RFATS
Rock Hill - Fort Mill Area Transportation Study

2055 LONG RANGE TRANSPORTATION PLAN

GROWTH

CONGESTION

MOBILITY

SAFETY

FREIGHT MOVEMENT

TRAFFIC OPERATIONS

TRANSIT

IMPROVEMENTS

BIKE/PED

FUNDING

Table of Contents

CHAPTER 5: SAFETY AND SECURITY

CHAPTER 6: CONGESTION MANAGEMENT PROCESS

CHAPTER 7: FREIGHT

CHAPTER 8: PUBLIC TRANSPORTATION

CHAPTER 9: BICYCLE AND PEDESTRIAN TRANSPORTATION

CHAPTER 10: AVIATION

CHAPTER 11: DEVELOPMENT TRENDS AND POTENTIAL IMPACTS

CHAPTER 12: FINANCIAL PLAN

Introduction

About this Plan

The 2055 Long Range Transportation Plan (LRTP) is the central vision and planning document for the RFATS Planning Area – which includes the cities of Rock Hill & Tega Cay, the Town of Fort Mill, the eastern urbanized portion of York County, the Catawba Nation as well as the panhandle of Lancaster County, South Carolina. The Rock Hill – Fort Mill Area Transportation Study or RFATS, is the agency responsible for regional transportation planning in this area. Federal law requires the preparation of this plan, and specifies critical issues and emphasis areas which the plan must consider.

The plan is multi-modal, covering highways, public transportation, freight, bicycle, and pedestrian travel, as well as aviation. It includes a financial plan for transportation expenditures to 2055, as well as a congestion management process. The plan also takes social and environmental considerations into account, along with public involvement during the plan preparation process.

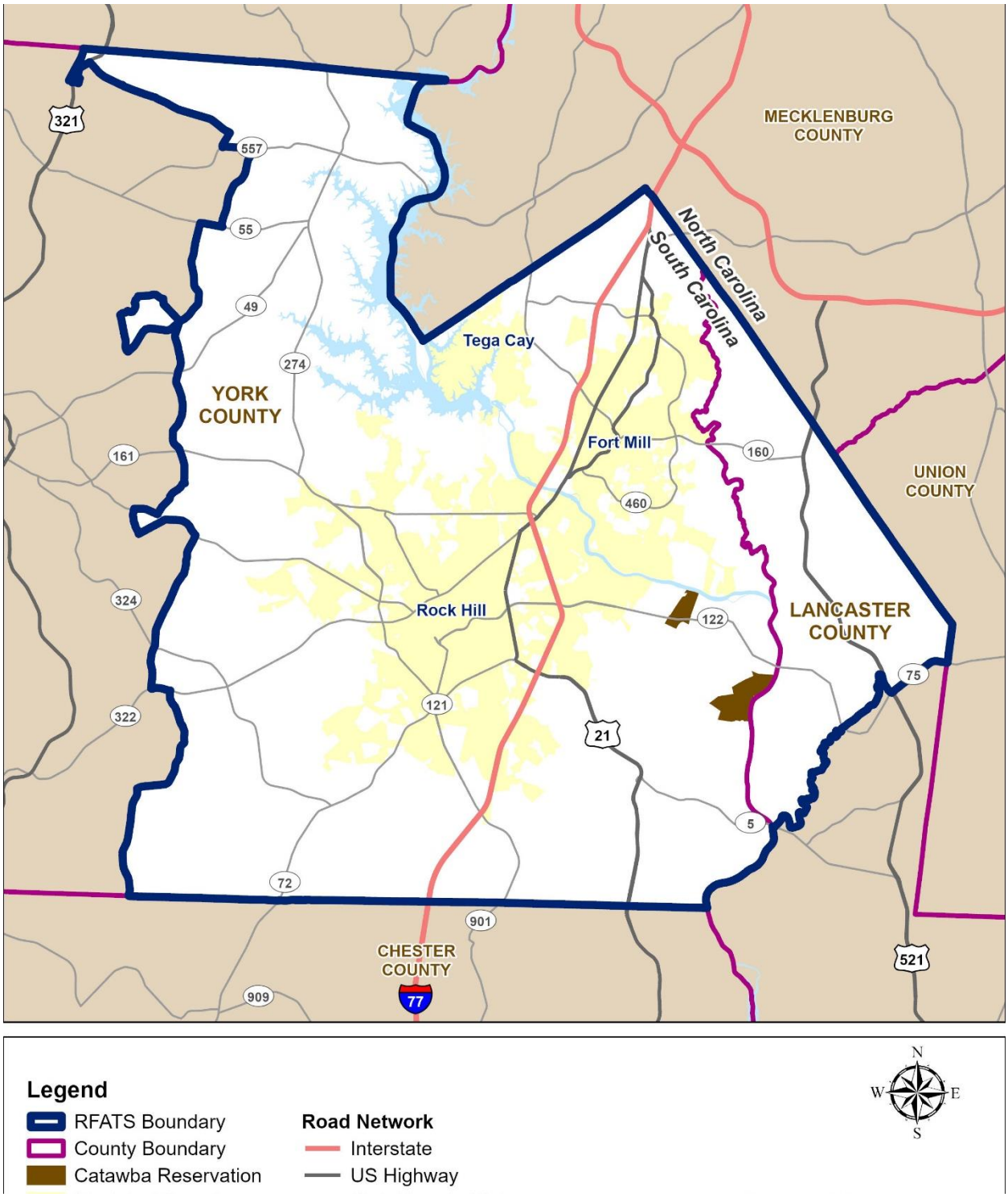
About RFATS

What is an MPO?

RFATS is a Metropolitan Planning Organization (MPO), one of roughly 450 such agencies across the country that are responsible for regional transportation planning. In order to remain eligible for federal transportation funds, urbanized areas with a population of 50,000 or greater must maintain a formal metropolitan transportation planning process. The overall aim of these requirements is to ensure coordinated, continuing, cooperative, and comprehensive transportation planning, and MPOs are central to that process. Each MPO is responsible for short- and long-range transportation planning for its region, as well programming all federal transportation funds spent within the MPO planning area.

Figure 1.1 reflects the planning area boundary for RFATS. Member communities of RFATS include the cities of Rock Hill and Tega Cay, the Town of Fort Mill, the unincorporated urban areas of York and Lancaster counties, as well as the Catawba Nation.

Figure 1.1: RFATS Planning Area



The RFATS Planning Area

As shown in **Figure 1.1,** the I-77 corridor runs through the heart of the RFATS planning area. The largest city in the region, Rock Hill, is 20 miles south of Charlotte and approximately 65 miles north of Columbia. According to Census Bureau statistics, Rock Hill is now the fifth-largest city in the State.

I-77 connects the area to Columbia (to the south) and Charlotte (to the north). Nearby, I-85 connects the area to Greenville (to the west) and Atlanta (to the southwest). The York County/Rock Hill Airport is located within the planning area; and a major international airport (Charlotte Douglas) is located to the north on the western edge of Charlotte, NC. To the south, one of the east coast's major ports in Charleston can be accessed via highway links along I-77 and I-26. Freight rail facilities broadly parallel I-77 regionally and run through downtown Rock Hill. One of the state's major river systems, the Catawba, flows through the area as well.

As described above, the RFATS planning area includes the cities of Rock Hill and Tega Cay, the Town of Fort Mill, the Catawba Nation, the eastern urbanized portion of York County as well as the panhandle of Lancaster County – which essentially runs from the state line along US 521 down to Hwy 75 (Waxhaw Hwy). The planning area also includes the communities of Lake Wylie, Newport, Bethel, Leslie and Catawba.

Formal regional transportation planning in the RFATS area began in the early 1960s. At that time the planning process principally focused on the greater Rock Hill area. Over the years, RFATS has grown in geographic size covering the urbanized portions of two counties and serves a planning area population approaching 300,000.

RFATS Organizational Structure

The planning process is guided by the RFATS Policy Committee, which is comprised of 15 voting members and 1 ex-officio member who represent each of the region's local governments, the Catawba Nation, the South Carolina Department of Transportation (SCDOT), as well as legislative representatives from the South Carolina House and Senate.

Supporting the Policy Committee is a Technical Committee that includes staff from each jurisdictional member as well as federal and state agencies associated with the MPO planning process. Individual members of both committees are listed below in **Figure 1.2**.

Figure 1.2: RFATS Organizational Structure

POLICY COMMITTEE

City of Rock Hill	Mayor, two council members, and one Transit Representative
Town of Fort Mill	Mayor and one council member
City of Tega Cay	Mayor or council member
York County	Three council members from the MPO planning area
Lancaster County	Two council members from the MPO planning area
Catawba Indian Nation	Tribal chief or representative
State Legislative Delegation	Resident Senator and the House member representing the urbanized area
SCDOT	5th District DOT Commissioner

TECHNICAL COMMITTEE

RFATS	MPO Director, Transportation Planning Staff.
Rock Hill	Planning Director, Transportation Planner, and Transit Administrator
York County	Planning Director, Transportation Planner, and Pennies for Progress Program Manager
Lancaster County	Planning Director
Fort Mill	Planning Director
Tega Cay	Planning & Development Manager
SCDOT Planning	Regional Planning Manager, District Project Manager, District Traffic Engineer
SCDOT Office of Public Transit	Regional Planning Manager
Catawba Nation	Tribal Planner
Catawba COG	Planning Director
FHWA (SC division)	Community Planner

RFATS also maintains a standing Citizens Advisory Committee or CAC, which is comprised of geographic representatives from across the planning area; and specifically includes persons and/or communities historically underserved by the existing transportation system. The CAC is an additional layer of evaluation and input covering both proposed priorities as well as specific projects within the planning area.

The Transportation Planning Process and the LRTP

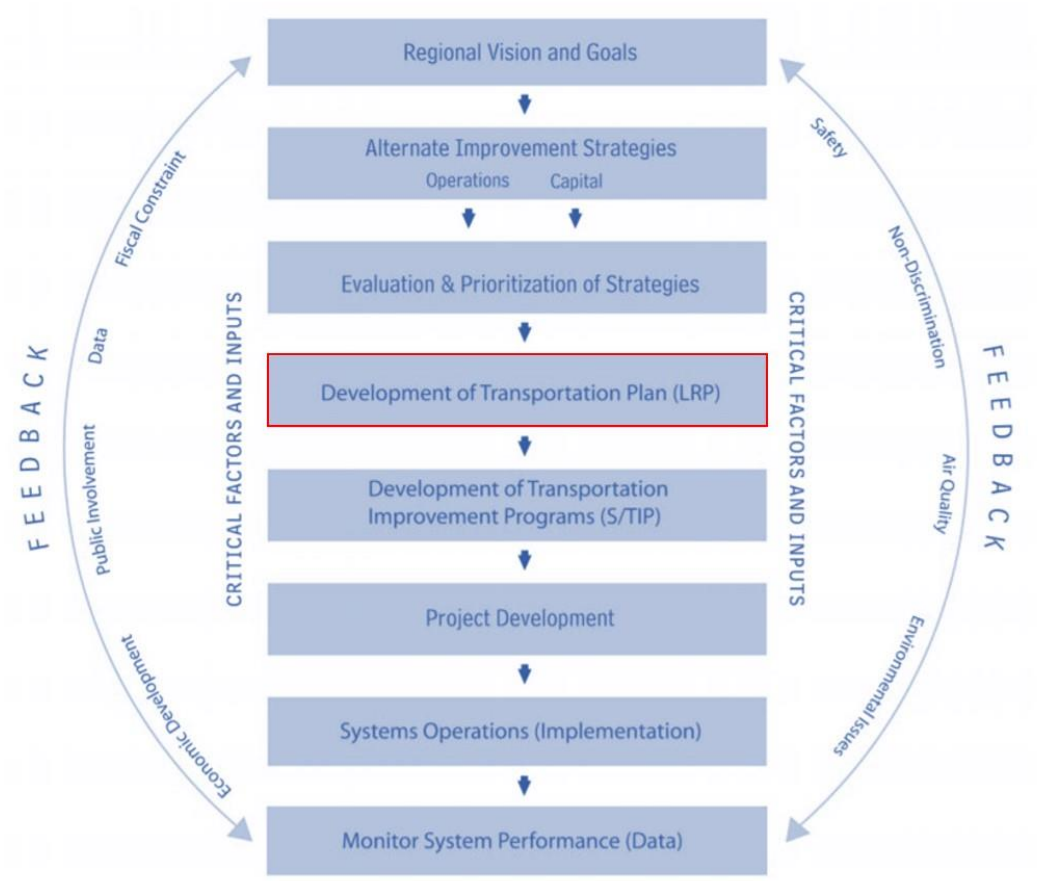
Figure 1.3 presents an overview of the major elements in the transportation planning process, including the development of the Long Range Transportation Plan or LRTP. As shown, the plan summarizes the priority "strategies" that have been identified to help meet regional transportation goals across the planning area. These strategies include both capital projects and operations (such as interchange and intersection improvement projects; roadway maintenance as well as public transit service options, etc). Once the long-range plan has been adopted, the near-term strategies receive funding for implementation by being included in the region's Transportation Improvement Program or TIP.

After a project has been included in the adopted TIP, the responsible agency may begin formal project development. This typically starts with confirming the purpose and need of the project, securing the necessary environmental agency approvals, and completing project design. If needed, right-of-way is then purchased and then construction will begin. This process generally takes several years from planning to construction, particularly in the case of larger projects.

As the region implements strategies from the LRTP, RFATS will continue to monitor the performance of the transportation system, as well as track the nature of emerging transportation needs and system demands.

The LRTP must be updated every four years, and any necessary changes in regional strategies can be made either through amending the current plan, or as part of the next LRTP update.

Figure 1.3 The Transportation Planning Process



From USDOT's *The Transportation Planning Process: Key Issues*

Public Participation Plan

Transportation plans and decisions affect travel costs and quality of life for every citizen of every community in the RFATS Planning Area; as such, active public participation is critical to producing sound outcomes that will benefit all users of the transportation system.

With this in mind, RFATS has established a Public Participation Plan (PPP) to actively encourage community members to provide input into the transportation planning process. The plan is regularly reviewed for improvement opportunities and was most recently updated in November 2023. One of our principal goals is to ensure that the opportunity to participate in the planning process is available to all. Notable examples of populations particularly impacted by the transportation planning process would include:

- Commuters within and around area population centers and developments of regional impact.
- K-12 student populations moving between area resident developments and school locations.
- Elderly, handicapped, minority, low-income, and disadvantaged residents.
- Student populations from local colleges and universities.
- Commercial / industrial enterprise activity, including freight.
- All non-commuting travelers.

Elevated growth and development within the planning area is generating increased demand across the transportation network; and of course, resulting in a challenging operational environment for both people and goods. This pressure represents an important planning variable for short, intermediate, and long-term decision-making that will impact every community within the RFATS Study Area.

PUBLIC PARTICIPATION PLAN: VISION, GOALS & OBJECTIVES

The RFATS vision for public participation includes providing information on transportation planning services and project development in a convenient and timely manner. To this end, the following goals and policies have been established.

Goal I. To actively engage the public in the transportation planning process according to the policies contained in Federal and State law as well as in the RFATS Public Participation Plan.

A. RFATS will maintain a current database of contacts and/or interested parties that includes:

- Federal, state and local agencies responsible for planned growth, economic development, environmental protection, airport operations, freight movement, land use management, natural resources, and historic preservation
- Elected Officials
- Local Government Staff
- Tribal Governments
- Transportation Agencies (freight, port, airport, transit, etc.)
- Organizations/agencies representing users of public transportation
- Organizations/agencies representing those traditionally underserved by the existing transportation system
- Local Media
- Homeowners Associations
- Libraries (for public display)
- Interested members of the general public

B. RFATS will electronically send meeting notices to all interested parties (RFATS contact list and/or targeted group mailing, etc.).

C. RFATS will employ visualization techniques to illustrate transportation plans/projects. Examples of visualization techniques include charts, graphs and maps.

Goal II. RFATS shall keep the public informed of on-going transportation related activities on a continuous basis.

A. RFATS will make publications and work products available to the public.

B. RFATS staff will be available to provide general and project specific information at a central location during normal business hours and after hours when deemed appropriate and with reasonable notice.

C. RFATS will maintain an accurate website with current transportation planning and project activity descriptions/summaries, including:

- Updated list of Policy Committee members
- Current schedule for RFATS meetings and events
- Public display ads and notices
- Copies of the Long Range Transportation Plan (LRTP), Transportation Improvement Program (TIP), Unified Planning Work Program (UPWP), Public Participation Plan (PPP), and other documents/studies
- Opportunity for public comment
- Opportunity to request updates for notices and announcements
- Civil Rights/Title VI Information
- Glossary of commonly used terms and phrases
- Interactive Mapping available via ArcGIS Online
- Staff Contact Information

D. RFATS will maintain and update social media accounts with current planning and project activity in an effort to broaden public awareness.

Goal III. RFATS shall encourage the participation of all citizens in the transportation planning process.

A. RFATS will utilize a "Public Participation Communications Venue" matrix (**Figure 2.1**), which lists the stakeholder groups

and communication media (both direct and indirect), to provide the greatest opportunity to influence the transportation/transit choices in the RFATS Study Area.

Figure 2.1: RFATS Public Participation Communication Venues

	RFATS Citizens Advisory Committee	Community town hall meetings	Organization meetings	Newspapers – general circulation & targeted, etc.	Websites (linked to all jurisdictional sites)	Newsletters (Neighborhood Empowerment, etc.)	Mass Media	Targeted Bulk Mailings	Public Facility Contact	Senior Centers	Personal Interviews	Public Events
Residents – General Public	•			•	•				•			•
Historically Underserved	•	•		•	•	•	•		•			
Housing Authorities	•	•	•		•			•				
Neighborhood Organizations	•	•	•	•	•				•			
Religious Institutions, Faith-Based Organizations	•	•		•	•				•			
ESL Groups	•	•							•			
Council on Aging/Special Needs	•	•	•	•	•				•	•		
Chambers of Commerce	•		•	•	•				•			
Economic Development Organizations	•		•	•	•				•			
Homebuilders Association	•		•	•	•				•			
Educational Institutions / Organizations	•		•		•	•	•		•			
Freight Movement (i.e. SC Trucking Association)			•								•	

Goal IV. RFATS shall strive to improve public participation by continuously monitoring and evaluating public participation techniques.

A. The Public Participation Plan will be reviewed at least every three (3) years.

PUBLIC PARTICIPATION TECHNIQUES

Public Participation is an ongoing activity of the MPO. An effective public participation process is characterized by techniques and procedures that enable citizens to become and remain well informed. This section contains descriptions of public participation tools that RFATS currently uses and proposes to use in the future:

- Citizens Advisory Committee
- Community Based Public Events/SC Visitors Center
- Community Town Hall Meetings
- Comment Forms
- Consultation
- Direct Mailings/Postcards
- E-mail Notifications/ Announcements
- Flyers
- Legal Advertisements and Display Ads
- Library Distribution
- Limited English Proficiency Populations (Translation Services)
- LRTP Brochure
- MPO and Local Government Websites
- Media/Press Releases
- Personal Interviews
- Public comment period during Policy Committee Meetings
- Responding to comments or questions (written, telephone, meetings)
- Small Group/Public Meetings
- Social Media
- Summary of Comments Received
- Surveys
- Title VI and Environmental Justice
- Visualization

To support participation by persons with limited English proficiency, a translation tool is provided on the RFATS website which translates text on the webpages into more than 70 different languages, including Spanish. RFATS also works with the York County International Center to address other requests for translation.

Public Participation Activities for the 2055 LRTP

Stakeholder Outreach

Comprehensive outreach to all stakeholder groups was undertaken during the development of the 2055 LRTP, beginning in the summer of 2024 and concluding with the final public hearing at the April 25, 2025 Policy Committee meeting. A representative sample of those contacted includes the following:

- Local Governments / Charlotte Regional Alliance For Transportation / SCDOT
- Federal Highway Administration / Federal Transit Administration
- Environmental Protection Agency / SCDES
- Freight & Rail Providers
- Citizens Advisory Committee
- Employers & Chambers of Commerce
- Transit Agencies / Transportation Providers
- Bicycle Pedestrian Organizations

Outreach Meetings

Outreach efforts included both in-person and virtual meetings. RFATS advertised public meeting opportunities through the local newspapers of general circulation (The Herald and the Carolina Gateway). RFATS reached out to an extensive stakeholder distribution list, accepting comments via phone, email, and through the RFATS website. Ads were displayed on the My Ride Transit Service, utilizing a messaging system on the buses. Lastly, RFATS ran ads through social media reaching over 25,000 people in York and Lancaster Counties.

As a part of the stakeholder outreach, a series of in-person open houses were conducted, along with a virtual meeting, to provide opportunity for all interested parties to identify transportation needs and priorities. The open houses were held on Tuesday, July 16, 2024; Thursday, July 18, 2024; Thursday August 29, 2024; Thursday October 10, 2024 from 6:00 PM to 7:30 PM and a virtual meeting was held on Wednesday July 31, 2024 from 1:00pm till 2:30pm.

Below are some of the common themes heard during those meetings and in comments provided online.

- Operations & Maintenance – specific focus on repaving needs across the region; specifically noted were Dobys Bridge Road, Cel-River Road & Sutton Road

- Road Widenings – specific focus on the widening projects planned by Pennies for Progress on US 21, the need for another river crossing, and a western bypass around the western portion of Rock Hill.
- Bicycle & Pedestrian Improvements – a number of participants in different locations noted a growing emphasis from the public on the need for improved pedestrian access and safety (such as sidewalks and wider shoulders) as well as improved system connectivity in and around schools.
- New Bicycle & Pedestrian connections - Desire for a trail from Riverwalk to Riverbend Park and to connect to the Catawba Nation, and for a ped/bike bridge across the river near Riverbend Park or to the Catawba Nation.
- Public Transit – comments were made regarding the continued need to augment service availability across the planning area.
- Dave Lyle Blvd Extension – some expressed concern regarding the decision to not extend the boulevard across the Catawba River into Lancaster County.
- Funding – concern was expressed regarding lingering impacts to funding levels due to COVID-19.
- Collector Streets – extensive interest in the role of collector street planning and their impact on network connectivity and congestion reduction on arterial roadways.

RFATS Committees

RFATS has several committees that not only contribute directly to the policy-making process but also serve as a means of public and stakeholder involvement. The committees include:

Policy Committee – The RFATS planning process is guided by a 16-member Policy Committee (15 voting members), which sets priorities and provides direction for the RFATS Study Area. This committee is made up of elected officials from each jurisdiction within the MPO Planning Area, the South Carolina Legislature and a representative from the SCDOT Commission. The committee chair is determined through a yearly rotating schedule among members representing the local governments that participate in the MPO planning process. The vice-chair is also selected by a vote of the members of the Policy Committee and serves a one-year term.

