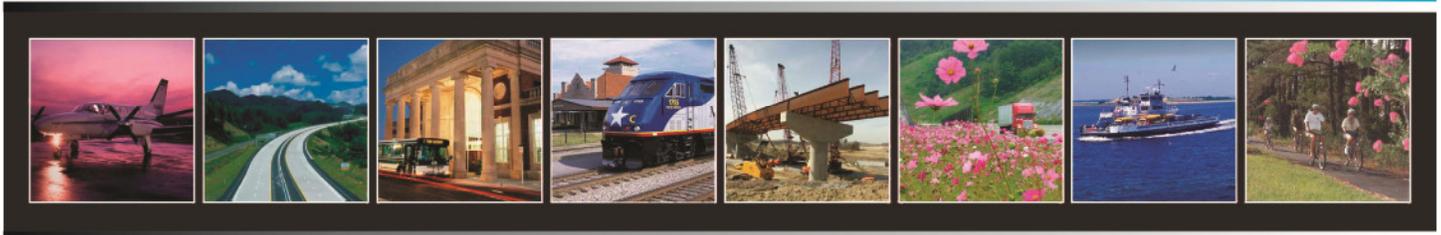


NCDOT
From Policy to Projects
2040 Plan

NORTH CAROLINA
STATEWIDE
TRANSPORTATION
PLAN



2040 PLAN REPORT

DRAFT VERSION 2

MARCH 2012

Prepared for:



Prepared by:

ATKINS

Message from Governor Perdue

Dear North Carolinian:

As a resident of this state, you play a tremendous role in our vision for the future of North Carolina—one that meets the needs of our growing population, ensures our economic well-being, and supports a high quality of life for each of us.

Transportation is one of the most important aspects of this vision. From providing access to jobs, education and healthcare, to moving the goods and services we all rely on, it touches every area of our lives. It is deeply intertwined with the economic development of our state, and solid transportation infrastructure is needed to attract new business and industry and create opportunities for our citizens. Smart transportation decisions are also important in our work to protect our natural resources and support livable communities.

This plan charts a strategic direction for North Carolina that will help ensure our transportation system supports our economy into the future.

Yours truly,

Bev Perdue, Governor of North Carolina

Message from the Secretary of Transportation

Dear North Carolinian:

North Carolina is home to the nation's largest state highway system and its second-largest ferry system, 72 public and 300 private airports, extensive rail and public transit systems, numerous bicycle and pedestrian facilities, two water ports, and two inland terminals, as well as the Global TransPark located in Eastern North Carolina. We have a vast transportation infrastructure to oversee, and we must ensure it can effectively move people and goods and support the growth and development of our communities.

Balancing the diverse needs of a rapidly growing state is no easy task, and it takes careful planning and ongoing input from all our stakeholders to ensure that we are meeting North Carolina's travel demands.

The 2040 Plan is a broad investment strategy that lays out the policies and programs needed to enhance safety, improve mobility, and reduce traffic congestion for North Carolinians over the next 30 years. It is the final step in our recently developed prioritization process that begins with high-level strategic decision-making and ends with a realistic project-specific work plan that makes the best use of available resources. By painting an accurate picture of our priorities well into the future, it also supports our efforts to find new ways to pay for our state's growing transportation needs.

Extensive public outreach was a critical part of this plan's development, and the success of our efforts hinges on continued feedback from the communities we serve. On behalf of NCDOT, I thank you for your participation in helping guide the future of our state's transportation infrastructure.

Sincerely,

Gene Conti, Secretary of Transportation

2040 Plan: Executive Summary

Executive Summary text still in development

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Introduction and Plan Purpose

North Carolina's economy depends on having a safe, efficient, well-maintained transportation system. The infrastructure and services that make up the transportation network are critical to the efficient movement of people and goods in support of economic opportunity and must respond to the growing diversity of the State's citizens and its regions. It is vital that the State has a clear vision of how those systems and services should evolve over the coming decades, reflecting anticipated changes in population, the economy, and technology.

The North Carolina Department of Transportation (NCDOT) is charged with developing a long-term vision for transportation in the state and ensuring that public and private transportation service providers work together to achieve that vision. This includes building, operating, and maintaining a safe and seamless intermodal transportation network that links North Carolina internally, with the country, and the world.

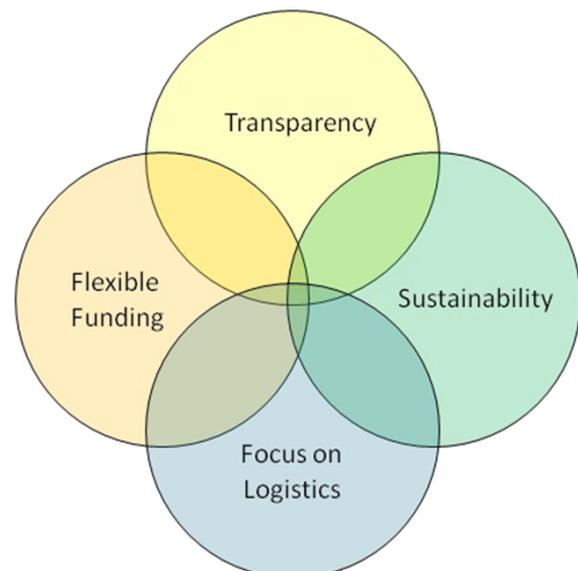
The 2040 Plan is a blueprint, setting investment and policy priorities for North Carolina's evolving transportation system over the next thirty years, meeting growing mobility needs of residents and visitors, supporting and enhancing the state economy, preserving the environment, and improving the quality of life in a safe, secure, and cost-effective manner.

Defining that vision for North Carolina's transportation system is the purpose of this update of the state's long-range transportation plan. Called the 2040 Plan, it defines needed investment, estimated revenue to fund that investment, transportation infrastructure and service investment strategies, and policies supporting them. The plan focuses on the policies and programs needed to enhance safety, improve mobility, and reduce congestion while addressing all modes of transportation for which NCDOT has some degree of responsibility: highways, aviation, ferries, ports, rail, public transportation, bicycling, and walking. The process for preparing the 2040 Plan is described in the text box at the end of this section of the report.

NCDOT in Transition: The Benefits of Transportation Reform

NCDOT's last statewide transportation plan was adopted by the Board of Transportation in 2004. Since then, the Department has been involved in a number of initiatives that have influenced how it does its business and interacts with its "clients," all users of the state's transportation system. The principle driving force behind the enhancements that now permeate NCDOT's day to day operations was a thorough management review that led to an initiative known as Transportation Reform. This process has resulted in a "Policy-to-Projects" process that begins with long-range goals and investment decisions and ends with a detailed work program that spells out specific projects needed to

NCDOT – Transitioning for a New Era



achieve these goals. The result of Transportation Reform has been the following organizational initiatives:

Greater Transparency – NCDOT’s decisions and performance have been made more transparent to its stakeholders through initiatives such as those below.

- **Project Prioritization:** NCDOT uses a data-driven strategic prioritization process to help identify the need for and inclusion of transportation projects (across modes) in the 10-Year Plan. These candidate projects are scored and ranked through a process that takes place every two years.
- **Performance Measurement:** a new ranking system that sets goals and objectives based on measurable standards; results are displayed on a “Performance Dashboard,” a graphic indicator of how well NCDOT is meeting its goals.
- **Open Communications:** a clear and accountable communications strategy designed to keep residents and employees better informed. NCDOT has developed the Unified Public Engagement Plan and is utilizing social media (Twitter, YouTube, and Facebook) to reach a more tech savvy audience. Major projects are also showcased as stand-alone websites that make it easy for the public to see and find information.

Improved Efficiency and Sustainability - NCDOT is increasingly focused on providing efficient and sustainable solutions through measures such as:

- **Sustainability Blueprint:** an initiative that places principles and practices of long-term sustainability throughout all phases and functions of NCDOT.
- **Complete Streets:** a policy that encourages designing the state’s highway system in a way that integrates the needs of all types of users, including pedestrians, bicyclists, and transit riders and improves livability of NC communities.
- **Stewardship in program delivery:** working aggressively to meet project delivery schedules and to streamline project development timelines, NCDOT has raised the bar in the Transportation Improvement Program, while maintaining its vision for environmentally sensitive systems. Reduced bridge replacement time from 5 to 3 years, and cost by 25%.
- **Increased use of technology:** NCDOT now more than ever is using technology to reach NC’s citizens and partners, including a new SharePoint portal, launch of a Spatial Data Viewer to see transportation data on a state map, and development of an Enterprise Content Management system to streamline project development and environmental documentation.

Funding Flexibility: funding tools such as GARVEE bonds, toll financing, private sector partnering, the Mobility Fund and expanded multimodal funding are used to stretch NCDOT’s revenues and speed project delivery. NCDOT sold bonds through the N.C. Turnpike Authority and began construction on the first of five potential toll projects around the state. The exploration of naming rights for infrastructure is another funding source the Department is considering.

Increased Emphasis on Freight Movement: greater institutional understanding of the importance of logistics to promoting economic opportunity and governance changes that will facilitate improved utilization of critical logistics assets such as the state’s ports, inland terminals, the Global TransPark

economic hub, and the North Carolina Railroad. Spurred by the work of the NC Logistics Task Force under the direction of the Lt. Governor, successful implementation of this far-reaching initiative will be critical if the State is to achieve economic well-being for its residents.

Successes and the Look Ahead

The result of this new approach to doing business is a set of successes indicating to NC's citizens that the NCDOT is working hard to be good stewards of their tax dollars. Recent examples of these NCDOT Successes are shown on the right.

However, the need to be flexible, responsive, and creative demands that the Department moves forward with a clear vision of our plan for tomorrow.

Recent NCDOT successes:

- Implemented a new performance management system allowing goals and objectives to be measures against known standards.
- Increased Program Delivery rate to 90-95%.
- Developed Project Prioritization process for STIP development to make project selection more objective.
- Implemented a transparent and accountable communications strategy.
- Began use of GARVEE bonds to speed delivery of federal-aid highway projects.
- Reduced bridge replacement time from 5 to 3 years, and cost by 25%.
- Sold bonds through the N.C. Turnpike Authority and began construction on the first of five potential toll projects around the state.
- Adopted "Complete Streets" policy that integrates transit and pedestrian planning into roadway design and creates multimodal corridors; to improve livability of NC communities.
- Prepared Sustainability Blueprint to institutionalize sustainable principles and practices throughout NCDOT
- Added new mid-day frequency to the intercity rail passenger service between Raleigh and Charlotte (the Piedmont) and received \$545 million High Speed Intercity Passenger Rail Program grant to add more service.
- Developed security plans for the state's ferry system.

