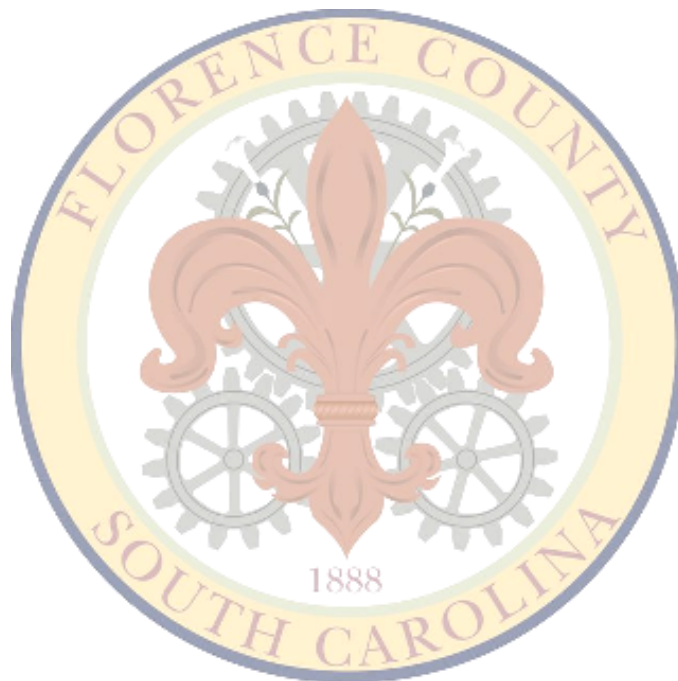


TRANSPORTATION ELEMENT



FLORENCE COUNTY COMPREHENSIVE PLAN

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Executive Summary

The Transportation Element highlights an across-the-board review of transportation plans and funding for Florence County jurisdictions. South Carolina's 2007 Priority Investment Act inaugurated the inclusion of the Transportation Element into the Florence County Comprehensive Plan. This element in conjunction with the other elements of the County Comprehensive Plan will provide a valuable tool to guide future policies and decision-making for transportation in Florence County.

Florence County has a robust multi-modal transportation network. Two interstate highways, nine primary US and state routes compliment a Class I rail line that connects to the Wilmington and Charleston ports as well as a regional commercial airport with service to Atlanta and Charlotte. Recreation and alternative transportation are served through a well-developed trails system such as the Rail Trail, Lynches River Scenic Trail and the Timmonsville Greenway.

Unlike many communities, Florence County has taken the initiative to create local funding options to upgrade its transportation system when state and federal funds have dwindled. Florence County continues to capitalize on opportunities to leverage local dollars to obtain available state and federal funds. Local planning initiatives, such as the recently drafted FLATS LRTP, take advantage of available federal funds which filter through SCDOT and ultimately to COGs, metropolitan planning organizations, transit authorities, or local governments.

Multi-modal concepts in this document attempt to coordinate a broad spectrum of transportation including freight, transit, bicycle and pedestrians. Scenario planning in this long range transportation plan illustrates sound transportation decisions that maximize the efficient use of resources. A transit station is recommended within the Florence urban area that will connect population centers and destinations to a variety of transportation hubs accommodating automobile, bus, train and air travel.

Although there are many new transportation projects proposed, the Transportation Element will focus primarily on future investments and improving existing infrastructure in order to get the most out of available funding. High priority is given to access management projects such as limiting the number and extent of driveways and utilizing medians. Safety is considered when prioritizing intersection improvements such as at McAllister Mill Road and Salem Road. Roadway capacity improvements on I-95 and arterial roads throughout the county are highlighted and proposed to include amenities for all forms of transportation.

The Transportation Element is a framework for strategic growth of the transportation network pulling together all elements of the Comprehensive Plan. Transportation and associated operations play important roles in economic development, environmental and land use decisions. The goal and objectives of this document are intended to maintain transportation as an asset increasing in availability and effectiveness for the citizens of Florence County.

Introduction

The Transportation Element is a recently legislated addition to the Florence County Comprehensive Plan that establishes existing conditions and potential improvements for the movement of people, goods, and vehicles throughout the county. Considerations for this element include a well-maintained street network, availability of public utilities and infrastructure, protection of environmental resources and planned and anticipated land uses. Increasing the efficiency of the Florence County transportation system is a main goal for this element.

Transportation encompasses a diverse system of travel modes, including air, rail, road, water and pipeline. Transportation is a broad field that impacts every facet of life. When evaluating transportation systems or needs, the system has three facets, divided into infrastructure, vehicles and operations.

Infrastructure for the various transportation modes may consist of the fixed installations necessary for travel like roads, railways, waterways, canals and pipelines. Terminals that facilitate transportation such as airports, railway stations, bus stations, warehouses, refueling depots and seaports are also considered part of the transportation infrastructure. Transportation is essential for mobility and commerce. It is important that the infrastructure adequately accommodates the existing range and volume of use, while making provisions for future demand.

Vehicles traveling on these networks may include automobiles, bicycles, buses, trains, trucks, people, aircraft and watercraft. Volumes of liquids and gases or units of electricity can be considered more abstract versions of vehicles when they travel through pipelines and distribution lines.

Operations focus on the way vehicles function within the transportation network, primary examples of this are traffic flow, signalization, queuing theory and traffic congestion. Factors that determine how this system operates depend on financing, legalities and policies. In the transportation industry, operations and ownership of infrastructure can be either public or private. Compared with other states, the South Carolina Department of Transportation maintains a higher percentage of primary and secondary roads, with local governments responsible for less than 40 percent of these facilities. Rail lines, electrical lines and pipelines are primarily owned and maintained privately.

Transportation and associated operations play important roles in economic development, environmental and land use decisions. Transportation can be an asset or a challenge to economic growth depending on its availability and effectiveness. The effect of transportation on natural resources is essential to consider when planning the system. Responsible transportation planning accommodates the needs of network users while protecting natural and cultural features.

Land use and transportation planning are inextricably linked, as supply and demand elements of the same system. When transportation decisions are coordinated with land use, they can accommodate pedestrian use, bike safety, public transit service and connectivity of road networks. A multi-modal approach to transportation can support a variety of land use options.

This element provides a benchmark to evaluate proposed levels of transportation standards and to pinpoint locations in need of improvement. The provision of routine maintenance and rehabilitation of infrastructure is necessary to reduce the need for a more expensive replacement, which causes economic disruption, inconvenience and dangers to public health and safety. In addition, this element addresses highway safety including improving locations with frequent and severe collisions and maintaining essential evacuation routes.

This element is coordinated with two significant long range planning documents: the Land Use Element of the Florence County Comprehensive Plan and the 2035 Long Range Transportation Plan of the Florence Area Transportation Study. All three documents capture the public vision of future transportation while ensuring transportation efficiency for existing neighborhoods and commercial areas, as well as future development. In addition to this introduction, the Transportation Element includes the following sections:

- Roadways
- Transit
- Freight
- Airports
- Bicycles, Pedestrians, and Greenways
- Multimodal Linkages
- Other Transportation Infrastructure
- Transportation Security
- Transportation Funding Sources
- Goals and Implementation Strategies

For a list of all abbreviations used in this document, please refer to Appendix A.

Purpose of Plan

The Florence County Comprehensive Plan is composed of several different elements with the goal of capturing the existing conditions of infrastructure, population and economics in the county while outlining a vision for growth and improvement in the future. In an attempt to improve this process, the Transportation Element was added. This element draws upon the information developed in the other sections of this plan as well as other planning work that has been performed by jurisdictions in the region. The Transportation Element also provides a unique

opportunity to consider the needs and priorities of the municipalities and how they relate to priorities in the unincorporated areas of the county.

The Transportation Element serves as a tool to direct improvements to develop a multi-modal (including pedestrian, bicycle, transit, freight, etc.) transportation environment. This element assesses transportation issues such as congestion, safety, maintenance, security and usability and studies regional and specific improvements for each one.

Public Outreach

The Florence County Comprehensive Plan development process has included numerous opportunities for public involvement and feedback. Public outreach sessions have been conducted throughout the county to encourage participation from all citizens. The Florence County Planning Commission conducted a series of workshops. The purpose of the initial Planning Commission workshop in December 2009 was to discuss the basic outline and approach for the Transportation Element. This meeting allowed the Planning Commission to evaluate the proposed methodology and vet the process for moving forward. A second Planning Commission workshop on May 21, 2010 allowed final review of the document.

Public outreach sessions for the Transportation Element were conducted in April and May 2010. Workshops for this process were held in Lake City (April 29, 2010 at the Lake City Senior Center), the City of Johnsonville (May 4, 2010 at the Johnsonville City Council Meeting), and the City of Florence (May 6, 2010 at the Drs. Bruce and Lee Foundation Library Meeting Room). A series of maps and graphics displayed the existing condition and performance of the transportation network. Additionally, a set of regional and spot improvement recommendations were introduced and discussed with the public. Members of the public were encouraged to comment on these recommendations and provided significant feedback about the plan.

The maps displayed at the public meetings were also displayed at all six Florence County library locations and in the lobby of the Florence County Planning building allowing the public to comment at their convenience. These comments have been incorporated into the Transportation Element.

Transportation and Land Use Connection

Coordination of land use and transportation planning efforts is essential. Transportation plays an important role in local and regional economic growth. Good planning of transport is essential to allow adequate traffic flow while protecting the county's natural resources (rivers, streams, wetlands, natural habitats, etc).

Transportation and Housing

Transportation costs affect the location of new housing developments and can impact current homeowners' abilities to maintain a cost of living. A national trend of home ownership has been strained by a recent economic downturn often made worse by rising transportation costs.

This correlation should be closely monitored in Florence County when making transportation policy decisions.

For example, the average working American family spends nearly 60 percent of its budget on housing and transportation costs, making these two areas the largest expenses for families. In March of 2009, the U.S. Department of Housing and Urban Development (HUD) and U.S. Department of Transportation (USDOT) realized this as a developing issue and formed a new partnership to help families gain better access to affordable housing, more transportation options and lower transportation costs. The purpose of this partnership is to seek new ways to cut these costs by focusing efforts on creating affordable, sustainable communities.

Locally, transportation expenses can be reduced when the infrastructure accommodates multiple modes of transportation including bicycling, walking and public transit. The cost of transportation, while often not factored into the housing affordability equation, has become increasingly central to family budgets and is considered by local housing authorities for new projects. The Urban Markets Initiative (UMI) was launched in 2003 as a special project of the Brookings Metropolitan Policy Program. UMI developed a tool, the Housing + Transportation Affordability Index, to quantify the impact of transportation costs on the affordability of housing choices. This tool takes into account the cost of housing and its location efficiency by measuring the associated transportation costs.

Environmental and Cultural Features

The Cultural Resources Element and the Natural Resources Element of the Florence County Comprehensive Plan identify the natural and manmade features in Florence County that should be considered when planning for transportation needs. Additionally, the 2035 Florence Area Transportation Study (FLATS) Long Range Transportation Plan (LRTP) studies the interaction between existing and proposed transportation facilities and the social and environmental features of the metropolitan area. The 2035 FLATS LRTP is discussed in more detail in a subsequent section of this document.

While this element of the Florence County Comprehensive Plan will focus primarily on transportation, the overall intent is to develop a document that looks at services and facilities holistically. Therefore, the recommendations included here build on the previous elements. Special focus is given to key characteristics of the county, such as wetland features, attractions and historic landmarks.

Future Growth Areas

Florence County includes two urban areas that are experiencing significant growth (cities of Florence and Lake City) and other municipalities with relatively stable populations (Timmonsville, Quinby, Olanta, Coward, Scranton, Pamplico, and Johnsonville). This element will focus on areas that need expanded facilities to accommodate future growth and recommend enhancements to the existing network that address safety or performance issues.

The Land Use Element of the Florence County Comprehensive Plan examines the growth that is forecasted for certain uses in the county. Commercial growth is anticipated to continue along major highway corridors in the urbanized area around the City of Florence. The Land Use element also anticipates significant commercial growth near Lake City, along the US 52 corridor, and at the junction of Pamplico Highway (SC 51) and US 378.

Industrial growth forecasted for the county is distributed differently. This growth is primarily expected along I-20 and I-95 corridors, with other significant areas of industrial growth near Lake City and Johnsonville. The Transportation Element considers these forecasted growth areas through the formulation of its future recommendations.

Previous and Ongoing Studies

The Transportation Element of the Florence County Comprehensive Plan considers previous planning efforts. Two recent and relevant plans include the City of Florence Comprehensive Plan and the 2035 FLATS LRTP.

City of Florence Comprehensive Plan

The City of Florence currently is updating their comprehensive plan. In the city's plan, special emphasis is placed on responsible growth patterns, encouraging smart development, removing blight, enhancing public facilities and creating a community appearance that improves municipal identity.

2035 Florence Area Transportation Study Long Range Transportation Plan

The 2035 FLATS LRTP examines existing and future transportation needs in the FLATS region and develops long term planning strategies. Federal law requires FLATS to update a fiscally constrained LRTP every five years. Funded projects must be included in the FLATS Transportation Improvement Program (TIP) and the State Transportation Improvement Program (STIP).

FLATS facilitates input from local officials and citizens to direct the expenditure of federal transportation monies. The Safe, Accountable, Flexible, Efficient, Transportation Act: A Legacy for Users (SAFETEA-LU), the federally legislated transportation funding bill, finances transportation related projects considered and approved by the FLATS Policy Committee.

The 2035 FLATS LRTP utilizes scenario planning and emphasizes lower cost roadway improvements. Scenario planning is an analytical tool that helps forecast the effects of planning policies. Cost effective roadway recommendations in the LRTP include planted medians, driveway consolidation, collector street connections, bicycle and pedestrian amenities, intersection improvements and signal timing coordination. Ultimately, the 2035 FLATS LRTP presents a set of financially constrained recommendations along with a set of workable implementation strategies.

Roadways

Public roadways represent the most utilized public resource in the county. Residents use roadways to travel between their homes, place of employment, shopping, essential services and recreation areas. Roadways link people to their destination and directly impact citizens' quality of life.

Existing Conditions

The City of Florence originally was founded as a crossroads community for the burgeoning railroad system. The city continues to fill the role of a crossroads community today, with I-95 and I-20 converging nearby. Florence's historic downtown is laid out on a grid of interconnected streets originally focused on the now abandoned railroad corridor running through the center of the city.

The spine of the city extends south through the county, connecting Lake City and Florence. As is common with other areas in the state and nation, the urban fringe continues to develop in a typical less dense suburban and rural pattern as one travels away from the city's historic core.

The Florence area benefits from having multiple options for regional mobility. I-95 and I-20 anchors this mobility, which connect Florence with many major eastern cities. In addition, routes such as US 52, US 76, US 378, and US 301 serve as critical inter- and intra-regional transportation corridors.

Functional Classification

In accordance with the Federal Highway Administration (FHWA), functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide



(http://www.fhwa.dot.gov/planning/fcsec2_1.htm). The classification of streets into several “functional” categories aids in communication among policy makers, planners, engineers, and citizens for expanding the transportation system. The functional classification system groups streets according to the land use served (or to be served) and provides a general designation of the type of traffic each street is intended to accommodate. The street functional classification system primarily defines the street in terms of roadway design and character, as well as operational features for the movement of vehicles.

The SCDOT defines the functional classifications that make up the Florence County roadway network. A general description is shown in Appendix B. The interstates, collector and arterial roadways are shown in Figure 8-1. The terrain of the county is relatively flat, which allows for easier connections via the arterial street network. Every municipality in the county (with the exception of Quinby) is served directly by one or more arterial streets. However, numerous wetland areas and other environmental factors present in the county impose natural barriers at certain points in the road network.

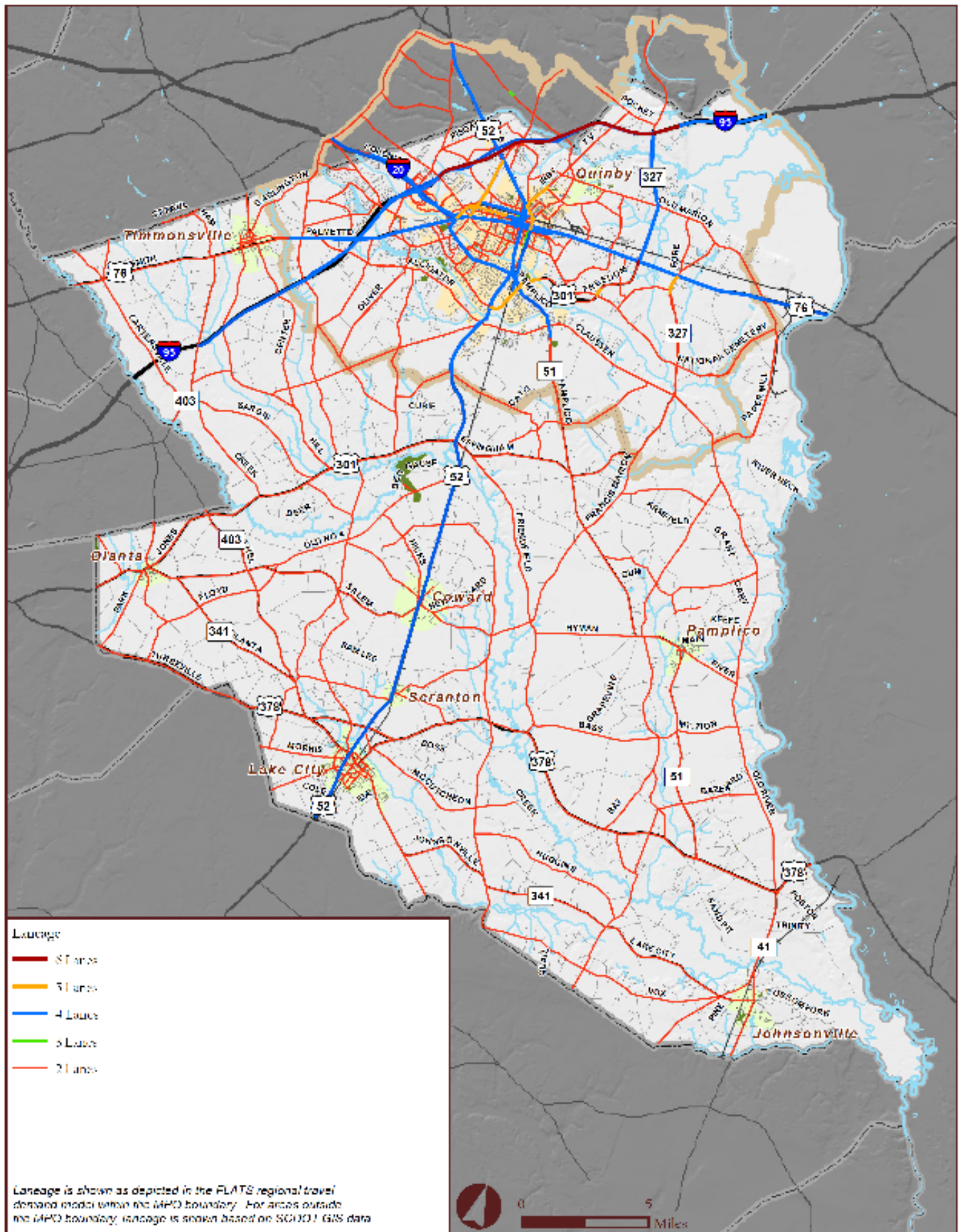
There are a variety of street types in the county from unpaved roads to 6-lane interstates. The FLATS area contains the majority of multilane facilities in Florence County. Throughout Florence County, US 52 provides a multilane spine road that serves multiple municipalities. US 76 is multilane through most of Florence County until it narrows near the Timmonsville area. Also, portions of US 378 operate as a multilane freeway. The laneages on the major roads in the network are shown in Figure 8-2. In Figure 8-1 and Figure 8-2, data shown within the FLATS boundary was obtained from the regional travel demand model. Outside this boundary, data was provided by SCDOT. To improve the accuracy and effectiveness of the data, the county should work with the state to check and validate the laneage and functional class of area roadway.



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Figure 8-1. Functional Classification

Figure 8-2. Laneage



Daily Traffic Volumes and Levels of Service

The SCDOT annually reports traffic counts for state roads and for road segments presumed to carry significant volumes. These are annual average daily traffic (AADT) counts and show the demands placed on the system. Figure 8-3 provides 2007 AADT values on these major roads. Overall, traffic volumes on facilities classified as collector streets are lower than those on minor arterials, and traffic volumes on minor arterials are lower than those on principal arterials. This tendency reflects the purpose and function of each roadway class design and location. Traffic volumes alone should not be used to determine congested corridors because this measurement does not consider functional classification and roadway capacity.

A more descriptive roadway capacity measurement is volume-to-capacity (V/C) ratios. These ratios are calculated by dividing the traffic volume of a roadway segment by the designed capacity of the roadway. The resulting universal measurement standardizes traffic analysis and provides a benchmark for levels of congestion. V/C ratios are often discussed in terms of levels of service (LOS). The LOS system uses the letters A through F to describe specific ranges of V/C ratios, with A being best and F being worst. These LOS and V/C ratios can be grouped into the categories as shown in Appendix C. Existing (2007) V/C ratios for Florence County are shown in Figure 8-3.