Technical Committee – This committee includes staff from each of the municipalities within the RFATS Study Area, as well as the South Carolina Department of Transportation (SCDOT), the Federal Highway Administration (FHWA), the Catawba Regional Council of Governments (CRCOG), and the Catawba Nation. The RFATS Director serves as chair of this committee.

Citizen's Advisory Committee (CAC) – The Citizens Advisory Committee provides input and review of the RFATS transportation planning process and activities. Members include representation from the six RFATS communities and at-large members representing those with special needs as well as communities traditionally underserved by the existing transportation system.

Interagency Consultation Committee (IAC) – The primary purpose of the IAC is to promote and ensure cooperative coordination and review of all transportation plans, programs and projects adopted by RFATS properly conform with the purpose of the State Implementation Plan (SIP) to meet the National Ambient Air Quality Standards in the RFATS region. The Interagency Consultation Committee includes staff representation from RFATS, as well as SCDOT, FHWA, the Federal Transit Administration (FTA), the South Carolina Department of Environmental Services (SCDES) and the Environmental Protection Agency (EPA).

LRTP Adoption Process

The adoption process for the 2055 Long Range Transportation Plan involved a multi-stage evaluation and review effort that included Interagency Consultation with a variety of Federal and State partners. During the period from January 2025 through April 2025, the RFATS Technical Team and the IAC reviewed all three LRTP documents (Long Range Transportation Plan, Air Quality Conformity Report and Transportation Improvement Program).

On March 28, 2025, the RFATS Policy Committee granted preliminary approval of a public review draft and authorized a 30-day public comment period. Draft LRTP documents were then posted on the RFATS website as well as on the websites of all RFATS communities. Notice of the opportunity for public review was then published in the Rock Hill *Herald and Carolina Gateway* (the general circulation newspapers for the area), to provide information regarding the availability of the LRTP documents for public inspection. This notice also provided instructions for submitting input for presentation to the Policy Committee prior to final approval.

On April 25, 2025 a public hearing was held prior to the RFATS Policy Committee presentation and adoption of the 2055 Long Range Transportation Plan and Air Quality Conformity Report.

Summary of Comments

Public comments relating to the 2055 Long Range Transportation Plan are summarized as follows: (TBD)

- Support for Guideshare investment of $10 million for bicycle & pedestrian improvements
- The 2055 LRTP is focusing more on multimodal recognition, recommendations, and improvements
- Support for increased focus on improving connectivity and including not only collector street needs, but also bicycle and pedestrian projects
- Support for focusing on transit improvements and investments to enhance mobility choices and reduction in congestion
- Support for improving transit stops and school connections through last mile/first mile mechanisms
- Emphasis multimodal roadway projects to be which account for bicycle and pedestrian facilities through design standards for enhancing safety

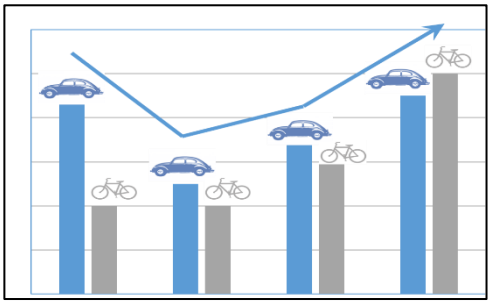
A Performance-Based Planning Framework

The Infrastructure Investment and Jobs Act (IIJA), enacted in November 2021 – reflects the same performance-based planning framework that was enacted under the previous federal legislation - *Moving Ahead for Progress in the 21st Century* (MAP-21). The framework requires MPOs to use performance measures in their planning processes – particularly the development and updating of the LRTP.

Goals, Objectives and Performance Measures

The terms "goals" and "objectives," are used in a variety of settings and have specific meaning in the planning field. *Goals* are broad qualitative or descriptive statements that indicate a general direction for a plan. *Objectives* describe the specific steps or actions that will be taken to reach a given goal. Multiple objectives are typically assigned to one goal to present a picture of how a goal can be successfully met.

MPOs have customarily used goals and objectives in the development of LRTPs and other planning activities. There has been a recent increase in the use of *performance measures* to further refine or "operationalize" objectives by providing a means of quantifying and tracking progress. In long-range planning, these measures can be used to compare current performance against future projections.



Most MPOs use some form of performance measurement in the long-range transportation planning process. Common measures include roadway level of service (a measure of how freely traffic is flowing) and volume to capacity ratio (a measure of traffic volume relative to the number of roadway lanes). Regional travel demand models are used to generate these measures in addition to others, such as the number of vehicle-miles traveled, vehicle-hours traveled, and vehicle-hours of delay.

Several of these measures for the RFATS region are presented in Chapter 4. This provides a comparison of how well the roadway system is functioning under current conditions as well as projected through 2055. Proposed transportation improvements can then be evaluated by the degree to which they are expected to improve future system performance.

Performance targets can be used to delineate ideal minimum and/or maximum values for these measures. For example, a city may aim to have sidewalks lining at least 75% of its roads or a transit system may strive to have at least 90% of its buses arrive within 5 minutes of their scheduled time.

The 2055 LRTP includes performance measures that align with federal requirements for monitoring safety and air quality improvement, which are the measures applicable to the RFATS region based on federal guidance.

Federal Planning Factors Included in the LRTP

Many investments in the RFATS region use federal funding and therefore must be guided by a long range plan that addresses multiple modes of transportation and specific factors such as economic vitality and safety. As such, this Plan was prepared under the guidance of the Infrastructure Investment and Jobs Act (IIJA), commonly known as the Bipartisan Infrastructure Law (BIL).

The IIJA continues all funding features that apply to Metropolitan Planning (PL) funding under prior Federal Transportation Acts – such as utilization of the performance management approach to support the MPOs' federally required planning and programming activities. These activities are in conformance with the following Federal Aid Highway Program's national performance goals listed in **Figure 3.1**.

Figure 3.1: Federal-Aid Highway Program Performance Goals

Safety – To achieve a significant reduction in traffic facilities and serious injuries on all public roads.
Infrastructure Condition – To maintain the highway infrastructure asset system in a state of good repair.
Congestion Reduction – To achieve a significant reduction in congestion on the National Highway System.
System Reliability – To improve the efficiency of the surface transportation system.
Freight Management and Economic Vitality – To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
Environmental Sustainability – To enhance the performance of the transportation system while protecting and enhancing the natural environment.
Reduced Project Delivery Delays – To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practice

The LRTP continues to support the federal planning emphasis areas listed below:

- Planning and Environment Linkages
- Federal Land Management Agency Coordination
- Tackling the Climate Crisis – Clean Energy; Resilient Future
- Strategic Highway Network / U.S. Department of Defense Coordination
- Public Involvement
- Equity and Justice 40 in Transportation Planning
- Data in Transportation Planning
- Complete Streets

The LRTP also incorporates the ten planning factors for the Metropolitan Planning Process, as listed in **Figure 3.2**.

Figure 3.1: Federal Metropolitan Planning Factors

Support the **economic vitality** of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency
Increase the **safety** of the transportation system for motorized and non-motorized users
Increase the **security** of the transportation system for motorized and non-motorized users

Increase the **accessibility** and **mobility** of people and for freight
Protect and enhance the **environment**, promote **energy conservation**, and improve **quality of life**; and promote **consistency** between transportation improvements and State and local planned growth and economic development patterns
Enhance the integration and **connectivity** of the transportation system, across and between modes, for people and freight
Promote efficient **system management** and operations
Emphasize the **preservation** of the existing transportation system
Improve transportation system **resiliency** and **reliability** and reduce or mitigate stormwater impacts on the surface transportation system.
Enhance **travel** and **tourism**.

Other laws that inform the development of the LRTP include Title VI of the Civil Rights Act of 1964, the Americans with Disabilities Act (ADA) of 1990, the National Environmental Policy Act (NEPA) of 1969, and Executive Order (E.O.) 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Each of these laws in some way influences the type, location, and design of transportation facilities and services contained in the LRTP.

LRTP Goals and Objectives

The goals of the 2055 LRTP, shown in **Figure 3.2**, encompass the federal planning factors listed above. F**igure 3.3** demonstrates the relationship between the goals of the 2055 LRTP and the federally required transportation planning factors.

Figure 3.2: Goals of the 2055 Long Range Transportation Plan

1	Provide Safe, Secure, Reliable Roadway Travel
2	Manage Congestion
3	Provide Mobility Choices
4	Promote Consistency of the LRTP with Other Regional Plans

Figure 3.3: Relationship of National Federal Planning Factors to 2055 LRTP Goals

Federal Planning Factors	2055 LRTP Goal(s)
Support the **economic vitality** of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency	1, 2
Increase the **safety** of the transportation system for motorized and non-motorized users	1, 3
Increase the **security** of the transportation system for motorized and non-motorized users	1, 4
Increase the **accessibility** and **mobility** of people and for freight	1, 2, 3
Protect and enhance the **environment**, promote **energy conservation**, and improve **quality of life**; and promote **consistency** between transportation improvements and State and local planned growth and economic development patterns	2, 3, 4
Enhance the integration and **connectivity** of the transportation system, across and between modes, for people and freight	1, 2, 3
Promote efficient **system management** and operations	1, 2
Emphasize the **preservation** of the existing transportation system	1, 4
Improve transportation system **resiliency** and **reliability,** and reduce or mitigate **stormwater impacts** on the surface transportation system	1, 2, 3, 4
Enhance **travel** and **tourism**	1, 3, 4

The following pages describe are specific objectives representing action steps to implement each 2055 LRTP goal. These objectives do not represent every possible action that could be taken, but they correspond to the issues most relevant to the RFATS region based on analysis, input and other local/regional plans. Performance measures are also given for a number of objectives.

Goal I. Provide Safe, Secure, Reliable Roadway Travel

Objectives

1) Protect public investment by maintaining the existing transportation system, including pavement, bridges, signal equipment and signs, transit vehicles and other transportation system components.
2) Provide a transportation system that enables reliable and efficient movement of passengers and freight to support the region's economic productivity.
3) Improve transportation safety for both motorized and non-motorized users.
    a) Reduce crashes at key intersections.
    b) Reduce crashes involving pedestrians and bicyclists.
4) Improve transportation security and the system's resiliency by developing an interconnected network that offers multiple routes and modes of travel.
5) Address visitor transportation needs through wayfinding, alternative modes in targeted areas, and other improvements.

Performance measures

A. Crash statistics for York and Lancaster counties, based on the most recent five years of data available:

a) Number of fatalities
b) Rate of fatalities per 100 million vehicle-miles traveled (VMT)
c) Number of serious injuries
d) Rate of serious injuries per 100 million VMT
e) Number of non-motorized fatalities and number of non-motorized serious injuries combined

B. Annual hours of delay in the RFATS region, as estimated by the regional travel demand model.

Goal II. Manage Congestion

Objectives

1) Make improvements to fully utilize capacity on the existing road network before constructing new lanes or facilities.
2) Give priority to projects that implement the strategies in the RFATS Congestion Management Process or CMP, including operational improvements such as traffic signal timing.
3) Give priority to projects that relate to implementation of the Collector Street plan.
4) Preserve traffic capacity on major corridors through quality development practices.
    a) Require driveway access on collector or local streets, rather than arterial routes.
    b) Increase the level of internal circulation within and between developments by designing more interconnected road networks.
4) Provide additional mobility choices (i.e. bicycle, pedestrian, and transit) along congested corridors.
5) Encourage and support sustainable development along congested corridors.
6) Maintain and improve the natural environment through the implementation of transportation policies, programs, and projects that reduce vehicle emissions to improve regional air quality.

Performance measures

A. Volume / Capacity ratios (V/C ratios): calculated using data from the Metrolina Regional Travel Demand Model (MRTDM).
B. Travel times, speeds, and corridor Level of Service (LOS): obtained through periodic travel time surveys.
C. Transit ridership and transit vehicle route reliability (on-time metrics) provided by the Charlotte Area Transit System and City of Rock Hill MyRide Transit.
D. Safety: areas of safety concern were identified in the CMP using crash data provided by the South Carolina Department of Transportation (SCDOT).

Goal III. Provide Mobility Choices

Objectives

1) Incorporate pedestrian and bicycle facilities in planned improvements to roads and corridors, including state and local maintenance and pavement marking projects in accordance with regional / local bicycle and pedestrian plans.
2) Require developments to provide pedestrian and bicycle facilities and connections in accordance with regional / local bicycle and pedestrian plans.
3) Make demand-response service and rideshare opportunities available to all citizens in the RFATS Planning Area.
4) Maintain and improve broad operational capability of all rail and bus systems.
5) Continued implementation of local fixed-route transit service for RFATS communities.
6) Promote a transportation system that includes equitable options for low-income and minority persons.
7) Support expansion of existing demand-response services.

Performance measures

A. Percent of federal-aid roads within urban areas of RFATS that have sidewalks.

B. Percent of all workers who commute to work by walking or bicycling.

C. Percent of all workers who commute to work by using transit.

D. Annual ridership and on-time performance of transit service.

E. Transit trips per capita.

Goal IV. Promote Consistency of the LRTP with Other Plans & Programs

Objectives

1) Implement strategies to improve regional air quality, including ridesharing, increasing trips made by alternative transportation, and improving traffic flow.

2) Implement the local land use policies needed to maximize the region's existing transportation investments and achieve its long-term goals.
   a) Encourage growth and redevelopment in existing urban areas.
   b) Encourage the further development and utilization of collector street plan recommendations.
   c) Promote compact, walkable development patterns along the proposed future Bus Rapid Transit (BRT) corridor (as referenced in Chapter 8 – Public Transportation).
   d) Reserve future rights-of-way needed for planned transportation projects, whether affected by public or private development.
   e) Encourage review of development standards that may impede the expansion of transportation infrastructure.
   f) Encourage review of site development plans in relationship to number of driveways, locations of driveways, and opportunities to share access points to reduce increased curb cuts/driveways.
   g) Promote and demonstrate decisions focusing on Executive Order (E.O.) 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

3) Minimize environmental impacts of the transportation system.
   a) Select, locate and design transportation system improvements so as to preserve and protect the area's natural features.
   a) Encourage transportation projects that help mitigate the impacts of stormwater runoff.

4) Ensure consistency with rural LRTPs in surrounding areas that are managed by the Catawba Regional Council of Governments as well as with other plans that affect the regional network, such as each County's Carolina Thread Trail Master Plan.

Performance measures

A. *Tons of NOx (ozone) and volatile organic chemicals (VOCs) reduced by CMAQ-funded projects over a two-year and four-year period.*
B. *Total coverage of land area converted for new roadway right-of-way.*
C. *Staff hours committed to coordination with other organizations responsible for transportation planning.*
D. *Clean fuels as a share of total fleet fuel use by transit agencies in the region.*

Each of the transportation investments recommended in the LRTP is expected to contribute to the achievement of these goals and objectives. In many cases, a proposed project or service will accomplish multiple goals and objectives. For example, growing the sidewalk system has environmental benefits, expands the availability of transportation choices, and improves safety for pedestrians.

Introduction

This section describes the regional roadway network, and the process used to model future roadway conditions based on projected growth in population and employment within and around the RFATS region. Roadways that are currently congested or are projected to be congested in future years are identified. Proposed roadway improvements to address anticipated congestion as well as other operational factors have been developed and tested through a regional travel demand modeling process that takes account of operating conditions within RFATS as well as in adjacent areas. This ensures that all sources of current and projected travel demand are properly considered. The resulting projects, along with proposed timeframes for their implementation, form the basis for the roadway portion of this plan. Additionally, RFATS utilizes a comprehensive Collector Street Plan that proactively identifies where network connections should be incorporated as additional development occurs in the years ahead.

Laslty, beyond the local roadway network within RFATS, it is also important to note that additional infrastructure layers such as pavement quality; bridge conditions; and overall network performance / reliability – equally represent important components of the Long Range Transportation Planning Process, and do provide additional reference points in shaping project and/or strategy utilization consistent with federal / state transportation performance management requirements.

Existing Conditions and Trends

The roadway system is the principal means of mobility and access across the transportation system. An efficient road network allows for operational effectiveness, regional economic competitiveness, and a good quality of life.

There are also important linkages between transportation and land use that should be highlighted. This was true in the 19th century when the area developed with the building of the railroad, and it remains true today, particularly at the central convergence points along principal arterial roadways and I-77. Indeed, as a general matter land use patterns determine travel needs, and the operational demands ultimately placed upon the road network. Therefore the need for transportation improvements — whether road widenings, intersection modifications, or simply a more context-sensitive street design — often reflect changes in area land uses. Roadways in turn have a significant influence on land use. Providing improved access to property often generates new development at that location, which in turn generates additional travel demand, and then additional development, and so on in a circular fashion.

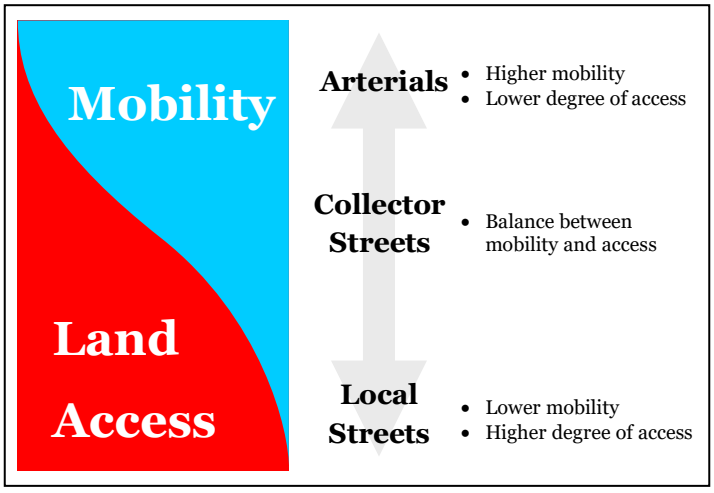
The RFATS roadway system connects the urban areas of Rock Hill, Tega Cay, Fort Mill as well as portions of York and Lancaster counties, the smaller communities within each urban area, and the wider regional and national transportation networks. Interstate 77, US 21, US 521, and SC 49 connect the RFATS region with Charlotte to the north and with Columbia to the south.

Roadway Functional Classification

Roadways are divided into functional classifications that reflect the balance between their role in providing mobility and their role in providing access to land (see **Figure 4.1** below). The functional classification of the nation's highways, roads and streets provides data that is used in the apportionment of federal funds, such as for the National Highway System (NHS) and Surface Transportation Program (STP). However, functional classification is also used for many other transportation planning and public policy purposes within states, MPOs, and local communities.

Within urbanized areas, roadways are classified into four categories: principal arterials, minor arterials, collector streets, and local streets.

Figure 4.1: Framework for Roadway Classification



Principal arterials carry traffic into and out of the region. Principal arterials (including freeways and expressways) in the RFATS region include:

- I-77
- US 21
- US 521
- Celanese Road / SC 161
- SC 49
- SC 160
- SC 5
- SC 272 (Charlotte Hwy)

Example of a principal arterial: SC 160

Minor arterials connect with the principal arterials and provide access between smaller communities within the urban area. Minor arterials include:

- SC 274 (Hands Mill Highway)
- SC 901
- Marvin Road
- Gold Hill Road / SC 460
- India Hook Road / Herlong Avenue
- Waxhaw Highway

Example of a minor arterial: Gold Hill Road

Collector streets collect traffic from residential areas and channel it to the arterials. Examples of collector streets include:

- Dobys Bridge Road
- Collins Road
- Barberville Road
- Ebinport Road
- Dam Road
- Pole Branch Road

Example of a collector street: Dam Road

Local streets provide direct access to adjacent land. Most streets within residential subdivisions would be classified as local streets, although it is also important to have collector streets that provide connections within and between neighborhoods.

Figure 4.2 shows the functional classifications for significant roadways in the RFATS region.

Traffic Conditions

Traffic Volumes

Generally, the higher the level of functional classification, the higher the volume of traffic that the roadway carries. **Figures 4.3** and **4.4** show the estimated annual average daily traffic (AADT) volumes in the RFATS region (per SCDOT) in the year 2023.

I-77 carries the highest number of vehicles per day, with volumes ranging from approximately 56,300 vehicles per day at the southern edge of the region to 171,200 at the North Carolina border. Arterials with the highest traffic volumes include Celanese Road, Gold Hill Road, Cherry Road, SC 160, Carowinds Blvd, US 521, US 21, SC 49, and Dave Lyle Blvd.

Table 4.1 – Highest Non-Interstate Traffic Volumes by Segment

Roadway	Segment	Length (Miles)	2023 AADT
SC 161 (Celanese Rd)	Mt. Gallant Rd to US 21 (Cherry Rd)	1.2	49,800
US 21	SC 322 (Cherry Rd) to I-77	0.44	43,300
SC 161 (Celanese Rd)	India Hook Rd to Mt. Gallant Rd	1.2	42,200
SC 160	SC 460 (Gold Hill Rd) to I-77	3.0	38,700
SC 122 (Dave Lyle Blvd)	I-77 to Galleria Blvd	0.3	38,300
SC 161 (Old York Rd)	SC 274 (Celanese Rd) to Trexler Ln	3.0	38,200
SC 49 (S Sutton Rd)	SC 274 (Hands Mill Hwy) to SC 274 (Charlotte Hwy)	2.3	33,500
US 521 (Charlotte Hwy)	Shelley Mullis Rd to SC 160 (Fort Mill Hwy)	3.8	32,400
SC 322 (Cherry Rd)	Cedar Grove Ln to US 21 (Anderson Rd N)	0.9	31,900
US 21 (Cherry Rd)	SC 161 (Celanese Rd) to US 21 BUS (Spratt St)	1.4	30,900

National Highway System (NHS)

As noted earlier, the roadway network within RFATS is connected to a larger system of roadways and transportation network connectors known as the NHS. This system includes principal arterial roadways, the Interstate, as well as other strategically important highways and / or intermodal facilitates whose reliability and efficiency are crucial to the National Transportation System. **Figure 4.5** shows the NHS within the RFATS region.

As such, RFATS assembles the latest operational data from the National Performance Management Research Data Set or NPMRDS. This source of information represents the principal tool on which the establishment of appropriate performance targets are developed and monitored over time. Changes in the operating conditions of this data set are another important reference point in identifying and implementing needed transportation system investments that will preserve and enhance current as well as future operating conditions within the planning area on the NHS.

