Charting a Course to 2040

SOUTH CAROLINA | MULTIMODAL TRANSPORTATION PLAN

Executive Summary

MULTIMODAL TRANSPORTATION PLAN

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

The South Carolina Department of Transportation (SCDOT), in partnership with the South Carolina Department of Commerce, South Carolina State Ports Authority, Federal Highway Administration, Federal Transit Administration, and other key stakeholders have updated the South Carolina Multimodal Transportation Plan (MTP), "Charting a Course to 2040". The MTP, South Carolina's long-range transportation plan, and is updated every five years to reflect the latest information on travel and growth trends, goals and objectives, safety and security, infrastructure conditions, future deficiencies, and estimated funding, as well as the latest federal requirements.

The 2040 Multimodal Transportation Plan also includes fully integrated modal plans for the Interstate, Strategic Corridors, Public Transit and Human Health Service Coordination, Freight, and Rail.

In 2012, Congress passed "Moving Ahead for Progress in the 21st Century" (MAP-21), which requires state transportation plans to focus on a performance-based, outcome-driven planning process. The 2040 Multimodal Transportation Plan addresses the enhanced federal planning requirements by providing a vision for improving future condition, performance, and accessibility of transportation infrastructure and services that enhance the mobility and economic competitiveness of South Carolina. Performance targets will be developed in coordination with the Metropolitan Planning Organizations after the MAP-21 Notice of Proposed Rulemaking (NPRM) is finalized in 2015.

The previous MTP, with a 2030 horizon, was approved by the Transportation Commission in May 2008. Since its adoption, much has changed in South Carolina. Population has increased 15 percent since 2000 and over 30 million visitors come to South Carolina each year to enjoy our rich history, charming cities, beautiful beaches and mountains. South Carolina is home to industry giants, such as BMW in the Upstate and Boeing in Charleston; and South Carolina is now considered the "Tire Capital of the World" with Bridgestone, Continental, and Michelin manufacturing plants around the State. The South Carolina Ports Authority operates the state's vital seaport assets in Charleston and Georgetown, a $45 billion-a-year economic engine generating hundreds of thousands of jobs in the state and beyond. The addition of the South Carolina Inland Port, which opened in October 2013, extends the Port of Charleston's reach 212 miles inland to Greer in the Upstate. This investment now provides shippers access to more than 95 million consumers within a one-day drive and it also has the potential to remove truck traffic from our congested roadways. The South Carolina Ports Authority relies on an effective highway and rail system to move goods throughout South Carolina as well as throughout the southeastern United States.

However, as South Carolina continues to attract new residents, tourists, and businesses, this growth has a tremendous impact on maintaining the 41,500 miles of state-maintained highways (which places South Carolina fourth in terms of the largest state maintained system) and 8,383 bridges. Growth trends in population, employment, vehicle miles of travel and transit usage indicate a greater demand for future mobility. This growth in demand is in stark contrast with shrinking or stagnant revenue streams, resulting in a significant obstacle to planning a 21st century multimodal transportation system that moves people and goods efficiently throughout the state.

South Carolina faces a tremendous challenge to meet ever increasing transportation needs, a common problem facing states across the country. While SCDOT is responsible for maintaining the majority of the multimodal transportation system, the Department recognizes that other agencies and the private sector must collaboratively work together to ensure the multimodal transportation system is preserved, modernized, integrated and expanded to provide improved mobility options and access to all South Carolinians, visitors, businesses and industries.

2. PLAN DEVELOPMENT

A statewide long range transportation plan is important not only for what it says and for the direction it provides for future transportation investment, but also for the process used for its development. In short, a good plan development process brings the state's transportation partners and stakeholders together to establish a unified vision and direction for future investment; it incorporates consideration of modal needs and other analyses to ensure plan findings are technically sound, transparent, and justified; and it respects and is reflective of applicable federal and state requirements.

2.1 How was the MTP Developed

The 2040 MTP was updated from a variety of discussions, meetings, and technical analyses, including the following:

- **Stakeholder participation** – input and participation from the public, transportation partners, and modal experts.
- **Plan vision** – vision, goals, objectives, and performance measures developed with stakeholder and agency input.
- **Modal needs analysis** – demographic growth factors and existing conditions impact on multimodal transportation services and infrastructure.
- **Financial analysis** – comparison of multimodal needs against projected federal, state, and local revenue.

The technical results are briefly summarized in this Executive Summary. However, the following technical memorandums are available on the 2040 MTP website (www.dot.state.sc.us/Multimodal/):

- Review of Current Plans
- Safety and Security
- Vision, Goals, Objectives, and Performance Measures
- Existing Conditions
- Financial Analysis
- Multimodal Needs
- Alternative Investment Scenarios

During the development of the 2040 MTP, the following modal plans were developed and each plan is available on the 2040 MTP website:

- Interstate Plan
- Strategic Corridor Network Plan
- Statewide Public Transit Plans and Human Health Service Coordination Plan

- Freight Plan
- Rail Plan

2.2 Partnership

While SCDOT is responsible for maintaining the majority of the multimodal transportation system, the Department recognizes that other agencies must be involved to develop an integrated transportation system. Thus, the 2040 Multimodal Transportation Plan (MTP) was developed in partnership with the South Carolina Department of Commerce (DOC), South Carolina Ports Authority (SCPA), Federal Highway Administration (FHWA), as well as the 11 Metropolitan Planning Organizations (MPOs) and 10 Councils of Government (COGs).

South Carolina Department of Commerce promotes economic opportunity for individuals and businesses in the state through the recruitment of new businesses and assisting existing businesses with growth. The nexus between economic development and transportation is critical to decision making and transportation investment and DOC executive staff provided strategic guidance during the development of the 2040 MTP.

South Carolina Ports Authority works to increase economic investment in South Carolina while operating the state's seaport assets in Charleston and Georgetown, as well as the Inland Port located in Greer in the Upstate. South Carolina ports are dependent on the state's multimodal transportation networks to move goods in and out of the ports and SCPA's executive staff provided strategic guidance during the development of the 2040 MTP.

The partnership has developed a new plan that addresses critical issues faced by SCDOT, DOC, SCPA, MPOs, and COGs. The vision, goals, and objectives set the foundation for the first performance-based long range transportation plan in South Carolina. Identifying the multimodal transportation needs and projecting revenue forecasts to 2040 provides crucial information that will assist the Department in allocating limited financial resources across a vast multimodal transportation system.

2.3 Differences between 2030 MTP and 2040 MTP

There are numerous differences between how the 2030 MTP was developed in 2008 and how the 2040 MTP was updated. First, the horizon year is extended ten additional years, and second, the 2040 needs analysis uses nationally recognized analytical tools to identify highway and bridge needs. The 2030 MTP had a 20-year horizon while the 2040 MTP has a 29-year horizon. The 2030 MTP highway needs were identified by reviewing a number of existing plans and sources, including those of SCDOT, MPOs and COGs. In contrast, the 2040 MTP uses SCDOT databases, design standards, cost estimates, and FHWA supported analytical tools to develop the roadway (i.e. HERS-ST) and bridge (i.e. NBIAS) needs. The 2030 MTP only considered bridge replacement costs, while the 2040 MTP includes bridge preservation, modernization, and replacement costs. This new, more rigorous, process provides a needs picture based on SCDOT data, design standards, and costs, using data and tools that allow comparable updates to be made in future years.

The 2030 MTP identified mass transit needs based on a transit demand and gap analysis model. The 2040 MTP uses the 2012 statewide transit needs survey and local agency sources. The 2030 MTP did not identify needs for the aviation, freight rail, ports and waterways, and bicycle and pedestrian needs,

as well as, culvert and bridge modernization and maintenance needs. However, to identify the full multimodal transportation needs in South Carolina, the 2040 MTP identifies these needs based on input and reports from SCDOT, SCPA, Department of Aeronautics, MPOs, and COGs.

The 2040 MTP baseline revenue forecast is also much more robust than the process used in the 2030 MTP. For the 2040 MTP, a dynamic revenue forecast model was developed that accounts for federal, state, and local revenue sources. The forecast also accounts for the impacts of inflation and the new federal CAFE standards (improved vehicle fuel efficiency) which dramatically impact the purchasing power of money available to address future multimodal transportation needs.

2.4 Plan Consultation and Outreach

Throughout the development of the 2040 MTP, there was continual coordination and consultation with a dedicated executive committee and project stakeholders.

2.4.1 Executive Committee and Decision Structure

The 2040 MTP was advanced in partnership with executive staff from SCDOT, DOC, SCPA, and FHWA. The Executive Committee met numerous times over the course of the planning process to provide strategic guidance and provided feedback and agreement on:

- The vision, goals, objectives which set the foundation for the first performance-based long range transportation plan in South Carolina.
- The identification of the multimodal transportation needs.
- The identification of the baseline revenue and the 2040 revenue forecast.
- The development of baseline and alternative investment allocation scenarios.

2.4.2 Stakeholder and Public Participation

Stakeholder participation was an important part of updating the 2040 MTP. The following methods were used to solicit stakeholder feedback and input on vision, goals, objectives, performance measures, modal needs, and revenue projections:

- **Stakeholder kickoff meeting** - The 2040 MTP kick-off meeting was held in July 2012 at the Colonial Center in Columbia. Hosted by SCDOT, the kick-off meeting was attended by approximately 140 stakeholders from around South Carolina.
- **Stakeholder webinars** - In an effort to reach out to stakeholders throughout the development of the 2040 MTP, two series of webinars at key milestones were hosted by SCDOT.
- **MPO and COG webinars** - During the development of the 2040 MTP, MPO and COG webinars were conducted to receive feedback and guidance on developing the strategic corridor network and existing and future roadway congestion levels.
- **Web surveys** – For the 2040 MTP, SCDOT solicited input from the users and providers of the state's freight transportation system. A public transportation opinion survey was completed to gain input on public transportation services in South Carolina.

- **Internal SCDOT technical review meetings** - SCDOT technical experts in pavement, bridges, public transportation, freight, rail, bicycle and pedestrian, safety, and finance provided strategic guidance and review on 2040 MTP modal conditions and needs, revenue projections, and performance measures.
- **Public meetings** – Seven public participation meetings were conducted throughout South Carolina in September 2014. During each meeting the draft final 2040 MTP and the five modal plans were presented to the public for comments.

3. DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS

Demand for transportation services are primarily driven by socio-economic factors such as population and employment. Trends in these factors are summarized below as they provide the foundation for the projected growth in transportation demand.

3.1 Population and Employment Trends

Between 2000 and 2010, the population of South Carolina increased by 15 percent, from 4.012 million to 4.625 million. South Carolina's 2010 population placed it 24th in rank among the fifty states, compared to 26th in 2000 and 25th in 1990. As shown in **Table 3-1**, population in South Carolina is expected to increase by 31 percent, from 4.625 million in 2010 to approximately 6.061 million in 2040, based on South Carolina State Data Center projections. Similarly, households are projected to increase at 32 percent between 2010 and 2040, from 1.801 million to almost 2.379 million.

Between 2000 and 2010 South Carolina's employment rate (population over 16 years of age in the labor force) decreased from 63.40 percent to 62.89 percent. However the number employed grew by 269,475 or approximately 1.37 percent per year, which was higher than the nation's rate of 1.12. Between 2010 and 2040, the number of employed in South Carolina are expected to increase by 35 percent or approximately 1.18 percent per year, from 2.037 million to approximately 2.758 million, based on Woods and Poole existing employment estimates and Dunn and Bradstreet employment forecasts.

Table 3-1: 2010 and 2040 Socio-economic Data and Projections

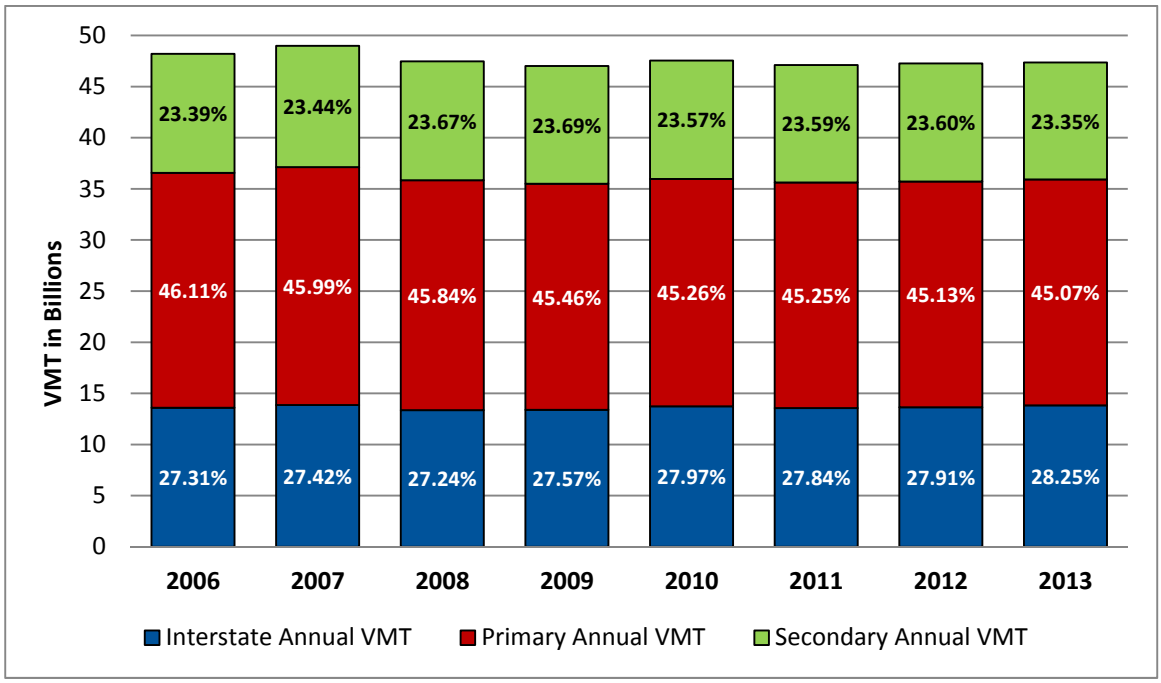
Mode	2010 (Base Year)	2040 (Forecast Year)	Growth	Annual Growth
Population	4,625,308	6,060,564	31%	1.03%
Households	1,801,141	2,378,857	32%	1.07%
Employment	2,037,120	2,757,883	35%	1.18%

Source: South Carolina State Data Center, Woods and Poole, and Dunn and Bradstreet

3.2 Vehicle Miles Traveled

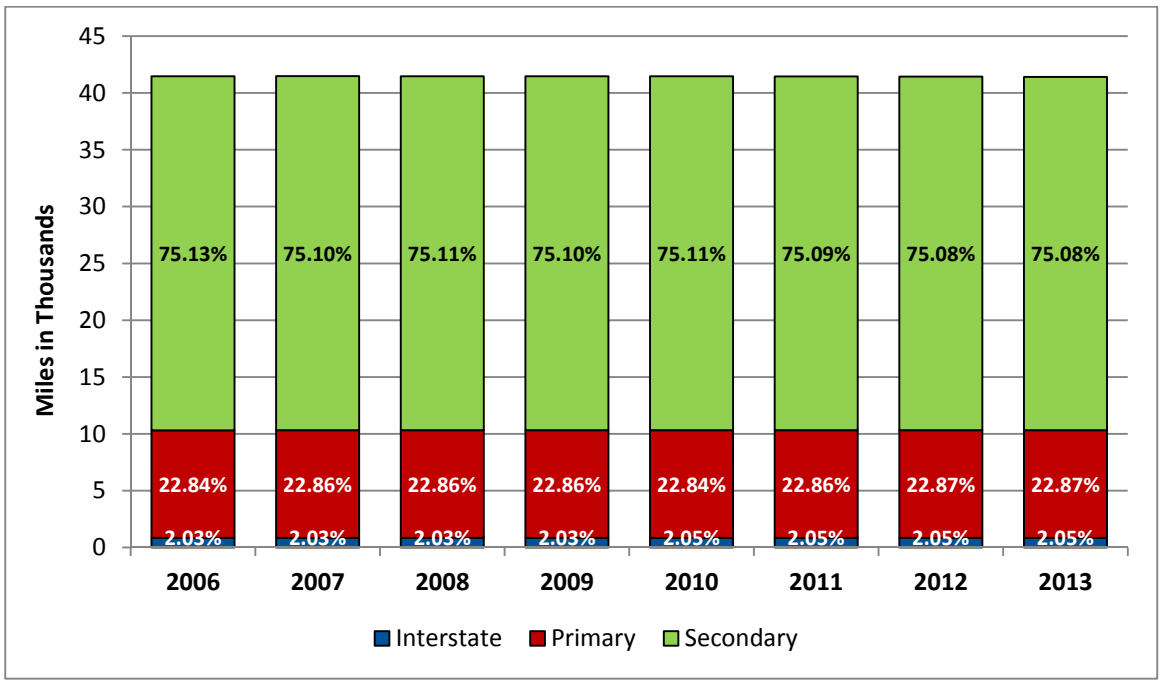
The last few years have seen a reversal of the customary trend of ever increasing usage of the highway system as measured by annual vehicle-miles of travel (VMT). Vehicle-miles of travel on South Carolina roads peaked in 2007 at nearly 51 billion, as it did for the nation as a whole at 3,030 billion. Since 2008, annual VMT in South Carolina has declined to around 49 billion and it has maintained this level to 2013. **Figure 3-1**shows vehicle-miles of travel in the South Carolina from 2006 to 2013. Nearly 30 percent of the VMT occurs on the interstate system, even though interstates account for only two percent of public roads in the state, as shown in **Figure 3-2**.

Figure 3-1: Vehicle Miles Traveled, 2006 to 2012



Source: South Carolina Department of Transportation

Figure 3-2: Public Miles by Interstate, Primary and Secondary Roadways, 2006 to 2013



4. MODAL INVENTORY

The following provides a snapshot of the South Carolina multimodal transportation system:

- **Roadways** - SCDOT maintains over 41,500 centerline miles and over 90,000 lane miles of roadways, which is the fourth largest state-owned system in the U.S. Included in this mileage is 20,842 centerline miles of non-federal aid roads, which results in over half of the state-maintained system not being eligible for federal funds. The state-maintained lane miles are categorized into three groups: Interstate, Primary, and Secondary. The Primary category consists of all roads designated as U.S. highways or SC-routes. Secondary roads, which are the remaining state-maintained roads not classified as Interstates or Primary roads, amount to almost 63,000 lane miles or over 70 percent of the lane miles maintained by the state. Primary roads account for 23,772 lane miles, while Interstate highways account for only 3,761 lane miles or 2 percent of the state system.

- **Bridges** – SCDOT maintains 7,330 bridges and 1,050 culverts for a total of 8,380 bridge structures that total 68.75 million square feet. Almost 75 percent of the state-maintained bridges are in rural areas, with 26.1 percent of the total located on rural roads classified as major collectors. Bridges on interstates, expressways, and other principal arterials account for 20.5 percent of the total. While culverts may be found on every roadway functional class, the majority are located on rural minor arterials and major collectors.

- **Aviation** - South Carolina has 53 airports included in the National Plan of Integrated Airport Systems (NPIAS). Of the 53 airports, 6 are primary commercial service airports, 45 are general aviation facilities, and 2 are reliever airports, defined by the FAA as high-capacity general aviation airports in major metropolitan areas that provide pilots with attractive alternatives to using congested hub airports.