Roadway capacities are compared to existing and future traffic volumes through the travel demand model. As shown in Figure 8-4, future year volume projections were determined based on historical growth rates and then compared to current roadway capacities provided by SCDOT. When looking at the county roadway network as a whole, it appears traffic volumes increased approximately 1% between 2000 and 2007. This approximation shows the contrast between the fast-growing traffic areas in the county such as Ebenezer Road/Hoffmeyer Road and less utilized rural routes.

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Figure 8-3. 2007 Average Annual Daily Traffic Volumes & Congested Corridors

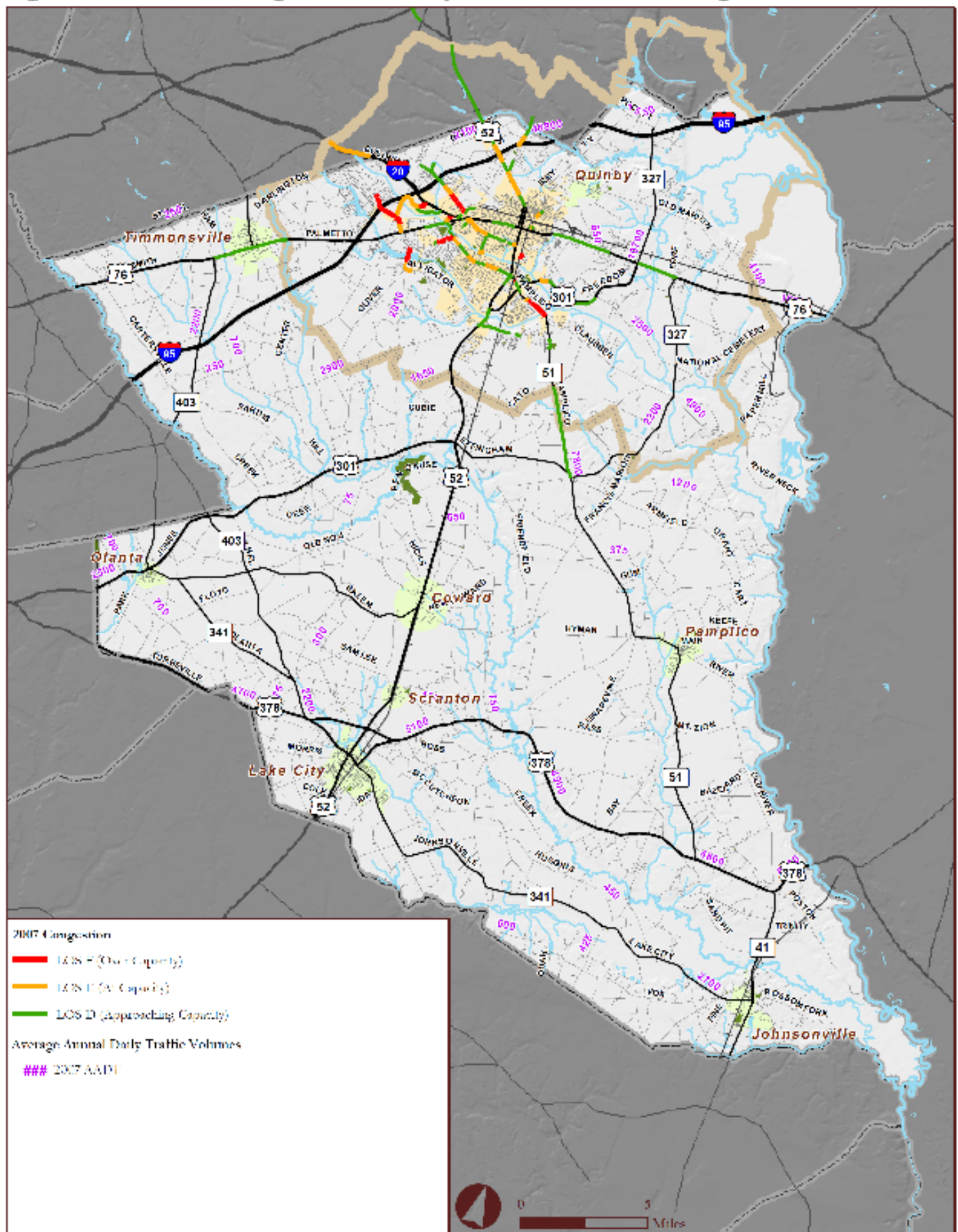
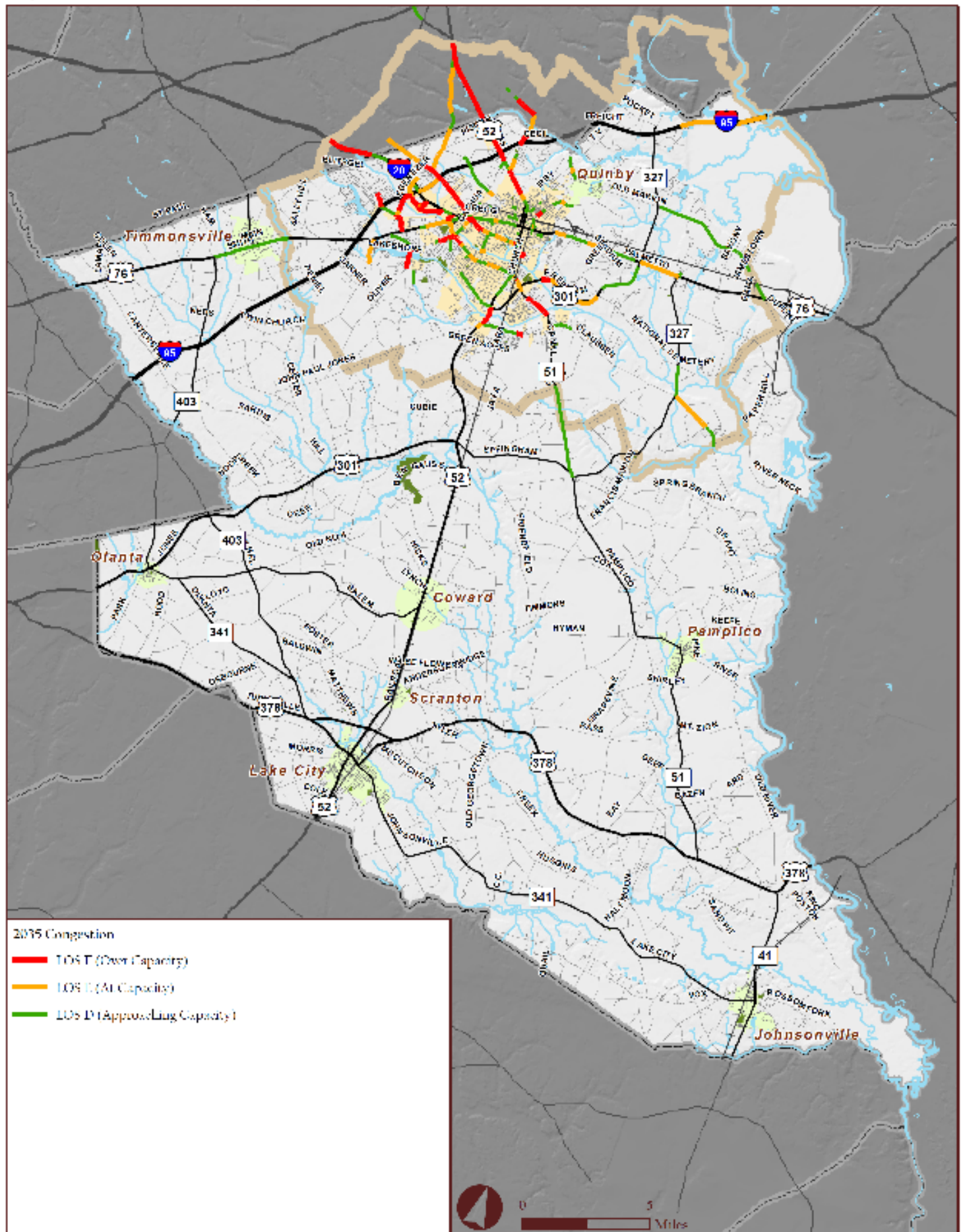


Figure 8-4. 2035 Congested Corridors



Traffic Safety

Crash histories combined with an examination of existing traffic patterns are integral to determining locations for safety improvement countermeasures. Traditionally, crash analysis includes the study of crash frequency and crash type at each location. Crash analysis for the Florence County Comprehensive Plan mirrors that of the 2035 FLATS LRTP and will focus on severity in respect to traffic volume while identifying the intersections where mitigation is most critical. This analytical process led to preliminary countermeasures for four priority



crash locations. The priority crash locations described in more detail in the roadway recommendation section are the highest ranking crash locations for intersections outside the FLATS boundary. As mentioned in the 2035 FLATS LRTP, effective implementation of safety countermeasures likely will require a dedicated annual funding source to make safety improvements or to serve as a local match for federal or state safety funds.

Data for crash analysis was obtained from the SCDOT State Traffic Safety Engineering Office. A summary of this data is shown in Table 8-1. The data represents the highest ranked intersections based on crash data collected between January 1, 2005 and December 31, 2009. The crash analysis focused on intersections throughout Florence County, including the FLATS area. Data considered for each location included total crashes, fatalities, crash types, AADT and average crash rates for the area. Intersection rankings are based on a combination of crash rate and severity and may result in some locations with equal ranking as seen in Table 8-1. First, intersections were identified as having abnormally high crash rates for their respective traffic volumes based on the Rate Quality Control Method. Second, crashes were ranked by Equivalent Property Damage Only Rate (a measure of severity with respect to traffic volumes). The proposed recommendations include countermeasures for the top four priority crash locations (as determined by the combined rankings and highlighted in the table) outside of the FLATS area. Countermeasures for locations in the FLATS area can be found in the 2035 FLATS LRTP.

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Table 8-1. Crash Locations Ranked by Crash Severity and Rate Quality Control Methods

Total Rank	Street 1	Street 2	Total Crashes	Fatal	Injury	PDO	AADT
1	McAllister Mill Rd.	Salem Rd.	10	0	9	7	1,075
2	Lucas St. Frontage	I-95 NB Ramp Connector	19	0	9	14	5,300
3	Palmetto St.	Williamson Rd.	68	0	41	46	25,350
4	David H McLeod Blvd.	Woody Jones Blvd.	51	0	36	38	20,600
5	Knollwood Rd.	Alligator Rd.	28	0	15	20	9,900
6	Lucas St. Frontage	I-95 SB Ramp Connector	27	0	4	24	5,300
7	McIver Rd.	Ashby Rd.	24	0	21	14	11,300
8	Jones Rd.	Bethel Rd.	12	0	8	6	4,500
9	Knollwood Rd.	Lakeshore Dr.	18	0	19	8	8,800
10	Irby St.	Freedom Blvd.	65	0	30	51	28,650
11	Cashua Dr.	Third Loop Rd.	27	0	13	18	13,900
12	Palmetto St.	Holly Cir.	41	0	24	28	23,500
13	Cherokee Rd.	Irby St.	54	0	41	33	34,950
14	Ebenezer Rd.	Industry Blvd.	30	0	9	24	13,200
15	Palmetto St.	Ebenezer Rd.	34	0	30	18	23,750
16	E Howe Springs Rd.	Bannockburn Rd.	22	0	5	18	8,600
17	Old Marion Hwy.	Williston Rd.	27	0	15	18	15,550
18	Palmetto St.	Francis Marion Rd.	18	2	6	14	12,900
19	National Cemetery Rd.	Jeffords St.	27	0	5	23	9,825
20	Palmetto St.	Twin Church Rd.	27	0	13	19	15,850
21	Pamplico Hwy.	Claussen Rd.	35	0	12	29	19,500
22	Olanta Hwy.	Camp Branch Rd.	10	0	3	8	4,200
23	Palmetto St.	Williston Rd.	48	0	19	36	29,850
24	Douglas St.	Mechanicsville Rd.	19	0	11	12	11,900
25	Cashua Dr.	Second Loop Rd.	42	0	35	27	36,250
26	Lucas St.	NB I-95 Ramps	36	0	20	27	26,200
27	Kingsburg Hwy.	Myrtle Beach Hwy.	18	0	4	15	8,250
28	David H McLeod Blvd.	Radio Dr.	28	0	14	23	20,350
29	John Paul Jones Rd.	Stagecoach Rd.	6	3	4	2	4,900
30	Palmetto St.	Church St.	42	0	29	27	38,500

Crash Frequency Rank is based on the Rate Quality Control Method, which employs a statistical test to determine if the accident rate at a location is significantly higher than accident rates at other locations with similar characteristics. Crash Severity Rank is based on the EPDO Rate, a measure of severity using equivalent property damage only (EPDO) and average annual daily traffic at each intersection. More information on both methods can be found in the FLATS LRTP. PDO is 'property damage only.' Note that some rankings may be equal.

Projects with Committed Funding

At this time, transportation projects in Florence County are being funded through a combination of local, state, and federal sources. One-time funding sources such as the American Recovery and Reinvestment Act (ARRA) are currently being utilized for repaving, rehabilitation, and transit projects. This section details some of the roadway capacity projects with committed funding in the county. Additional information on funding types can be found later in this document as well as in the 2035 FLATS LRTP.

Florence County Capital Projects Sales Tax

In November 2006, Florence County voters pledged an additional one-cent sales tax, known as the Capital Projects Sales Tax, for Florence County roadway improvements. Voters prioritized six projects through the bond referendum:

- Pine Needles Road widening from Southborough Road to South Ebenezer Road
- US 378 widening from US 52 near Lake City to SC 41 in Kingsburg
- US 76 widening from I-95 to Main Street in Timmonsville
- TV Road widening to four lanes from Wilson Road to I-95
- Pamplico Highway (SC 51) widening from Claussen Road to US 378 in Kingsburg
- US 301 Bypass completion from US 76 near Timmonsville to the intersection of US 52/US 301 and Howe Springs Road

Upon approval, the anticipated tax revenue was \$148 million which would be used to leverage a \$250 million State Infrastructure Bank (SIB) grant. This funding source expires after seven years or when the County meets the tax revenue funding limit, whichever is earliest. Tax revenues are currently anticipated to fully fund the first four roadway improvement projects and a portion of the fifth.

State Transportation Improvement Program

At this time, the STIP includes only one capital roadway project in Florence County. Kingsburg Highway, SC 41, is slated to be widened to four lanes between US 378 at Kingsburg and SR 99 in Johnsonville. Construction of this project is anticipated to be completed by the end of FY 2011. The January 2010 version of the STIP allocates \$6.5 million for construction of this project.

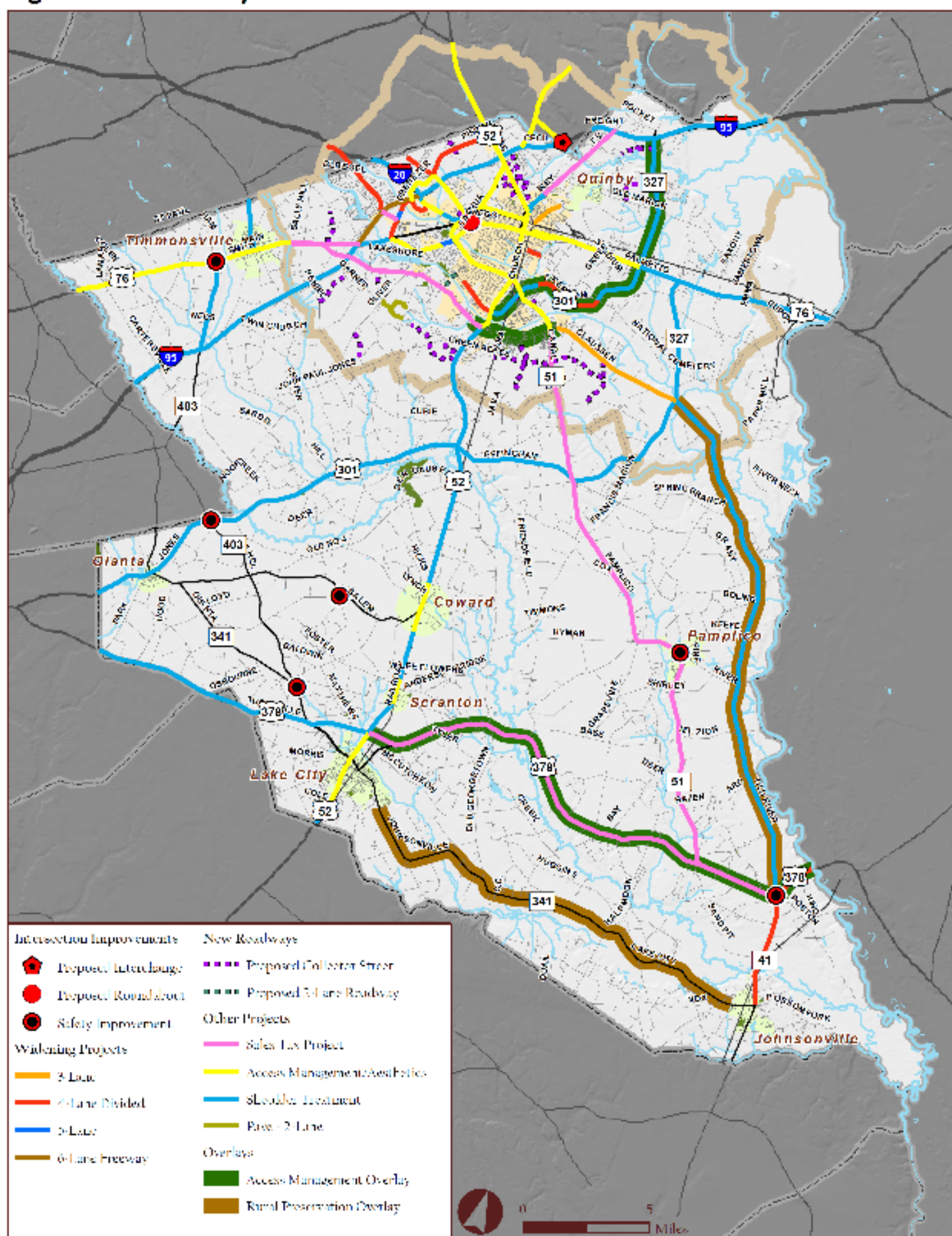
Proposed Recommendations

The following roadway recommendations focus on improvements to key corridors throughout the county to enhance roadway safety, mitigate congestion, improve the truck freight network and develop a network of multi-modal streets. Barriers to building new roads include natural barriers, existing buildings, as well as social and financial barriers that make new construction costly. Therefore, it benefits the county to first maximize existing infrastructure.

Recommendations are shown in Figure 8-5 and described in more detail on the following pages.

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Figure 8-5. Roadway Recommendations



Intersection Safety Improvements

Reasons for high crash frequency or severity at an intersection often include some combination of intersection design, accessibility, and traffic congestion. Locations in Florence County with high crash frequency and/or severity also are locations where congestion often exists. As a result, many of the highest priority intersections are located within the more urban areas of the county. This fact justifies the ongoing efforts to provide adequate funding for transportation projects that minimize traffic congestion. While a direct relationship typically exists between traffic congestion and crash frequency, in rural areas of the county high priority crash locations likely result from poor design and/or driver error. The following section includes a more detailed analysis of the top four priority locations outside the FLATS area concerning crashes as well as recommendations for potential countermeasures. Additional safety analysis and mitigation measures for intersections within the FLATS area are discussed in the 2035 FLATS LRTP.

McAllister Mill Road at Salem Road

The intersection of McAllister Mill Road at Salem Road (SC 541), located west of Coward, includes a skewed geometry and nearby neighboring intersections. McAllister Mill Road is a controlled stop, while Salem Road is a free movement. There are sight distance and turning radius limitations on some of the movements. The most unique feature to this intersection is a separated, partially paved, two-way turn lane in the southeast quadrant of the intersection.



This short connection has stop signs in both directions, ostensibly permitting use by motorists turning left from Salem Road to go south on McAllister Mill Road and by motorists turning right from McAllister Mill Road to go east on Salem Road. This intersection is rated as the worst crash location in Florence County partially due to the high percentage of injuries and property damage in crashes.

Several safety measures are proposed to improve this intersection. First, the small two-way separated turning lane is proposed to be eliminated. In its place, it's recommended that additional pavement be laid in the southeast quadrant of the intersection to increase the turning radius from McAllister Mill Road onto Salem Road. The stop sign on each approach of McAllister Mill Road should be fitted with a 2-Way notification posted to alert drivers that traffic on Salem Road does not stop. For additional mitigation, blinking "stop ahead" signs should be installed on each approach to further alert motorists on McAllister Mill Road of the upcoming stop.