Figure 4.2: Roadway Functional Classifications

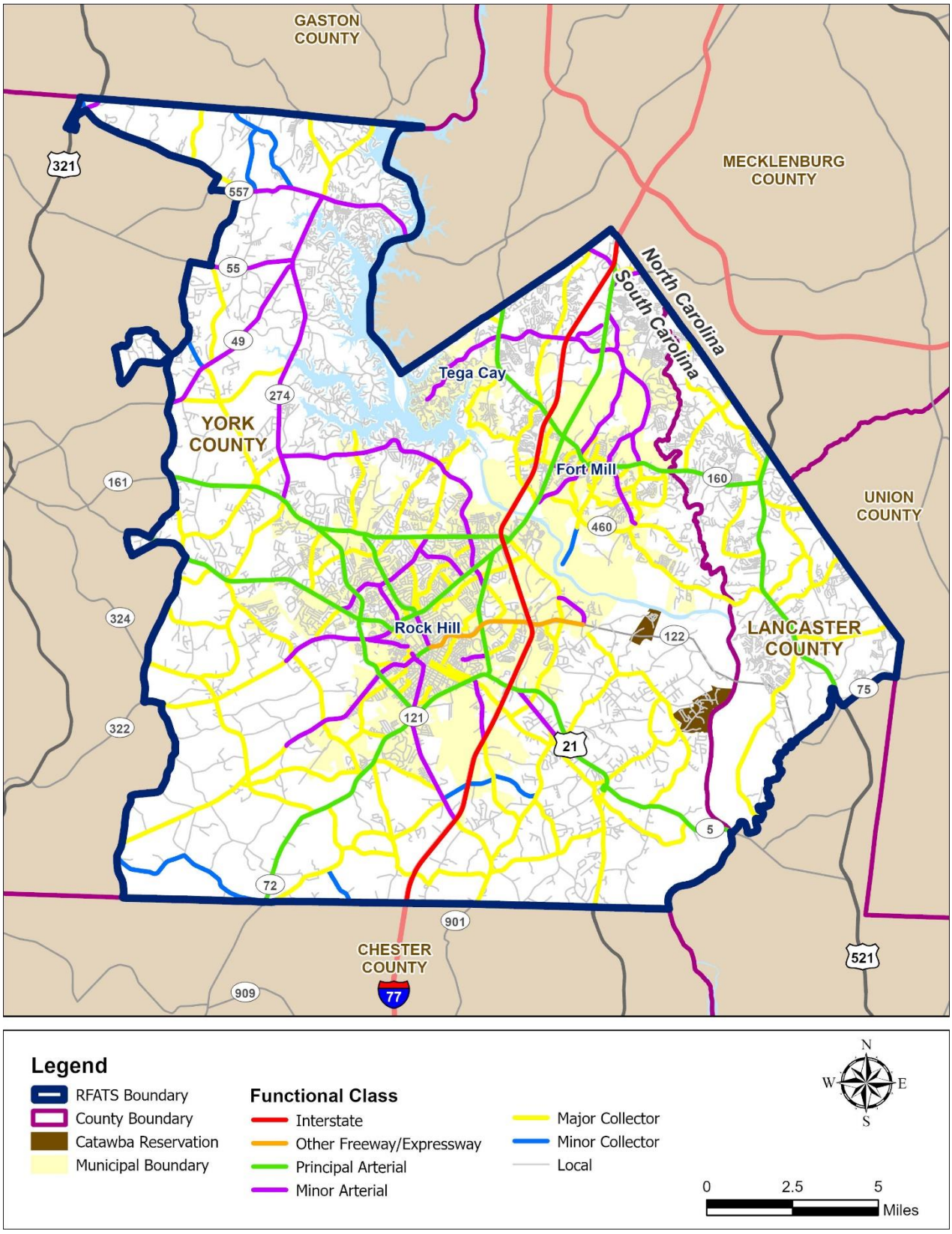


Figure 4.3: Average Annual Daily Traffic, 2023 (Region Overview)

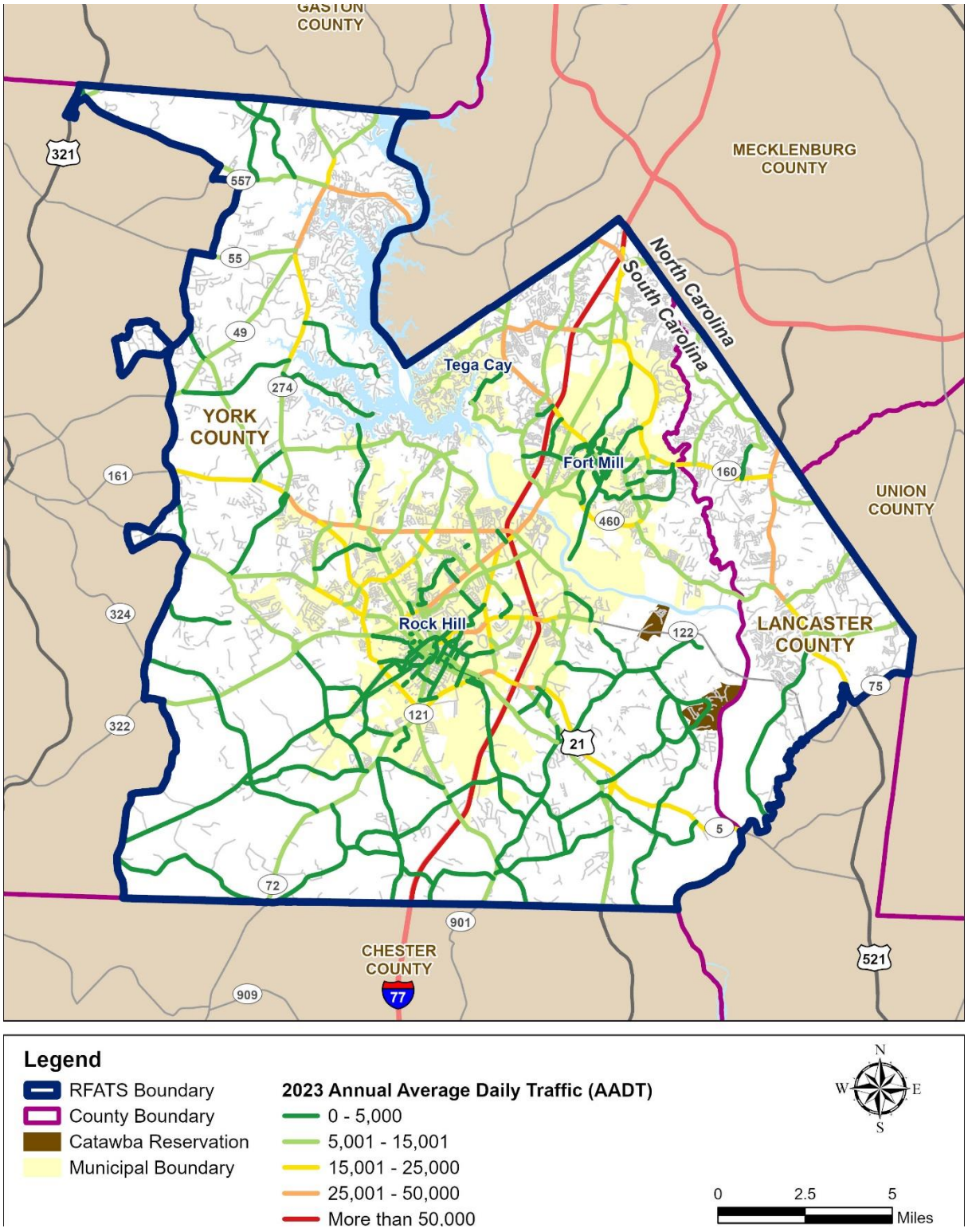


Figure 4.4: Average Annual Daily Traffic, 2023 (Rock Hill and Fort Mill areas)

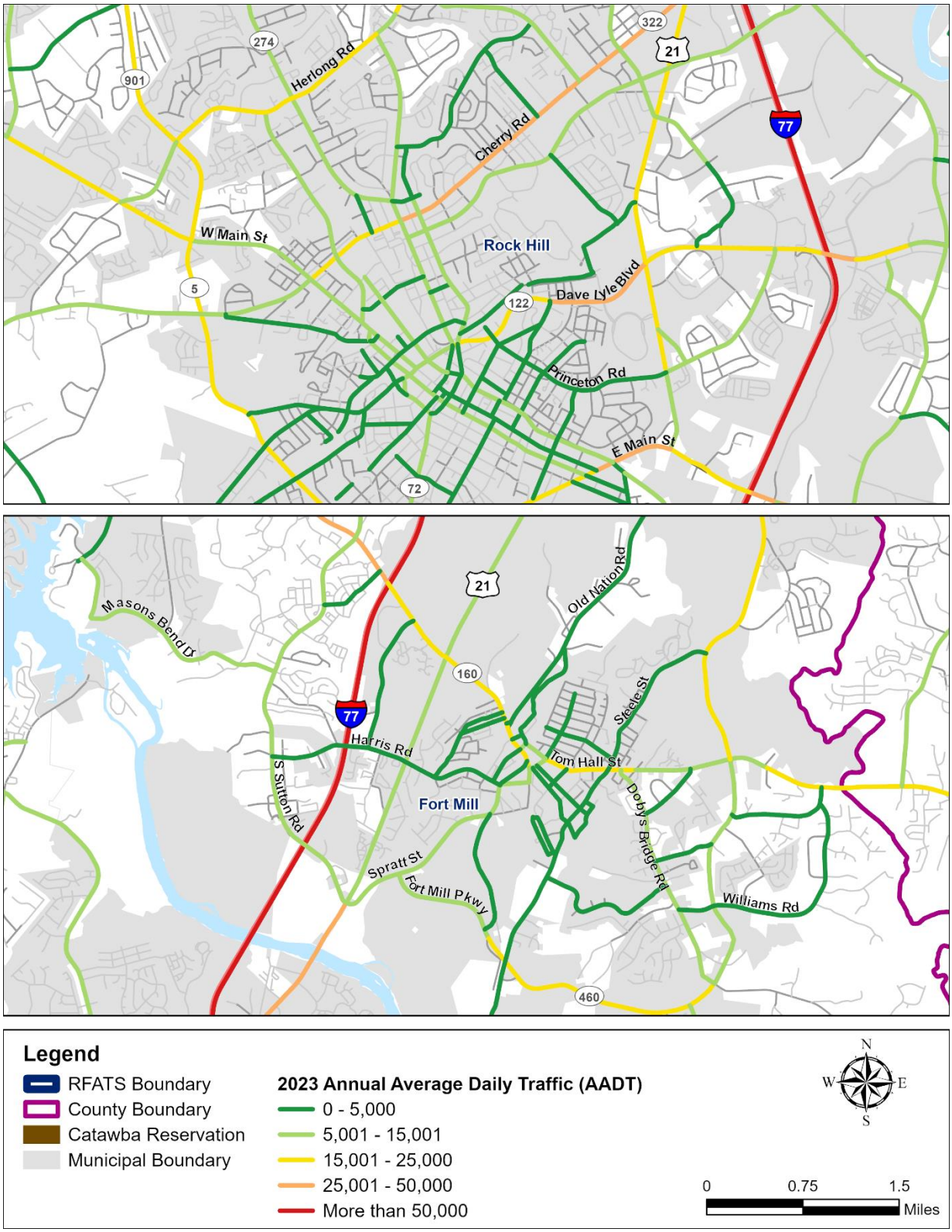
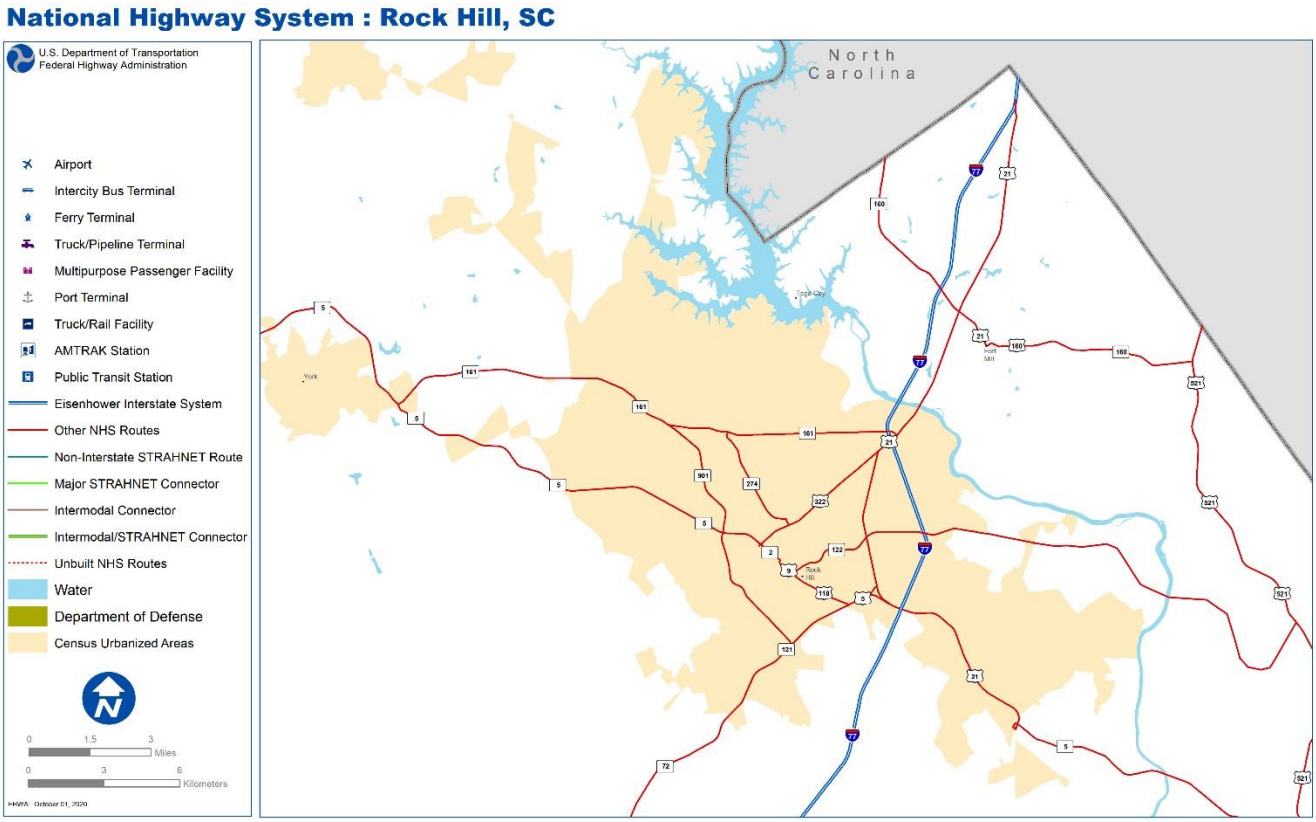


Figure 4.5: National Highway System (NHS) within RFATS Region



Current and Future Traffic Conditions

Traffic flow along a given roadway is often presented in terms of its volume-to-capacity ratio (i.e., the volume of traffic that the road is carrying compared to its maximum capacity, etc). A roadway's capacity is based on its functional classification, number of lanes, posted speed limit, percent of truck traffic, and geometric characteristics. Volume-to-capacity thresholds vary by the functional class of the facility and whether it is classified as urban or rural.

Higher V/C ratios indicate there are a higher number of vehicles relative to the road's capacity. For example, a V/C ratio of 0.70 means that about 70 percent of the road's available capacity is being utilized. As the V/C ratio nears 1, it means that the traffic volume is almost equal to the maximum number of vehicles the road can carry. Locations that have high V/C ratios are therefore almost certain to be experiencing traffic congestion and delay.

The Metrolina Model was used to estimate traffic conditions on RFATS area roadways for a number of scenarios:

- **Existing Conditions (Figure 4.6):** This scenario uses a base year model calibrated to actual 2022 traffic data.

- **2055 LRTP (Figure 4.7):** This scenario shows projected traffic conditions by the year 2055, assuming the implementation of the projects included in this adopted long-range transportation plan.

All results reported here are for the PM peak period (3:30 to 6:30 PM), which shows the highest level of congestion during the 24-hour day that is modeled. It should therefore be noted that a route that appears congested in the following maps may only be congested at certain times of the day.

In the Existing Conditions scenario, the arterial roads show the highest levels of congestion, especially in the areas with large retail developments near I-77. Significant PM peak congestion is also indicated along Fort Mill Highway and on I-77 itself; the latter is nearing capacity north of Sutton Road.

Figure 4.6: Existing Traffic Conditions (2022)

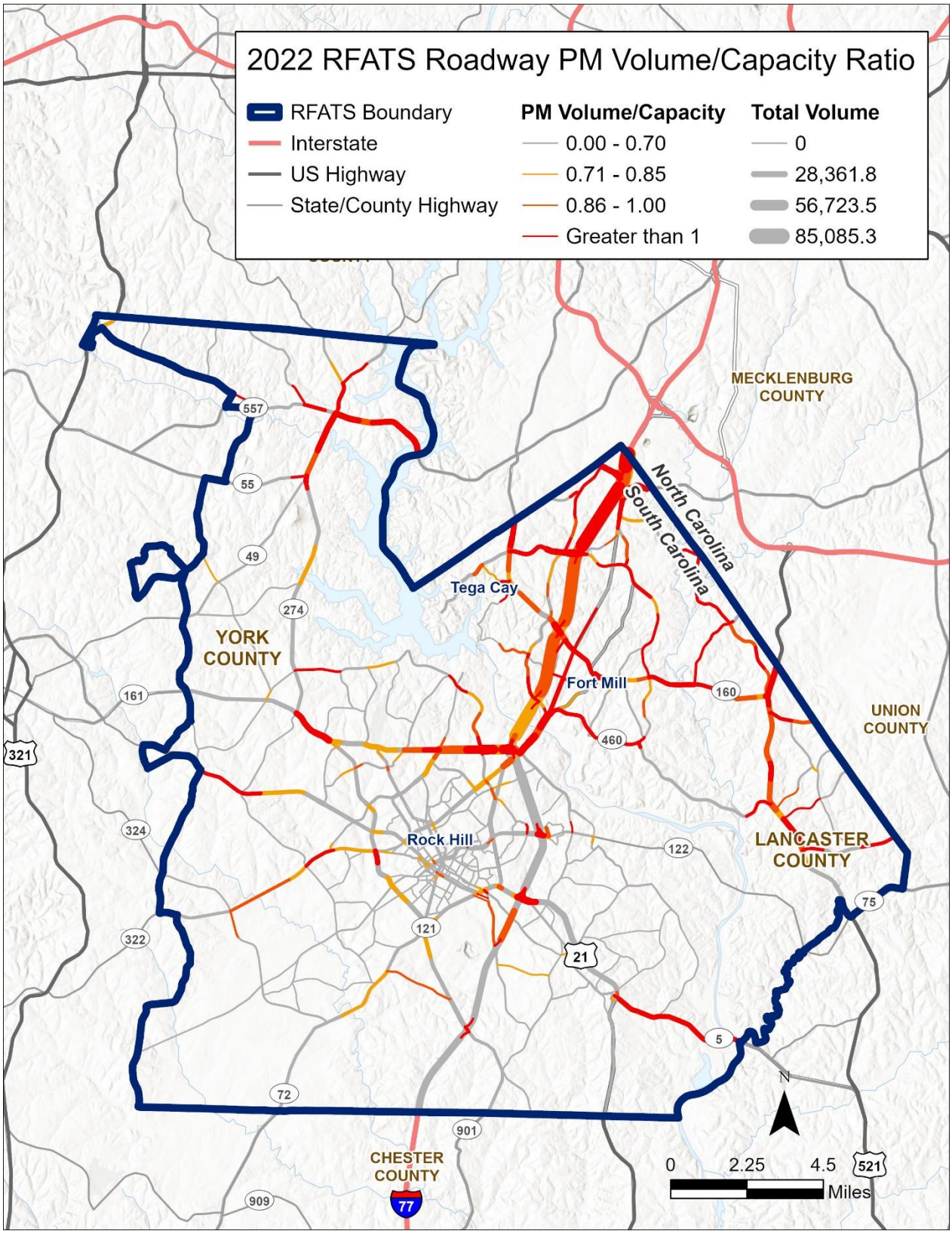
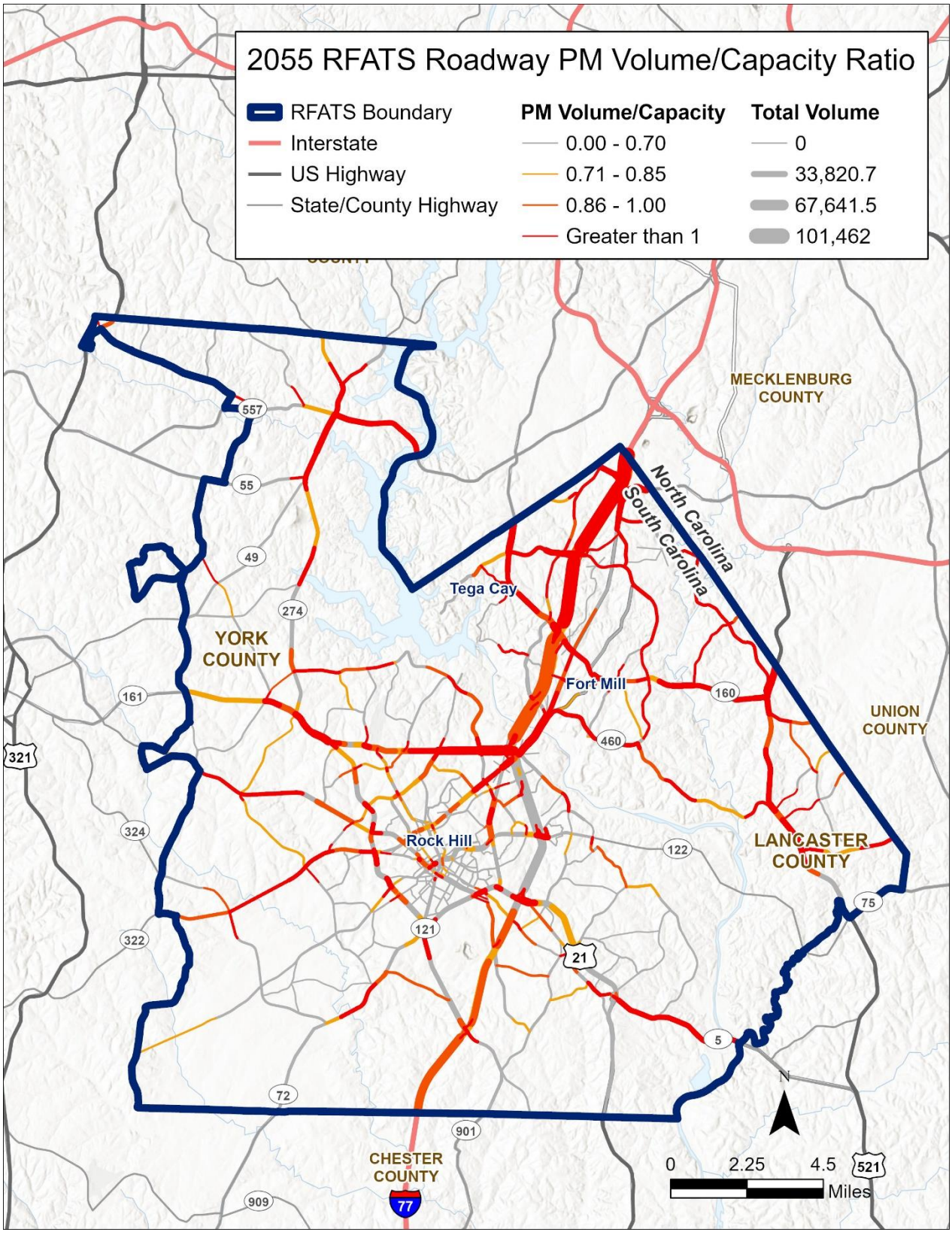


Figure 4.7: Projected Traffic Conditions with Implementation of 2055 LRTP



At the end of this Long Range Transportation Plan (Horizon Year 2055), and taking account of all implemented projects for which funding is available, the model projects significant PM peak congestion on I-77 and all major roadways across the transportation network (see **Figure 4.7**). While this is to be expected in an environment with a prolonged period of robust population growth and elevated development activity, it also reflects an extremely important operational transformation that will substantially contextualize a broad range of land use and planning decisions in the years ahead.