Stakeholder Expectations

This plan, to be successful and acceptable to NCDOT's stakeholders, must demonstrate that it has been prepared in an environment that has allowed opportunity for stakeholders to contribute to the plan's development. NCDOT sought stakeholder input through a comprehensive public participation program (see *Appendix B* for a description), allowing a wide variety of stakeholders to provide valuable input. While a wide range of input was received, there were some prevailing thoughts and ideas, including:

- It will be increasingly important to offer public transportation or non-motor vehicle options as the population diversifies and ages.
- 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.
- Although increased funding may be needed to pay for transportation projects, facilities and services, NCDOT should exhaust all ways of streamlining its operation and eliminating fund diversions at the state level before considering other ways of obtaining funds.
- When increased funding is sought, it should come from a variety of sources.
- NCDOT needs to work closer with its transportation partners at the Metropolitan Planning Organization (MPO) and Rural Planning Organization (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.

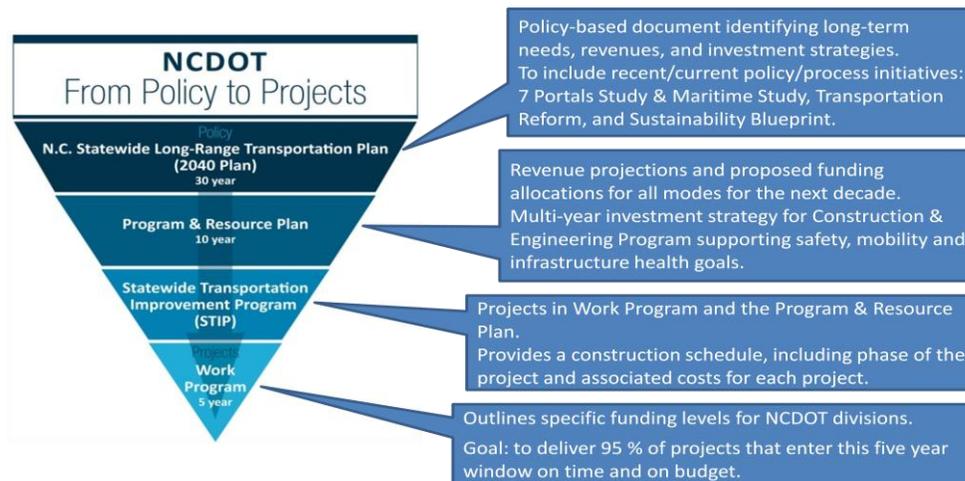


2040 Plan Process – Collaborative, Continuing, and Coordinated

The 2040 Plan is the long-range planning element of NCDOT's *Policy to Projects* planning process (see figure below) designed to provide transparency and continuity to NCDOT's program delivery. The 2040 Plan has been prepared by combining technical analysis and public outreach, and is intended to meet federal transportation planning requirements as defined in 23 CFR Part 450. The 2040 Plan draws from ongoing planning and policy-setting efforts, including internal management to NCDOT, of its planning partners, and of

Technical activities included:

- Forecasting long-term socioeconomic trends; these forecasts are consistent with forecasts of the North Carolina Department of Administration.
- Defining long-term transportation challenges and opportunities
- Estimating North Carolina's 30-year transportation needs for all modes of transportation; needs estimates draw directly from long-range transportation plans of the state's seventeen MPOs, planning and asset management efforts of NCDOT's modal units, and external strategic planning of the NC Logistics Task Force.
- Forecasting baseline state and federal transportation revenue
- Estimating the gap or shortfall in funding, comparing baseline revenue to 30-year funding needs
- Identifying revenue enhancement options and their potential to close the funding gap.



Public involvement has included general communications on the NCDOT web site, distribution of three public opinion surveys and evaluation of the input received from over 7000 responses, multiple meetings with a Statewide Stakeholder Group and Agency Coordination Group, and ongoing coordination with the State's Metropolitan Planning Organizations and Rural Planning Organizations.

The result of the 2040 Plan process is a set of broad policy, program delivery, and investment strategy recommendations. Drawing from the technical analysis, partner and stakeholder collaboration, and public involvement, the 2040 Plan presents a set of study findings and recommendations that will guide the Department setting investment priorities in its 10-Year Program and Resource Plan and will improve its program delivery and sustainability efforts through improved policy and program efforts.

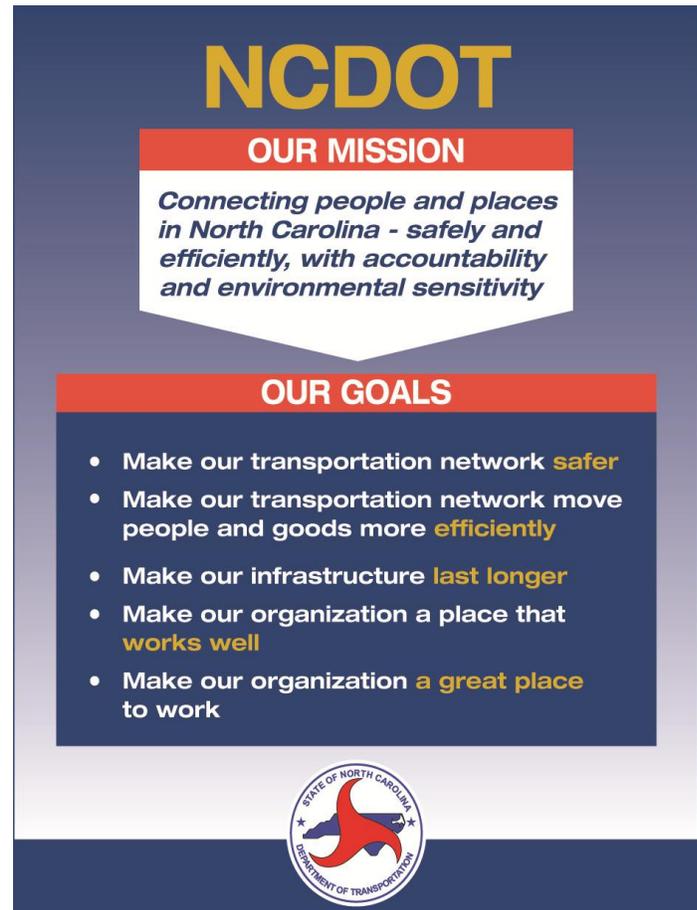
NCDOT's Mission, Goals, and Guiding Principles

Following completion of the last statewide plan in 2004, the North Carolina Board of Transportation adopted a mission and five primary goals that have since then become the foundation upon which NCDOT does its work for the citizens of the state and which the day-to-day activities of the Department are directed. As such, these goals define the long-term ends toward which all of NCDOT's programs and activities are aimed. In adopting this 2040 Plan, the Board of Transportation specifically reaffirms these goals, directing that NCDOT continue to define and measure its program-delivery efforts.

Further defining NCDOT'S five goals, the 2040 Plan establishes the following six Guiding Principles that define overarching focus areas that represent NCDOT's values and will guide program delivery:

- **Maximize economic opportunity** in its programming of financial resources
- **Maintain transparency** in development and funding of multimodal projects and programs.
- **Improve modal systems** by clearly defining performance measures and expectations.
- **Promote sustainability** of environmental systems, preservation of resources, livability of the state's communities, and transportation system efficiency and flexibility.
- **Recognize the growing diversity and mobility needs** of the state's population by continuously improving the mobility options that are available.
- **Provide for the security of NC's residents and its economy** by considering security needs in project development processes, including in providing for the security of data.

While the Mission and Goals presented here are intended to promote stability within the Department and confidence from their partners and stakeholders, NCDOT also recognizes that these must be living statements, evolving to reflect changing global trends and transportation challenges, and new legislative direction such as transfer of the two state ports and Global TransPark to NCDOT. Such restructuring may lead to more direct recognition of the need to set goals for efficient freight logistics and improved economic opportunity.



Trends and Challenges Affecting North Carolina Transportation

Over the next 30 years, North Carolina's population will grow, shift, and diversify, and the economy will change. These changes will create major challenges to NCDOT and its transportation partners.

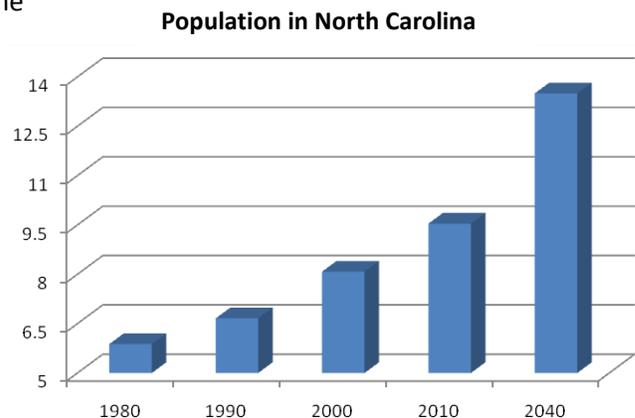
Population and Employment Trends

The movement of people and goods is a primary output of social and economic activity, increasing the demand for transportation services. The following trends will have a significant impact on efforts to provide needed transportation services and infrastructure over the next three decades:

- North Carolina will continue to attract newcomers. By 2040, an estimated 13.5 million people will call North Carolina home, a 42% increase from 2010.¹
- The state's population will continue to concentrate in urban clusters and along major transportation corridors. Population in the state's six major metropolitan areas (Charlotte, Raleigh-Durham, Greensboro-Winston-Salem, Asheville, Fayetteville, and Wilmington) will grow from 69% to 74% of state population.
- Population outside the six major metropolitan areas will increase by 600,000, to 3.6 million.
- Older adults are the fastest growing segment of North Carolina's population. Those over 65 years of age will increase from 13 to 18% of the state's population, doubling to 2.4 million.
- The employment base will continue its shift from the manufacturing base of the 1990s, becoming increasingly service-oriented. Employment will increase from pre-recession 2007 levels of 4.1 million to 5.7 million in 2040, manufacturing jobs will drop 32% to 368,000, and non-military service jobs will increase 50% to 5.0 million.

