

NCDOT

From Policy to Projects

2040 Plan

Appendices

Appendix A: Glossary

Appendix B: NCDOT Principles and Objectives

Appendix C: Public Involvement Process
and Input Summary

Appendix D: Federal Statewide
Transportation Plan Requirements

Appendix E: 30-Year Transportation Needs

Appendix F: Proposed Policy, Process, and
Program Changes for 2040 Plan
Implementation



Appendix A: Glossary

Accruing needs – Those modal needs that are warranted at a future date due to capacity, services or repair requirements.

Backlogged needs – Those modal needs that are current deficiencies that would have already been implemented had necessary funds been available.

Baseline revenue projection – forecast of existing state and federal transportation funding, with expressed assumptions for inflation, deflation, or continuity.

CAFE standards – Corporate Average Fuel Economy: regulations in the United States, first enacted by the U.S. Congress in 1975, intended to improve the average fuel economy of cars and light trucks.

EIA – Energy Information Administration: official energy statistics from the U.S. government.

Funding gap – difference between state and federal share of estimated modal needs (at defined “levels of service”) and baseline revenue projection.

HTF – Highway Trust Fund: established by legislation in 1989 for the purpose of improving identified “primary transportation corridors” within the State and completing urban loops around major metropolitan areas.

Investment Goal – linking directly to NCDOT’s three main goals relating to infrastructure management, development, and funding. Modal needs are defined in terms of investment required to address: Safety: (cost to improve safety and security); Infrastructure health (cost of operating, maintaining, and modernizing systems); and Mobility (cost to expand systems or services to reduce congestion, improve opportunities, or satisfy land access or freight movement needs).

LOS – Level of Service: Quality of service provided to the user, differentiated by mode, investment goal, and NCMIN tier.

Modal needs – Estimate of the long-range capital and operating costs of infrastructure, services provided, and maintenance/repair for each transportation mode.

NCMIN – North Carolina Multimodal Investment Network classifies facilities across all transportation modes as part of a unified system. It consists of three tiers: Statewide, Regional, and Subregional.

SPOT – Strategic Planning Office for Transportation: NCDOT unit responsible for preparing the 10-Year Prioritization 2.0 estimates for the NCDOT 10-year Program & Resource Plan (“From Policy to Projects”)

VMT – Vehicle Miles Traveled: a user fee that would charge drivers based on their road consumption by measuring their mileage.

Appendix B: NCDOT Principles and Objectives

This appendix lists the NCDOT Mission, Goals, Principles and Objectives, in draft form as of June, 2012.

NCDOT Mission, Goals, Principles and Objectives

“Connecting people and places, safely and efficiently, with accountability and environmental sensitivity, to enhance the economy, health, and well-being of North Carolina.”

MOVING PEOPLE AND GOODS: Efficient transportation network	<div style="border: 2px solid #ccc; border-radius: 15px; padding: 10px; width: fit-content; margin: auto;"> <h3 style="margin: 0;">Goals</h3> <ol style="list-style-type: none"> 1. Safer 2. Efficiently 3. Last Longer 4. Works Well 5. Great Place  </div>
<ul style="list-style-type: none"> Improve the reliability of all modes of transportation Reduce congestion Reduce travel times 	
CHOICES: Options in how to travel	
<ul style="list-style-type: none"> Expand and enhance alternatives to automobile travel Improve intermodal connectivity Reduce growth rate of single-occupancy vehicle (SOV) travel 	
CONNECTIVITY: Integration of transportation and land use	
<ul style="list-style-type: none"> Enhance transportation network connectivity Improve pedestrian and bicycle linkages to activity centers Encourage comprehensive planning at the state, regional, and local levels Invest in multimodal, mixed-use transit centers Reduce average trip length 	
RESOURCE PROTECTION: Protection and conservation of natural resources	
<ul style="list-style-type: none"> Improve air quality and reduce transportation-related emissions Protect and enhance water quality Increase energy and water conservation and efficiency Conserve high-quality ecosystem services Enhance “3 R” (reduce, reuse, and recycle) efforts 	
PROSPERITY: Economic growth and development	
<ul style="list-style-type: none"> Leverage effective funding strategies for transportation investment to meet long-term needs Use transportation investment to support economic development, job creation, and commerce Increase the efficiency and cost effectiveness of goods movement 	
ACCOUNTABILITY: Balance of needs and interests with available resources	
<ul style="list-style-type: none"> Improve performance-based program delivery Use value management tools, including life cycle, risk assessment, and return on investment analyses, for transportation decision-making Maximize the capacity potential of the existing transportation network across all modes Improve NCDOT’s level of customer service 	
HEALTHY COMMUNITIES: Livable communities and improved quality of life	
<ul style="list-style-type: none"> Improve safety for communities and for travelers of all modes Provide equitable transportation options for all travelers, including transit-dependent populations and users of all capabilities Support improved public health outcomes Improve the resiliency of transportation infrastructure to natural causes, including weather-related events Enhance public awareness and opportunities for participation with an emphasis on engaging traditionally underserved populations Protect and preserve historic, cultural, and civic assets 	
ORGANIZATIONAL RESPONSIBILITY: A sustainable organization	
<ul style="list-style-type: none"> Attract new employees and enhance employee engagement, retention, productivity, diversity, and satisfaction Improve information technology products and services to facilitate efficient and effective business operations Implement programs that improve employee health, safety, and welfare 	

Appendix C: Public Involvement Process and Input Summary

This Appendix provides some specifics regarding the public involvement program for the 2040 Plan. More details about the process, and more detailed input reports may be found at <http://www.ncdot.gov/performance/reform/2040Plan/>.

Introduction

A comprehensive public involvement program was undertaken for the NCDOT 2040 Plan, which began with the development of a Public Involvement Plan (PIP) for the project. The PIP provided a guide for public outreach and participation to ensure North Carolinians had the opportunity to provide comments, thoughts and ideas.

The PIP focused on five major audiences, including:

1. General public
2. Agencies/Land Management Agencies/Tribal Governments (ACG)
3. Statewide Stakeholders Group (SSG)
4. Regional contacts (including Metropolitan Planning Organizations (MPO) and Rural Planning Organizations (RPO))
5. Traditionally underserved individuals

A set of goals for the PIP were established, which included:

1. Generate awareness of the 2040 Plan and encourage feedback and participation early in the planning process and throughout its duration;
2. Allow for full public access to timely information and opportunities for engagement, particularly at key decision points;
3. Provide a wide range of opportunities for the public to participate in the process, allow comments to be submitted, and get answers to questions in a timely fashion;
4. Proactively involve those persons traditionally underserved by the decision-making process, such as minorities, low-income persons, persons with disabilities, and Limited English Proficiency (LEP) populations (including complying with federally required four-factor analysis and Safe Harbor provisions);

5. Ensure opportunities to be involved in the process are extended to federal and state stakeholder agencies, including federal land management agencies, Indian tribal governments and “interested parties” as described by SAFETEA-LU;
6. Demonstrate how public input is being incorporated into the 2040 Plan; and
7. Build public consensus and support for the implementation of the 2040 Plan.

The public involvement program occurred in three major phases, beginning with the launch of the 2040 Plan effort in April 2011. A second phase occurred starting in September 2011, which emphasized gathering input about transportation needs and investments, financial support and NCDOT policies, programs and processes. The third phase of public involvement, started in February 2012, involved asking the public and stakeholders to review and comment on the draft 2040 Plan.

Phase 1

The 2040 Plan was launched publicly in April 2011 and initial focused input was gathered until June 30th. (The opportunity to provide comment existed at all times during the study.) Basic information about the study was provided, and input focused on the future of transportation, and the challenges and opportunities that exist related to transportation. A variety of communication tools and techniques were used during the launch phase to engage each audience type, including:

- Establishing methods of communication in both English and Spanish, including a web presence, email, postal mail, toll-free telephone line, and presentation;
- Printing and distribution of a fact sheet in both English and Spanish that provides basic project information and lists ways to be involved;
- Forming a group of federal, regional and state agency representatives (Agency Coordination Group – AGC), and conducting a kick-off meeting with its members. A list of organizations and ACG members is included at the end of this summary.

- Forming a group of representatives of statewide business, cultural, and environmental organizations, local governments and transportation agencies and authorities (Statewide Stakeholder Group – SSG), and conducting a kick-off meeting with its members;
- Distributing E-mails to SSG and ACG members, and the project Regional Contacts – a list of organizations from across the state representing various interests – requesting assistance in distributing surveys and study information;
- Conducting visits with individuals and organization leaders to solicit assistance with distributing information and completing surveys;
- Making more than 110 telephone calls to organizations on the regional contact list to follow-up on the launch email, and to discuss outreach;
- Developing and distributing of a survey, both online and in hard copy, and in both English and Spanish;
- Posting information online on NCDOT's existing web site;
- Sending emails with links to the survey to all North Carolina High School principals to request their assistance in obtaining student input;
- Distributing a media release to announce the start of the 2040 Plan process and solicit input;
- Posting a Tweet and a Facebook message to announce the start of the 2040 Plan and solicit input;
- Developing a video Public Service Announcement (PSA) and distribution to cable companies for posting on local access programming and making it available in Spanish on request;
- Delivering information about the 2040 Plan and providing the web address at all scheduled presentations;
- Delivering presentations at Metropolitan Planning Organization (MPO) and Rural Planning Organization (RPO) meetings, and sending notice of the presentations to the organizations on the regional contact list

Outreach Numbers

The launch notice and link to the survey was sent to 27 statewide organizations, 25 federal, state or local government agencies, and 1,077 Regional Contacts. A total of 4,126 surveys were completed, with 13 of those in Spanish. The total estimated reach from the grassroots activities and traditional and social media was an estimated 210,000 people.

Phase 1 Input Summary

Highlights from the responses to the initial survey include:

- Most people expect to be using a motor vehicle for transportation in 2040.
- The top three benefits NCDOT should consider when prioritizing transportation efforts are
 - Reducing congestion
 - Strengthening local/state/regional economies
 - Reducing accidents
- Federal and state governments and developers should pay for transportation investments (top three choices).
- The top response to a question about what a transportation network should do was “be predictable and dependable.”
- Maintaining a balanced budget is most important regarding financial investments.
- Safety & security and access to jobs & healthcare top two quality of life factors impacted by transportation.
- The biggest challenges to creating a successful transportation system that will serve North Carolina are funding and attitudes toward transportation.
- The top three issues NCDOT should consider as the 2040 Plan develops are:
 - Funding
 - Aging roads and bridges
 - Easing congestion

Input from the SSG and ACG, and North Carolina MPOs and RPOs was similar to the general public input relative to the issues NCDOT should consider as it develops the 2040 Plan. In addition, input from the two advisory groups indicated NCDOT should consider

how the changing demographics of North Carolina, particularly in terms of aging, disabilities and diversity, could impact transportation.

Phase 2

Phase 2 of the public involvement program was intended to gather input on a variety of issues, including the needs for each mode of transportation, prioritizing transportation investments, financing transportation needs and the policies, programs and processes of NCDOT. This phase began in early September and concluded at the end of October 2011.

As in Phase 1, a variety of communication tools and techniques were used to engage each audience type, including:

- Continuing availability of various communication methods in both English and Spanish, including a web presence, email, postal mail, toll-free telephone line, and presentation;
- Printing and distributing an updated fact sheet in both English and Spanish that provided information about how public involvement has been incorporated into the 2040 Plan to-date, and about the status of the study;
- Conducting meetings of the SSG and the ACG;
- Conducting four regional workshops for MPO and RPO Transportation Advisory Committee members;
- Presenting information at Metropolitan Planning Organization (MPO) and Rural Planning Organization (RPO) quarterly association meetings and at regularly scheduled local MPO and RPO meetings.
- Developing and distributing a public survey, both online and in hard copy, and in both English and Spanish;
- Distributing emails to SSG and ACG members, and a list of organizations from across the state representing various interests requesting assistance in distributing surveys and study information;
- Making telephone calls to leaders of key organizations and institutions to solicit assistance with distributing the surveys;
- Conducting two webinars for local organizations, agencies and institutions on the Regional Contacts

list and making telephone calls to nearly 350 entities to solicit participation;

- Posting information on NCDOT's existing web site;
- Distributing a media release to announce the availability of the second public survey;
- Posting a Tweet and a Facebook message to announce the availability of the second public survey; and
- Delivering information about the 2040 Plan and providing the web address at all scheduled presentations.

Phase 2 Outreach Numbers

The launch notice and link to the survey was sent to 29 statewide organizations, 24 federal, state or local government agencies, and 908 Regional Contacts. A total of 3,509 surveys were completed, with 4 of those in Spanish. The total estimated reach from the grassroots activities and traditional and social media is an estimated 150,000 people. Added to the university estimates, the total reach was estimated to be half a million people.

Phase 2 Input Summary

The following offers the major highlights of the combined input received from the SSG, ACG, Regional Contacts and the general public during Phase 2:

- North Carolina highways, aviation and ferry facilities are rated average or better by most stakeholders;
- North Carolina's transit services, bicycle-pedestrian facilities, passenger rail offerings and ports are rated below average or lower;
- Nearly all SSG, ACG and local respondents indicated NCDOT needs more money to either maintain existing facilities or make improvements;
- The new revenue source receiving the highest level of support from all respondents is toll roads, with either vehicle miles travelled or local option sales tax as the next most acceptable sources;
- Increasing user fees or the Highway Use Tax (or motor vehicle sales tax) were the two most acceptable increases in existing revenue sources from all respondents;
- Among SSG, ACG and local respondents, transportation investments should focus on the

mobility goal and investments should be distributed somewhat evenly across tiers;

- Among SSG, ACG and local respondents, transportation investments by mode should first focus on highways and then on public transportation, after which there should be nearly equal focus paid to bicycle-pedestrian, rail and aviation facilities

MPO/RPO input during the second phase included:

- It is important that transportation investments support all modes, and that funding recognizes that types of needs vary by region. There cannot be a one-size-fits-all mentality.
- If NC moves to new revenue sources to fund transportation programs, the focus should be on sources that are user-fee based, such as VMT and tolling, rather than general revenue sources such as general sales taxes.
- Critical to meeting long-term transportation needs will be gaining public acceptance by educating the public on the true needs and the economic impact of not meeting those needs.
- Local governments need to be creative in order to control aspects of their transportation systems.
- Investment priorities should give strong consideration to reallocating funding from roads and highways to alternative modes of transportation.
- NCDOT needs to have more of a local planning presence across the state; planning will benefit if NCDOT personnel are more attuned to local issues. Efficiency, transparency and equity should be the goal of NCDOT policies, programs and processes. This is particularly true with regard to prioritization of projects: project evaluation formulas need to ensure that projects promising high return in terms of economic benefits are given high priority.
- The timing of transportation improvements needs to be flexible to take advantage of economic development opportunities.