- **Freight Rail** - The freight rail system in South Carolina totals 2,378 miles with operations involving 11 different rail carriers. The Class I carriers include CSX Transportation and Norfolk Southern Railway, which account for 2,044 miles or 84 percent of the state rail system. The Class III carriers or terminal companies make up the remaining 334 miles or 16 percent of the system. The carriers range in size from fairly small intrastate railroads to the large rail systems serving the entire eastern U.S.

- **Passenger Rail** - South Carolina has four Amtrak passenger rail trains per day (or eight if trains in both north and south bound directions are counted) operating three routes with 11 stations connecting the southeast U.S. to points north. The track used by Amtrak is owned by the freight railroads (one by Norfolk Southern and two by CSX).

- **Water Ports** - The South Carolina Ports Authority (SCPA) is the governing transportation body for seaport operations in South Carolina. Serving as the owner-operator at the state's two sea port facilities, Port of Charleston and Port of Georgetown, the SCPA owns the terminals and manages all operations at the two facilities. Serviced by the top carriers in the world, SCPA

facilities offer competitive service for the state. The Port of Charleston primarily handles containerized cargo with container activities focused at North Charleston and Wando Welch Terminals, while a third is planned for the Naval Base Terminal. In 2012 the number of containers passing through the port totaled over 1.5 million, which was an increase of nearly 10 percent from 2011.

Currently, the only operating South Carolina port with cruise operations is the Port of Charleston's Union Pier Terminal. The port includes an 18,000 square foot passenger terminal for cruise operations. The port experienced a 41 percent increase between 2010 and 2011 in the number of cruise ship passengers who came through Charleston. In 2011, the Port of Charleston ranked in the top 15 ports for cruise passenger departures in the United States.

- **Inland Port** - The South Carolina Inland Port opened in October 2013, extending the Port of Charleston's reach 212 miles inland to Greer, and providing shippers with access to more than 95 million consumers within a one-day drive.

- **Mass Transit** - Public transit is available to residents in 39 of the 46 counties in South Carolina. There are 25 publicly-supported transit agencies operating in 27 areas of the state. Of these, seven are exclusively urbanized, 16 are exclusively rural or non-urbanized, and four offer both urbanized and rural services. Each transit agency provides a range of service options to residents, such as fixed-route, route deviation, and demand response. In 2012, South Carolina public transportation agencies provided more than 12.7 million trips.

- **Intercity Bus** - South Carolina is served by two Class A intercity bus carriers, Greyhound Lines and Southeastern Stages. The Cities of Columbia, Greenville, Myrtle Beach and Orangeburg are stops for both carriers. Connections are provided to regional destinations and beyond. Greyhound operates 15 northbound (or eastbound) routes and 12 southbound (or westbound) routes and Southeastern Stages has seven northbound (or eastbound) routes, seven southbound (or westbound) routes, and three routes that are multi-directional.

- **Bicycle and Pedestrian** – Based on the 2008-2012 American Community Survey from US Census approximately 3.6 percent of South Carolina workers at least 16 years or older traveled to their place of work by walking or riding a bicycle. There are approximately 1,260 miles of bike lanes on state-maintained and local roads in South Carolina and there are an additional 7,300 miles of proposed bike lanes in MPO and COG plans. In addition, the South Carolina Department of Parks, Recreation, and Tourism, in coordination with SCDOT, have established a network of cross-state routes for bicycle touring. In the 2012 rankings of the Bicycle Friendly State Program run by the League of American Bicyclists (LAB), South Carolina ranked 32 out of 50 states and 8th in the southern region. Six South Carolina communities were recognized through the Bicycle Friendly America program, with Hilton Head at the Silver level and Charleston, Columbia, Greenville, Rock Hill, and Spartanburg at the Bronze level. In addition to the on-road statewide bicycle routes designated by SCDOT, there are three identified statewide or regional trail/greenway networks in South Carolina: the Palmetto Trail, the Carolina Thread Trail, and the East Coast Greenway all have completed sections within South Carolina.

5. VISION, GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

5.1 Vision, Goals, Objectives, and Performance Measures

Establishing a meaningful strategic direction to drive multimodal investment decisions was a key part of developing the 2040 MTP. Plan goals and objectives define investment priorities and describe how SCDOT will work with its planning partners to achieve a shared transportation vision. Performance measures establish a way to determine how alternative investment strategies contribute to achieving the MTP goals and objectives to guide plan implementation. The 2040 MTP vision, goals, objectives, and performance measures were developed in coordination and collaboration with the State's transportation planning partners.

5.1.1 Vision

A vision communicates the future in clear and definitive language. The purpose of a vision is to align an organization's internal and external expectations, plans, and actions. Typically visions describe the "what" and "why" for an organization. The vision for the 2040 Multimodal Transportation Plan is:

> ***Safe, reliable surface transportation and infrastructure that effectively supports a healthy economy for South Carolina.***

5.1.2 Goals

Both South Carolina and the nation are facing significant challenges in maintaining the existing multimodal transportation system with limited funding resources. The 2040 MTP goals recognized these challenges, as well as the direction from MAP-21 goal areas in developing the following goals:

- **Mobility and System Reliability** - Provide surface transportation infrastructure and services that will advance the efficient and reliable movement of people and goods throughout the state.
- **Safety and Security** - Improve the safety and security of the transportation system by implementing transportation improvements that reduce fatalities and serious injuries as well as enabling effective emergency management operations.
- **Infrastructure Condition** - Maintain surface transportation infrastructure assets in a state of good repair.
- **Economic and Community Vitality** - Provide an efficient and effective interconnected transportation system that is coordinated with state and local planning efforts to support thriving communities and South Carolina's economic competitiveness in global markets.
- **Environment** - Partner to sustain South Carolina's natural and cultural resources by minimizing and mitigating the impacts of state transportation improvements.
- **Equity** - Manage a transportation system that recognizes the diversity of the state and strives to accommodate the mobility needs of all of South Carolina's citizens.

5.1.3 Objectives, Performance Measures and Guiding Principles

Objectives and performance measures are the foundation for tying the conceptual elements of a long range plan, the vision and goals, to program and project implementation. Objectives for the 2040 MTP define the outcomes that SCDOT intends to achieve related to each goal. Performance measures "operationalize" that objective and define how that outcome will be measured, monitored, and reported. Guiding principles are implemented through process or policy changes or through enhanced relationships with local government, other state agencies, modal owners, and operators.

Performance measures and Guiding Principles must be aligned and consistent for successful implementation of the 2040 MTP. In addition, these foundational pieces of the 2040 MTP need to be supported at all levels of SCDOT as well as by partners and stakeholders externally. Therefore, the development process included SCDOT executive and senior technical staff, key partners, and stakeholders. The following tables provide specific guiding principles, and as appropriate, objectives and performance measures for the MTP's six goals.

5.2 Mobility and System Reliability

Goal: Provide surface transportation infrastructure and services that will advance the efficient and reliable movement of people and goods throughout the state.

Background: Improved mobility and reliable travel times on South Carolina's transportation system are vital to the state's economic competitiveness and quality of life. MAP-21 makes highway system performance a national goal and requires states to report on performance. SCDOT uses a combination of capital improvements and operations strategies to accommodate travel demand. Data on congestion is rapidly becoming more sophisticated, but estimating needs based on this data and linking investment strategies to congestion outcomes remains a challenge.

	OP	I	SC	F	T	R	Performance Measures
Guiding Principle							
Encourage availability of both rail and truck modes to major freight hubs (for example ports, airports and intermodal facilities)	X	X	X	X		X	
Objectives							
Reduce the number of system miles at unacceptable congestion levels	X	X	X	X			Annual hours of delay on the Interstate, NHS and Strategic Corridor Network
Utilize the existing transportation system to facilitate enhanced modal options for a growing and diverse population and economy					X		% of transit needs met
Improve travel time reliability (on priority corridors or congested corridors)	X	X	X	X	X		Travel time reliability Index
Reduce the time it takes to clear incident traffic		X	X				Average time to clear traffic incidents in urban areas
Utilize the existing transportation system to facilitate enhanced modal options for a growing and diverse population and economy				X	X		% increase in transit ridership

***Legend:** OP – Overall Plan; I – Interstate; SC – Strategic Corridors; F – Freight; T – Transit; R – Rail

5.3 Safety

Goal: Improve the safety and security of the transportation system by implementing transportation improvements that reduce fatalities and serious injuries as well as enabling effective emergency management operations.

Background: Safe travel conditions are vital to South Carolina's health, quality of life and economic prosperity. SCDOT partners with other safety stakeholders on the state's transportation system. SCDOT maintains extensive data on safety; however, even state-of-the-art planning practices often cannot connect investment scenarios with safety outcomes.

	OP	I	SC	F	T	R	Performance Measures
Guiding Principles							
Improve safety data collection, access, and analysis	X	X	X	X	X	X	
Improve substandard roadway (one or more of the minimum current design standards are not met)	X	X	X				
Better integrate safety and emergency management considerations into project selection and decision making.	X						
Better integrate safety improvements for bicycle, pedestrian, and other non-vehicular modes in preservation programs by identifying opportunities to accommodate vulnerable users when improvements are included in an adopted local or state plan.	X		X		X		
Reduce preventable transit crashes					X		
Work with partners to encourage safe driving behavior.	X				X		
Objectives							
Reduce highway fatalities and serious injuries.	X	X	X		X		Number or rate of fatalities and serious injuries (MAP-21 measure)
Reduce bicycle and pedestrian and other vulnerable roadway users' fatalities and serious injuries.	X		X				Number or rate of bike/pedestrian fatalities and serious injuries
Reduce roadway departure related fatality and serious injury crashes.	X	X	X				Number of roadway departure crashes involving fatality or serious injury
Reduce fatal and serious injury crashes within work zones.	X	X	X				Number of work zone fatal and serious injury crashes
Reduce highway - rail grade crossing crashes involving fatality or serious injury.						X	% of crossings with active safety warning devices installed
Reduce fatal and serious injury crashes at intersections	X	X	X				# of crashes at intersections involving fatality or serious injury
Reduce fatal and serious injury crashes involving commercial motor vehicle	X	X	X	X			% of commercial motor vehicle crashes involving fatality or serious injury

***Legend:** OP – Overall Plan; I – Interstate; SC – Strategic Corridors; F – Freight; T – Transit; R – Rail

5.4 Infrastructure Condition

Goal: Maintain surface transportation infrastructure assets in a state of good repair.

Background: Preserving South Carolina's transportation infrastructure is a primary element of SCDOT's mission. This goal promotes public sector fiscal health by minimizing life-cycle infrastructure costs and by ensuring low transportation user costs. Maintaining assets in a

state of good repair is one of the national MAP-21 goals and requires states' transportation and transit agencies to report on highway and transit asset conditions.

	OP	I	SC	F	T	R	Performance Measures
Guiding Principles							
Recognize the importance of infrastructure condition in attracting new jobs to South Carolina by considering economic development when determining improvement priorities.	X	X	X	X			
Encourage availability of both rail and truck modes to major freight hubs (for example ports, airports and intermodal facilities).	X	X	X	X		X	
Coordinate with the Palmetto Railways to consider road improvements needed to support the efficient movement of freight between the Inland Port and the Port of Charleston.			X	X		X	
Comply with Federal requirements for risk-based asset management planning while ensuring that State asset management priorities are also addressed.	X	X	X				
Objectives							
Maintain or improve the current state of good repair for the NHS.	X	X	X				Number of miles of interstate and NHS system rated at "good" or higher condition[3]
Reduce the percentage of remaining state highway miles (non-interstate/strategic corridors) moving from a "fair" to a "very poor" rating while maintaining or increasing the % of miles rated as "good".	X	X	X				% of miles moving from "fair" to "very poor" condition % of miles rated "good" condition
Improve the condition of the state highway system bridges	X	X	X	X			Percent of deficient bridge deck area (MAP-21 requirement)
Improve the state transit infrastructure in a state of good repair.					X		% of active duty transit vehicles past designated useful life

***Legend:** OP – Overall Plan; I – Interstate; SC – Strategic Corridors; F – Freight; T – Transit; R – Rail

[3] *MAP-21 and the South Carolina Strategic Plan both include a pavement condition goal. For consistency with this plan and MAP-21 requirements the pavement condition for this plan is divided into two tiers --- one for the NHS and one for all other roads. In keeping with MAP-21 the objective for the NHS system reflects maintaining or improving current condition while the objective for the remainder of the system is consistent with the Strategic Plan approach of "managing deterioration".*

5.5 Economic and Community Vitality

Goal: Provide an efficient and effective interconnected transportation system that is coordinated with state and local planning efforts to support thriving communities and South Carolina's economic competitiveness in global markets.

Background: Transportation infrastructure is vital to the economic prosperity of South Carolina. Good road, rail, transit, and air connections across the state help businesses get goods and services to markets and workers get to jobs. Communities often cite desire for economic growth as a reason for seeking additional transportation improvements, and public officials frequently justify transportation spending on its economic merits. State-of-the-art planning practices, however, offer limited potential for connecting investment scenarios with travel choices outcomes.

	OP	I	SC	F	T	R	Performance Measures
Guiding Principles							
Improve access and interconnectivity of the state highway system to major freight hubs (road, rail, marine, and air).	X		X	X			
Determine economic impacts of potential projects and include quantitative results in the Act 114 project prioritization process.	X	X	X	X		X	
Work with economic development partners to identify transportation investments that will improve South Carolina's economic competitiveness.	X	X	X	X	X	X	
Work with partners to create a project development and permitting process that will streamline implementation of SCDOT investments associated with state-identified economic development opportunities.	X						
Partner with state and local agencies to coordinate planning.	X						
Encourage local governments and/or MPOs to develop and adopt bicycle and pedestrian plans.	X						
Partner with public and private sectors to identify and implement transportation projects and services that facilitate bicycle and pedestrian movement consistent with adopted bike/pedestrian plans.	X						
Encourage coordination of transit service within and among local jurisdictions.					X		
Partner with public and private sectors to identify and implement transportation projects and services that facilitate freight movement.	X	X	X	X		X	
Encourage rail improvements that will improve connectivity and reliability of freight movement to global markets.				X		X	
Encourage availability of both rail and truck modes to major freight hubs (for example ports, airports, and intermodal facilities).	X	X	X	X		X	
Objective							
Utilize the existing transportation system to facilitate enhanced freight movement to support a growing economy.	X	X		X			Truck travel time index on the freight corridor network, Annual hours of truck delay, Freight Reliability

5.6 Environmental

Goal: Partner to sustain South Carolina's natural and cultural resources by avoiding, minimizing, and mitigating the impacts of state transportation improvements.

Background: This goal is consistent with SCDOT's current environmental policies and procedures. MAP-21 includes an Environmental Sustainability goal that requires states "to enhance the performance of the transportation system while protecting and enhancing the environment." Other than air quality, quantitative measures and impacts to the environment are difficult to calculate at the plan level. For the most part the environmental goal will be measured as projects are selected, designed, constructed, and maintained over time.

	OP	I	SC	F	T	R	
Guiding Principles							
Plan, design, construct, and maintain projects to avoid, minimize, and mitigate impact on the state's natural and cultural resources.		X	X	X	X	X	
Improve travel time delay on the Interstate and Strategic Corridor Network to reduce Greenhouse Gas emissions	X	X	X	X	X		
Work with state and public transit agencies to purchase clean or alternative fueled transit vehicles to reduce Greenhouse Gas emissions	X	X	X		X		
Partner with public and private sectors to identify and implement transportation projects and services that facilitate bicycle and pedestrian movement consistent with adopted bike/pedestrian plans.	X						
Partner to be more proactive and collaborative in avoiding vs. mitigating environmental impacts. Utilize Mitigation Forecast Model	X	X	X	X			
Encourage modal partners to be proactive in considering and addressing environmental impacts of their transportation infrastructure investments.					X	X	
Work with environmental resource agency partners to explore the development of programmatic mitigation in South Carolina.	X	X	X	X			
Partner with permitting agencies to identify and implement improvements to environmental permitting as a part of the Department's overall efforts to streamline project delivery.	X						

***Legend:** OP – Overall Plan; I – Interstate; SC – Strategic Corridors; F – Freight; T – Transit; R – Rail

5.7 Equity

Goal: Manage a transportation system that recognizes the diversity of the state and strives to accommodate the mobility needs of all of South Carolina's citizens.

Background: Transportation is essential to support individual and community quality of life. As a public agency SCDOT has a public stewardship responsibility that requires it to evaluate needs and priorities in a way that recognizes the diversity of the state's geographic regions and traveling public. There are no quantitative measures identified to evaluate the Equity goal.

	OP	I	SC	F	T	R	
Guiding Principles							
Ensure planning and project selection processes adequately consider rural accessibility and the unique mobility needs of specific groups.	X	X	X	X	X		
Partner with local and state agencies to encourage the provision of an appropriate level of public transit in all 46 South Carolina counties.					X		
Ensure broad-based public participation is incorporated into all planning and project development processes.	X	X	X	X	X	X	

***Legend:** OP – Overall Plan; I – Interstate; SC – Strategic Corridors; F – Freight; T – Transit; R – Rail

6. SAFETY AND SECURITY

Safety on the State Highway System is the top goal for SCDOT. South Carolina has continued to have one of the highest death rates in the nation. In 2011, the National Highway Traffic Safety Administration (NHTSA) indicated South Carolina had the 3rd highest fatality rate in the nation, a position it has held since 2006 even though the State's fatality rate has dropped from a high of 2.11 fatalities per 100 Million Vehicle Miles Traveled in 2006 to 1.70 in 2011. The national average fatality rate also dropped from 1.42 in 2006 to 1.10 in 2011.

The number of fatalities occurring on the State's roads began declining in 2007 from a total of 1,077 in that year to a low of 810 fatalities in 2010. However, the number has begun to increase with 828 fatalities occurring in 2011 and 863 occurring in 2012.

South Carolina also had the 5th highest pedestrian fatality rate and the 5th highest bike fatality rate in the nation in 2010. NHTSA recently released the 2011 bicycle and pedestrian fatality state rankings and South Carolina has moved up to the 2nd highest pedestrian fatality rate while still maintaining the 5th highest bike fatality rate.

The cost of vehicle crashes, injuries, and fatalities to society is staggering and greatly exceeds the funding dedicated to SCDOT for highway maintenance, operations, and improvements. In 2009, the South Carolina Department of Public Safety (SCDPS) estimated that the annual economic loss due to vehicle crashes, injuries, and fatalities was $2.67 Billion. These statistics indicate the need to bring greater emphasis to safety in all aspects of highway planning, design, and operations.

The South Carolina Multimodal Transportation Plan incorporates the findings of the Strategic Highway Safety Plan (SHSP), which provides a coordinated framework toward eliminating deaths and severe injuries on South Carolina's public roads. This coordination requires combining and sharing resources and focusing efforts on areas with the greatest potential for improvement. The SHSP establishes statewide goals and identifies critical emphasis areas, which were developed in consultation with federal, state, local, and private-sector safety stakeholders. The strategies developed involve the "4 E's" of safety: engineering, enforcement, education, and emergency response.