From 2000 to 2010, North Carolina's 18.5% growth rate was surpassed by only five states, and its absolute population increase of nearly 1.5 million was topped by only four states.

These trends pose serious challenges to the delivery of transportation services in the state. While the demographic trends serve as the evidence of how attractive the state has become to the newcomers, they create more strain on the state's multimodal network. The state's shifting economy will require a well-maintained and expanded transportation infrastructure to support it.



¹ Global Insight database. US Census 2010.

Transportation Challenges

NCDOT and its transportation partners face substantial hurdles in addressing the broad transportation needs of the state over the next 30 years. These challenges include assurance of the safety of its systems, preservation of the health of an aging infrastructure, and provision of economic opportunity brought in part by personal mobility and efficient movement of the freight and goods. These trends, more completely reported in the 2040 Plan *Challenges and Opportunities Report* (September 2011), are summarized below. Several current NCDOT initiatives to address these challenges are also identified.

1. Growing and Changing Personal Mobility Needs

North Carolina must respond to the demographics-related challenges facing its transportation sector, resulting in substantial impacts on travel patterns and demand and increased strain on the state's transportation infrastructure health. The continued concentration of population in the state's six major metropolitan areas will lead to increased traffic congestion and inadequate transportation infrastructure. The aging of the state's population – - will challenge efforts to provide mobility for this age sector and to ensure safety of motorists, as North Carolinians live longer and older residents form a growing percentage of the total population.

2. Preservation of Transportation Infrastructure Health

While NCDOT and its public and private transportation partners have invested heavily in North Carolina's transportation infrastructure, the infrastructure "health" is in jeopardy. This issue affects all transportation modes in the state. To cite some highway statistics, while 84% of interstate miles are in good condition, only 63% of primary and 67% of secondary miles are in good condition.² The NCDOT's *2010 Report on the Condition of the State Highway System* reported that if funding remains stagnant, the percent of pavement miles in good condition in North Carolina is projected to drop from 68 to 50% by 2017, with similar percentage drop for bridges.³ The modal needs described in the next section of the 2040 Plan document that each mode faces very large infrastructure needs. Preserving the existing transportation infrastructure in sound physical condition will require more resources than are available today. The challenge ahead will be to augment existing revenue sources to pay for preservation of our transportation infrastructure.

3. Growing and Changing Freight Movement and Logistics Needs

"Businesses looking to relocate or expand want a strong transportation infrastructure to effectively move their goods."

Governor Beverly Perdue

NC businesses rely on freight movement to succeed in today's competitive global economy. The state's ports in Wilmington and Morehead City are important international gateways for bulk exports and commodities imports; the Interstate highways serve as the primary trucking cargo arteries; the two Class 1 railroads (CSX and

Norfolk Southern) offer most freight rail capacity; and the three international airports

^{2,4} NCDOT, *A Vision Set in Motion, 2010 Annual Performance Report*

³ NCDOT, *2010 Report on the Condition of the State Highway System*

(Charlotte/Douglas, Piedmont Triad , and Raleigh-Durham) serve as major freight hubs. The state's ability to attract new businesses will be aided by prompt responsiveness to their short and long term freight movement and logistics needs. As reflected in the work of the NC Logistics Task Force, documented in the *Statewide Logistics Plan*, the *Seven Portals Report*, and the (draft) *Maritime Strategies Report*, North Carolina needs to prepare ongoing response to freight movement and logistics needs of commerce in the state. This includes both added capacity needed to handle expected increases in freight volume, and changing logistics patterns as the state's economy evolves.

To address logistics needs and the economic development opportunities as defined by the NC Logistics Task Force, the Governor has transferred the State Ports Authority and the Global TransPark to NCDOT management and has created a State Transportation Logistics Coordinating Council. Additionally, NCDOT has appointed a Statewide Logistics Coordinator to guide the Department's efforts to more efficiently address the economy's logistics needs.

4. Financial Sustainability

Adequate financing is fundamental to the delivery of transportation services and infrastructure. NCDOT recognizes the need for a comprehensive funding approach for all aspects of its operations and expansion, including the need to do more with less. But revenues are not keeping pace with the growth in demand for transportation in North Carolina. NCDOT is faced with identifying stable, long-term sources of transportation funds that can address the funding gap in a meaningful way. North Carolina revenues per lane miles in the state are well below national average. In 2008, NCDOT received \$20 in revenue per lane mile, compared to \$64 nationwide.⁴ The state gas tax receipts have decreased significantly, a function of the economic downturn and more fuel efficient vehicles. This adverse impact on revenues is expected to accelerate with implementation of the new federal fuel efficiency standards, resulting in a long-term decrease in the consumption of motor fuels. The purchasing power of NCDOT construction dollars has shrunk in recent years; each dollar spent by NCDOT for highway construction and maintenance buys 42% less in 2011 than it did in 2003.⁵ And the federal funding program remains uncertain - with possible cuts to the overall program driven by the need to reduce national deficit and likely changes to grants and formula programs.

To address this challenge, NCDOT continues to seek new and innovative funding options. Most notable has been the creation of the NC Turnpike Authority and sale of toll-backed bonds to finance multiple new highway and bridge projects. Other notable examples:

- Interstate Highway tolling: to fund a \$4 billion improvement program on I-95 that far exceeds the capacity of traditional funding sources, NCDOT is seeking authority from FHWA to use tolls under the Interstate System Reconstruction and Rehabilitation Pilot Program
- Public-Private Partnerships: to bring private capital to projects such as the I-77 High-Occupancy Toll Lane project and the Mid-Currituck project, NCDOT is developing Public-Private Partnerships

⁴ Federal Highway Administration, *Highway Statistics 2008*

⁵ NCDOT, *A Vision Set In Motion: 2010 Annual Performance Report*

- Value Capture: for major transit capital investments such as the Mecklenburg County Red Line commuter rail project, NCDOT is working with local governments and regional transit agencies to create new mechanisms that capture public revenues from increased private land values resulting from public investment. For the Red Line, “value capture” could provide half of the anticipated \$400 million project cost.

5. Environmental Sustainability

Public expectation for preservation of the environment and the mobility needs of a growing population and the needed infrastructure response both place challenges on NCDOT’s program delivery. The NCDOT must address the environmental challenges facing the state’s transportation sector, while also supporting economic opportunities leading to a high quality of life for all residents. Can NCDOT provide infrastructure and services that slow that growth and associated carbon dioxide emissions while supporting economic opportunities?

While this challenge is substantial, NCDOT is taking several actions to address it. The Complete Streets policy, context-sensitive design, major investments in public transportation and intercity rail, efficient operations and improved freight movement are examples of tools already utilized by NCDOT that reduce greenhouse emissions, conserve energy and improve air quality. As important, they enhance the quality of life of the state’s residents and address climate change in a meaningful way. NCDOT’s Sustainability Blueprint will provide a framework of goals, objectives, and strategies for the promotion of sustainable outcomes, as well as a set of performance measures to monitor implementation progress and effectiveness over time.

Transportation Opportunities

With each challenge comes opportunity. Here are a few opportunities identified in the Challenges and Opportunities Report that are being addressed to respond to transportation needs:

- As North Carolina continues its rapid population growth and demographic change, NCDOT and its partners can plan for increased mobility (capacity) within the context of sustainability and livability.
- Scarce and dwindling financial resources leverage the greatest economic benefit when short-term and long-term infrastructure investment strategies are consistent with evolving commercial opportunities and the state promptly responds to transportation needs of the industries.
- Expanded, more flexible funding initiatives (such as the Mobility Fund or GARVEE bonds) and new funding sources (such as tolling or Vehicle Miles Travelled fee) could address the funding gap.
- Sustainable transportation solutions, including better linkage between land use and transportation decisions and increased use of green technology in the delivery of transportation services, could result in more efficient trip making and energy savings.

30-Year Transportation Needs

The NCDOT administers and partners in a substantial and well-developed network of multimodal transportation facilities. The 2040 Plan assesses transportation needs by **mode** (*transportation facilities such as highways and transit systems*), by **investment goal** (*infrastructure health, mobility, or safety*), and by **tier** (*statewide, regional, or subregional*). This section provides a snapshot of NC's transportation system, the performance of each of the eight broad types or modes of transportation, and the funding needed for each mode over the next 30 years to maintain and expand the infrastructure and services. Consideration will be given to the investment needed from several perspectives:

- **Current or accruing modal needs:** long-range capital and operating costs for infrastructure and services for each transportation mode (or means of transportation) have been estimated and catalogued as being either current deficiencies or accruing (future) modal needs, defined as follows:
 - **Current Deficiencies:** existing modal needs that are sometimes referred to as backlogged needs. These needs would already have been implemented had necessary funds been available.
 - **Accruing needs:** anticipated future modal needs, due to capacity and services needs arising from growth in demand over time, or due to maintenance or repairs.
- **Investment Goal:** flowing directly from NCDOT's mission and the three goals described previously that relate to asset management, development, and funding, modal needs are defined in the 2040 Plan in terms of funding required to address:
 - **Safety:** cost to improve safety and security. A safety project may also improve the condition (health) of the facility or mobility along the corridor. Examples include: guardrails, rail crossing and safety projects, upgrading roadway projects to improve safety where no additional capacity or lanes are included, traffic signals, rumble strips, and runway lighting.
 - **Infrastructure health:** cost of operating, maintaining, and modernizing systems. Examples include: reconstruction, rehabilitation, resurfacing, repair, replacement, or preservation projects, rest area projects, replacing an aging ferry vessel (as opposed to a new ferry for new service), replacing an aging bus (as opposed to a new bus for expanded service), and repaving an airport runway.
 - **Mobility:** cost to expand systems or services to reduce congestion, improve opportunities, or satisfy land access or freight movement needs. Examples include: widening and new location projects, converting highway intersections or grade-separations to interchange projects, signal system coordination projects, variable message signs and traffic cameras, new multi-use trail projects, new buses for a new bus route, new passenger/commuter/light rail service, adding double track to a rail line, new ferry vessel for expanded ferry service, and runway extension to accommodate larger planes.
- **Tier:** Elements of the various modal systems have been assigned by NCDOT to one of three tiers that define the importance of those elements to the overall system. North Carolina Multimodal Investment Network tiers (NCMIN) classifies facilities across all transportation modes as part of a

unified system into three tiers: statewide, regional, and subregional.⁶ The three tiers are described in the NCMIN as follows:

- **Statewide Tier** facilities serve long-distance trips, connect regional centers, have the highest usage, and mostly provide a mobility function (as opposed to a land access function).
- **Regional Tier** facilities connect major population centers and have a mix of functions. Some of the Regional Tier facilities can be viewed as serving statewide transportation criteria, but they usually provide an unmistakable localized function. They are equally important to a particular region of the state and also provide some land access.
- **Subregional Tier** facilities serve localized movements. They provide more of an access function than mobility, and are of a higher interest to cities and counties than the state.