Against this backdrop, RFATS has prioritized transportation system investments at all key convergence points along I-77; specifically, at Exit 90 (Carowinds Blvd Interchange) discussions regarding feasibilty options have been initiated; at Exit 88 (Gold Hill Road Interchange), the state's first "diverging diamond" reconfiguration project has been completed; at Exit 85 (SC 160 Corridor), a "directional interchange" with multiple flyover bridges is actively under construction; and at Exit 82 (Celanese / Cherry), an interchange evaluation study has been completed and submitted to the Federal Highway Administration (FHWA) for review. In short, while modeling projections are a very useful tool – they don't fully reflect the benefits to be realized from these types of operational improvements given that they don't alter volume levels.

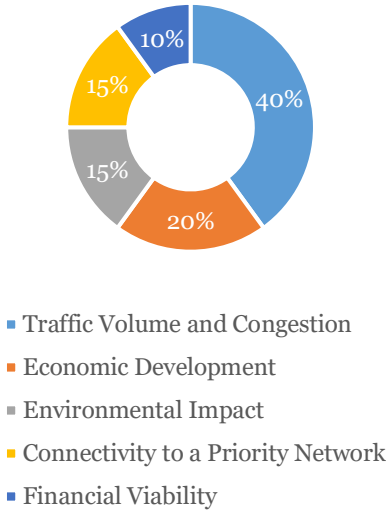
However, despite these significant investments along the I-77 Corridor, most major roads are projected to continue to carry high demand levels under congested conditions, particularly during the peak periods. Drivers on Celanese Road, Hands Mill Highway (SC 274), Gold Hill Road, SC 160, US 521, and many other routes will continue to experience heavy traffic congestion. In other words, even with the full use of available resources, traffic congestion is expected to become more challenging over time; and therefore, roadway capacity improvements (as important as they are), will need to be combined with a number of additional policies and operational strategies in order to enable the transportation system to function in a safe, reliable and efficient manner. This is a challenge experienced in many parts of the country, but particularly important in high growth environments like RFATS.

Project Selection Criteria

A number of factors were considered in selecting projects for the LRTP. In response to Act 114 (passed in 2007), SCDOT developed a set of ranking criteria for five types of projects: new locations, intersections, widenings, interstate mainline capacity, and interchanges.

In 2008, the RFATS Policy Committee endorsed SCDOT's project criteria for its own use in the LRTP; further ranking criteria parameters were updated by SCDOT in 2020. These criteria are broken down and weighted based on the following factors:

Scoring New Location Projects



For ranking **new location** projects:

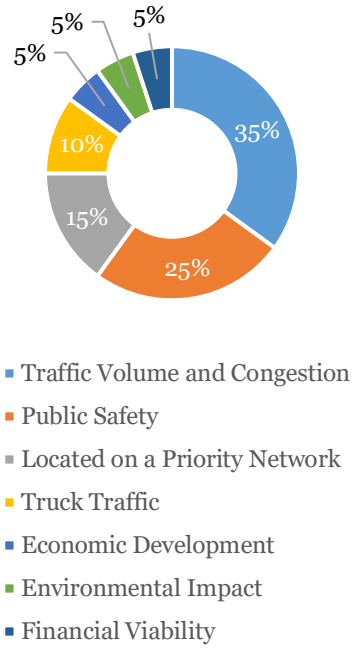
- Traffic volume and congestion (40%). Quantified by comparing the number of network hours of delay between build and no-build scenarios.
- Economic Development (20%). Quantified based on an assessment of short-term, intermediate, and long-term development potential as a result of the proposed improvement.
- Environmental Impact (15%). Quantified based on an assessment of potential impacts to natural, social, and cultural resources.
- Connectivity to a priority network (15%). The priority network score is based on the proposed road's relationship to a priority network, as designated at a regional level.
- Financial Viability (10%). Quantified based on estimated project cost in comparison to the ten-year Statewide Transportation Improvement Program (STIP) budget. Additional consideration is given to projects supplemented with local project funding and/or other federal and state funding.
- Alternative Transportation Solutions. Considered independently of ranking.
- Consistency with Local Land Use Plans. Considered independently of ranking The official designation of a new location option as the project solution will be determined in the alternatives analysis within the environmental process.

For ranking **intersection** projects:

- Traffic Volume and Congestion (35%). Quantified based on current traffic volumes.
- Public Safety (25%). Quantified based on crash rates.
- Located on a priority network (15%). The priority network score is based on the project's relationship to a priority network.
- Truck Traffic (10%). Quantified based on current volume and average daily truck traffic estimates.

- Economic Development (5%). Quantified based on short-term, intermediate, and long-term development potential as a result of the proposed improvement.
- Environmental Impact (5%). Quantified based on an assessment of potential impacts to natural, social, and cultural resources.
- Financial Viability (5%). The financial viability score is based on estimated project cost in comparison to the ten-year Statewide Transportation Improvement Program (STIP) budget. Additional consideration will be given to projects supplemented with local project funding and/or other federal and state funding.
- Alternative Transportation Solutions. Considered independently of ranking.
- Consistency with Local Land Use Plans. Considered independently of ranking.

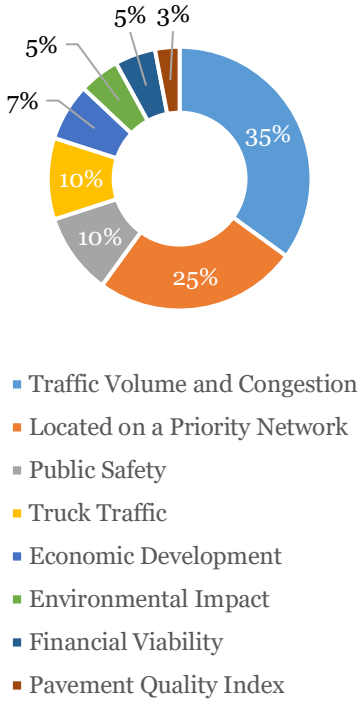
Scoring Intersection Projects



For ranking **corridor improvement/widening** projects:

- Traffic Volume and Congestion (35%). Quantified based on current traffic volumes and the associated level-of-service condition.
- Located on a priority network (national highway system (NHS), freight, and strategic corridors) (25%). The priority network score is based on a project's location in relationship to defined priority networks.
- Public Safety (10%). Quantified based on crash rates.
- Truck Traffic (10%). Quantified based on current volume and average daily truck traffic estimates.
- Economic Development (7%). Quantified based on an assessment of socio-economic measures such as livability, regional economic development, benefit-cost & cost effectiveness, and system performance.
- Environmental Impact (5%). Quantified based on an assessment of potential impacts to natural, social, and cultural resources.
- Financial Viability (5%). Quantified based on estimated project cost in comparison to the six-year Statewide Transportation

Scoring Corridor Improvement / Widening Projects



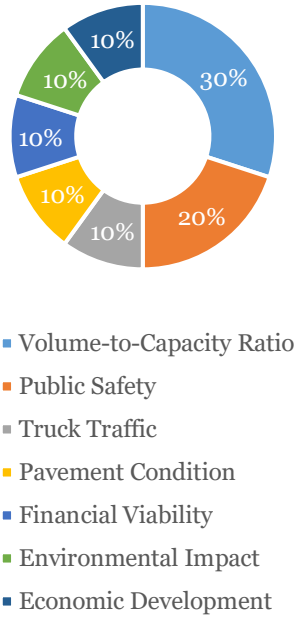
Improvement Program (STIP) budget. Additional consideration will be given to projects supplemented with local project funding and/or other federal and state funding.

- Pavement Quality Index (PQI) (3%). Quantified based on pavement condition assessments.
- Consistency with Local Land Use Plan (for consideration only). Considered independently of the ranking process. A determination of consistency will be made during the long-range plan development process.
- Alternative Transportation Solutions (for consideration only). Considered independently of the ranking process. Transit propensity is evaluated based on surrounding population and employment characteristics to support transit service as a potential alternative or in addition to a proposed improvement.

For ranking **interstate mainline capacity** projects:

- Volume-to-Capacity Ratio (30%). The volume-to-capacity ratio (V/C) score is based on average annual daily traffic data and capacity thresholds consistent with the Highway Capacity Manual.
- Public Safety (20%). The safety score is based on an accident rate that is calculated by the total number of crashes within a given segment divided by the volume and multiplied by the number of years.
- Truck Traffic (10%). The truck score is based on historical truck classification data that is expressed as a percentage of total daily traffic. The truck percentage is multiplied by the average daily traffic to calculate the truck ADT. Truck ADT is used instead of truck percentage to give greater consideration to higher volume roads.
- Pavement Condition (10%). The pavement score is based on pavement management data collected using video and computer technology.
- Financial Viability (10%). The financial viability score is based on project cost in comparison to the six-year Statewide Transportation Improvement Program (STIP) budget.

Scoring Interstate Mainline Capacity Projects



- Environmental Impact (10%). The environmental impact score is based on an assessment of the project's potential impacts to all known environmental, cultural and social resources.
- Economic Development (10%). The economic development score is provided by the South Carolina Department of Commerce and is based on an assessment of the project's benefit to

existing industrial/manufacturing development, as well as its proximity to existing infrastructure.

For ranking **interstate interchange** projects, 80 percent of the total weighted scoring is based on the following criteria, which are included in the Interstate Interchange Management System (IIMS):

- Passenger Vehicle Travel Time
- Truck Vehicle Travel Time
- Passenger Vehicle Delay
- Truck Vehicle Delay
- Passenger Vehicle Distance
- Truck Vehicle Distance
- Truck Vehicle Time
- Truck Detour Distance
- Design-Related Fatal Crashes
- Design-Related Personal Injury Crashes
- Design-Related Property Damage Crashes
- Other Fatal Crashes
- Other Personal Injury Crashes
- Other Property Damage Crashes

The remaining inputs include 10% from economic development and 10 %from environmental impacts, similar to interstate mainline capacity projects.

2055 LRTP Projects

This section presents the major roadway projects to be implemented during the life of the 2055 Long Range Transportation Plan. The projects include road widenings and traffic flow improvements in and around heavily congested interchanges, priority intersections, as well as a range of bicycle / pedestrian improvements.

The projects are presented below in two primary categories:

- **Federally Funded Projects**

  Table 4.2 lists the projects that will be funded at least partly with federal sources. This includes projects selected for Guideshare funding allocated to RFATS, as well as statewide programmatic investments that SCDOT will make during the life of the plan. (For more detail on Guideshare and other funding sources, see Chapter 12.)

  A map of the federally funded projects is provided in **Figure 4.8**.

  It should also be noted that project specific grant awards (such as the Reconnecting Communities Program, among others) will result in additional transportation system investments made during the course of the 2055 Long Range Transportation Planning Period

- **Non-Federally Funded Projects**

  Table 4.3 lists projects to be built with non-federal funding sources.

  The primary funding source for these projects is the York County Local Option Sales Tax program (known as 'Pennies for Progress'). The program was initiated by York County to provide citizens with a safer and more efficient roadway system. Projects were chosen by a Sales Tax Commission representing the citizens of York County and were then approved by the voters. York County was the first county in South Carolina to pass this type of sales tax program to improve the road system. A benefit of this tax is that 99 cents of every sales tax dollar raised in York County stays in the County.

  The first Pennies for Progress referendum was passed in 1997, with subsequent referendums passed in 2003, 2011, 2017, and 2024. **Table 4.3** indicates the referendum in which each project was approved.

  A map of the non-federally funded projects is provided in **Figure 4.9.**

Other projects include **Public/Private Partnership Projects**, which are not part of fiscally constrained LRTP projects but are shown in **Table 4.4** and **Figure 4.10**. These projects are a combination of public funds from local incentives from York County, and private funds from Riverwalk Carolinas.

Unfunded Needs are not part of the fiscally constrained LRTP but are shown in **Table 4.5** and **Table 4.6** to indicate other transportation needs identified during the development of this plan.

This list was developed through input from the local municipalities through their identification of project needs and improvements to assist in mitigating congestion.

Table 4.2 – Federally Funded Projects in the 2055 LRTP

Project ID	Project Description	Funding Source	Cost (millions)	Length (miles)	Horizon Year
1	SC 160 / I-77 Interchange Reconfiguration; 4 to 6 Lane Widening (Sutton Road to US 21) (*)	SIB & Guideshare	$49.6 M + $84.6 M + $16 M	N/A	2025
2	Celanese / I-77 Interchange Reconfiguration (*)	SIB & Guideshare	$32.5 M + $102.8 M	N/A	2035
3	SC 160 Widening (Rosemont / McMillan to Springfield Parkway) - 5 Lanes	Guideshare	$28.5	2.86	2025
4	I-77 / US 21 / SC 5 Interchange Area (Exit 77) (*)	Guideshare	$17.7	N/A	2025
-	System Improvement Projects (Bridge Replacements, Safety, Road Widenings, Interstate Program)	FHWA, SCDOT	TBD	N/A	Throughout
-	CMAQ (Congestion Mitigation & Air Quality Improvement Program)	FHWA, SCDOT	TBD	N/A	Throughout
-	TAP (Transportation Alternatives Program)	FHWA, SCDOT	TBD	N/A	Throughout
	Total		**$315.7 M**		

As discussed earlier, preserving and enhancing the National Highway System (NHS), in addition to more localized transportation needs is an important component of sound transportation decision-making, and those projects with an asterisk * near to their project name simultaneously advance both regional and NHS objectives

Figure 4.8 – Federally Funded Projects in the 2055 LRTP

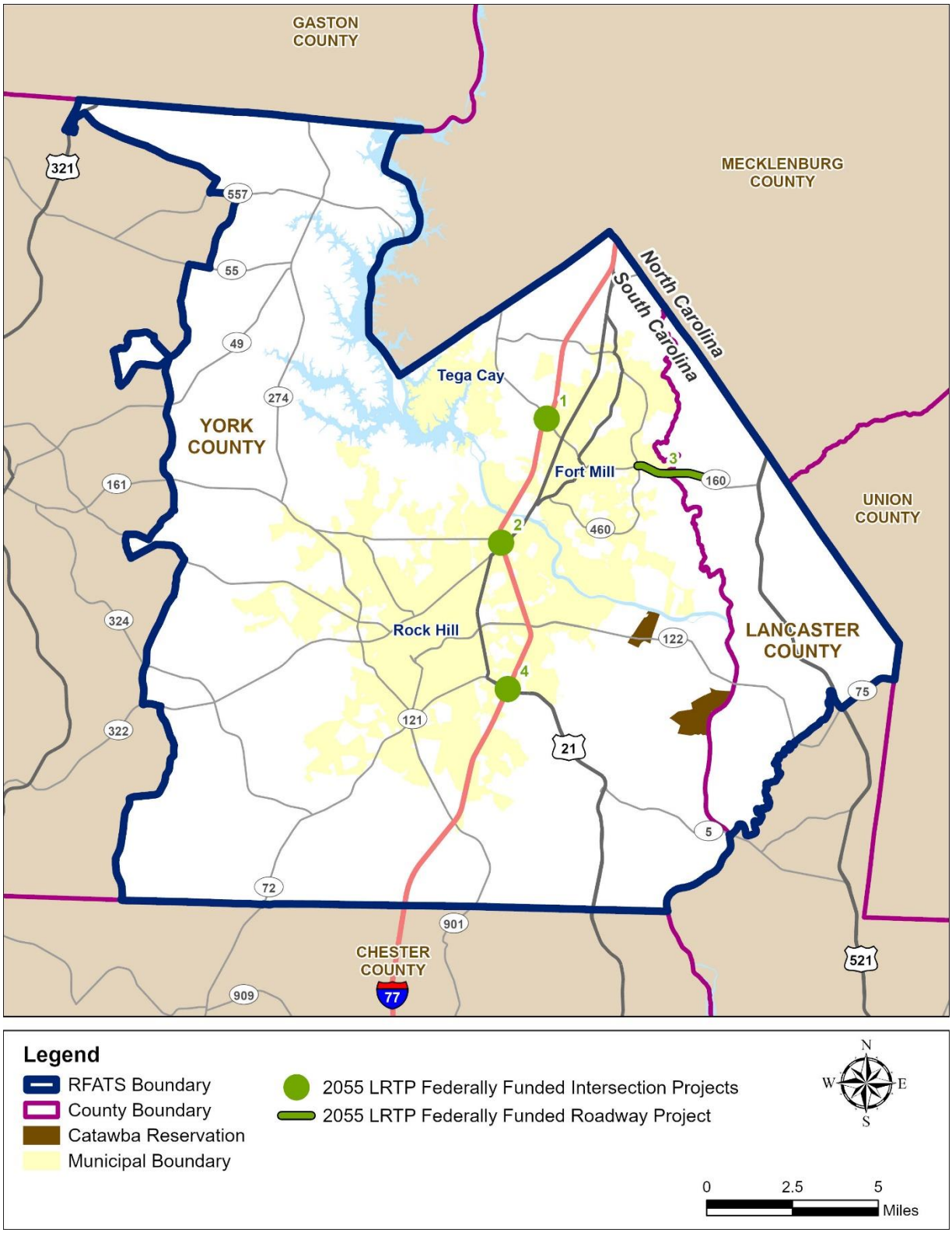


Table 4.3: Non-Federally Funded Projects in the 2055 LRTP

Project ID	Project Type	Route	Project Description	Horizon	Pennies Referendum	Cost (millions)
5	Road Widening	US 21 North Phase I & SC 51	Springfield Parkway to NC State Line - 5 Lanes	2028	2011	$85.0
6	Road Widening	SC 160 East	Springfield Parkway to Lancaster County Line; formerly project in 2003 PFP - 3 Lanes	2025	2011	$11.8
7	Road Widening	Riverview Road	Eden Terrace to Celanese Road - 3 Lanes	2025	2011	$25.2
8	Road Widening	Mt Gallant Road	Celanese Road to Twin Lakes Road - 3 Lanes	2028	2011	$44.1
9	Road Widening	SC Highway 72	Highway 901 to Rambo Road; formerly in 2003 PFP - 3 Lanes	2026	2011	$40.8
10	Road Widening	Cel River / Red River	Eden Terr to Dave Lyle Blvd – 5 Lanes	2028	2017	$69.2
11	Road Widening	Sutton / Spratt / FMSB	I-77 to Railroad – 5 Lanes	2028	2017	$74.3
12	Road Widening	US 21	Springfield Pkwy to SC 160	2028	2017	$65.5
13	Road Widening	US 21	Hwy. 160 to Sutton Road – 5 Lanes		2024	$44.9
14	Road Widening	Fort Mill Parkway	Railroad bridge to Holbrook Road – 5 Lanes	2028	2024	$9.0
15	Intersection	SC 274 / SC 49 / SC 557	Operational / Capacity Additions	2027	2017	$20.4
16	Intersection	Sutton Rd / Harris Rd	Consider Dedicated Left from SB Sutton Road onto Harris Road	2025	2017	$8.1
17	Intersection	Dam Rd / Gardendale Rd	Intersection Improvements		2024	$3.1
18	Intersection	Hwy 49 / Blucher Cir	Intersection Improvements		2024	$2.7
19	Intersection	Hwy 49 / Bonum Rd / Montgomery Dr	Intersection Improvements		2024	$4.6
20	Intersection	Ebinport Rd / Marrett Blvd	Intersection Improvements		2024	$6.3

21	Intersection	Albright Rd / Black St	Intersection Improvements		2024	$2.3
22	Intersection	US 21 / Springdale Rd	Intersection Improvements		2024	
23	Intersection	Neely Rd / Robertson Rd	Intersection Improvements		2024	
24	Intersection	Neely Rd / Rawlsville Rd	Intersection Improvements		2024	
	Total					**$517.3M**

