WG members noted this is a good "first step" approach and the SPOT office should continue to research and study national best practice on the issue of prioritization and project scoring across modes and bring results back to WG in 2014 for P4.0. After additional discussion the WG recommended the following minimum and maximum percentages and dollar amounts:

- Highways – 85% or ~\$765 million/year [minimum] and 98% or ~\$882 million [maximum]
- Non-highways – 2% or ~\$18 million/year [minimum] and 15% or ~ \$135 million/year [maximum]

WG recommended when programming these dollars that any federal dollars directed for a specific purpose/program will be programmed first.

Local Input Points & Minimums Project Submittal Comments

David Wasserman reviewed both options for number of local input points and rationale behind minimum number of highway project submittals. He cited past WG decisions on both topics and pros/cons associated with each option. WG discussion ensued regarding the need to distinguish top priority projects by 100, 99, 98, etc. ranking. WG members cited the need for flexibility at the local level (vs. making this distinction a requirement) and further discussion included pros/cons of using population thresholds for point correlation and new project submittals. David reviewed the P3.0 schedule and specifically the mechanics behind point assignment in the spring/summer of 2014. WG members asked for 2 separate lists of points to be used in the SPOT online system to use for either Regional Impact or Division Needs eligible projects. Mary Scro indicated IT staff will accommodate this request and create 2 running counters in the interface screens so submitting agencies can track points

expended. After much discussion on minimum highway project submittals WG members proposed a scaled approach – every area would have a baseline of 10 projects and for every 100,000 people in their area, they would receive an extra submittal, up to a maximum of 20 projects. WG agreed to this proposal, but wanted to time to share with their constituents and finalize at the July 1st meeting. WG also asked each non-highway staff to provide their backlog of needed projects in order to make a determination on minimum projects submittals for those modes. WG members recommended equally weighting the percentages associated with the local input points used to score projects in both Regional Impact and Division Needs categories due to the fact that both POs and Division Engineers are now responsible (and have the option) to submit projects across all modes.

Percentages agreed to were:

- Regional Impact (30%) - 15% for Division Engineers and 15% for MPOs/RPOs
- Division Needs (50%) – 25% for Division Engineers and 25% for MPOs/RPOs

Prioritization 3.0 Workgroup Meeting No. 14 Summary Notes - June 17, 2013

Welcome and Opening Remarks

Alpesh Patel thanked everyone for their continued participation in the Workgroup (WG) and for attending today's meeting. A list of attendees can be found at the end of this email. He explained the structure/Agenda of the meeting was to allow Non-highway modal staff to present on revised scoring approaches (based on June 10 Workgroup input) and to revisit one aspect of the highway criteria and discuss ideas for "normalizing" project scores and determining the number of local input points. He reviewed the latest changes to the Proposed Committee Substitute and explained the amount of effort and outreach the Non-highway staff has expended to make their scoring approaches better. He also pointed out that additional minor calculation changes Ferry Division have made to their scoring approach (WG reached consensus on staff proposed criteria and percent weights at June 3 meeting) would be included in these meeting minutes (see attached slides).

The Strategic Prioritization Office of Transportation (SPOT) facilitated the discussion which led to the following Workgroup (WG) decisions:

Aviation scoring approach - The WG recommended using the proposed criteria/weights as suggested by the Aviation Division staff. Comments included the need for local airport operators to become more engaged with MPOs/RPOs/Division Engineers to understand local needs and for future project submissions. The "NC Airport Development Guide Priority System" (which provides point values associated with the Division of Aviation's Project Rating criteria is included in these minutes). This criteria represents is weighted the heaviest in Aviation's scoring approach.

Bicycle and Pedestrian scoring approach – The WG recommended using the proposed criteria/weights as suggested by the Bicycle and Pedestrian staff. WG asked staff to make additional changes to specific scoring calculations and to share those via email prior to the June 24 WG meeting.

Public Transportation scoring approach - The WG recommended using the proposed criteria/weights as suggested by the Public Transportation staff. WG asked staff to make additional changes to specific scoring calculations and to share those via email prior to the June 24 WG meeting.

Rail scoring approach – The WG recommended staff revisit the percentage weights associated with using Economic Competitiveness in the Regional Impact and Division Needs categories and to consider if the current percentage weight should be higher for Statewide Mobility. WG also asked Rail staff to revisit the multipliers and conversion factors associated with specific criteria and to ensure no "operating costs" are included as a component of rail criteria for scoring rail capital projects. WG agreed Rail staff must make a final presentation with these suggested changes at the June 24 WG meeting.

Discussion at the WG meeting:

Bicycle and Pedestrian comments

Staff explained how they attempted to incorporate WG input from June 3 meeting, specifically regarding review of the Demand/Density and Constructability criteria

calculations. Staff determined the most equitable approach for scoring projects under Demand/Density was to divide by the entire community's population (vs. persons per sq. mile). Therefore the calculation is the same as originally proposed in Prioritization 3.0. The Constructability criteria now include additional measures to score the project based on Preliminary Engineering completed and anticipated Environmental Documentation needed. Plan adoption will be used as a screening question in the SPOT submission process. The Workgroup confirmed the earlier decision to ensure there is a \$100,000 minimum project cost requirement before it can be evaluated. Also Bicycle/Pedestrian projects will be evaluated independently (vs. as a bundle of projects). WG commented on inclusion of ROW acquired may mean some communities commit to this purchase not knowing if the project will be built. However other WG members cited the importance of how this score shows local commitment for the future project and the new prioritization process indicates the state is providing construction dollars if the local community can have early project preliminary engineering and ROW issues worked out. Staff also mentioned the completion (by end of the calendar year) of statewide greenway standards which should simplify the construction cost estimation of such facilities. Staff was asked to provide more specificity and improvements to the following:

- Further define the primary and secondary “centers” under “Access” criteria. Explain if thresholds are necessary (such as minimum number of employees for employment centers) and what the break point between primary and secondary centers should be.
- Use fixed route bus system (vs. park and ride lots) as a secondary center.
- Determine if traffic volume has a relationship with speed limits and acts as a proxy for more crashes.
- Use building permits as an indicator of high dense development in the Demand/Density criteria. Ensure projects receive higher points if community is committing to higher dwelling unit/acre land use pattern.