South Carolina has adopted Target Zero as the state's goal in addressing traffic-related deaths. To this end, the state is gearing its highway safety efforts toward eliminating traffic fatalities rather than merely reducing them. This is a radical departure from the traditional goal-setting approaches earlier adopted to simply reduce traffic fatalities. Though not achievable immediately, the goal of zero fatalities is a noble goal, one our state strives for and a goal with which everyone can live.

A data-driven approach was used to identify emphasis areas for the updated SHSP. As seen in **Table 6-1** and **Figure 6-1**, data analyses revealed priority traffic safety areas accounting for 90% of the total fatal and severe injury collisions from 2008 to 2012. While crash causation factors are often interrelated, the critical areas to target are evident. For example, roadway departure crashes, which

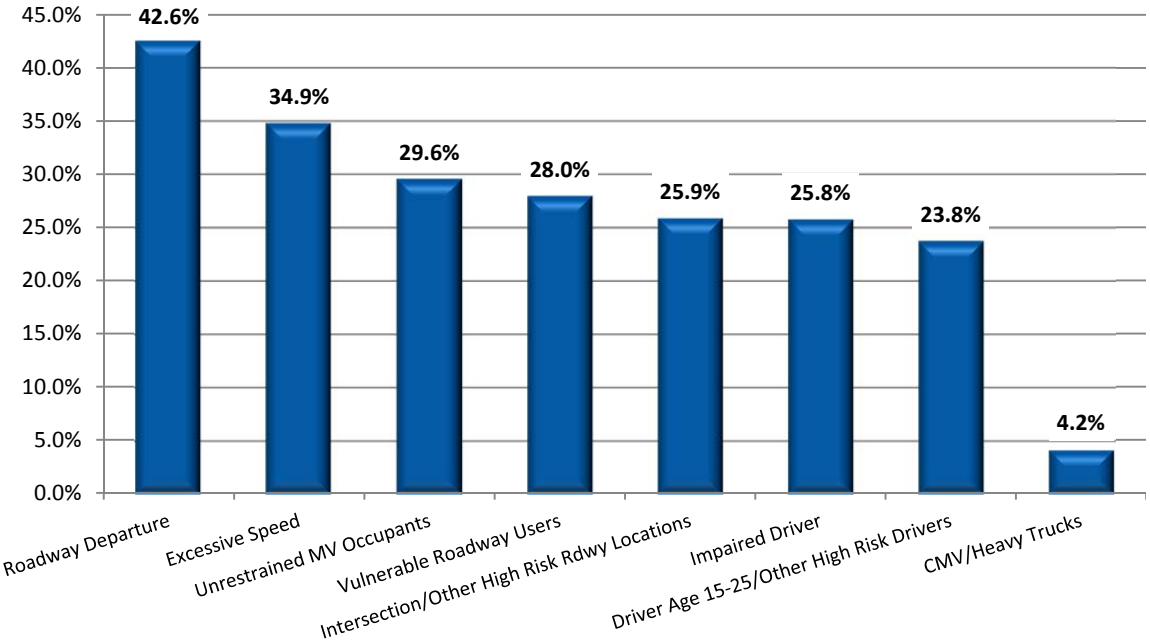
represent the highest crash type, may include inappropriate speed, unrestrained occupants, and a distracted driver. However, there are specific countermeasures that can be implemented with the goal of reducing the number of vehicles leaving the roadway.

Table 6-1: SHSP Data Analysis, 2008-2012

South Carolina 2008-2012	Fatalities		Severe Injuries		Fatal and Severe Injury Collisions	
	# of People	% of Total	# of People	% of Total	# of Collisions	% of Total
Roadway Departure	2,133	49.4%	6,437	37.9%	7,454	42.6%
Excessive Speed	1,684	39.0%	5,775	34.0%	6,102	34.9%
Unrestrained MV Occupants	1,723	39.9%	3,469	20.4%	5,179	29.6%
Vulnerable Roadway Users	1,194	27.7%	3,900	23.0%	4,904	28.0%
Motorcyclists	497	11.5%	2,060	12.1%	2,407	13.8%
Pedestrians	511	11.8%	869	5.1%	1,359	7.8%
Mopeds	115	2.7%	618	3.6%	715	4.1%
Bicyclists	71	1.6%	353	2.1%	423	2.4%
Intersection and Other High Risk Roadway Locations	890	20.6%	7,819	46.0%	4,539	25.9%
Intersection	830	19.2%	7,629	44.9%	4,358	24.9%
Work Zone	43	1.0%	158	0.9%	154	90.0%
Railroad Crossing	17	0.4%	32	0.2%	27	0.2%
Impaired Driver	1,794	41.6%	3,759	22.1%	4,521	25.8%
Young/Novice Drivers Age 15-24	1,208	28.0%	4,849	28.5%	4,163	23.8%
CMV/Heavy Trucks	321	7.4%	4,849	28.5%	4,163	23.8%
Total*	**4,315**		**16,986**		**17,503**	

**More than one factor is commonly involved in fatal and severe injury collisions. Therefore, each fatality and severe injury tallied on "Total" may be represented in multiple factors in the table.*

Figure 6-1: SHSP Emphasis Areas Based on Fatal and Severe Injury Crashes 2008-2012



The major focus areas for the state remain similar to those identified in the 2007 SHSP, with a few changes in terminology. Based on an extensive review of the collision data, the SHSP Steering Committee selected the following emphasis areas:

- Roadway Departure;
- Excessive Speed;
- Occupant Protection;
- Vulnerable Roadway Users, including bicyclists and pedestrians;
- Impaired Driving;
- Intersection and Other High Risk Roadway Locations;
- Young/Other High Risk Drivers (including distracted, drowsy, and unlicensed); and
- Commercial Motor Vehicles/Heavy Trucks.

Because of the great importance of data analyses and a data-driven approach to eliminating fatalities and severe injuries, the Committee added an additional final emphasis area:

- Safety Data Collection, Access, and Analysis.

Each emphasis area in the SHSP includes an overview of the issue, the challenges, and performance period goals. Objectives and strategies have been identified that will assist in meeting the performance period goals. An annual implementation plan will be developed to implement the strategies identified in the SHSP.

While strategic highway safety plans are designed to be multi-year planning documents, certain performance goals were established for the total number of fatalities, severe injuries, fatality rate, and severe injury rate as well as similar goals for each emphasis area. Each update of the state's SHSP will provide interim goals in order to measure progress towards the long term goal of zero traffic fatalities and a significant reduction in the number of severe injuries.

Figure 6-2 depicts the five-year rolling average for the number of traffic fatalities since 2001. The performance period for the 2014-2017 SHSP establishes a goal of 623 traffic fatalities by the end of 2017. The figure also includes a trend line based on the five-year rolling average of traffic fatalities since 2001. The Target Zero (TZ) goal line is based on a zero fatality projection by 2030. In order to reach zero traffic fatalities by the year 2030, fatalities in South Carolina must be reduced by almost 48 annually. The performance gap demonstrates the gap between what the expected decline (based in historical trend analysis) and the decline necessary to achieve zero fatalities by 2030.

The performance period goal for the number of severe injuries is shown in **Figure 6-3**.

Figure 6-4 depicts the trend analysis for the fatality rate (number of fatalities per million vehicle miles traveled).

Figure 6-5 depicts the trend analysis for the severe injury rate (number of severe injuries per million vehicle miles traveled).

Figure 6-2: Traffic Fatalities Five-Year Rolling Average

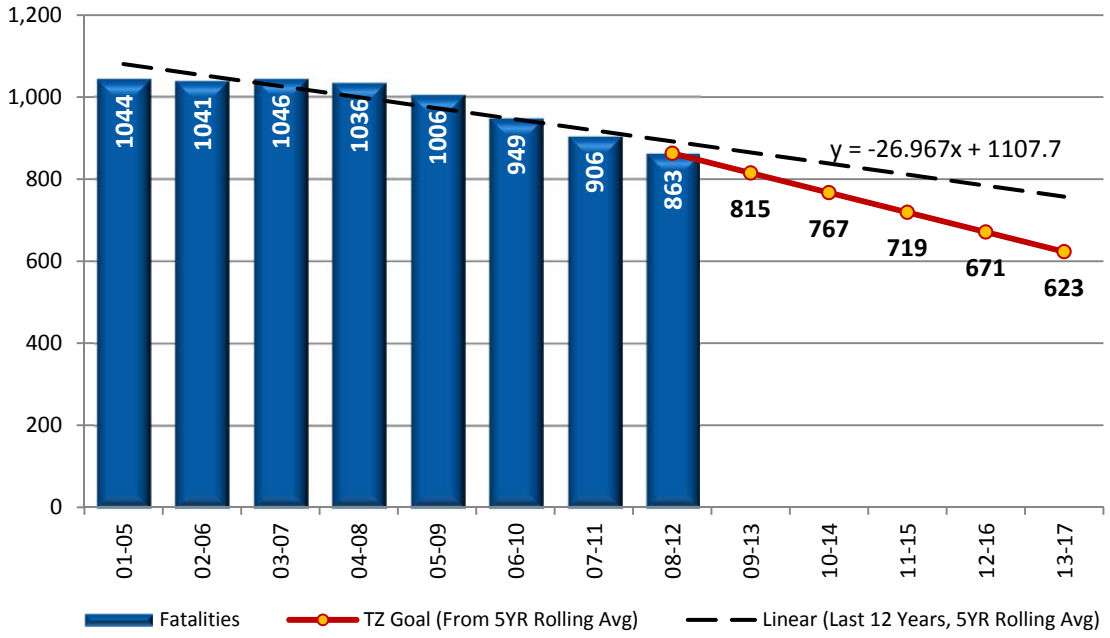


Figure 6-3: Severe Injuries Performance Period Goal

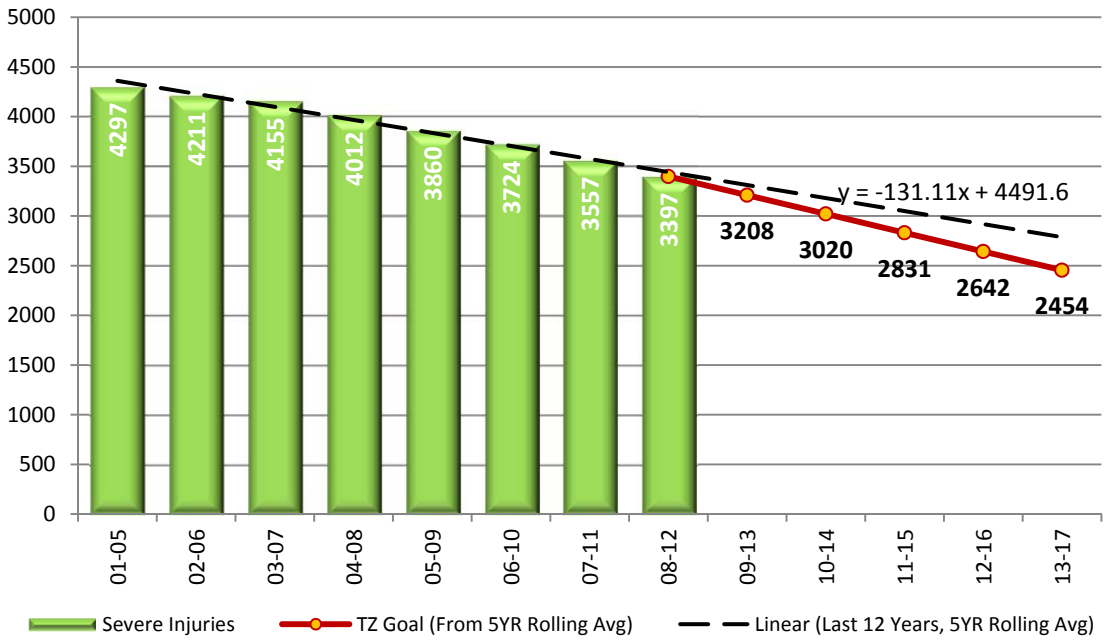


Figure 6-4: Fatality Rate Trend Analysis

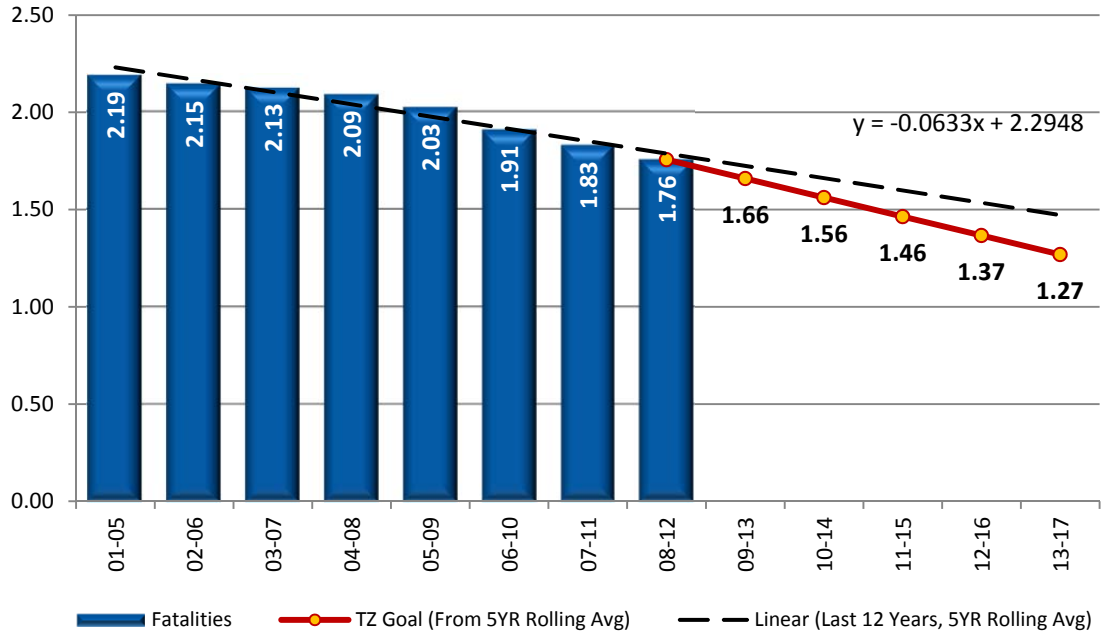
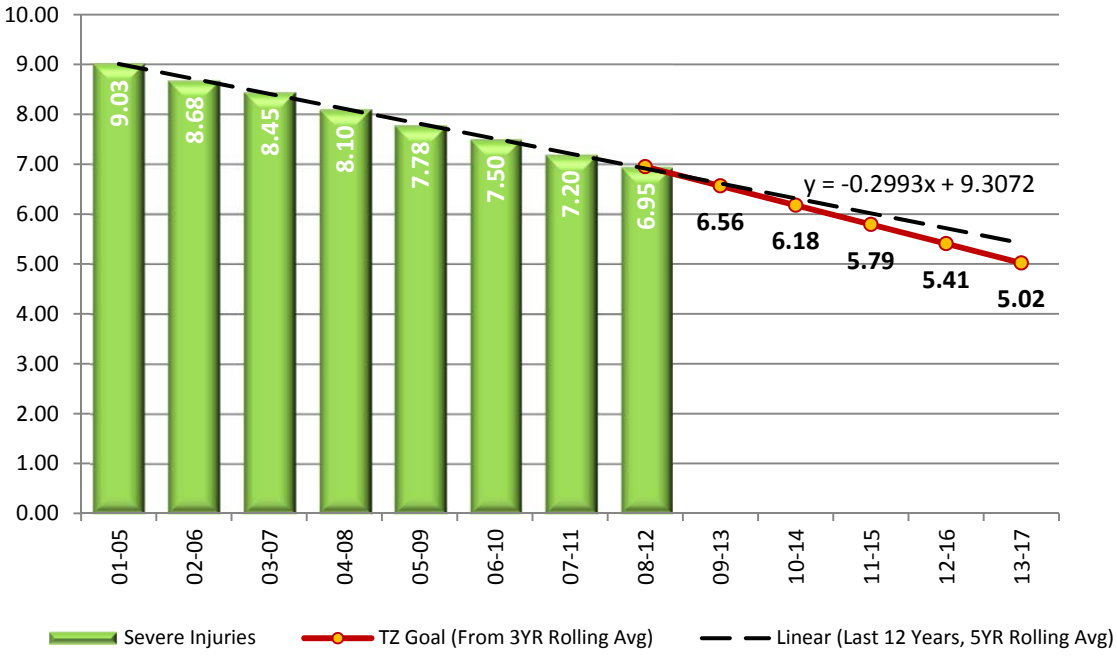


Figure 6-5: Severe Injury Rate Trend Analysis



7. MODAL PLAN SUMMARIES

During the development of the 2040 MTP, an Interstate Plan, Strategic Corridor Network Plan, Public Transit and Human Health Service Coordination Plan, Freight Plan, and Rail Plan were developed using the overarching goals, objectives, guiding principles, and performance measures from the 2040 MTP. The following provides a summary of each plan.

7.1 Interstate Plan

The South Carolina Statewide Interstate Plan (Interstate Plan) supplements the state's 2040 MTP, and updates and replaces the previous plan developed in 2008, which had been prepared in parallel with the 2030 MTP. The purpose of the plan is to support South Carolina's statewide vision and goals by documenting existing and projected conditions on the state's Interstate network in a way that is easily understood and helpful to all stakeholders and members of the public and to guide decision makers in investment decisions.

South Carolina's network of 11 Interstate freeways includes 851 centerline miles and 3,800 lane-miles of roadway. In 2013, vehicle-miles of travel (VMT) on this network amounted to 13.8 billion VMT, which accounted for 28 percent of total VMT in the state, even though Interstate highways account for only 2 percent of the lane-miles.