For the 2040 Plan, needs have been identified and reported to differentiate among these three tiers.

- **Quality, or Level of Service (LOS):** As part of the 10-year Project Prioritization process that is an element of Policy-to-Projects (described previously in this report), 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 similar to a school report card: LOS A, B, C, D, and F; descriptions of each LOS are shown in the table below. The LOS reported for each mode in the following pages represents a system average. Within a mode, there can be significant variation, especially when conditions of modal elements are controlled by multiple governmental units. This is particularly the case with Transit and Aviation. Modal needs estimates in this section are based on the “best case scenario” LOS A, with costs of providing lower LOS reported in the chapter summary.

Multimodal Transportation Needs

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 Level of Service A. Reflecting that the state’s transportation system is heavily oriented toward automobile use for personal mobility and trucks for freight movement, highway needs are by far the largest. When needs are considered by *mode*, \$117 billion (73%) is for highway programs (includes needs for roadway, bridges, and Intelligent Transportation Systems (ITS)), and \$43 billion (27%) is split between the six non-highway modes. At \$115 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*, \$85 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.

⁶<http://www.ncdot.gov/performance/reform/NCMINmaps/>

Level of Service Definitions								
LEVEL OF SERVICE	General Condition	Highways	Transit	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 current overall modal level of service, as determined by NCDOT as part of its 2011-2012 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.

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	0.04	0.23	10.67	10.94
Bicycle/Pedestrian	—	0.64	0.64	1.28
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
Highway	57.70	2.50	56.34	116.54
Total	71.09	3.88	84.56	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	0.07	2.34	0.55	2.96
Rail	7.92	1.90	1.13	10.94
Bicycle/Pedestrian	0.03	0.10	1.16	1.29
Public Transportation	0.25	13.06	11.10	24.41
Ferry	1.19	0.58	—	1.77
Ports	1.62	—	—	1.62
Highways	48.39	18.40	49.76	116.54
Total	59.47	36.38	63.69	159.53

A summary of modal needs by mode in North Carolina follows. For a more detailed examination of North Carolina's 30-year transportation needs, see Appendix C and the *System Inventory and Modal Needs Report*.

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. NCDOT is responsible for state aviation system planning, airport and aviation system development, and construction and improvement of publicly owned general aviation airports.

According to a 2006 study by NCDOT, airports across North Carolina generate at least \$9 billion a year in business and provide nearly 70,000 jobs. This estimate is likely to be much higher in the future due to expected growth in general aviation, corporate travel, and air cargo shipments. 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.

Aviation Performance

In 2011, 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

Aviation Needs (LOS A) (\$ in billions)

Investment Goal	Current Deficiencies	Accruing	30-Yr. Total
Mobility	0.54	0.91	1.45
Safety	0.11	0.06	0.17
Health	0.04	1.30	1.34
Total	0.68	2.28	2.96

identified needs. 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%).

Implications

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. The NC 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 Task Force recommends continued infrastructure health investments in the sustainment and development of aviation facilities. Continuation of the current Level of Service D will undoubtedly lead to reduced safety, congestion in the major airports, and increasing cost to preserve even current maintenance levels.

Intercity and Commuter Passenger Rail

Fourteen intercity passenger trains operated by Amtrak currently serve cities in North Carolina. In addition, the NCDOT operates and independently funds two passenger rail routes: the Piedmont (daily Raleigh-Charlotte) and the Carolinian (daily New York-Richmond-Raleigh-Charlotte).

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.

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.

Passenger Rail Performance

In 2011, 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.

Passenger Rail Needs

The 30-year passenger rail needs total \$9.60 billion. At \$242 million, current deficiencies represent 2% of passenger rail needs. By investment goal, \$9.33 billion (97%) is for mobility needs, \$231 million (2%) safety, and \$36 million (1%) infrastructure health. The largest recognized future passenger rail expenditure is the Charlotte to Washington, D.C., Southeast High Speed Rail service addition, followed by the proposed commuter rail systems in the Raleigh-Durham, Charlotte, and Greensboro-Winston-Salem areas.

Intercity and Commuter Passenger Rail Needs (LOS A)
(\$ in billions)

Investment Goal	Current Deficiencies	Accruing	30-Yr. Total
Mobility	0.24	9.09	9.33
Safety	—	0.23	0.23
Health	—	0.04	0.04
Total	0.24	9.36	9.60

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 sought, 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.

Freight Rail

North Carolina's freight rail network serves 86 of the state's 100 counties. 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 most densely traveled freight rail corridors in North Carolina are owned and/or operated by two Class 1 railroad companies:

The state of North Carolina owns the North Carolina Railroad, 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.

CSX and Norfolk Southern. 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 and work on rail line relocation projects. In addition, the Department administers an incentive program that partially funds reconstruction or refurbishment of industrial tracks required by new or expanding industries to encourage economic development, provides funding for tracking upgrades and additions for shortline railroads that serve rural areas, and 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 North Carolina Railroad (NCRR). 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 NCRR is a key element of NCDOT's expanding intercity passenger rail service that was described above. NCRR 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 NC Logistics Task Force as a unique asset in reaching the evolving logistics objectives of NCDOT and the State.

Rail Freight 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.

Freight Rail Needs

The 30-year freight rail needs total \$1.34 billion. At \$68 million, current deficiencies represent 5% of freight rail needs. By investment goal, all freight rail needs are mobility needs. The largest single identified future freight rail expenditure is for improvements to short line railroads.

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

Investment Goal	Current Deficiencies	Accruing	30-Yr. Total
Mobility	0.07	1.27	1.34
Total	0.07	1.27	1.34

Note: Rail Division reports no identified freight rail safety or health needs

Implications

NCDOT has increased focus on corridors with shared freight and passenger rail usage and statewide freight logistics. It envisions continued strategic investments in private Class 1 and shortline railroads to enhance publicly sponsored rail operations and address targeted safety priorities. The *Seven Portals Study Draft Report* recommended that the state arrange for more competitive rail service to increase statewide freight mobility. It should make better use of the NCCR. The *Statewide Logistics Plan* pointed out that freight rail can shift some traffic off the highways.

Bicycle and Pedestrians

Bicycle and pedestrian infrastructure in North Carolina includes both state and municipal facilities, which may be on-road or off-road. 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. Off-road pedestrian and bicycle facilities include shared-use paths and trails, and may be paved or unpaved.

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/Pedestrian Performance

In 2011, 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.

Bicycle 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 all bicycle and pedestrian needs as mobility needs.

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

Investment Goal	Current Deficiencies	Accruing	30-Yr. Total
Mobility	0.52	0.12	0.64
Safety	0.52	0.12	0.64
Total	1.05	0.24	1.29

Note: NCDOT Bicycle/Pedestrian Division reports no identified health needs

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 could 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 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. North Carolina's community, regional community, urban and regional urban transportation systems provided nearly 68 million passenger trips in 2010, more than 220,000 trips per day. More than 19 million trips have been taken on the LYNX Blue Line light rail in Charlotte since it opened in November 2007. Its ridership continues to exceed expectations with over 15,000 passengers per weekday.

Public Transportation Performance

In 2011, NCDOT scored the existing public transportation system performance at mostly **LOS C**, reflecting average performance measures that 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 30-year public transportation needs total \$24.41 billion. This program cost reflects the needs of a wide range of services, from social service transportation, to fixed-route bus service, to the light-rail transit systems in place in Charlotte and being considered in the Research Triangle. At \$13.88 billion, the current deficiencies represent 57% of all identified transit needs. Urban service needs represent 89% of need by service type, and rural service accounts for 11%. By improvement goal, \$15.08 billion (62%) are mobility needs, \$9.07 billion (37%) infrastructure health needs, and \$273 million (1%) safety needs.

Public Transportation Needs (LOS A) (\$ in billions)

Investment Goal	Current Deficiencies	Accruing	30-Yr. Total
Mobility	8.05	7.03	15.08
Safety	0.22	0.06	0.28
Health	5.62	3.45	9.07
Total	13.88	10.54	24.41

Implications

Public transportation 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.

Ferries

The NCDOT operates and maintains the second largest ferry system in the U.S. It includes seven routes that carry 2.5 million passengers and 1.1 million vehicles annually. Recent major storm events on the North Carolina coast have raised awareness of both the tenuous nature of the ferry system and its critical role in both evacuation and storm recovery efforts. In an ongoing reworking of the Ferry Division's mission and structure, increasing attention is being given to maintenance of terminals and channels, schedule adherence, and passenger safety.

Ferry Performance

In 2011, existing ferries performance was scored at an **LOS C** for statewide and regional tiers for both mobility and health. Ferry LOS is based on the system's ability to serve passenger demand and to meet safety and environmental regulations.

Ferries Needs

The 30-year ferry needs total \$1.77 billion. At \$1.37 billion, the accruing needs represent 77% of ferry needs, with current deficiencies at \$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 for infrastructure health, while \$262 million (15%) are mobility needs.

Ferry Needs (LOS A) (\$ in billions)

Investment Goal	Current Deficiencies	Accruing	30-Yr Total
Mobility	0.03	0.23	0.26
Health	0.36	1.15	1.51
Total	0.40	1.37	1.77

Note: Ferry Division reports no identified safety needs

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 facility configurations. 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 *Seven Portals Study* and the NC Logistics Task Force Subcommittee Reports noted the impact of ferries 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 as 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.