Public Transit Comments

WG cautioned that a more scalable approach is still needed for specific criteria. Some of the multipliers lead to pushing more projects to max out at 100 points and this may be perceived negatively. Comments were raised about the use of hybrid vehicle purchase – staff indicated Institute for Transportation Research & Education (ITRE) research shows it is neither an incentive or disincentive but rather provides a local community options if they want to switch to vehicles which have longer term fuel cost savings. WG asked staff to change the title of “Existing Land Use” under Fixed Guideway to better reflect the current vs. projected calculation expected within this criteria.

Rail Comments

WG asked if value/benefit can be assigned to projects which support the military bases in TREDIS. Staff indicated data for certain eligible projects (such as Intermodal Facilities) will have to come from customers and will be limited due to proprietary/competitive issues. Staff indicated the State Rail Plan is being developed and based on the new prioritization process private railroad companies wishing to submit improvements will have to cross check with the State Rail Plan and interface with their local MPO/RPO/Division Engineer and the Rail Division.

Regions 1&4 and 2&3 Comments

Patrick Flanagan provided an update of the alternate investment strategies tentatively agreed upon by Divisions 1, 2, 3, 4 and Paired Funding Regions A and B. Staff have agreed to an investment strategy and are taking this to their respective TAC committees in the next couple of weeks. See attached for the alternative strategies. Neither economic competitiveness nor accessibility/connectivity are included in any alternate strategy.

Economic Competitiveness

Don Voelker requested the WG reconsider how Economic Competitiveness was being measured. Previously, the WG agreed that if Economic Competitiveness were used it would be scored using NC's entire border as the area of analysis for the Statewide Mobility category, and Paired Funding region's border for Regional Impact, and the individual's Division's border for Division Needs. TREDIS provides economic input data at each level. Presently, the legislation only allows economic competitiveness to be used in the Statewide Mobility Category and the WG agreed to use economic competitiveness at 10%. However, in reviewing the goals of the statewide Mobility Category, it is believed the project impacts of measuring the change in economic value to the gross domestic product and long term employment impacts are best measured at the local or division level. A review of the TREDIS scores confirms this. Thus, it is proposed that the Division boundary/border be used as the economic area of analysis for scoring projects eligible under the Statewide Mobility Category (again currently the only category eligible for use of Economic Competitiveness criteria). A copy of the comparison was previously given to the WG and they requested it be provided again so a final decision could be made on June 24. A copy of that information is attached.

Normalization

Don Voelker initiated the discussion around this key aspect of the process. An early options list was presented last week but a more detailed discussion occurred which centered around five options presented by SPOT. Those options included:

- 1.) results from investment strategy summits,
- 2.) historical capital budgeted amounts,
- 3.) value judgment approach,
- 4.) weighted benefit/cost ratio comparing the top scoring projects from each mode, and
- 5.) a normalization scoring model using a statistical approach to normalizing project scores.

The details are outlined in the attached powerpoint. A lengthy and wide-ranging discussion ensued. Each of these options have various advantages and disadvantages. In the end, supported appeared to be building around allowing the eligible projects in the Statewide Mobility Category to compete directly with each other, thus no normalization scoring would occur in this category. At the Regional and Division level, SPOT staff was asked to provide additional information regarding a comparison of the investment summit strategies from last year, the amounts of funds programmed by the Department over the next five years, the historical capital budgeted dollars and percentages of funds over the past five years and the actual expenditures of dollars and percentages of funds over the past five years. There also was interest in the statistical approach but some cautioned that without knowing all the project scores, it would be difficult to know whether this approach would be sound from a mathematical viewpoint. In other words, part of this approach relies on project scores within each mode to be stratified along a "bell-shaped" curve and until the results are in, this is an

unknown. There were also questions regarding how this statistical approach could be applied across all modes to truly compare one project type vs. another (instead of “normalizing” within a single “bucket” of similar projects). SPOT staff will provide updated information as requested with the expectation that a final recommendation needs to be made on June 24.

Prioritization 3.0 Workgroup Meeting No. 13 Summary Notes - June 10, 2013

Welcome and Opening Remarks

Alpesh Patel thanked everyone for their continued participation in the Workgroup (WG) and for attending today's meeting. A list of attendees can be found at the end of this email. He explained the structure/Agenda of the meeting was to allow Non-Hwy staff to present on revised scoring approaches (based on June 3 Workgroup input) and to revisit the Highway Accessibility/Connectivity and Multimodal criteria and to discuss potential options for how to "normalize" project scores. The Strategic Prioritization Office of Transportation (SPOT) facilitated the discussion which led to the following Workgroup (WG) decisions:

- **Multimodal** criteria – The WG agreed to change one component of the criteria measure/score. 25% of the score for this criteria will be based on "Volume/Capacity ratio of "non-Interstate" STRAHNET routes". SPOT proposed this change due to confusion over what the WG agreed to during June 3 meeting and the need for WG military representative to clarify military community's position on the importance of the proposed change. The WG agreed SPOT must use the latest STRAHNET map (dated October 2012) for referencing this calculation which is found here: (http://www.fhwa.dot.gov/planning/national_highway_system/nhs_maps/north_carolina/n_c_northcarolina.pdf)
- **Accessibility/Connectivity** criteria – The WG agreed with its past decision to not use this criteria to score highway projects. However if the Department reaches a conclusion that it must be included, the WG agreed to weight it at 5% (for both Regional Impact and Division Needs categories). In both categories the 5% for Accessibility/Connectivity would come from the Congestion criteria (thereby lowering it to 25% in Regional Needs and 15% in Division Needs).