Phase 3

Input during the third and final phase of public involvement for the 2040 Plan focused on providing access to the full draft of the 2040 Plan, helping people understand the major broad components of the plan, and gathering feedback on the draft plan. A series of activities very similar to those carried out in Phases 1 and 2 was conducted from late February to the end of May 2012. Activities included:

- Continuing availability of various communication methods in both English and Spanish, including a web presence, email, postal mail, telephone line, and presentation;
- Printing and distribution of an updated fact sheet in both English and Spanish that provided information about the 2040 Plan recommendations and how public involvement has been incorporated into the 2040 Plan;
- Conducting a joint meeting of the SSG and the ACG;
- Presenting 2040 Plan recommendations to North Carolina's MPOs and RPOs;
- Presenting information at the quarterly meetings of the associations for MPOs and RPOs;
- Developing and distributing a third and final public survey, both online and in hard copy, and in both English and Spanish;
- Distributing E-mails to SSG and ACG members, and a list of organizations from across the state representing various interests requesting assistance in distributing surveys and study information;
- Making nearly 450 telephone calls to leaders of key organizations and institutions to solicit assistance with distributing the surveys;
- Conducting two webinars for local organizations, agencies and institutions on the project Regional Contacts list;
- Posting information online on NCDOT's existing web site;
- Posting a video on the NCDOT web site, YouTube and at all Department of Motor Vehicles offices across the state to encourage people to complete a survey;

- Distributing a media release to announce the availability of the draft 2040 Plan and the third public survey;
- Posting Tweet and a Facebook messages to announce the availability of the draft 2040 Plan and third public survey; and
- Providing the 2040 Plan web address at all scheduled presentations.

Phase 3 Outreach Numbers

The launch notice and link to the survey was sent to 29 statewide organizations, 24 federal, state or local government agencies, and 911 Regional Contacts. A total of 878 surveys were completed, all in English. The total estimated reach from the grassroots activities and traditional and social media is an estimated 180,000 people. Added to estimates of distribution to university and community college students, the total reach is estimated to be half a million people.

Phase 3 Input Summary

Highlights from the third and final survey conducted during the Phase 3 public input phase include:

- Nearly 82 percent of respondents agreed that the state's priorities for transportation spending should be 1) ensuring safety; 2) preserving our current transportation systems; and 3) address mobility needs of statewide significance.
- Seventy-two percent of respondents strongly agreed or agreed that NCDOT's transportation systems are providing adequate service. Of the 28 percent who disagreed, most said alternate modes are inadequate.
- Nearly 88 percent of respondents think it is important to have a better transportation system in 2040 than what exists today even though it will require more funding.
- A bit more than 85 percent of respondents believe the state should try to achieve better or best transportation service.
- More than 90 percent of respondents agreed with nearly all of the statements/recommendations related to Policies, Procedures and Processes.
- The two PPP recommendations that received less than 90 percent support were 1) focus on multimodal facilities of statewide importance (82 percent) and 2) improve opportunities for NCDOT partners to accelerate local and regional improvements by allowing increased local transportation spending (88 percent).

Project Input Summary

Input from key stakeholders, transportation agencies, regulatory organizations, local governments, and the public has been a crucial component of developing the draft 2040 Plan. Key themes that were heard throughout the first two phases of the public involvement program include:

- Roads are important for North Carolina's economic prosperity, but it will be increasingly important to have public transportation or non-motor vehicle options as the population diversifies and ages.
- Because roads are important, it is imperative that North Carolina take care of its existing infrastructure, and place a high priority on roadway improvements that will address congestion and economic development needs.
- Linking multiple modes and connecting land uses to transportation would create a more efficient transportation network and help address urban sprawl.
- It is acknowledged that increased funding may be needed to pay for transportation projects, facilities and services. However, NCDOT should exhaust all ways of streamlining its operation and eliminating fund diversions at the state level before considering other ways of obtaining funds.
- If increased funding is sought, it should come from a variety of sources, with user fees or fees on vehicle miles travelled as the first two sources to consider.
- NCDOT needs to work closer with its transportation partners at the MPO and RPO levels, and recognize transportation needs vary from region to region.
- More education of stakeholders and the general public is needed about transportation, including how it is funded, and what it costs to maintain and improve a multi-modal transportation network.

2040 Plan

Agency Coordination Group Members

1. US Fish & Wildlife Service (Gary Jordan)
2. North Carolina Department of Cultural Resources (Renee Gledhill-Earley and Dr. Jeff Crow)
3. USDA Rural Development (Barbara Beard-Hinton and Bill Hobbs)
4. US Army Corps of Engineers (Monte Matthews)
5. National Park Service (Kent Cochran and Elisabeth Hahn)
6. NC Department of Health and Human Services (Jack Rogers and Stephen Brink)
7. NC State Highway Patrol (Col. Michael Gilchrist and Lt. Col. Wellington Scott)
8. US. Department of Housing and Urban Development (Chris Stearns and Emily Williams)
9. US Coast Guard (Captain Anthony Popiel)
10. NC Wildlife Resources Commission (David Cox)
11. USDA Farm Service Agency (Eddie Woodhouse)
12. US EPA (Dr. Linda Rimer)
13. US Bureau of Indian Affairs (Latonya Gordon)
14. Eastern Band of Cherokee Indians (Barak Myers)
15. NC Department of Environment and Natural Resources (Amy Simes)
16. FHWA (John Sullivan and Unwanna Dabney)
17. NC Department of Agriculture and Consumer Services (Dewitt Hardee)
18. NC Department of Commerce (Stephanie McGarrah)
19. NOAA Fisheries Habitat Conservation Division (Ron Sechler)
20. US Forest Service (Karen Compton)
21. FAA (Scott Serritt)
22. FTA (Scott Allen)
23. NC Council of Deaf and Hard of Hearing (Jan Withers)
24. US Military (Paul Friday and Michael Evers)

2040 Plan

Statewide Stakeholder Group Members

1. North Carolina Rail-Trails (Carrie Banks, Executive Director)
2. North Carolina Conservation Network (Grady McCallie, Policy Director)
3. North Carolina Rural Economic Development Center (Sara Stuckey, Program Advisor)
4. The American Road and Transportation Builders Association (Carolinas AGC – Ron Shaw, CAGC Board Member)
5. North Carolina State Chamber of Commerce (Lewis Ebert, President & CEO)
6. North Carolina Farm Bureau Federation (Kirk Mathis, State Board Member)
7. AARP of North Carolina (Diana Hatch, State President)
8. Salvation Army (Mike Patterson, Emergency Disaster Services Director)
9. North Carolina Center for Non Profits (David Heinen, Director of Public Policy and Advocacy)
10. North Carolina Statewide Independent Living Council (Cynthia Sexton, Executive Director)
11. North Carolina Council on Developmental Disabilities (Karen Hamilton and Carrie Ambrose)

12. Railway Association of North Carolina (Carl Hollowell, Past President)
13. North Carolina League of Municipalities/Metro Mayors Council (Julie White, alternate is Chris Lukasina, Transportation Planning Manager, Capital Area MPO)
14. North Carolina Association of Regional Directors (association of Councils of Governments) (H. DeWitt Blackwell, President)
15. El Pueblo (Pablo Escovar, President)
16. North Carolina State Parks Trails Committee (Darrell McBane, State Trails Program Manager)
17. Legal Aid of North Carolina (George Hausen, Jr., President)
18. United Hmong Association of North Carolina (TuGer Vanc, Executive Director)
19. North Carolina Housing Coalition (Chris Estes, Executive Director)
20. North Carolina Trucking Association (Crystal Collins, President)
21. North Carolina Ports Association (Stephanie Ayers, Director of Planning and Development)
22. North Carolina Public Transportation Association (Randy Bass, Transportation Director, Carmalee Scarpitti)
23. North Carolina Association of Metropolitan Planning Organizations (Tyler Meyer, Greensboro Urban Area MPO)
24. North Carolina Association of Rural Planning Organizations (Mike Ciriello, Director of Planning, Kerr-Tar RPO)
25. North Carolina Restaurant & Lodging Association (Marty Kotis, CEO Kotis Properties)
26. North Carolina Airports Association (Don Howard, president)
27. North Carolina Council of Churches (Kathy Shea, director North Carolina Interfaith Power & Light)
28. North Carolina Association of County Commissioners (Jennifer Roberts, Mecklenburg County Commissioner; alternate is Kevin Leonard (NCACC staff))
29. Alliance of Disability Advocates (Rene Cummins)

2040 Plan

Public Involvement Working Group Members

1. Tyler Bray, NCDOT
2. Terry Arellano, NCDOT
3. Dan Thomas, NCDOT
4. Nicole Meister, NCDOT
5. Drew Joyner, NCDOT
6. Tyler Meyer, Greensboro MPO
7. Mike Ciriello, Kerr-Tar RPO
8. Aketa Emptage (initially), NCDOT
9. Sharon Lipscomb (replaced Aketa), NCDOT
10. Julie Hunkins, NCDOT
11. Loretta Barren, FHWA
12. Unwanna Dabney, FHWA
13. Julie White, North Carolina League of Municipalities
14. Ann Hartel, consultant
15. Garold Smith, consultant
16. Jill Gurak, consultant
17. Lindsey Maurer, consultant
18. Mark Boggs, consultant
19. Amanda Boyd, consultant
20. Anne Morris, consultant
21. Judy Meyer, consultant
22. Adam Wroblewski, consultant

Appendix D: Federal Statewide Transportation Plan Requirements

The 2040 Plan, together with NCDOT's *10-Year Plan (Policy to Projects)* has been prepared to meet federal transportation planning requirements for statewide transportation planning as defined in 23 CFR

Part 450. This appendix lists the required long-range statewide transportation plan content satisfied by these documents and their development processes.

2040 Plan Compliance with Federal Regulations Checklist				
Item	Code of Federal Regulations: 23 CFR 450.214	Status		Notes
	Description	Satisfied by the 2040 Plan	Satisfied by the 10-Year Plan (Policy to Projects)	
a	Statewide transportation plan (STP) should have a minimum 20-year forecast period that provides for the development and implementation of the multimodal transportation system and considers and includes elements and connections across all modes.	X		2040 Plan has 30-year forecast period for modal needs and revenues.
b	STP should include capital, operations and management strategies, investments, procedures, and other measures aimed at preservation and most efficient use of the existing transportation system.	X	X	2040 Plan estimates 30-year modal needs addressing capital and operating costs for all modes under operational or financial responsibility of NCDOT. The Plan also forecasts revenues and identifies gap-closure strategies. Finally, the Plan identifies Plan-implementation policies and procedures.
c	STP should reference, summarize, or contain any applicable short-range planning studies; strategic planning and/or policy studies; transportation needs studies; management systems reports; emergency relief and disaster preparedness plans; and any statements of policies, goals, and objectives on issues relevant to STP.	X		2040 Plan and supporting reports reference studies such as: GLTF work, Pavement Management Assessment, CTPs, SHC, North Carolina Maritime Strategy and Seven Portals Study.
d	STP should include a safety element that incorporates or summarizes the priorities, goals, countermeasures, or projects contained in the Strategic Highway Safety Plan required by 23 U.S.C. 148 (http://codes.lp.findlaw.com/uscode/23/1/148)		X	Safety element is addressed through a variety of measures aimed at improving safety, including NCDOT's Performance Dashboard that uses the "fatality rate" target consistent with the SHSP, as well as the Prioritization 2.0 process that utilizes fatal crash highway rates as one of the measures to determine the LOS Targets.
e	STP should include a security element that incorporates or summarizes the priorities, goals, or projects set forth in other transit safety and security planning and review processes, plans, and programs.	X		Reference transit systems that have security elements; FTA or possibly FRA safety security plans.
f	STP should be developed in cooperation with the affected MPOs.	X	X	Multiple opportunities for participation and input by MPOs.
g	STP should be developed in cooperation with the affected RPOs.	X		Multiple opportunities for participation and input by RPOs. Rural Consultation (consultation w/ non-MPOs) was covered in UPEP.