Until 2011, the NCSPA and GTP operated as independent public agencies. NCSPA operating 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 NC 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. This advancement of logistics considerations is discussed more fully later in this section of the 2040 Plan.

Port Performance

Because the two ports until recently operated as independent entities, they had 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 *Maritime Strategies Report* prepared for NCDOT as part of the NC 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

For the 2040 Plan, the NCSPA identified 30-year ports needs as being \$1.62 billion. \$1.55 billion of the total (96%) is for accruing ports needs, with current deficiencies at \$66 million (4%) of the total. By investment goal, (\$1.43 billion 88%) of identified ports needs are infrastructure health needs, \$124 million (8%) are mobility needs, and 4% (\$62 million) are safety needs.

Investment Goal	Current Deficiencies	Accruing	30-Yr Total
Safety	0.01	0.05	0.06
Health	0.05	1.38	1.43
Mobility	0.01	0.11	0.12
Total	0.07	1.55	1.62

While these needs are significant, they reflect little more than modernization of current infrastructure, and not costs that would be associated with expanding the facilities to capture opportunities defined in studies such as the *Maritime Strategies Report*. That work is not complete, so the numbers above will

serve as a placeholder for ports needs. To realize the opportunities being identified through other studies will certainly raise the ports' price tag.

Implications

The NC Logistics Task Force *Subcommittee Reports* made a strong recommendation to invest in NC ports. 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 ports, the state can capitalize on its exports.

Highways

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 manage project construction, maintain and operate the road system within their geographical areas and handle planning and engineering for smaller projects.

Highway Performance

In 2011, NCDOT ranked the performance for highway subcategories ranging from **LOS A** to **LOS D**, using performance measures that had been developed as part of the Project Prioritization process. For each of the three Investment Goals:

- Safety – LOS C, based on average fatal crash rates
- Mobility – LOS B for statewide tier highways and LOC C for regional and subregional highways, based on percentage of congested miles
- Health – LOS B through 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.

Further detail can be found in *Appendix C*.

Highways Needs

Total highway needs of \$116.54 billion for the 30-year planning period were identified, including needs for roadway, bridges, and ITS. Roadway needs represent 90% of the total highway needs, bridge needs 9%, and ITS 1%. Current deficiencies of \$28.63 billion represent 25% of the identified need. By investment goal, infrastructure health needs are estimated at \$57.70 billion (50%), mobility needs at \$56.34 billion (48%), and safety needs at \$2.50 billion (2%). The majority of identified statewide tier

Highway Needs (LOS A) by Investment Goal (\$ in billions)

Investment Goal	Current Deficiencies	Accruing	30-Yr. Total
Mobility	22.52	33.82	56.34
Safety	0.95	1.55	2.50
Health	5.16	52.54	57.70
Total	28.63	87.91	116.54

Highway Needs (LOS A) by Category (\$ in billions)

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

highways needs are mobility needs, while the majority of identified regional and subregional tier needs are infrastructure health improvements.

Implications

North 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 highway needs will be challenged by the large shortfalls in funding, with growing gaps anticipated in the future. Major highway infrastructure throughout the state requires substantial investment in maintenance and rehabilitation. Yet In recent years, progress has also been made in remediating structurally deficient bridges. Improved maintenance schedules 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 set a tangible goal of fatal rate reduction (1.0 fatalities / 100 million vehicle miles traveled).

Freight and Logistics Considerations

Throughout the preparation of the 2040 Plan, NCDOT coordinated closely with the NC Logistics Task Force, consulting with Task Force staff and providing Task Force briefings.

Freight and logistics touch all key aspects of the state's multifaceted economic development targets including agriculture, bio/medical, tourism, education, military, and manufacturing. Through the work of the North Carolina Logistics Task Force (Executive Order #32, December 7, 2009), the

NCDOT has an historic linkage to freight movements. This linkage dates to the early days of DOTs, when their primary focus tended to be on creating "farm to market" roads to meet basic societal needs.

direct link between transportation investment and economic opportunity has come into sharper focus. The Governor's office acknowledged that North Carolina's ability to create jobs and to recruit and retain business and industry depends on an integrated system of transportation and commerce assets that enables people and goods to move swiftly and safely across the state.

In completing its work, the NCLTF has produced findings and recommendations captured in a series of study and committee reports, committee reports that are significant to NCDOT and to the 2040 Plan.

While NCLTF recommendations have been referenced previously in this chapter where they might affect individual modes, their significance is such that they should be captured on more of a multimodal basis, as follows:

- The *Seven Portals Study* (NCLTF and NCDOT, December 2011) specifically investigated how infrastructure investment could encourage economic development. This study identified primary economic sectors in each of seven economic regions and potential logistics sites in each of those regions which, if supported by appropriate infrastructure investment, could yield significant economic opportunity in those regions. In assessing the opportunities, multiple highway and rail needs were identified. Examples of this include continued upgrade of US 70 to improve highway access to the port at Morehead City, improved highway access to major military installations, and various rail infrastructure improvements. The study also urged that the State make more extensive use of the North Carolina Railroad, and work to secure increased rail competition at both ports and better rail connections between major military installations and the ports.

While the 2040 Plan is not making recommendations for specific project or spending priorities (an effort that is assigned to the 10-Year Plan Project-Prioritization process), it is important to recognize that the modal needs summarized earlier in this chapter to capture the broad logistics-support investments called for in the *Seven Portals Study*.

- The draft *NC Maritime Strategy Report* (NCDOT, February 2012) provided an evaluation of the role that the State's ports play in the state economy and the benefits that could be realized through strategic investment in maritime infrastructure. While the report is not yet complete, it provides a clear picture both of the challenges facing the NC ports in competing with ports in neighboring states and of the opportunities that could be realized from focused investment on the ports themselves and on land-side transportation facilities.
- The draft *Final Report of the NC Logistics Task Force* (NCLTF, March 2012) offers a range of governance policy recommendations that could directly affect the manner in which NCDOT seeks to manage its multimodal transportation system and prioritize its investments in that system.
 - "One-Stop-Shop" – the Task Force has called for consolidation of the State's multiple transportation agencies (NC State Ports Authority, NC Railroad, and Global TransPark) under the umbrella of NCDOT. In 2011, action taken by the General Assembly did transfer NCSPA and GTP to NCDOT, and the Department has subsequently created the position of Statewide Logistics Director to coordinate the operation and development activities of those facilities. In addition, the Governor has created the NC Logistics Council to seek strategic initiatives that advance logistics and economic opportunity.
 - North Carolina Railroad – at this writing, NCRR remains a private, for-profit corporation that is fully owned by the State. The NCLTF report recognizes that the NCRR is a unique asset from a logistics perspective, and urges close coordination between NCRR and NCDOT to more fully realize its potential in achieving economic opportunity.

- Competitive Rail Access – the last major recommendation in the NCLTF report directly related to transportation services is a call for NCDOT to work aggressively to promote more competitive rail access to the State ports.

Transportation Needs Summary

Transportation facilities and service assets in North Carolina provide a broad array of essential and strategic transportation capacity that impacts the daily lives of the state’s residents and critically underpins the diverse movement of freights and goods into, out of, through, and within the state. The critical role and economic significance of this composite transportation network supports the mobility and movement of workers, students, retirees, visitors, businesses, raw and manufactured goods, military personnel and assets, and a vast array of other elements. The importance of this network to the state’s economy cannot be understated. The effective management of the transportation assets and transport services across the public and private sectors is vital to sustain the anticipated growth in the state’s population, business sector, manufacturing, agriculture, military, and tourism, and to serve the mobility and transport needs of that growth.

30-Year Investment Needs by Quality of Service and Mode (in \$ billions)

Mode	LOS A	LOS B	LOS C	LOS D
Aviation	2.96	2.78	2.08	1.46
Rail	10.94	9.12	3.03	1.66
Bicycle/Pedestrian	1.28	1.03	0.77	0.34
Public Transportation	24.41	20.38	17.34	14.74
Ferries	1.77	1.59	1.42	0.71
Ports	1.62	1.30	0.97	0.65
Highways	116.54	94.19	68.52	46.62
Grand Total	159.53	130.39	94.13	66.17

Note: Need estimates in 2011 dollars

30-year statewide transportation needs to achieve the optimal level of service are large and growing (\$45 billion in current backlogged needs plus another \$115 billion expected to accrue over the next 30 years). Totaling \$160 billion in 2011 dollars, they reflect continuing population growth, increasing urbanization, and a changing economy and workforce, as well as lack of sufficient historical funding to meet all needs. Even the cost of maintaining the existing Quality of Service, estimated to be \$94 billion, is huge. But will residents and businesses in North Carolina be satisfied with an average or slightly below average performance of the transportation system?

NCDOT and North Carolina are faced with difficult choices ahead. On the one hand increasing, if not surging, demand for transportation facilities and services might warrant the need to improve the existing quality of service (LOS C). On the other hand, future funding constraints and uncertainties might prove an enhanced quality of service unattainable unless additional or expanded sustainable funding sources are secured.