Jones Road at Bethel Road

The intersection of Jones Road (US 301) at Bethel Road (SC 403), known locally as Kelly's Crossroads, is rural in nature, located east of the Town of Olanta. This intersection has stop control on Bethel Road, and free movement along Jones Road. The roads converge at a slight skew, and Bethel Road is slightly misaligned at the intersection. The land uses on the northwest and northeast quadrants of the intersection have multiple driveway openings, with some directly abutting the intersection and others spanning all the way through the intersection.



In order to improve the overall safety of this intersection, several recommendations are proposed. First, driveway openings for the property in the northwest and northeast quadrants should be more clearly delineated and limited so that they do not open directly onto the intersection. "Stop sign ahead" signage is recommended to be installed on Bethel Road to notify drivers of the upcoming stop. A 2-Way stop notification posted will alert drivers that Jones Road traffic does not stop. Positioning of the stop bar could be adjusted to give drivers an improved sight line.



Olanta Highway at Camp Branch Road

The intersection of Olanta Highway (SC 341) at Camp Branch Road, located northwest of Lake City, serves as one point of a triangle of intersections joining Olanta Highway, Bethel Road and Camp Branch Road. At this point, Bethel Road merges into Olanta Highway. At about 300 feet prior to the merge, Camp Branch Road intersects with both of these roadways.



Several mitigation measures may improve this intersection. Heading south on Camp Branch Road towards Bethel Road and Olanta Highway, it is difficult to perceive that there are two stop controlled intersections, not just one. Advance warning signs indicating the presence of two upcoming stop-controlled intersections may mitigate confusion. A "stop ahead" sign exists on Bethel Road prior to its intersection with Camp Branch Road. However, traffic on Bethel Road does not stop until



the intersection with Olanta Highway. It is recommended this sign be moved to the east side of Camp Branch Road and Bethel Road intersection for greater clarity. Further measures to improve the intersection may include disconnecting the roadway section of Bethel Road between Camp Branch Road and Olanta Highway. Traffic from the abutting residential and commercial driveways may be rerouted onto Olanta Highway. Turning radii may also need to be improved to accommodate freight traffic.

Kingsburg Highway at Myrtle Beach Highway

Kingsburg Highway at Myrtle Beach Highway (US 378) is located at the unincorporated community of Kingsburg, north of Johnsonville. The route heading north on Kingsburg Highway and then turning west on Myrtle Beach Highway is designated as a hurricane evacuation route. This intersection has significant truck use. Three of the four intersection approaches do not currently include turn arrows. Only the westbound approach from Myrtle Beach Highway to the signal includes a dedicated left turn arrow.



To improve the safety of this intersection, additional pavement is recommended in the southeast quadrant of the intersection. This additional pavement will better accommodate the turning movement of a large portion of the truck traffic, and will help prevent the rutting that currently occurs. Additionally, turn arrows should be considered at all approaches. Finally, as development comes into the quadrants of this intersection, driveway locations should be located at a sufficient distance from the intersection to minimize conflicting turning movements.



Access Management Improvements

Access management strives to maximize the flow of traffic while providing access to adjacent developments. The FHWA Access Management Manual states that access management results from a cooperative effort between state and local agencies and private land owners to systematically control the “location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway.” (Transportation Research Board 2003) Access management requires cooperation between government agencies and private land owners.

The ability of motorists to travel through a given roadway segment is essential for both transportation system efficiency and economic development. Access management balances the needs of motorists to drive through an area with the needs of property owners to access adjacent property. This consideration is greatest along developed (or developing) corridors

such as US 52 and US 76. Access management improvements increase the efficiency and the capacity of existing infrastructure and are often the most effective option when maximizing limited funds.

Several corridors in Florence County (both within and outside the FLATS area) have been identified for access management improvements. The 2035 FLATS LRTP includes a detailed description of access management strategies for the following corridors:

- **Palmetto Street (US 76/US 301)** – Ballard Street to Williston Road/McCurdy Road
- **Pamplico Highway (SC 51)** – Irby Street to Howe Springs Road/Claussen Road
- **Lucas Street (US 52)** – I-95 to Irby Street

Additionally the following corridors will benefit from improved access management:

- **US 76 west of Timmons ville** – Shoulder improvements, turn pockets
- **US 76 in Timmons ville** – Turn pockets, bicycle and pedestrian amenities, improved crossings at intersections
- **US 52 in Coward** – Improved crossings of US 52, potential plantable median (i.e. refuge islands and gateway features)
- **US 52 in Scranton** – Improved crossings of US 52, potential plantable median (i.e. refuge islands and gateway features)
- **US 52 in Lake City** – Improved crossings of US 52, potential plantable median (i.e. refuge islands and gateway features), signal timing, driveway reductions/site interconnectivity

Roadway Capacity Improvements

Existing corridors that require more work than access management improvements alone to solve congestion and safety issues may require widening. The corridors identified for widening within the 2035 FLATS LRTP are listed below according to their ultimate cross section:

6-Lane Divided Freeway

- **I-95** — David H McLeod Blvd to W Palmetto St (US 76)

4-Lane Divided

- **Pine Needles Rd** — Southborough Rd to Ebenezer Rd
- **Ebenezer Rd** — Pine Needles Rd to W Palmetto St (US 76)
- **Ebenezer Rd/Radio Dr** — David H McLeod Blvd (US 20) to near Industry Blvd
- **Ebenezer Rd/Pisgah Rd** — Presbyterian Rd (US 52) to Hoffmeyer Rd
- **Hoffmeyer Rd** — Tivoli Dr to Timmons ville Hwy (SC 340)

- **Alligator Rd** — Palmetto St (US 76) to S Irby St (US 52)
- **Freedom Blvd (US 301)** — Freedom Florence Recreational Facility to National Cemetery Rd
- **W Palmetto St** — E Main St (in Timmonsville) to I-95
- **Southborough Rd** — N Sally Hill Rd to Pine Needles Rd
- **National Cemetery Rd** — S Church St to Stockade Dr
- **Pamplico Hwy (SC 51)** — E Howe Springs Rd to Kates Garden Ln
- **Irby St (US 52)/TV Rd** — I-95 to Wilson Rd
- **Southern Connector** – I-95 at around mile marker 155 to South Irby St

5-Lane

- **Ebenezer Rd** — Industry Blvd to Pine Needles Rd
- **W Darlington St** — N Cashua Dr to Irby St (US 52)
- **Cashua Dr** — Second Loop Rd (SC 51) to Parker Dr

3-Lane

- **Ebenezer Rd** — Pisgah Rd to US 52

The widening of this segment of Ebenezer Road to three lanes should accommodate future residential growth along the corridor. However, turn pockets and a 2-lane divided cross section may be preferred in strategic locations. This recommendation assumes no improvements are necessary to the bridge over Palmetto Shores Lake.

- **Oakland Ave** — E Lucas St to Wilson Rd
- **Third Loop Rd** — Marsh Ave to S Irby St (US 52)

Other Improvements

The 2035 FLATS LRTP also includes one new location facility, designed to enhance connectivity between the southern residential areas of the City of Florence and the downtown:

- Extend Brofford Drive between Alligator Road and Third Loop Road as a 2 lane roadway (including a new bridge)

Two major intersection and interchange improvements are also recommended by consultants as a part of the 2035 FLATS LRTP:

- Construct half cloverleaf interchange at I-95 and McIver Road
- Construct 2-lane roundabout at the Five Points intersection



The new I-95 interchange at McIver Road, located north of the City of Florence, is recommended in order to enhance connectivity and access to the interstate for that part of the county. The roundabout proposed for the Five Points intersection, located near the center of the City of Florence, is recommended in order to improve intersection safety, alleviate intersection congestion issues and to serve as a gateway for the City of Florence.

The Florence County Comprehensive Plan uses these recently developed recommendations as a base framework, and validates and expands upon them in order to create a viable county-wide roadway network. A notable capacity improvement outside of the FLATS area is the STIP project to widen SC 41 between Kingsburg and Johnsonville to a 4-lane facility. There are also an array of facilities with recommended shoulder improvements to facilitate travel of freight movements and potential regional bicycle travel. Improvements for the non-FLATS area of the county include the widening of US 378 from SC 41 east to the Florence County line. This improvement would extend the proposed widening of US 378 to the county line which is already funded through the Florence County capital projects sales tax. This widening results in a continuous 4-lane divided section to Myrtle Beach. This improvement would also involve constructing an additional 2-lane section of bridge across the Pee Dee River. The existing 2-lane bridge in this location is currently being supplemented with an additional 2-lane bridge with an increased clearance over the river.

In addition to these access management improvements, a selection of corridors was identified as candidates for access management overlay districts and rural preservation overlay districts. US 378 between US 52 in Lake City and Kingsburg Highway/Old River Road north of Johnsonville would benefit from an access management overlay to control the types and patterns of future growth allowed along the corridor. This action should protect the mobility by reducing conflict points while ultimately making it better equipped to handle new development and continue to serve as an east-west regional connector. The following corridors are identified for access management overlay districts:

- N Williston Road (SC 327)/Freedom Boulevard (US 301) between I-95 and S Irby Street (US 52)
- Howe Springs Road between S Irby Street (US 52) and Pamplico Highway (SC 51)

Corridors recommended for rural preservation overlay districts have the potential for growth but residents and local officials want to preserve the rural characteristics (viewsheds, historic sites, cultural resources, agriculture, etc.) Ideally, corridors targeted for rural preservation overlay districts have larger parallel facilities that could accommodate additional traffic. Two corridors were selected as candidates for rural preservation overlay districts:



- Old River Road from Francis Marion Road (SC 327) to Myrtle Beach Highway (US 378)
- SC 341 between Lake City and Johnsonville

Possible consideration also could be given to designating SC 341 as a scenic byway in the future.

Collector Streets

Collector streets gather traffic from neighborhoods, commercial centers and industrial areas and distribute it to the county's network of arterials. Compared to arterials, collectors provide less mobility but higher accessibility. With lower design speeds and more multi-modal amenities, these streets are attractive for bicyclists and pedestrians. Proper design and adequate spacing are important considerations for an effective collector street network.

- **Design** – The design of the collector street network must respect present and future conditions, the public's vision for the future and how the network can best balance the natural environment, connectivity, access, mobility and safety.
- **Spacing** – Different spacing standards are necessary for different development types and intensities. According to land use intensity, the spacing of collector streets should range from 3,000 to 6,000 feet in very low intensity residential areas to 750 to 1,500 feet in activity centers.

The collector street recommendations shown in Figure 8-5 occur in the FLATS Area. These recommendations were developed as part of the 2035 FLATS L RTP following discussions with staff, feedback from the general public and GIS based analysis. The recommended collector street system provides critical connections by bridging the gap between arterials and locals. Recommended collector streets have been established to provide additional connections for areas in the periphery of the region that might expect additional future growth. Other recommended collector streets near or within the City of Florence seek to connect existing development and provide other connection opportunities to relieve congestion on surrounding arterials. The portion of the county beyond the FLATS area overall has adequate spacing and connectivity for the rural landscape.

New collector streets are envisioned to have 2-lanes and often have exclusive left turn lanes at intersections with principal and minor arterials and less frequently at intersections with other collectors. The actual design of a collector street will depend upon the surrounding land use context. The typical cross sections for collector streets also are included in the Recommended Cross Section portion in Appendix B.

Transit

Transit service primarily offered by the Pee Dee Regional Transportation Authority (PDRTA) provides important access and mobility for residents throughout Florence County. As a critical component of the complete transportation system, transit is closely tied to land use and economic development decisions. PDRTA and local officials agree that transit services should be a viable mobility option for those who need it most — senior citizens, the physically or economically disadvantaged and commuters who choose to ride. Transit also should provide an option for persons making the traditional suburban-to-urban commute and those traveling

between activity centers. However, in the rural areas of the county such service is more difficult and typically incurs higher costs and lower ridership. The transit component of the Transportation Element includes a description of existing services and general recommendations to ensure transit remains a viable alternative for the residents of Florence County.

Existing Service

Within Florence County, PDRTA provides fixed-route bus service, fixed-route commuter service, and paratransit (dial-a-ride) service. In addition, private transportation and taxicab companies provide local transportation services, and Greyhound (Southeastern Stages) provides intercity bus service. All of these options are available within the FLATS area.

Fixed-route Service

Fixed-route service provided by PDRTA includes both local bus service in the greater Florence area as well as a regional commuter service. Fixed-route bus service in Florence consists of a “hub and spoke” layout with five routes (or spokes) originating from a hub at the Central Transfer Point on West Evans Street at Dargan Street in downtown Florence. A sixth route links to another route instead of the Central Transfer Point. All routes are flag-stop routes along which riders can wave for a pick-up.

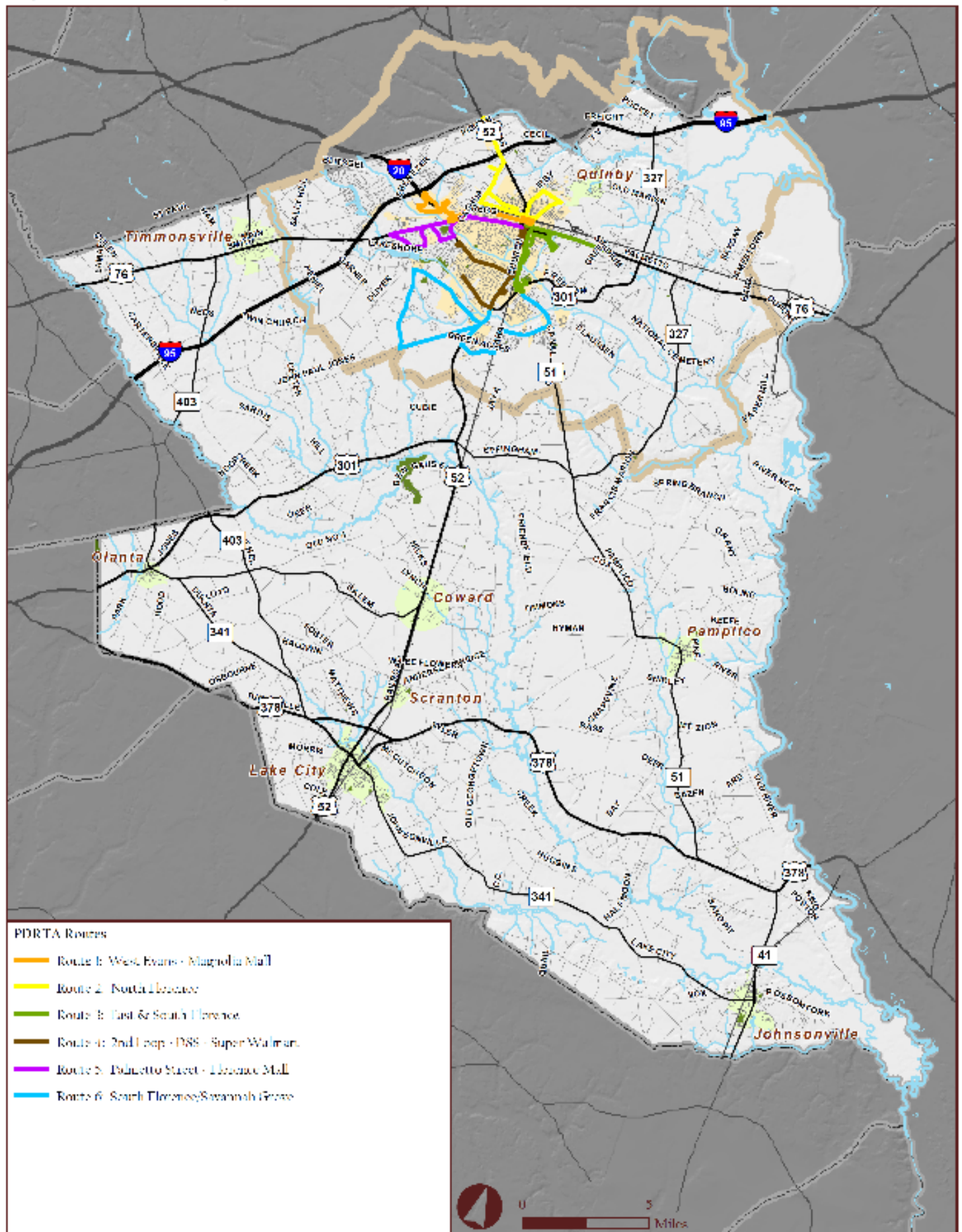
Figure 8-6 shows the six routes, which include:

- Route 1: West Evans – Magnolia Mall
- Route 2: North Florence
- Route 3: East & South Florence
- Route 4: 2nd Loop – DSS – Super Wal-Mart
- Route 5: Palmetto Street – Florence Mall
- Route 6: South Florence/Savannah Grove

The “hub and spoke” layout emphasizes trips originating from or destined to the downtown area. With plans to add Francis Marion University transportation in late 2010, ridership is projected to rise.

In addition to local fixed-route bus service in Florence, PDRTA provides fixed-route commuter service to Florence for residents of Dillon, Marion, Hartsville and Darlington counties. This service provides residents of these areas an alternative way to get to work and school in Florence. The commuter routes also connect to the local fixed-routes in Florence, which greatly increases the destinations accessible to residents in the outlying areas.

Figure 8-6. Existing Fixed-Route Bus Service



Sources: Florence County, City of Florence, 9CDOT

Demand-Response Service

Complementary Paratransit Service

Complementary Paratransit Service provides paratransit or van transportation for individuals who cannot otherwise access the fixed-route bus service. The service is designed for individuals with disabilities as defined by ADA. In particular, Complementary Paratransit Service is limited to individuals with the following disabilities:

- Cannot board, ride, or disembark from an accessible vehicle without the assistance of another person (except for the bus driver and lift)
- Could ride an accessible vehicle but the route is not accessible
- Have a specific impairment-related condition that prevents them from traveling to or from a boarding or disembarking location

Based on federal guidelines, Complementary Paratransit Service provides curb-to-curb service.

Human Services Transportation

PDRTA provides transportation for many human services agencies located throughout the region. Human services trips carry passengers of all ages and abilities to various destinations. Examples include trips to adult day care facilities, dialysis clinics, nutrition centers and various medical facilities. Medical appointments make up the largest portion of these services, though work, shopping and training/education trips are also represented. Without PDRTA, many of life's daily activities would be unavailable to residents in Florence County and throughout the Pee Dee region.

Vanpool Service

Carpooling and vanpooling is an economical and environmental-friendly commuting option. Compared to driving alone to work, carpooling or vanpooling provides personal benefits including reduced commuting expenses and other community benefits such as fewer vehicle miles traveled which results in cleaner air, less congestion and reduced fuel consumption. One of the challenges for increasing participation in carpool and vanpool services is finding someone with a similar commute. For many communities, this obstacle is overcome through a carpool and vanpool matching service.

While PDRTA currently does not have a matching service, PDRTA's Transportation Manager is available to help vanpools get started once a citizen or business forms a group of workers with similar commuting patterns. Through its vanpool system, PDRTA provides a vehicle, insurance, gas and maintenance, with a fee shared among the riders. Tax incentives provide extra savings for both the employer and employees.

Other Public Transportation Providers

General discussions of public transportation traditionally center on services such as those provided by PDRTA — namely fixed-route and paratransit. These transit services are important components of the larger public transportation network that also includes taxis, Amtrak and intercity bus travel (Southeastern Stages). For longer distance travel, residents of the Pee Dee region can utilize the expanding options at Florence Regional Airport.

Passengers

Public transit helps alleviate congestion, provides access to jobs and grants mobility. It also provides environmental benefits such as improving air quality and reducing the amount of gasoline consumed per passenger mile when compared to private automobile travel. PDRTA's fleet consists of 123 vehicles (buses, vans and trolleys). In December 2009, PDRTA received eight additional revenue service vehicles.

In 2008, PDRTA ridership consisted of more than 323,000 passenger trips, logging more than 2.8 million service miles. Average daily passenger ridership was approximately 1,350.

Future Trends and Services

Most daily activities, ranging from school to work to medical appointments to recreation, require some form of personal mobility. For the county's aging population and persons with disabilities, personal mobility also means independence. The level of mobility afforded to residents in Florence County varies, and gaps exist throughout the transportation network. The desire is for public transportation to become a travel mode of choice for a greater proportion of the population.

PDRTA anticipates the following future investments in public transportation:

- Increased service to Southborough Road/Pine Needles Road, Hoffmeyer Road, US 52/Lucas Street and US 52 south to Lake City
- Additional route between Francis Marion University and downtown Florence with evening and weekend service
- Establish service between Timmonsville and Florence
- Installation of lighted bus stop signs
- Add park and ride locations in the Florence, Coward and Lake City areas
- Upgrade and expand technology including new scheduling and dispatching software, mobile data terminals and Automatic Vehicle Locators (AVLs)
- Establish a downtown multi-modal hub in the City of Florence

Freight

The movement of freight throughout the southeastern United States and across South Carolina has played an important role in the economic vitality of the region. Manufacturing has remained a core component of this region's economy even as the sector declined in neighboring areas. The confluence of two interstate highways and proximity of two major ports provides a robust base for economic activity. Plans for port expansion in the region and continued industrial growth further emphasize the need for a sound, interconnected system for the movement of goods.