Figure 4.9: Non-Federally Funded Projects in the 2055 LRTP

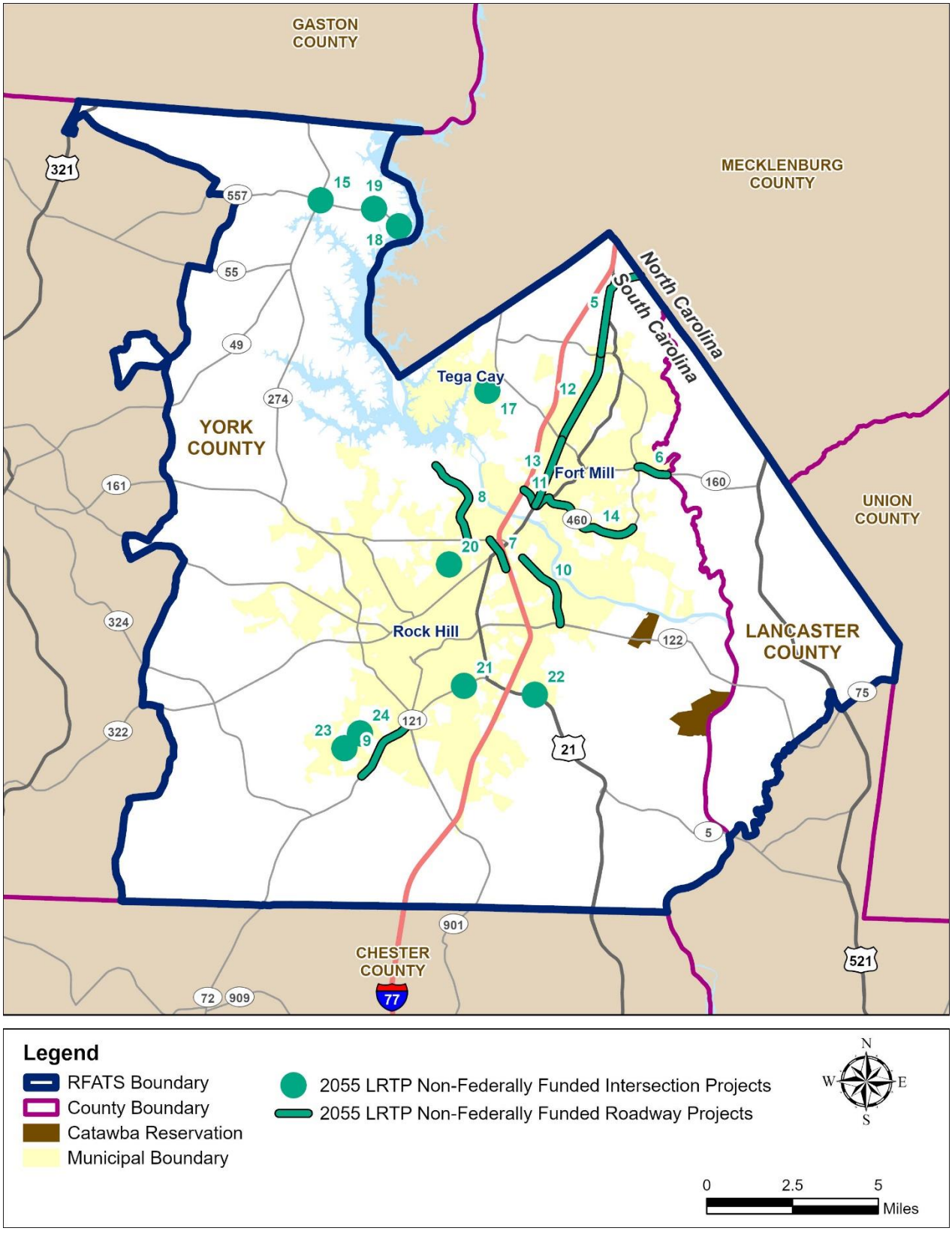


Table 4.4: Public Private Partnerships

Project ID	Location	Project Description
25	New Roadway Segment #1	Connect Corporate Blvd / Cel-River Rd / and Commerce Dr
26	New Roadway Segment #2	Connect Commerce Blvd and Galleria Blvd
27	New Roadway Segment #3	Connector across the Railroad between the Paragon Way and Galleria Blvd
28	Riverview Rd	Extension from Eden Terrace to Mt Gallant Road
29	Eden Terrace	Anderson Road to Dunkins Ferry
30	Galleria Blvd	Meeting Blvd and Cel-River Rd at Waterford Extension

Figure 4.10: Public-Private Partnership Projects in the 2055 LRTP

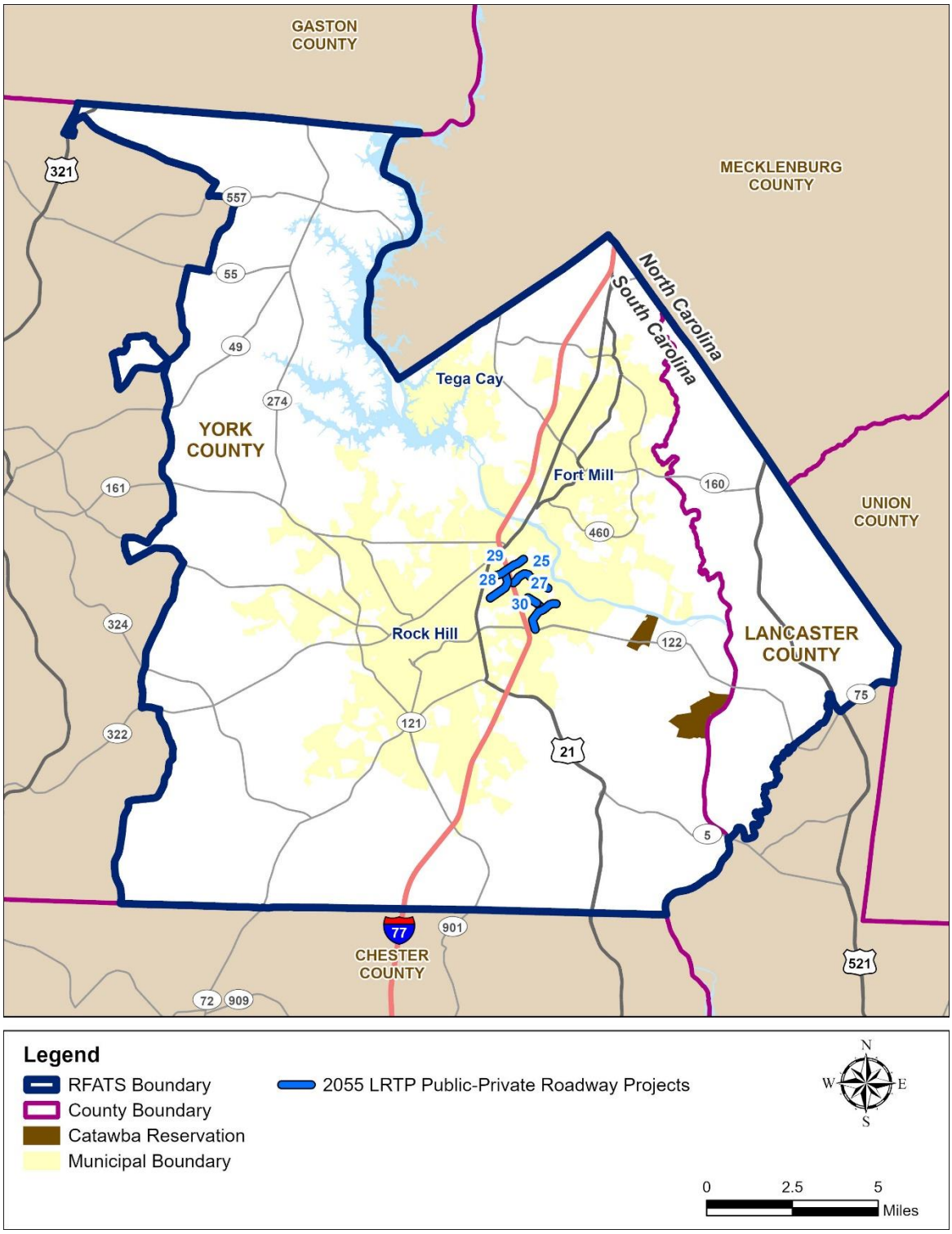


Table 4.5: Unfunded Needs – Road Widening / New Alignments

Location	Project Description
Gold Hill Road / Springfield Parkway (I-77 to SC 160)	5 Lanes with Sidewalks and Shared-Use Bike Lanes
Marvin Road (US 521 to Union County Line)	3 Lanes (Potential 4 lane from US 521 to Henry Harris Road)
Porter Road (Fire Tower Road to Long Meadow Road)	5 Lanes with Shared Use Path
Harrisburg Road (Mecklenburg County Line to SC 160)	3 Lanes with Sidewalks and Bike Lanes
Sutton Road (Sixth Baxter Crossing to US 21)	5 Lanes with Sidewalks and Bike Lanes
Cel-River / Red River Road (SC 122 to US 21)	3 Lanes; Consider Interchange Improvement at Exit 77
S. Dobys Bridge Road (Fort Mill Southern Parkway to US 521)	5 Lanes with Sidewalks and Bike Lanes
US 521 (Jim Wilson Road to State Line)	6 lanes
Fort Mill Parkway (US 21 to Holbrook Road)	5 Lanes with Sidewalks and Bike Lanes
Jim Wilson Road (US 521 to Henry Harris Road)	5 Lanes
Shelley Mullis Road (US 521 to Union County Line)	3 Lanes with Sidewalks and Bike Lanes
Mt Gallant Road	5-Lane widening from end of Panthers widening north to north of Celanese Road
Eden Terrace	3-Lane widening with shared use path

Meeting Blvd (Existing WM Connection Point to Galleria Blvd)	5 Lanes with Sidewalks
Ebenezer Road	3-Lane widening; address termini intersection to account for 3-lane section
Ebinport Road	3-Lane widening; with roundabout at Marett Blvd

Table 4.6: Unfunded Needs – Intersection Improvements

Location
Dave Lyle Boulevard / Tinsley Way
SC 160 (Steele / Bank Streets & Doby's Bridge Road)
SC 160 / Springfield Parkway
Doby's Bridge Road / Nims Lakes Road / Williams Road
Doby's Bridge Road / Doby's Bridge Park
SC 274 / Old York Road / Adnah Church Road
Old Nation Road / North White Street
Cavlin Hall / Harrisburg Road
US 521 / River Road
US 521 / Jim Wilson Road
Gold Hill / Pleasant Road
Hwy 274 / Allison Creek Road

Catawba Nation Transportation Plan

Catawba Nation Projects

The Catawba Nation coordinates transportation planning with RFATS and has a voting representative on the RFATS Policy Committee.

The Nation also participates in the Tribal Transportation Program (TTP). This is a program addressing the transportation needs of tribes by providing funds for planning, design, construction, and maintenance activities. This program is jointly administered by the Federal Highway Administration's Federal Lands Highway Office and the Bureau of Indian Affairs (BIA).

Projects for the tribe are overseen by the Catawba Nation Department of Transportation.

Currently planned projects include:

- Paving eight gravel roads, including Charley Horse Road, Little Moon Road, Red Hawk Road, Evelyn George Road, Tom Steven Road, Peace Pipe Road, Rebecca Pitcher Road, and Pow Wow Road;
- Construction of the Rivercrest Road extension connecting the existing Rivercrest Road to Sturgis Road;
- Reconstruction of Hagler Drive;
- Reclamation of four roads including Betsy Bob Road, Big Bear Drive, Yesebehena Circle, and Tomahawk Ridge;
- Improving Bike/Pedestrian Trail connectivity to create reservation-wide bikeable and walkability;
- John Brown Road reconstruction.

Introduction

Public safety is one of government's crucial responsibilities. In the context of transportation planning, there are two key elements to consider: *safety* and *security*. *Safety* measures, outlined in this chapter, are aimed at reducing injury and death for all users of the transportation system. *Security* pertains to a region's ability to maintain mobility for its citizens, even in adverse conditions, by protecting the transportation system against threats, and by providing multiple options for managing travel demand and destination routing.

Safety

The Highway Safety Improvement Program (HSIP) is a core Federal-aid activity established to reduce traffic fatalities and serious injuries on all public roads, including non-state owned roads as well as roads on tribal land. Additional programs target specific areas of concern, such as work zones, older drivers, pedestrians; and particularly, children walking to school.

The HSIP program requires a data-driven, strategic highway safety planning approach with a focus on results. As mentioned in Chapter 3 – Goals, Objectives and Performance Measures, State DOTs and MPOs are required to set annual safety performance targets in the HSIP Report. These annual measures include:

- **Number of fatalities**: The total number of persons suffering fatal injuries in a motor vehicle crash during a calendar year.
- **Rate of fatalities per 100 million vehicle miles traveled (VMT)**: The ratio of total number of fatalities to the number of vehicle miles traveled (VMT expressed in 100 million VMT) in a calendar year.
- **Number of serious injuries:** The total number of persons suffering at least one serious injury in a motor vehicle crash during a calendar year. (The United States Department of Transportation's definition of a serious injury entails one or more of the following: severe laceration resulting in exposure of underlying tissue/muscle/organs or resulting in significant loss of blood; broken or distorted extremity; crush injuries; suspected skull, chest, or abdominal injury other than bruises or minor lacerations; significant burns; unconsciousness when taken from the crash scene; or paralysis.)

- **Rate of serious injuries per 100 million VMT:** The ratio of total number of serious injuries to the number of VMT (VMT expressed in 100 million VMT) in a calendar year.
- **Number of non-motorized fatalities and number of non-motorized serious injuries combined:** The combined total number of non-motorized fatalities and non-motorized serious injuries involving a motor vehicle during a calendar year.

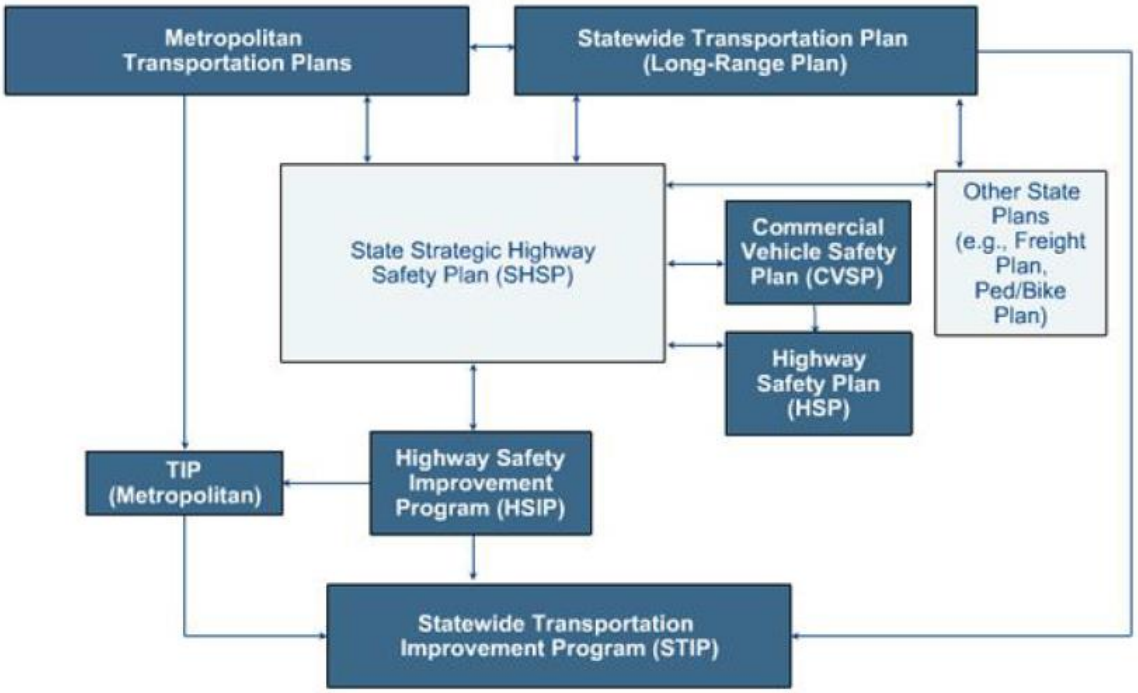
These measures are to be calculated based on the most recent five years of available crash data. While SCDOT's Strategic Highway Safety Plan reports these measures at the statewide level, RFATS coordinates with SCDOT to ensure each measure is tracked and reported at the regional level as well, consistent with applicable federal and state requirements.

Safety in the transportation network was identified as a performance measure in the RFATS Congestion Management Process (CMP). The CMP documents and recommends appropriate congestion management strategies and projects – both of which are further examined in the LRTP planning process.

Framework for Safety Planning

The key planning process for highway safety in the RFATS area is the development of the statewide highway safety plan. The most recent edition was published in 2020 as *South Carolina's Strategic Highway Safety Plan: Target Zero*. As **Figure 5.1** shows, the statewide highway safety plan provides the framework for SCDOT's partner agencies and their planning documents, including RFATS and its Long Range Transportation Plan or LRTP.

Figure 5.1 - Relationship between the Highway Safety Plan and Other Plans



Source: Federal Highway Administration

Statewide Conditions and Trends

Since South Carolina's last *Strategic Highway Safety Plan: The Roadmap to Safety*, published in 2008, the state saw an overall 13% increase in roadway deaths between 2008 and 2018. Further goal setting was outlined in the 2020 update to the plan, the *Strategic Highway Safety Plan: Target Zero*. The ultimate goal of this plan is work towards zero traffic-related fatalities in South Carolina, and it outlines a variety of long-term goals, strategies, and coordination to achieve success. The State Highway Safety Report, updated in 2022, included 2024 performance measure targets. The FY 2023 Highway Safety Plan included data for the 2017-2021 time period.

Goals for 2018 through 2021 included:

- Reduce statewide traffic **fatalities** to a maximum of 1,079 **persons** per year by 2024. (In comparison, traffic fatalities numbered 1,020 persons in 2012.)

  - Preliminary state data compiled by the OHSJP's Statistical Analysis & Research Section (SARS) indicates there were 1,194 traffic fatalities in 2021, with an estimated five-year average of 1,058 for the 2017-2021 time period. This is an increase of 12% from the 1,066 traffic fatalities in 2020. If this trend continues, the state does not anticipate meeting its goal of a five-year moving average of 1,061 traffic deaths for 2018 -2022 time period.

- Reduce the statewide number of **fatal crashes** per 100 million vehicle miles travelled to 1.87. (This number, referred to by the South Carolina Department of Public Safety as the mileage death rate, was 1.87 in 2016.)
  - Preliminary state data compiled by SARS indicates there was a mileage death rate of 2.08 in 2021, with an estimated five-year average of 1.88 for the 2017-2021 time period. This is an increase of 5.1% from 1.98 in 2020. If this trend continues, the state does not anticipate meeting its goal of a five-year moving average of 1.82 in 2018 -2022 time period.
- Reduce statewide number of **serious injuries** to 2,549 incidents per year by 2024. (Total serious injuries numbered 3,049 persons in 2016.)
  - Preliminary state data compiled by SARS indicates there were 2,961 serious traffic injuries in 2021, with an estimated five-year average of 2,860 for the 2017-2021 time period. This is an increase of 13.6% from the 2,607 serious traffic injuries in 2020, but an 8.5% decrease from 2019 to 2021. The state does anticipate meeting its goal of a five-year moving average of 2,850 serious traffic injuries for 2018-2022 time period.
- Reduce the statewide number of **serious injury crashes** per 100 million vehicle miles travelled to 4.41 by year 2024. (This number was 5.59 in 2016.)
  - In 2022, the number of serious injury crashes per 100 million vehicle miles traveled was 4.34. The five-year average for the 2018-2022 period was 4.92. This is lower than the 5-year target for 2015-2019 outlined in the 2022 South Carolina HSIP report, which was 4.96. Note: this measure was not included in the FY 2022 report, and these numbers reflect the latest information available in the 2021 State Highway Safety Report.

Target Zero, in accordance with federal law, was developed collaboratively by a number of federal, state and local partners. SCDOT is the designated lead agency for the statewide implementation effort. RFATS participates in implementation by incorporating the relevant safety goals, priorities, countermeasures, and programs for the RFATS area into its own LRTP.

The four "E"s of safety, established by the HSIP, were maintained as guiding principles in the development of *Target Zero*:

- Engineering
- Enforcement
- Education
- Emergency Medical Services (EMS)

Twelve emphasis areas were selected by the Strategic Highway Safety Plan Steering Committee to concentrate efforts and monitor performance:

- Roadway Departure;
- Intersections;
- Impaired Driving;
- Unrestrained;
- Speeding;
- Distracted Driving;
- Young Drivers;
- Mature Drivers;
- Pedestrians;
- Motorcycles/Mopeds/Electric Scooters;
- Bicycles;
- And Work Zones (Highway Workers).

Each of these safety emphasis areas has been identified as a leading cause of traffic fatalities in South Carolina and therefore has its own goals, objectives and strategies for reduction of fatalities and serious injuries. The following statewide statistics were drawn from 4,847 total fatalities between 2014 and 2018.

- **Roadway Departure**

  - 2,122 fatal crashes (43.8% of all fatal crashes) involved a roadway departure.

- **Unrestrained Motor Vehicle Occupants**
  - 1,580 motor vehicle occupants killed in a crash (32.6% of all fatalities) were not using a restraint at the time of the crash.
- **Distracted Driving** (Activities that take motorists' attention away from the safe operation of the vehicle)
  - 290 fatalities due to distracted driving (6% of all fatal crashes).
- **Age-Related Crashes** (Young Drivers: 15-20 years of age and Older Drivers: 65 or more years of age)
  - Young drivers led to 1,595 traffic fatalities (32.9% of all fatalities). For older drivers, the number was 1,019 (21%).
- **Speed Related Crashes**
  - 1,953 crashes leading to fatalities involved excessive speeds (40.3% of all fatal crashes).
- **Vulnerable Roadway Users** (Motorcyclists, Pedestrians, Moped Operators, and Bicyclists)
  - 708 fatalities (14.6% of all fatalities) were pedestrians, 94 (1.9%) were pedalcyclists, and 601 (12.4%) were motorcyclists.
- **Intersection and Other High-Risk Roadway Locations** (Work Zones and Railroad Crossings)
  - 1,015 fatal crashes (20.9% of all fatal crashes) occurred at an intersection, and 78 (1.6%) occurred in a work zone.
- **Impaired Driving** (BAC 0.01+)
  - There were 1,637 incidents of impaired driving leading to a fatality (33.8% of all fatalities).

Regional Conditions and Trends

Overall Crash Trends

Between 2020 and 2023, there were approximately 6,700 crashes per year. **Figure 5.2** shows a heat map that illustrates the concentration of crashes locations from data provided by SCDOT. Specifically, crashes are most likely to occur on or near I-77. The interchange for I-77 and US 21, the nearby SC 161 underpass, and the border of South and North Carolina on I-77 include the most dense concentrations of crashes in RFATS.

Over 81 percent of crashes between 2020 and 2023 did not result in injuries to those involved, and fatalities accounted for less than 1.5 percent of crashes.