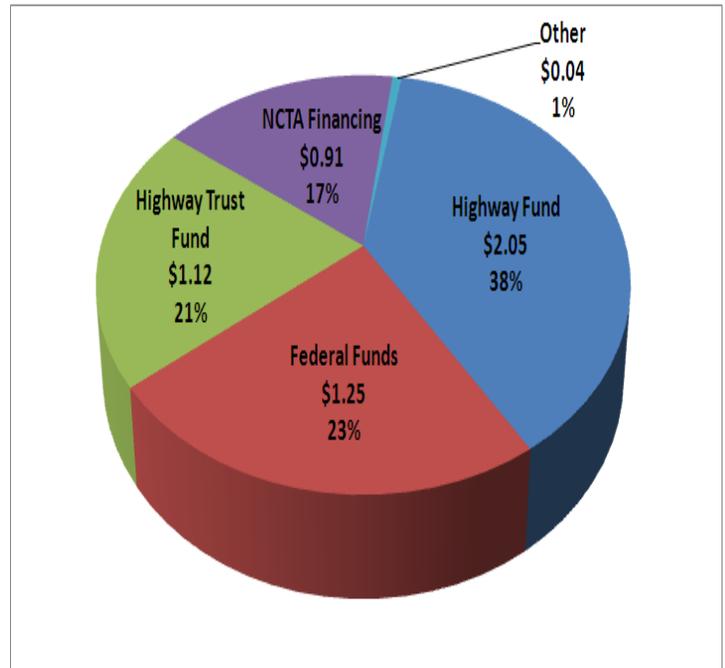
Funding our Transportation Needs

How Is Transportation Funded in North Carolina?⁷

NCDOT’s Fiscal Year (FY) 2011-2012 annual operating budget for all services is \$5.4 billion. For the first time in NC history, the budget includes one-time proceeds from sale of bonds for the state’s first modern toll road. In addition to the toll bond revenue, NCDOT’s revenue comes from three primary funding sources:

1. **The Highway Fund:** dating back to 1913, it includes sources such as state gas tax, vehicle registration and title fees, and federal aid appropriations.
2. **The Highway Trust Fund:** established in 1989, its two primary purposes are completion of the Intrastate Highway System and construction of designated Urban Loop highways. Funds from the Highway Trust Fund are subject to the legislatively-directed Equity Formula, which is intended to ensure equitable distribution of funds across all regions of the state.
3. **Federal funds:** Congressional formula-based apportionments and competitive and discretionary grant funds.

NCDOT Funding by Source, FY 2012 (in \$ billions)



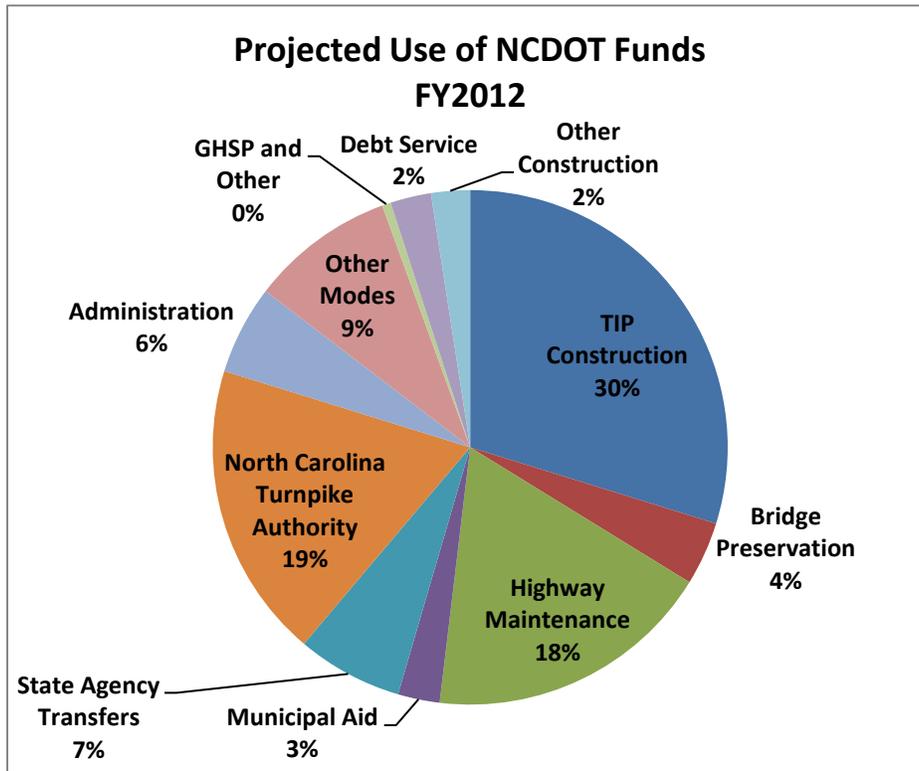
The FY 2011-2012 budget is allocated as follows:

- 30% for Transportation Improvement Program highway construction
- 22% for highway maintenance and bridge preservation
- 19% for toll road construction
- 9% for non-highway programs
- 7% for state agency transfers
- 6% for administration, and
- 7% for other expenses such as debt service and the Governor’s Highway Safety Program.

⁷ For additional information of the financial analyses described in this section, see the 2040 Plan financial report (*Financial Plan and Investment Strategies Technical Report*, March 2012).

Highway construction and maintenance comprises 71% of the FY 2011-2012 budget. While these allocations vary from year to year, they have in recent years followed this pattern.

As NCDOT works closely with its transportation partners, these fees are combined with other federal funds that flow directly to local governments or agencies, revenue generated from communities (when they share in the costs), and funds from the private sector to fund state transportation projects.



How Much Revenue Will Current Sources Provide?

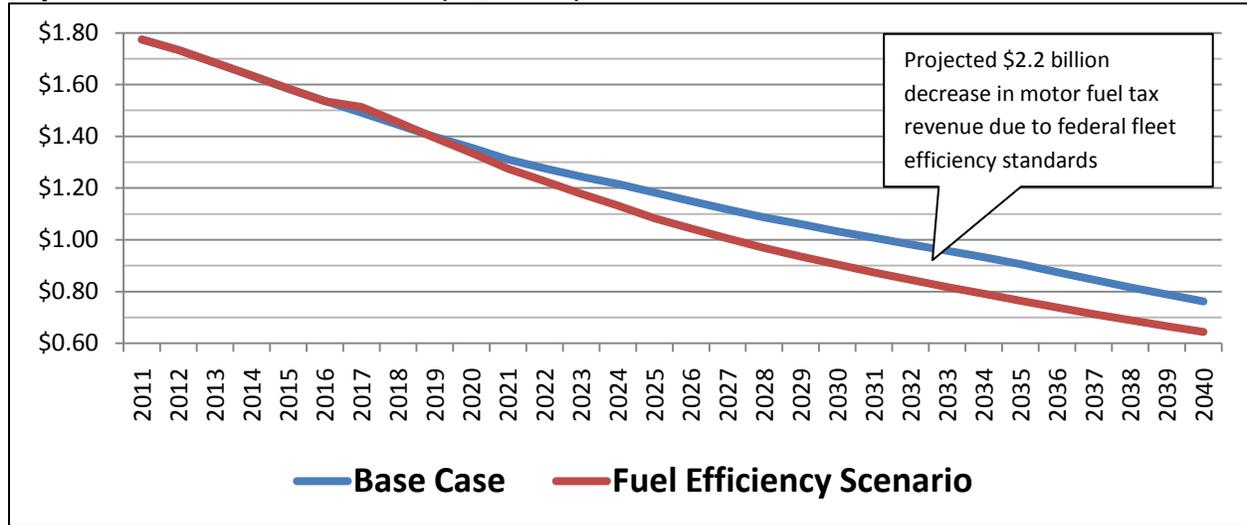
North Carolina will need \$160 billion (in 2011 \$) over the next 30 years to maintain and improve North Carolina’s multimodal transportation systems to LOS A conditions. When that amount is adjusted to reflect only the amount of state and federal revenue that NCDOT would need to provide under its traditional cost-share programs, the amount decreases to \$148 billion; the difference reflects portions of program costs, such as public transportation operating costs, which are typically borne by local entities. Simply to maintain status-quo Level of Service C as it was described earlier will require \$86 billion in current year dollars.

There is strong evidence that long-term funding from those traditional NCDOT revenue sources described above will not be sufficient or sustainable. A few of the challenges to matching the increasing costs facing the Department due to inflation and growing demand include:

- Limited growth, and after about 2020, actual decline, in motor fuel tax receipts (see graph below) due to volatility of fuel prices and increasing vehicle fuel efficiency, despite continuing growth in population and vehicle miles of travel on the state’s roadways

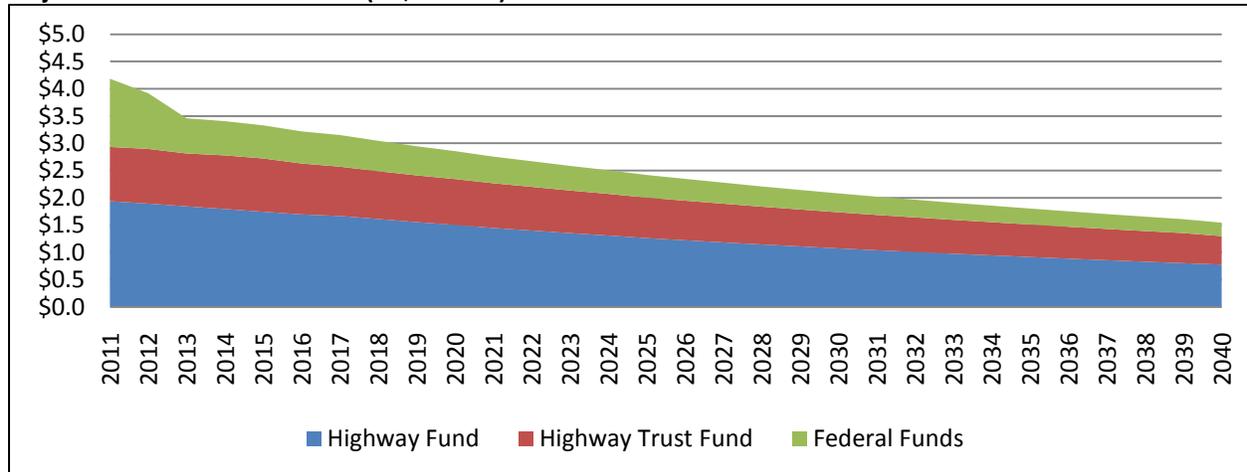
- Perceived resistance to increases in motor fuel tax rates
- Uncertain federal funding due to lack of reauthorization and constraints on the federal Highway Trust Fund
- Continuing diversion of Highway Fund revenues to non-transportation uses

Projected NC Motor Fuel Tax Revenues (in \$ billions)



Based on a set of conservative assumptions of long-term growth in the various revenue sources, NCDOT estimates that its baseline revenue forecast for the duration of the 2040 Plan will produce \$54 billion (in 2011 dollars) available for program delivery (construction, maintenance, operation of multimodal systems). This amount reflects a 28% reduction in gross revenues of \$75.3 billion due to transfers, municipal aid, administration and existing debt service, costs incurred by NCDOT that are not part of 2040 Plan infrastructure needs estimate. A year-by-year forecast of the three principal accounts in NCDOT’s budget is shown below. This graph demonstrates that the buying power of NCDOT’s traditional funding sources will continue to degrade significantly over coming years, while cost continue to increase due to inflation.