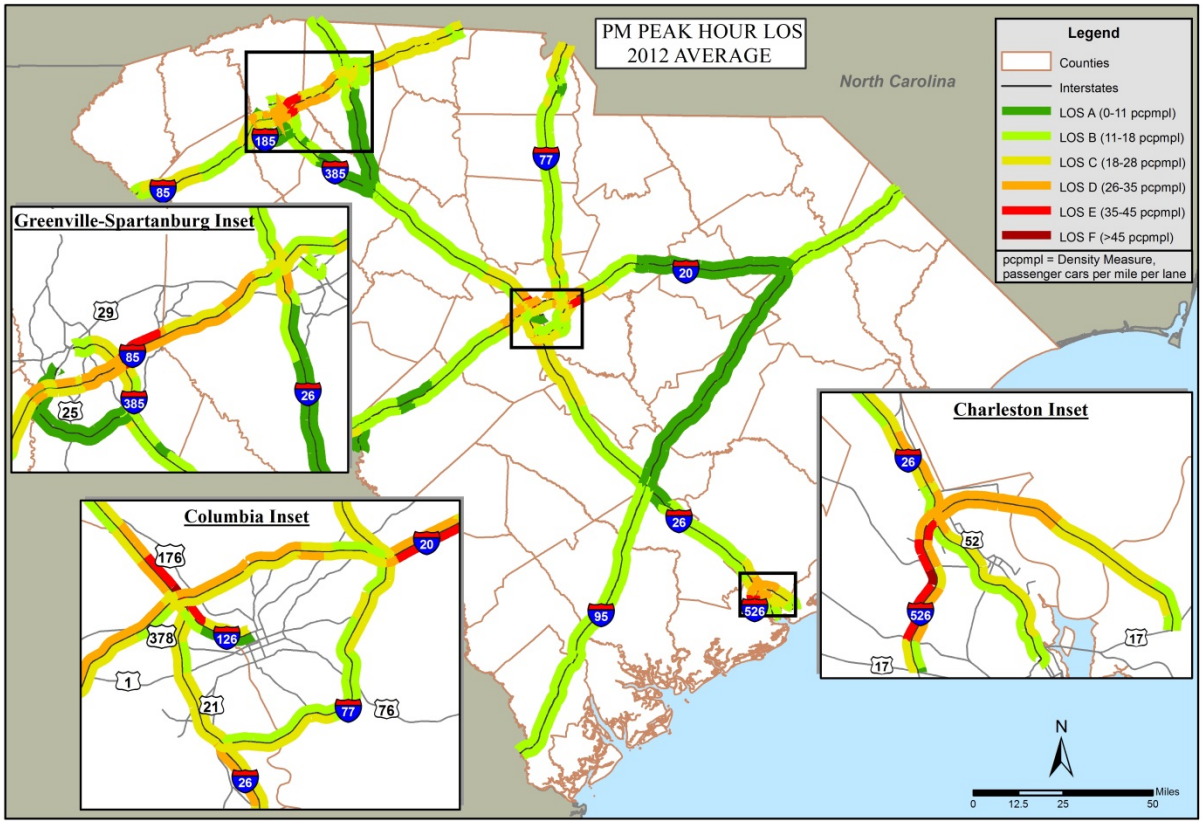
This update to the Interstate Plan focuses on evaluating existing mainline capacity needs using data sources not previously available. It also makes use of the state's recently developed travel demand model to project future mainline capacity needs through 2040. In addition, SCDOT uses an Interactive Interchange Management System (IIMS) to evaluate Interstate interchanges in the state. This tool was updated with current data to provide a comparative assessment of interchange needs.

The Interstate Plan uses a revised methodology to determine existing Interstate mainline capacity needs. The new methodology uses vehicle probe speed data to determine freeway density for the entire South Carolina Interstate system. The vehicle probe speed data is collected every few seconds from millions of anonymous GPS-enabled vehicles and mobile devices, as well as traditional road sensors, which provides real-time and historical traffic speed information.

The freeway density analysis resulted in a summary of the existing points of recurring congestion and bottlenecks for each of the 11 interstates in South Carolina. Overall, it was estimated that 31 percent (264 centerline miles) of the existing Interstate system operates at a level of service (LOS) C or worse for at least one peak hour of an average weekday. **Figure 7-1** shows the level-of-service during the average weekday evening peak hour on the Interstate system. As illustrated by maps of the 2040 Interstate conditions, gradual rates of growth in traffic volumes can be observed across the Interstate system. Decreases in levels of service are as expected in metropolitan areas across the state, with particularly high growth in volumes and congestion in the Charlotte metropolitan area and suburban Rock Hill. At the southern border of South Carolina at the Georgia state line, a decrease in level of

service is anticipated as the Lowcountry region projects growth in both residential and industrial activities in concert with the continued growth in freight activity at the Ports of Savannah and Charleston. This, in turn, with no programed increases in capacity along I-95 will result in the decreased level of service.

Figure 7-1: Existing PM Peak Hour Conditions (2012)

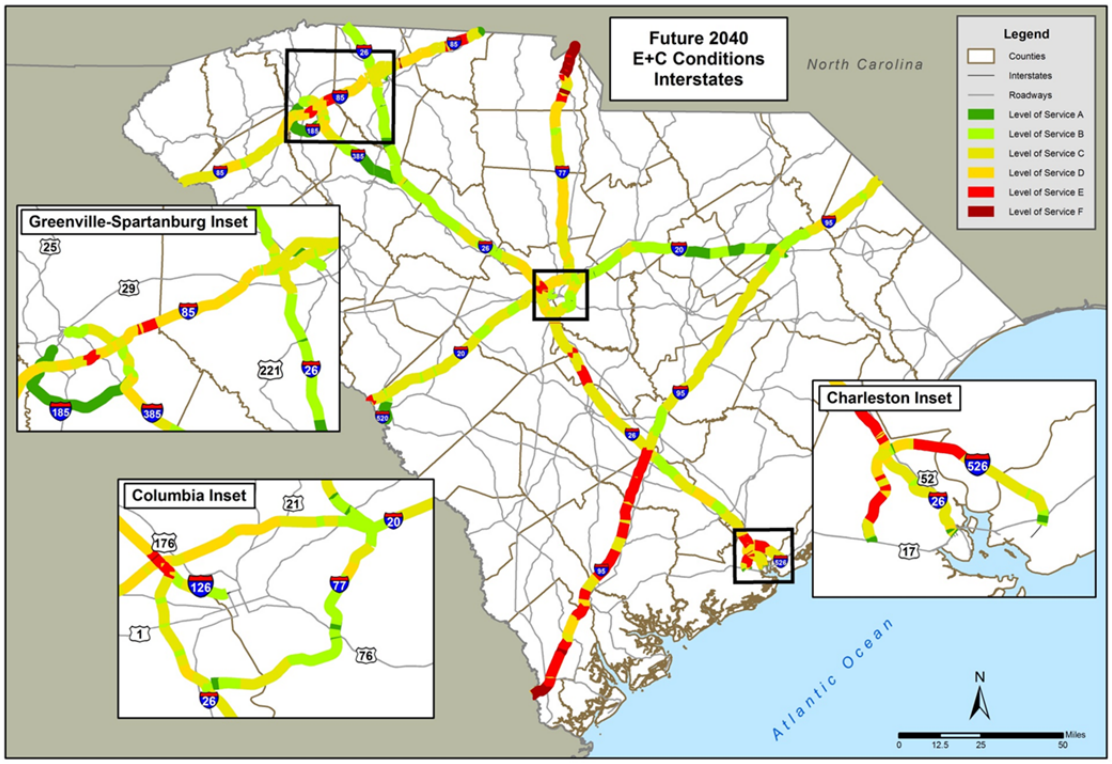


The current most congested corridor segments include:

- I-85 from I-385/Woodruff Road (Exit 51) to Pelham Road (Exit 54) (Greenville)
- I-26 from Saint Andrews Road (Exit 106) to I-20 (Exit 107) (Lexington/Richland)
- I-26 from Piney Grove Road (Exit 104) to Saint Andrews Road (Exit 106) (Lexington)
- I-85 from Pelham Road (Exit 54) to SC-14 (Exit 56) (Greenville)
- I-85 from Mauldin Road (Exit 46) to US-276 (Exit 48 (Greenville)

Based on the existing number of lane-miles and known, committed interstate improvement projects (existing plus committed network), it is projected that 62 percent (528 centerline miles) of the Interstate system will be operating at a LOS C or worse by 2040, as shown in **Figure 7-2**.

Figure 7-2: Future Conditions (2040)



To address the most congested six-lane Interstate segments, Interstate Corridor Management Plans should be prepared. These studies would provide a detailed assessment of existing and future traffic congestion, and identify travel demand management, modal, traffic operations, and capacity improvement strategies to address the specific congestion issues for each corridor.

7.2 Statewide Freight Plan

The movement of goods is critical to the economic health of South Carolina, which has access to major ocean ports, regional airports, inland ports, rail lines and highways. The objective of South Carolina's first Statewide Freight Plan (SFP) is to respond to the recognition policymakers in South Carolina have made of the critical role of transportation infrastructure and freight movement to the state's economy.

A stakeholder outreach program was conducted specifically for the purpose of developing the SFP. The outreach began with a kick-off meeting for the 2040 MTP and continued through a series of one-on-one interviews with members of the freight community, a series of four regional listening sessions, online surveys from the freight community, and interactive online stakeholder webinars.

MAP-21 provides guidance for the development of a SFP, including the establishment of a State Freight Advisory Committee (SFAC) to assist in the development of the plan and to provide an ongoing advisory role in statewide freight planning. SCDOT has created such a committee to participate in the development of the SFP and to continue monitoring ongoing freight-related planning activities. The committee's inaugural meeting was held in May 2014, with a focus that is consistent with and supported by the ongoing efforts of New Carolina's Transportation, Distribution and Logistics Council.

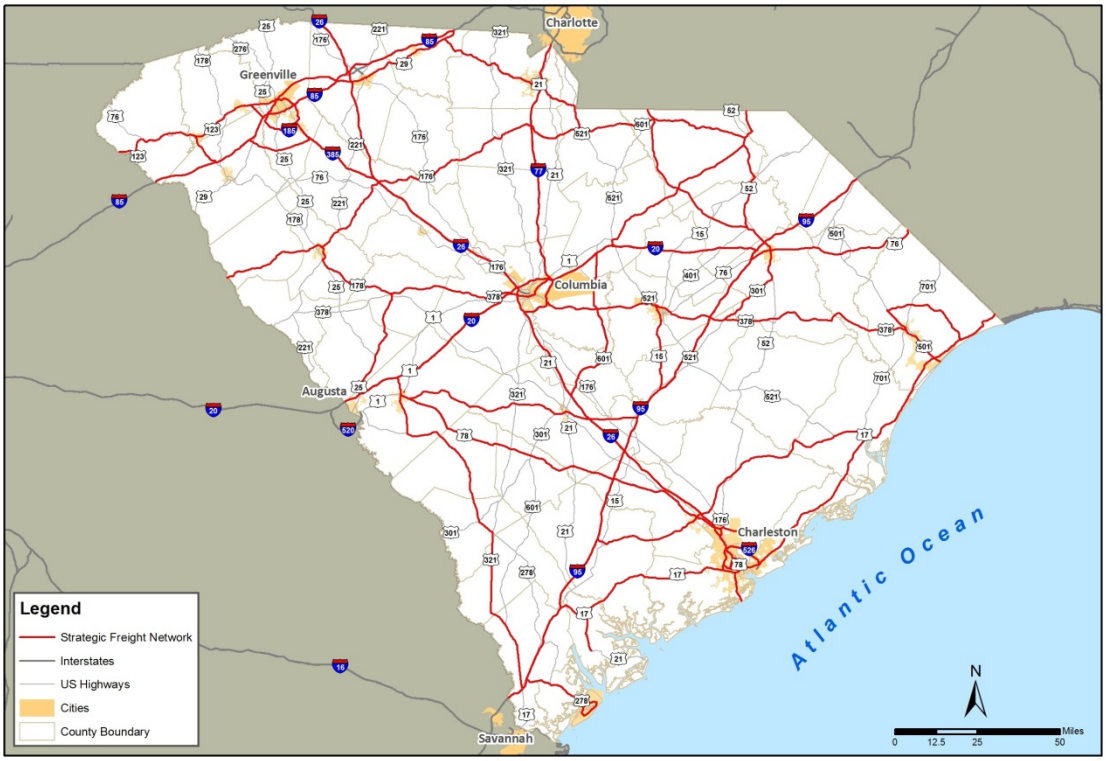
The SFP includes an inventory of transportation assets that contribute to the movement of goods in South Carolina, including all modes of transportation, regardless of asset ownership. The inventory also includes an overview of freight generators, businesses and geographic areas contributing to freight movements. A profile of goods movement was developed for South Carolina, summarizing the tonnages and commodities for both historical years and forecast years, aligning data analyses for the 2040 MTP and the SFP.

- Over 375 million tons of freight, valued at nearly $600 billion, moved across South Carolina's freight network in 2011.
- Trucking accounts for the largest modal share: 300.6 million tons (80.0 percent) valued at $506.2 billion (84.5 percent).
- Rail comprises the second largest modal share at 70.3 million tons (18.7 percent) and $79.1 billion (13.2 percent).
- Major truck and rail tonnage movements are followed by water, air, and pipeline, respectively.
- Tonnage across the South Carolina freight network is forecast to grow 81 percent from 2011 to 2040.
- While air yields the fastest tonnage growth rate (97 percent), truck growth is nearly as rapid (91 percent) and is much greater in terms of volume (273.6 million ton increase).
- Truck tonnage is forecast to grow from 300.6 million tons in 2011 to 574.1 million in 2040.

In addition, a 2,520 mile Strategic Freight Network is identified in the SFP (**Figure 7-3**). This system reflects the roadways, railroads, and other transportation infrastructure needed for the efficient movement of goods into, out of, and through South Carolina. The identification of a Strategic Freight Network in South Carolina assists in identifying critical freight corridors for consideration in the National Freight Network. The process of identifying the South Carolina Strategic Freight Network will support SCDOT in prioritizing investments in transportation infrastructure across the State and inform SCDOT of what roadway corridors, in addition to those included in the National Freight Network, need improvements to support efficient and safe goods movement.

Building on the overarching goals and objectives of the MTP, the SFP addresses the performance measures identified for the 2040 MTP, as well as expands upon the overall goals and incorporates the needs of the freight community of South Carolina, reflecting input from freight stakeholders and information derived from other elements of the 2040 MTP. The SFP identifies the freight system and infrastructure available for goods movement, presents estimated demands on the freight system, and recommends potential project and policy level strategies to accomplish these goals.

Figure 7-3: Strategic Freight Network



Freight bottleneck locations in 2011 are highlighted in **Figure 7-4**. In addition to the travel demand model forecasts identifying congestion and bottlenecks, a forecast freight trend analysis was completed for the state using TRANSEARCH data. As a result of this analysis, corridors that are expected to have a large increase in freight movement by 2040 have been identified. **Figure 7-5** shows freight tonnage moved by truck on South Carolina roads in 2011.

Using these data and input from freight stakeholders, the following corridors have been identified for priority improvements to preserve and improve freight movements by truck within South Carolina:

- I-26 between Charleston through Columbia,
- I-385 near Greenville,
- I-85 through the Upstate,
- I-20 through the Columbia metropolitan area,
- I-77 through the Columbia metropolitan area,
- U.S. 17 through the Lowcountry, and
- U.S. 78/U.S. 278 through the Lower and Upper Savannah area.

Figure 7-4: Freight Bottleneck Locations (2011)

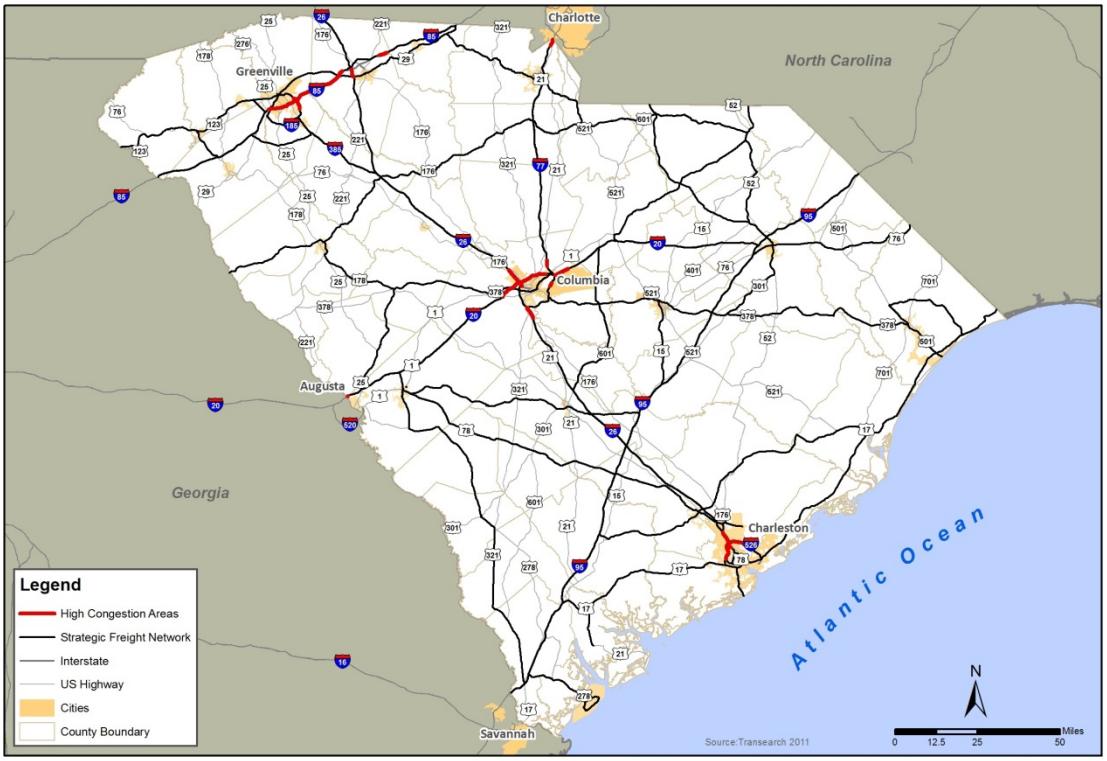
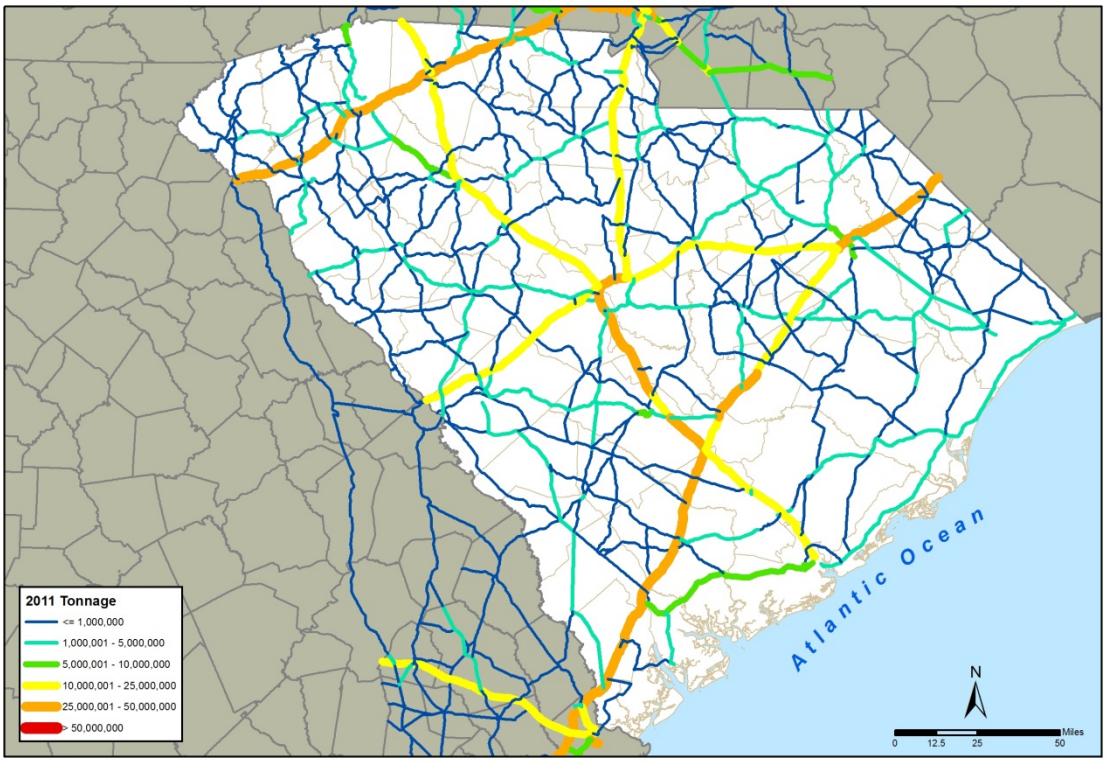