Public Transit comments

The WG recognized the effort of the Public Transportation staff to solicit and use input from transit systems and a subset of WG members to improve their overall approach. The WG agreed the approach is more sound from the June 3 version and agreed with the scoring approach which divides eligible projects into 3 distinct categories: vehicle replacement (capacity increase above and beyond existing vehicle), shelters/facilities, and fixed guideway/commuter/light rail. Public Transit staff provided an overview of the criteria, proposed % weights and measures for each of these categories and specifically cited use of FTA guidelines to score fixed guideway/commuter/light rail projects. The WG asked transit staff to address the following:

- Provide a definition slide up front to explain what transit terms mean and why % weights per criteria are divided between rural and urban projects.
- Explain via footnotes on appropriate slides the rationale behind specific multipliers used to create a more understandable score.
- The WG asked the transit staff to provide scoring examples (comparing at least 2 projects against each other) within the vehicle replacement (capacity increase above and beyond existing vehicle), shelters/facilities, and fixed guideway/commuter/light rail categories
- The WG cautioned the transit staff regarding the use of Connectivity criteria – the comment was that the legislature may still perceive this as a bonus point system. Staff should consider promoting what this criteria is measuring via local input points.

Rail Comments

The WG asked Rail staff to consider the following improvements in their revised approach:

- Revise Connectivity/Accessibility/Mobility criteria to include Intermodal terminals (such as Global Transpark) in the Rail Track and Structures project scoring. Global Transpark type facilities promote the truck to train to air type transfers therefore track improvements to those facilities should be scored too.
- Further define how the default %'s used in the Passenger and Freight Intermodal sub-criteria in the Connectivity/Accessibility/Mobility criteria (within Rail Intermodal Facilities/Stations/Equipment) are determined. Create footnotes for the rationale in using these (along with footnotes on other appropriate slides) in the presentation
- Ensure the data/database information is available and accurate for scoring or the criteria should be eliminated.
- Further explain the rationale behind Benefit-Cost formula, specifically the $(B/C-1)*20$
- Review the use of Congestion/Capacity criteria within Rail Track and Structures. Staff should clearly explain the rationale in using this criteria/measure, is it being captured elsewhere and should it be limited to passenger service only versus and not freight-eligible
- Rail staff should also provide more project scoring examples within the presentation for Stations/Equipment and Track & Structure projects

Bicycle/Pedestrian Comments

Bicycle and Pedestrian staff reviewed specific changes requested by WG such as inclusion of Benefit-cost criteria, idea of a minimum threshold of project cost (cost to NCDOT) and clarification that their proposed scoring system is for Independent projects only. Staff also suggested ROW should not be part of the included project cost to NCDOT. The WG asked the Bicycle/Pedestrian staff to consider following changes:

- Adjust the Demand/Density criteria to account for eligible projects from smaller communities with high density areas (such as downtown/central business district) to compete with larger communities. Staff can use GIS/Census data to calculate a proportional score which correlates to each census block within 1.5 miles of bike facility and 0.5 miles of pedestrian facility.
- Consider a lower minimum threshold cost for scoring eligibility (\$100K vs. staff recommended \$200K) to allow a greater variety of Bicycle/Pedestrian improvements to compete. Caution was noted regarding the history of projects at \$100K or less which costs estimates/scope have not been closely vetted.
- The WG noted the Constructability criteria as currently proposed may be negatively perceived as “yes/no” answer versus a data driven measure. Much discussion ensued regarding keeping this criteria versus dropping it. The WG finally recommended staff will revisit the measurement of this criteria and consider use of a scoring “index” (includes ROW acquisition, utility relocation, etc.) versus using the current questions (inclusion in adopted plan, ROW acquired, etc.) as screening questions within the SPOT interface tool
- Bicycle/Pedestrian and sidewalks projects should not be “bundled” but scored on their own.

Aviation Comments

Aviation staff reviewed specific changes requested by the WG included an attempt at a more project based (vs. aviation based approach), creating tie-breaking process for deciding merits of two similarly submitted projects and further incorporation of the Division of Aviation's existing prioritization system. The WG asked Aviation staff to consider:

- Changing the 1, 4, 18, 42% proposed weights to 5, 10 type percentages for ease of calculations and explanation to public/elected officials and to be consistent with other non-highway modes
- The WG asked staff to provide a concrete timetable for completion of the Aviation Systems Plan especially in regards to folding Commercial Service airports into the mix. This plan needs to be completed prior to aviation project submittals in January 2014
- The WG noted the Deficiency Index criteria as stated does not have enough gradation in the scale and needs to be further explained. There may be a negative perception that airports which simply submit projects that minimum standards are scored higher than those which choose to meet recommended standards

Accessibility/Connectivity Comments

Don provided an overview of both the Secretary and Board Member comments from last week's WG update presentation to the Board of Transportation. On behalf of SPOT office, Don requested the WG consider again if Accessibility/Connectivity criteria should be used to score highway projects. Much discussion ensued regarding what Workgroup members are hearing about this criteria. In some cases their member organizations lack confidence in the criteria due to its perception as inducing sprawl, or do not agree with the rural hub definition or if centers/communities adjacent to (but just beyond) NC's borders are being considered. Conversation also included ideas of more narrowly defining what activity centers or commerce centers mean and/or if criteria should exclusively focus on connections to tourist destinations. The definition of a "tourist destination" has been a challenge. Information was given to the WG that inclusion of this criteria at the 10% level would likely be well-received. The WG agreed that if the Department must include this criteria it should be weighted at 5% for the Regional Impact category. Following additional discussion, it was less clear whether to include it at the Division category. It is SPOT's understanding that the WG is willing to also allow it at the Division category only if the Department must include it. In both categories the 5% for Accessibility/Connectivity would come from the Congestion criteria (thereby lowering it to 25% in Regional Needs and 15% in Division Needs).