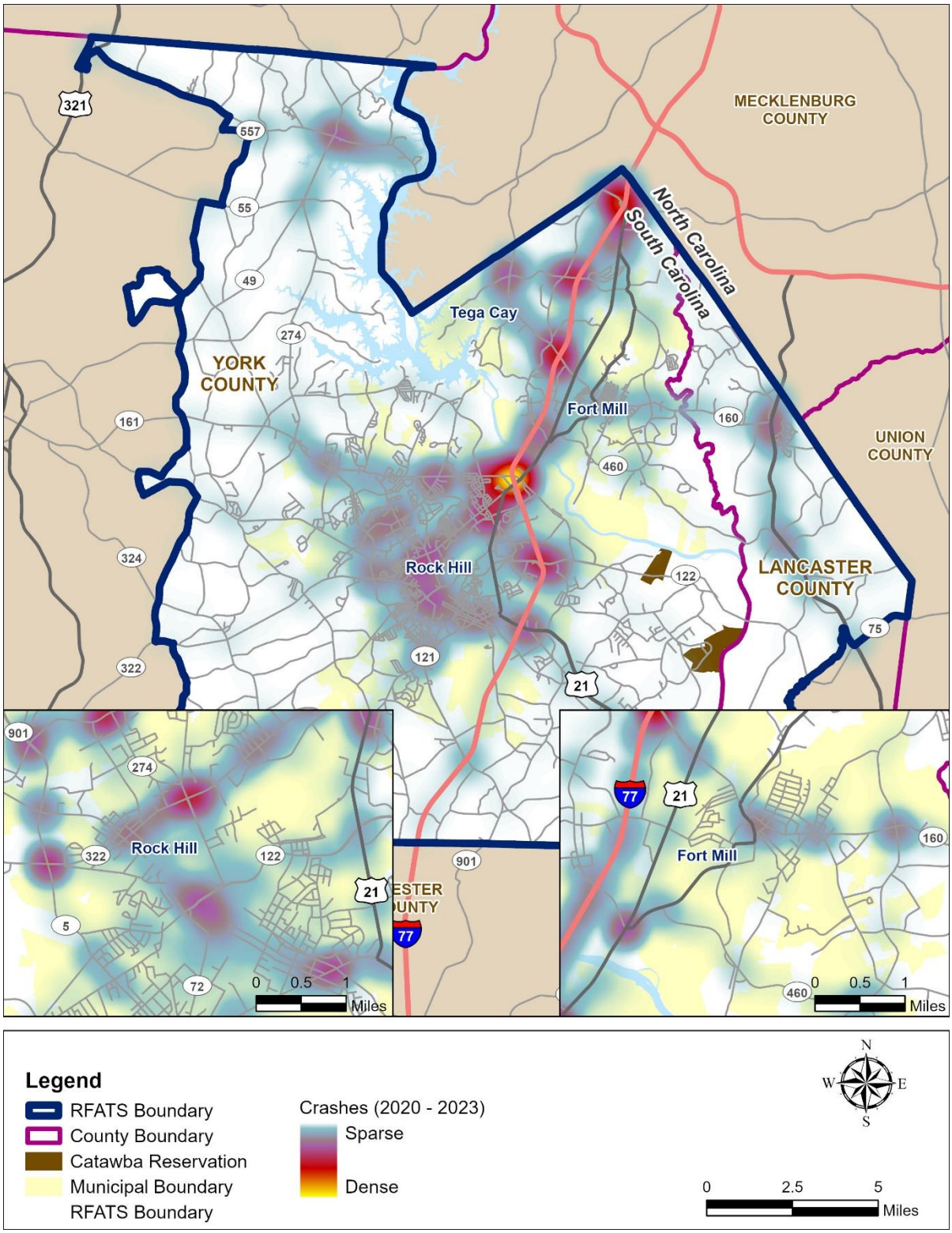
Notably, 65 percent of crashes were categorized as rear-end or angle collisions, where vehicles impact at an angle. Understanding where crashes are most likely to occur and how they happen is beneficial to understanding where to improve road safety and reduce the risk of future incidents.

Fatal Crashes

The RFATS region experienced a total of 148 traffic-related fatalities during the period of 2018 to 2022, according to the Fatality Analysis Reporting System (FARS) maintained by the National Highway Traffic Safety Administration.

Based on the reported characteristics of these fatal crashes, the following *Target Zero* emphasis areas have been identified as having particular relevance to the RFATS region. Also detailed in this chapter are potential strategies identified by *Target Zero* to reduce the likelihood of and/or mitigate the severity of each type of crash. RFATS and SCDOT officials should discuss the strategies most likely to be useful in the region as well as which locations exhibit the greatest need based on crash data.

Figure 5.2 – Crash Heat Map (2020-2023)



Impaired Driving

Nearly half of the traffic deaths in the RFATS area between 2018 and 2022 resulted from a driver operating under the influence. This type of crash increases significantly over certain holidays and is more likely to involve a male driver.

While the strategies outlined in *Target Zero* to reduce fatalities involving impaired drivers do not involve physical changes to the roadway area, many can be implemented at a low cost within the RFATS region. Measures can be taken to deter drivers from operating vehicles while under the influence as well as to reduce harm to both drivers and passengers in the event of a crash.

STRATEGIES

- Enforce and educate drivers on DUI laws as well as the dangers of drinking and driving, with a special focus on reducing instances of underage drinking and driving.
  → Increase the number of nighttime public safety checkpoints
  → Publicize and enforce zero-tolerance laws for drivers under age 21
  → Conduct aggressive/increased enforcement targeting impaired drivers at high-crash/risk areas
  → Educate parents about the liability of social hosting
- Minimize risk of fatalities and serious injuries related to impaired driver collisions.
  → Implement roadway departure strategies, such as the "Safety Edge"
  → Develop and implement a corridor safety model in high-crash locations where data suggests a high rate of impaired driving collisions

Guidance from the Centers for Disease Control and Prevention (CDC) supports these strategies with low-cost recommendations that include media campaigns and school-based instructional programs to reduce or prevent drunk driving. These programs can also emphasize the importance not riding in a vehicle with an impaired driver, which can reduce passenger fatalities.

Roadway design elements such as the "Safety Edge", which has been promoted by the FHWA and implemented in several states, can be effective in reducing roadway departure crashes – including those caused by impaired driving. With this asphalt paving technique, the road pavement edge is tapered at a 30-degree angle instead of being left as a vertical drop-off. When

a driver's wheel drops off the road, the gentler angle helps prevent the driver from losing control when steering back onto the roadway.

Speed-Related Crashes

37 percent of recent fatalities in the RFATS area were related to speeding. Although increased, targeted enforcement is the traditional approach to managing speeding, many communities have begun to assess the impact of roadway design on drivers' speeds. Traffic calming techniques that can be employed on neighborhood streets include narrowing lanes and introducing mild curves into long, straight sections of roadway.

STRATEGIES

- Reduce speeding through enforcement activities and new partnerships.
  → Add high-visibility enforcement in critical areas
  → Expand corridor safety model to high-crash locations where data suggests a high rate of speeding-related fatal or serious injury crashes
- Use engineering measures to effectively manage speed.
  → Add roadway design features to influence speed in critical areas
  → Time and coordinate traffic signals to improve traffic flow, reduce red-light running, and manage speeds
- Increase public awareness of risk of driving at unsafe speeds.
  → Develop public education materials communicating specific concerns related to speeding, targeting both new and experienced drivers

Easing traffic congestion can also reduce speeding in some circumstances. Law enforcement officials note that on some roadways, drivers tend to speed once they get past a significant bottleneck, presumably with the idea of catching up on lost time.

Vulnerable Roadway Users

Pedestrians and bicyclists comprised roughly 15 percent of traffic-related deaths in the RFATS region between 2014 and 2018, with the majority of these deaths being pedestrians. Strategies to improve pedestrian and bicycle safety include expansion of the region's network of sidewalks and bike

facilities, as well as raising awareness of traffic laws among motorists and non-motorists. In the past, local bicycle/pedestrian advocacy groups have helped to sponsor training for area law enforcement officers.

STRATEGIES

- Expand and improve bicycle and pedestrian facilities.
  → Install separated/dedicated paths/sidewalks and other pedestrian-friendly road features along corridors and at intersections where supported by crash analysis
  → Consider pedestrian safety and mobility during the needs assessment of all projects
  → Enhance intersection and roadway design to encourage livable communities
- Improve pedestrian and bicyclist safety awareness and behaviors.
  → Continue safety campaigns which promote the use of reflective apparel and/or lights (conspicuous enhancement)
  → Implement an awareness campaign emphasizing the risks to pedestrians and bicyclists on high-volume/speed roadways resulting from disabled vehicle, motorist assistance, crossing multi-lanes, etc.
- Increase the likelihood of pedestrian and bicyclist survival in the event of a collision.
  → Improve response times to rural collision sites

Older Drivers

Drivers 65 or older comprised 36 percent of regional fatalities from 2020-2023. Physical changes to the transportation system, such as increasing visibility and improving legibility of signage, can help reduce fatal crashes involving older drivers. Groups such as AARP may help reduce this statistic by sponsoring various aging road users training events. Providing and publicizing public transit options is also important so that people feel they can relinquish driving without losing their independence and participation in community life.

STRATEGIES

- Identify older drivers at an elevated risk.
  → Train law enforcement and medical professionals to recognize physical and cognitive deficiencies affecting safe driving in older drivers, including submitting reevaluation referrals to the DMV
- Plan for an aging population.
  → Establish a broad-based coalition to plan for addressing older adults' transportation needs.
- Improve the roadway and driving environment to better accommodate older drivers' special needs.
  → Provide more protected left-turn signal phases at high-volume intersections, where supported by collision data
  → Consider lighting and other engineering countermeasures at intersections, horizontal curves, and railroad grade crossings where supported by collision data
- Improve the driving competency of older adults in the general driving population
  → Provide education and training opportunities to the general older driver population

Regional Safety Performance Measures

Although the Fatality Analysis Reporting System provides data on fatal crashes at the MPO level, information on crash rates and serious injuries is currently only available to RFATS at the county level. . To provide consistency in reporting, York and Lancaster counties are therefore the basis for the performance data shown in **Table 5.1**. These numbers represent the average of the most recent available five years of crash data reported as of April 2022.

Table 5.1: RFATS Safety Performance Measures (2018-2022)

Measure	York County 5-Year Avg.	Lancaster County 5-Year Avg.
Number of fatalities	38	17
Rate of fatalities per 100 million vehicle miles traveled (VMT)	1.557	2.263
Number of serious injuries	129	39
Rate of serious injuries per 100 million VMT	84.845	17.286
Number of non-motorized fatalities and number of non-motorized serious injuries combined	14.5	0.5

Sources: 2018-2022 fatalities and fatality rate from annual South Carolina Traffic Collision Fact Book. Non-motorized user fatalities from Federal Accident Reporting System (NOTE: 2018 and 2022 pedalcyclist data was not available). Number of non-motorized serious injuries provided by SCDOT (Note: 2015-2019 data was used for this measure).

Security

Key considerations in transportation security include "hardening" critical infrastructure against both man-made and natural threats and increasing the system's resiliency, (i.e. its ability to resume normal function quickly after a major impact). The resiliency of a transportation network can be improved through pre-coordinated responses, which range from a pre-arranged plan to redirect traffic, to streamlined procedures that would allow rapid re-construction of a critical bridge. System resiliency can also be improved by ensuring "redundancy," (i.e. having multiple routes or more than one transportation mode serving key destinations).

Roles in Transportation Security

Most states, regions and local governments have a dedicated department or agency that handles emergency planning and response, and transportation agencies such as SCDOT and RFATS play important supporting roles in these response efforts.

The South Carolina Emergency Operations Plan is administered by the South Carolina Emergency Management Division, Office of the Adjutant General. Under the plan, SCDOT is responsible for the management of transportation assets and infrastructure during, or immediately following, a critical emergency or disaster incident. This function includes providing coordinated plans, policies, and actions of state and local governments to ensure the access and safety of the public traveling on the transportation system during all emergency events Once the threat or hazard no longer exists, SCDOT performs prompt inspections of the transportation infrastructure and facilitates orderly re-entry into the area after an evacuation. Other missions may not involve evacuations but are equally important. These may include responding to severe weather conditions, or re-routing traffic to protect travelers from hazardous material.

Hazards requiring action by SCDOT and partner agencies include hurricanes, winter storms, tornadoes, wildfires, dam failures, flooding, earthquakes, and national security emergencies. SCDOT is also responsible for hazardous materials incidents, an area which has become increasingly important and is expected to continue to be a key safety and security concern. In response to the increased concern over this issue, Congress's latest reauthorization of surface transportation includes funds allocated specifically to address this issue.

Regional Conditions and Trends

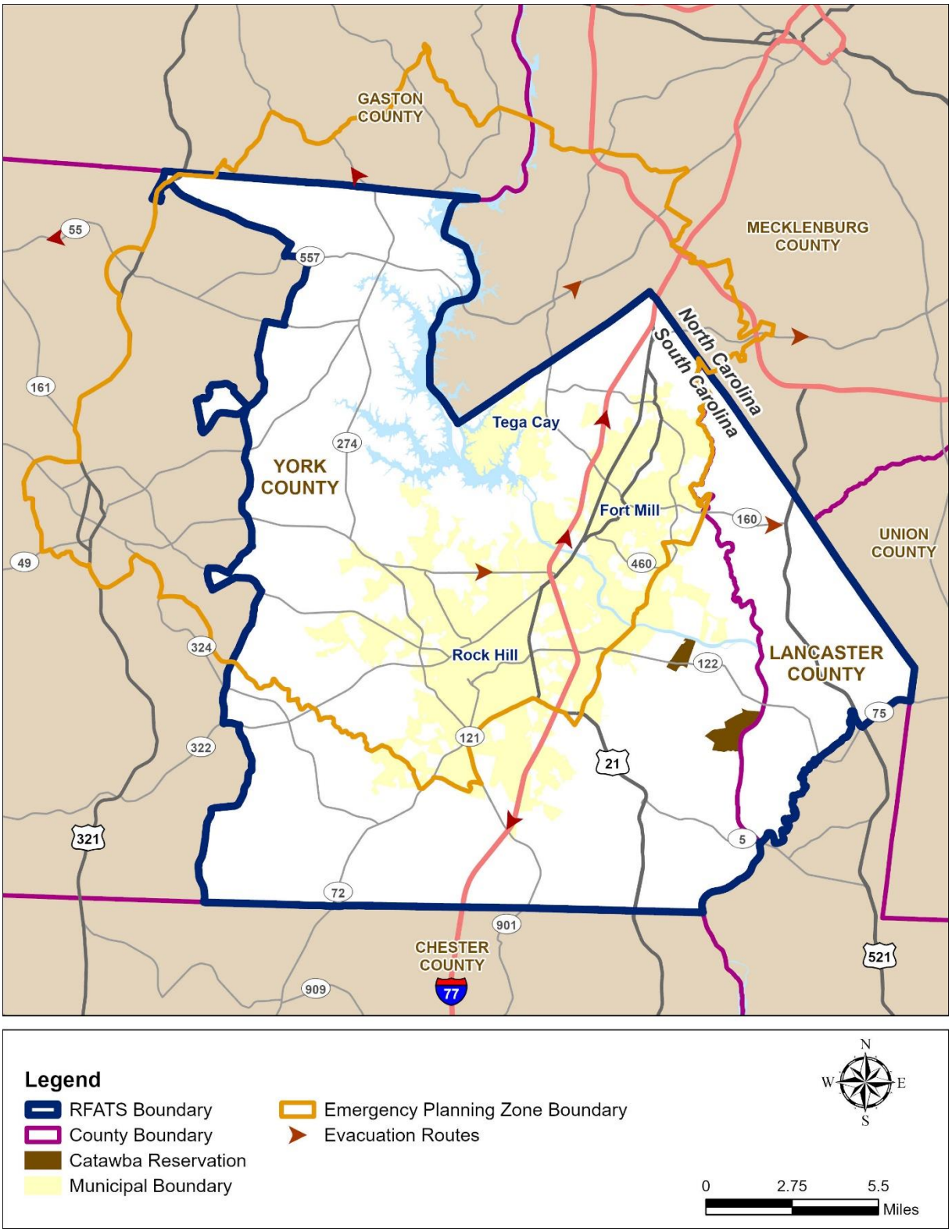
One of the unique emergency response concerns for in the RFATS area is maintaining an evacuation plan for the area around the Catawba Nuclear Power Station, located on a peninsula in Lake Wylie. Most of the RFATS planning area is within a 10-mile radius of the station. Related security issues include transportation of hazardous materials as well as local evacuation routes to be used in case of an incident.

Planning and response for incidents involving the Catawba station are the responsibility of the York County Emergency Management Office. Many of the designated evacuation routes (**Figure 5.3**) are part of the roadway network under RFATS's planning and program funding responsibilities. York County Emergency Management is therefore a critical partner in the RFATS planning process, to help identify routes or areas of the transportation network that may not be adequate for emergency use. RFATS should continue to give funding priority to improving SC 160, US 21 North, and other key routes designated in the Catawba station evacuation plan.

Resiliency

As new residential and commercial development continues, there is some risk that roads that were sufficient a decade ago will no longer have the capacity needed to quickly evacuate an increased number of residents and employees. However, local governments have considerable ability to improve the area's road network resiliency through their development policies, and the extent to which they follow the RFATS Collector Street Plan. As noted earlier, security is improved when a community has an extensive interconnected network; when one route is impacted by an incident, alternate routes are available to maintain mobility. For this reason, that many communities require at least two entrances to large subdivisions. In dense areas, too many lives are at risk to rely on only one route for emergency responders to evacuate residents or reach them in case of a disaster in a timely manner. The same concept holds true at a larger scale; a region is more secure with multiple connections among its major trip generators.

Figure 5.3 - Evacuation Routes from Catawba Nuclear Power Station



Sources: Duke Energy, York County Office of Emergency Management

Safe Streets and Roads for All (SS4A) Grant Program

The Infrastructure Investment and Jobs Act (IIJA) established the Safe Streets and Roads for All (SS4A) discretionary program. The program was allocated with $5 billion in appropriated funds over 5 years, 2022-2026. The SS4A program supports the U.S. Department of Transportation's (USDOT) National Roadway Safety Strategy and our goal of zero roadway deaths using a Safe System Approach. RFATS was rewarded a SS4A grant to develop a Comprehensive Safety Action Plan that will thoroughly take account of the full range of variables that substantially influence both operational and safety outcomes across the planning area. The study is to begin in mid-2025 and wrap up in 2026 with recommendations.

Non-Highway Modes

Transit security plans and training in the RFATS region are managed by the local operators (MyRide, York & Lancaster County Council on Aging, and CATS). The Rock Hill - York County Airport (Bryant Field) has its own emergency plan. Railroads must also perform comprehensive safety and security risk analyses to determine the safest routes for moving hazardous goods.

Public transit is sometimes considered a more likely target for threats because of the concentration of people on vehicles and at stations. Each transit agency maintains security protocols and provides regular training for drivers and other staff. To increase security, most transit systems have also installed cameras and other security equipment such as automatic vehicle location (AVL) on their vehicles and at major facilities.

Public transit typically has a seat at the table for emergency planning because it offers critical resources to help emergency responders evacuate large numbers of people quickly from an area. Transit drivers also have a unique vantage point to help monitor area roadways and alert local officials to potential security concerns, since they are continually driving around the community's major routes. Many local transit agencies have implemented a version of the Federal Transit Administration's "Transit Watch" program, which encourages riders and drivers to report unattended packages or suspicious behavior.

Introduction

As described in Chapter 4, traffic volumes on RFATS area roadways continue to increase consistent with the changes seen in population and employment across the planning area. Drivers regularly spend more than a third of their time in stop-and-go conditions, which is challenging for both air quality, but also for economic productivity.

SC 160 and Sutton Road

As growth pressures are expected to continue to materialize in the years ahead, some roadways in the RFATS network will inevitably experience elevated congestion levels (particularly during the morning and evening peak periods); which will generate operating conditions below acceptable levels of service. While capacity additions are always a popular option, both physical constraints and funding realities will require that a broader range of mitigation strategies for managing congestion be incorporated. This chapter will outline various planning tools and strategies that are available, and how progress is being tracked.

The Congestion Management Process

Federal law requires a Congestion Management Process (CMP) to be maintained and utilized in transportation planning environments (like RFATS), that have a population greater than 200,000; often referred to as a Transportation Management Area or TMA. The intent of the CMP requirement is to ensure that roadway congestion is regularly examined, and identified improvements are developed as an integral part of the MPO transportation planning process. In short, a CMP provides the framework for this ongoing examination assessing the effectiveness of implemented strategies.

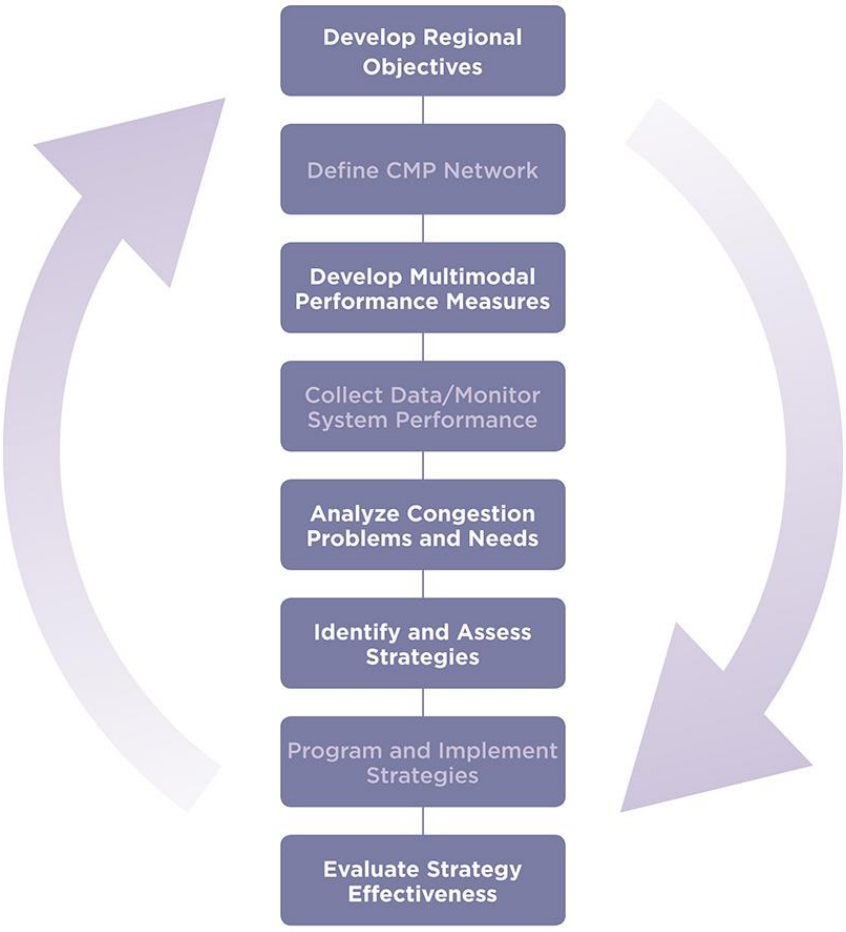
A CMP is a continuous cycle of transportation planning activities designed to provide decision-makers with better

information about transportation system performance and the effectiveness of various strategies to deal with congestion. A CMP has four main components:

- Measurement and identification of congestion,
- A matrix of congestion mitigation strategies,
- Monitoring of effectiveness after implementation, and
- An orderly evaluation process.

Figure 6.1 shows these components and highlights the fact that a CMP is not a one-time exercise but an ongoing process of planning, action and review. It is also a learning process. By monitoring the effectiveness of congestion mitigation strategies and evaluating their benefits in an orderly, consistent manner planners and decision-makers can improve their ability to select the most cost-effective strategies appropriate to their specific local conditions and needs.

Figure 6.1 The Congestion Management Process



Source: FHWA, Congestion Management Process

Like other components of the LRTP, the CMP reflects operating objectives for congestion management that are drawn from a developed vision and goals and are communicated through performance measures such as travel time and delay.

Congestion Monitoring Network

The RFATS CMP identifies particular roadways where traffic operations are to be evaluated in an active and on-going manner. This "congestion monitoring network" consists of those roadways which carry the majority of traffic within the planning area such as Celanese Road, US 521, SC 160, Hwy 49, Cherry Road, Gold Hill Road, US 21, the Fort Mill Bypass and Dave Lyle Blvd. Congestion levels on these roadways are monitored on a regular basis to take account of shifts in the demand level as well as other impacts to the operating environment over time. The Congestion Monitoring Network is shown in **Figure 6.2** and **Table 6.1**.