2040 Plan Compliance with Federal Regulations Checklist				
Item	Code of Federal Regulations: 23 CFR 450.214	Status		Notes
	Description	Satisfied by the 2040 Plan	Satisfied by 10-Year Plan (Policy to Projects)	
h	STP should be developed in consultation with the Tribal government in the affected areas.	X		EBCI was engaged in multiple consultation activities, and was involved in the Statewide Stakeholders Group.
i	STP should be developed in consultation with State, Tribal, and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation. Requires comparison of transportation plans to State and Tribal conservation plans or maps and inventories of natural or historic resources (if available).	X		These groups were engaged through coordination with the Interagency Leadership Team and Agency Coordination Group. The members were asked to ensure there is no conflicting information in the 2040 Plan.
j	STP should include a discussion of potential environmental mitigation activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by STP. The discussion may focus on policies, programs, or strategies, rather than at the project level and should be developed in consultation with Federal, State, and Tribal land management, wildlife, and regulatory agencies.	X		Discussion about the Ecosystem Enhancement Program (EEP) is included. 2040 Plan also includes discussion of "sustainability"
k	In developing and updating the STP, the State should provide citizens, public agencies, representatives of public transportation employees, freight transportation, private providers of transportation, public transportation, bike/ped, the disabled, providers of freight transportation services, and other interested parties with opportunities to comment on the STP.	X		Appendix C includes a discussion on how information was disseminated for public comments and how responses were provided to those comments.
l	STP may (but is not required to) include a financial plan that demonstrates how the plan can be implemented, indicates revenue options, and recommends additional financing strategies. The financial plan may (but is not required to) include additional projects that would be included in the STP if additional resources beyond those identified in the financial plan were to become available.	X		Task 6 & 7 - Financial Analysis and Proposed Investment Strategy focused on the financial component.
m	The State should not be required to select any project from the list of additional projects included in the financial plan described in paragraph (l).	N/A	N/A	Not a requirement
n	STP should be published online.	X	X	NCDOT publishes both 10-year and long-range plans on its website.
o	The State should evaluate, revise, and periodically update the STP.	X	X	Explicitly included as part of the Reform Calendar.
p	Copies of any new or amended STP documents should be provided to the FHWA and the FTA.	X		Copies of the 2040 Plan will be provided.

Appendix E: 30-Year Transportation Needs

This appendix contains a discussion of Levels of Service targets and scenarios, an expanded snapshot of North Carolina's transportation system, estimated cost to bring North Carolina's transportation system to an optimum LOS A, the performance of each of the eight types (or modes) of transportation that comprise the state's transportation system, and the funding needed for each mode over the next 30 years. *The System Inventory and Modal Needs Report* provides details on the modal needs and how they were developed, while the *Financial Plan and Investment Strategies Technical Report* provides details on funding gaps that can be expected between forecasted revenues from current sources and the costs to achieve varying levels of transportation system quality.

Level of Service Targets

NCDOT has developed a grading system for each transportation mode that defines how well that mode meets public needs. The level of performance of each mode is ranked from LOS A to LOS F. Generally, a modal network rated at an optimum **LOS A** would

provide excellent quality conditions, very convenient service, and wide availability of service, but possibly at an unattainable cost to build, maintain, and operate. An improved, above average system, with **LOS B** rating, would provide good quality conditions, convenient service, and good availability of service, and with a higher return on investment than could be obtained for **LOS A** investment. A transportation system at **LOS C** is veering toward broader safety concerns, deferred maintenance, and congestion and land access issues that constrain economic opportunity. On a system-wide basis, the existing quality of North Carolina's transportation system is **LOS C**.

In addition to providing context, the table on the following page identifies:

- Average **optimal** overall LOS A for each mode (described in detail in this section)
- Average **desired** overall Target LOS for each mode (described in more detail further in this appendix)
- Average **current** overall LOS for each mode

LOS Targets								
Level of Service	General Condition	Highways	Public Transportation	Aviation	Bicycle/Pedestrian	Ferries	Passenger Rail	Ports*
A EXCELLENT	High quality conditions, very convenient service, widely available	Very smooth roads, minimal congestion	Frequent service and good geographic coverage	No safety issues	Many and varied bike and pedestrian routes	No ferry delays	Good cross-state rail service	No safety issues
B ABOVE AVERAGE	Good quality conditions, convenient service, good availability	Generally smooth roads, some congestion	Good bus service	Some safety issues	Some bike routes	Periodic ferry delays	Decent state rail service	Some safety issues
C AVERAGE	Minimally acceptable conditions, minimally convenient service, moderate availability	More rough roads, potholes & deficient bridges, common congestion	Infrequent service and limited geographic coverage	Many safety issues	Scattered bike routes	Frequent ferry delays	Limited state rail service	Many safety issues
D BELOW AVERAGE	Poor facility conditions, very minimal service, limited availability	Many rough roads, broad congestion	Barebones service	Many safety issues	Few bike routes	Frequent ferry delays	Poor state rail service	Many safety issues
F FAILING	Deteriorated facility conditions, spotty and irregular services, very limited availability	Widespread rough roads, potholes & deficient bridges, widespread congestion	Very restricted service	Widespread safety issues	No bike routes	Regular and long ferry delays	No state rail service	Widespread safety issues

Shaded cells denote optimal overall modal level of service ('LOS A'), based on degree to which modal systems would provide the best possible quality of service, as defined by performance standards.

Shaded cells denote current overall modal level of service, as determined by NCDOT as part of its 10-Year Project Prioritization process, based on degree to which modal systems meet defined performance standards.

Shaded cells denote current overall modal level of service, as determined by NCDOT as part of its 10-Year Project Prioritization process, based on degree to which modal systems meet defined performance standards.

* Ports came under NCDOT management in 2012, and LOS has not yet been rated.

Existing Transportation System Conditions - Prioritization 2.0 Modal Needs Performance

The 2040 Plan provides a summary of the general performance and current deficiencies of each modal component, based on available metrics from prior study, reporting, and investment programming cycles undertaken by NCDOT. A determination of current multimodal conditions has been prepared by NCDOT as part of Prioritization 2.0. This data-driven process uses a combination of quantitative and qualitative data and includes a weighted ranking system that is based on goal, tier, and MPO/RPO rankings. NCDOT scores each mode at the NCMIN tier and investment goal level, ranging from LOS A to LOS F. The LOS

criteria, when applied based on this approach, allows NCDOT to determine which programs and projects, if implemented, would provide the greatest benefit.

In 2012, the ratings of existing performance for the modal investment categories were updated as part of the Prioritization 2.0 process, with most investment categories evaluated to be performing at LOS D and LOS C, a few at LOS B, and some at LOS A. A composite weighted performance rating across all modes and investment categories yielded a result in the lower range of LOS C. These assessments are summarized below, showing the current system performance by various modal investment categories evaluated as part of the Prioritization 2.0 process.

Existing Modal Levels of Service, by NCMIN Tier and Investment Goal

Mode	Goal	Tier	Improvement Type	Aviation
Aviation	Safety	Regional & Subregional	All	D
	Mobility	Regional & Subregional	All	D
	Health	Regional & Subregional	All	D
Bike & Ped	Mobility	All tiers	All	D
	Safety	All tiers	All	D
Ferry	Mobility	All tiers	All	C
	Health	All tiers	All	C
Public Transportation	Safety	All tiers	All	C
	Mobility	All tiers	All	D
	Health	All tiers	All	C
Rail	Mobility	Statewide	All	D
	Safety	All Tiers	All	C
Highway	Mobility	Safety	All Tiers	C
		Statewide	All	B
		Regional	All	A
		Subregional	All	A
	Health	Statewide	Interstate Pavement	B
			Pavement (Contract Resurfacing)	D
			Modernization	C
		Regional	Pavement (Contract Resurfacing)	D
			Modernization	D
		Subregional	Pavement (Contract Resurfacing)	D
All tiers	Modernization	F		
All tiers	Bridge	C		

Year 2040 Modal Needs

North Carolina boasts a comprehensive, broad-ranging transportation system that is the product of long-standing collaboration among NCDOT, municipal governments and associated transportation agencies, and private sector transportation providers. This has resulted in a transportation system that includes:

- 9 commercial and 63 general aviation airports
- 6 intercity passenger trains and freight rail network serving 86 counties
- 3,000 miles of designated Bicycling Highways
- Public transportation services in all North Carolina counties
- 7 ferry routes
- 2 seaports and 2 inland terminals
- 105,000 miles of roads and highway system, with 80,000 maintained by NCDOT

Because North Carolina's multimodal transportation system is so large and varied, even maintaining the existing system and its average quality of service is challenging. The 2040 Plan reports North Carolina's long-term transportation needs based on a targeted, optimized Level of Service. Another option is to report the statewide modal needs based on the LOS A definition, as shown in this appendix. This type of analysis estimates the cost of providing the optimal, best possible transportation system. All cost estimates in this section are reported in billions of 2011 dollars.

NC Transportation Needs Summary

Over the next 30 years, North Carolina will require nearly \$160 billion (in 2011 dollars) if it wishes to bring its transportation system to an optimum LOS A. Most of this amount, \$117 billion (73%), would be for highway projects, and \$43 billion (27%) split between the six non-highway modes. At \$114 billion of the total, accruing needs represent 72% of all identified needs, with current deficiencies accounting for \$45 billion, or 28%, of the total.

By **investment goal**, \$86 billion (53%) of identified transportation needs are mobility needs, \$71 billion (45%) are infrastructure health needs, and \$4 billion (2%) are safety needs. Identified needs by investment

goal vary widely by mode depending on particular needs and role in each investment goal.

30-Year Transportation Needs by Investment Goal (LOS A, in \$ billions)				
Mode	Health	Safety	Mobility	30-Yr. Total
Aviation	1.34	0.17	1.45	2.96
Rail (Passenger and Freight)	0.04	0.23	10.67	10.94
Bicycle/ Pedestrian	—	0.64	0.64	1.29
Public Transportation	9.07	0.28	15.08	24.41
Ferry	1.51	—	0.26	1.77
Ports	1.43	0.06	0.12	1.62
Highways	57.70	2.50	56.34	116.54
Total	59.46	36.38	63.69	159.53

By **tier**, \$59 billion (37%) of identified transportation needs are Statewide tier needs, \$36 billion (23%) are Regional tier needs, and \$64 billion (40%) are Subregional tier needs. Identified needs by tier vary by mode depending on the particular needs and role in each tier.

30-Year Transportation Needs by Tier (LOS A, in \$ billions)				
Mode	Statewide	Regional	Subregional	30-Yr. Total
Aviation	0.08	2.33	0.55	2.96
Rail (Passenger and Freight)	7.92	1.90	1.13	10.94
Bicycle/ Pedestrian	0.03	0.10	1.16	1.29
Public Transportation	0.26	13.06	11.10	24.41
Ferry	1.19	0.58	—	1.77
Ports	1.62	—	—	1.62
Highways	48.38	18.40	49.76	116.54
Total	59.46	36.38	63.69	159.53

A summary of LOS A modal needs by mode in North Carolina follows.

NC Transportation Needs by Mode

Aviation

North Carolina has 72 publicly owned airports, of which 9 are primary commercial service airports and 63 are general aviation airports. The scheduled service airports serve more than 47 million passengers annually. Although air freight makes up less than 2% of the weight of cargo shipments in the state, it makes up approximately 10% of the value of North Carolina cargo shipments.

Aviation Tier Definitions in the NCMIN		
Statewide tier	Regional tier	Subregional tier
Commercial service airports with 100,000 and more annual enplanements	<ul style="list-style-type: none"> Commercial service airports with less than 100,000 annual enplanements General aviation with 25 or more based aircraft 	General aviation airports with less than 25 based aircraft

Responsibility/Funding

The NCDOT Division of Aviation is responsible for state aviation system planning, airport and aviation system development, and construction and improvement of publicly owned general aviation airports throughout the state. NCDOT provides funding to general aviation airports through the FAA Block Grant Program, State Aid to Airports Program, and programs for airport pavement management and maintenance, safety data collection, and safety education.

Performance

In 2012, existing aviation system performance was rated at LOS D for the three investment goals of safety, mobility, and health. LOS will vary from airport to airport, reflecting local facility ownership and funds availability.

Aviation Needs

The 30-year aviation needs total \$2.96 billion. At \$682 million, current deficiencies represent 23% of identified aviation needs. \$572 million (84%) of

the estimated current deficiencies is allocated to the Regional tier, with the remaining \$110 million (18%) at the Subregional tier. By investment goal, \$1.45 billion (49%) of needs are mobility needs, followed by infrastructure health at \$1.34 billion (45%), and safety at \$174 million (6%).

Aviation Needs (LOS A, \$ in billions)				
Investment Goal	NCMIN Tier	Current Deficiencies	Accruing	30-Yr. Total
Mobility	Statewide	—	—	—
	Regional	0.46	0.85	1.31
	Subregional	0.08	0.06	0.14
Safety	Statewide	—	—	—
	Regional	0.09	0.06	0.14
	Subregional	0.02	0.01	0.03
Health	Statewide	—	0.08	0.08
	Regional	0.03	0.86	0.88
	Subregional	0.01	0.37	0.38
Aviation Total		0.68	2.28	2.96

NCDOT provides minimal funding for the Statewide tier commercial service airports. Aviation modal needs estimates do not reflect the capital requirements for commercial airports on the Statewide tier.

Implications

According to a 2006 study by NCDOT, airports across North Carolina generate \$11.8 billion in economic impact annually and provide over 88,000 jobs.¹ This estimate is likely to be much higher in the future due to expected growth in general aviation, corporate travel, and air cargo shipments. While the Department currently has a minimal role at the large commercial airports, the growth in the state's population should drive airport improvements at all tiers: statewide, regional, and subregional. For airports in NC, the ability to generate revenue streams and garner local revenue aid to match grants and to cover direct costs might continue to be a challenge. Today, the general structure of the NCDOT program of grants supporting the state's public aviation facilities is intact, but the need for state and federal funding to support specific airport projects is exceeded by local facility needs.

¹ NCDOT, 2006 *Economic Impact of North Carolina's Publicly-Owned Airports*

The Governor's Logistics Task Force has found that healthy airports are crucial to efforts to achieve regional economic opportunity, as key economic sectors increasingly rely on the logistics benefits of good air service. The *Seven Portals Study*, prepared for the Governor's Logistics Task Force and released in August 2011, cites the importance of improving statewide aviation mobility in North Carolina. The 2011 Governor's Logistics Task Force Subcommittee Report recommends continued infrastructure health investments in the sustainment and development of aviation freight transport facilities. Continuation of the current LOS D will undoubtedly lead to reduced safety, congestion in the major airports, and increasing cost to preserve even current maintenance levels.