Normalization Comments

Don briefly provided proposed options for normalizing project scores (normalizing the quantitative score). Due to time constraints, the following were introduced with a more full discussion expected at the next meeting. The options presented were:

- Allow projects from Statewide Mobility to stand on their own scores (no normalization); create caps for non-highway mode projects eligible from Regional Impact/Division needs based on historical % or \$ of capital funding from DOT's overall capital budget
- Develop a methodology based on a qualitative assessment of mode needs or a "value judgment" approach.
- Consider using the results from last year's Investment Summits to develop a normalization strategy.

- Use a benefit/cost (B/C) calculation (similar to Mobility Fund) and create a weighted ratio based on top 10 project scores
 - Use a variation on this approach using the score of the top scoring project as a reference for all other projects for correlation. In this manner, projects scores could be normalized rather than “modes” being normalized.
- Matt Day’s proposal (based on a bell curve and standard deviation statistical process).

SPOT asked for other ideas on normalization from the WG and will prepare additional details per each proposed approach for WG consideration at June 17 meeting. SPOT reminded WG the next 2 meetings will take place at the Chief Engineer’s conference room and WG members should consider possibility of holding a July 1 meeting. An early agenda for the June 17 meeting will be focused on 1) finalizing non-highway modes criteria, 2) a recommended normalization approach, 3) discussion on the number of local input points, 4) number of allowable new project submittals.

Prioritization 3.0 Workgroup Meeting No. 12 Summary Notes - June 3, 2013

Welcome and Opening Remarks

Alpesh Patel thanked everyone for attending today's meeting. A list of attendees is separately attached (.pdf) to this summary. He also went over schedule and over the changes in Senate Proposed Committee Substitute (PCS) and reviewed the requirements associated with developing Non-highway approaches (including scoring criteria, weights and measures). A representative from each Non-Hwy mode made their respective presentation, received feedback on their proposed approaches and SPOT team asked for consensus from the Workgroup (WG). Consensus was reached regarding the Ferry Division criteria and weights – all other non-highway modal staff was asked to make changes and provide a revised approach at the June 10 meeting.

The Strategic Prioritization Office of Transportation (SPOT) team also revisited 3 aspects of the highway criteria at the conclusion of the non-highway mode presentations. The following WG decisions were made:

1. **Multimodal** criteria – The WG agreed with their earlier recommendation to leave this measure as is (i.e., 50% based on truck volumes, 25% based on V/C on STRAHNET routes, 25% based on V/C on routes that provide a direct connection). Following the meeting, there was still some discussion on this issue and it will likely be re-visited on June 10.
2. **Accessibility/Connectivity** criteria – The WG agreed with their earlier recommendation to not use this criteria to score projects in either Regional Impact or Division Needs categories. The WG agreed if an alternate investment strategy is used by any Divisions/MPOs/RPOs in either the Regional or Division categories, this criteria should be measured using OPTION 1 - Activity Centers and Block Groups with over 5,000 jobs with Rural centers - shorter drive time weighted higher and Commerce Centers- shorter drive times weighted higher.
3. **Economic Competitiveness** criteria – The WG agreed with their earlier recommendation to keep this criteria at 10% in the Statewide Mobility category and not to use it in Regional Impact or Division Needs categories. The WG agreed if it was necessary in the future to change this weight to 20%, 5% each should come from Congestion and Benefit/Cost criteria.

Aviation Comments

- The approach and use of scoring criteria needs to be more project based vs. airport based.
- The approach needs to create more scoring distinction and evaluation between two similar projects (such runway extension) are competing for the funds; this is especially important because the criteria should not favor 1-2 large airports at the expense of the others and the proposed cap also limits what else can be funded in the Statewide Mobility category.

The WG members desired to see more details about the Airport Development Guide. The link to the guide is <https://connect.ncdot.gov/municipalities/State-Airport-Aid/Pages/default.aspx>. This methodology is being used to rank all airport projects until completion of the Airport System Plan study.

The WG recommended Aviation staff revise their approach to score aviation projects under “Safety, Mobility, Infrastructure Health, and Economic Competitiveness” criteria (3 of the 4 are already within the Project Categories used to group project priorities and economic competitiveness was already within each of the 3 funding categories). Also, ensure a 100 point scale and a quantitative approach is used.

Bicycle and Pedestrian Comments

- The Bicycle/Pedestrian Division staff needs to clarify their approach is for scoring “off-road” improvements such as greenways. The on-road “incidental” improvement are not part of this scoring.
- The WG requested a use of “Benefit Cost” be incorporated into the scoring criteria; one idea is to use ROW acquired as a means to lower the cost of the project in the B/C calculation. Also, consider B/C use in Access and Demand/Density criteria. Division staff should also balance this request to ensure scoring process rewards those projects (even larger, more expensive ones) that complete a “missing link” in a local plan.
- The WG asked staff to consider if a minimum threshold dollar amount should be a requirement prior to the project being scored or if other screening criteria should be used. The scoring scale should also be better stratified. Finally, the staff needs to consider if a connectivity criteria should be included at 5% and make Safety be 15%

Ferry Comments

The WG concluded the Ferry Division approach was sound and agreed to proposed criteria and % weights as presented. The Division assumed emergency projects (such as repairs to support equipment) are excluded from the formula. Division staff explained data in Accessibility/Connectivity criteria was sourced to Albemarle RPO Bicycle/Pedestrian plan and pulling in points of interest from other states (such as SE Virginia) would have skewed the data.