Performance Measures

A number of different data sources are utilized to monitor changes in congestion levels. These include Annual Average Daily Traffic Volumes, Volume to Capacity Ratios, and Travel Time Surveys (Operating Conditions). Current average speeds and travel times were collected in 2024 for twelve corridors distributed throughout the RFATS region. The data collected suggested that intersection-related delay continues to be one of the most significant contributors to the peak-hour congestion experienced by area motorists. It is worth noting that since the COVID-19 pandemic, there has been a shift in peak-period volumes and travel times. There has been a consistent increase in volumes and travel times during the mid-day. This is contributed to a new hybrid work schedule.

Various sources of data available for use in congestion monitoring is the USDOT sponsored National Performance Management Research Data Set (NPMRDS) and Streetlight data. The NPMRDS dataset is compiled from various sources such as cell phone locations, in-vehicle navigation systems, and Global Positioning System (GPS) devices used by trucking companies. However, this dataset has its limitations as it does not capture information needed for the entire Congestion Monitoring Network as it is based on corridor segments. Therefore, as a supplement Streetlight data was utilized through a contract with SCDOT that is a proprietary software platform that applies machine-learning algorithms with its vast data processing resources

to measure travel patterns among various users of the transportation system (i.e., vehicles, bicycles and pedestrians, etc).

RFATS will continue to track federal guidance and resources on performance measurement, as well as the experience gained by other MPOs using the new datasets, to aid in enhancing the next CMP update.

Figure 6.2: CMP Congestion Monitoring Network

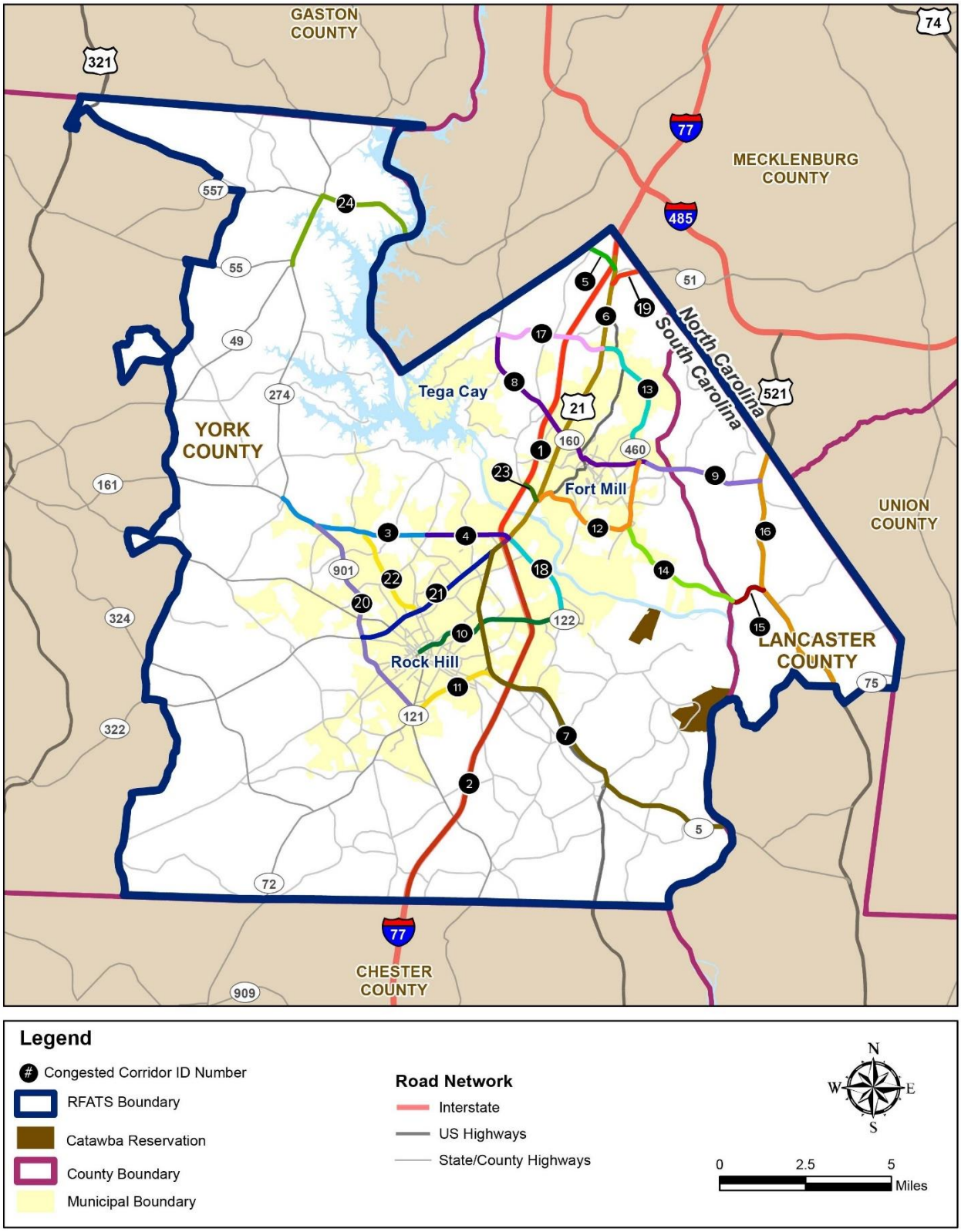


Table 6.1: CMP Congestion Monitoring Network Routes

ID	Corridor	Termini	Miles
1	I-77 (north of US 21)	NC State Line to US 21	9.75
2	I-77 (south of US 21)	US 21 to York/Chester County Line	10
3	SC 161 (Old York Road/Celanese Road)	SC 274 to India Hook Road	2.07
4	SC 161 (Celanese Road)	India Hook Road to US 21	2.42
5	Carowinds Boulevard	NC State Line to US 21	1.05
6	US 21 (north of SC 161)	I-77 to SC 161	8.9
7	US 21 (south of SC 161)/SC 5	SC 161 to York/Lancaster County Line	9.7
8	SC 160	NC State Line to York/Lancaster County Line	9
9	SC 160	York/Lancaster County Line to US 521	2.73
10	Dave Lyle Boulevard	Main Street to Cel-River Road/Red River Road	5.74
11	SC 72/Albright Road	Mt. Holly Road to US 21	7.03
12	Fort Mill Bypass	US 21/Sutton Road to SC 160	5.41
13	Fort Mill Bypass	SC 160 to US 21/SC 460	4.21
14	Doby's Bridge Road	Fort Mill Bypass to York/Lancaster County Line	6.06
15	Doby's Bridge Road	York/Lancaster County Line to US 521	1.19
16	US 521	Waxhaw Highway to NC State Line	6.3
17	SC 460	SC 160 to US 21	3.3
18	Cel-River Road/Red River Road	Dave Lyle Boulevard to US 21/Cherry Road	3.61
19	SC 51	US 21 to NC State Line	1.0
20	SC 901 (Heckle Boulevard)	SC 161 to SC 72	6.62
21	Cherry Road	Cel-River Road/Red River Road to SC 901	5.24
22	SC 274 (Hands Mill Highway)	SC 161 to Cherry Road	2.74
23	Sutton Road	I-77 to US 21	0.59
24	SC 49 (Charlotte Highway)	NC State Line to SC 55	5.37

Congestion Management Strategies

Congestion is generally classified as either recurring or non-recurring. Strategies used to manage or mitigate congestion are dependent upon the cause and classification of that congestion. Examples of recurring congestion include peak period travel, bottlenecks, intersection operations, and school related traffic. Examples of non-recurring congestion include traffic accidents and special event traffic. Improving the operational efficiency of the RFATS transportation network relies on user demand, residential and commercial development patterns; as well as appropriate application of innovative strategies consistent with the unique characteristics across the planning area. With this in mind, selecting the appropriate strategy (or strategies) to manage or mitigate the different causes of congestion is done through detailed evaluation of each congested roadway and intersection. **Figure 6.3** shows the range of tools available.

Figure 6.3: Congestion Management Strategies

Access Management

- Access spacing
- Driveway spacing
- Safe turning lanes
- Median treatments
- Right-of-way management

Transportation System Management and Operations

- Variable speed limits
- Changeable lane assignments
- Ramp metering
- Bicycle and pedestrian crossing improvements
- Adaptive traffic signals
- Dynamic messaging signs
- Real-time traveler information and re-routing systems
- Electronic commercial vehicle clearance and tolls

Incident Management

- Motorist assistance patrols
- Strategies to improve response times
- Strategies to reduce clearance times

Physical Roadway Capacity

- Intersection turn lanes
- Roundabout intersections
- Acceleration / deceleration lanes
- Hill-climbing lanes
- Grade-separated railroad crossings
- Grade-separated intersections
- New or converted HOV lanes
- New SOV travel lanes (widening)
- New location roadways

Travel Demand Management

- Land use management strategies
- Increased ridesharing, vanpooling
- Flexible work location / telecommuting, shift work
- Alternative commute mode

Access Management

Access Management Improvements at Baxter Village Town Center and SC 160

Many communities are beginning to look more seriously at access management to control the growing congestion on their arterial roadways. Access Management emphasizes the importance of maintaining each road's intended function. Roadways primarily intended to serve through traffic such as freeways and major arterial roads offer only limited direct access to adjoining properties. This helps minimize the number of times that a driver must slow down because the vehicle ahead has either pulled out into the road or has indicated that they're preparing to make a turn. In contrast to arterials, local streets are intended primarily for access to adjoining property. Through traffic flow is less important; in fact, most communities set low speed limits and even implement traffic calming measures on local streets.

Access Management is defined as the management of vehicular operations into and out of land parcels along a given roadway. This includes the allowable number, location, and operational characteristics of both commercial driveways and entry / exit points for residential developments. Thus, access management strategies effectively seek to control all of the central variables influencing how efficiently and reliably a travel stream will operate – this is particularly important along corridors with higher levels of travel demand. Access Management techniques that jurisdictions can utilize include: access spacing, driveway spacing, safe turning lanes, median treatments, and right-of-way management.

As the RFATS region continues to grow at an elevated rate, it is important to consider improving access management strategies in key development areas. While specific access management policies will need to be implemented by the local jurisdictions with the RFATS region, RFATS must still play a role in working towards the implementation of effective access management strategies and coordinating the policy improvements implemented by each jurisdiction so that one locality does not appear to be more lenient than another. Supplemental to incorporating improved access management policies at the local level, specific consideration should be given to key growth areas and the congested corridors identified in the Congestion Monitoring Network.

Access management can be carried out through roadway design, access permitting, subdivision or site plan review, and access management plans and regulations.

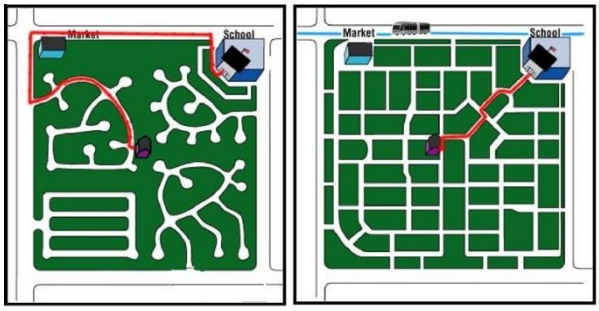
Collector Roads

One important component of Access Management is to continuously improve the collector road network. Collector roads are intended to balance the needs of access and through movement. The general purpose of a collector road is to fill a gap between high-speed, high-volume arterial roadways and low-speed, low-volume local roads. Collector roads are integral linkages for efficient movement by effectively distributing travel demand across an appropriate network of supporting roads. Operationally, collector roads are characterized by moderate speeds with access to individual driveways. They provide some access to adjoining property, although not as much as a local street. Their function is to "collect" traffic from multiple local streets and then connect either to an arterial road, or to another collector.

Some parts of the RFATS region have a more limited number of collector roads than others. This situation can unfortunately contribute to congestion because drivers cannot make the most of their trips without first getting onto an arterial roadway. **Figure 6.4** shows the difference between a road network with a high number of connections, versus a network with far fewer route options.

Given the growth projections across the RFATS region, the functional importance of identifying needed collector roads represents an important component for both proper development and resulting operating dynamics. Late last decade, RFATS was the first MPO in the State of South Carolina to develop and adopt a Collector Street Plan covering its entire planning area. One of the leading factors for the development of the Collector Street Plan was that congestion levels were projected to increase into 2055, and in order for the roadway network to function at its highest level of safety, efficiency and reliability; enhancements to network connectivity would be critical.

Figure 6.4: Network Connectivity



Travelers in the more highly connected road network (on the right) have more options to reach their destinations. Those using the network on the left must first drive to the arterial road that borders their neighborhood in order to reach other destinations.

Adaptive Traffic Control Signals

Another important aspect to managing congestion is optimizing the efficiency and reliability with which traffic can flow along a corridor. Traffic signals are a key component to this. Traditional traffic signals are based on timing patterns and each movement at an intersection is allocated a dedicated amount of time when a signal turns from green to yellow to red. With this in mind, travel flow along a corridor can be adversely impacted by these traditional traffic signals if established timing patterns are not adhering to the existing level of traffic along that corridor.

Adaptive Traffic Signal at SC 160 and Sutton Road/Pleasant Road

Adaptive Traffic Control Signal Systems allow traffic signals to adapt to "real time" operating conditions. These adaptive systems can monitor traffic patterns and adjust the timing for each phase of a signal cycle. These systems are able to extract further efficiency from a roadway system and enhance the flow of traffic along a corridor with several signals coordinating with one another. This helps to minimize delays, reduce the number of stops along a corridor, and improve overall travel time reliability. It is important to note that these systems cannot create more time for the signal cycle or add any more capacity to a roadway; however, they can allocate time in a more efficient manner at a particular point along the corridor.

It is also important to note that the benefit realized with an adaptive signal system is dependent upon roadway capacity levels. Certain roadways may see minimal benefit from any adaptive traffic control signal improvements due to high levels of demand during peak periods. However, adaptive signal systems have helped to address school related congestion, special event related congestion, and corridor congestion during off-peak periods such as the lunch hour.

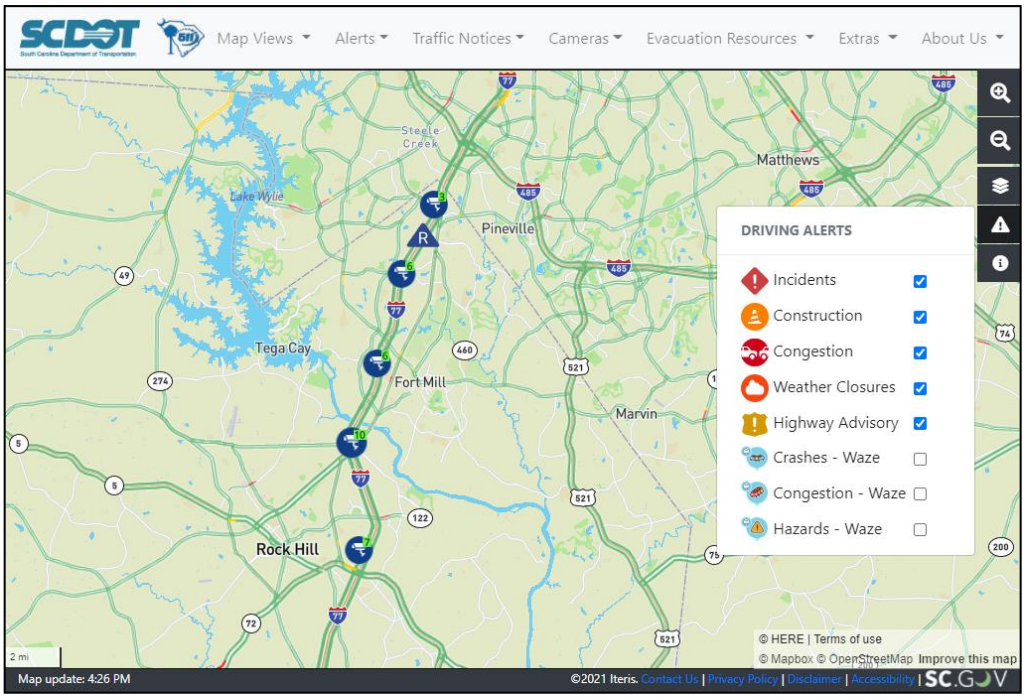
RFATS continues its coordination with SCDOT on the timing and location of adaptive equipment to produce the best operating result. Our initial locations for this equipment included Carowinds Blvd, US 21 near the N.C. state line, as well as along SC 160. Further analysis and discussion is planned as a broader utilization of this technology can be advanced.

Incident Management

FHWA research has shown that more than 60 percent of congestion nationwide is non-recurring, as opposed to being linked with bottlenecks due to limited physical capacity. Much of this non-recurring congestion is related to vehicle crashes or other incidents. Worse, the traffic delays caused by the initial incident often result in secondary collisions due to inattentive or "rubbernecking" drivers.

SCDOT, like many states, has put increased emphasis on detecting incidents early and clearing them quickly before they significantly impact travel or result in secondary crashes. The real-time traffic monitoring information is also being made available to the traveling public so that drivers can learn of potential delays and have the opportunity to plan alternative routes or travel at a different time.

Incident management operations for the area are conducted by SCDOT from the District 4 Traffic Management Center (TMC), where camera and radar operators monitor traffic conditions.



Real-time Traffic Conditions

I-77 through the RFATS region is monitored with video cameras and radar speed detectors to alert operators when a slowdown is occurring. 30 of these cameras are installed along I-77 in the RFATS area, and 2 cameras are also installed on US 21 at SC 160 and at the Catawba River bridge.

The resulting real-time traffic information is provided to the public on the SCDOT website (left) and via 511.

The State Highway Emergency Program (SHEP) plays an important role in managing incidents and congestion on the I-77 corridor. Through this program, SCDOT helps maintain safe traffic flow by assisting with traffic control and incident response and providing minor assistance to disabled vehicles. SHEP operates seven days a week along I-77 between Mt. Holly

Road (Exit 73) and the North Carolina state line, primarily during daytime hours.

Congestion Management Projects

The CMP list projects that have been prioritized based on their potential to mitigate congestion. These include:

- **Intersection Improvement Analyses**
  - Cherry Road / Mount Gallant Road Intersection Improvement
  - SC 160 / Pleasant Road / Sutton Road Intersection Improvement
  - Marvin Road / Henry Harris Road Intersection Improvement
  - US 21 / Sutton Road / Spratt Street Intersection Improvement
  - Celanese Road / Mt. Gallant Road Intersection Improvement
  - SC 160 / Dave Gibson Blvd Intersection Improvement
  - SC 161 and Heckle Blvd
- **Adaptive Traffic Signals**
  - Cherry Road
  - Celanese Road
  - US 521
  - Dave Lyle Blvd
  - Albright Road
  - SC 160 West
  - SC 160 East
  - SC 460 (Gold Hill Road)
  - SC 49 (Charlotte Hwy)
  - Fort Mill Bypass
- **Access Management**
  - US 21
  - SC 460
  - SC 160
  - Albright Road
  - Celanese Road
  - Carowinds Blvd
  - SC 49
  - US 521
  - Cherry Road
  - Fort Mill Bypass
  - Harrisburg Road
  - Dave Lyle Blvd
- **Safety Audits**
  - Celanese Road and Mt. Gallant Road
  - Anderson Road and Mt. Gallant Road
  - US 521 and Waxhaw Hwy
  - US 21 and Sutton Road / Spratt Street
  - Heckle Blvd and Herlong Avenue
  - SC 160 and Pleasant Road / Sutton Road

  - SC 460 (Gold Hill Road) and Pleasant Road
  - Ebenezer Road and Herlong Avenue
- **Widenings**
  - US 21 (SC 160 to Catawba River Bridge)
  - Cel-River/Red River Road (Dave Lyle Blvd to Anderson Road)
  - Fort Mill Parkway from SC 160 to I-77
  - Sutton Road (6th Baxter to US 21)
  - US 521 from Jim Wilson Road to NC State line

Recommendations

- RFATS should continue to apply its Congestion Management Process, including:
  - Ongoing collection of vehicle travel time data across the congestion monitoring network through trave ltime surveys and/or Streetlight data.
  - Before-and-after evaluation of congestion in corridors where improvements have been implemented.
  - Update of the CMP itself on a four-year cycle.
  - Collection of roadway network data (such as geometry and traffic volumes) as additional roads become regionally significant.
- As additional highly congested locations are identified through monitoring, continue to conduct the detailed studies necessary to recommend appropriate solutions/strategies.
- Continue to draw upon the knowledge and experience of the RFATS Land Use Subcommittee to further improve land use decision-making; and the resulting operational outputs across the planning area.
- Continue to encourage appropriate Travel Demand Management Strategies across the planning area that can reduce the need for travel and increase vehicle occupancy, among other important outcomes.

Introduction

Freight movement is a critical element of an advanced industrial economy, and the ease of freight movement is one component of a region's economic competitiveness for attracting and retaining heavy industry, manufacturing, warehousing and other light industrial activities.

This chapter provides the freight element of the RFATS 2055 Long Range Transportation Plan. It describes existing conditions and trends at the national level, at the statewide/regional level and within the RFATS area. It also summarizes findings and recommendations from freight mobility planning within and adjacent to the RFATS Planning Area.

Relevance to the Transportation System and the Plan

The Bipartisan Infrastructure Law or BIL emphasizes the importance of freight and goods movement in regional transportation planning. Freight must be considered both in its own right and in terms of supporting an area's economic vitality and competitiveness. Building off of provisions in MAP-21 and the FAST Act, the BIL continues to stress the national importance of freight transportation through the development of a national freight network, a national multimodal freight policy and national freight strategic plan. The BIL increases freight project funding through the formula-based National Highway Freight Program (NHFP). The BIL updated the FASTLANE grant program to the Infrastructure for Rebuilding America (INFRA) program and increased funding for multimodal freight and highway projects.

In addition, the BIL requires major metropolitan areas to set performance targets that are consistent with the national performance measures for freight, identify and recommend improvements to achieve these targets, and report on the progress of the freight system's performance. A detailed summary of the performance measures can be found in the 2022 South Carolina Statewide Freight Plan Update.

Existing Conditions and Trends

The RFATS Planning Area's location approximately 20 miles south of the greater Charlotte region is an important factor influencing the demand and location of freight-supportive industries and facilities. Additionally, the RFATS region itself has strong highway and rail connections for freight, including two main line Class I railroads. These connections serve a wide range of industries, including distribution centers and automobile component manufacturers. The northern edge of the RFATS region includes light

industrial developments along I-77 and is impacted by similar developments along I-485 near Pineville.