Projected NC Baseline Revenues (in \$ billions)



Is NCDOT’s Current Funding Model Sufficient and Sustainable?

Comparison of NCDOT’s 30-year multimodal transportation needs (\$148 billion for Level of Service A; \$86 billion for a status-quo LOS C) to a baseline revenue forecast of traditional funding sources (\$54 billion) reveals that NCDOT and North Carolina face a significant long-term funding gap. Even preserving a diminished LOS D will result in a funding gap.

The gap to fund LOS A needs will exceed \$94 billion through 2040. To maintain current conditions (LOS C) will require an additional \$32 billion. Stated another way, over the next 30 years, these two gap figures amount to

Projected Needs, Funding, and Funding Gap (billions of 2011 dollars)

	LOS A	LOS B	LOS C	LOS D
Total Needs	159.5	130.4	94.1	66.2
NCDOT Share of Needs	148.2	121.1	86.4	60.0
Total Baseline Revenues * (Federal, 12.4; State, 41.6)	54.0			
Baseline Funding Gap	(94.2)	(67.1)	(32.4)	(6.0)

* Assumes State Motor Fuel Tax equals an average of 35 cents starting 2011 and 35% reduction in Federal funds starting in 2013.

over \$300 and over \$100 per year, respectively, for every current resident of the state. In the face of currently backlogged needs and the accruing needs driven by demand for expanded services across all modes due to continuing population growth, NCDOT will lose ground without additional funding.

Can the Funding Gaps Be Closed?

Since traditional revenues are not sufficient to fund long-term transportation needs, what options does North Carolina have to close the funding gap? Are there new sources that can be effectively and efficiently tapped, with enough feasibility that baseline the NCDOT can set long-term investment strategies beyond what could be funded from the revenue forecast?

NCDOT is working continuously and effectively to deliver its program more efficiently. But as is evidenced by the current backlog of needed funding to address all of the investment goals (safety, infrastructure health, and mobility), NCDOT is already in a situation of not keeping up with growing needs. Clearly substantial increases in revenue are needed.

NCDOT believes that there are feasible new or expanded revenue sources. In preparing the 2040 Plan, NCDOT drew from previous studies to refine forecasts of revenue enhancement options shown below. Some of the options are powerful – they could provide substantial new funding to supplement or even replace the diminishing motor fuels tax. As noted before, annual receipts from the gas tax, even with continuing indexing as it now occurs, are expected to begin a decline by 2020. Additional, but less significant, options such as the local vehicle property tax would help close the overall gap by providing valuable supplemental funding for NCDOT’s partners. To highlight a few major revenue sources:

- **Continued indexing of the motor fuels tax**, as is currently allowed in NC statute, is powerful, generating nearly \$19 billion; but by itself, indexing is not sufficient to close even the “status quo” gap.

- **An auto liability insurance surcharge** could generate over \$12 billion; however, concerns have been raised that this option could unfairly affect younger drivers who typically pay higher insurance rates.
- **Tolling of the Interstate highway system**, as is currently being considered by NCDOT for I-95 under a federal pilot program, could generate \$42 billion. This option has appeal because it would allow the state to capture revenue from out-of-state drivers - who comprise a high percentage of users of these highways - but due to North Carolina’s high gas tax rate, avoid buying gas, and thus paying motor fuels taxes, in NC.
- **Vehicle Miles Traveled (or VMT) fees** are widely seen as an equitable replacement or supplement to motor fuels taxes, which as shown above will begin to decline by 2020. A VMT fee of 1.5 cents per mile could generate close to \$27 billion during the planning period if implemented by 2020. As an example, for a vehicle that is driven 12,000 miles per year, this fee would total \$180 per year. Gas taxes for that same vehicle, if it gets 25 miles per gallon, would be \$190 per year.

The revenue enhancement options considered in this analysis are shown in the table below, together with the assumed year of implementation and total revenue potential for each option through the year 2040.

Transportation Revenue Enhancement Options in NC (billions of 2011 dollars)		
Revenue Enhancement Options	Estimated Total Revenue until 2040	Assumed Year of Implementation
Continue Motor Fuel Tax Indexing	18.9	2011
Increase Registration/License Fees with Inflation	6.1	2016
Eliminate Transfers from Highway Fund	4.3	2016
Redirect Short Term Vehicle Lease Fee to NCDOT	0.6	2016
Additional 1% Highway Use Tax- (sales tax on autos)	3.3	2016
Dedicated Local Vehicle Property Tax	0.5	2016
Auto Insurance Surcharge (10% Tax Rate)	12.2	2020
Wholesale Motor Fuels Tax (8%)	12.2	2020
Interstate Tolling (6 cents/mi Rural, 12 cents/mi Urban, adjusted for 3.5% inflation)	41.9	2020
VMT Fee (2 cents/mi adjusted for inflation)	26.6	2020

It is recognized that this list of revenue enhancements is not all-inclusive. Indeed, even today, NCDOT is examining other options. As is being done in other states, consideration is being given to selling “naming rights” for elements of the highway system and ferry vessels, and NCDOT is seeking to leverage the increased property values that could result from major transportation investments through “value-capture” project financing.⁸

⁸ The power of “value-capture” is demonstrated by the Red Line commuter rail project being developed in Mecklenburg County; it is expected that the \$452 MM project cost will be provided by 25% NCDOT funds (\$113 MM) and 75% local funds via CATS (\$113 MM) and seven municipalities (\$226MM via value capture).

While the 2040 Plan does not recommend specific long-term investment strategies, it is important that shorter-term investment programs defined in the Department's 10-Year *Program and Resource Plan* reflect realistic long-term expectations. Is there reasonable expectation that acceptable revenue enhancements can be implemented? If there is not, then very tough decisions will need to be made as to which tiers, investment goals, or modes will need to be given lower priority. Will North Carolina be forced in the direction of other states, some of which have set mobility investment aside to focus on safety and health?

Four revenue scenarios, summarized in the table below, have been evaluated to assess the potential for gap closure:

1. Supplementing Existing Taxes/Fees with Interstate Highway Tolling
2. Replacing Motor Fuel Tax with VMT Fee in 2020
3. Enhancing Existing Revenue Sources with indexing and increases
4. Supplementing Existing Taxes/Fees with New Revenue Sources other than Interstate highway tolling.

In examining these scenarios, the objective was not to choose, but to demonstrate the potential and limitations of a series of revenue enhancement strategies. In the tables below, the revenue generated under each scenario is compared to the predicted baseline revenue funding gaps to estimate the remaining gap. Conclusions of the evaluation are:

- **None of the scenarios would close the LOS A baseline gap**
- **Only Scenario 4 (New Revenue Sources) closes the LOS B baseline gap**, but both Scenario 1 (Interstate Highway Tolling) and 3 (Enhancing Existing Revenue Sources) would substantially reduce the LOS B baseline gap. NCDOT would have significant flexibility to pursue LOS B or even LOS A for some investment goals and system tiers.
- **Three of the four scenarios would close the LOS C baseline gap**, allowing NCDOT to at minimum retain the status quo in terms of system levels of service.

Funding Gap Closure Scenarios (billions of 2011 dollars)

Revenue Scenario 1: Interstate Tolling to Supplement Existing Taxes/Fees	LOS A	LOS B	LOS C	LOS D
<i>NCDOT Share of Needs</i>	148.2	121.1	86.4	60.0
<i>Funding from Existing Sources</i>	54.0	54.0	54.0	54.0
<i>Baseline Funding Gap</i>	(94.2)	(67.1)	(32.4)	(6.0)
Interstate Highway Tolling (6 cents/mi Rural, 12 cents/mi Urban, adjusted for 3.5% inflation)	41.9	41.9	41.9	41.9
Remaining (Gap)/Surplus	(52.3)	(25.2)	9.5	35.9
Conclusions: Interstate highway tolling would provide excellent revenue source for Strategic Highway Corridor investment				
Revenue Scenario 2: VMT Fee Replaces Motor Fuel Tax in 2020	LOS A	LOS B	LOS C	LOS D
<i>NCDOT Share of Needs</i>	148.2	121.1	86.4	60.0
<i>Funding from Existing Sources</i>	54.0	54.0	54.0	54.0
<i>Baseline Funding Gap</i>	(94.2)	(67.1)	(32.4)	(6.0)
Removal of Motor Fuel Tax	(24.7)	(24.7)	(24.7)	(24.7)
VMT Fee (2 cents/mi adjusted for inflation)	26.6	26.6	26.6	26.6
Remaining (Gap)/Surplus	(92.3)	(65.2)	(30.5)	(4.1)
Conclusions: VMT rates must significantly exceed motor fuel revenue projection to provide net enhancement				
Revenue Scenario 3: Existing Revenue Sources with indexing & increases	LOS A	LOS B	LOS C	LOS D
<i>NCDOT Share of Needs</i>	148.2	121.1	86.4	60.0
<i>Funding from Existing Sources</i>	54.0	54.0	54.0	54.0
<i>Baseline Funding Gap</i>	(94.2)	(67.1)	(32.4)	(6.0)
Continue Motor Fuel Tax Indexing	18.9	18.9	18.9	18.9
Increase Registration/License Fees with Inflation	6.1	6.1	6.1	6.1
Eliminate Transfers from Highway Fund	4.3	4.3	4.3	4.3
Redirect Short Term Vehicle Lease Fee to NCDOT	0.6	0.6	0.6	0.6
Additional 1% Highway Use Tax (sales tax on autos)	3.3	3.3	3.3	3.3
Remaining (Gap)/Surplus	(61.0)	(33.9)	0.8	27.2
Conclusions: Enhanced existing revenue streams could significantly reduce gaps and allow sustainment of status quo LOS C, but leave large LOS B gap				
Revenue Scenario 4: New Revenue Sources	LOS A	LOS B	LOS C	LOS D
<i>NCDOT Share of Needs</i>	148.2	121.1	86.4	60.0
<i>Funding from Existing Sources</i>	54.0	54.0	54.0	54.0
<i>Baseline Funding Gap</i>	(94.2)	(67.1)	(32.4)	(6.0)
Dedicated Local Vehicle Property Tax	0.5	0.5	0.5	0.5
Auto Insurance Surcharge (10% Tax Rate)	12.2	12.2	12.2	12.2
Wholesale Motor Fuels Tax (8%)	12.2	12.2	12.2	12.2
Interstate Tolling (6 cents/mi Rural, 12 cents/mi Urban, adjusted for 3.5% inflation)	41.9	41.9	41.9	41.9
Remaining (Gap)/Surplus	(27.4)	(0.3)	34.4	60.8
Conclusions: This scenario suggests that tolling and a few other robust revenue options can nearly close LOS B funding gap				