Public Transit Comments

- The WG commented the Benefit/Cost measure does not create sufficient differentiation between systems and the measure should be based on ridership and utilization vs. efficiency based on seats filled. Also, consider a more capacity based approach and review the current utilization of the route/system as a starting point.
- The Public Transit Division staff needs to emphasize replacement buses/vehicles (in kind) will be funded as Operating and Maintenance and only vehicles/buses with additional capacity (above and beyond existing vehicle/bus) are eligible in the proposed legislation.
- The WG recommended staff also consider other transit improvements (such as bus shelters) that need to be incorporated into the scoring (and how to measure this within scoring criteria).
- The Division staff needs to better explain how the Technology criteria is used to score capital/capacity increasing vehicles. If used it is recommended the criteria should focus on how it's an incentivized approach that will create an Return on Investment for the local area and explain how it is measured.
- The Division staff needs to create scoring criteria for Bus Rapid Transit, fixed guideway and commuter rail type projects since it was agreed between the Rail Division and Public Transit Division that these projects would be scored as Transit projects.

- The Division needs to better scale scoring from 0-100 (vs. simply providing finite points) for each criteria.

Rail Comments

- The WG recommended dropping the Safety criteria unless Division staff can find a more quantitative approach and data sources for its use. Points provided in each criteria also need to be more scalable and should not be set up in a way that unfairly disadvantages the other modes (i.e., points should be based on output of the scoring model vs. arbitrary assignment of 10, 20, 30 points for a range). The WG asked staff to ensure the criteria creates scoring opportunities for projects eligible for Regional Impact and Division needs too.
- The WG agreed the rail criteria was otherwise solid and if the requested changes are made, the WG will be ready to provide final input on proposed % weights

Multimodal Comments

- A WG member had proposed (after the May 20 meeting) that this measure should be changed to allow for 25% of the score to be based on “Volume/Capacity Ratio on projects along “non-Interstate” STRAHNET Routes). This would help to emphasize the importance of using STRAHNET and focusing on military mobilization needs.
- After much deliberation the WG agreed to leave the measure as is. However, SPOT was asked after the meeting if this could be revisited on June 10.

Accessibility/Connectivity Comments

- Austin Chamberlain presented a revised approach for how to measure this criterion. The WG agreed the measure is now better aligned with the original intent of the criteria and is an improvement from previous versions. The WG agreed with the Option 1 threshold of 5000 jobs and weighting approach between rural centers and centers of commerce
- An extensive discussion followed in the WG regarding the use of Accessibility/Connectivity (A/C) being added back into any of the three funding scenarios. At the present time, the legislation does not provide for its use in Statewide Mobility category. Some WG members were concerned this criteria is already being measured in other ways and it won't help score projects that are needed in the critical last mile (where congestion is located in urban areas) for commuters. Suggestions were also made that if A/C was not recommended for use in scoring it could be a quantitative way to assign Local Input Points by MPOs/RPOs/Divisions in the future (should they choose an alternative funding strategy). Consider was also given to assigning 5% to this criteria but was ultimately dropped due to anything less than 10% may not “move the needle” on a project score.
- The WG could not reach a consensus on how to include this criteria but did reach consensus that there should therefore be no change.
- SPOT presented a slide on early thoughts regarding normalization scoring. See attached slide. If anyone has any suggestions, please share them with the Workgroup prior the June 10 meeting.

A brief agenda for June 10 meeting will include finalizing criteria for the remaining non-highway modes, revisiting the multi-modal criteria and discussing normalization scoring options.

Prioritization 3.0 Workgroup Meeting No. 11 Summary Notes - May 20, 2013

Welcome and Opening Remarks

Alpesh Patel thanked everyone for attending today's meeting. See list of attendees at the end of this summary.

Key Dates

Alpesh reminded everyone of the upcoming key dates. No changes from the last Work Group meeting.

Questions on Strategic Transportation Investments Legislations House and Senate Versions

Alpesh described how SPOT office followed up on a number of concerns/clarifications including use of local incentive for highway projects only (but not exclusive to one category), potential provision to cite city street eligibility under Division Needs category, no appetite in the legislature to add principal arterial mileage eligibility to NHS (nor map date change). Introduction of John Nicholson as new member of P3.0 WorkGroup to represent military needs/priorities

The Workgroup reached consensus on a recommended default investment strategy:

Statewide Mobility – 100% Data Driven

Note: the House and Senate bills have different scoring criteria. Economic competitiveness is not allowed in the Senate bill. Therefore, the Workgroup provided two options, depending on whether economic competitiveness is allowed.

	<u>House Criteria</u>	<u>Senate Criteria</u>
Benefit-Cost	30%	35%
Congestion	30%	35%
Economic Competitiveness*	10%	---
MultiModal **	20%	20%
Safety	10%	10%

*measured as 50% based on change in productivity (same as P2.0) and 50% based on long-term employment numbers with all outputs generated from TREDIS.

**measured as 25% based on volume/capacity ratio if the project is a direct connection to transportation terminals (including military, seaports, inland terminals, etc.) and 25% based on the volume/capacity ratio when the route is on the STRAHNET and 50% based on truck volumes. (this essentially combines multi-modal, freight and military)

Regional Impact- 70% data, 30% Local Input

Benefit-Cost	30%
Congestion	30%
Safety	10%

Note: Neither economic competitiveness nor accessibility/connectivity were included

Division Needs- 50% data, 50% Local Input

Benefit-Cost	20%
Congestion	20%
Safety	10%

Note: Neither economic competitiveness nor accessibility/connectivity were included

Workgroup discussed pros/cons of each highway criteria and percentage weights associated with all three funding categories in the order of Statewide Mobility, Regional Impact and Division needs. Workgroup referenced both the goals associated with each category and recommended 2 options for criteria and weights which best address House and Senate proposals. Workgroup members desired that the meeting minutes reflect the fact these recommendations are being made in a condensed timeframe and it would be a preference that more time be allowed to further discuss these criteria.