Roadway Freight

Florence County boasts one of the best highway freight networks in the state, anchored by I-95 and I-20. I-95 is one of the nation's busiest freight corridors, connecting the east coast's major population and economic centers. In South Carolina, nearly 25 percent of vehicles traveling on I-95 are trucks. I-20 is an important east-west connector for Florence to Atlanta and beyond. Within Florence County, these interstate highways are supplemented by numerous US highways, including the north-south route US 52 and east-west routes US 76 and US 378. Collectively, the interstate and US highways carry the most traffic, but some SC highways in the county also carry significant freight traffic. These freight corridors include Pamplico Highway (SC 51), Williston Road (SC 327), and SC 403 near Timmonsville.

From a statewide perspective, it is important for SCDOT to continue to maintain and upgrade interstate infrastructure to meet future demand. SCDOT maintains more than 840 miles of interstate highways. According to SCDOT, 45 miles of South Carolina's interstates have capacity needs; and by 2030, more than 50 percent of the interstate highways will operate below acceptable levels of service and up to 50 interchanges will need to be reconstructed. On the state's primary and secondary roads, more than 1,100 miles (3% of total miles) will need to be improved at a cost of \$7 billion in today's dollars.

Recommendations

Increasing truck traffic on the county's network of freeways and arterials makes it more important to guide these vehicles to routes designed to accommodate them. Designated truck routes should be signed and publicized so truck operators and the general public will recognize these streets have been designed with truck traffic in mind. The design of the routes should allow the safe and efficient operation of trucks. Figure 8-7 shows routes that are recommended to be retrofitted and signed for truck traffic. Trucks, with the exception of local deliveries, should be prohibited on routes not signed for truck traffic as described below. These routes were selected based on feedback from local staff, freight industry leaders, analysis and field review. The following considerations should be applied:

- Truck Classification — Trucks should be defined as vehicles with a manufacturer's gross vehicle weight of 33,000 pounds or more. This definition excludes most straight trucks, panel trucks and delivery trucks but includes large trucks with more than two axles such

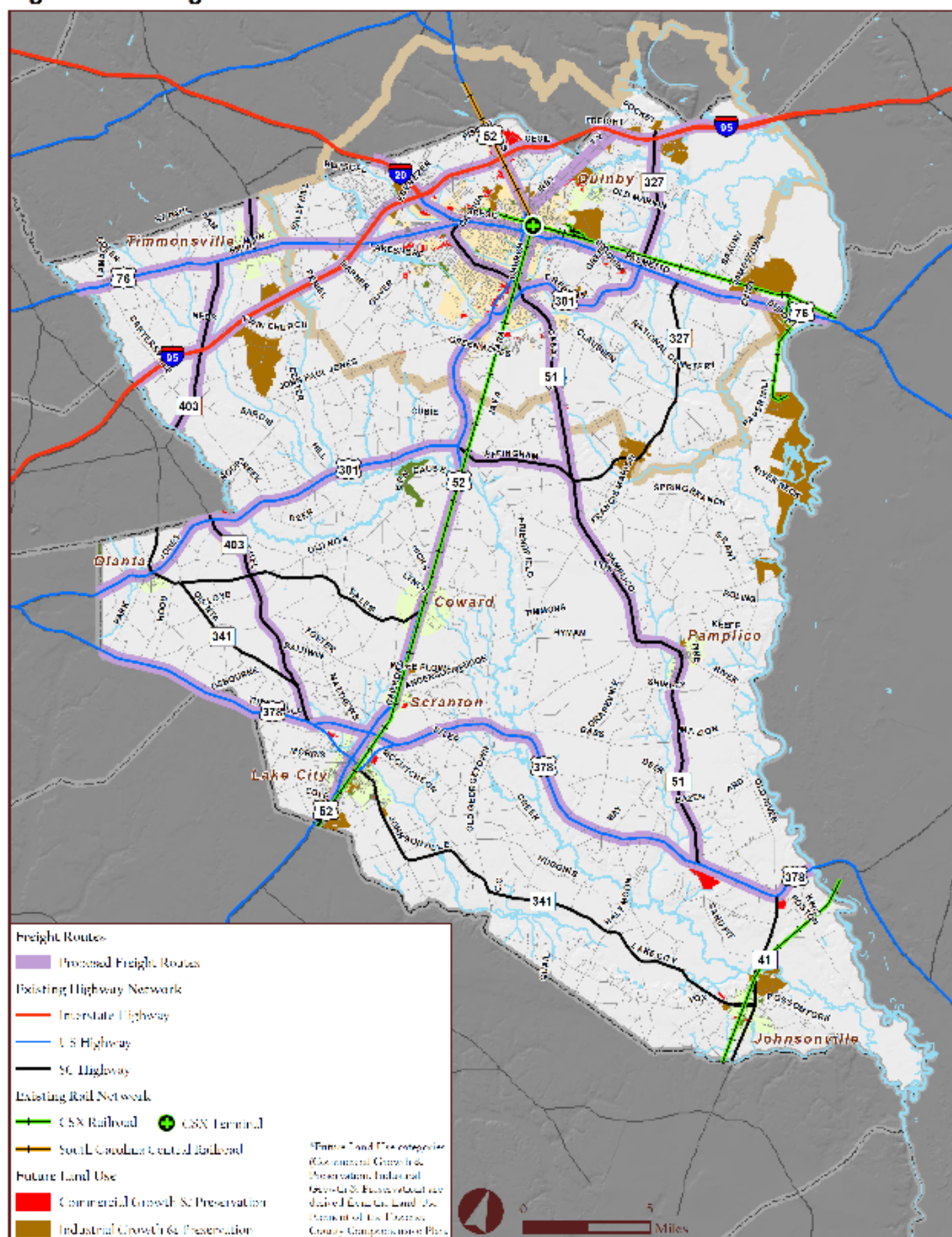
as tractor-trailers and tandem axle dump trucks. Public service vehicles such as garbage collection trucks also would be excluded from this definition.

- Route Designation — Area roadways recommended as truck routes are shown in Figure 8-7. Should the SCDOT adopt a statewide truck route map, these designations should be considered. As industrial development occurs, it will be important to provide efficient truck access and circulation to improve freight mobility while limiting cut-through truck traffic in adjacent neighborhoods. Within city limits, consideration should be given to amending local ordinances to specifically prohibit through truck movements on local streets. Prohibiting trucks on state maintained roadways will require SCDOT approval.
- Route Enhancement — Once truck routes are designated, improvements should be prioritized to ensure the routes are fully utilized. FLATS should: (1) work with SCDOT to prioritize resurfacing of designated routes in an effort to reduce noise and vibration from trucks; (2) adjust signal timing where necessary to allow uninterrupted through movements based on posted speed limits; and (3) partner with local and state entities to improve critical intersections (turning radii, lane width and the provision of dedicated turn lanes). These improvements will greatly improve the efficiency and safety of these corridors, in turn encouraging their use by truckers.
- Route Education — Signs should be posted at the city limits, freeway exits, and other appropriate locations directing truck drivers to roadways on which their movements are permitted. At a minimum, this should include limiting travel, except for local deliveries to the network identified in Figure 8-7. In addition to signage, Florence County and its municipalities should work together to publish educational materials and distribute it to businesses and industries concerning truck routes and restrictions.

As mentioned previously, several corridors in Florence County have been identified for access management improvements. The plans outlined for Palmetto Street (US 76), Pamplico Highway (SC 51) and Lucas Street (US 52) in the 2035 FLATS LRTP include access management strategies that should improve the operation of these freight corridors. Improvements to the freight corridors identified in Figure 8-7 should receive the highest priority.

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Figure 8-7. Freight Network



Sources: Florence County, City of Florence, SCDOT

Rail Freight

The Association of American Railroads (AAR) defines three railroad classifications.

- **Class I** railroads are the largest operating railroads in terms of revenue. The actual definition of a Class I railroad has changed over the years to account for inflation and other factors. As of 2005, the AAR defined Class I railroads as having annual operating revenues that exceed \$319 million. The number of Class I railroads has declined from more than 130 in 1939 to only seven in the United States and Canada today. These seven railroads account for 93 percent of the industry's revenues. CSX and Amtrak are two Class I railroads that exist in Florence.
- **Class II** railroads, commonly known as "regionals", currently are classified by the AAR as having operating revenues of \$20.5 to \$277.7 million. As with Class I railroads, the revenue benchmark used to classify these railroads is adjusted periodically. Class II railroads are not nearly as large as Class I railroads and typically operate within a particular region. However, they offer well-equipped main lines for faster movement of freight as well as local switching operations. Of the twelve Class II railroads in the United States, none currently operate in South Carolina.
- **Class III** railroads, commonly known as "shortlines", are defined by the AAR as a railroad with less than \$10 million in annual operating revenue. While shortlines are the industry's smallest in terms of miles of track and revenue, they are the most numerous in the nation with approximately 500 in operation. The South Carolina Central Railroad operates a shortline in Florence.

The following list is of rail operators in Florence County:

- Florence is home to a major CSX switching yard (located just north of downtown east of Lucas Street (US 52)) and has direct rail service to two major seaports (Charleston, SC and Wilmington, NC). This rail line, shown in Figure 8-7, follows US 76 from the east to downtown then parallels US 52 to the south. This route is the company's major north-south route connecting Charleston with Washington DC. CSX also owns a rail corridor that parallels West Darlington Street in the City of Florence.
- Amtrak passenger rail station, located at 807 East Day Street behind McLeod Regional Medical Center, offers a connecting service between Florence and the cities of Greenville, Spartanburg, Myrtle Beach and Columbia, with intermediary stops to Camden and Conway. Amtrak rail boardings in 2008 for the City of Florence totaled over 47,000.
- The South Carolina Central Railroad (SCRF), a RailAmerica property, is a Class III shortline railroad that connects Florence with Bishopville via Darlington and Hartsville. In total, SCRF maintains more than 120 miles of railroad (including a separate segment between Cheraw and Society Hill). The portion of the SCRF railroad in Florence County is adjacent to Lucas Street.

Recommendations

New industrial development in Florence County and the surrounding region will increase the economic vitality of the county but put additional pressure on both the roadway and rail freight network. Proposed development in the region, such as the Boeing plant in North Charleston and the JAZFA development in Orangeburg and Dorchester Counties should increase rail freight activity through Florence County. The following list includes possible new sources for freight growth in the state:

- Expansion of the Port of Charleston
- Construction of the new Jasper Ocean Terminal in Jasper County, SC
- Arrival of the larger Post-Panamax ships via the expansion of the Panama Canal
- Development of inland intermodal ports
- Increased focus on the state as a logistics hub

Given the expected growth in freight activity, areas of the highest concern likely will be those locations where multiple modes intersect. As a result, more emphasis needs to be placed on coordinating plans for rail with roadway, bicycle and pedestrian initiatives. This is also true given the recent push to establish passenger rail service in other parts of the county. A recent example of multi-modal planning is SCDOT's Statewide Multimodal Plan, which contains a rail element that assesses rail corridors to identify opportunities for future transportation use. The effort included an inventory of rail corridors throughout the state to find "at-risk" lines and take steps to acquire them or preserve them using existing state and federal legislation. Acquired corridors could be utilized as bicycle and pedestrian trails.

Passenger Rail Potential

The Statewide Multimodal Plan also identifies rail corridors in the state for potential transit use. One corridor identified in the plan is the CSX rail line adjacent to US 52. The plan notes the CSX line to the east of this corridor that connects Dillon to Charleston and travels briefly through the southeast portion of Florence County. The plan notes that future transit service using rail will be dependent upon available right-of-way. The plan notes that abandonment of the line adjacent to US 52 is highly unlikely due to the volume of rail traffic on the corridor and the use of the line by Amtrak. However, the Multimodal Plan recognizes that a parallel consolidation of the line may be a possibility.

By statute, SCDOT has the obligation to preserve, protect or acquire existing railroad rights of way for future transportation use. This obligation is defined by SCDOT's role in mass transit. The South Carolina Department of Commerce, Division of Public Railways, has authority to acquire rail corridors that may be at risk of abandonment, or even develop and construct new rail corridors. In addition to service on the CSX corridor, elected officials have expressed a desire for commuter rail service from Florence to Myrtle Beach via Marion and Conway. While SCDOT has the corridor appearing on SCDOT rail plans, the population likely is not sufficient to justify the expense of commuter rail.

Airports

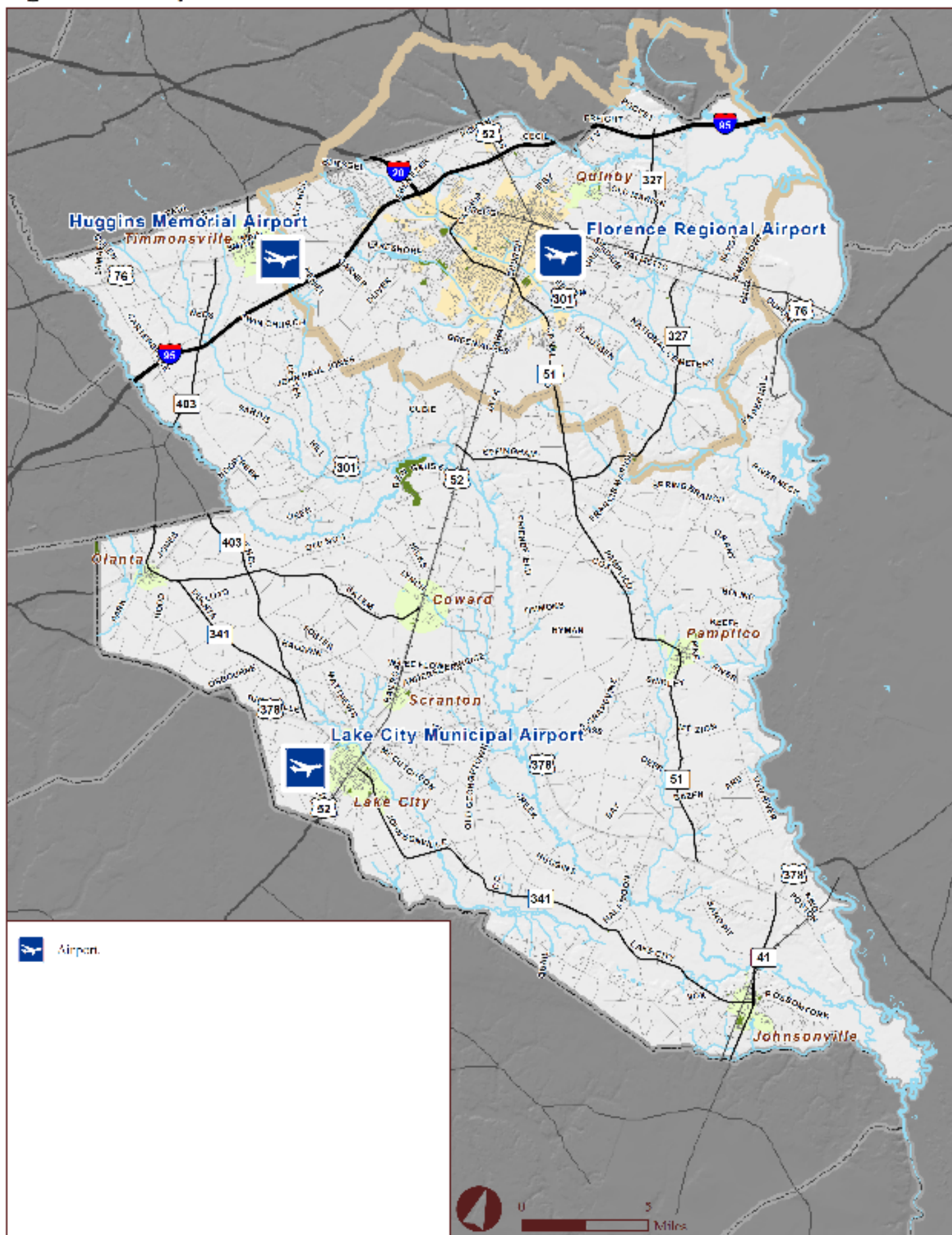
South Carolina's airports are an important component of the statewide transportation system and a catalyst for the state's economy. Aviation needs — including passengers on commercial airlines, those piloting a private aircraft, and the movement of goods — are fulfilled through a combination of large airports and smaller facilities across the Palmetto State. These facilities fall into one of three major categories:

- **Commercial Service/Primary Airports** — facilities that serve regularly scheduled passenger service. The three largest facilities in the state are Charleston International, Greenville-Spartanburg International and Myrtle Beach International. Other airports with scheduled passenger service in the state include Florence Regional Airport, Columbia Metropolitan Airport and Hilton Head Island Airport.
- **General Aviation Airports** — smaller facilities that exist in the majority of counties throughout the state. They typically have paved runways 2,000 feet to 5,500 feet in length and can accommodate small (single engine) and medium-sized (multi-engine) aircraft. These airports often provide opportunities for businesses with suitable aircraft to avoid the use of larger facilities and minimize air travel associated with lag time. They also have proven useful in attracting business to communities throughout the state. No general aviation airports are located within the FLATS area.
- **Reliever Airports** — large general aviation airports that provide additional capacity when the area's primary commercial airport reaches capacity. Columbia Owens Downtown is the state's only reliever airport.

Existing Facilities

Located just a few miles east of downtown Florence, Florence Regional Airport is a general aviation airport also served by two commercial airlines (Delta Connection and US Airways). The commercial airlines provide regional service to Charlotte-Douglas International Airport and Hartsfield-Jackson Atlanta International Airport. The Florence Regional Airport also hosts the bi-annual May Fly Air Show. Smaller airports in the county include the Lake City Municipal Airport (located at C.J. Evans field in Lake City) and Huggins Memorial Airport (located at 776 East Smith Street in Timmonsville). Figure 8-8 shows the location of airports within Florence County.

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Sources: Florence County, City of Florence, SCDOT

According to Federal Aviation Administration data, Florence Regional Airport had 64,835 boardings in 2008, an increase of nearly 40% compared to 2007. Florence Regional Airport is the sixth busiest airport in the state behind airports in Charleston, Greenville-Spartanburg, Myrtle Beach, Columbia and Hilton Head. However, Florence was one of only two airports to show an increase in enplanements from 2007 to 2008. Charleston Air Force Base/International Airport recognized a 2.6% increase in that period.

According to the Executive Director of the Florence Regional Airport, the airport processes minimal incoming freight and even less outgoing freight. But internationally, air freight has become more common for products of high value. While less than one percent of world transport by volume is by airline, it amounts to forty percent of the value. Time has become especially important in regards to principles such as postponement and just-in-time within the value chain, resulting in a high willingness to pay for quick delivery of key components or items of high value-to-weight ratio. In addition to mail, common items sent by air include electronics and fashion clothing.

Future Projects

In 1999, the airport's operation was assigned to the Pee Dee Regional Airport Authority (PDRAA). Over the past ten years, the PDRAA has focused on maintaining a safe and reliable facility. Today, the PDRAA has turned its attention to enhancing the passenger experience by improving the parking facility, reorganizing the passenger waiting areas, and installing a new baggage carousel with complimentary luggage carts. The \$8 million expansion and renovation project that started in 2009 will create two additional airplane parking gates and additional employee offices and restrooms, with construction anticipated to be complete in 2010.

Once ongoing renovation and expansion projects are completed, PDRAA will begin work on a new general aviation center for unscheduled flying, including charter planes and pilot training. Future plans include the construction of a new passenger concourse and gate areas with improved vending facilities. Current plans will allow expansion to 12 gates with ramp and apron facilities.

Bicycles, Pedestrians, and Greenways

User and Facility Types

In order for a bicycle and pedestrian network to be successful, it must accommodate a range of user types. The best way to accommodate a variety of users is often through a mix of different bicycle and facility types. Types of users can be described in terms of trip purpose and skill level. Different reasons for taking to the street on bike or foot, combined with the varying levels of skill, require a bicycle and pedestrian plan that is flexible and responsive.

Types of Users by Trip Purpose

Bicycling and walking often falls into two distinct types of travel:

1. **Utilitarian, non-discretionary travel.** Often, children, persons with disabilities, and many elderly are not able to drive. In addition, some households simply cannot afford an automobile. According to the 2000 Census, approximately 10.4% of all households in Florence County do not have a vehicle available. This percentage is higher than the state average and approximately equal to the national average. For those unable to drive and persons living in households with no vehicles, the only option for daily necessary trips may be transit, bicycling and walking.
2. **Recreational, discretionary travel.** Walking and bicycling are excellent methods of exercise, helping residents to establish a healthy lifestyle while enjoying the livability of their communities. Walking and bicycling for fun is increasing in popularity as Americans realize the benefits of these activities.



Both types of travelers require a complete network of bicycle and pedestrian facilities as well as programs that educate and encourage current and future users.

Types of Users by Riding Skill

Advanced Cyclists are usually the most experienced on the road and can safely ride in typical arterial conditions of higher traffic volume and speeds. Most advanced cyclists prefer shared roadways in lieu of striped bike lanes and paths but may be more willing to accept striped bike lanes when the street gutter is cleaned regularly. Although this group represents approximately 20% of all cyclists, they account for nearly 80% of annual bicycle miles traveled.