Rail Passenger and Freight

Transportation by rail includes differing types of services, the majority of which use freight railroad company tracks. The North Carolina railroad system is over 3,300 miles long and reaches into 86 of North Carolina's 100 counties, with 22 active freight railroad companies. Two Class I railroads own or control over 2400 miles of track, and 20 shortline railroads control the remainder. Services provided on freight tracks include intercity passenger and freight. Intercity passenger rail services are provided through Amtrak and serve 16 stations in NC with connections within the state and cities from Boston, MA to Miami, FL and New Orleans, LA. Commuter rail services are anticipated in the future and would provide regional and local movement of commuters. Freight rail includes the standard commodity services provided by a railroad.

Passenger Rail Definitions in the NCMIN		
Statewide tier	Regional tier	Subregional tier
All intercity (including out-of-state) passenger rail service and station facilities associated with intercity services	Commuter rail service and associated station facilities that serve commuters between two or more counties	Commuter rail service and associated station facilities that serve commuters within a county

Intercity Passenger Rail

Intercity rail travel has gained popularity and importance in North Carolina in recent years, as more service is being offered and greater numbers of passengers are riding the trains. Fourteen intercity passenger trains operated by Amtrak currently serve cities in North Carolina. Ridership has climbed steadily in recent years, with a 39% increase from 2007 to over 803,000 riders using North Carolina stations in 2010. An average of 2,600 passengers per day use passenger rail stations in North Carolina. Between 2009- 2010, state-funded Piedmont service had a 46% increase in ridership, the largest increase in the nation. This was mainly due to the addition of a mid-day frequency made possible by the ARRA grants.

NCDOT's Rail Division is currently upgrading the corridor between Raleigh and Charlotte to increase train speeds, reduce travel time, increase train frequency, and improve safety and reliability, and to allow passenger rail to compete with the automobile travel time for trips between Charlotte and Raleigh.

Responsibility/Funding

The NCDOT Rail Division operates and independently funds two passenger rail routes:

- The Piedmont (twice daily Raleigh-Charlotte with 7 intermediate stops), co-branded with Amtrak
- The Carolinian (daily New York-Richmond-Raleigh-Charlotte with 12 in-state and 12 out-of-state stops)

Both are operated through contracts with Amtrak and state funding is used to supplement passenger fares.

The Federal Rail Administration (FRA) and NCDOT are partners in funding intercity passenger rail activities in North Carolina. There are no recurring federal funds for rail projects, only discretionary grants and special appropriations. Federal grants and state matching funds have funded over \$300 million in improvements to track, stations, and equipment between 2000 and 2009. In 2010 the Rail Division was awarded \$545 million in ARRA funding for High-Speed Intercity Passenger Rail Program improvements on the rail corridor between Raleigh and Charlotte. Projects must be completed by September 30, 2017 when the funding expires.

Performance

In 2012, the intercity passenger rail mobility level of service was rated **LOS D**, reflecting that service frequency, communities receiving service, and convenience of service hours is significantly below expectations and below levels needed to capture the market demand for such service. Intercity passenger rail service is on the Statewide tier, which includes all intercity passenger rail service and station facilities. All station facilities and equipment associated with intercity services play a significant role in the LOS determination.

Intercity Passenger Rail Needs

The accruing passenger rail needs estimates were developed by the NCDOT Rail Division. The 30-year intercity passenger rail needs total \$7.06 billion. At \$224 million, the current deficiencies represent 3% of intercity passenger rail needs.

Based on investment goal, \$6.79 billion (96%) is for mobility needs, \$231 million (3%) safety needs, and \$36 million (less than 1%) infrastructure health needs. By tier, all the identified intercity passenger rail needs are on the Statewide tier. The largest recognized future passenger rail expenditure is the Charlotte to Washington, D.C., Southeast High Speed Rail service addition, with \$3.95 billion in estimated capital costs.

Intercity Passenger Rail Needs (LOS A, \$ in billions)				
Investment Goal	NCCMIN Tier	Current Deficiencies	Accruing	30-Yr. Total
Mobility	Statewide	0.24	6.55	6.79
	Regional	—	—	—
	Subregional	—	—	—
Safety	Statewide	—	0.23	0.23
	Regional	—	—	—
	Subregional	—	—	—
Health	Statewide	—	—	0.04
	Regional	—	—	—
	Subregional	—	—	—
Intercity Passenger Rail Total		0.24	6.78	7.06

Implications

The low current level of service for intercity passenger rail reflects the scarcity of service outside the Charlotte-to-Raleigh Piedmont Crescent. Growth of ridership in that corridor as highway congestion grows and train frequency is improved suggests the presence of under-served (Raleigh-to-Washington, DC Southeast High Speed Rail) and untapped (western NC or SE NC) markets. The continued public investment in the state's intercity passenger rail services is needed, as well as long-term investment in high-speed rail. The *Seven Portals Study* noted the importance the new passenger routes would have on logistics in the state. Improved passenger rail services should also benefit freight rail. The Governor's Logistics Task Force Subcommittee Reports' from August 2011 expressed similar confidence that passenger rail connections between population centers and points throughout the state, especially those with vibrant tourism industries, are necessary for the continued development of that economic sector.

Commuter Rail

While intercity passenger rail provides statewide and out-of-state, long-distance service, regional commuter rail services provide regional and local movement of commuters on shared freight corridors. There are existing public agency plans to develop heavy rail commuter rail service in the Raleigh-Durham, Charlotte, and Greensboro-Winston-Salem areas. These services will provide alternative transportation for regional and local travelers.

Responsibility/Funding

Federal Transit Administration (FTA), NCDOT, local governments and transportation authorities are partners in funding commuter/light rail services in North Carolina. The Public Transportation Division of NCDOT supports the local planning efforts and assists in obtaining available federal funds to support new and expanding services. Local option sales tax has been used by Charlotte for the Lynx service and is being considered in the Research Triangle region. Durham County's sales tax passed last fall. Other options being considered include tax increment financing.

Commuter Rail Needs

The accruing commuter rail estimates were developed by the MPOs. The 30-year commuter rail needs total \$2.54 billion. The Regional tier accounts for \$1.41 billion (56%) of the identified need, and the Subregional tier for \$1.13 billion (44%). The Subregional tier includes services within one county. By investment goal, all identified commuter rail needs are mobility needs.

Commuter Rail Needs (LOS A, \$ in billions)				
Investment Goal	NCMIN Tier	Current Deficiencies	Accruing	30-Yr. Total
Mobility	Statewide	—	—	—
	Regional	—	1.41	1.41
	Subregional	—	1.13	1.13
Commuter Rail Total		—	2.54	2.54

Implications

The mobility needs of a growing population in the state's six major metropolitan areas could be well-served by the planned commuter rail systems in North Carolina.

Freight Rail

North Carolina's freight rail network serves 86 of the state's 100 counties. Two Class I railroads own or control over two-thirds of the state rail network and 20 shortline railroads control the remainder. The network provides access to many strategic locations, such as ports, power plants, mines, and military installations, and facilitates the movement of goods for a variety of industries, including agriculture, forestry, plastic, furniture, coal, food product, and chemical. The majority of the traffic on the network is bringing goods to NC, with through traffic being the second largest.

Freight Railroads in North Carolina, FY 2008	
Type	Miles
Class I Railroads	
CSX Transportation	1,121
Norfolk Southern Corporation*	1,301
<i>Subtotal Class I Railroads</i>	2,422
Class III Railroads	
Short line/local railroads	687
Switching and terminal railroads	236
<i>Subtotal Class III Railroads</i>	923
Total miles of railroads	3,345

* Includes operating rights on the NCRR

Responsibility/Funding

The majority of the state's freight rail system is owned, operated, and maintained by the private sector. With 3,345 miles of rail lines throughout North Carolina, all but 491 miles are owned by freight railroad companies. The state of North Carolina owns the North Carolina Railroad Company (NCRR), which in turn leases to Norfolk Southern the 317 miles between Charlotte and Morehead City, through Greensboro and Raleigh-Durham. This corridor is crucial to meeting our rail passenger and logistics needs. NCRR funds projects on the corridor from the lease payments received from the NS.

Although NCDOT has only a small amount of funding available for freight rail projects, it plays an important role in protecting and improving freight service through its passenger rail program expansion plans, work on rail line relocation projects and crossing safety initiatives. The federal funds available for rail come through the Federal Railroad Administration section of USDOT. In addition, the Department administers the Rail Industrial Access Program and the Shortline Infrastructure Assistance Program. The Rail Industrial Access Program partially funds rail customer tracks for new or expanding industries to encourage economic development. The Shortline Infrastructure Assistance Program provides funding for track upgrades and additions for shortline railroads that serve rural and small urban areas, and it manages the nationally recognized grade crossing safety program.

Of particular note in considering the state's freight rail network is the role played by the NCR. This company owns the right-of-way from Charlotte through the Piedmont Crescent to Raleigh, and on to the port at Morehead City. The Charlotte-Raleigh segment of NCR is a key element of NCDOT's expanding intercity passenger rail service that was described above. The NCR is a private, for-profit company in which 100% of the stock is owned by the State of North Carolina that has been recognized by the Governor's Logistics Task Force as a unique asset in reaching the evolving logistics objectives of NCDOT and the State.

Freight Rail Tier Definitions in the NCMININ

Statewide tier	Regional tier	Subregional tier
Rail lines of strategic importance as determined by the Rail Division	All remaining rail lines not included on the Statewide tier	N/A

Performance

Existing freight rail performance was not assigned a LOS score when the most recent ranking was done by NCDOT in 2011. Plans are to develop a LOS for freight rail after more information on logistics needs is available, as part of the Prioritization 3.0 process. The intercity passenger rail mobility LOS ranking is for a different type of service and does not apply in any way to freight. The Statewide tier freight rail lines are those with strategic importance as determined by the Rail Division.

Freight Rail Needs

The accruing freight rail modal needs estimates were developed by the NCDOT Rail Division. The 30-year freight rail needs total \$1.34 billion. Based on improvement goal, all identified freight rail needs are mobility needs. By tier, \$860 million (64%) of identified freight rail needs are on the Statewide tier. The largest single identified future freight rail expenditure is for improvements to shortline railroads, with an estimated \$387 million in capital costs.

Freight Rail Needs (LOS A, \$ in billions)

Investment Goal	NCMIN Tier	Current Deficiencies	Accruing	30-Yr Total
Mobility	Statewide	—	0.86	0.86
	Regional	—	0.48	0.48
Freight Rail Total		—	1.34	1.34

Freight Rail Needs by Program (LOS A, \$ in billions)

Program	Current Deficiencies	Accruing	30-Yr. Total
Shortline railroads	—	0.39	0.39
CSX A-line	—	0.25	0.25
Norfolk Southern Intermodal	—	0.23	0.23
Port Access Improvements-Class I	—	0.18	0.18
Economic Development Program	—	0.15	0.15
RIAP	—	0.07	0.07
Port Access Improvements-NCDOT	—	0.06	0.06
Return Corridors to Service	—	0.03	0.03
Freight Rail Total	—	1.34	1.34

Implications

NCDOT has increased its focus on corridors with shared freight and passenger rail usage and on statewide freight logistics. NCDOT envisions continued strategic investments in private Class 1 and shortline railroads to enhance publicly sponsored rail operations and to address targeted safety priorities.

The *Seven Portals Study* recommends that the state arrange for more competitive rail service to increase statewide freight mobility. The state needs a strategic plan that relies on partnerships with short lines or shared right-of-way. The state should also make better use of the NCR. The *Statewide Logistics Plan* also acknowledges the role that railroads can play in supporting freight movements within, to and from, and through North Carolina, and how it can shift some traffic off the highways.

Bicyclists and Pedestrians

Bicycle and pedestrian infrastructure in North Carolina includes both state and municipal facilities, which may be on-road or off-road. Dedicated on-road bicycle facilities include wide outside lanes, shoulders, and bicycle lanes. Bicyclists also use general-purpose lanes on all roadways in the state with the exception of controlled-access freeways. Dedicated on-road pedestrian facilities include sidewalks, crosswalks, curb-ramps, and pedestrian refuge islands. Pedestrians also use shoulders and unpaved areas adjacent to roadways in the absence of sidewalks. Off-road pedestrian and bicycle facilities include shared-use paths and trails, and may be paved or unpaved. Of the 80,000 miles of state-maintained roadways on which both motor vehicles and bicycles are allowed, 2,500 miles along nine routes have been designated by NCDOT as Bicycling Highways.

North Carolina Bicycling Highways

- Mountains to Sea, 700 miles, runs east-west across the state between Murphy in the mountains and Manteo on the coast
- North Line Trace, 400 miles, runs east-west just south of the Virginia state line
- Ports of Call, 300 miles, runs north-south from the South Carolina state line to the Virginia state line along the coast
- Carolina Connection, 200 miles, part of US Bridge Route 1, extending from Maine to Florida
- Piedmont Spur, 200 miles, runs east-west through the Piedmont region
- Ocracoke Option, 170 miles, runs east-west from Wilson to Ocracoke
- Cape Fear Run, 160 miles, roughly parallels the Cape Fear River through the southeast coastal plain
- Sandhills Sector, 125 miles, runs east-west between the Pee Dee and Cape Fear rivers
- Southern Highlands, 120 miles, runs east-west between the Blue Ridge Mountains through the foothills to join the Piedmont Spur

Responsibility/Funding

NCDOT funds project development and construction of bicycle lanes, paved shoulders, and multi-use paths and trails. NCDOT also funds spot safety and signing improvements, as well as safety education and bicycle mapping projects. Larger municipalities in the state directly fund bicycle and pedestrian facilities.

Bicycle and Pedestrian Tier Definitions in the NCMIN

Statewide tier	Regional tier	Subregional tier
North Carolina bicycling highways (on-road)	<ul style="list-style-type: none"> • NCDOT-designated multi-county regional routes (on-road) • Off-road facilities spanning multiple jurisdictions with a length of at least 20 miles 	<ul style="list-style-type: none"> • Off-road facilities with a length less than 20 miles • Town, city, or county on-road bicycle networks • All sidewalks

Performance

In 2012, NCDOT determined the current statewide LOS for the bicycle and pedestrian mode to be at **LOS D**, based on a bicycle/pedestrian index developed by NCDOT's Division of Bicycle and Pedestrian Transportation. The most significant measure of the safety of bicycle/pedestrian facilities is the presence of shoulders on highways.