Comments Under Statewide Mobility:

Since this category is focused on addressing major bottlenecks and congestion and is 100% data driven greater weight should be given to Benefit-Cost and Congestion criteria. Scoring highway projects for multimodal/freight/military impacts is important, WorkGroup recommended changing how this criteria is measured to ensure projects on STRAHNeT and non STRAHNeT routes and those that carry heavy freight and/or make connection to multimodal terminals are accounted. The Workgroup believes this criteria now accurately addresses some of the general concerns heard from officials in the Eastern part of the State.

Economic competitiveness was recommended only for the Statewide Mobility category and to be weighted at 10%. The Workgroup was cognizant of the Senate proposal, there was still some uncertainty regarding that this criteria and an overreliance on its output, i.e., it might over estimate “if you build it, they will come”. Weight is also lower because primary input to TREDIS is travel time savings and this is captured in Benefit-Cost category. Workgroup confirmed their recommendation from May 13 meeting to measure long term jobs plus productivity for this criteria.

Accessibility/Connectivity criteria was also extensively discussed. The Workgroup was cognizant the Senate budget bill added it as a potential criteria for the Division Needs category. However, the Workgroup could not come to consensus on exactly the purpose of this criteria and what was being measured. Some thought this would encourage urban sprawl, there was not agreement on how to measure improved drive times, commute times, etc., what was a target commute time and whether projects should receive more points if they were within acceptable commute times or get more points if they were outside the acceptable commute time. Proposals were also raised to flip the scoring scale for this criteria that would give more points to where congested locations exist already but doing so would only restate a congestion calculation in a different way. The lack of consensus on purpose and calculation led to dropping its use for Regional Impact and Division Needs category. SPOT was asked to review one more idea for measuring this criteria – it consists of drive times divided by distance which might show a ratio or a travel time index that more accurately reflects something related to accessibility/connectivity. SPOT will provide this at the next Workgroup meeting.

SPOT was also asked to provide a reference to the top 25 tourist destinations that are part of the SHC Activity Centers. Weblink is the following:

<http://www.bizjournals.com/triangle/news/2012/03/22/list-top-25-north-carolina-attractions.html>

The Workgroup expressed concerns that the Senate budget bill further restricted public transit and federally funded Bicycle/Pedestrian improvements to be eligible only under the Division Needs category. However, it was pointed out that the Powell Bill funds could be used as the state match for Bicycle/Pedestrian improvements.

SPOT was asked to send the one-page TREDIS summary with these meeting minutes. It is attached.

The non-highway modes made brief presentations on proposed criteria in their respective modes. Copies of their presentations are attached. The next Workgroup meeting on June 3 will focus on coming to consensus on scoring criteria and percent weights for each non-highway modes.

SPOT asked that MPO and RPO and Division Engineers keep in mind this Strategic Investment Initiative ensures that all modes compete for Highway Trust funds on the capital expenditure side. Local input will be a key component of project scoring. It is imperative that these organizations/officials communicate with all interested parties, i.e., aviation officials, rail officials, public transit agencies, Bicycle/Pedestrian interests, ferry officials because local input will be across all modes and all transportation interests need to be considered. SPOT also communicated that any solicitation for non-highway mode criteria and weights be made prior to the June 3 meeting.

Prioritization 3.0 Workgroup Meeting No. 10 Summary Notes - May 13, 2013

Welcome and Opening Remarks

Alpesh Patel thanked everyone for attending today's meeting. See list of attendees at the end of this summary.

Key Dates

Alpesh reminded everyone of the upcoming key dates. No changes from the last Work Group meeting.

Proposed Strategic Mobility Formula

A review was made of the key components of the legislation as passed by the House on its third reading last week. A note was made that a change in the House was that funding is now at a 40% Statewide Mobility, 30% Regional Impact and 30% Division Needs levels. The vote was 103-14.

The initial discussion centered on whether the Workgroup wished to expand on the goals of the three categories. See below. The minor changes are underlined.

Statewide Mobility

Cost effective statewide strategic mobility needs, and promote and maintain economic and employment growth.

Regional Impact

Cost effective needs from a region-wide perspective and promote mobility and economic growth.

Division Needs

Cost effective needs from a division-wide perspective, provide access and mobility, promote economic growth, and address safety-related needs of local communities

The following question/comments were heard regarding use of highway criteria in the Strategic Mobility Formula (SMF):

- Is the provision for returning 50% of local contribution available for non-highway projects (such as local match of transit projects)?
 - Answer: the provision is only for highway projects and only applies where there is a state match (i.e., the state would have expended funds for the project that the local municipality is providing instead)
- Is the provision for returning 50% of local contribution only related to Statewide Mobility Category?
 - Answer: no, the dollars will be returned to the local area, it could be from just one category or it could be from all three.
- The Work Group requested clarification on how to handle where some city streets that are eligible for federal funding would not compete in the SMF given the current version of the bill. Amna Cameron agreed to work with SPOT and legislative staff to clarify.

- The Work Group requested whether a technical correction is necessary to allow Principal Arterials (now part of the NHS in MAP-21) to be eligible routes to compete in the Regional Impact category OR Work Group should consider a recommendation to change the eligibility to state the NHS map as of “October 1 or December 1 2012”. SPOT and Anna Cameron will research this request.
- It appears that rail systems that serve regional purposes may only compete in one category of funds? (i.e. the proposed light rail in Orange-Durham area crosses county lines but the proposed light rail is currently only in Wake). Unless a change is made to the legislation, this interpretation is correct.
- It was noted that a greater emphasis must be made on ensuring we are meeting military needs with SMF. There should be a voice at the table for them---Don stated John Nicholson (special advisor to the Governor) will be contacted this week and a new member will be added to the Work Group.
- Are expensive reconstruction projects expected to compete with mobility projects or will they be funded separately? Interstate Maintenance funds are typically not enough to cover the construction costs of these projects.
 - Answer: SPOT will ask COO this question and bring back an official position to the Work Group by the May 20 meeting. It was agreed that if Interstate maintenance does include expensive reconstruction projects, then pavement condition score should be eliminated as a scoring criteria in the Statewide mobility category.
 - The Workgroup discussed creating a composite of multiple criteria to build a “travel benefit” value that is then divided by cost of the project. The challenge is translating every criteria into dollars and the potential complexity of the calculation along with risk of diluting the scoring process. Another variation on this was to combine Lane Width/Shoulder Width to create a “Geometric Deficient Design” criteria. In the end, it was decided not to travel that route.
- The scoring option presented by SPOT for the multi-modal scoring needs to be on a 0-100 scale and not an essentially “all or nothing” approach. The Work Group expressed concern that in the multimodal scoring/scale there should be more flexibility than simply providing points if the project ends at the property line but no other options were agreed upon. SPOT will present additional options at the next Work Group meeting.
- Economic Competitiveness – comments were raised that SPOT should make sure the scoring for individual segments is not double counted when totaling the number of jobs/productivity value added which results for the completion of the entire project.
- The proposed scoring for Freight category could be perceived as double counting (because this is also part of Economic Competitiveness). There was a suggestion to combine Freight and Multimodal categories into a single category and call it “Freight/Multimodal/Military Criteria”. SPOT will present options at the next Work Group meeting.