Basic Cyclists are less secure in their ability to ride in traffic without special accommodations. They usually are casual or new adult/teenage riders who typically prefer multi-use paths or bike lanes on collector or arterial streets. Such facilities reduce basic cyclists' exposure to fast-moving and heavy traffic. Surveys of the cycling public indicate that about 80% of cyclists can be categorized as basic cyclists.



Child Cyclists have a limited field of vision while riding and generally keep to the neighborhood streets, sidewalks, and greenways. On busier streets, this group likely stays on sidewalks or off-street facilities that protect them from traffic. In the City of Florence, cycling on sidewalks is permitted everywhere except downtown. While riding on sidewalks should be discouraged, the comfort level of child cyclists may warrant riding on sidewalks provided they yield to pedestrians.

Bicycle and Pedestrian Facilities

Like drivers, cyclists gain experience over time by riding. As cyclists ride and gain more experience operating in traffic, they graduate from basic to advanced cyclists. This transition ensures that the needs of all three types of cyclists must be constantly evaluated and accommodated. To make sure adequate amenities are available to users of all skill levels, the facilities identified here should be incorporated into roadway projects in Florence County. Similarly, the needs of many types of pedestrians must be considered when determining the best location of pedestrian facilities. A combination of on- and off-street facilities is often the best solution to serve the needs of both bicyclists and pedestrians. In addition to the facilities themselves, consideration also needs to be given to ancillary facilities and amenities such as bicycle parking, benches, and wayfinding signage.

On-Street Bicycle Facilities

On-street bike facilities are designated by striping, signing, and pavement markings on the public right-of-way for the preferential or exclusive use of bicyclists. The type of on-street facility recommended depends on the roadway classification and characteristics. Several types of on-street facilities can be used in conjunction with another to create a well developed bicycle network.

Striped bicycle lanes are typically four to five feet in width, with striping and markings to reserve the space for bicyclists. They typically provide the greatest level of comfort for a basic level bicyclist on all on-street facilities. Wide outside lanes provide extra width (typically two to three feet) in the outermost travel lane. These facilities are more commonly used by advanced level bicyclists, and work well on higher-speed roadways. Paved shoulders provide a space outside the outer lane stripe for bicycle travel. In addition to giving bicyclists a greater comfort level, paved shoulders can extend the service life of the roadway by reducing edge deterioration, can make roads more conducive to freight traffic and can serve as a refuge for distressed vehicles. The most basic type of on-street facility is the signed route, which guides bicyclists to the routes and connections most conducive for travel, while ultimately providing links to destination points.



On-Street Pedestrian Facilities

Pedestrian linkages both in quality and quantity are an important part of transportation planning. Promoting alternative and intermodal forms of transportation requires improving pedestrian connectivity. The installation of sidewalks, pedestrian signaling, and other amenities will provide connectivity for pedestrians in addition to reducing short distance vehicle trips.

On-street pedestrian facilities consist primarily of sidewalks. Sidewalks are typically suggested as a minimum width of five feet. The American Association of State Highway and Transportation Officials (AASHTO) also recommends a four to six foot buffer zone between a

sidewalk and the adjacent roadway. In areas with heavy pedestrian traffic, a wider sidewalk may be preferred.

Multi-Use Paths and Greenways

Multi-use paths can provide a high-quality bicycling and walking experience in an environment that is protected from motorized traffic because they are often constructed in their own corridor. Multi-use paths can be paved and should be a minimum of ten feet wide. If there are physical or right-of-way constraints in portions of the corridor, this width can be reduced to eight feet. These paths are, in effect, little roads and should be designed with clearance requirements, minimum radii, stopping sight distance requirements and other criteria just as roadways are designed. However, additional consideration may need to be given to amenities along these corridors.



Existing Conditions

The 2035 FLATS LRTP provides descriptions of the existing bicycle, pedestrian, and multi-use facilities located within the FLATS area. Those facilities are summarized here, along with the additional facilities serving communities outside the FLATS area.

Bicycle Facilities

The bicycle network in Florence County is limited. Less than four miles of wide outside lanes exist, and there are no striped bicycle lanes. While there were several on-street bicycle facilities recommended as a part of the FLATS 2004 Bikeway Master Plan, none have been implemented so far.

Pedestrian Facilities

On-street pedestrian facilities are present to some degree in every municipality in Florence County. Most municipalities have a network of sidewalks that have been constructed to serve the central business district, as well as facilities in front of the majority of schools. However, many of these facilities do not yet connect with one another or to some of the key destination points in the county.

Multi-Use Paths

Multi-use paths and greenways are important due to their ability to serve multiple roles functioning as safe passages for cyclists and pedestrians. When multi-use paths are intentionally connected with on-street bicycle and pedestrian facilities, they function as amenities for both recreational and commuting users. When multi-use paths, on-street bicycle and pedestrian facilities and public transportation are combined, they create an intermodal transportation opportunity.

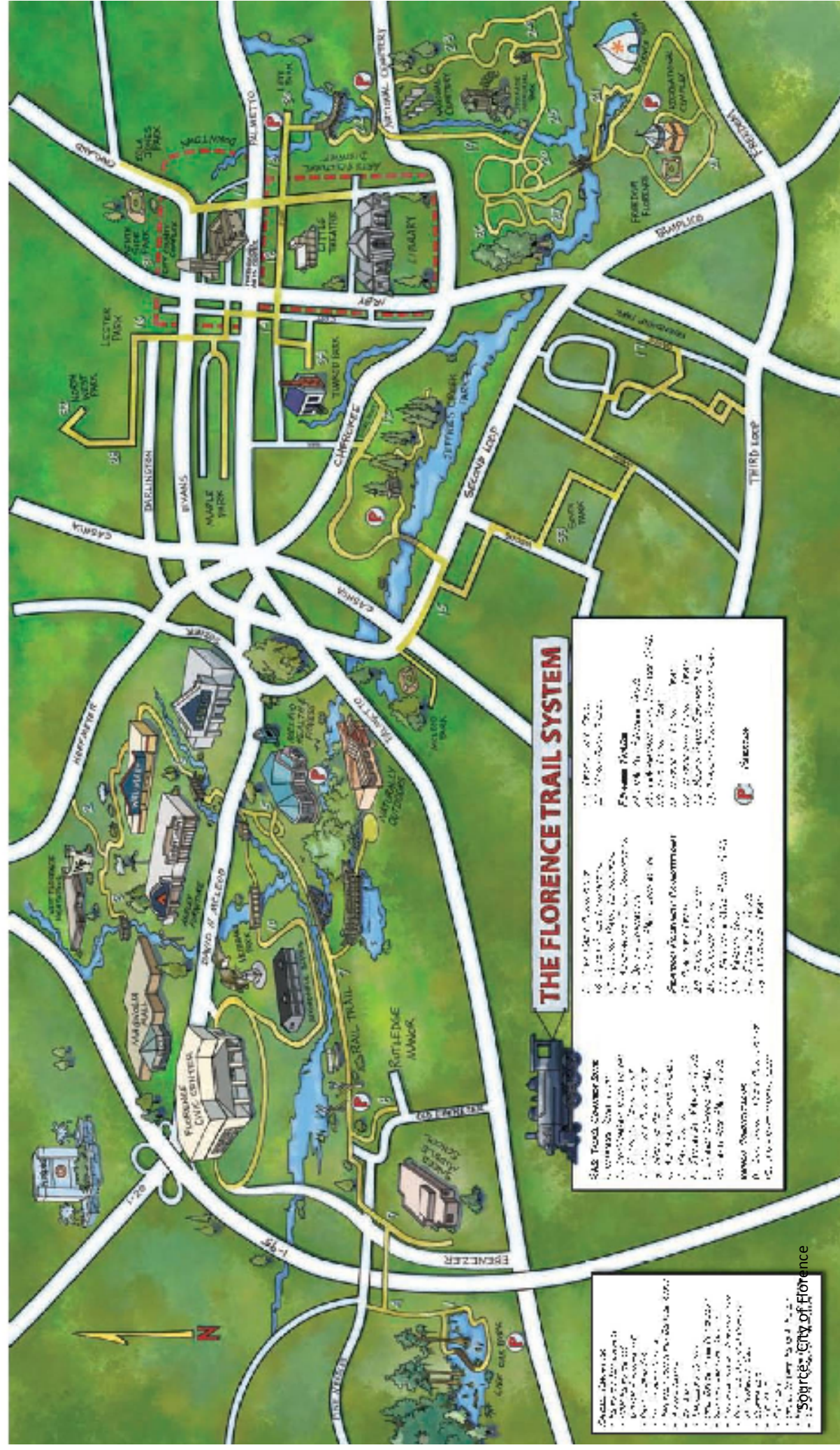
The City of Florence Trails System is composed of three distinct groupings of trails, each with its own identity and features. The Rail Trail Connections, the Urban Connections and the Freedom Florence Connections total more than 18 miles throughout the city. Each group of connecting trails or connections is shown in Figure 8-9. As an overall network, this system provides a robust set of connections linking many important destination points within the city. The FLATS 2004 Bikeway Master Plan identified a number of improvements to the trail system in this area. However, the only project that has been implemented is a portion of the Rail Trail Spur. The Rail Trail Spur is a 10-foot multi-use path. Although a high priority project for improving connectivity to important destinations, including West Florence High School, the length of new trail added to the current network has been minimal (less than 2.0 miles).

The National Trails System Act, 16 USC 1246(d) (Trails Act), opened numerous opportunities throughout the United States to preserve rail corridors and encourage outdoor activities and fitness. In South Carolina, information about the majority of existing rail trails is published by the South Carolina State Trails Program and the Palmetto Conservation. The Florence Rail Trail is incorporated into the Palmetto Trail. The Palmetto Trail and other programs in place by the Palmetto Conservation are detailed on their website, www.palmettoconservation.org.

The Towns of Pamplico and Timmonsville also have a trail system. The Town of Pamplico's trail is located on both sides of 6th Avenue from Oak Street, northeast to Laverne Ard Town/County Park. The Town of Timmonsville's trail extends from Pinckney Street to Foxworth Street along Main Street. This trail is a rails to trails conversion and has a host of amenities such as benches, swings and trash receptacles while also featuring attractive landscaping along the corridor.

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Figure 8-9. City of Florence Trail System



Existing Policies and Programs

The City of Florence, Florence County, FLATS and several other municipalities are engaged in some sort of bicycle and pedestrian planning. The City of Florence has bicycle police that provide law enforcement while serving as a positive example to those citizens interested in non-motorized travel. As a result of the multiple parties involved, policies being considered for establishment often affect more than one jurisdiction. Bicycle and pedestrian advocacy is also conducted by independent groups. Clubs such as Pedal Pack ride the roads of Florence County and advocate for people to get involved and for improvements to key facilities.

Future Projects

Florence County's existing bicycle and pedestrian network needs improvements to accommodate its citizens; not only those whose only form of transportation is bicycling or walking, but also those who desire to use non-motorized travel for recreational or commuting purposes. A combination of wayfinding, improved facilities, education and enforcement are all important elements of a successful future network as defined below.

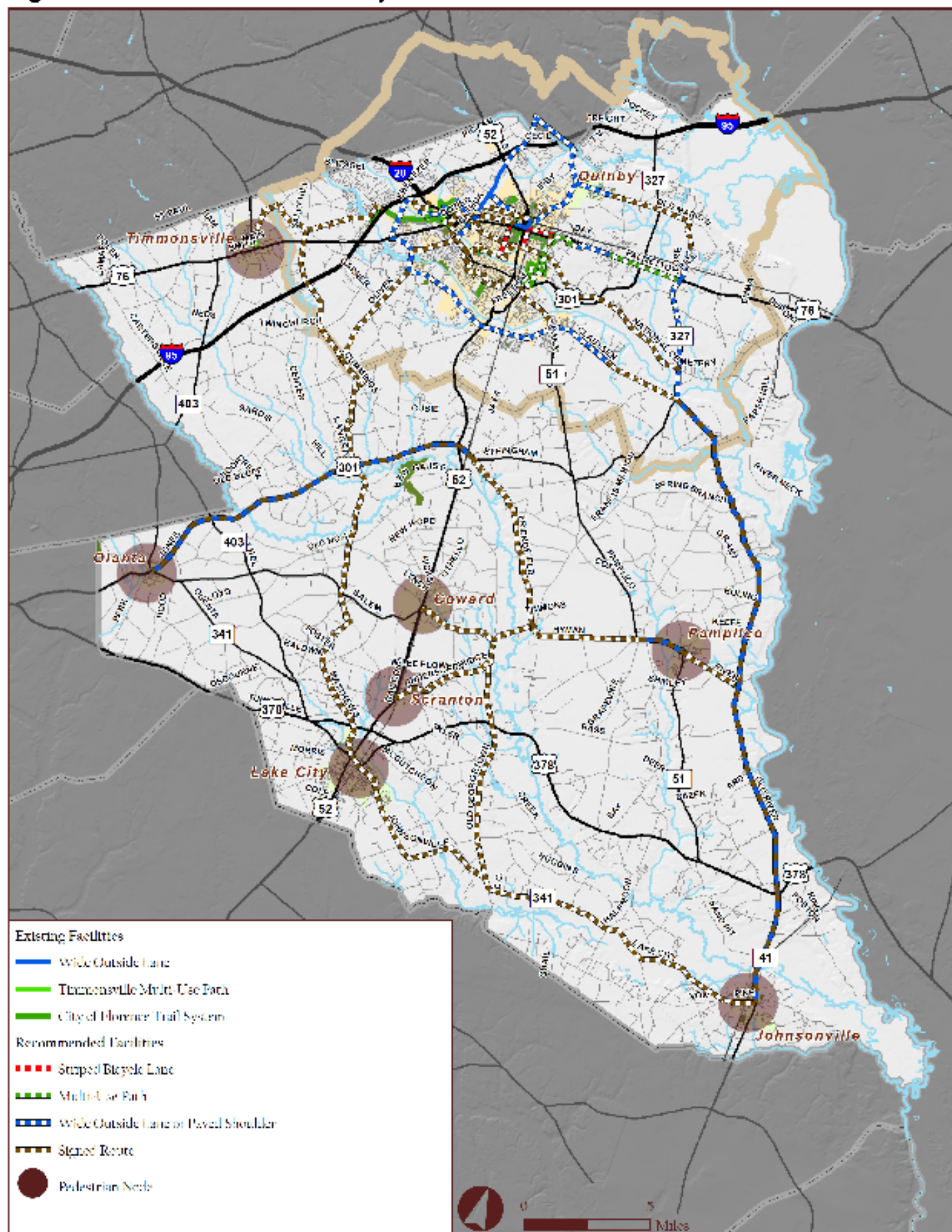
Recommended Facilities

The 2035 FLATS LRTP outlines a set of bicycle recommendations and example pedestrian improvements for the FLATS region. These recommendations can be found in Chapter 6 of that document. In general, the recommendations reflected both in that document as well as in this Transportation Element should complement and support the work done in the FLATS 2004 Bikeway Plan and the City of Florence Trails System. Figure 8-10 shows the recommended bicycle facilities and the pedestrian nodal areas that are discussed in this plan. This figure also shows destination points such as schools and libraries and their relation to recommended bicycle facilities.

The City of Florence will continue to work towards improving the urban trail connectors as shown in Figure 8-10. These connections will link city parks to the developing arts and cultural community in downtown Florence. As the City of Florence develops new recreational facilities, such as the new tennis complex which is to be completed in spring of 2010, new walking trails will be put in place to serve them.

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Figure 8-10. Recommended Bicycle and Pedestrian Facilities



Bicycle Network

Recommendations for the bicycle network of Florence County should be evaluated from the standpoint of regional connectivity. On rural or lower-volume roads, it is typically unnecessary to stripe dedicated bicycle lanes. However, it is often beneficial to provide wider shoulder facilities (two to five feet) that bicyclists can use as a refuge or travel area. In addition to their benefits to bicyclists, these wider shoulders are also preferable on freight routes that could otherwise suffer from safety issues or pavement deterioration. The freight section of this document highlights the corridors recommended for freight improvements, which typically include widened shoulders among other improvements. When these routes coincide with bicycle routes, bicyclists can also benefit from these shoulder improvements.

Florence County benefits from a reasonably well connected network of major and minor arterials. This plan recommends a series of signed routes on some of the minor arterials in the network. These roads typically have lower traffic volumes and are therefore more conducive to bicycle travel. Through this plan, a series of signed routes are recommended that will serve all of the municipalities in the county.

The roadway portion of this plan recommends rural preservation efforts for Old River Road and SC 341. The recommended bicycle network is routed along both of these roads in an effort to make use of these rural preservation efforts. By routing bicycles on these roads, they will likely encounter fewer driveway cuts and lower traffic levels. Additionally, the aesthetic elements along these corridors will likely be more enjoyable than those along a major facility.

Pedestrian Network

The 2035 FLATS LRTP provides a set of recommendations that help guide the process of improving key intersections and filling in the gaps in the pedestrian network. Additionally, this document details the destination points desirable by non-motorized users in the FLATS region. Beyond the FLATS area of Florence County, pedestrian improvements are equally vital. It is unrealistic to implement pedestrian facilities over large portions of the regional routes in the county. However, connections to destination points such as schools, parks and libraries within the more urbanized areas of the county will help better serve pedestrian mobility at a local level. It is also important to look at filling the gaps between the existing sidewalks in these areas in order to have a more consistent and usable network. Safety enhancements should also be considered for intersections that link residential areas with destination points. Recommendations for each municipality outside of the FLATS area are provided here.

Coward

At this time, there is a mid-block crossing of US 52 located near Hicks Road. This crossing is important to serve the town center and school traffic located on each side of the road. It is recommended that this crossing be enhanced to provide for a safer crossing location. Improvements that could be considered include a raised or plantable median refuge, high visibility crosswalks, flashing school zone signs, and static pedestrian crossing signs.

Johnsonville

Johnsonville has improved the overall appearance of the crosswalks in their downtown by bricking the crosswalks at several intersections. In order to make these crosswalks visible during all light and weather conditions, the striping that edges each crosswalk needs to be improved. Reflective thermoplastic may be the best solution to improve the visibility of these crosswalks. Additionally, the pedestrian crossing at the intersection of Stuckey Street and Hampton Avenue needs to be reconfigured to reflect the new sidewalk.



A new library has recently been constructed in Johnsonville across Georgetown Highway from the high school. At this time, there is no crossing opportunity delineated to serve the traffic that will likely travel between the two destinations. A safe crossing, potentially including a grassy median or other type of pedestrian refuge, should be installed at this location.

Lake City

Lake City has several parks and schools near the city center that would benefit from enhanced connectivity. Pedestrian connections should be improved to the Lake City Community Park. Additionally, the J. Paul Truluck Middle School could benefit from exploring viable non-motorized travel options for students.



While Lake City has crosswalks and pedestrian signals at several intersections, some areas need improvement. The intersection of US 52 and Morris Street has existing crosswalks that have become faded over time. The crosswalks at this intersection are recommended to be replaced with high-visibility crosswalk facilities. Also, pedestrian countdown signals would be beneficial in this location. This intersection is significant due to its proximity to the school and the skewed intersection configuration. Similar improvements are also recommended for US 52 at Main Street.

Olanta

For the most part, Olanta has a well-connected sidewalk network that links destination points such as the school and the library with the downtown center and neighboring retail. To enhance this connection, it is recommended that crosswalks be delineated at the intersection of US 301 and Main Street.

Pamplico

Pamplico has a fairly robust network of sidewalks to serve the destination points in the community. A new tennis facility is proposed in the Town that does not currently have a sidewalk connection. The existing sidewalk along Pamplico Highway should be extended to serve this facility. In addition, 6th Avenue, which connects to the Laverne Ard Park, should be resurfaced to improve shoulders for use by bicyclists and pedestrians.



The widening of Pamplico Highway (SC 51) to a 4-lane divided roadway should include provisions for bicyclists and pedestrians. It also is recommended that crossing opportunities at the intersection of Pamplico Highway and Main Street be improved. This intersection is a five-point junction that may cause confusion if the crossings are not clearly marked.



Scranton

US 52 serves as the main street through the Town of Scranton, with several municipal destination points located on opposite sides of the road. As a result, crossing opportunities should be enhanced at key locations throughout the town limits. The school serves children on each side of US 52 that could benefit from clear route opportunities, intersection enhancements and safety programs.

Timmonsville

The greenway that runs through the center of Timmonsville is one of the most attractive bicycle and pedestrian facilities in Florence County. This greenway currently connects the central business district to some of the residential areas. To better serve some of the additional neighborhoods in this area, the greenway should be extended east to Davenport Drive. The extension of the greenway should also be considered to the west to connect with Timmonsville High School and Johnson Middle School. In the long-term, it could be possible to connect this greenway to some of the facilities in Florence through the rails to trails initiative.



Some portions of US 76 in Timmonsville have sidewalk facilities. However, improvements to this sidewalk would provide connections to the library and the commercial areas that serve as the commercial spine of the community.