Bicyclists and Pedestrian Needs

The 30-year bicycle and pedestrian needs total \$1.29 billion. At \$1.05 billion, current deficiencies represent 81% of bicycle and pedestrian needs. By investment goal, the 2040 Plan classifies \$643 million (50%) of bicycle and pedestrian needs as mobility needs, and \$642 million (50%) as safety needs. By tier, bicycle and pedestrian needs are mostly projected to be on the Subregional NCMIN tier: \$1.16 billion (90%) is allocated to that tier, followed by \$103 million (8%) to the Regional tier, and \$26 million (2%) to the Statewide tier.

Bicycle and Pedestrian Needs (LOS A, \$ in billions)

Investment Goal	NCMIN Tier	Current Deficiencies	Accruing	30-Yr. Total
Mobility	Statewide	—	—	—
	Regional	0.05	0.01	0.06
	Subregional	0.47	0.11	0.58
Safety	Statewide	0.02	0.01	0.03
	Regional	0.03	0.01	0.04
	Subregional	0.47	0.11	0.58
Bicycle and Pedestrian Total		1.05	0.24	1.29

Implications

Reflecting the Division of Bicycle and Pedestrian Transportation's revised mission to secure the safety of the state's bicyclists and pedestrians, the most pressing need going forward will be the Department's ability to address significant safety needs across the state. Analysis of bicycle and pedestrian needs reveals substantial overall need, with significant accumulated backlog of needs. The main reason for sequential increase in estimated bicycle and pedestrian needs is population growth, resulting in increased demand for bicycle and pedestrian facilities. Limited funding for bicycle and pedestrian enhancements and the general land use patterns prevalent across the state not being conducive to bicycle and pedestrian travel will continue to contribute to the low quality of service scores.

Public Transportation

Public transportation systems in North Carolina provide mobility options for residents who cannot or choose not to drive. Public transportation systems provide transportation options to residents in all 100 counties in North Carolina and include:

- *Community transportation*, historically centered on assisting clients of human service agencies, serving the general public through Rural General Public (RGP) services.
- *Regional community transportation systems*, coordinated/consolidated services in two or more contiguous counties.
- *Urban transportation systems*, providing fixed-route and dial-a-ride services for the general public in large- and medium-sized North Carolina cities.
- *Commuter/Light Rail*, offering Regional and Subregional tier transportation (commuter rail is addressed under the Rail section of the plan.
- *Vanpool and Carpool Programs*, with four agencies coordinating vanpool service in the state.
- *Intercity bus service*, providing connections between cities and towns in and out of state.

Public Transportation Tier Definitions in the NCMIN		
Statewide tier	Regional tier	Subregional tier
Bus service and associated station facilities serving out-of-state travel	Bus/vanpool service and associated facilities serving commuters between two or more counties	Bus/vanpool service and associated facilities serving commuters within a county

Responsibility/Funding

Public transportation systems are operated directly by local and regional transit agencies. NCDOT administers federal and state transportation grant programs, provides matching state funding, provides safety and training opportunities for transit professionals, and offers planning and technical assistance to transit agencies.

Performance

In 2012, NCDOT scored the existing public transportation performance at mostly **LOS C** for the mobility and health investment goals at the statewide, regional, and Subregional tiers (only the regional and Subregional tiers for rural health were rated at **LOS B**). The rankings reflect ridership/market penetration, fleet age, and safety expenditures. LOS will vary from transit agency to transit agency, reflecting the dominant influence of local government policy and funding allocations.

Public Transportation Needs

The backlog and accruing public transportation modal needs estimates were developed by the NCDOT and local transit agencies. The 30-year public transportation needs total \$24.41 billion. At \$13.88 billion, the current deficiencies represent 57% of all identified transit needs. Urban service needs represent 89% of all identified need by service type, and rural service accounts for 11%.

Based on investment goal, \$15.08 billion (62%) are mobility needs, \$9.06 billion (37%) are infrastructure health needs, and \$273 million (1%) are safety needs. Due to the local and regional nature of transit services, virtually all public transportation services in North Carolina belong to Regional or Subregional NCMIN tier; the resulting need estimates reflect this with 99% of

identified needs allocated to those tiers. Specifically, \$13.06 billion (54%) are on the Regional tier, \$11.10 billion (45%) on the Subregional tier, and \$253 million (1%) on the Statewide tier.

Public Transportation Needs (LOS A, \$ in billions)				
Investment Goal	NCMIN Tier	Current Deficiencies	Accruing	30-Yr. Total
Mobility	Statewide	0.11	0.06	0.17
	Regional	5.99	3.41	9.40
	Subregional	1.95	3.56	5.51
Safety	Statewide	0.01	0.00	0.01
	Regional	0.10	0.03	0.13
	Subregional	0.11	0.03	0.14
Health	Statewide	0.05	0.03	0.08
	Regional	2.33	1.20	3.53
	Subregional	3.24	2.22	5.46
Public Transportation Total		13.88	10.54	24.41

Implications

The identified long-term transit needs in North Carolina are significant. Public transit services are a partnership arrangement with NCDOT funding and channeling federal grants to county and local services outside the major metropolitan areas and providing some financial support to metropolitan and regional transit services. Local transit revenue shortages are affecting the ability to match non-local funds, at the time of rising needs for transit given the adverse economic climate.

Ferries

The NCDOT ferry system is the second largest in the U.S. The NCDOT Ferry system includes seven routes that carry more than 2.5 million passengers and 1.1 million vehicles annually across five bodies of water. The routes serve work and school commuting, recreational travel, and freight delivery to island communities. Increases in fuel costs, vessels, and infrastructure renewal stress available funding resources.

Ferry Tier Definitions in the NCMIN		
Statewide tier	Regional tier	Subregional tier
Ferry routes connecting Statewide tier Highway facilities	Ferry routes connecting Regional tier Highway facilities	Ferry routes connecting Subregional tier Highway facilities (none presently)

Responsibility/Funding

The NCDOT Ferry Division operates and maintains the ferry system in North Carolina. The Ferry Division’s existing mission is to provide safe, cost effective and dependable service for the traveling public. However, the state ferry system’s mission is evolving, with the ferry system considered an extension of the highway system. Ferries’ infrastructure health and safety will need to be addressed more directly in light of the recast definition of the highway system that meets the dual mission to maintain the “waterside” highway and to provide mobility to the traveling public. The mode’s newly emerging vision focuses on “state of good repair” and incorporates the four basic elements:

1. “Highway” maintenance (terminals and channels)
2. Public Transportation operations
3. Facility/Fleet management
4. Emergency management

Performance

In 2012, existing ferries performance was scored at an **LOS C**, based on Ferry Division performance measures that rate ability to service motor vehicle demand and compliance with various safety and environmental regulations.

Ferry Needs

The accruing ferry needs estimates were developed by NCDOT. The 30-year ferry needs total \$1.77 billion. At \$1.37 billion, the accruing needs represent 77% of ferry needs, with current deficiencies (service expansion in the case of ferries) accounting for \$404 million, or 23% of the total. To accommodate future ridership increases, ferry needs include new vessels for expanded service or vessel replacements with larger capacity terminal infrastructure improvements.

By investment goal, \$1.51 billion (85%) of ferry needs are infrastructure health needs, while \$262 million (15%) are mobility. There are no identified safety improvements for the 2040 Plan. By tier, \$1.08 billion (61%) of the identified ferry needs are on the Statewide tier, while \$692 million (39%) are on the Regional tier.

Ferry Needs (LOS A, \$ in billions)				
Investment Goal	NCMIN Tier	Current Deficiencies	Accruing	30-Yr. Total
Mobility	Statewide	0.01	0.16	0.17
	Regional	0.02	0.07	0.09
Health	Statewide	0.26	0.76	1.02
	Regional	0.10	0.39	0.49
Ferries Total		0.40	1.37	1.77

Implications

While the Ferry Division has recently introduced several replacement vessels, there remains considerable need to address other infrastructure and added capacity for peak demand periods. The growth in total population is anticipated to require expanded terminal and fleet requirements. Security requirements may become more stringent, affecting staffing and operations costs, as well as possibly facility configurations. *The Seven Portals Study* and the Governor's Logistics Task Force *Subcommittee Reports* noted the economic importance of ferry services provided by NCDOT, particularly their impact on supporting generation of tourism revenue.

Ports

North Carolina has two seaports (Wilmington and Morehead City) and two inland terminals (in Charlotte and the Piedmont Triad). Both of the seaports and the inland terminals comprise the state ports system that is owned and operated by the North Carolina State Ports Authority (NCSPA). The port at Wilmington serves as the state's only container port. The Morehead City port provides service for bulk and break-bulk commodity shippers.

A third inland facility under public operation that is closely tied to the ports is the Global TransPark (GTP) in Kinston. GTP is a 5775 acre industrial site that has become a hub of aerospace, logistics, and industrial activity, while also gaining increasing importance and an intermodal center and is seen as a pivotal element in efforts to advance the state's transportation system to support the economy's logistics needs.

Responsibility/Funding

Until 2011, the NCSPA and GTP operated as independent public agencies that received relatively little public funding. NCSPA operates on revenues generated from movement of freight through the two ports. However, in 2011, the Governor directed that the ports and GTP would be transferred to NCDOT for coordinated management with the state's other transportation modes. The Governor's Logistics Task Force has given particular attention to the role of the ports as clear opportunities to strengthen North Carolina's position as a key US Department of Defense center and to move the state's agricultural production into world markets.

Performance

NCDOT has not quantified performance for the ports system. However, NCDOT has funded transportation network improvements to provide access to ports via highways and rail. Funding deficiencies related to highway and rail modes are included in the respective sections of this report. The existing NCMIN classification lacks designations for ports, but this analysis assumes that Port of Wilmington and Port of Morehead City should be classified as belonging to the Statewide tier.

Because the two ports until recently operated as independent entities, they have not been graded under NCDOT's Project Prioritization process. It is expected that this rating will be developed during the Prioritization 3.0 cycle beginning in 2013. However, as has been reported in the *North Carolina Maritime Strategy* prepared for NCDOT as part of the Governor's Logistics Task Force efforts, NC's ports will require significant improvements if they are to remain competitive with the ports of neighboring states after opening of the expanded Panama Canal.

Ports Needs

The ports modal needs estimates were developed based on the data provided by the NCSPA. The 30-year ports needs total \$1.62 billion. \$1.55 billion of the total (96%) is for accruing ports needs, with current deficiencies accounting for \$66 million (4%) of the total. By investment goal, 88% (\$1.43 billion) of identified ferry needs are infrastructure health needs, 8% (\$124 million) are mobility needs, and 4% (\$62 million) are safety needs. By tier, all ports are on the Statewide tier due to their economic importance.

Consisting of 55 principal highways with an overall length of 5,550 miles, Strategic Highway Corridors account for 7% of the state-maintained highway system yet carry 45% of traffic.

Responsibility/Funding

NCDOT owns and maintains 80,000 miles of roadways, three-fourths of the total roadway inventory in the state. The planning, programming, technical assistance and engineering for major highway projects are handled within the central office in Raleigh.

The fourteen Transportation Divisions, or field offices, manage project construction, maintain and operate the road system within their geographical areas and handle planning and engineering for smaller projects. North Carolina is one of only nine states where counties own no roadways.

Because of the system size, per-mile capital spending on state-maintained roads is the fourth lowest in the nation. Highway improvements are falling behind due to the declining buying power of historic revenue sources and the level of these funding sources is falling behind accumulating and growing system needs. There are current uncertainties over funding programs and their funding levels in the coming years under the federal transportation reauthorization bill that Congress has begun to formulate.

Ports Needs (LOS A, \$ in Billions)				
Investment Goal	NCMIN Tier	Current Deficiencies	Accruing	30-Yr. Total
Mobility	Statewide	0.01	0.11	0.12
Health		0.05	1.38	1.43
Ports Total		0.06	1.49	1.55

Implications

Ports are newly being considered under the umbrella of the NCDOT, having previously been administered by the Department of Commerce. The Governor's Logistics Task Force *Subcommittee Reports* made a strong recommendation that the state of North Carolina should invest in its ports. The reports noted that port facilities have been seen to be a strong economic engine and an asset to the state from both a commerce and transportation perspective. Through strategic investment in its ports, North Carolina can capitalize on its exports - agricultural and other natural assets - and help the nation with its balance of trade challenges.

Highways

Highway infrastructure in North Carolina includes state, municipal, and federally owned roadways and bridges. The Statewide tier of highways of the NCMIN, a key subset of the NCDOT-maintained highway system, has been labeled Strategic Highway Corridors. Recent major initiatives include the use of tolling as a funding source for new highway construction, the sustainability blueprint initiative, and the Complete Streets policy.

Highway Tier Definitions in NCMIN		
Statewide tier	Regional tier	Subregional tier
Strategic Highway Corridors as approved by the Board of Transportation	All primary routes (US and NC) not on the Statewide tier	All secondary routes not on the Statewide tier

Performance

In 2012, NCDOT ranked the current performance for various highway subcategories ranges from **LOS A** to **LOS F**, with an overall average score of **LOS C**. There are six highway mode performance measures evaluated as part of the Prioritization 2.0 process, one related to mobility, one related to safety, and four related to different aspects of infrastructure health. The six measures are summarized in the table that follows.