After further general discussion regarding the Highway Criteria for the Statewide Mobility category, the Work Group reached consensus/conclusions as follows:

- The following 6 criteria would still be considered (no decisions were made on which of these would be final scoring criteria nor were any weights discussed):
 - Safety (measured the same as P3.0 Strategic Prioritization)

- Economic Competitiveness: Add long-term jobs created as one of two components of this scoring criteria. The second component would be to continue to use the change in productivity. These two components would be equally weighted. Also, the economic analysis area most appropriate for each funding category (i.e., Statewide boundary for Statewide Mobility, Regional boundary for Regional Impact, Division boundary for Division Needs) would be used.
- Benefit-Cost (measured the same as P3.0 Strategic Prioritization)
- Congestion (measured the same as P3.0 Strategic Prioritization)
- Combine Freight & Multimodal into a new criteria called “Freight, Multimodal and Military”
- Scoring Suggestion: quantify the existing capacity of the Ports or Military Base and determine if a proposed project improves the base capacity (thereby improving mobility) and determine also if project improves “critical last mile” to the base/ports property. SPOT will bring options to the next Workgroup meeting.
 - Pavement (measured the same as P3.0 Strategic Prioritization) pending an answer on Interstate reconstruction as discussed earlier
- Eliminate the Lane and Shoulder Width as scoring criteria for Statewide Mobility.

Time was spent on reviewing a new potential scoring criteria for Regional Impact Category– Accessibility / Connectivity

- There was a general discussion on the overall purpose of this criteria. It is intended to score projects in rural areas which reduce travel times to job centers or to promote projects (regardless of urban/rural setting) that simply connect more of NC citizens to job centers.
- There was general acceptance of SPOT’s presentation of drive shed maps and use of activity centers from Strategic Highway Corridors as a basis for defining “commerce centers” however suggestions were offered to increase level of detail by which the criteria is scaled and scored. The Work Group wants to further review using a combination of 1) Department of Commerce’s origin and destination info, plus 2) drive shed maps, plus 3) average commute time by zip code statewide, the latter presented by Bjorn Hansen. There appeared to be some consensus to use 2500 jobs as threshold for Regional Impact category. SPOT will investigate further and bring back options at the next Work Group meeting.

Non-Highway Mode Scoring Criteria:

- Separate non-highway mode representatives presented proposed criteria for each of the non-highway modes (Public Transit, Aviation, Bicycle/Pedestrian, Ferry, Rail).
- Each representative also provided capital expenditure spending for the last 5 years (except for Public Transit and Ferry Divisions).
- Input was provided to the Ferry Division staff that their proposed criteria was only applicable to Division Needs projects for replacement vessels. Additional, needs-based criteria must be developed to score projects for Regional Impact (such as the purchase of new ferry vessels.)
- The Workgroup asked each non-highway mode representative to provide more details and brief explanations associated with proposed criteria by May 20th.

- The Workgroup agreed each proposed criteria for individual non-highway modes should also be scored on 0-100 point scale (to be consistent for project comparisons and consistent with highway scoring process). Each modal representative will be responsible for adjusting their scoring scale to meet this request by the May 20 meeting.

The Work Group meeting concluded with a reminder of the remaining schedule and next workgroup meeting at Chief Engineers Conf room. The Chief Engineer's Conference Room is located at 4809 Beryl Road, Raleigh NC 27606. This is near the intersection of Blue Ridge Road and Beryl Road. Beryl Road is alongside the railroad crossing at Blue Ridge Road. Parking should be readily available around the building. Enter at the front door off of Beryl Road and they can direct you to the Conference Room.

Prioritization 3.0 Workgroup Meeting No. 9 Summary Notes - April 29, 2013

Welcome and Opening Remarks

Don Voelker thanked everyone for attending today's meeting. See list of attendees at the end of this summary.

New Funding Scenario

Jim Trodgon and Don Voelker presented information on the Statewide Strategic Mobility Formula (SMF). The clear message is that what is presented today is the anticipated or expected requirements that are yet to be introduced in the General Assembly. Without seeing the specific language, the information presented should be considered informational. These requirements discussed today will change. The attached slides provide a wealth of information.

At this point, there is no dollar target established for each mode. All modes will compete for capital expenditures out of the Highway Trust fund. Statewide mobility projects are to be prioritized based on 100% data driven. However, if your project is not funded in Statewide Mobility it can potentially be funded in Regional and Division categories.

One strength of this proposal is the three levels of competition or categories.