Transportation Funding: Findings and Key Conclusions

Several important conclusions can be drawn from the analysis:

- While NC's long-term transportation needs remain similar to those identified in the 2004 Statewide Transportation Plan (when adjusted for inflation and length of the planning period), the funding gap based on a conservative baseline revenue forecast has grown substantially. The backlog of needs has grown, as the buying power of existing revenues has declined.
- NCDOT's current funding streams are insufficient to maintain status quo. Infrastructure health and mobility will suffer as NC grows, becomes more urban, and systems age.
- North Carolina's current funding model is not sustainable. Nationally mandated increases in vehicle fuel efficiency will result in reduced motor fuel consumption and declining gas tax receipts beginning by 2020, even as total travel in the state continues to increase as the State's population grows, and continuing federal funding is questionable. Continuing to rely on NC's existing state and federal transportation funding model without additional funding will result in declining infrastructure condition and transportation mobility insufficient to meet demonstrated needs.
- Feasible and powerful revenue enhancement options are available that are user-fee based, implementable, and robust enough to be packaged to address the funding gap over the long term. A listing of potential revenue enhancement options that would form the basis for broad investment strategies is shown in the table below.
- Even with powerful revenue enhancement options available, it is unlikely that NCDOT will be able to achieve Level of Service A for all modes, system tiers, or investment goals.

Over the next 30 years, difficult decisions will be required, to set the right priorities consistent with NCDOT's guiding principles and goals, and to support North Carolina's economic opportunity pursuits.

Strategic Investments and Plan Implementation

North Carolina will continue its rapid population growth and urbanization, and our economy will diversify over the next 30 years. As this happens, continued expansion and adaptation of all elements of our transportation systems will be critical if goals of traveler safety and mobility are to be achieved and economic opportunities are to be realized. And the huge transportation infrastructure investment that has been crucial to getting our economy to where it is today must be preserved.

To address these ongoing transportation needs, NCDOT, which operates the nation's second largest state-maintained highway system and has varying but significant roles in delivery of all other transportation modes (aviation, public transportation, etc.), stands ready to continue its role as the state's primary deliverer of transportation infrastructure and service. NCDOT is well aware that success can only be through cooperative effort with many critical partners – both private sector transportation providers and public sector planning partners. **In other words, NCDOT will continue to pursue its Mission: *Connecting people and places in North Carolina – safely and efficiently, with accountability and environmental sensitivity.***

NCDOT's Guiding Principles

- Seek to enable and maximize economic opportunity
- Maintain transparency in development and funding of multimodal projects and programs.
- Continuously improve modal systems
- Ensure that program delivery processes promote sustainability of environmental systems, preservation of resources, livability of the state's communities, and transportation system efficiency and flexibility
- Recognize the growing diversity and mobility needs of the state's population by continuously improving the mobility options that are available
- Seek to provide for the security of NC's residents and its economy by considering security needs in project development processes, including in providing for the security of data.

Our biggest challenge in meeting the state's transportation needs, of course, is paying for them. The good news is that equitable, powerful, user-fee based revenue enhancement options are available that can be implemented and are robust enough to allow this 2040 Plan to define broad investment strategies and to propose policy and process improvements that can achieve major long-term successes.

With that basic understanding, the 2040 Plan offers three sets of recommendations that will guide NCDOT going forward. These recommendations are consistent with the Guiding Principles defined earlier.

Recommendation 1: Embrace Ongoing Major Policy and Process Initiatives

The 2040 Plan recognizes the value of and is committed to recent/ongoing major policy and process initiatives that are both internal and external to NCDOT. In doing so, NCDOT **commits to continuous transparency, partnering, sustainability, and stewardship (of public dollars) through continued efficiency and support of economic opportunity pursuits.**

1. **Transparency** – the transparency of decision-making resulting from NCDOT’s Transportation Reform efforts, including the Policy to Projects process of which the 2040 Plan is part, has fostered better decision-making and more results-oriented investment. NCDOT will continue to improve its Project Prioritization process, to ensure that we spend public dollars where they are truly needed.
2. **Partnering** – NCDOT will continue to strengthen partnering efforts with local and regional partners and the transportation industry’s private sector providers. This commitment recognizes that North Carolina is a diverse state, with different needs in the Mountains, the more heavily populated Piedmont, and the Coastal Plains.
3. **Sustainability** – NCDOT will continue to pursue transportation investments that promote more sustainable and livable communities and ensure sustainable environmental systems. This measure embraces the Department’s *Sustainability Blueprint* initiative and the *Complete Streets* policy that is focused on converting single-mode highways into multimodal transportation corridors.

The call for Sustainability includes a call for a more dynamic linkage between transportation and land use decision-making, to maximize effect investment and efficient resource management. As NCDOT seeks more extensive public-private partnerships and supports investments, such as for major capital investments in public transportation projects with local partners, the land-development benefits of those investments should be leveraged to provide a financial return public project, not only to the private sector.

4. **Financial Stewardship** – NCDOT understands that it must always seek to improve its efficiency in delivering its programs and projects. The Department will continue to seek innovative ways to stretch the public’s dollars.

At the end of the day, NCDOT’s investments, pursued under the commitments cited above, will promote economic opportunity.

Recommendation 2: Pursue Focused, Strategic Investment Priorities

The *30-Year Transportation Needs* section of this 2040 Plan defines an optimal state for North Carolina’s transportation system, called Level of Service A. As presented, the cost of reaching and maintaining such a quality of service and condition for all modes and investment goals significantly exceeds our ability to pay for it. But while achieving this level of quality would allow many benefits to be gained, it is not considered to be crucial to our economic opportunity. More importantly, maintaining the current conditions, generally understood to be Level of Service C, is not acceptable for our long-term economic well-being.

Accordingly, the 2040 Plan **establishes clear investment priorities** that reflect the Guiding Principles and are intended to achieve positive, clearly defined outcomes in a funding-challenged environment:

1. **Priority on Safety and Infrastructure Health:** safety and infrastructure health should receive highest priority among program delivery goals (safety, infrastructure health, mobility) across all

modes, by seeking LOS A for Safety and LOS B for Health. By inference, this could reduce funds for mobility projects, depending on revenue availability, but public safety and preservation of infrastructure investment are paramount.

2. **Mobility Emphasis on Statewide Tiers:** in addressing mobility needs, the highest priority on addressing needs must be placed on the statewide tier, for all modes, by seeking LOS B for the Statewide Tier. In stating this, it is understood that some modes (e.g., public transportation and bicycle/pedestrian) have only limited Statewide Tier elements and accommodation must be made to avoid precluding funding of these important system elements. NCDOT will refine its project prioritization processes to reflect this prioritization.
3. **Emphasis on meeting Logistics Needs:** The Guiding Principle of investing to provide economic opportunity places the emphasis in programming mobility investments on projects that support logistics and economic development needs. In addressing the State's mobility needs, high priority through the prioritization process will be given to projects of any mode that show clear benefit for logistics improvements that promote local or regional economic opportunity.
4. **Creation of funding and project priority flexibility to recognize regional and urban/rural diversity of needs.** There is the need for spending flexibility within and across modes to reflect regional and urban/rural differences. Current funding formulas (e.g., equity formula) should be examined to ensure that their initial objectives are still being met. This includes seeking increased public transportation and intercity rail passenger funding.

The estimated 30-year cost of the investment priorities and Level of Service targets recommended here would be \$123 billion (2011\$). This compares to overall LOS A costs reported earlier of \$160 billion.

Recommendation 3: Pursue 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, we will work closely with our stakeholders and program delivery partners to address strategic policies, processes and programs. These 2040 Plan implementation elements will support future investment in North Carolina's transportation infrastructure and assist in the delivery of exceptional transportation service.

The summary table below includes transportation planning policy, process and/or program targets covering the 2011 – 2040 timeframe. These initiatives will help NCDOT deliver its projected work program more effectively and in line with changing funding and program objectives. The initiatives are stated in the first-person as strategic targets to be adopted by the North Carolina Board of Transportation and implemented by the NCDOT staff. Each of the potential policy, process, and program changes are further defined in Appendix D.⁹

⁹ For a description of the process that led to identification of these potential policy changes, see the *Strategic Policies, Processes, and Programs Technical Report*, March 2012.

Closing

The coming decades hold great challenges for NCDOT as it continues to build and maintain a transportation system supporting North Carolina's economic potential. But if the Department builds upon the initiatives embraced in this 2040 Plan, is consistent and aggressive in its investment priorities, and focused on improving its policies, process, and programs, these challenges will be met.

Summary Table Proposed Policies, Processes and Programs

1	<p>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.</p>
2	<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.</p>
3	<p>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 in the decision-making, planning and funding processes.</p>
4	<p>Expedite Project Development and Delivery Through Improved Efficiency and Flexibility. NCDOT has a mission to connect people and places in North Carolina safely and efficiently with accountability and environmental sensitivity. 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 environmental issues, preliminary engineering, final design, right-of-way, letting and construction.</p>
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 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 NC 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 maximize economic development and job creation opportunities, 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 non-sustainable 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, global challenges such as climate change, and system management, 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>
10	<p>Diversify Opportunity and Participation for Sub-regional Transportation Systems. In coordination and cooperation with our local and regional partners, NCDOT will study and examine the potential benefits to all parties of a possible transition or transfer of some portion of responsibility for funding and / or operation of some Subregional Tier transportation facilities (e.g., secondary roads) to some local governments. This approach will enhance flexibility for local and regional decision-makers.</p>