Prioritization 2.0 Performance Measures and Standards – Highways

Goal	Submode	Measure	LOS A	LOS B	LOS C	LOS D
Mobility	n/a	% of miles with TTI1 <1.05	80%	60%	40%	20%
Safety	n/a	Fatal Crash Rate	0.0 - 0.3	0.31 - 0.90	0.91 - 1.48	1.49 - 2.0
Health	Interstate Pavement	% of road miles with PCR2 ≥80	85%	80%	75%	60%
	Pavement (Contract Resurfacing)	% of road miles with PCR2 ≥80	85%	80%	75%	60%
	Bridges	% of bridges with BHI3 ≥6.0	90%	80%	70%	60%
	Roadway Modernization	% of miles that meet NCDOT's Paved Shoulder Policy where Paved Shoulders are required	80%	60%	40%	20%

Notes:

1. Travel Time Index (TTI) is the ratio of travel time in peak hours to travel time in off-peak hours. A delay in peak hour travel time results in TTI>1.00. An index of 1.05 means that travel time in the peak hour is 5% longer than in the off-peak.
2. Pavement Condition Rating (PCR) is a measure of pavement distress. Data are obtained from the Statewide Pavement Condition Survey.
3. Bridge Health Index (BHI) is a measure of bridge condition rated on a scale of 1 to 9. Data are obtained from the Statewide Bridge Condition Survey.

For mobility, the measured performance exceeds the target performance: LOS B for Statewide tier highways and LOS C for Regional and Subregional highways, based on percentage of congested miles. Current mobility performance based on Prioritization 2.0 data is shown below.

Existing Performance: Mobility		
Performance Measure	Tier	Existing Performance
% of miles with TTI <1.05	Statewide	LOS B [≥60%]
	Regional	LOS A [≥80%]
	Subregional	LOS A [≥80%]

For safety, the measured performance is based on average fatal crash rates. At LOS C, the existing performance is below target performance. Current safety metric performance based on Prioritization 2.0 is shown below.

Existing Performance: Safety		
Performance Measure	Tier	Existing Performance
Fatal Crash Rates	All Tiers	LOS C [1.28]

For infrastructure health, the existing performance measures range from LOS B to F, with ratings assigned for pavement, bridge, and modernization categories, based on percentage of miles or bridges meeting performance standards; generally, Statewide tier facilities perform better than lower tiers, and bridge conditions are better than pavement or modernization conditions. The existing performance is below target performance. Current infrastructure health performance based on Prioritization 2.0 data is shown below.

Existing Performance: Infrastructure Health		
Performance Measure	Tier	Existing Performance
Interstate Pavement: % of road miles with PCR ≥80	Statewide	LOS B [≥80%]
Pavement (Contract Resurfacing): % of road miles with PCR ≥80	Statewide	LOS D [≥60%]
	Regional	LOS D [≥60%]
	Subregional	LOS D [≥60%]
Bridges: % of bridges with BHI ≥6.0	Statewide	LOS B [≥80%]
	Regional	LOS C [≥70%]
	Subregional	LOS D [≥60%]
Roadway Modernization: % of miles that meet NCDOT's Paved Shoulder Policy where Paved Shoulders are required	Statewide	LOS C [≥40%]
	Regional	LOS D [≥20%]
	Subregional	LOS F [<20%]

Highways Needs

The highway needs estimate was developed in coordination with NCDOT and all 17 MPOs in the state. Total highway needs of \$116.54 billion for the 30-year planning period include needs for roadway, bridges, and Intelligent Transportation Systems (ITS).

Roadway needs represent 90% of the total highway needs, bridge needs represent 9%, and ITS needs represent 1%. Current deficiencies of \$28.63 billion represent 25% of the total estimated need. By investment goal, infrastructure health needs are estimated at \$57.70 billion (50%), mobility needs \$56.34 billion (48%), and safety needs \$2.50 billion (2%) of total highway needs. By tier, Statewide tier needs are estimated at \$48.38 billion (42%), Regional tier \$18.40 billion (16%), and Subregional tier \$49.76 billion (42%) of total highway needs. Needs by investment goal vary significantly by tier. The majority of identified Statewide tier highway needs are mobility needs, while the majority of identified regional and Subregional tier needs are infrastructure health improvements.

Need Category	Current Deficiencies	Accruing	30-Yr Total
Roadway	28.46	76.76	105.22
Bridges	0.17	9.97	10.14
ITS	0.00	1.18	1.18
Total	28.63	87.91	116.54

NCMIN Tier	Investment Goal			30-Yr Total
	Health	Safety	Mobility	
Statewide	14.34	0.83	33.21	48.38
Regional	9.27	0.83	8.30	18.40
Subregional	34.10	0.83	14.83	49.76
Total	57.70	2.50	56.34	116.54

Implications

Carolina’s highway system is by far the state’s largest public infrastructure investment. Its continuing maintenance health is crucial to the economic well-being of the state. Given the scale of the investment, failure to maintain or improve the highway system will have profound economic impacts: on safety of the traveling public; on ever-increasing maintenance requirements, reflecting on the increasing cost of repairing poorly maintained roadways or bridges compared to well-maintained facilities; and on cost to the traveling public and to business due to increasing congestion or poorer access to business.

Planning for solutions to future transportation needs will be challenged by the large shortfalls in funding, with larger gaps anticipated in the future. Major highway infrastructure throughout the state requires substantial investment in maintenance and rehabilitation. In recent years, progress has also been made in remediating structurally deficient bridges. Improved maintenance regimes have made pavement maintenance dollars go further, but there are still significant backlogs in other highway maintenance work, as well as in capacity enhancements and roadway modernization. The Department has also made significant progress in its efforts to increase safety and reduce the number of highway crashes, injuries, and fatalities through developing the North Carolina Strategic Highway Safety Plan (SHSP) - a comprehensive and collaborative effort among all the of the state’s safety partners that sets a tangible goal of reducing the fatal crash rate to 1.0 fatalities/100 million vehicle miles traveled.

2040 Plan: Target Levels of Service

The 2040 Plan builds upon modal LOS targets as they have been identified in the 10-Year Project Prioritization process. Rather than reporting the modal needs at their optimal LOS A (as described in detail above), it applies the “Target LOS” identified by NCDOT modal business units as their basis for defining 10-year needs and funding gaps. During implementation of Prioritization 2.0, SPOT staff has worked with NCDOT’s modal business units and has conducted public and NCDOT Board of Transportation workshops to define target levels of service that might be achieved with anticipated 10-year resources.

For the longer timeframe of the 2040 Plan, consistency with the Prioritization 2.0 process and clearer links to system quality levels needed for more cost-effective investment provided a logical basis for reporting multimodal system quality targets lower than LOS A. Target LOS reflects a more reasonable and attainable approach to statewide transportation modal needs that, although less than LOS A, exceeds existing conditions. The resulting decrease in estimated 30-year modal needs, from \$160 billion to \$123 billion in 2011, became the basis for further financial analysis and strategic investment recommendations.

LOS A and Target LOS options comparison (billions of 2011\$)

LOS Option	2040 Cost	Pros	Cons
LOS A (Optimal, Best Case Conditions)	\$159.53 B	<ul style="list-style-type: none"> • Already established through stakeholder and PI process • Consistent with modal needs established in previous plans • Reflects truer 30-year need than the Target LOS option 	<ul style="list-style-type: none"> • Perceived as unrealistic • Considered to be unattainable • More difficult to defend as true “need”
Target LOS (NCDOT Modal Business Unit targets)	\$122.83 B	<ul style="list-style-type: none"> • Similar to LOS A, based on professional judgment of NCDOT business units • Still provides substantial multimodal system improvements (v. status quo) • Is consistent with targets defined in the 10-year Prioritization 2.0 investment analysis 	<ul style="list-style-type: none"> • Basis for reduced LOS may appear arbitrary and not as rigorous as “Desired state” LOS

30-Year Transportation Target LOS by Investment Goal and Tier				
Mode	Investment Goal	Tier		
		Statewide	Regional	Subregional
Aviation	Health	B	B	B
	Safety	B	B	B
	Mobility	C	C	C
Rail	Health	C	(1)	(1)
	Safety	C	(1)	(1)
	Mobility	C	B	B
Bicycle/ Pedestrian	Health	(2)	(2)	(2)
	Safety	C	C	C
	Mobility	C	C	C
Public Transportation	Health	B	B	B
	Safety	B	B	B
	Mobility	B	B	B
Ferry	Health	B	B	(3)
	Safety	(4)	(4)	(3)(4)
	Mobility	B	B	(3)
Ports	Health	B	(5)	(5)
	Safety	B	(5)	(5)
	Mobility	B	(5)	(5)
Highways	Health	A	B	C
	Safety	B	B	B
	Mobility	A	A	A

1. No defined rail infrastructure health or safety needs o Regional or Subregional tier
2. No defined bicycle/pedestrian infrastructure health needs
3. All ferry routes are defined as being on Statewide or Regional tier
4. No defined ferry safety needs
5. All reported ports needs are defined as being on Statewide tier

While an LOS A standard would deliver the highest performance standard for the state’s transportation network, it is recognized that more cost effective improvements could be delivered with a targeted investment approach.

Level of Service Scenarios for Financial Analyses

An important element of the 2040 Plan analysis has been comparison of the long-term funding needs (modal needs) to the revenues expected to be available

to address those needs. The difference between modal needs and revenues defines anticipated funding gaps.

Although the 2040 Plan focuses on the Target LOS in its financial analysis, the analysis has also considered the funding needed to preserve current quality levels or to understand the implications of continuing to spend at current funding levels, with resulting loss of real buying power. These last two LOS scenarios generally correspond to LOS C and LOS D. The cost of these system-wide modal needs for each scenario, plus LOS A, is shown below.

As structured for the 2040 Plan, financial analysis must also recognize NCDOT’s funding responsibility as a percentage of the reported total needs for any LOS scenario. This is because the revenue forecasts used in the analysis reflect only the state and federal funds that flow through NCDOT’s budget, and not the portion of costs generally considered to be local responsibility. North Carolina’s 30-year modal needs were identified in two different formats: total costs in 2011 dollars irrespective of the responsibility party and NCDOT’s share of those 30-year needs, based on current funding formulae. The NCDOT funding responsibility for each LOS scenario considered in the analysis is also shown below. NCDOT’s funding responsibility is less than the amounts defined above, reflecting that for non-highway modes, NCDOT is in a funding partnership with other public and private entities. Generally, NCDOT provides matching funds ranging from 10 to 25 percent for capital or operating expenses depending upon the mode and funding program. To meet total Target LOS needs of \$122.8 billion, NCDOT would need to provide \$114.1 billion.

Projected 30-Year Modal Needs and NCDOT Funding Responsibility (billions of 2011\$)		
Quality of Service	Total Funding Needs	NCDOT Funding Responsibility
TARGET LOS (~ LOS B)	122.83	114.11
Optimal Conditions (LOS A)	159.53	148.20
Current Conditions (~LOS C)	94.13	86.30
Continue Current Funding Levels (~LOS D)	66.17	59.70

Appendix F: Proposed Policy, Process, and Program changes for 2040 Plan Implementation

Implementation of 2040 Plan recommendations will require consideration of substantive enhancements to NCDOT’s policies and processes. As NCDOT moves to implement the 2040 Plan, it will work closely with its stakeholders and program delivery partners to address the strategic policies, processes and programs that are defined below. These 2040 Plan implementation elements will support future investment in North Carolina’s transportation infrastructure and assist in the delivery of the 2040 North Carolina Transportation Plan.

The summary table below includes transportation planning policy, process and/or program targets covering the 2012–2040 time period. These initiatives will help the NCDOT deliver its projected work program more effectively and in line with changing funding and program objectives. These strategic initiatives will be adopted by the North Carolina Board of Transportation as

part of the 2040 Plan and implemented by the NCDOT staff. The initiatives are in line with NCDOT’s expanded mission statement and reflect the Principles and Objectives as identified in the supporting tables below.

For each of the nine potential strategies, “supporting tables” have been developed that provide additional detail to help explain and clarify each strategy in terms of benefits and performance to be gained, impact on accelerating economic development, consequences of not pursuing, and changes in policies, processes and/or programs that might be required to implement the initiative. As the recommendations are more fully developed and implemented, performance metrics consistent with the department’s Mission, Goals, Principles and Objectives will be considered. The supporting tables for each initiative follow the summary table for the nine primary strategies below.

Summary Table Proposed Policies, Processes, and Programs	
1	Focus Investment on Multimodal Facilities of Statewide Importance. Given that North Carolina’s financial resources are limited and infrastructure needs are extensive, we will place highest priority on investments within the Statewide tier, e.g., Strategic Highway Corridors and intercity rail passenger lines. Such projects will be defined by a regularly-updated North Carolina Multimodal Investment Network which will maximize Statewide tier safety, mobility and economic development as top priorities, and NCDOT will accomplish this by continuing to improve the State’s project priority processes. In considering this initiative, NCDOT will continue its support and funding of all modes at the Regional and Subregional tiers.
2	Work with Regional Planning Partners to Increase Flexibility and Responsiveness. North Carolina’s continued urbanization plus growing diversity of transportation needs across the State’s geographic regions calls for greater flexibility in addressing local and regional transportation needs. In order to strengthen and better integrate decision-making and planning, we will seek to further improve the MPO and RPO processes with a focus on improving relationships and communications. Among other options, this will include gaining more familiarity with local areas and issues while evaluating possible restructuring and consolidation.
3	Reward Entities that Better Integrate Land Use and Transportation Planning. There is widespread concern that the segregation of land use planning and transportation planning in North Carolina may lead to inefficient allocation of limited transportation funding resources, that transportation project development processes may not be supportive of local land use planning objectives, and that supplemental funding opportunities that could maximize effective investment and efficient resource management through the capture of increased property value stemming from public investment may be missed. To address these challenges we will initiate and stimulate changes in the way land use and transportation issues are integrated into the decision-making, planning and funding processes.
4	Expedite Project Development and Delivery Through Improved Efficiency and Flexibility. NCDOT has a mission to connect people and places safely and efficiently, with accountability and environmental sensitivity, to enhance the economy, health, and well-being of North Carolina. NCDOT strives to accomplish this mission while also delivering projects on time and within a realistic budget. To that end, NCDOT will continue to seek efficiencies and flexibility in the project development and delivery process, including system planning, programming, corridor planning, alternatives analysis, early consideration of issues related to the human and natural environment, preliminary engineering, final design, right-of-way, letting and construction.