Recommended Policies and Programs

As a result of the 2004 Bikeway Master Plan, several policy items were recommended for application within the FLATS area. These policies also translate to the county as a whole:

- Incorporate bicycle facilities in transportation planning activities
- Design and build new and reconstructed roadways to be bicycle-friendly
- Encourage increased bicycle transportation ridership
- Promote safe bicycle travel
- Pursue a variety of funding options to implement bikeway projects

From a pedestrian perspective, the policy recommendations are somewhat different. Pedestrian facilities should continue to be considered as a part of the overall design of streets. When considering where to add pedestrian facilities, the connections between residential areas and viable destination points should be a primary consideration. The *Safe Routes to School* initiative, a national transportation enhancement program, should be considered for use at selected schools that would benefit from enhanced pedestrian connections.

The 2035 FLATS LRTP contains several different bicycle and pedestrian programs that could be considered to promote the use of non-motorized travel and the education of children and adults on the safe and responsible way to walk and bicycle. These programs include initiatives such as bicycle to work week, bicycle mentoring and Safe Routes to School. In addition to these programs, municipalities and local groups may consider programs such as bicycle rodeos, bicycle rideabouts, walking school buses and walk to school day to raise awareness and participation in bicycling and walking.

Multi-modal Linkages

Through the evaluation of existing facilities and the development of future recommendations, the Transportation Element of the Florence County Comprehensive Plan attempts to consider the interaction between various transportation modes. This evaluation is documented most concisely through the complete streets section found in Appendix B, which incorporates each travel mode into the roadway cross-section based on the expected context of the road.

Many of the recommendations highlighted for the various travel modes have positive effects for other travel modes. For instance, shoulder improvements on designated freight routes also benefit bicyclists that desire to use these routes. Pedestrian improvements around key destination points served by transit improve access for both local and regional mobility. When a recommendation for improving the transportation network is considered for any



travel mode, it is important to consider its benefits and drawbacks to other modes.

The linkages between transportation modes are important to the overall viability of the transportation system. Similarly, the linkages between transportation and land use decisions must be considered together. The 2035 FLATS LRTP devotes an entire chapter to the integration of transportation and land use. This chapter identifies and evaluates two different focus areas in the FLATS region and assesses the existing and future transportation needs for these areas based on the land use development patterns that could occur. The focus area locations were selected based on feedback from city and county staff to ensure the landscape and expected development dynamics are representative of the types of development that may occur throughout the FLATS area. Both focus areas are located in Florence County.

In addition to the analysis of these focus areas the 2035 FLATS LRTP examines character areas identified through a scenario planning exercise. These character areas are described in writing but also through visualization in order to most effectively communicate the characteristics of each. The Transportation Element of the Florence County Comprehensive Plan should consider not only the land use techniques and characteristics shown in the 2035 FLATS LRTP but also the land use strategies and recommendations developed in the Florence County Comprehensive Plan and the City of Florence Comprehensive Plan.

Other Transportation Infrastructure

Transportation infrastructure consists of other forms in addition to highways, airports, railroads, and ports. Electric, gas and water pipelines also are important transportation infrastructure components. Santee Cooper, Progress Energy, Pee Dee Electric Cooperative and SCANA Corp. all serve the Florence area. These energy partners in the Pee Dee Region have large implications for economic development for Florence County.

- The City of Florence is Progress Energy's regional headquarters. This company works with Florence County Economic Development Partnership and Florence County Progress to promote business investment and job growth. They also work with the North Eastern Strategic Alliance – a regional economic development organization for Florence and eight neighboring counties. Progress Energy partnered with Florence County and the private sector to develop the 194-acre Godley Morris Commerce Center in Lake City and construct a speculative building within the park.
- In addition to providing power, Pee Dee Electric Cooperative operates the Pee Dee Touchstone Energy Commerce City – a 705-acre, commercial and industrial park at I-95 and US 327. This industrial park represents an \$11 million investment by the cooperative. The cooperative also provides scholarships to several students at Francis Marion University and Florence-Darlington Technical College.
- Columbia, SC-based SCANA, which owns South Carolina Electric & Gas, provides natural gas to Florence County residents in addition to transmitting, distributing and selling electricity to retail and wholesale customers.

- The City of Florence and other municipalities in the county maintain water and wastewater infrastructure for residents within and outside of its corporate limits. The City of Florence also manages a stormwater drainage system throughout the City of Florence.

Transportation Security

Emphasizing security during the transportation planning process helps identify and implement ways to improve security and mitigate imminent threats. For the Transportation Element, this effort is tied closely to the 2035 FLATS LRTP. General strategies can be formulated at both the regional (FLATS) and county levels, and both entities can create multimodal recommendations that enhance security. Implementation likely will fall under the purview of local municipalities and the county. The basic element of a transportation system that emphasizes security is a safe, balanced and well-connected network of streets. In the FLATS region and throughout Florence County, key security considerations include the following topics:

Emergency Response and Fire Protection

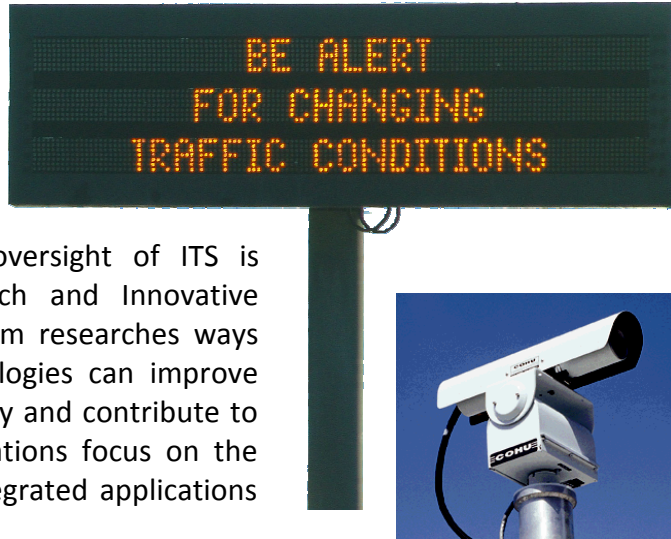
The Florence County Emergency Management Department is responsible for overall coordination of county, state and volunteer agencies before, during and after an emergency. This department produced the Florence County Emergency Operations Plan (EOP) in accordance with South Carolina Regulations. Emergency response and fire protection in Florence County include the following aspects:

- Florence County Emergency Medical Services (EMS) includes seven ambulance stations and one quick responder station arranged in medic districts throughout the county. Florence County EMS also supplements local rescue squads.
- Altogether, twelve fire departments and districts protect Florence County and its participating jurisdictions. Each organization is given an Insurance Service Organization (ISO) Rating or Public Protection Classification, which classifies the community's fire-fighting capability.
- The Florence County Sheriff's Office provides safety and security to more than 130,000 citizens over 800 square miles. In addition, the cities of Florence, Lake City and Johnsonville and the towns of Coward, Olanta, Pamplico, Scranton, Timmonsville and Quinby maintain a police force. In 2009, the City of Florence Police Department received a Community Oriented Policing Services (COPS) grant to fund a new substation for the Florence area and three additional officers. The substation opened in August 2009 and is located at the corner of Dargan and Evans streets. Two Community Action Team officers from this location patrol the streets on foot while another officer patrols the area in an electric vehicle. The city has applied for another COPS grant to hire five additional police officers for other areas within the city.
- In addition to its typical services, the City of Florence Police Department also monitors and patrols the current trail network by scooter, all terrain vehicle and horseback.

- The City of Florence also is the home of special services units. These units include the Traffic Division, Canine/Warrant Team, Downtown/Bike Patrol Unit, Transportation Unit and Animal Control.

Intelligent Transportation Systems

Intelligent Transportation Systems (ITS) improve transportation safety and mobility and enhance productivity by integrating advanced communications technologies into the transportation infrastructure. Federal oversight of ITS is handled through the USDOT's Research and Innovative Technology Administration. This program researches ways information and communication technologies can improve surface transportation safety and mobility and contribute to America's economic growth. ITS applications focus on the infrastructure and vehicle as well as integrated applications between the two.

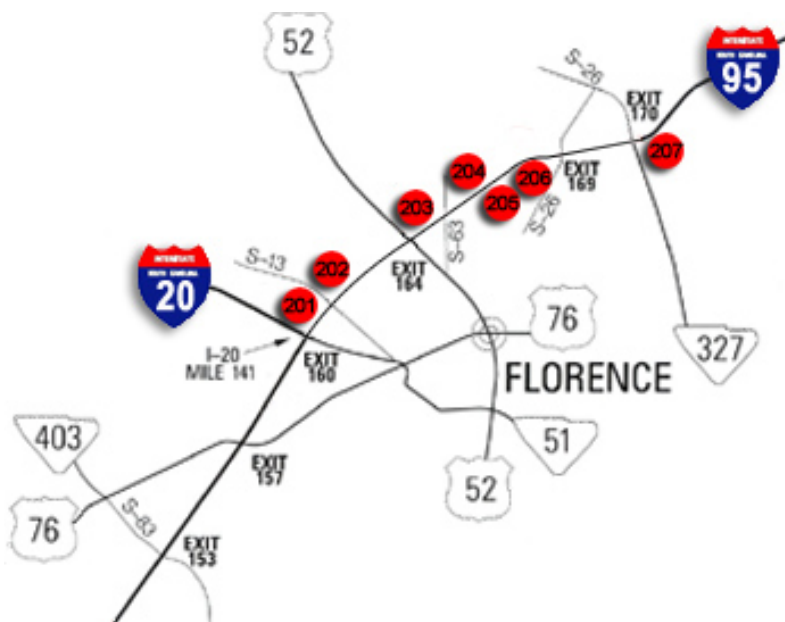


Familiar ITS technologies include electronic toll collection, in-vehicle navigation systems, rear-end collision avoidance systems and dynamic message signs. Technology transfer also is a key element of the ITS program. Research findings and evaluations are published online; a National ITS Architecture and Standards program ensures that states and jurisdictions have the framework they need to deploy interoperable ITS systems; and training on the latest ITS applications is developed and delivered by the program.

SCDOT strategically places traffic cameras on interstate highways for security and safety precautions. Images from these cameras are available on the SCDOT website to allow users to view traffic. Figure 8-11 shows the identification number and location of seven traffic cameras in the Florence County area on I-95:

- (201) I-95 & I-20
- (202) I-95 and S-193 (Sumter Street Ext)
- (203) I-95 and US 52
- (204) I-95 and S-63 (Mechanicsville Road)
- (205) I-95 and S-179 (McIver Road)
- (206) I-95 and S-26 (TV Road)
- (207) I-95 and SC 327 (Williston Road)

Figure 8-11. Traffic Cameras in Florence



Source: www.scdot.org

Automated Enforcement

A security feature that could enhance security is automated enforcement. Automated enforcement refers to the use of technology to enforce traffic safety laws. Most automated enforcement programs are for red light violations. However, the use of automated enforcement of speed limits is increasing, and a few jurisdictions use automated enforcement for other violations such as failing to pay a toll and disobeying a railroad crossing signal. Laws vary from state to state where some authorize enforcement statewide; others permit use only in specified communities.

An example of automated enforcement would be red light cameras which are triggered when a vehicle enters an intersection after the light has been red for a predetermined time. A nationwide study of fatal crashes at traffic signals in 1999 and 2000 estimated that 20 percent of the drivers involved failed to obey the signals. In 2007, nearly 900 people were killed and an estimated 153,000 were injured in crashes that involved red light running. About half of the deaths in red light running crashes are pedestrians and occupants in other vehicles who are hit by the red light runners.

Hazardous Materials

Florence County roadways are utilized to transport hazardous material. The Florence County Emergency Management Department completed a hazardous materials commodity flow study in July 2009. The hazardous material transported via roadway most frequently through

Florence County was gasoline, accounting for 18% of surveyed shipments of hazardous materials. The interstate highways carry nearly 90% of the hazardous materials transported through the county. In comparing the 2009 and 1999 survey, the percentage of trucks transporting hazardous materials through Florence County has increased by approximately 2.1% over the last 10 years.

The Strategic Highway Network (STRAHNET) system of public highways provides access, continuity and emergency transportation of personnel and equipment in times of peace and war. The 61,000-mile system, designated by the FHWA in partnership with the Department of Defense (DOD) comprises of approximately 45,400 miles of interstate and defense highways and 15,600 miles of other public highways. STRAHNET is complemented by approximately 1,700 miles of connectors or additional highway routes linking more than 200 military installations and ports to the network. In addition to the county's interstate highways, US 76 in Florence County is identified as a non-interstate STRAHNET.

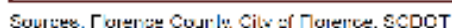
Evacuation Routes / Natural Disasters

Natural emergencies such as earthquakes, hurricanes and tropical storms present the need for an efficient roadway network. Fortunately, Florence County has not had the challenges that many other counties in South Carolina have had with these natural disasters. Although Florence County is outside the evacuation area, coastal evacuation may still affect Florence County's roadway network because the county contains designated evacuation routes and shelters. Figure 8-12 illustrates the hurricane evacuation routes that would affect Florence County and the shelters available in this area.



According to the South Carolina Department of Natural Resources (SCDNR), approximately 70 percent of the earthquakes in South Carolina occur in the Coastal Plain and most are clustered around three areas west and north of Charleston: Ravenel-Adams Run-Hollywood, Middleton Place-Summerville and Bowman. In regards to hurricanes and tropical storms, according to the South Carolina Emergency Management Division (SCEMD), South Carolina is one of the most vulnerable states in the nation. Six of the state's counties have coastlines along the Atlantic Ocean.

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Freight Considerations

In order to maintain safe highways, the South Carolina Truck Weight Law (SC Code: 56-5-4130 and 4160) allows for 20,000 lbs. single axle, plus 10% tolerance (22,000 lbs.) on all roads except interstates. There is no tolerance on interstates. SC Code: 56-5-4140 explains the statutory limits on the gross weight of a vehicle or combination of vehicles, operated or moved upon any interstate, highway or section of highway. These limits are divided into seven categories depending on a single or combination of vehicles and the number of axles.

New Homeland Security measures stress new technology for freight tracking as well as personnel and cargo security. These technologies are vital for maintaining a secure supply chain and the safety of the citizens.

Transit Considerations

The FTA requires PDRTA to spend a minimum of 1% of all federal dollars received on security, though PDRTA typically exceeds this requirement. In the last year, PDRTA has added new security cameras and systems at all three of their facilities as well as real time GPS tracking on all of their revenue service and maintenance vehicles and have system-wide cellular phones permanently mounted in all vehicles.

Automated fare boxes are now on all fixed-route transit vehicles alleviating the drivers' need to handle cash. Fare cards are available, which offer the same safety features. PDRTA's newer buses have interior advertising space which will be used to put up safety and security notices about suspicious packages and other suspect activity on buses and how to report it. PDRTA is considering bus security cameras for the current fixed bus routes. If feasible, these will be added to their next federal grant. In October 2009, PDRTA contracted for vehicle scheduling and dispatching software, maintenance software and automatic vehicle location (AVL). This AVL system has a "panic button" that the driver can use to alert police in the event of an emergency.

Air Travel Considerations

All airports are required to follow the National Transportation Security Guidelines to ensure the safety of their passengers. These guidelines can be viewed at the Transportation Security Administration website (www.tsa.gov/travelers/index.shtm.)

Rail Considerations

According to 2008 data collected for the hazardous materials commodity flow study, 12,378 carloads of hazardous material shipped through Florence County. In comparison with the 1998 study, this data shows the total number of shipments of hazardous materials through Florence County has increased by 1.4% annually.

The Railroads and Highways for National Defense program, with the support of the USDOT, ensures the nation's rail and highway infrastructure can support defense emergencies. The Strategic Rail Corridor Network (STRACNET) consists of 38,800 miles of rail lines important to national defense and provides service to defense installations whose mission requires rail service.

While mass transit systems in this country are owned and operated by state and local government and private industry, securing these systems is a shared responsibility between federal, state and local partners. Since the terrorist attacks of September 11th, the Transportation Security Administration (TSA) has provided significant resources to bolster these security efforts.

Transportation Funding Sources

With increasing development, roadways in Florence County have experienced worsening congestion especially during peak commuting hours. In addition, traditional grid-based street network gave way to new development patterns that limit multi-modal travel opportunities. Today, numerous entities focus on transportation issues and needs of Florence County:

- **South Carolina Department of Transportation (SCDOT):** Safety improvements, maintenance of highways and distribution of federal funds
- **Florence Area Transportation Study (FLATS):** Urban area surface street planning and prioritization of projects based on a LRTP
- **Florence County Transportation Committee (CTC):** Utilizing gas tax funds to maintain county roadways
- **City of Florence:** Maintenance funds and development integration
- **Florence County:** Capital projects sales tax and road system maintenance fee (RSMF)

Existing Funding Sources

State and Federal Funding

The Federal Transportation Improvement Plan (TIP) is a 6-year financial program that describes the schedule for obligating federal funds to state and local projects. The TIP contains funding information for all modes of transportation including highways as well as transit capital and operating costs. State, regional and local transportation agencies update the program each year to reflect priority projects. While estimated completion dates are given for projects in the plan, it should be noted that the TIP is not a capital improvement program. The TIP represents an agency's intent to construct or implement a specific project and the anticipated flow of federal funds and matching state or local contributions. The TIP serves as a schedule of accountability to the FHWA and FTA. Their annual review and certification of the TIP ensures the continuation of federal financial assistance for transportation improvements. The 2010-2015 TIP for FLATS includes approximately \$240 million in projects. These projects include

resurfacing or rehabilitation, safety upgrades, mass transit operating funds and capacity improvements. The Florence County capital projects sales tax program comprises of \$222 million of the total funding amount in the TIP for this period.

Federal funds available to Florence County have increased over the past 15 years. A large increase in federal funds occurred under the Transportation Equity Act for the 21st Century (TEA-21), the 1998 federally legislated transportation funding bill. This, along with an aggressive bonding initiative (known as the “27 in 7” program), allowed counties in South Carolina to accelerate the federal highway program between 1999 and 2006. In 2005, Congress enacted SAFETEA-LU, which provided a modest funding increase for South Carolina. The next transportation reauthorization act (SAFETEA-LU’s replacement) is planned for 2010 or 2011. Due to weakened fuel tax revenues, Congress will be faced with a significant challenge to fund the nation’s highways.

In 2009, federal stimulus funds became available and projects were chosen at the state level for county resurfacing projects, sidewalk improvements, interstate maintenance and bridge construction and replacement. Projects were chosen for Florence County in all categories with the exception of bridge construction and replacement.

The state highway user fee, more commonly known as the fuel tax, is collected at the rate of 16 cents per gallon of gas. The motor fuel user fee has been maintained at this level since 1987. Across the southeastern region, 51% of state source highway funding is derived from sources other than fuel user fees such as sales tax on vehicles and general sales taxes.

The federal government imposes the 18 cents per gallon fuel user fee across the United States. These federal funds are limited in how they can be used and must be used on roads that contribute significantly toward interstate commerce. These funds cannot be used for routine maintenance. Each state is required to match federal highway funds with state or local funds.

FLATS Funding

FLATS receives federal funds for transportation related projects for the FLATS area. The FLATS area consists of the northwestern portion of Florence County, extending into a small portion of Darlington County, the City of Florence and outlying area including the Town of Quinby. The FLATS boundary is shown in the maps throughout the Transportation Element.

Transportation related projects funded by federal dollars for the FLATS area must be considered and approved by the FLATS Policy Committee. The FLATS Policy Committee consists of representatives from the State Legislature, South Carolina Highway Commission, Florence County Council, City of Florence Council and the Florence CTC as well as the Mayors of the City of Florence and the Town of Quinby. All transportation related projects, presented to the FLATS Policy Committee are first examined by the FLATS Study Team for recommendation. The FLATS Study Team consists of technical representatives from various agencies and departments in the area. Projects approved by the FLATS Policy Committee are then presented to SCDOT for

final approval. The approved projects must be listed in the FLATS TIP, which is updated on an annual basis. In addition, these projects are listed in the STIP.

Pee Dee Council of Governments Funding

The Pee Dee Council of Governments (PDCOG) receives federal money for highway improvement projects outside the FLATS area for Florence County. Like FLATS, the PDCOG is required to have a LRTP, with all projects listed in their TIP and ultimately the STIP. The majority of funds available to the PDCOG are currently being applied towards their debt service for highway projects completed as a result of the “27 in 7” bonding initiative as mentioned above. The PDCOG recently approved widening five miles of US 52 north of Darlington.

Funding within Florence County

The Florence County Transportation Committee (CTC) is an independent body appointed by the state legislative delegation which receives gas tax maintenance funds (also known as C-funds) for highway improvement and resurfacing projects. The CTC receives 2.66 cents on every gallon of gas purchased in Florence County, currently amounting to approximately \$160,000 per month. The CTC funds are used on all Florence County roads including roads within municipalities. A minimum of 25% of the monthly funds are required to be used on state roads.