Some comments heard:

- If certain regions have a small amount of dollars, it may take several fiscal years of planning for them to prepare and deliver their top 5 projects.
- What happens if a project crosses regional lines? The scoring details and how it will be funded need to be worked out.
- How often will the population calculation be updated?
- Should the regional allocation of dollars be based on future population estimates from State Demographers Office verses using the current population?
- Will transit capital projects that involve state matching funds be subject to the SMF? The answer is anticipated to be yes.
- SPOT will need to work with Transit staff to review how much is currently spent on transit dollars (capital matches for buses) and provide this information at the next Workgroup meeting.
- The wording on the slide referring to secondary road paving should clearly say this is the dollars set aside to pave remaining unpaved roads. This was reported to be about 3,530 miles.
- Will federally required formulas that prioritize projects be included? The answer is anticipated to be that programs prioritized by federal legislation will be outside of the Strategic Statewide Mobility formula.
- Will Appalachian Highway Development System dollars fall in or out? The answer is not known as of today.
- There were some questions regarding slide 24. It has been revised subsequent to the meeting to clarify so see attached slide.

- An example of a competitive grant not subject to this formula would be TIGER grant money would not count against NC in the totals.
- A question was asked what if this proposal is not successful--what is the default? The answer is we continue to use P3.0 criteria as we have been working on to date.
- The replacement of ferry vessels is an undue burden competing with a highway project for coastal divisions.
- There appeared to be several Workgroup members that advised that seeking 100% agreement from all MPOs/RPOs and Division Engineers on criteria for varying regional/division investment strategies is unrealistic. The example given was that one MPO/RPO/Division could veto the investment strategy for an entire region.
 - There will be significant concerns among locals, MPOs, and RPOs about moving transit capital matching funds (other than for new fixed guideway projects) into the Strategic Mobility Fund. That appears to create significant possible problems without offering substantial benefit, compared to simply maintaining a state matching fund for transit capital (other than new fixed guideway projects). The amount of money involved would make only a small addition to the Strategic Mobility Fund while potentially jeopardizing important support for bus transit operations across the state.
 - There will be local concerns about how the independent bicycle & pedestrian projects administered by the DBPT would compete in the Strategic Mobility Fund.

A more lengthy discussion on Connectivity criteria was held. Connectivity may be one of the menu of criteria in the Regional and Division categories. Comments / suggestion were:

- Connectivity issues might be tied with subdivision ordinances? Can this same approach be applied at a high level to score projects under this criteria when they connect to a grid network of eligible routes in a region.
- Where does the drive time data come from, how is it calculated? Currently from an road network DOT uses but ultimately from NAVTAQ and will be based on average speeds.
- Concern was raised that drive shed map (current form) will be difficult to explain to second tier communities who don't see themselves on the map.
- There was a desire to create a job centered map showing travel times. Also, could SPOT use the Statewide Travel Demand model and the subarea data to determine where are the employment centers? SPOT should also look at employment density.
- Don't forget that out of state travelers from other parts of the southeast come into the southern mountains. Harrah's and Nantahala outdoor center should be included in the maps. Consider getting industry clusters and employment centers by type from Commerce and try to map. Consider accounting for universities, hospitals and other employment places.

There appeared to be consensus to change the term connectivity to accessibility/connectivity to more accurately describe what might be measured. In other words, it is more than just connecting rural to urban areas but also is urban to urban areas. Consider that a redundant network could be part of the criteria analysis (parallel routes help accessibility/connectivity) The workgroup believes that this is more a regional issue than a division issue.

A more lengthy discussion ensued regarding economic competitiveness. SPOT was requested to prepare 6 scenarios for the next Workgroup meeting, showing results from Options 1 and 2 for all three funding categories (run these scenarios using the same P2.0 projects shared in early April). Discussion and options included using jobs created per project within the scoring calculation. Workgroup recommended using a statewide baseline for Statewide Mobility category, a regional baseline for Regional Impacts category, and a Division baseline for Division Needs category.

Workgroup also discussed what criteria do not make sense to use for the Statewide Mobility funding category. Consensus seemed to be lane width and shoulder width since that have mostly applied to modernization projects in the past. Also, there was some desire to keep “Safety” but reduce its % weight. The same was heard about “pavement condition”. Some also felt there needed to be some minimum percentage for any criteria that was used, i.e. 5 %.

Workgroup members were asked to start reaching to their respective constituents to gather feedback on criteria proposed thus far. Secondly, each Workgroup member needs to share the draft bill (when released) with their constituents and compare it to the proposed criteria discussed on April 29th. Third, Workgroup members should come to the next meeting (May 13th) prepared to discuss what should be the “goals” of the Statewide Mobility, Regional Impact and Division Needs categories.

Additional action Items:

Place updated Workgroup meeting dates on member’s calendars.

If a workgroup member cannot attend a future meeting, designate one alternate to attend.

Please provide the alternate’s name to SPOT prior to May 13th.

Workgroup member attendance needs to be limited to Workgroup members only. Exceptions would be for support personnel from NCDOT and if presentations/agenda items are being made.

SPOT will try to set up webinars for future meetings.

Timeline

A new timeline/schedule was discussed. See attached slide and information below. This acceleration will require cooperation from all MPO’s/RPO’s/Division’s and others in the Department.

Next Meeting(s)

The Workgroup’s next meetings are tentatively scheduled as follows:

May 13th – STOC (same as last time)

Regional Connectivity Criteria Measure

Economic Competitiveness Measure

Start discussion of potential Non-Hwy Mode criteria

Continued discussion of proposed Highway criteria

May 20th (Chief Engineer's Conference Room- 4809 Beryl Road, Raleigh NC 27606 Beryl Road, Raleigh, NC)

Criteria for Highway Projects – **NEED FINAL DECISIONS**

June 3th –Chief Engineer's Conference Room

Criteria for Non-Highway Projects – **NEED FINAL DECISIONS**

June 17th – Chief Engineer's Conference Room

Local Input Points

Normalization of Project Scoring

June 24th – Chief Engineer's Conference Room

TBD as needed

An early draft agenda for the May 13th meeting will be more discussions on the proposed Strategic Statewide Mobility Formula as outlined above.