Figure 7-5: South Carolina Truck Freight Density (2011)



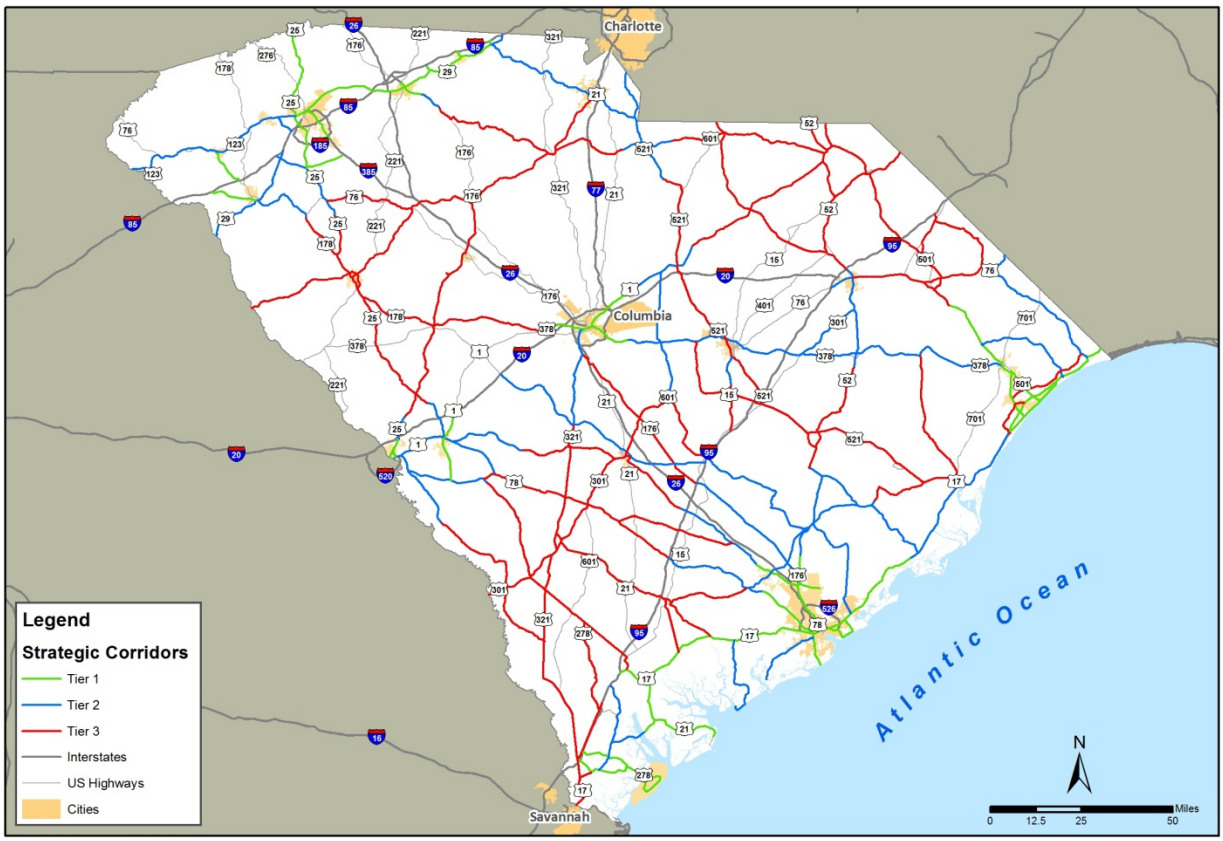
Freight planning policy strategies are outlined in the SFP that support a multimodal approach to transportation policy and funding scenarios. The SFP also includes strategies to address alternative funding scenarios, placing emphasis on projects included on the Statewide Freight Network.

7.3 Strategic Corridor Network

As a part of the 2040 MTP, a system of roadways identified in the 2030 MTP as the Statewide Strategic Corridor Network has been updated. The network is a connected, continuous system of non-interstate roadways that serves the traveling public and movement of freight for intercity and interregional travel.

The process used to update the Strategic Corridor Network consists of three principal components: technical analyses, system refinements, and public and stakeholder input. The purpose of the technical evaluation is to provide an objective, quantitative, and repeatable process for developing the strategic corridor network. A three-tiered system approach was reviewed and approved by the MPOs and COGs and used to update the strategic corridor network. The 3,598 mile network is illustrated in **Figure 7-6**.

Figure 7-6: Strategic Corridor Network Tiers



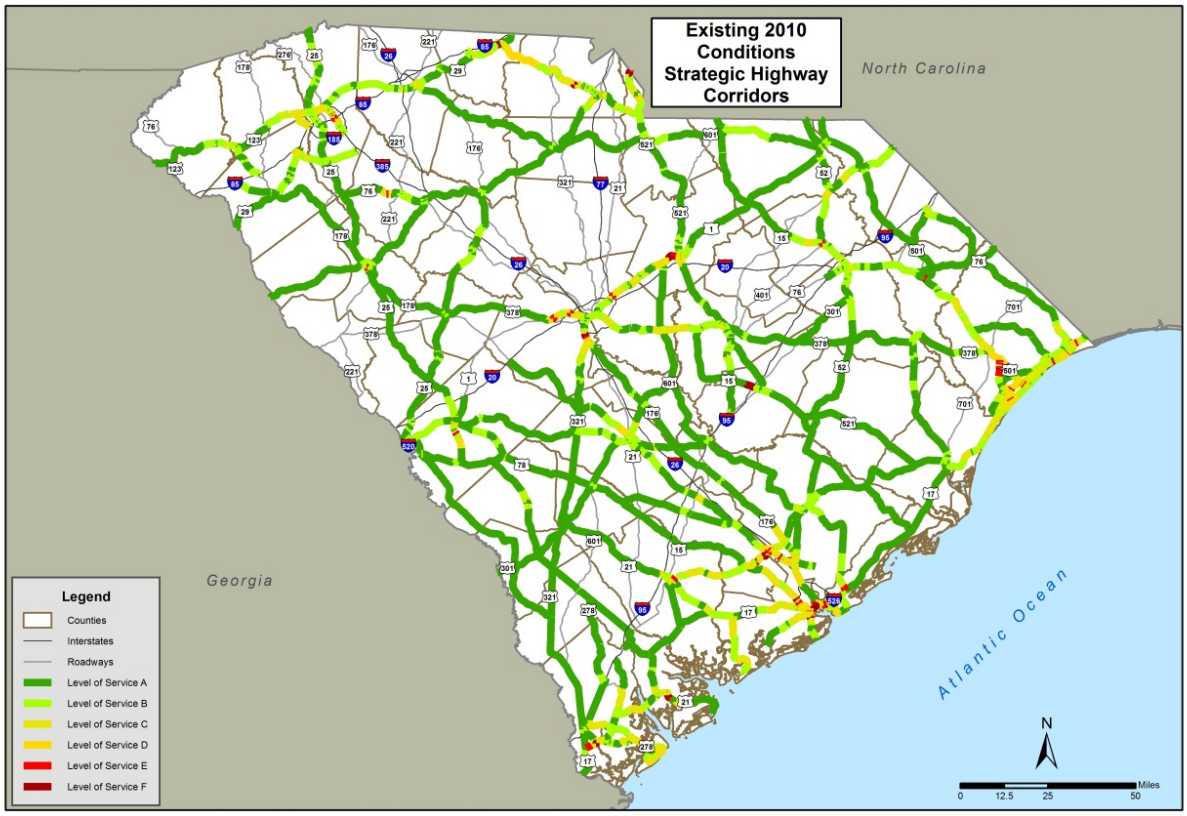
The Strategic Corridor Network Plan is based on a revised methodology for determining existing corridor capacity needs with a new calculation of traffic congestion, which utilized vehicle probe speed data. A Vehicle Hours Lost Index" was developed for each strategic corridor by taking the weighted average of the "Vehicles Hours Lost" for each segment in the corridor. Future corridor capacity needs

were identified through a level-of-service analysis that was produced by the new statewide travel demand model.

Using these analyses, it was estimated that 11 percent (396 centerline miles) of the existing network was operating at a LOS C or worse, as shown in **Figure 7-7**. The most congested corridor segments were as follows:

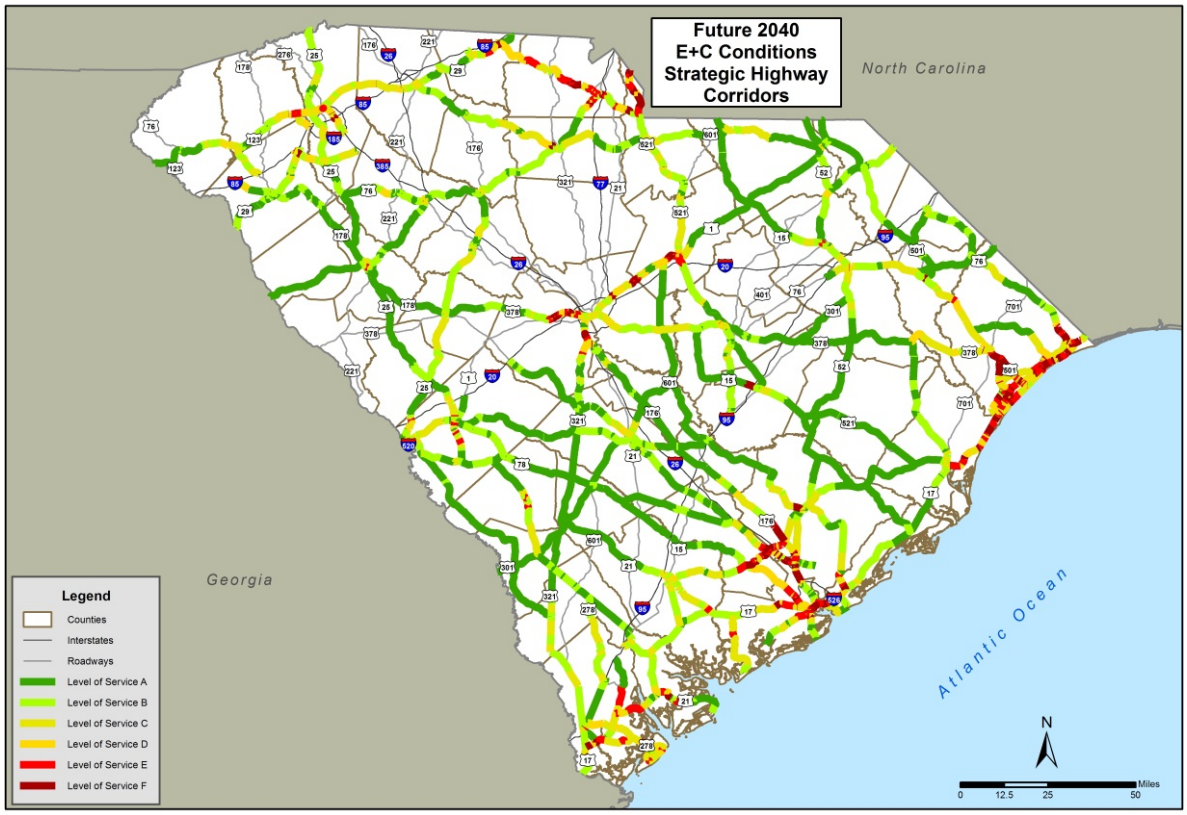
- US 501 from SC 544 to SC 31 Carolina Bays Parkway (Horry)
- US 17 from SC 171/Wesley Drive to W. Oak Forest Drive (Charleston)
- US 17 from W. Oak Forest Drive to I-526 (Charleston)
- US 378 from SC 6/ N. Lake Drive to US 1/Main Street (Lexington)
- US 378 from Pineview Road/Hallbrook Drive to I-77/Veteran Road (Richland)

Figure 7-7: Existing Strategic Corridor Network Conditions



Under 2040 conditions, it is projected that 27 percent (971 centerline miles) of the strategic corridor network will be operating at a LOS C or worse (**Figure 7-8**) with most worsening segments located in urbanized areas around South Carolina.

Figure 7-8: Future Strategic Corridor Network Conditions (2040)



7.4 Statewide Rail Plan

The South Carolina State Rail Plan 2014 Update was prepared to be consistent with the 2040 MTP, the State Freight Plan and other modal plans, including adoption of common goals and objectives and a planning horizon year of 2040.

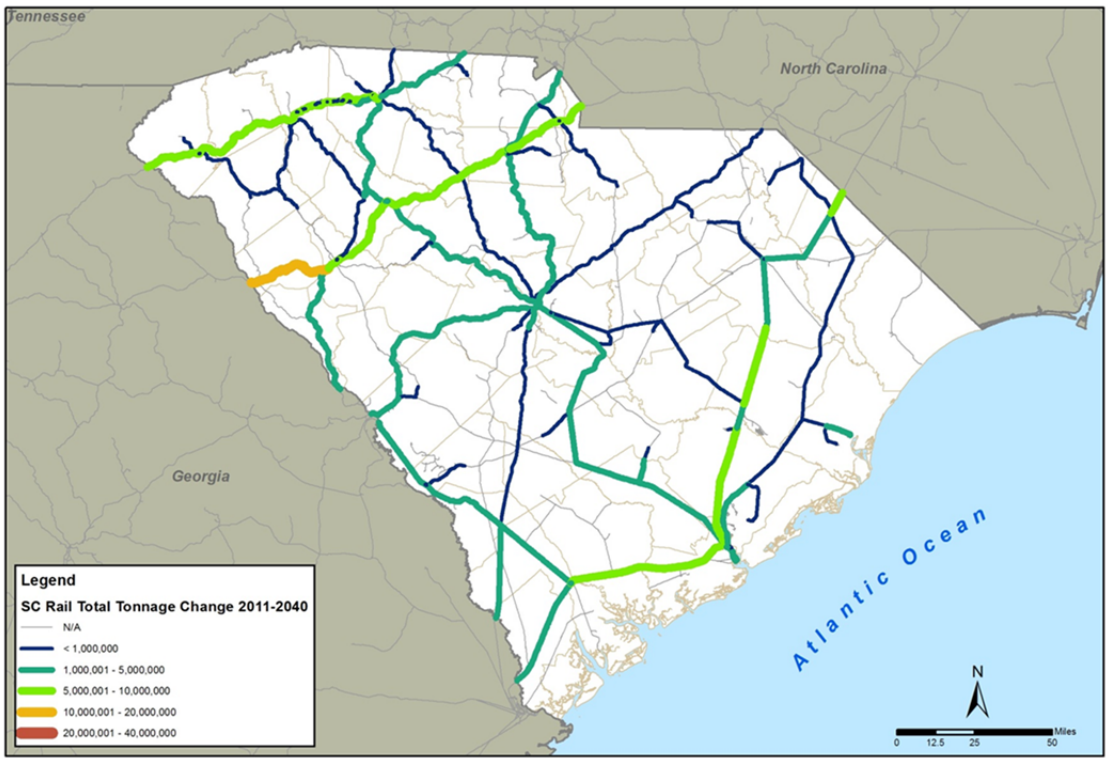
SCDOT is South Carolina's "State Rail Transportation Authority" as defined by the Federal Passenger Rail Investment and Improvement Act of 2008 (PRIIA). SCDOT ensures that the State Rail Plan documents the State's strategies on freight and passenger rail transportation – including commuter rail – within the State's boundaries, establishes priorities and implementation approaches to enhance rail service in the public interest, and serves as the basis for Federal and state rail investment.

The South Carolina rail system is operated by 12 freight rail carriers. The carriers range in size from fairly small intrastate railroads to members of large rail systems serving the entire eastern U.S. Of the line haul railroads, two are Class I carriers and the remainder are local carriers or switching and terminal companies. Palmetto Railways, a branch of the South Carolina Department of Commerce, operates three railroad subdivisions.

Rail freight serves a dual role in the state's economy by providing efficient transportation of raw materials and goods for industries and businesses located here, as well as a distribution channel for products exported to other states and countries. The freight rail network in South Carolina serves an

equally important role in the region's and nation's economies with 44 percent of rail tonnage and 60 percent of rail freight value passing through the state. A review of rail freight movement in South Carolina finds that 70.3 million tons of goods were moved by rail in 2011, representing an estimated value of $79 billion in goods. By 2040, freight is projected to grow by 44 percent to 101 million representing an estimated value of $133 billion (a 69 percent increase). This includes an estimated decrease in coal shipments across the state's rail system by 28 percent by 2040. Excluding coal, rail movements are expected to increase by 72 percent by 2040 with intermodal shipments representing the largest growth sector for rail (**Figure 7-9**).

Figure 7-9: SC Rail Total Tonnage Change, 2011-2040



The State Rail Plan identifies opportunities and issues that impact rail movements in South Carolina, including the widening of the Panama Canal, the Greer inland port, the Charleston Naval Complex container terminal, and the planned Intermodal Container Transfer Facility (ICTF) with dual rail access, as well as rail corridor improvement initiatives such as CSX's I-95 Corridor, it's "A line" from Florida to the Northeast, and the Norfolk Southern Crescent Corridor, the railroad's main track from the Northeast to New Orleans, all of which offer opportunities for rail operating improvements.

The State Rail Plan notes that it will not be possible to take advantage of the future opportunities without funding for needed rail investments. As demonstrated throughout the Rail Plan, many public and private benefits can result through enhanced coordination between pubic interests and the freight railroads. The State Rail Plan includes a description of passenger rail services and proposed improvements, and offers recommendations.

7.5 Statewide Transit Plan

The 2040 MTP planning process includes several major components that encompass public transportation, including:

- **10 Regional Transit and Coordination Plan Updates** – transit plans developed for each of the 10 Council of Government regions.
- **Statewide Public Transportation Plan Update** – an overall public transportation plan for South Carolina, summarizing existing services, needs and future funding programs.
- **Multimodal Transportation Plan** – an overall plan inclusive of all modes of transportation.

The South Carolina Statewide Public Transportation and Coordination Plan was prepared in coordination with the development of the 2040 MTP. The purpose of this update was to identify existing public transportation services, needs, and strategies to 2040. The plan also incorporates an overview of human services transportation across the state, in addition to the needs and strategies for increased coordination in the future.

Key findings of the Statewide Transit Plan identified 11.8 million one-way trips provided for fiscal year 2011, up from 11.2 million one-way trips provided in fiscal year 2008. While public transit was provided in 39 of the 46 counties in South Carolina in 2011, 44 percent of transit needs were met due to increases in efficiencies with transit funding between SCDOT and the 10 regions. This is an increase from the estimated 37 percent met in 2008. While progress is being made, 56 percent of transit needs remain unmet.