Florence County collects road system maintenance fee (RSMF) funds which are designated and appropriated by Florence County Council.

Transit Funding

PDRTA receives federal funds through FTA programs. As authorized by SAFETEA-LU, FTA provides stewardship of combined formula and grant programs totaling more than \$10 billion to support a variety of locally planned, constructed and operated public transportation systems throughout the United States. Transportation systems typically include a wide variety of modes including buses, subways and light rail.

Federal funds awarded to PDRTA are listed in the FLATS TIP. Providing planning assistance to PDRTA helps the efficiency of the current transportation network by potentially removing future traffic volumes from the roadway. FLATS maintains this assistance by providing map books to PDRTA and continuously updating demographic information.

Rail Funding

The Department of Homeland Security (DHS) has provided roughly \$18 billion in awards to state and local governments for programs and equipment that help to manage security. Through the Transit Security Grants Program, DHS has provided \$374.7 million to date to 60 of the country’s rail, mass transit, ferry and intra-city bus systems in 25 states and the District of Columbia. In addition to this funding, states and localities, meeting certain conditions, can

apply for other Homeland Security grant programs and Urban Area Security Initiative funds for rail security projects and initiatives.

Airport Funding

The Federal Aviation Administration (FAA) is an agency of the USDOT with authority to regulate and oversee all aspects of civil aviation in the United States. Federal grant funds or federal property transfers for airport purposes are obtained through the FAA. The FAA enforces certain obligations to fund recipients through its Airport Compliance Program.

Alternative Funding Sources

State revenues alone will not sufficiently fund a systematic program to construct transportation projects in Florence County. Therefore, the county must consider alternative funding measures that could allow for the implementation of this plan. One alternative funding measure, a capital projects sales tax, has already been voted into place by Florence County citizens. Alternative funding measures being considered and applied in other areas are included here.

Impact Fees

Developer impact fees and system development charges provide another funding option for communities looking for ways to fund collector streets and associated infrastructure. These funds are most commonly used for water and wastewater system connections or police and fire protection services, but recently they have been used to fund school systems and pay for the impacts of increased traffic on existing roads. Impact fees place the costs of new development directly on developers and indirectly on those who buy property in the new developments. Impact fees free other taxpayers from the obligation to fund costly new public services that do not directly benefit them. A few communities in South Carolina have approved the use of impact fees (e.g., Berkeley County, Summerville). The use of impact fees requires special authorization by the South Carolina General Assembly.

Transportation Bonds

Transportation bonds have been instrumental in the strategic implementation of local roadways and non-motorized travel throughout South Carolina. Voters in communities both large and small regularly approve the use of bonds in order to improve their transportation system. Projects that historically have been funded through transportation bonds include sidewalks, road extensions, new road construction and streetscape enhancements.

Developer Contributions

Through diligent planning and early project identification, regulations, policies and procedures could be developed to protect future arterial corridors and require contributions from developers. These measures would reduce the cost of right-of-way purchases and would in

some cases require the developer to make improvements to the roadway that would result in lower construction costs. To accomplish this goal, it takes a cooperative effort between local and SCDOT planning staff and the development community.

One area where developers can be expected to assist in the implementation of transportation improvements is for new collector streets. New local development can often burden collector streets with increased traffic, requiring lane improvements or widening. New development ventures should be encouraged to fund an equitable portion of these improvements based on their impacts to the local traffic network.

Oversize Agreement

An oversize agreement provides cost sharing between the county and a developer to compensate a developer for constructing a collector street instead of a local street. For example, instead of a developer constructing a 28-foot back-to-back local street, additional funding would be provided by the locality to upgrade the particular cross-section to a 34-foot back-to-back cross section to accommodate bike lanes.

Grant Anticipation Revenue Vehicles Bonds

Grant Anticipation Revenue Vehicles (GARVEE) bonds can be utilized by a community to implement a desired project more quickly than if they waited to receive state or federal funds. These bonds are let with the anticipation that federal or state funding will be forthcoming. In this manner, the community pays for the project up front, and then receives debt service from the state. GARVEE bonds also are an excellent way to capitalize on lower present-day construction and design costs, thereby finishing a project more quickly and economically than if it was delayed to meet state timelines.

Safe Routes to School

Safe Routes to School is a program receiving funding through the federal SAFETEA-LU legislation. The program provides funding for individual schools to create route plans or develop facilities that create a safer walking and biking environment for their students. South Carolina has an annual application program for which any school, school district, municipality or other governmental body or non-profit association may apply.

Bicycle and Pedestrian Funding

Bicycle and pedestrian projects often have dedicated funding sources. For instance, the Robert Wood Johnson Foundation funds a grant program called Active Living by Design. The purpose of this program is to provide communities with a small grant to study bicycle, pedestrian or other healthy living initiatives. Other funding sources that can or have been used to enhance the existing bicycle and pedestrian network within Florence County include the South Carolina Parks, Recreation and Trails grants, Recreation Land Trust grants, City of Florence Hospitality Fund, City of Florence General Fund and private donations.

Aesthetic Enhancement Funding

In order to create a more pleasing transportation system, small aesthetic improvements often have a large impact. SCDOT has two formal programs to help provide an avenue for community involvement in the transportation system. The Adopt-A-Highway program allows individuals or groups to help maintain a part of the highway system. SCDOT's Adopt-An-Interchange program provides funding towards landscaping and beautifying an interchange with a 20% local match. This initiative is a part of the state's enhancement funding program.

Enhancement Grants

State and federal grants can play an important role in implementing strategic elements of the transportation network. The Enhancement Grant program, established by Congress in 1991 through the Intermodal Surface Transportation Efficiency Act (ISTEA), ensures the implementation of projects not typically associated with the road-building mindset. This grant targets the construction of bicycle and pedestrian facilities.

Enhancement funding has already played an important role in enhancing the pedestrian safety and connectivity in Florence County. Approximately \$700,000 of FLATS enhancement funding was utilized to begin the rail trail in the City of Florence. Potential enhancement projects follow the standard FLATS Study Team recommendation and Policy Committee approval to submit to SCDOT. Projects approved by SCDOT for these funds require a government entity as the applicant and a 20% match in funding. In the current 2010-2015 TIP for Florence County, no enhancement projects have yet been identified.

For additional information on alternative funding strategies, please see the following websites:

- GARVEE Bonds
 - www.fhwa.dot.gov/innovativeFinance/garguid1.htm
- Safe Routes to School
 - www.saferoutesinfo.org/ www.scdot.org/community/saferoutes.shtml
- Bicycle and Pedestrian Funding
 - www.activelivingbydesign.org/
 - www.walkinginfo.org/funding/sources.cfm
- Adopt-A-Highway
 - www.scdot.org/community/adoptahighway.shtml
- Adopt-An-Interchange
 - www.scdot.org/community/tep_inter.shtml
- Enhancement Grants
 - www.scdot.org/community/tep_app.shtml

Goals and Implementation Strategies

The South Carolina Priority Investment Act recognizes the importance of generating a coordinated set of transportation and land use decisions as part of a comprehensive plan. For this planning process to be effective, the recommendations in each section build on a common vision and share complementary goals. A set of goals and objectives has been identified for the Transportation Element of the Florence County Comprehensive Plan through coordination with the Planning Commission and county staff. These goals not only reflect the multi-modal nature of the planning element but also focus on the integration with land use and environmental considerations. Each objective includes a set of implementation strategies, taking recommendations and strategies proposed in the element and relating them back to the advancement of the overall goals of the plan. These goals, objectives and implementation strategies are shown in Table 8-2.

Implementation is the key to success for any planning process. The Transportation Element of the Florence County Comprehensive Plan should be used as a tool for working with SCDOT, FHWA, FLATS and Florence County municipalities on future improvements. It will provide decision-makers an implementation blueprint that enables them to track progress and schedule future improvements. Ultimately, continued collaboration between state, local agencies and the general public will provide more opportunities to foster a safe, aesthetically-pleasing and well-balanced multi-modal transportation system that will continue to make Florence County an attractive place to live and work.

Policy recommendations will not incur additional expense and should be completed in the short-term based on availability of staff. Often, these policy changes will be an iterative process involving staff, resource agencies and elected and/or appointed officials. A detailed implementation and action plan for the policy, program and infrastructure recommendations for FLATS can be found in the 2035 FLATS LRTP.

Table 8-2. Goals and Implementation Strategies

GOAL 1 – A safe, well connected roadway network
Objective — Develop and maintain a roadway network that safely and efficiently accommodates vehicular traffic at acceptable levels of service, while supporting sound growth and economic development.
<ul style="list-style-type: none">• Look for increased connectivity between businesses and neighborhoods.• Investigate implementing complete streets concepts in roadway improvements.• Improve access management (limiting curb cuts on major roads and intersections).
Objective — Develop, adopt and implement a Collector Street Plan to ensure optimal efficiency and enhanced connectivity of the local street system.
<ul style="list-style-type: none">• Determine spacing standards for collector streets in different land use contexts.• Integrate collector street provisions into development standards and guidelines.

Objective — Continue to model expected travel on roadways.

- Institute scenario planning modeling and testing.
- Model effects of public and private planning initiatives on transportation network.

Objective — Improve automated enforcement and information delivery.

- Increase the use of Intelligent Transportation Systems on arterial roads.
- Improve arterial road signal timing and corridor coordination.

GOAL 2 – A balanced, multi-modal transportation network

Objective — Develop a safe, comprehensive pedestrian and bicycle network.

- Improve and increase the use of bicycle Share the Road signage.
- Reduce the speed of motor vehicles in high-traffic bicycle and pedestrian areas.
- Reduce pedestrian risks at street crossing locations.
- Provide sidewalks and walkways separated from motor vehicle traffic.
- Improve awareness of and visibility between motor vehicles and pedestrians.
- Improve and expand youth and adult education courses for pedestrian, bicycle and motorist safety.
- Support the use of multi-use paths and greenways in new commercial and residential construction.

Objective — Identify missing links in the sidewalk network.

- Develop priority sidewalk construction lists for all municipalities in Florence County.
- Work with municipalities and SCDOT to encourage sidewalk construction.

Objective — Continue to support and assist local transit agency.

- Work with local businesses, social service departments and YMCAs to distribute transit information at their locations in an effort to better disperse transit information to the target market.
- Research ways to increase trip frequency and ridership.
- Encourage the availability and use of multi-modal transportation alternatives.

GOAL 3 – An integrated approach to land use and transportation planning

Objective — Modify subdivision and commercial development standards and regulations to support an integrated transportation system that incorporates effective spacing and connectivity of collector streets and adequate connectivity of the local street system.

- Work with member jurisdictions to apply collector street and connectivity standards throughout Florence County.
- If needed, educate developers on the benefits of connected development standards.

Objective — Strengthen existing development standards and regulations to improve transportation network efficiency and coordinate transportation and land use planning.

- Manage growth and land use transportation relationships in ways that contribute to reduced air pollution, including ozone, carbon monoxide and particulate matter and retain Florence County's air quality "attainment" status for all National Ambient Air Quality Standard pollutants.
- Review urban growth boundaries.

GOAL 4 – A proactive approach to funding and implementation

Objective — Ensure adequate funding for construction and maintenance of bicycle facilities, sidewalks and trails as critical components of the transportation system.

- Leverage state and federal grant funds to supplement county resources wherever possible.
- Ensure close coordination between transportation and parks and recreation plans, both at the county level and within member jurisdictions.

Objective — Develop and apply funding mechanisms and growth management tools that will prevent over-congested roads, reduce air pollution and ease burdens on taxpayers to pay for roadway improvements necessitated by growth.

- Maximize effectiveness of transportation projects selected through FLATS and Florence County capital projects sales tax program.
- Investigate the benefits and drawbacks of proposing an extension to the sales tax program through voter referendum.

Objective — Require appropriate developer contributions to defray public costs of road capacity improvements necessitated by new development.

- Investigate the viability of mechanisms to collect developer contributions such as transportation impact fees, fund banking and oversize agreements.

Objective — Encourage coordination of policies and support joining initiatives with SCDOT, FLATS, local and neighboring municipalities, the PDCOG, the CTC, non-profit service providers and other agencies as appropriate, to address transportation issues of shared concern and to maximize the collective benefits of transportation projects.

- Establish Florence County, FLATS or other entity as the agency responsible for maintaining a database of project needs for all member jurisdictions.
- Identify projects in Florence County, FLATS and member jurisdictions' planning efforts that could benefit from enhanced interagency coordination.

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Appendix A

Common Abbreviations

AADT – Annual Average Daily Traffic

AAR – Association of American Railroads

AASHTO – American Association of State Highway and Transportation Officials

ADA – Americans with Disabilities Act

ADT – Annual Daily Traffic

ARRA – American Recovery and Reinvestment Act

AVL- Automatic Vehicle Locator

COPS – Community Oriented Policing Services

CTC – County Transportation Committee

DHS – Department of Homeland Security

EMS – Emergency Medical Services

EOP – Emergency Operations Plan

EPDO – Equivalent Property Damage Only

FAA – Federal Aviation Administration

FHWA – Federal Highway Administration

FLATS - Florence Area Transportation Study

FTA – Federal Transit Administration

GARVEE – Grant Anticipation Revenue Vehicles

GIS – Geographic Information System

GPS – Global Positioning System

HUD – U.S. Department of Housing and Urban Development

ISO – Insurance Service Organization

ISTEA – Intermodal Surface Transportation Efficiency Act

ITS – Intelligent Transportation System

JARC – Job Access and Reverse Commute Program

LOS – Level of Service

LRTP – Long Range Transportation Plan

N.O.S. – Not Otherwise Specified

PCA – Personal Care Attendant
PDCOG – Pee Dee Council of Governments
PDO – Property Damage Only
PDRAA – Pee Dee Regional Airport Authority
PDRTA – Pee Dee Regional Transportation Authority
SAFETEA-LU – Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SCDNR – South Carolina Department of Natural Resources
SCDOT – South Carolina Department of Transportation
SCEMD – South Carolina Emergency Management Division
SCRF – South Carolina Central Railroad
SIB – State Infrastructure Bank
STIP – State Transportation Improvement Plan
STRACNET – Strategic Rail Corridor Network
STRAHNET – Strategic Highway Network
TEA-21 – Transportation Equity Act
TIP – Transportation Improvement Plan
TSA – Transportation Security Administration
UMI – Urban Markets Initiative
USDOT – U. S. Department of Transportation
V/C – Volume-to-Capacity
VPD – Vehicles Per Day

Appendix B

Roadway Functional Classifications

Interstate or Freeways: Divided highways usually having two or more lanes in each direction, with full control of access. Preference is given to through traffic and at-grade access connections with public roads are prohibited. Connected driveways are also prohibited. (Example Facilities: I-95 & I-20)

Arterial streets: Arterials are the highest order of inter-regional streets. They are designed to carry relatively high traffic volumes. The function of arterials is to promote the free flow of traffic. Therefore, parking and direct residential access are usually not available. Collector streets feed arterials, and arterials feed regional roads such as expressways and freeways. Average daily traffic (ADT) for arterials is approximately 3,000—5,000+ vehicles per day (vpd). (Example Facilities: US 52, SC 51/Pamplico Highway, Second Loop Road)

Collector streets (commercial): Commercial collectors are the highest order of commercial streets. Collectors typically provide less overall mobility, operate at lower speeds (less than 35 mph), have more frequent and greater access flexibility with adjacent land uses, and serve shorter distance travel than arterials. These facilities distribute traffic between lower-order commercial streets and higher-order streets such as arterials. Average daily traffic (ADT) for commercial collector streets is approximately 3,000—5,000 vehicles per day (vpd).

Collector streets (residential): Residential collectors are the highest order of residential streets. Collectors typically provide less overall mobility, operate at lower speeds (less than 35 mph), have more frequent and greater access flexibility with adjacent land uses, and serve shorter distance travel than arterials. These facilities collect and distribute traffic from local residential roadways, such as minor streets or cul-de-sacs, to the arterial street network. They are designed to carry higher volumes of traffic, such as arterials and other major streets. The function of residential collectors is to promote free traffic flow. Therefore, direct access to homes from this level of street should be avoided. Average daily traffic (ADT) for residential collector streets is approximately 2,000—5,000 vehicles per day (vpd).

Local streets (sub-collector streets): These middle-order facilities are located in subdivisions and neighborhoods and primarily serve abutting land uses. Traffic volumes are typically moderate, with motorists having origin or destination within the immediate neighborhood. These streets feed into collector streets, which then feed into arterials. Average daily traffic (ADT) is approximately 1,000—2,000 vehicles per day (vpd).

Appendix C

Level of Service (LOS) Descriptions

- **LOS A or B** (*well below capacity, V/C less than 0.6*) – Roadways operating with a V/C ratio less than 0.6 operate at optimal efficiency with no congestion during peak travel periods. These levels of service most frequently occur on rural or local streets. During LOS A conditions, traffic flows at or above the posted speed limit and all motorists have complete mobility between lanes. In LOS B conditions there are minor impacts to maneuverability, such as two motorists driving side by side, thereby limiting lane changes.
- **LOS C** (*approaching capacity, V/C 0.6 to 0.8*) – As the V/C nears 0.8, the roadway becomes more congested. These roadways operate effectively during non-peak hours but may be congested during morning and evening peak travel periods. At **LOS C** most experienced drivers are comfortable, roads remain safely below but efficiently close to capacity, and posted speed is maintained.
- **LOS D** (*at capacity, V/C 0.8 to 1.0*) – Roadways operating at capacity are somewhat congested during non-peak periods, with congestion building during peak periods. A change in capacity due to incidents impacts the travel flow on corridors operating within this V/C range. **LOS D** is perhaps the level of service of a busy shopping corridor in the middle of a weekday, or a functional urban highway during commuting hours. In busier urban areas this level of service is sometimes the goal for peak hours, as attaining **LOS C** would require a prohibitive cost in bypass roads and lane additions.
- **LOS E** (*slightly over capacity, V/C 1.0 to 1.2*) – Roadways operating with V/C ratios between 1.0 and 1.2 experience heavy congestion during peak periods and moderate congestion during non-peak periods. Flow becomes irregular and speed varies rapidly, but rarely reaches the posted limit. Changes in capacity can have major impacts on corridors and may create gridlock conditions.
- **LOS F** (*well over capacity, V/C greater than 1.2*) – Roadways in this category represent the most congested corridors in the study area. These roadways are congested during non-peak hours and most likely operate in stop-and-go gridlock conditions during the morning and evening peak travel periods.

Appendix D

Complete Streets

“Complete streets” describes the transformation of vehicle-dominated thoroughfares to community-oriented streets with safe, convenient accommodations for all modes of travel. Complete streets can be applied throughout the urban and suburban areas of Florence County. Based on feedback received during public outreach efforts a network of complete streets is desired. People often point to speeding motorists, unsafe and unpleasant conditions for pedestrians and bicyclists and the lack of transit amenities as reasons complete streets are needed. Complete street efforts for Florence County include recommendations for other modes in the Transportation Element. These efforts include access management strategies, bicycle and pedestrian recommendations, transit solutions and enhanced connectivity of the roadway network.

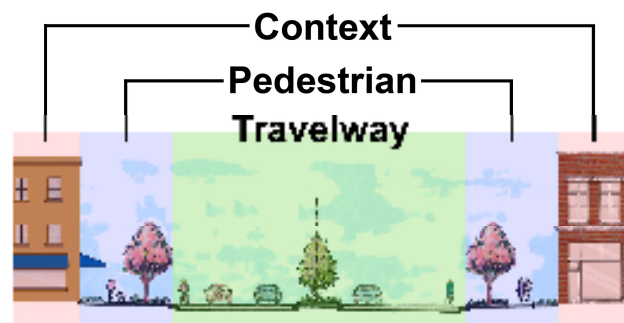
The ideal complete street accommodates every travel mode – pedestrians, bicyclists, motorists and transit riders of all ages and abilities. These streets give citizens choices and are designed and operated so they work for all users. When residents have the opportunity to walk, bike, or take transit, they have more control over their transportation expenses. Instituting a complete streets policy ensures that transportation planners and engineers consistently design and operate the entire roadway for a diversity of users.

Transforming arterials into complete streets is complicated and requires a diverse skill set and broad community support. Fortunately, other metropolitan areas have demonstrated success stories that have been translated into guiding documents. The most detailed guidance comes from a joint effort of the Institute of Transportation Engineers and Congress for the New Urbanism. With funding from the USDOT and the U.S. Environmental Protection Agency, best practices have been published as “Context-Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities.”

Successful complete street transformations require community support and leadership as well as coordination between various disciplines. Common goals for complete streets are economic revitalization, business retention and expansion, and public safety. Typical skill sets needed to retrofit complete streets include urban planning, urban design, landscape architecture, roadway design, utility coordination, traffic engineering, transportation planning, transit planning, architecture, graphic art and land redevelopment.

Elements of a Complete Street

A complete street includes four distinct street realms that foster interaction between different modes of travel and adjacent land uses. The four basic zones or realms are the context, pedestrian, travelway, and intersection realms.