5	<p>Strengthen Planning Processes to Recognize North Carolina’s Diversity. Facing a growing and more diverse State population over the next 30 years, we will create transparent procedural and analytical approaches to ensure that transportation investments and impacts from the Statewide and local planning processes are appropriately considered from all perspectives of the human environment – including community, cultural, historic, and civic assets – and that they reflect proactive and expansive public involvement strategies. This includes minorities, low-income groups, elderly and disabled individuals, and other protected populations.</p>
6	<p>Maximize Economic Opportunity and Job Creation via Improved Freight Initiatives. Through the work of the Governor's Logistics Task Force, NCDOT and sister State agencies have become increasingly aware of the critical need to optimize the movement of freight. In order to use transportation investment as a way to support economic development, job creation, and commerce, we will work with freight logistics enterprises and local / regional planning partners to better integrate logistics needs into the transportation planning process.</p>
7	<p>Establish New Sources of Revenue for Transportation Investments. NCDOT has concluded that traditional transportation revenue streams are unsustainable and insufficient to meet both system preservation and improvement needs. We thus will establish a framework for promoting, endorsing, and supporting new and replacement revenue streams for transportation activities in addition to exploring other revenue opportunities, such as value capture.</p>
8	<p>Increase Funding Flexibility to Recognize Regional, Urban and Rural Differences. Growing and more diverse transportation system options demand greater flexibility in allocation of limited financial resources. We will analyze current transportation funding allocations and identify opportunities to further optimize funding in the State Transportation Improvement Program.</p>
9	<p>Embrace and Capitalize on Technological Advances. NCDOT should ensure that technological advances are pursued on at least two fronts:</p> <ol style="list-style-type: none"> 1. New applications in vehicle manufacturing, construction materials and construction processes, to address global challenges such as climate change and system management, and 2. As an opportunity to disseminate information in a timely and clear manner to the public. <p>These initiatives will require the establishment of on-going relationships with global vehicle and ITS technology suppliers, think-tanks, and universities, as well as the development of improved public communications techniques.</p>

Supporting Tables: Strategic Policy, Process and Program Initiatives

For each of the nine potential strategies above, a “supporting table” has been developed that provides additional detail to help explain and clarify each

strategy in terms of benefits and performance to be gained, impact on accelerating economic development, consequences of not pursuing, and changes in policies, processes and / or programs that might be required to implement the initiative. The supporting table for each initiative follows.

Initiative 1	Focus Investment on Multimodal Facilities of Statewide Importance. Given that North Carolina’s financial resources are limited and infrastructure needs are extensive, we will place highest priority on investments within the Statewide tier, e.g., Strategic Highway Corridors and intercity rail passenger lines. Such projects will be defined by a regularly-updated North Carolina Multimodal Investment Network which will maximize Statewide tier safety, mobility and economic development as top priorities, and NCDOT will accomplish this by continuing to improve the State’s project priority processes. In considering this initiative, NCDOT will continue its support and funding of all modes at the Regional and Subregional tiers.
NCDOT Principles and Objectives	Moving People and Goods: Efficient transportation network Prosperity: Economic growth and development Choices: Options in how to travel
Elaboration of the lead statement	The Statewide tier of the North Carolina Multimodal Investment Network (NCMIN), which is a stratification of all the components, facilities, and modes of North Carolina’s transportation system, is the backbone of mobility in North Carolina. Statewide tier highway facilities serve long-distance trips, connect regional centers, support efficient movement of people and goods, have the highest usage and mostly provide a mobility function as opposed to a land access function. A review and update of the NCMIN will be undertaken. This will include coordination with NCDOT’s planning partners (MPO/RPO/local governments), other state and Federal agencies, and the public consistent with the Unified Public Engagement Process (UPEP). By focusing investment in multimodal facilities of statewide importance, Initiative 1 will support economic prosperity and the effective use of funds to meet long-term transportation needs.
Impact of the initiative	This strategy will promote increased safety, reduced congestion, more efficient movement of people and goods and increased economic activity on the highest tier of transportation facilities Statewide. The current STIP has \$20.6 billion in funding for Statewide tier projects which translates into about 64% of all funds expected to be available. If the Statewide tier projects funding were increased to the 80% level, the funding of the Regional tier and the Subregional tier would be reduced to about 10% each. It will be infeasible to apply this initiative with complete rigor because non-highway modes would essentially be unfunded or realize a sizeable decrease in funding – contrary to input received during the public involvement process. For example, only 2% of bike/pedestrian needs are reflected on the Statewide tier, of which 90% of them are Subregional. This same impact would apply to other non-highway modes such as public transportation, where very few services are on the Statewide tier, and most are on the Subregional. Thus, placing the highest priority on the Statewide tier would still allow for other modal projects to be funded at an appropriate level and would therefore support multimodal choices.
Benefits and performance	By giving highest priority to the Statewide tier, we are focusing on a primary goal of emphasizing mobility and promoting the economic well-being for the State. This emphasis is consistent with recommendations of the Governor’s Logistics Task Force <i>Seven Portal Study</i> which describes ways in which North Carolina’s transportation infrastructure investments will facilitate economic development and job creation. The Statewide tier of proposed projects supplements the State-federal Interstate System and is critical to transportation mobility, safety and economic development.
Consequences of not pursuing the initiative	Valuable infrastructure funds will be diluted, and mobility and economic activity will not be maximized. As North Carolina’s population becomes more mobile, especially in terms of journey-to-work or other commuting patterns, the need for Statewide transportation linkages will be even more critical. Also, in increasingly competitive world economic development scenarios, the State must accelerate its investment in facilities that help meet freight and other economic development requirements.
Potential changes in policy, processes and programs	This policy change can be accomplished by modifying the Prioritization Process to make Statewide tier facilities a higher priority in the application of prioritization criteria. This may imply a restructuring of the Highway Trust Fund such that it is primarily rededicated to transportation needs that include the Statewide tier.

<p>Initiative 2</p>	<p>Work with Regional Planning Partners to Increase Flexibility and Responsiveness. North Carolina's continued urbanization plus growing diversity of transportation needs across the State's geographic regions calls for greater flexibility in addressing local and regional transportation needs. In order to strengthen and better integrate decision-making and planning, we will seek to further improve the MPO and RPO processes with a focus on improving relationships and communications. Among other options, this will include gaining more familiarity with local areas and issues while evaluating possible restructuring and consolidation.</p>
<p>NCDOT Principles and Objectives</p>	<p>Accountability: Balance of needs and interests with available resources</p>
<p>Elaboration of the lead statement</p>	<p>Improved coordination between the Transportation Planning Branch (TPB) and the Rural Planning Organizations (RPOs) and Metropolitan Planning Organizations (MPOs) will be beneficial to both local governments and the NCDOT. Over the next 30 years, the transportation community should continue to improve how planning, decision-making, funding, and prioritization of projects in all regions of the State are accomplished. The Department will work with local governments through the MPOs and RPOs to ensure that as local priorities change NCDOT is responsive to these changes in our plans and programs. For improved efficiency, some RPOs may need to be combined with others, be partially or fully annexed to MPOs, or be otherwise restructured.</p>
<p>Impact of the initiative</p>	<p>It is likely that RPOs and MPOs will oppose any structural change proposals that will lessen their participation in the planning and decision-making process. Thus it may be that a major assessment of the NCDOT Transportation Planning Branch (TPB), MPOs, RPOs, the seven economic development regions, and the local economic development commissions should be conducted with an eye towards clarifying and simplifying the roles and responsibilities, boundaries, processes and products. In addition, there are new knowledge and skill areas that we will address to assist the TPB Coordinators and MPO/RPO staff, including these State initiatives that are imminent:</p> <ul style="list-style-type: none"> • Freight planning and improved, more consistent contact with private shippers and carriers • Economic development regions where job creation is a focus for the foreseeable future • Improved understanding of and decision-making concerning land use and transportation coordination and integration questions at the local level.
<p>Benefits and performance</p>	<p>The RPOs and MPOs will be more effective and more successful in the transportation planning and decision-making processes. Improved coordination between the RPOs, MPOs, and TPB will result in increased transportation planning efficiencies and better results.</p>
<p>Consequences of not pursuing the initiative</p>	<p>Some RPOs will continue to struggle and not be as effective as they can be. This will tend to affect the quality of planning and decision-making, as well as the nature and extent and timing of locally-recommended projects. Eventually, insufficient coordination will lead to inefficient and ineffective transportation planning processes in MPO and RPO areas. Lack of resources and inadequate integration between the MPOs / RPOs and TPB coordinators may precipitate poor communication, misunderstanding, and disagreement concerning transportation planning and decision-making.</p>
<p>Potential changes in policies, processes and programs</p>	<p>Some of the initiatives will require only changes in the transportation planning process and thus could be implemented administratively without any policy change. However, in the case of alterations affecting roles and responsibilities, funding, etc., state legislation may be necessary.</p>

Initiative 3	Reward Entities that Better Integrate Land Use and Transportation Planning. There is widespread concern that the segregation of land use planning and transportation planning in North Carolina may lead to inefficient allocation of limited transportation funding resources, that transportation project development processes may not be supportive of local land use planning objectives, and that value capture supplemental funding opportunities that could maximize effective investment and efficient resource management through the capture of increased property value stemming from public investment may be missed. To address these challenges we will initiate and stimulate changes in the way land use and transportation issues are integrated in the decision-making, planning and funding processes.
<i>NCDOT Principles and Objectives</i>	Connectivity: Integration of transportation and land use
<i>Elaboration of the lead statement</i>	<p>Tying transportation planning policies, processes and programs to land use planning is a long-standing challenge. Change has been very slow, with transportation projects and commercial development leap-frogging one another towards an insidious level of sprawl and wasted resources and infrastructure. Clearly, at the planning level, both transportation planners at NCDOT, MPOs and RPOs must continue to work on improved coordination, and land use planners at the local level must be invited to participate in a meaningful way. Further, planners at all levels will require the support of local elected and appointed officials to engender policies that are in the interests of the community at large and not reactive to a single developer's or politician's interests. At some point, personal desires must be compromised in order to improve land use and transportation coordination. This is a significant challenge and calls for education, commitment, and leadership to help create more efficient and effective transportation facilities and services and more sustainable development.</p> <p>Value capture opportunities as have been applied most extensively in urban rail transit station locations, for example, need to become part of the routine assessment of transportation investment in facilities and services. This will form the basis for the use of real estate taxes, impact fees, and other fees levied on developers and landowners to accrue to the public, "capturing" a portion of each investment that generates economic value. This initiative exemplifies the use of transportation investment to support economic development, as well as the identification of ways to leverage effective funding strategies to meet long-term needs.</p>
<i>Impact of the initiative</i>	Coordination of land use and transportation planning begins with willingness for local elected officials to understand, insist upon, and implement improved land use / transportation policies. This will mean working with the private developers to establish compromises in joint land use / transportation decisions which are in the best interests of the community at large, and not just the site in question. The central barriers to this seminal change are the influencers of policy and the policy-makers, not the planners.
<i>Benefits and performance</i>	Improved transportation / land use coordination could result in enhanced transportation network connectivity, less auto trip making, more transit trips and reduced average trip lengths, as well as reduced congestion in major corridors, reduced energy consumption and air emissions, and more sustainable development. Additionally, more effective comprehensive planning and integration of transportation and land use decision-making could be pursued to support improved outcomes for communities, regions and the state.
<i>Consequences of not pursuing the initiative</i>	Increased traffic congestion and more sprawl will be the likely outcome. This will inhibit mobility, reduce safety, negatively affect communities' ability to plan and implement strong economic development initiatives and potentially increase negative impacts to the human and natural environments. Neither the NCDOT nor the local governments alone have the authority or implementation tools to solve these problems.
<i>Potential changes in policy, processes and programs</i>	A change in the coordination of local land use and transportation policies will be dependent on a re-education of planners, developers and decision-makers such that the best interests of the greater region may be served. It may be that as-yet undefined legislative changes will be needed to precipitate improved land use and transportation coordination.