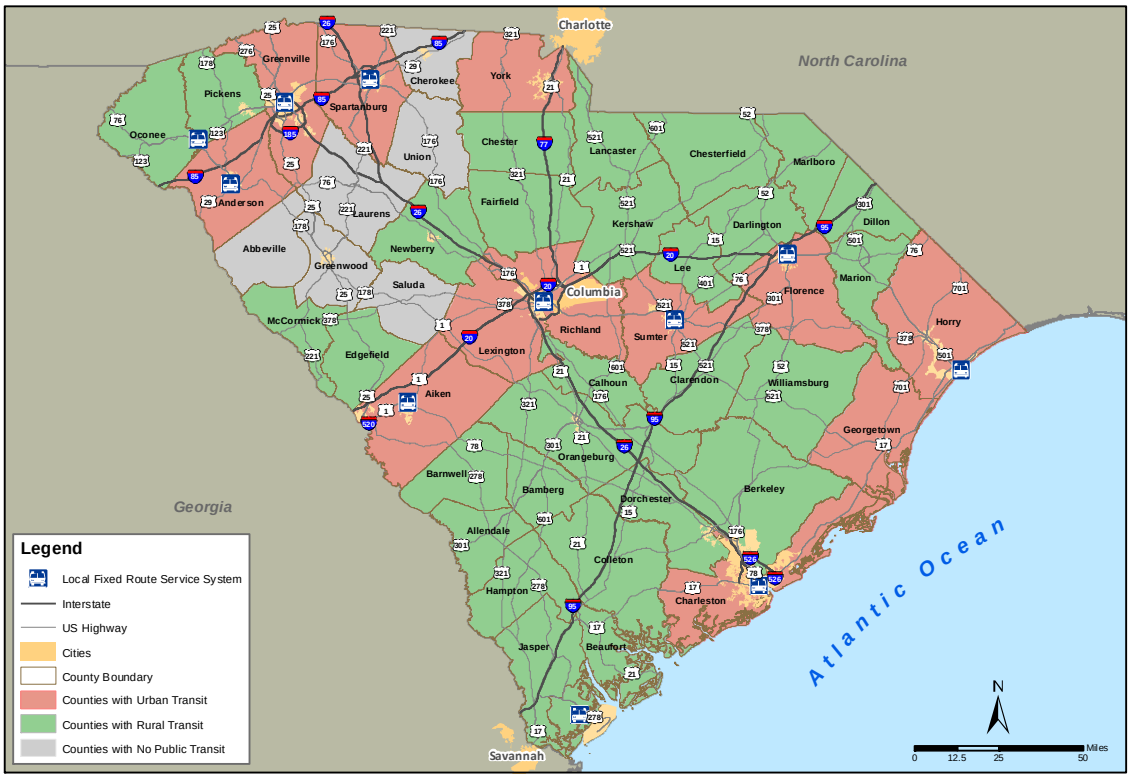
All but six of the 46 counties in South Carolina have some level of general public transit services available to their residents. (**Figure 7-10**) The following counties are identified as not having public transit service supported by any of the funding programs administered by SCDOT:

- Abbeville County, Upper Savannah Region;
- Greenwood County, Upper Savannah Region;
- Laurens County, Upper Savannah Region;
- Saluda County, Upper Savannah Region;
- Cherokee County, Appalachian Region; and
- Union County, Catawba Region.

Lancaster County did not have general public transit service in FY2011, the base year of this Plan. However, service was introduced in July 2012.

At the time of this study (March 2013), SCDOT identified 28 publicly-supported transit agencies operating in 28 areas of the state. Of these, 7 are exclusively urbanized, 17 are exclusively rural or non-urbanized, and 4 offer both urbanized and rural services (**Figure 7-10**). These agencies provide a range of service options to residents, such as fixed-route, route deviation, ADA complementary paratransit service, commuter, and demand response.

Figure 7-10: Public Transportation Service



Extensive outreach was conducted across the state during the original 2007-2008 Human Services Coordinated Plans followed by ongoing coordination meetings within the regions. Therefore, SCDOT approached outreach, for the update of this Statewide Public Transportation and Coordination Plan in a streamlined fashion, working primarily through the COGs, MPOs, and transit agencies who are knowledgeable of, and serve, the target populations in their communities. The outreach effort was based upon the following principles:

- Build on existing knowledge and outreach efforts, including outreach conducted for the 2008 Human Services Coordinated Plan for each of the 10 regions, locally adopted transit plans, the Long Range Planning efforts within the regions, and other relevant studies completed since 2007.
- Leverage existing technical committees/groups and relationships to bring in new perspectives and recent changes.

Some of the specific tools for outreach in each of the 10 regions included local and regional meeting presentations, in-person feedback and webpages for submitting comments. The COGs contacted local agencies in their region to provide feedback and input on the existing state of coordination within each region, the gaps and needs in the 10 regions, and strategies to meet future needs.

8. MULTIMODAL NEEDS

8.1 Introduction

For the 2040 MTP, 29-year needs on the State's multimodal transportation system were assessed. The roadway, bridge, transit, bicycle and pedestrian needs quantify costs over the 29-year plan timeframe required to address expected deficiencies and to achieve across-the-board acceptable multimodal system performance. For the freight rail, port and waterway, and aviation needs provided to SCDOT by partner agencies, the planning horizons were much shorter than the year 2040. The freight rail estimates cover only current needs, the port and waterway needs are projected to the year 2020, and the aviation needs are projected to the year 2017.

Funding these needs is not the sole responsibility of SCDOT and will involve the partnership of national, state, regional, local governmental agencies, and non-government agencies, as well as the private sector. SCDOT receives federal and state funds to address roadways, bridges, public transportation, and bicycle and pedestrian needs. The total level of 2040 multimodal transportation needs is estimated at $70.45 billion, as shown **in Table 8-1**. The freight rail needs are addressed by the Palmetto Railways, private Class 1 railroads (CSX and Norfolk Southern), and private short line railroads. Port and waterway needs are addressed by the South Carolina Port Authority and the U.S. Army Corps of Engineers. Aviation needs are addressed by federal and state funds provided to the Department of Aeronautics.

In addition to showing 2040 needs, Table 7-1 provides figures from the 2030 MTP for comparison. The 2030 MTP, adopted in 2008, had a shorter planning horizon and estimated highway, bridge, and transit needs at $48.3 billion. With revenue estimated at $19 billion, a funding gap of $29.3 billion was projected, resulting in an annualized funding gap of **$1.465 billion per year**. The 2040 MTP extended the planning horizon by 10 years to 2040 and estimates total highway, bridge, and transit needs at $70.45 billion. With revenue estimated at $27.63 billion, a funding gap of $42.82 billion is projected, resulting in an annualized funding gap of **$1.477 billion per year.**

8.2 Roadway Needs

The 2040 roadway needs total $59.8 billion, which include the following expansion, preservation, and modernization needs on South Carolina's 41,500 miles of state-maintained roadways.

- $21.5 billion of roadway expansion needs, such as added lanes and new location roadways.
- $23.1 billion of roadway preservation needs, such as resurfacing.
- $10.2 billion of roadway modernization needs, such as wider shoulders for safety and bicycle accommodations.
- $5.0 billion of routine maintenance, such as mowing, signage, etc.

Table 8-1: Summary of 2040 Highway, Bridge and Transit Needs

Mode	2030 MTP ($Billions)	2040 MTP ($ Billions)	2030 MTP Annualized Need ($ Millions)	2040 MTP Annualized Need ($Millions)
Highway Expansion				
Interstate System	$11.0 Billion	$12.9 Billion	$550 Million	$445 Million
Primary and Secondary System	$11.0 Billion	$8.6 Billion	$550 Million	$297 Million
Subtotal	**$22.0 Billion**	**$21.5 Billion**	**$1.100 Billion**	**$742 Million**
Highway Maintenance				
Preservation	NA	$23.1 Billion	NA	$797 Million
Modernization	NA	$10.2 Billion	NA	$352 Million
Routine Maintenance	NA	$5.0 Billion	NA	$172 Million
Total Highway Maintenance	$17.0* Billion	$38.3* Billion	$850 Million	$1.321 Billion
Bridges	$3.0 Billion	$5.4 Billion	$150 Million	$186 Million
Subtotal	**$20 Billion**	**$43.7 Billion**	**$1.0 Billion**	**$1.507 Billion**
Mass Transit, Premium Transit and Passenger Rail	$5.3 Billion	$5.2 Billion	$265 Million	$181 Million
Safety	$1.0 Billion	Included in Expansion and Maintenance Needs	$50 Million	Included in Expansion and Maintenance needs
TOTAL NEEDS	**$48.3 Billion**	**$70.45 Billion**	**$2.41 Billion**	**$2.43 Billion**
ESTIMATED REVENUE	**$19.0 Billion**	**$27.63 Billion**	**$950 Million**	**$953 Million**
FUNDING GAP	**$29.3 Billion**	**$42.82 Billion**	**$1.46 Billion**	**$1.47 Billion**

The 29-year Interstate needs total $18.9 billion and include the following:

- $12.9 billion to increase capacity, encompassing:
  - $7.1 billion for added lanes to existing interstates
  - $3.4 billion for interchange upgrades, including $1.3 billion for three large interstate to interstate interchange upgrades
  - $2.4 billion for a new interstate route, I-73
- $2.7 billion for modernization, such as wider shoulders
- $2.6 billion for preservation, such as resurfacing
- $741 million for routine maintenance

Additional components of the total highway needs include the following:

- $2.9 billion for additional new location roadways on the primary and secondary systems
- $5.2 billion for preservation and reconstruction of non-federal aid eligible secondary roads
- $1.2 billion for bicycle accommodations

8.3 Bridge Needs

SCDOT maintains 8,383 bridges[1] on the roadway system that are 20-feet or more in length. In addition to bridges SCDOT also maintains culverts. The 2040 bridge replacement, rehabilitation, and maintenance needs total $5.4 Billion:

- $4.0 billion for replacement needs.
- $1.3 billion for maintenance needs, including routine and as-need maintenance.
- $32 million for modernization needs, including major work to improve structural integrity, safety, and functionality.
- $90 million for culverts.

If approximately $1.0 billion in existing bridge needs could be met, which would bring all state bridges to a good condition, then bridge needs could be projected to level off to approximately $170 million per year through 2040.

8.4 Public Transit Needs

The 2040 public transit operating and capital needs are based on existing services and future needs identified by public input, feedback from individual transit agencies, needs identified in existing plans, and feedback from local COGs, transit agencies, and SCDOT staff. Cumulative public transit needs to maintain existing transit services total $2.4 billion, and for enhanced transit services total $1.2 billion.

The long-range transit operating and capital costs to maintain existing services were developed as follows:

- **Operating Costs**: To calculate the long-term needs for maintaining existing services, a 2011 constant dollar for operating expenses was applied to each of the transit agencies for the life of this plan, which extends to 2040. The costs were then aggregated by region and for the statewide total.
- **Capital Costs**: To calculate the capital costs for maintaining existing services, two separate categories were used:
  - Cost for replacing the existing vehicle fleet, and
  - Non-fleet capital costs.

The second scenario for estimating future public transportation needs is enhanced services, which simply implies a higher level of service or more service alternatives for residents than exists today. The enhanced service needs include more frequent service, evening, weekend, and employment services, as well as rural transit connections to major activity locations.

Detailed transit information is included in the Public Transportation and Coordination Plan.

[1] As of January 1, 2013.

8.5 Premium Transit and Passenger Rail Needs

Premium transit includes transportation alternatives such as commuter rail, light rail, and bus rapid transit (BRT). The 2040 premium transit and passenger rail needs, based on local and multi-state feasibility studies, total $1.65 billion and are broken down as follows:

- $516 million for Rock Hill – York County – Charlotte Bus Rapid Transit (BRT).
- $50 million for Greenville Bus Rapid Transit.
- $46 million for Charleston Commuter Corridor.
- $1.038 billion for the South Carolina segment of the Atlanta to Charlotte High Speed Rail.

The 2040 MTP estimate of $1.038 billion for the South Carolina segment of a high speed rail corridor from Charlotte, North Carolina to Atlanta, Georgia was provided by the 2008 Volpe study for USDOT. The ongoing Passenger Rail Corridor Investment Plan (PRCIP) study, led by the Georgia Department of Transportation in partnership with SCDOT and the North Carolina Department of Transportation, is expected to identify a preferred alignment and an updated planning-level cost estimate when completed in 2015.

8.6 Bicycle needs

A total of $1.2 billion of bicycle accommodation needs have been identified on state-maintained roadways. These improvements include planning, design, construction, and contingency costs and are based on current bicycle accommodation deficiencies, proposed improvements in adopted MPO/COG and local government plans, and the review of other MPO/COG planning documents. Pedestrian needs, such as sidewalks, are included in the overall modernization needs for the primary and secondary highway system.

Bicycle accommodation needs were not reported in the 2030 MTP.

8.7 Freight Rail Needs

The future needs for short line rail rehabilitation, capacity/service, and safety improvement projects total $248 million. Class 1 railroads (CSX and Norfolk Southern) did not provide future rehabilitation, capacity/service, and safety needs. Based on limited public information available for the Class I railroads, $100 million in needs have been estimated for grade crossing improvements, capacity increases and bottleneck relief.

8.8 Port and Waterway Needs

The South Carolina Posts Authority (SCPA) owns, manages, operates, and finances the public port terminals in South Carolina. These include the Ports of Charleston and Georgetown. SCPA is responsible for implementing an annual Capital Plan that is typically funded entirely by SCPA. This includes planning for equipment, cranes, wharf maintenance, and other capital needs of the port terminals. The 10-year port and waterway needs total $1.6 billion and are categorized as follows:

- $1.3 billion will be needed for existing and new facilities within the next decade.

- Of that $1.3 billion, near term investment includes a new terminal operating system that will improve on-terminal operations and processes; construction of the cruise terminal facility in Charleston; construction of the new North Charleston container terminal; and construction of the Inland Port Facility in Greer, SC.[2]

SCPA is a self-funded agency and the $1.3 billion 10-year capital plan will be implemented with internally generated funds as well as bond issues backed by the organization itself, as opposed to external sources of funding.

Port and waterway needs were not reported in the 2030 MTP.

8.9 Aviation Needs

Aviation needs were provided by the Aeronautics Commission and are based on individual airports' 5-year Capital Improvement Plans (CIPS) for the years 2012 – 2017. The five-year aviation needs for commercial airports, reliever airports, and general aviation totals $894 million and includes physical/infrastructure-related needs, such as design/construction, land acquisition, and vehicle/maintenance purchases, as well as planning and reporting/assessments.

Aviation needs were not reported in the 2030 MTP.

[2] Online SCPA Capital Plan, http://www.port-of-charleston.com/Cargo/ReadytoGrow/capitalplan.asp; accessed March 5, 2013

9. TRANSPORTATION REVENUES

9.1 2040 Baseline Revenue Forecast

Evaluating whether SCDOT will have adequate financial resources to accomplish its goals and meet future modal needs is a critical part of the planning process. A conservative transportation revenue forecast to 2040 was developed, based on historic trends, from SCDOT's federal, state, and local revenue sources. As shown in **Table 9-1**, the revenue totaled $27.63 billion (2011 dollars), which includes 24 percent reduction in buying power due to inflation. On average, $953 million will be available per year to address multimodal transportation system needs and improvements.

Table 9-1: Baseline Revenue Forecast

Revenue Source	Total 2011-2040 (Billions, 2011 Dollars)	Percent of Total
Federal Highway Revenue	$13.97	50.6%
State Highway Revenue	$5.48	19.8%
Federal Transit Revenue	$1.01	3.7%
State Transit Revenue	$0.04	0.1%
State Infrastructure Bank Revenue	$2.04	7.4%
Special Purpose Local Option Sales Tax Revenue	$4.24	15.3%
County Fund Revenue	$0.85	3.1%
Total	**$27.63**	100.0%

Source: FHWA data, FTA data, SCDOT data, and calculations using these sources.

9.2 Funding Gap

South Carolina faces a tremendous challenge to meet ever increasing transportation needs, a common problem facing states across the country. As shown in **Figure 9-1** the 2040 MTP multimodal transportation needs totals $70.45 billion for highways, bridges, bicycle and pedestrians, mass transit and premium transit. Revenues for the same time period are projected to total $27.63 billion, which results in a $42.8 billion funding gap over 29 years to 2040. This equates to a $1.47 billion average annual funding gap, compared to the $1.46 billion average annual funding gap that was estimated as part of the 2030 MTP, as shown in **Figure 9-2**.

Figure 9-1: 2040 Funding Gap

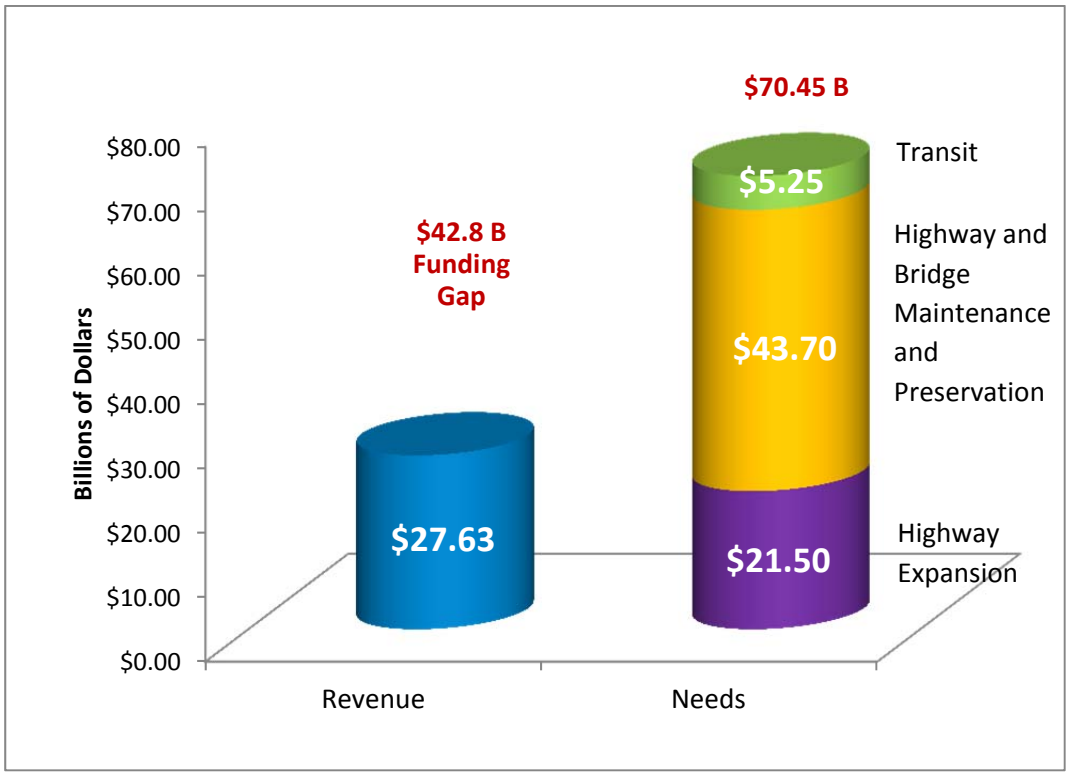
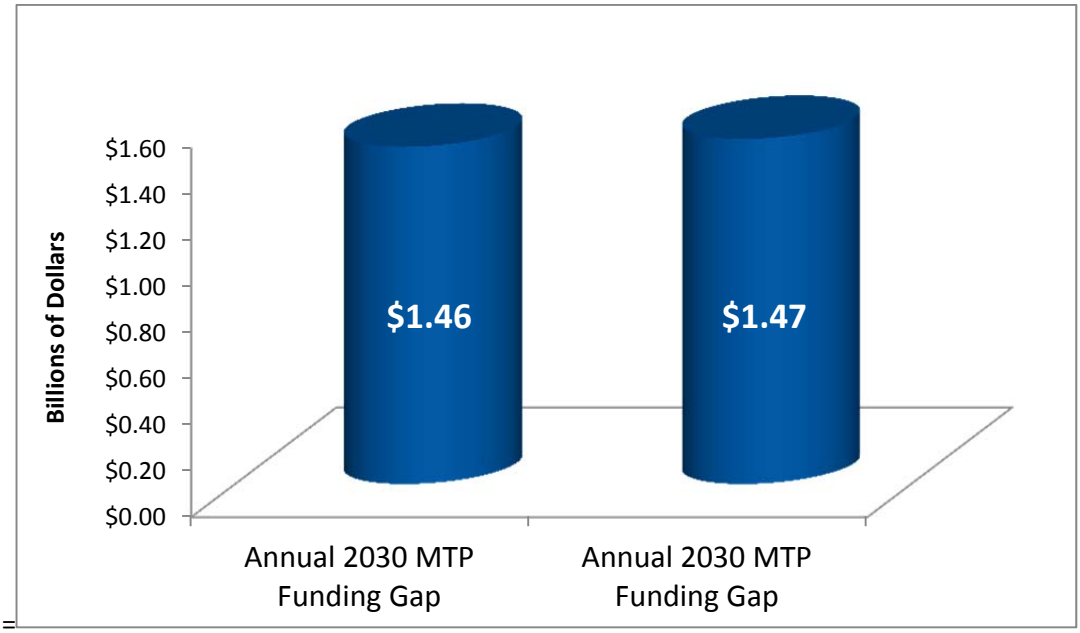


Figure 9-2: 2030 MTP vs. 2040 MTP



10. ALTERNATIVE RESOURCE ALLOCATION SCENARIOS

10.1 Allocation Scenario Development and Alternative Descriptions

During the development of the 2040 MTP, the following five alternative resource allocation scenarios were identified, defined, and approved by the executive committee. The five allocation scenarios reflect different priorities and areas of emphasis in capital investments and resource allocations. The purpose of the planning level resource allocation analysis is to assess the potential benefits, limitations, and system performance of investment strategies. The resource allocations included the portion of total projected future revenue, excluding those revenue sources not under SCDOT control or revenue necessary for fixed expenses, such as projected personnel costs and employer contributions.