- The **context realm** of a complete street is defined by the buildings that frame the major roadway. Identifying distinct qualities of the context realm requires focusing on four areas: building form and massing, architectural elements, transit integration, and site design. Consideration should be given to all of these with modifications as appropriate to fit the specific context of the area.
- The **pedestrian realm** of a complete street extends between the outside edge of the sidewalk and the face-of-curb located along the street. Safety and mobility for pedestrians within this realm relies on the presence of continuous sidewalks along both sides of the street built to a sufficient width for accommodating the street's needs as defined by the environment. For example, suburban settings will require different widths than downtown settings. The quality of the pedestrian realm also is greatly enhanced by the presence of high-quality buffers between pedestrians and moving traffic, safe and convenient opportunities to cross the street, and consideration for shade and lighting needs. Design elements that promote a healthy pedestrian realm generally focus on pedestrian mobility, quality buffers, vertical elements, and public open space.
- The **travelway realm** is defined by the edge of pavement or curb line that traditionally accommodates the travel or parking lanes needed to provide mobility for bicycles, transit, and automobiles sharing the transportation corridor. Recommended design elements incorporated into the travelway realm attempt to achieve greater balance between travel modes sharing the corridor and favor design solutions that promote human scale for the street and minimize pedestrian crossing distance. Recommendations for the travelway realm focus on two areas of consideration: modes of travel and medians.

Evaluating potential changes for the intersection realm of a street requires careful consideration of the concerns of multiple travel modes that could meet at major intersections within the transportation system. Recommendations for improving the multimodal environment in and around these major intersections focus on two areas of the facility: operations and geometric design.

As a whole, these elements determine how the built environment and the different ways people travel directly influence the livability of a corridor. The Transportation Element of the Florence County Comprehensive Plan includes a series of illustrative cross sections depicting different street types that should exist throughout the county.

Recommended Cross Sections

The following pages illustrate proposed typical cross-sections for Florence County roadways. The cross sections reflect the concept of complete streets that provide safe and convenient travel for all modes. To create a transportation network that respects the needs of pedestrians, bicyclists, and motorists, certain elements may require designs different from the current norm. Right-of-way for the recommended cross sections ranges from less than 50 feet for a two-lane collector to nearly 100 feet for a four-lane divided principal arterial. Within the right-of-way, the sidewalks and landscaping strips typically are wider than presently found in

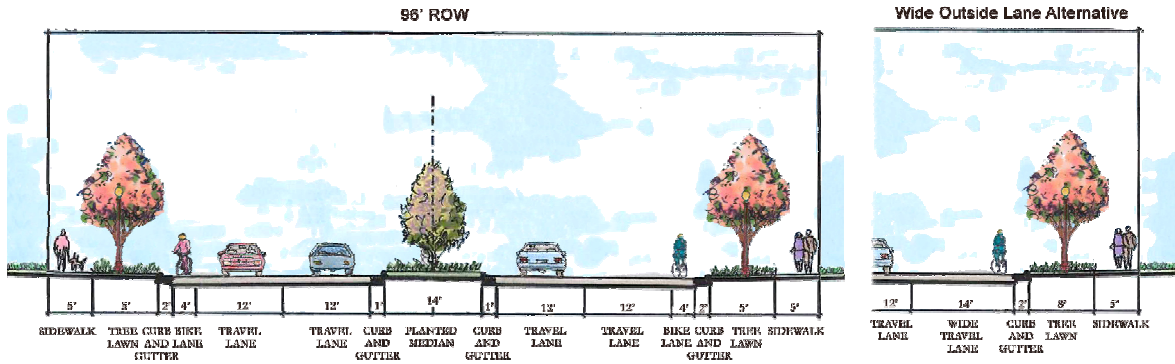
Florence County. As a result, careful evaluation of these recommendations by agencies initiating roadway projects is anticipated. Table 8-2 summarizes the elements of street typology, the multi-modal building blocks that form a complete street, for the cross sections as well as local streets not illustrated. A few of the illustrative cross sections include dedicated bicycle facilities. The type of bicycle facility for these corridors should be determined on a case-by-case basis after considering the surrounding land uses and anticipated skill level of bicyclists on the corridors.

Table 8-3. Elements of Street Typology

	Roadway Context	Access/Mobility	Travel Lanes	Center Treatment	Bicycle Facilities	Pedestrian Facilities	Roadway Capacity
Principal Arterials							
4-Lane Divided w/ Wide Outside Lanes 96' Right-of-Way 76' Roadway Width	Urban/ Suburban	High mobility	2 - 14' 2 - 12'	14' planted median (1' curb/gutter)	14' wide outside lanes	5' sidewalks, both sides	28,000 to 40,000 vpd
4-Lane Divided w/ Bike Lanes 96' Right-of-Way 76' Roadway Width	Urban/ Suburban	High mobility	4 - 12'	14' planted median (1' curb/gutter)	4' bike lanes, both sides	5' sidewalks, both sides	28,000 to 40,000 vpd
5-Lane w/ Wide Outside Lanes 88' Right-of-Way 68' Roadway Width	Urban/ Suburban	High mobility	2 - 14' 2 - 12'	12' two-way left-turn lane	14' wide outside lanes	5' sidewalks, both sides	28,000 to 40,000 vpd
Minor Arterials							
4-Lane Divided w/ Multi-Use Path 88' Right-of-Way 68' Roadway Width	Urban/ Suburban	Moderate mobility	4 - 12'	14' planted median (1' curb/gutter)	10' multi-use path, one side	10' multi-use path, one side	28,000 to 40,000 vpd
2-Lane Divided w/ 8' Parallel Parking 78' Right-of-Way 58' Roadway Width	Urban	Moderate access/ Moderate mobility	2 - 12'	12' planted median (1' curb/gutter)	Use travel lane	5' sidewalks, both sides	12,000 to 20,000 vpd
3-Lane 64' Right-of-Way 44' Roadway Width	Suburban	High access/ Moderate mobility	2 - 14'	12' two-way left-turn lane	14' wide outside lanes	5' sidewalks, both sides	12,000 to 20,000 vpd
Collectors							
2-Lane Divided w/ Bike Lanes 70' Right-of-Way 50' Roadway Width	Suburban	Moderate access/ Moderate mobility	2 - 12'	12' planted median (1' curb/gutter)	4' bike lanes, both sides	5' sidewalks, both sides	12,000 to 20,000 vpd
2-Lane w/ Bike Lanes 56' Right-of-Way 36' Roadway Width	Urban/ Suburban	High access/ Moderate mobility	2 - 12'	None	4' bike lanes, both sides	5' sidewalks, both sides	9,000 to 14,000 vpd
2-Lane w/ Wide Outside Lanes 56' Right-of-Way 36' Roadway Width	Urban/ Suburban	High access/ Moderate mobility	2 - 14'	None	14' wide outside lanes	5' sidewalks, both sides	9,000 to 14,000 vpd
2-Lane 48' Right-of-Way 28' Roadway Width	Urban/ Suburban	High Access	2 - 12'	None	Use travel lane	5' sidewalks, both sides	9,000 to 14,000 vpd
Rural 2-Lane w/ Multi-Use Path 56' Right-of-Way 36' Roadway Width	Rural	High Access	2 - 12'	None	10' multi-use path, one side or 4' paved shoulder		9,000 to 14,000 vpd

Principal Arterial: 4-Lane Divided with 16' Median

(4-Lane Divided with Raised Median, Bike Lanes, Sidewalks, Landscaping)

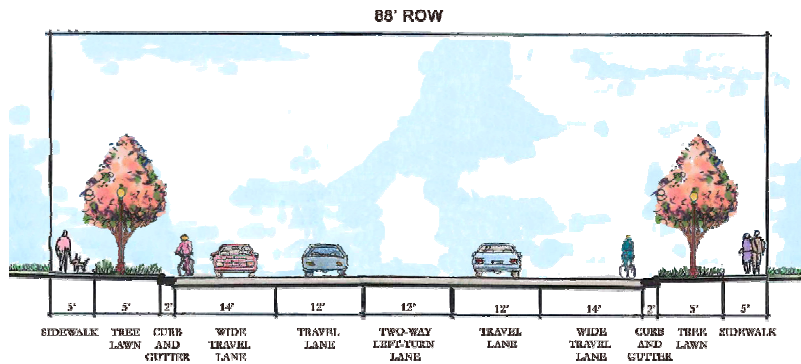


DESIGN FEATURES

Functional Classification	Principal Arterial
Roadway Context	Urban / Suburban
Access/Mobility	High Mobility
Right-of-Way Width	96'
Roadway Width	76' including 4 travel lanes, bike lanes, planted median, and curb and gutter
Traffic Lanes	4 12' travel lanes (WOL alternative: 2 12', 2 14')
On-Street Parking	None
Bicycle Facilities	4' bike lanes or 14' wide outside lanes
Pedestrian Facilities	5' sidewalks, both sides
Median	14' planted with 1' curb and gutter
Tree Lawn	5', both sides
Roadway Capacity	28,000 to 40,000 vehicles per day

Principal Arterial: 5-Lane

(5-Lane with Wide Outside Lanes, Sidewalks, Landscaping)

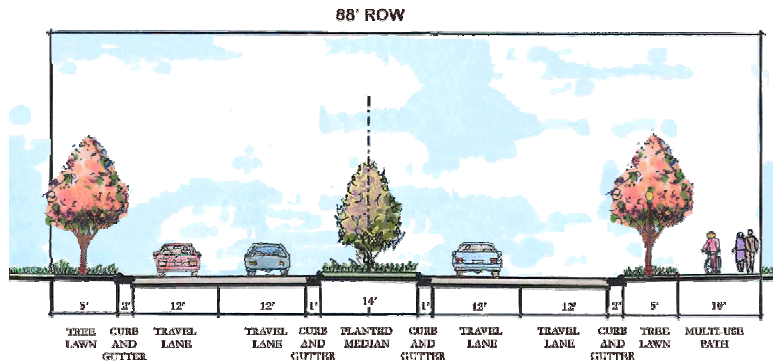


DESIGN FEATURES

Functional Classification	Principal Arterial
Roadway Context	Urban / Suburban
Access/Mobility	Moderate Mobility / Moderate Access
Right-of-Way Width	88'
Roadway Width	68' including 4 travel lanes, two-way left-turn lane, and curb and gutter
Traffic Lanes	2 12' travel lanes, 2 14' travel lanes
On-Street Parking	None
Bicycle Facilities	14' wide outside lanes
Pedestrian Facilities	5' sidewalks, both sides
Median	None
Tree Lawn	5', both sides
Roadway Capacity	28,000 to 40,000 vehicles per day

Minor Arterial: 4-Lane Divided with 16' Median

(4-Lane Divided with Raised Median, Multi-Use Path, Landscaping)

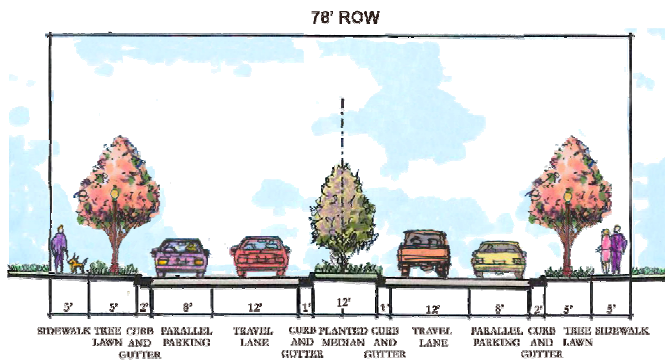


DESIGN FEATURES

Functional Classification	Minor Arterial
Roadway Context	Urban / Suburban
Access/Mobility	High Mobility
Right-of-Way Width	88'
Roadway Width	68' including 4 travel lanes, planted median, and curb and gutter
Traffic Lanes	4 12' travel lanes
On-Street Parking	None
Bicycle Facilities	10' multi-use path, one side
Pedestrian Facilities	10' multi-use path, one side
Median	14' planted with 1' curb and gutter
Tree Lawn	5', both sides
Roadway Capacity	28,000 to 40,000 vehicles per day

Minor Arterial: 2-Lane Divided with Parking

(2-Lane Divided with Raised Median, Parallel Parking, Sidewalks, Landscaping)



DESIGN FEATURES

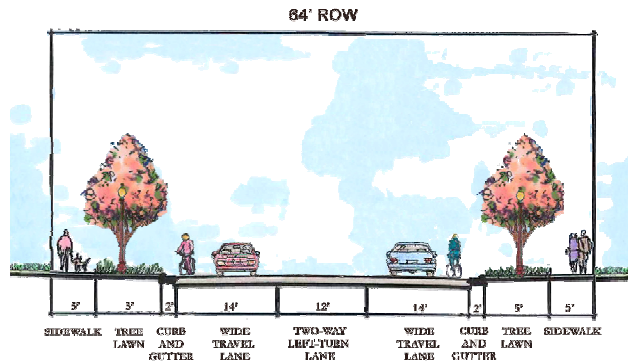
Functional Classification	Collector
Roadway Context	Urban
Access/Mobility	Moderate Access / Moderate Mobility
Right-of-Way Width	78'
Roadway Width	58' including 2 travel lanes, parallel parking, planted median, and curb and gutter
Traffic Lanes	4 12' travel lanes (WOL alternative: 2 12', 2 14')
On-Street Parking	8' parallel, both sides
Bicycle Facilities	None
Pedestrian Facilities	5' sidewalks, both sides
Median	12' planted with 1' curb and gutter
Tree Lawn	5', both sides
Roadway Capacity	12,000 to 20,000 vehicles per day

NOTES

- › The use of curb and gutter versus swale ditch will depend upon the street's proximity to development and the natural environment.
- › The type (i.e. residential, commercial, rural, etc.) will depend on the adjacent land use served.

Minor Arterial: 3-Lane

(3-Lane with Wide Outside Lanes, Sidewalks, Landscaping)

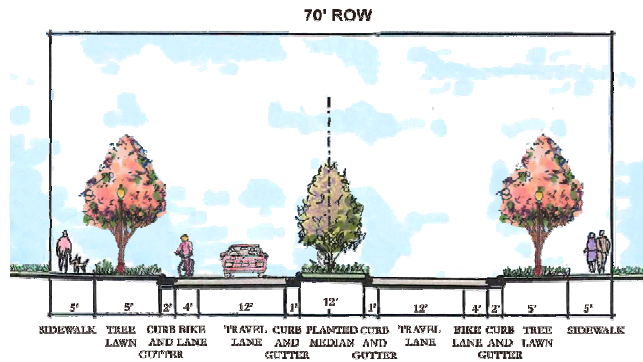


DESIGN FEATURES

Functional Classification	Minor Arterial
Roadway Context	Urban / Suburban
Access/Mobility	Moderate Mobility / High Access
Right-of-Way Width	64'
Roadway Width	44' including 4 travel lanes, two-way left-turn lane, and curb and gutter
Traffic Lanes	2 14' travel lanes
On-Street Parking	None
Bicycle Facilities	14' wide outside lanes
Pedestrian Facilities	5' sidewalks, both sides
Median	None
Tree Lawn	5', both sides
Roadway Capacity	12,000 to 20,000 vehicles per day

Collector: 2-Lane Divided with Bike Lanes (14' Median)

(4-Lane Divided with Raised Median, Bike Lanes, Sidewalks, Landscaping)

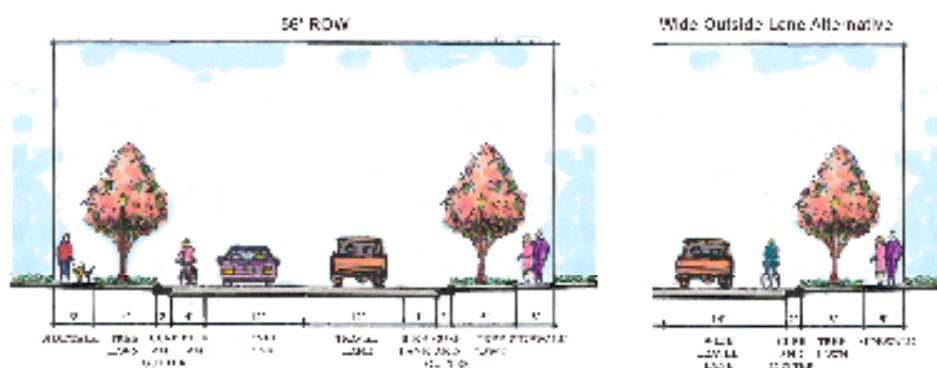


DESIGN FEATURES

Functional Classification	Collector
Roadway Context	Suburban
Access/Mobility	Moderate Access / Moderate Mobility
Right-of-Way Width	70'
Roadway Width	50' including 2 travel lanes, bike lanes, planted median, and curb and gutter
Traffic Lanes	2 12' travel lanes
On-Street Parking	None
Bicycle Facilities	4' bike lanes
Pedestrian Facilities	5' sidewalks, both sides
Median	12' planted with 1' curb and gutter
Tree Lawn	5', both sides
Roadway Capacity	12,000 to 20,000 vehicles per day

Collector: 2-Lane with Bicycle Facilities

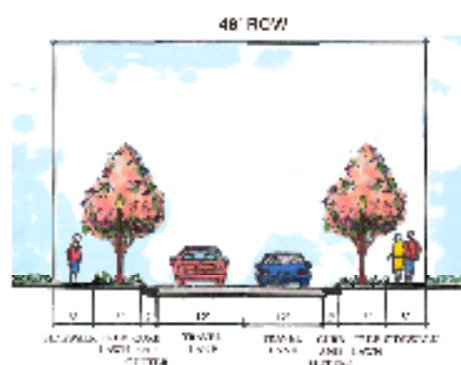
(2-Lane, Bike Lanes, Sidewalks, Landscaping)



DESIGN FEATURES	
Functional Classification	Minor Arterial
Roadway Context	Urban / Suburban
Access/Mobility	High Access / Moderate Mobility
Right-of-Way Width	56'
Roadway Width	35' including 2 travel lanes, bike lanes, and curb and gutter
Traffic Lanes	2 (2 travel lanes (WOV) alternative) (2 (2, 2 (4))
On-Street Parking	None
Bicycle Facilities	4' bike lanes on 4' wide outside lanes
Pedestrian Facilities	5' sidewalks, both sides
Median	None
Tree Lawn	5' both sides
Roadway Capacity	6,000 to 10,000 vehicles per day

Collector: 2-Lane

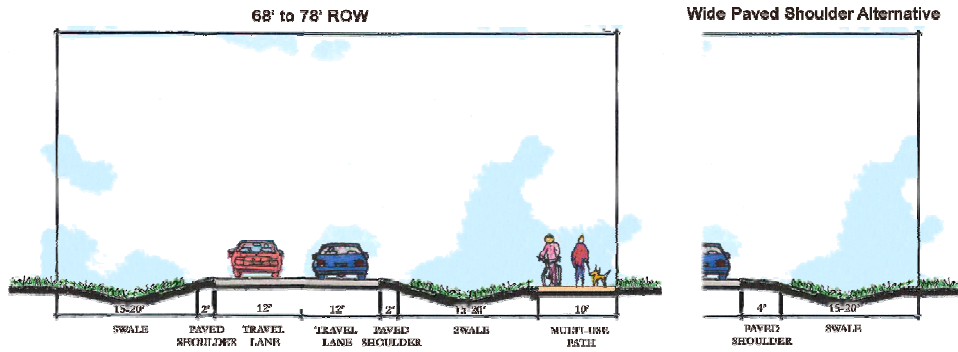
(2-Lane, Sidewalks, Landscaping)



DESIGN FEATURES		NOTES
Functional Classification	Collector	
Roadway Context	Urban / Suburban	
Access/Mobility	High Access	
Right-of-Way Width	48'	
Roadway Width	38' including 2 travel lanes and curb and gutter	
Traffic Lanes	2 (2 travel lanes)	
On-Street Parking	None	
Bicycle Facilities	None	
Pedestrian Facilities	5' sidewalks, both sides	
Median	None	<ul style="list-style-type: none"> An alternative to this cross section could include two 14' travel lanes with a 5' sidewalk on one side. The use of curb and gutter versus outside ditch will depend upon the street's proximity to development and the natural environment. The type (deciduous vs. conifer), number, and size of trees will depend on the adjacent land use desired.
Tree Lawn	5'	
Roadway Capacity	6,000 to 10,000 vehicles per day	

Rural Collector: 2-Lane with Multi-Use Path

(2-Lane, Multi-Use Path, Swale)



DESIGN FEATURES

Functional Classification	Collector
Roadway Context	Rural
Access/Mobility	High Access
Right-of-Way Width	68' to 78'
Roadway Width	28' including 2 travel lanes, paved shoulders
Traffic Lanes	2 12' travel lanes
On-Street Parking	None
Bicycle Facilities	10' multi-use path, one side
Pedestrian Facilities	10' multi-use path, one side
Median	None
Tree Lawn	15' to 20' swale, both sides
Roadway Capacity	9,000 to 14,000 vehicles per day

Appendix E

Element Adoption Date

Florence County Council.....September 16, 2010; Ordinance #02-2010/11.