<p>Initiative 4</p>	<p>Expedite Project Delivery Through Improved Efficiency and Flexibility. NCDOT has a mission to connect people and places safely and efficiently, with accountability and environmental sensitivity, to enhance the economy, health, and well-being of North Carolina. NCDOT strives to accomplish this mission while also delivering projects on time and within a realistic budget. To that end, NCDOT will continue to seek efficiencies and flexibility in the project development and delivery process, including system planning, programming, corridor planning, alternatives analysis, early consideration of issues related to the human and natural environment, preliminary engineering, final design, right-of-way, letting and construction.</p>
<p>NCDOT Principles and Objectives</p>	<p>Accountability: Balance of needs and interests with available resources (improve performance-based program delivery) Resource Protection: Protection and conservation of natural resources Healthy Communities: Livable communities and improved quality of life</p>
<p>Elaboration of the lead statement</p>	<p>Much progress has already been made towards this initiative by a group of leaders in agencies that are integrally involved in the planning, development and implementation of North Carolina’s transportation system, the Interagency Leadership Team (ILT). The ILT came together in 2004 with the mission to develop an interagency leadership plan for North Carolina to balance successfully mobility, natural and cultural resource protection, community values, and economic vitality at the confluence of the agencies’ missions.</p> <p>Several initiatives to expedite the project development and delivery process, both nationally and in the State, are underway. These include: Integration (linking long range transportation planning and NEPA/SEPA), the streamlined Merger process (looking for efficiencies internal to NCDOT), and Every Day Counts (EDC – federal initiative to improve project delivery). Integration promotes the inclusion of environmental agencies and environmental information in the long range transportation planning process to ensure a balance between meeting the transportation demand in an area and reducing impacts to the natural and human environment. Integration provides the opportunity to use information from the long range transportation planning process in project development process. Streamlining the Merger process involves using as much existing data as possible, including GIS data, and only generating data that is truly needed to evaluate and analyze the project. EDC is designed to identify and deploy innovation aimed at shortening project delivery. We will continue these efforts as priorities and identify additional creative ideas that build upon them to be explored, implemented and measured, as appropriate. Collaboration with the FHWA and other federal, State and local government partners, including the ILT, will underpin this work.</p>
<p>Impact of the initiative</p>	<p>This strategy will support the concept articulated by the ILT that it is essential, and possible, to develop future transportation projects in a collaborative, interdisciplinary approach that involves all stakeholders and protects scenic, historic, natural environment and community resources and values while efficiently meeting the mobility, economic and safety needs of citizens. Additionally, the use of value management tools and analyses can minimize risk, protect resources and enhance accountability.</p>
<p>Benefits and performance</p>	<p>The major benefit of continuing to find efficiencies and flexibility in the project development and delivery process through these initiatives is a savings in time and money, which in turn will result in more timely and efficient completion of major projects. This has substantial cost implications as well as significant customer service benefits.</p>
<p>Consequences of not pursuing the initiative</p>	<p>The project development process will continue to take longer than it needs to, which slows project delivery and escalates project costs.</p>
<p>Potential changes in policy, processes and programs</p>	<p>Process initiatives are underway to improve efficiencies and flexibility while continuing to meet State and Federal environmental processes requirements. We will continue to work with leadership from the various agencies so that the partnerships at the executive level will continue to improve and support on-going joint initiatives that are now underway.</p>

Initiative 5	Planning Processes to Recognize North Carolina's Diversity. Facing a growing and more diverse State population over the next 30 years, we will create transparent procedural and analytical approaches to ensure that transportation investments and impacts from the Statewide and local planning processes are appropriately considered from all perspectives of the human environment—including community, cultural, historic, and civic assets—and that they reflect proactive and expansive public involvement strategies. This includes minorities, low-income groups, elderly and disabled individuals, and other protected populations.
NCDOT Principles and Objectives	Healthy Communities: Livable communities and improved quality of life (enhance public awareness and opportunities for participation with an emphasis on engaging traditionally underserved populations)
Elaboration of the lead statement	<p>Transportation provides the critical link between home and community. In 30 years, North Carolina will see notable shifts in its demographics. An aging population and the concentration of ethnically and linguistically diverse groups around metropolitan areas will likely increase the need and demand for multi-modal transportation solutions. It will become increasingly important to provide equitable transportation options for all travelers, including transit-dependent populations and users of all capabilities. The approach and analytical methods for assessing the benefits and burdens of transportation system investments for different socio-economic groups will include the following:</p> <ul style="list-style-type: none"> • Establishing a Statewide demographic profile for that includes the locations and resources of special socio-economic groups. • Developing a data review process to assess infrastructure health, safety and mobility of the State transportation system and its benefits and burdens on low-income and minority populations. • Ensuring documented information-sharing and collaboration between the Department and all partners and stakeholders in transportation planning occurs for the purpose of meeting this goal. <p>Further, the Department will continue to revisit its public involvement process, including its allocated resources, to ensure the appropriate outreach and feedback loops exist to adequately capture issues and document concerns to sufficiently guide the planning and decision-making processes. These efforts will emphasize engagement of traditionally underserved populations.</p>
Impact of the initiative	The Department will continue to make tough decisions in transportation planning whereas infrastructure, safety and mobility needs are great and varied across the State, yet funding and resources remain scarce. This initiative will create a process to ensure that community resources are protected and that no one group receives more benefits or burdens from transportation investments at the expense of another group throughout the planning process.
Benefits and performance	Public officials and practitioners will benefit from such uniform guidance when making tough choices. In addition to thoroughly identifying and involving various socio-economic groups and specific transportation system needs across the State, this initiative will also position the Department to be proactive, as well as hopefully increase public buy-in and consensus throughout the planning process.
Consequences of not pursuing the initiative	We have assured USDOT that we will carry out our programs, services and activities in a nondiscriminatory manner and, where necessary, take affirmative action as a recipient of federal assistance. Without this initiative, our ability to ensure, demonstrate and substantiate compliance with federal nondiscrimination requirements is weakened. Further, failing in this initiative could mean a decrease in safety among older drivers or a negative impact on transportation mobility and access for other groups because imbalances cannot be identified. It also could lessen the potential for attracting economic development where multi-modal transportation options are increasingly more important.
Potential changes in policy, processes and programs	This initiative will likely require a number of modifications to the transportation planning process, and policies may need to be created or updated. Most of the changes will be enhancements to work products and process improvements, to include technical analysis, data collection and evaluation measures, that will require close coordination and collaboration among key internal business units. We will also need to consider a documented process for working with external stakeholders, MPOs / RPOs, other government agencies and community organizations, to achieve the goals of this initiative.

Initiative 6	Maximize Economic Opportunity and Job Creation via Improved Freight Initiatives. Through the work of the Governor's Logistics Task Force, NCDOT and sister State agencies have become increasingly aware of the critical need to optimize the movement of freight. In order to use transportation investment as a way to support economic development, job creation, and commerce, NCDOT will work with freight logistics enterprises and local/regional planning partners to better integrate logistics needs into the transportation planning process.
NCDOT Principles and Objectives	Prosperity: Economic growth and development Moving People and Goods: Efficient transportation network
Elaboration of the lead statement	This initiative supports greater emphasis on freight planning to advance the recommendations of the NC Logistics Task Force. The Seven Portals Study describes ways in which North Carolina's transportation infrastructure investments can help with economic development and the creation of jobs especially in the agricultural, military, aerospace, transportation and logistics, manufacturing, health and wellness, and tourist economic sectors. The ideas unify regional interests in economic development and infrastructure investment in order to create an overarching vision of how transportation investments can help expand the State's economy by supporting economic development, job creation and commerce. The State is in a natural location to play a prominent role in logistics along the eastern seaboard, and international portals can help tie the State to the world. This includes ocean-side ports as well as inland ports – locations where goods can pass through US Customs. Via these portals and the Statewide tier of the transportation system, North Carolina will be in a stronger position to engage more directly in international commerce.
Impact of the initiative	Expanded freight logistics planning, financing and implementation will be a relatively new undertaking for the NCDOT and its planning partners. It will require new expertise, improved communication and coordination with industry, and willingness of decision-makers to set aside revenue to support potentially non-traditional projects.
Benefits and performance	This initiative will result in a more effective, proactive approach to recruiting new industries to North Carolina, taking advantage of approved development sites near our railroads and the Strategic Highway Corridors. It will support a more effective process for providing job creation and economic opportunities and in some cases require transportation funding.
Consequences of not pursuing the initiative	Failing to recognize and act upon freight logistics plans and investment strategies will result in less than optimal economic development opportunities. By not planning ahead, the State and local communities will be reactive to site consultants which in turn will lead to mixed results. Failure to capture freight facilities in competition with other states, as well as to provide freight services, also will negatively impact job creation.
Potential changes in policy, processes and programs	Policy changes have been initiated by Governor Executive Order 85 which - among other things - expands NCDOT's role in freight planning to include increased coordination and collaboration with the Department of Commerce as a part of the transportation planning process.

Initiative 7	Establish New Sources of Revenue for Transportation Investments. NCDOT has concluded that traditional transportation revenue streams are unsustainable and insufficient to meet both system preservation and improvement needs. NCDOT thus will establish a framework for promoting, endorsing, and supporting new and replacement revenue streams for transportation activities in addition to exploring other revenue opportunities, such as value capture.
<i>NCDOT Principles and Objectives</i>	Prosperity: Economic growth and development (leverage effective transportation funding strategies to meet long-term needs)
<i>Elaboration of the lead statement</i>	State and federal transportation revenues will decrease due to energy costs and CAFE standards, requiring alternate sources of revenues. The issue of a significant gap between transportation needs and revenue and the unsustainability of current transportation revenue sources is not a new issue in North Carolina or in the United States. This has been a consistent message since the development of the North Carolina Long-Range Statewide Multimodal Transportation Plan adopted in 2004. We need to develop performance standards for the transportation system and take a proactive lead in supporting long term revenue sources that allow the State to meet these performance standards now and into the future.
<i>Impact of the initiative</i>	New funding strategies will be pursued to effectively meet long-term transportation needs. These strategies may include new revenue sources to replace or supplement the declining gas tax revenue.
<i>Benefits and performance</i>	Improving the existing revenue sources will enable North Carolina to meet performance expectations of the transportation system, thus meeting the Department's mission and supporting economic growth in the future.
<i>Consequences of not pursuing the initiative</i>	We will not be able to adequately maintain existing facilities or build new facilities. As our transportation system becomes more congested, economic opportunities will diminish.
<i>Potential changes in policy, processes and programs</i>	These revenue options will require legislative action and in some cases Federal approval. In addition, it is generally conceded that some initiatives, such as a VMT fee, will be more efficient and effective revenue sources if implemented nationally rather than on a Statewide basis.

<p>Initiative 8</p>	<p>Increase Funding Flexibility to Recognize Regional, Urban and Rural Differences. Growing and more diverse transportation system options demand greater flexibility in allocation of limited financial resources. We will analyze current transportation funding allocations and identify opportunities to further optimize funding in the State Transportation Improvement Program.</p>
<p><i>NCDOT Principles and Objectives</i></p>	<p>Prosperity: Economic growth and development (leverage effective transportation funding strategies to meet long-term needs)</p>
<p><i>Elaboration of the lead statement</i></p>	<p>Current State and Federal law establishes multiple categories of transportation funds whose use is limited to specific facilities and / or purposes. For example, the Federal-aid program consists of more than 100 separate categories, each with its own eligibility constraints. At the same time, over 40 percent of STIP funding is limited to specific designated projects, comprising fewer than 1,500 miles out of a total State-maintained system of nearly 80,000 miles. Some Congressional reauthorization proposals currently would greatly reduce the number of Federal programs, signaling recognition that greater funding flexibility is needed in the Federal-aid program. Today, a State statutory distribution formula ensures geographic dispersion of funding across the State, but changing demographics are hindering the formula’s ability to accomplish its original intent.</p>
<p><i>Impact of the initiative</i></p>	<p>This initiative will consider the extent to which the existing funding allocation mechanisms either support or hinder our mission and goals and the effective delivery of needed system improvements, and it will recommend policy and statutory changes that will promote the most efficient and effective use of available funds in meeting long-term transportation needs.</p>
<p><i>Benefits and performance</i></p>	<p>STIP programming could be more closely aligned with the highest-ranked identified system needs and with established goal / tier investment targets.</p>
<p><i>Consequences of not pursuing the initiative</i></p>	<p>There will continue to be some degree of disconnect, often substantial, between the most pressing transportation needs and the ability to fund them.</p>
<p><i>Potential changes in policy, processes and programs</i></p>	<p>Further optimization of funding allocation will necessitate State and Federal legislative action. Flexibility in spending Federal funds will need to be part of reauthorization of the transportation program.</p>

<p>Initiative 9</p>	<p>Embrace and Capitalize on Technological Advances. NCDOT should ensure that technological advances are pursued on at least two fronts:</p> <ol style="list-style-type: none"> 1. New applications in vehicle manufacturing, construction materials and construction processes, to address global challenges such as climate change, and system management, and 2. As an opportunity to disseminate information in a timely and clear manner to the public. <p>These initiatives will require the establishment of on-going relationships with global vehicle and ITS technology suppliers, think-tanks, and universities, as well as the development of improved public communications techniques.</p>
<p><i>NCDOT Principles and Objectives</i></p>	<p>Organizational Responsibility: A sustainable organization (improve information technology products and services to facilitate efficient and effective business operations)</p>
<p><i>Elaboration of the lead statement</i></p>	<p>For North Carolina, the first component of this initiative is relatively new except in some cases of collaboration among the NCDOT research program, NCSU and other universities' engineering departments, the Institute for Transportation Research and Education and similar research programs. State policy has been to focus on immediate application of research and technology developments, generally leaving more advanced and long-range State-of-the-art initiatives to others in the transportation research community and private sector. This initiative calls for a long-term change in the relationships with ITS technology suppliers, automobile manufacturers, toll technology, and other emerging technology programs such that North Carolina becomes a leader in transportation technology development. Other branches of engineering (i.e., non-transportation) have done so, notably through North Carolina's public and private university systems.</p> <p>On the second component, NCDOT is in the process of making good use of social media, among other means of information dissemination according to the framework established a in more comprehensive public involvement effort. The Department will be continuously challenged to stay on the cutting edge of tools and techniques to ensure the viability and intent of this program.</p>
<p><i>Impact of the initiative</i></p>	<p>This initiative will accelerate the Department's technology-advanced applications, allowing the Department to accomplish more. In the face of total projected needs valued at \$123 billion (in 2011 dollars) over the next 30 years, more aggressive technology solutions will replace traditional improvements. Examples include "smart roads" (freeway monitoring, ramp meters, tolling with congestion pricing, variable message signs, etc.) and "connected vehicles" (vehicles that communicate with the roadway and each other).</p>
<p><i>Benefits and performance</i></p>	<p>With the number of worldwide vehicles forecasted to increase from 1 billion to 4 billion over the next 40 years, alternative technology solutions may lessen the pressure for new facilities while approximating the same positive benefits of improved mobility, economic development and safety. Advanced technology applications may enable the Department to either meet mobility, safety and/or development needs sooner or offer a technology-based solution that is less expensive and just as effective.</p>
<p><i>Consequences of not pursuing the initiative</i></p>	<p>There will be continued push for construction and rehabilitation of new and existing roads and multi-modal facility upgrades to the possible exclusion of technology solutions.</p>
<p><i>Potential changes in policy, processes and programs</i></p>	<p>We will administer the recommended changes through the establishment of a small program within the NCDOT that is tasked with tracking technological initiatives worldwide for possible application in North Carolina through organizations such as ITS America, the National Academy of Engineering, federal programs such as those sponsored by NASA and DOD, and the Automobile Manufacturers Association.</p>