- **Baseline –** Allocate resources to focus on the core highway system. Baseline resembles the current program distributions.
- **Multimodal System -** Allocate resources to maintain and expand highway, transit, rail and non-motorized systems linking cities and towns.
- **Serve the Economic Drivers -** Investment to support business attraction and retention, with resources focused on ports, distribution facilities, airports and leisure destinations.
- **Reduce System Size -** Transfer ownership of roughly 25 percent of the non-Federal Aid highway system to counties and municipalities over the lifetime of the plan. There are approximately 10,000 non-Federal aid roadways miles that carry less than 200 vehicles per day.
- **Preservation** - Focus on maintaining highways and bridges at a high level of preservation and reliability. Less focus on congestion and multimodal expansion.

To illustrate the likely outcomes of funding transportation system in these various configurations, the following five criteria were developed.

- **Highway User Costs:** Accounts for vehicle operating costs, travel time costs, and safety costs for truck and passenger vehicles.
- **Pavement Condition:** Roadway condition, based on the ability to reconstruct and maintain the state highway system's roadway surface.
- **Congestion:** Delay on the state highway system, based on the ability to add capacity in congested corridors.
- **Bridges in Good Condition:** Ability of SCDOT to maintain bridges in a high functioning state, to current standards and able to support the expected growth in traffic over the plan's time horizon.

Non-motorized and Transit Support: Ability to expand current service and maintain public transportation infrastructure in a state of good repair, through state support.

10.2 Allocation Scenario Comparative Analysis and Results

The results of the alternative resource allocation scenario assessment shown in **Figure 10-1** represents a system-wide forecast of performance, based on different resource allocations within each alternative investment scenario. Using the five criteria, the length of the bars corresponds to the quality of performance stated as a percentage of addressing plan needs.

Figure 10-1: Scenario Assessment, by Performance Area

	Highway User Cost	Pavement Condition	Congestion	Bridge in Good Condition	Non-Motorized and Transit Support
Baseline	52%	35%	70%	84%	19%
Multimodal	47%	29%	70%	81%	51%
Economic Drivers	52%	27%	72%	82%	21%
Reduce Size	57%	37%	72%	87%	37%
Preservation	52%	64%	68%	78%	19%

The outcomes associated with implementing the five alternative investment scenarios are noted below:

10.2.1 Baseline Scenario

The Baseline scenario tied for 2nd in highway user costs, ranked 3rd in pavement condition, tied for 2nd in congestion, ranked 2nd in bridge conditions, and 4th in non-motorized and transit support. Under the Baseline scenario, SCDOT would not make significant headway toward meeting the plan's goals and objectives and in all likelihood would not be able to maintain current levels of performance. By spreading the resources available in a way that is consistent with current patterns, SCDOT would only maintain a reasonable level of preservation performance on the core elements of the state-maintained highway system. The Baseline scenario attempts to meet the plan's goals in a balanced way, and it achieves measureable gains in bridge conditions, it falls short in most of the performance areas.

10.2.2 Multimodal System Scenario

The Multimodal System scenario ranks last in highway user costs, 4th in pavement conditions, tied for 2nd in congestion and 4th on bridge condition. However, the Multimodal System scenario is able to make significant progress toward meeting the plan's expansion and preservation goals and objectives defined for mass transit, premium transit, and bicycle facilities.

The Multimodal System scenario also assumes that non-highway transportation resources will be focused in urban areas. In providing better transportation access and mobility options to traditionally underserved communities, this scenario addresses the equity and environmental impact plan goals.

10.2.3 Serve the Economic Drivers Scenario

The Serve the Economic Drivers scenario tied for 2nd in highway user costs, last in pavement condition, tied for 1st in congestion, 3rd in bridge condition and 3rd in non-motorized/transit support. The Serve the Economic Drivers scenario focuses on highway mobility to support freight-generating industries and to support the tourism industry. The Serve the Economic Drivers scenario provides additional support to alleviate last and first-mile freight bottlenecks along routes providing access to major warehousing and distribution centers, ports, airports, and coastal attractions.

The Serve the Drivers scenario defines success in terms of meeting the plan's economic development goal and the highway element of the mobility goal. The pursuit of a Serve the Economic Drivers investment strategy could result in a reduced level of asset and mobility performance in areas that are less economically significant.

10.2.4 Reduce System Size

The Reduce System Size scenario produces the best outcomes in terms of highway user costs, ranks 2nd for pavement conditions, ranks 1st for bridge condition and is tied for 1st in congestion.

The Reduce System Size scenario is able to focus resources on a smaller system, providing potential for greater performance outcomes. However, the scale of reduced system miles in this scenario, while significant, produces only marginal improvements. The potential implementation costs associated with a large scale highway transfer program could offset the projected benefits associated with long-term system performance.

10.2.5 Preservation

The Preservation scenario ranks 2nd in highway user costs, 1st in pavement condition, 3rd in congestion, last in bridge conditions, and 4th in non-motorized and transit support.

The Preservation scenario focuses resources on maintaining highways and bridges at a high level of preservation and reliability. Under this scenario, 64 percent of the pavement preservation needs and 78 percent of the bridge condition needs are met. Under this scenario, resources are diverted from addressing congestion (adding lanes and new roadways) and non-motorized and transit support.

10.2.6 Conclusions

Based on identified needs and projected transportation funding, no one individual investment scenario optimally addresses the future performance of the state's transportation system. Allocating limited resources to efficiently address a multitude of transportation needs throughout South Carolina is a top priority of SCDOT. While SCDOT cannot address all the transportation needs alone, it is clear that a narrower focus will be necessary to achieve measureable gains in any of the Plan goal areas. A more narrow and strategic focus can include shifting a greater share of funding to system preservation while relying on non-federal funding sources to address mobility needs, as well as targeting investment to priority networks that support state mobility needs and economic competitiveness, such as the Interstate system and the Statewide Strategic Corridor Network.

11. ENVIRONMENTAL MITIGATION

Preservation of the environment and efforts to meet the mobility needs of a growing population, sometimes leads to unavoidable impacts. The identification of a full range of potential mitigation strategies should occur early in the transportation planning and project development process, so viable solutions to mobility and connectivity needs can be identified and implemented in a timely manner. To that end, SCDOT has utilized mitigation banks as an effective approach to preserve, enhance and restore environmental resources. A mitigation bank is a site where wetlands are restored, enhanced, or preserved, expressly for the purpose of providing compensatory mitigation in advance of unavoidable impacts to wetlands or streams. Banking also creates an economic incentive for restoring, creating, enhancing and/or preserving wetlands.

SCDOT has previously established three mitigation banks in South Carolina for transportation projects. However, these banks and other private mitigation banks are not located with the critical watersheds or ecoregions within the state. Forecasted mitigation needs are highest in the Lowcountry and PeeDee Regions, whereas the only available current stream mitigation banks are located in the Sandhills and Piedmont regions. Also, existing banks with a limited number of credits are not anticipated to meet future needs.

In response to these challenges SCDOT is exploring proactive solutions in partnership with the University of South Carolina by developing a Geospatial Mitigation Forecast Model. The intended purpose of the Geospatial Mitigation Forecast Model is to identify stream and wetland impacts from current and planned transportation projects in relationship to corresponding watersheds and ecoregions. This will allow SCDOT to develop partnerships with industry experts, such as the mitigation banking community, as well as state and federal agencies associated with the establishment and approval of mitigation early on in project development and reduce mitigation related project delays.

12. FINDINGS AND STRATEGIES

Some of the key findings of the 2040 MTP, which draw upon analyses conducted for the five modal plans (Interstate, Strategic Corridors, Public Transit and Human Health Service Coordination, Freight, and Rail) as well as the MTP itself, may be summarized as follows:

- Multimodal needs for highways, bridges, bicycle/pedestrian, and transit are projected to total $ 70.45 billion (in 2011 dollars) through 2040.
- Projected revenue to address these needs totals $27.63 billion (in 2011 dollars).
- The 29-year funding gap is estimated at $42.82 billion.
- Annualized funding gap is $1.47 billion, similar to the previous 2030 MTP estimate of $1.46 billion.
- Based on 2011 conditions, freight bottlenecks were identified at interstate interchanges:
  - I-20 in Columbia at I-77 and Clemson Road interchanges (being widened to 6 lanes);
  - I-26 in Columbia at I-20 and St. Andrews Road interchanges
  - I-26 in Charleston at US 52 Connector/Ashley Phosphate Road and I-526 interchanges;
  - I-77 at Forest Drive interchange due to weekly graduation ceremonies at Fort Jackson;
  - I-85 in Greenville at the Woodruff Road/I-385 interchange;
  - I-126 at I-26 interchange in Columbia;
  - I-385 at the I-85 interchanges in Greenville; and
  - I-526 in Charleston at the I-26 interchange.
- Freight tonnage moved by truck is expected to increase by 91 percent from 300.6 million tons in 2011 to 574.1 million tons.
- Freight tonnage moved by rail is expected to increase by 44 percent from 70.3 million tons in 2011 to 101.4 million tons.
- Freight tonnage moved by rail, excluding coal is expected to increase by 72 percent (coal movements are projected to fall by 28 percent).
- In 2011, 31 percent of the interstate system operated at LOS C or worse for at least one peak hour – a percentage that is expected to rise to 62 percent by 2040.
- The most congested corridor segments in the state include:
  - I-85 from I-385/Woodruff Road (Exit 51) to Pelham Road (Exit 54) (Greenville)
  - I-26 from Saint Andrews Road (Exit 106) to I-20 (Exit 107) (Lexington/Richland)
  - I-26 from Piney Grove Road (Exit 104) to Saint Andrews Road (Exit 106) (Lexington)
  - I-85 from Pelham Road (Exit 54) to SC-14 (Exit 56) (Greenville)
  - I-85 from Mauldin Road (Exit 46) to US-276 (Exit 48 (Greenville)

- Today, 11 percent of the existing Statewide Strategic Corridor Network operates at LOS C or worse.
- By 2040, 27 percent of the existing Statewide Strategic Corridor Network will operate at LOS C or worse.
- In 2011, 44 percent of transit demand was met, compared to 37 percent in 2008.
- In 2012, transit services in South Carolina provided 11.8 million one-way trips.
- Based on identified needs and projected transportation funding, no one individual allocation scenario optimally addresses the future performance of the state's transportation system.
- While SCDOT cannot address all the transportation needs alone, it is clear that a narrower focus will be necessary to achieve measureable gains in any of the Plan goal areas.
- A more narrow and strategic focus may include shifting a greater share of funding to system preservation while relying on non-federal funding sources to address mobility needs, as well as targeting investment to priority networks that support state mobility needs and economic competitiveness, such as the interstate system and Statewide Strategic Corridor Network.

These and other findings from analytical tasks, together with valuable input received during the stakeholder and public outreach efforts and continuous contributions and guidance from Department staff, provided the background and context for MTP strategies. Based on the 2040 MTP planning process, the strategies are categorized by the following areas:

- Safety
- Economic Competitiveness
- Performance Management
- Asset Management
- Freight Improvement
- Multimodal Enhancement
- Partnerships

12.1 Safety

Background – Safety on the State Highway System is the top goal for SCDOT. South Carolina continues to have one of the highest mileage death rates in the nation. In 2011, the National Highway Traffic Safety Administration (NHTSA) indicated South Carolina had the 3rd highest fatality rate in the nation. South Carolina has held the third highest fatality rate since 2006 even though the State's fatality rate has dropped from a high of 2.11 fatalities per 100 Million Vehicle Miles Traveled in 2006 to 1.70 in 2011. The national average fatality rate also dropped from 1.42 in 2006 to 1.10 in 2011.

The number of fatalities occurring on the State's roads began declining in 2007 from a total of 1,077 in that year to a low of 810 fatalities in 2010. However, the number has begun to increase with 828 fatalities occurring in 2011 and 863 occurring in 2012. South Carolina also had the 5th highest pedestrian fatality rate and the 5th highest bike fatality rate in the nation in 2010. NHTSA recently

released the 2011 bicycle and pedestrian fatality state rankings and South Carolina has moved up to the 2nd highest pedestrian fatality rate while still maintaining the 5th highest bike fatality rate.

The cost of vehicle crashes, injuries, and fatalities to society is staggering and greatly exceeds the funding dedicated to SCDOT for highway maintenance, operations, and improvements. In 2009, the South Carolina Department of Public Safety (SCDPS) estimated that the annual economic loss due to vehicle crashes, injuries, and fatalities was $2.67 Billion. These statistics indicate the need to bring greater emphasize to safety in all aspects of highway planning.

Related Goals – Safety is directly tied to one of the six 2040 MTP goals:

Safety Goal: *Improve the safety and security of the transportation system by implementing transportation improvements that reduce fatalities and serious injuries as well as enabling effective emergency management operations.*

This MTP goal addresses SCDOT's core functions of designing, constructing, maintaining and operating the state's transportation systems and improvements thereto. Safety is one the national MAP-21 goals requiring states to achieve a significant reduction in traffic fatalities and serious injuries on all public roads.

Safety Performance Measures – Specific performance measures designed to monitor and track the impact of safety strategies include:

- Number or rate of fatalities and serious injuries
- Number of bike/pedestrian fatalities and injuries
- Number of roadway departure crashes involving fatality or injury
- Number of head on and cross median fatal and serious injury crashes
- Number of accidents per 100,000 transit service vehicle miles
- Percentage of crossings with active safety warning devices installed

Strategies to Address Safety – SCDOT and the South Carolina Department of Public Safety (SCDPS) jointly updated the Strategic Highway Safety Plan (SHSP) based on the *Strategic Highway Safety Plan MAP-21 Interim Guidance* issued by the FHWA Office of Safety in April 2013. In preparation for updating the SHSP, SCDOT and SCDPS identified nine major focus areas. Using crash and other safety data, fifteen goals were identified that directly impact highway safety through engineering, enforcement, education, emergency medical services, policy, public health, and communications.

Potential safety strategies include the following:

- Implement goals identified in the Strategic Highway Safety Plan that directly impact highway safety through engineering, including design, construction, maintenance and operations, such as:
  - Make walking and street crossing safer (Goal 9)
  - Ensure safer bicycle travel (Goal 10)
  - Keep vehicles on the roadway and minimizing the consequences of leaving the road (Goal 13)
  - Improve the design and operation of highway intersections (Goal 14)

  - Reduce head-on and across-median crashes (Goal 15)

- Coordinate with SCDPS and other agencies to implement the other goals identified in the SHSP, such as:
  - Institute graduated licensing for young drivers (Goal 1)
  - Ensure drivers are fully licensed and competent (Goal 2)
  - Sustain proficiency in older drivers (Goal 3)
  - Curb aggressive driving (Goal 4)
  - Reduce impaired driving (Goal 5)
  - Keep drivers alert (Goal 6)
  - Increase driver safety awareness (Goal 7)
  - Improve and sustain seatbelt usage (Goal 8)
  - Improve motorcycle safety and increasing motorcycle awareness (Goal 11)
  - Make truck travel safer (Goal 12)

12.2 Economic Competitiveness

Background – Transportation infrastructure is vital to the economic prosperity of South Carolina. Good road, rail, transit and air connections across the state help businesses get goods and services to markets and workers get to jobs.

Related Goals – Economic competitiveness is one of the six 2040 MTP goals:

Economic and Community Vitality Goal: Provide an efficient and effective interconnected transportation system that is coordinated with state and local planning efforts to support thriving communities and South Carolina's economic competitiveness in global markets.

Economic Competitiveness and Community Vitality Performance Measures – Specific performance measures designed to monitor and track the impact of economic competitiveness and community vitality strategies include:

- Annual hours of truck delay
- Truck travel time
- Truck reliability on the freight corridor network

Strategies to Address Economic Competitiveness – Potential economic competiveness strategies are drawn from the Freight, Interstate, Strategic Corridors, and Statewide Rail modal plans, and include the following:

- Address last and first mile connections to intermodal facilities from the Interstate or Strategic Corridor Network

- Conduct Interstate traffic operations and feasibility studies for Interstate corridors identified in the 2040 Interstate Plan as having bottlenecks and points of recurring congestion, such as:
  - I-526 in Charleston between US 17/Savannah Highway and SC 703/Ben Sawyer (20 miles);
  - I-85 in Greenville between US 29/Exit 34) and I-26/Exit 70 (36 miles);
  - I-26 in Columbia between Columbia Avenue/Exit 91 and US 21/US 176/Exit 119 (28 miles);
  - I-20 in Columbia between SC 204/Exit 51 and White Pond Road/Exit 87 (36 miles);

- I-85 in Spartanburg between I-26/Exit 70 and SC 110/Exit 83 (13 miles);
- I-85 north of Spartanburg between SC 110/Exit 83 and US 29/Exit 106 (23 miles);
- I-26 in Charleston between Jedburg Road/Exit 194 and US 17/Exit 221 (27 miles);
- I-77 in Columbia between I-26/Exit 1 and SC 34/Exit 34 (33 miles); and
- I-385 in Greenville between Fairview Street/Exit 24 and the end of the freeway in downtown Greenville (18 miles).

- Increase internal collaboration and coordinate transportation infrastructure investments to better align freight transportation system goals and the performance as a whole by:
  - Further developing and supporting the SCDOT rail division as they work closely with private sector railroads and Palmetto Railways to increase the resiliency, effectiveness, and efficiency of the freight transportation system; and
  - Maintaining the designation of a formal liaison to work closely with the Port of Charleston to increase throughput at the port.

- Assess the economic development criteria in the Act 114 project prioritization process to better identify project improvements on the state's highest economic and freight impact corridors.

- Work with partners to improve the project development and permitting process that streamlines implementation of SCDOT investments associated with state-identified economic development opportunities.

Strategies to Address Community Vitality – Potential community vitality strategies are drawn from the MTP, Rail Plan, and Statewide Public Transportation and Coordination Plan, and include the following:

- Continue to coordinate with appropriate federal and state agencies, and rail providers to advance passenger rail service from Charlotte to Atlanta through the Upstate of South Carolina.
  - Continue participation in the current planning activities for the Passenger Rail Corridor Investment Plan (PRCIP) and Tier I EIS through its completion in the summer of 2015.
  - Coordinate with local agencies to encourage participation in remaining PRCIP public involvement activities.

- Partner with FTA, MPOs, COGs, counties, and transit providers to identify opportunities to implement approved premium transit services in urban areas.

- Coordinate with railroad companies to ensure that right-of-way is preserved for future public use.
  - Work with the counties, MPOs, COGs, and transit providers to preserve abandoned rail right-of-way that has been identified as having future transportation applications.

- Advance multimodal options for residents and visitors in all areas of the state, including public transportation.

- Close the gap between transit funding needs and available funding levels, with strategies such as:
  - Improve efforts to leverage federal dollars;
  - Allow greater flexibility for local jurisdictions to generate funds

- Implement strategies in the updated Regional Human Services Transportation Plan, including:
  - Establish reliable, coordinated information resources (i.e. call center, website, information and resource referral service);
  - Develop coordinated mobility management strategies for each region.
  - Promote the need for and benefits of public transit to residents and public officials to gain support for funding services.
  - Seek additional funding sources from local officials and community organizations to supplement current funding.
  - Identify opportunities for pooling costs for fuel, insurance, and other common expenses.
  - Share staff, facilities, and administrative services including for example vehicle repair, driver training, trip scheduling, and vehicle storage.

12.3 Performance Management

Background – *Moving Ahead for Progress in the 21st Century* (MAP-21) created the first performance-based framework for state DOT's and MPO's. The Map-21 national goal areas include safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduction in project delivery times. The objective of the performance-based program is for states to invest resources in programs, projects, and activities to make progress towards achieving the national goals. The 2040 MTP goal areas were developed around the national goal areas and several performance measures were identified for five of the six goal areas. The performance indicators provide SCDOT the opportunity to measure progress toward the 2040 MTP goals, as well as a way to review and revise the effectiveness of the plan objectives, policies, and actions.

MAP-21 requires the USDOT Secretary, in consultation with states, MPOs, and other stakeholders, to establish performance measures for the areas listed below:

- Fatalities and serious injuries—both number and rate per vehicle mile traveled--on all public roads
- Pavement condition on the Interstate System and on remainder of the National Highway System (NHS)
- Performance of the Interstate System and the remainder of the NHS
- Bridge condition on the NHS
- Traffic congestion
- On-road mobile source emissions
- Freight movement on the Interstate System

In March 2014, USDOT published two Notices of Proposed Rulemaking (NPRMs) as required by MAP-21. The Safety Performance Measures NPRM proposes safety performance measures and State DOT and MPO requirements for establishing and reporting on specific annual targets for fatalities and serious injuries, both of which are measures included in the 2040 MTP. USDOT will issue a second set

of performance-related NPRMs on pavement, bridges, and asset management and a third set of NPRMs on congestion, emissions, system performance, freight, and public transportation. It is anticipated that by spring 2015 the final rulemaking will be completed. SCDOT will have 12 months from the effective date of the final performance management rule to establish state targets. MPOs will be required to establish targets no later than 180 days after the state targets are determined.

Related Goals – Performance measures for the following four 2040 MTP goals were developed during the planning process:

- Mobility and System Reliability
- Safety and Security
- Infrastructure Condition
- Economic and Community Vitality

Strategies to Address Performance Management:

- Coordinate with MPOs in selecting performance measure targets to ensure consistency
- Coordinate with public transportation providers throughout the state in selecting performance measure targets
- Develop performance measure targets 12 months after FHWA finalizes the MAP-21 rulemaking
- Integrate other performance plans into the performance-based process, including the following:
  - MPO Long Range Transportation Plan (LRTPs)
  - SCDOT and MPO Transportation Improvement Programs (STIP and TIPs)
  - Asset Management Plan
  - Strategic Highway Safety Plan
  - Highway Safety Improvement Program
  - CMAQ Performance Plan
  - Freight Plan

12.4 Asset Management

Background – SCDOT is responsible for almost 41,500 centerline miles of roadway in the state, 63 percent of the state's total 65,997 miles of public roadway. South Carolina maintains the 4th largest roadway system in the nation. SCDOT also maintains 8,383 bridges that are over 20-feet in length,[3] as well as shorter bridges and culverts. SCDOT also plays an important role in coordinating and channeling federal transit funding to the state's regional transit agencies responsible for the operation and maintenance of transit vehicles and facilities.

The American Association of State Highway and Transportation Officials (AASHTO) describes "transportation asset management is a strategic and systematic process of operating, maintaining, upgrading and expanding physical assets effectively throughout their lifecycle. It focuses on business

[3] As of January 1, 2013.

and engineering practices for resource allocation and utilization, with the objective of better decision making based upon quality information and well-defined objectives."

Transportation asset management is a business model, a decision support system, and a management approach that can be used across SCDOT to address six core questions:

- What is the current state of infrastructure assets?
- What are the desired levels of service and performance levels?
- Which infrastructure assets are critical to sustained performance?
- What are the best investment allocation strategies for operations, maintenance, replacements, and improvement?
- What are the challenges and risks to implementation?
- What is the best long-term investment strategy?

The goal of a transportation asset management program is to minimize the life-cycle costs for managing and maintaining transportation assets, including roads, bridges, rails, and roadside features. It is important for a transportation asset management program to support a strategic resource allocation process that uses a performance-based approach to maintain and preserve physical assets.

Related Goals – Asset Management is directly tied to one of the six 2040 MTP goals:

> ***Infrastructure Condition Goal:*** *Maintain surface transportation infrastructure assets in a state of good repair.*

Preserving South Carolina's transportation infrastructure is a primary element of SCDOT's mission. This goal promotes public sector fiscal health by minimizing life cycle infrastructure costs, while helping to keep users' direct transportation costs low. Maintaining highway assets in a state of good repair is one of the national MAP-21 goals and requires states and transit agencies to report on asset conditions. SCDOT maintains extensive data and analytical capabilities associated with monitoring and predicting infrastructure condition.

In addition to Infrastructure condition, asset management also supports the state's goals for mobility and reliability, economic and community vitality.

Asset Management Performance Measures – Specific performance measures designed to monitor and track the impact of these strategies include:

- Number of miles of interstate and NHS system rated at "good" or higher condition;
- Percent of deficient bridge deck area; and
- Number and percent of active duty transit vehicles past designated useful life.

Strategies to Address Asset Management

- Develop a risk based asset management plan and program.
- Manage risks in a way that optimizes the success of the organization rather than the success of a single business unit or project.
- Develop and maintain a strong commitment beginning with senior management to develop and maintain a risk management program and culture.
- Promote implementation by open communication and coordinating project development with industry partners.
- Identify the best investment strategies to operate, maintain, replace, and improve critical transportation infrastructure assets.

Integrate Risk into SCDOT Organization

- Support the integration of enterprise risk management into strategic planning, department controls and department performance measures.
- Appoint a chief risk executive and provide resources to implement the enterprise risk management program.

12.5 Freight Improvements

Background – MAP-21 includes a variety of provisions to promote freight movement and performance with the overall goal of improving economic competitiveness in global economy. MAP-21 requires state DOT's to develop freight networks and to identify critical rural freight corridors, and recommends states develop freight plans to improve the movement of freight throughout the state. During the development of the 2040 MTP, the Executive Committee stressed the importance of identifying freight bottlenecks and potential enhancements to improve freight efficiency on the interstate mainline and interchanges, strategic corridor network, and rail lines.

Related Goals – Freight improvements are tied to the following 2040 MTP goals:

- **Mobility and System Reliability** - Provide surface transportation infrastructure and services that will advance the efficient and reliable movement of people and goods throughout the state.
- **Safety and Security** - Improve the safety and security of the transportation system by implementing transportation improvements that reduce fatalities and serious injuries as well as enabling effective emergency management operations.
- **Infrastructure Condition** - Maintain surface transportation infrastructure assets in a state of good repair.

- **Economic and Community Vitality** - Provide an efficient and effective interconnected transportation system that is coordinated with state and local planning efforts to support thriving communities and South Carolina's economic competitiveness in global markets.

Freight Improvement Performance Measures:

- Percent of miles rated "good" condition
- Percent of deficient bridge deck area
- Truck travel time index on the freight corridor network

Strategies to Address Freight Improvements:

- Finalize the Strategic Freight Network and identify projects to reduce freight bottlenecks.
- Continue work with state agency transportation partners like Palmetto Railways and SCPA to identify opportunities to support efficient freight movement by identifying potential efficiencies created by utilizing multiple modes or a complete mode shift.
- Identify opportunities with private sector stakeholders where operational-level decisions could be made to reduce recurring congestion (i.e. shifting delivery times, mode shift, etc.).
- Identify corridors where non-traditional capacity building improvements may significantly reduce congestion, including for example, Intelligent Transportation Systems (ITS), Managed Lanes, and Value Pricing.
- Develop criteria and a process to leverage private and local investment to expedite transportation project delivery to be more responsive to private sector needs.
- Support and participate in industry groups such as the Transportation, Distribution, and Logistics Council (TDL) and other economic development groups.
- Work with the railroads to pursue non-traditional funding sources for freight rail investments.
- Promote and support use of ITS technology to increase efficiency and reliability on the Strategic Freight Network.
- Coordinate with public and private partners to educate the public on the importance of freight to South Carolina.
- Share expertise and create cross-functional relationships with rail, marine, and air partners to help identify non-highway projects and key connectors on the Strategic Freight Network.
- Continue to coordinate with the South Carolina Freight Advisory Committee to advance freight planning efforts in the state.
- Approach freight as a mode in the Act 114 project prioritization process.
- Identify and address, existing and/or new, first and/or last mile gaps near major intermodal centers and manufacturing hubs.

- Promote and support the use of a common information technology solutions and protocols to share real-time information with freight system users.
- Enter into a partnership with the railroads to prioritize grade crossing improvements and explore opportunities to make improvements to leverage the railroad's responsibility to maintain/improve crossings.
- Identify and prioritize substandard roadways on the Strategic Freight Network in the statewide maintenance and construction program with emphasis on intermodal connectors to reduce supply chain costs.
- Identify and prioritize sub-standard bridges on the Strategic Freight Network to meet current and future fleet vehicle dimensional needs.
- Give additional weight to intermodal connection projects in prioritizing freight projects. These projects offer the greatest opportunity to reduce overall supply chain costs and enable the state to focus on improving roads that were not built to handle heavy truck traffic, thereby reducing the life cycle costs of those facilities.

12.6 Multimodal Enhancements

Background – In order to achieve the MTP's vision of *safe, reliable surface transportation and infrastructure that effectively supports a healthy economy for South Carolina* it is critical that all modes of transportation work seamlessly together in an integrated and coordinated manner. This is as true for personal travel as it is for freight transportation.

Related Goals – Multimodal enhancements address a number of the 2040 MTP goals, including:

- **Mobility and System Reliability**: Provide surface transportation infrastructure and services that will advance the efficient and reliable movement of people and goods throughout the state.
- **Economic Competitiveness and Community Vitality**: Provide an efficient and effective interconnected transportation system that is coordinated with state and local planning efforts to support thriving communities and South Carolina's economic competitiveness in global markets.
- **Equity**: Manage a transportation system that recognizes the diversity of the state and strives to accommodate the mobility needs of all of South Carolina's citizens.

Multimodal Enhancement Performance Measures – While quantifiable outcome based performance measures related directly to multimodal enhancements are difficult to construct, surrogate measures may be used, such as:

- Percent of transit needs met
- Number of bike and pedestrian fatalities and injuries
- % of active duty transit vehicles past designated useful life

Strategies to Address Multimodal Enhancements – A key transportation strategy for the SCDOT is to develop multimodal options for residents and visitors in all areas of the state, including public transportation. Many regions in the state have adopted policies that focus on addressing both existing transportation deficiencies, as well as growth in demand through expansion of transportation alternatives. In addition, the SCDOT adopted a Complete Streets policy in support of alternative modes of transportation. Strategies are drawn from the MTP and Statewide Public Transportation and Coordination Plan, and include the following:

- Integrate approved local bicycle routes into system preservation activities.
- Coordinate with MPO and COG staff to update the bicycle and pedestrian existing and planned system GIS files and incorporate into the Integrated Transportation Management System (ITMS).
- Include approved MPO and COG bike and pedestrian improvements in new projects when financially and environmentally feasible
- Integrate safety improvements for all users of roadways in preservation programs by identifying opportunities to better accommodate vulnerable users, such as pedestrians or bicycles.
- Coordinate with regional transit agencies to implement recommended performance measures.
- Increase coordination among public transportation providers.
- Accommodate the growth in numbers of elderly persons and the general population.
- Maximize technology to increase efficiencies for all public transit agencies.
- Coordinate transportation and land use decisions in the project prioritization process.
- Establish reliable, coordinated information resources including for example, the call center, website, information and resource referral services.
- Utilize software applications to assist with trip scheduling and system planning.
- Coordinate with transit agencies to develop GIS files of transit routes and services areas with transit-supportive demographic data.
- Build relationships between human service agency services and Metropolitan Planning Organizations that have expanded their boundaries and now must work together.
- Improve efforts to leverage federal dollars to address multimodal needs.
- Allow greater flexibility for local jurisdictions to generate funds to address multimodal needs.
- Expand transit service across the state, including rural areas with limited service and commuter services to employment centers.
- Develop coordinated mobility management strategies for each region.

- Develop Volunteer Assisted Rides programs to assist persons who don't have access to or ability to pay for existing services.
- Develop transportation voucher programs that can be used across agencies to allow riders more flexibility in finding services.
- Develop employment shuttles from fixed transit route services to outlying employment centers. Accommodate 2nd and 3rd shift workers needs for transit as part of this program.
- Deploy more fuel efficient transit vehicles.

12.7 Partnerships

Background – While SCDOT is responsible for maintaining the majority of the multimodal transportation system, the Department recognizes that other agencies must be involved to develop an integrated transportation system. Thus, the 2040 MTP was developed in partnership with the South Carolina Department of Commerce (DOC), South Carolina Ports Authority (SCPA), Federal Highway Administration (FHWA), as well as the 11 MPOs and 10 COGs.

Related Goals – All six MTP goals require partnerships to achieve.

- **Mobility and System Reliability** - Provide surface transportation infrastructure and services that will advance the efficient and reliable movement of people and goods throughout the state.
  - To advance mobility and system reliability, key partnerships include MPOs, COGs, Class I railroads, regional and short line railroads, South Carolina Public Railways, SCPA, freight shippers, regional transit agencies, human service providers, and the Palmetto Cycling Association.
- **Safety and Security** - Improve the safety and security of the transportation system by implementing transportation improvements that reduce fatalities and serious injuries as well as enabling effective emergency management operations.
  - To improve safety and security of the transportation system, key partnerships include MPOs, COGs, regional transit agencies, Department of Public Safety, Department of Motor Vehicles, and state and local law enforcement and emergency services.
- **Infrastructure Condition** - Maintain surface transportation infrastructure assets in a state of good repair.
  - To maintain transportation infrastructure assets, key partnerships include MPOs, COGs, regional transit agencies, and County Transportation Committees.
- **Economic and Community Vitality** - Provide an efficient and effective interconnected transportation system that is coordinated with state and local planning efforts to support thriving communities and South Carolina's economic competitiveness in global markets.
  - To support economic South Carolina's competiveness in global markets, key partnerships include MPOs, COGs, Class I railroads, regional and short line railroads, South Carolina Public Railways, SCPA, Department of Commerce, regional transit agencies, Aeronautics Commission, and state and local Chambers of Commerce.

- **Environment** – Continue to partner to sustain South Carolina's natural and cultural resources by minimizing and mitigating the impacts of state transportation improvements.
  - To sustain natural and cultural resources, key partnerships include MPOs, COGs, County Transportation Committees, and environmental resource agencies.

- **Equity** - Manage a transportation system that recognizes the diversity of the state and strives to accommodate the mobility needs of all of South Carolina's citizens.
  - To accommodate mobility needs, key partnerships include MPOs, COGs, private intercity bus operators, regional transit agencies, human service providers, and cycling stakeholder.

Strategies to Address Partnerships

- **Continue conducting quarterly meetings with the South Carolina Department of Commerce and South Carolina Port Authority executive leadership**: The 2040 MTP was developed in partnership with DOC and SCPA and implementing this Plan will require additional coordination and collaboration.

- **Coordinate with state and local law enforcement and emergency service provides to implement the Strategic Highway Safety Plan (SHSP)**. Achieving the 15 goals identified in the Strategic Highway Safety Plan that directly impact highway safety through engineering, enforcement, education, emergency medical services, policy, public health, and communications requires coordinated communication and collaboration among numerous state and local agencies.

- **Maintain or improve the current state of good repair on the NHS.** Continue work with state agency transportation partners to identify opportunities to support efficient freight movement by identifying potential efficiencies created by utilizing multiple modes.

- **Provide an efficient and effective interconnected transportation system that is coordinated with the state and local planning efforts to support thriving communities and South Carolina's economic competitiveness in global markets.** Work with economic development partners to identify transportation investments that will improve South Carolina's economic competitiveness. Coordinate with the public and private sector to identify and implement transportation improvements and services that facilitate the efficient movement of people and goods. Partner with communities to improve "last mile" planning efforts in urban communities to minimize the impact of goods movement and improve efficiencies.

- **Improve access and interconnectivity of the state highway system to major intermodal facilities.** Transition private sector partners to play an active role in the SCDOT planning process in the future, including the development of a Freight Advisory Council. Undertake an effort with SCDOT's public and private partners to educate the public on the importance of freight to South Carolina, including elected officials, and the general public. Work with rail, marine, and air partners to share expertise and create cross-functional relationships to help identify non-highway projects and key connectors on the strategic freight network.

- **Partner to sustain South Carolina's natural and cultural resources by minimizing and mitigating the impacts of state transportation improvements.** Work with environmental

resource agency partners to explore the development of programmatic mitigation in South Carolina.

- **Improve premium transit options.** Partner with Federal Transit Administration, MPOs, COGs, counties, and providers to identify funding sources for future design and implementation activities that would be required to implement feasible premium transit services in urban areas.
- **Improve safety at railroad grade crossings.** Partner with the railroads to prioritize grade crossing improvements and explore opportunities to make small public improvements to leverage the railroad's responsibility to maintain and improve crossings.
- **Identify a Strategic Statewide Freight Network that supports all modes and users.** Formally incorporate outreach to various freight partners to capture rural accessibility and the unique mobility needs of specific groups.