Regional Freight Planning

RFATS and other partnering agencies in the Metrolina region have collaborated to develop a Greater Charlotte Regional Freight Mobility Plan to ensure broad operational compatibly across an expansive and varied operating environment to manage congestion; improve safety as well as system reliability across the transportation network. This work effort was intended to:

- Identify ways to effectively and consistently address freight congestion and key bottlenecks;
- Identify freight links that will connect regional economic development goals; and
- Identify and prioritize improvements for reducing congestion, addressing bottlenecks, and increasing efficiency.

This freight mobility plan analyzed movements and commodities in terms of tonnage, mode, direction and quantity, using the 2019 TRANSEARCH dataset from the 2022 South Carolina Freight Plan Update (**Figure 7.1**). TRANSEARCH data is developed by IHS Global Insight and is a comprehensive database of North American freight flows, compiled from more than a hundred industry, commodity, and proprietary data exchange sources. TRANSEARCH combines primary shipment data obtained from some of the nation's largest rail and truck freight carriers with information from public, commercial, and proprietary sources to generate a base year estimate of freight flows at the county level.

As of 2019, the latest data available, over 557 million tons of freight moved across South Carolina's freight network. The largest mode share (70 percent) was trucking, followed by rail at 24.3 percent.

Another source of freight data used in the 2022 Statewide Freight Plan is the Federal Highway Administration's Freight Analysis Framework (FAF), which examines freight movements for each mode of transportation. Although the database is not detailed enough to give specific data for the RFATS area, it does provide data for the Metrolina region.

Figure 7.2 shows the region's top rail freight commodities by tonnage. The largest commodity transported was chemicals or allied products at 30 million tonnage, followed by non-metallic minerals at 16.7 million tonnage.

Figure 7.1: State Freight Tonnage, by Direction (2019)

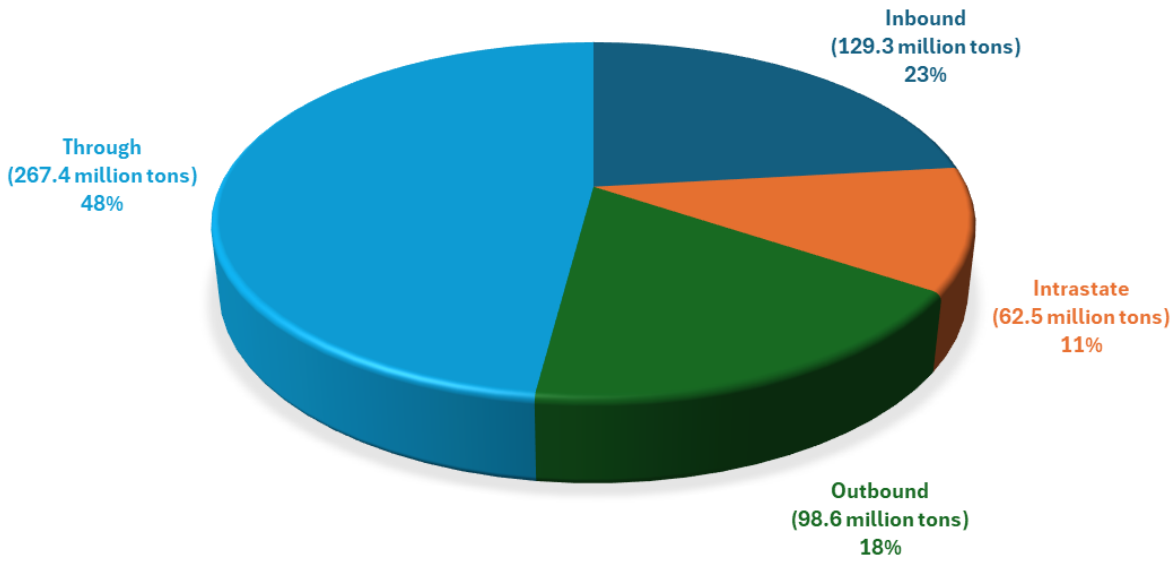
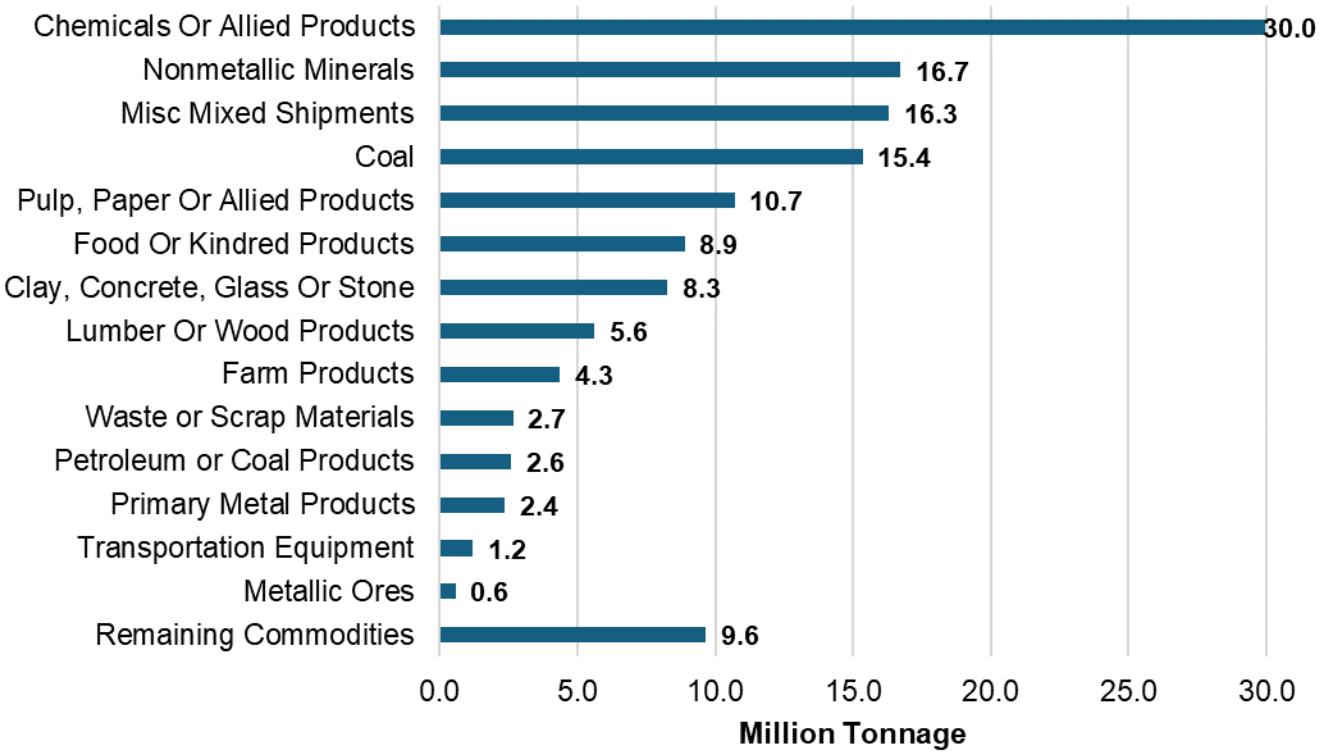


Figure 7.2: Top Commodities Shipped by Rail, by Million Tonnage (2019)



Figures 7.3 and **7.4** show the total value of regional freight shipments, inbound and outbound, by modal share. As shown, rail, on average, carries around 20 percent of the value of freight, although it carries nearly 30 percent of freight by tonnage. As in other regions, rail tends to be the choice for shipping bulky, heavy goods while air is used for relatively high-value, time-sensitive freight.

Figure 7.3: Inbound Freight Value, by Modal Share

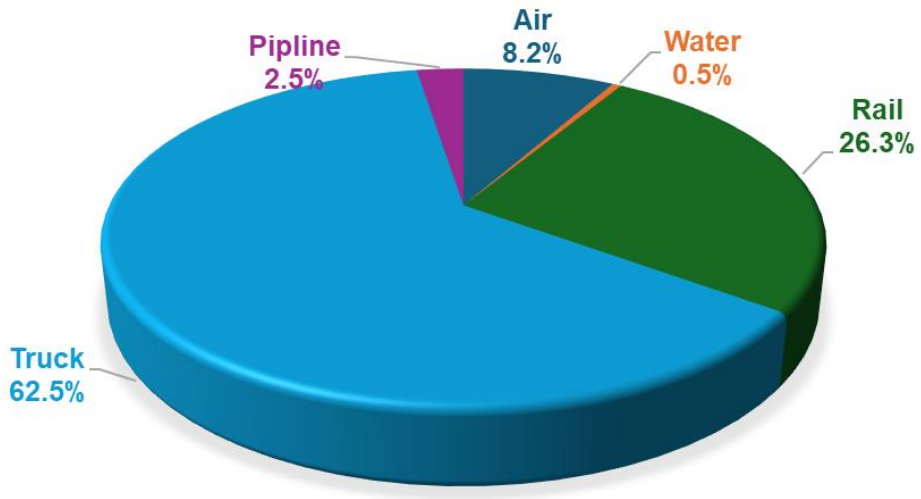
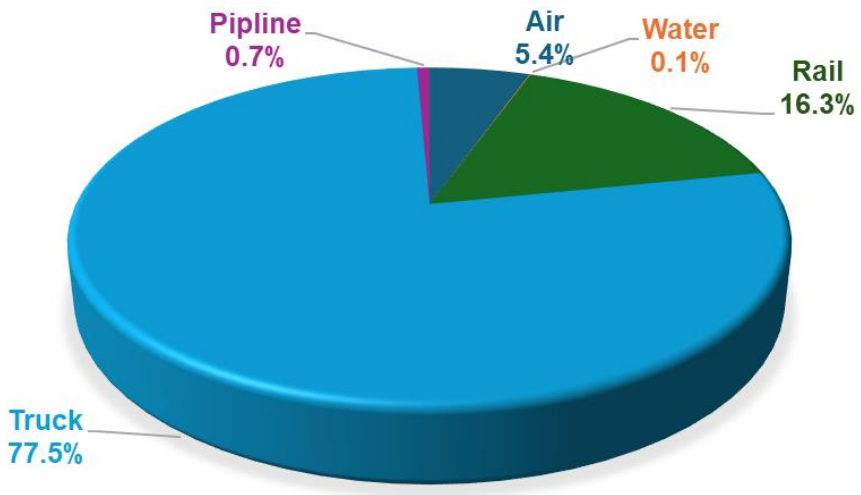


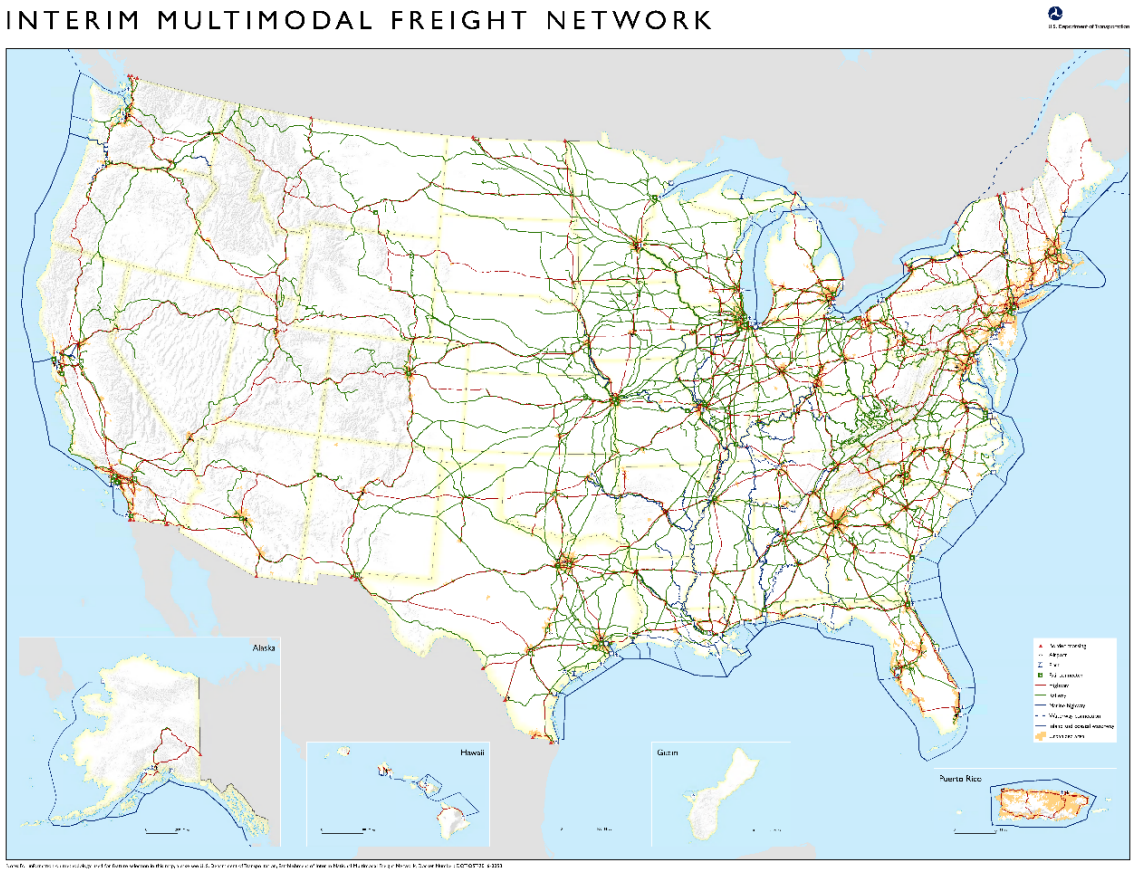
Figure 7.4: Outbound Freight Value, by Modal Share



Freight Strategic Network

The BIL directs federal resources and policies to improve freight movements on the nation's transportation system. U.S. DOT has designated a Multimodal Freight Network (**Figure 7.5**) which classifies the critical infrastructure for moving goods across the country.

Figure 7.5: National Multimodal Freight Network



As a point of reference – the Metrolina Freight Mobility Plan also identifies a strategic freight network where improvements are recommended to be focused. Within the RFATS area, the key facilities include I-77, US 521, SC 5 and the Norfolk Southern and CSX rail lines.

Highway Freight

National Conditions and Trends

Highway goods movement has been consistently increased nation-wide over the past decades. Truck movement transports over 70 percent of all tonnage in the U.S. The current dominance of this mode results through access and

availability to truck specific freight users. Due to the nature of changing development patterns during the 20th century, the majority of shippers no longer have direct connection to ports or rail.

Urban freeways and arterials continue to become increasingly congested since many states have a hard time improving vehicle capacity at the same rate. Trucks will be affected just as much as commuters, with implications for freight travel times and reliability.

Nationally, issues of expanding highway capacity are increasingly being supplanted by a recognition that the existing highway network needs to be kept in a state of good repair and that existing funding streams may not be adequate, even without major capacity expansion.

Statewide and Regional Conditions and Trends

The port of Charleston is an important freight origin/destination for the state. However, the RFATS region also has close links to Charlotte and its intermodal terminals. CSX railroad operates a major rail-truck intermodal terminal in Charlotte, and Norfolk Southern relocated its Charlotte terminal to the Charlotte Douglas International Airport in December 2013, making the airport an air-rail-truck intermodal terminal.

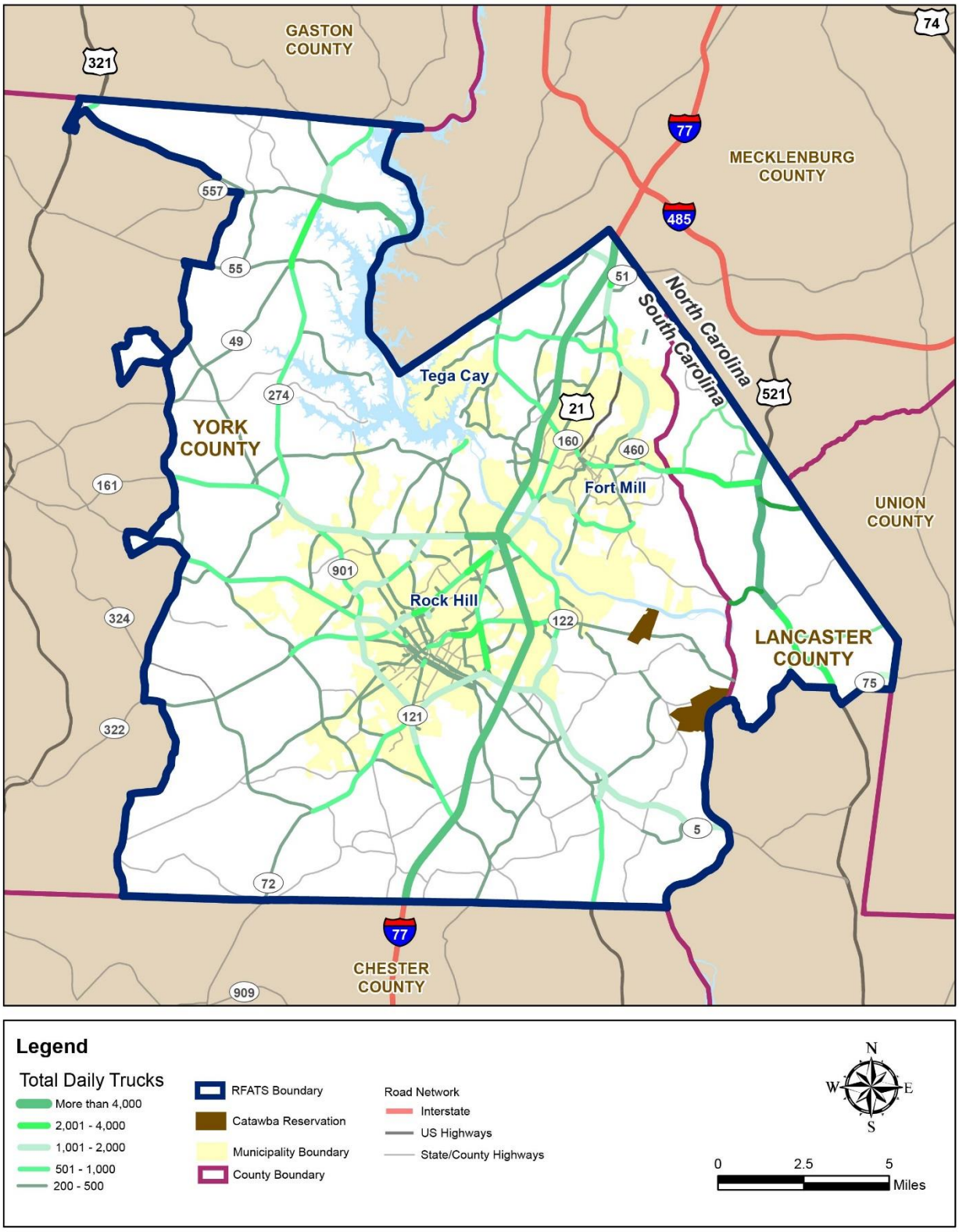
The state is also moving toward construction of a new intermodal facility in Dillon. This inland port will be the second intermodal facilty in South Carolina besides the Inland Port of Greer.

Conditions and Trends in the RFATS Region

Although I-77 carries the bulk of daily truck traffic, other roadways play a critical role to freight movement within RFATS, which include US 21, SC 5 and US 521. **Figure 7.6** shows routes within the region that carry higher daily volumes of truck traffic.

Identified truck bottlenecks within the RFATS area include the I-77 / US 21 interchange. It is also worth noting that just outside the RFATS planning area is one of the top 100 freight bottlenecks in the country: the I-77 at I-485 interchange. The prosperity of the RFATS region is strongly connected to the performance of its highway and rail access to the intermodal facilities in Charlotte. Existing and projected congestion on I-77 therefore represents a potential threat to the competitiveness of the RFATS area, as do bottlenecks that lie between area shippers within RFATS and their destinations.

Figure 7.6: Daily Truck Volumes on Area Roadways (2023)



Rail Freight

National Conditions and Trends

The US freight railroad industry is currently in a period of stability and growth following the major structural changes from the 1970s through the 1990s. The economic growth experienced in recent years has particularly benefited some freight flows, such as containers to and from the major ports, enabling railroads to add or reinstate capacity on their main lines. Although there is a strong focus on unit trains (entire trains of a single commodity, such as coal or containers), the more traditional, smaller-scale traffic flows of single cars or small numbers of cars to/from local industries (carload freight) remains an important part of the rail industry.

Nationwide forecasts suggest that long-term economic growth will create demand for substantial additional capacity on the main rail corridors – and that the railroad industry will not be able to pay for all that capacity on its own. Public-private partnerships are therefore likely to be a key funding mechanism for achieving the necessary capacity. Railroads are increasingly open to partnerships that combine public funding of public benefits (principally reductions in truck traffic) with railroad funding of private benefits. In particular, states and municipalities are increasingly recognizing the public benefit of diverting truck traffic from highways to railroads. Not only does it free up capacity on the highways, but it reduces impacts to the roadway surface itself, thereby extending its service life.

Statewide and Regional Conditions and Trends

Multiple state agencies are involved in activities influencing freight rail movement. SCDOT's Statewide Freight Plan, updated in 2022, addresses rail freight issues along key corridors. The South Carolina Department of Commerce also has a Division of Public Railways which promotes economic development interests by providing freight rail access to new and existing industries. The division has the authority to develop and construct new rail corridors or acquire rail corridors that may be at risk of abandonment. .

As noted in SCDOT's Statewide Freight Plan, rail movements accounted for 135.2 million tons of freight in 2019, with through-state movements accounting for the largest directional movements. CSX Transportation handles the most tonnage through the state due to its larger rail network.

The SCDOT is currently updating the *South Carolina Statewide Rail Plan*. The plan will assess the existing statewide rail network and identify opportunities to enhance safety and expand service.

Over the past several years, multiple developments have either been completed or have been initiated that will greatly expand South Carolina's freight efficiency and capacity to accommodate freight rail movements:

- The Charleston Harbor is nearing completion, making it the deepest harbor on the east coast. This expansion will enable accommodation of larger ships accessing the east coast from to the expansion of the Panama Canal.
- The Inland Port in Greer, opened in October 2013, connects directly to the Charleston Harbor and is served by Norfolk Southern (NS) rail.
- The Inland Port in Dillon, opened in December 2018, connects directly to the Charleston Harbor and is served by CSX rail.
- A new facility, the Navy Base Intermodal Facility (NBIF), located in North Charleston, is currently under construction. With the completion of the NBIF, all freight locations in South Carolina will be within 100 miles from an intermodal facility.

The RFATS region lies close to two major rail corridors that have been identified by railroads as potential partnership corridors. Both corridors are likely to involve increased capacity (additional tracks and/or improved signaling and speeds) as well as increasing clearances to allow double-stack container trains.

The **Norfolk Southern** (NS) main line through Blacksburg, west of the RFATS region, is part of its Crescent Corridor that runs from Washington, DC to New Orleans via Charlotte and Atlanta, paralleling I-85 and other congested routes. NS hopes to attract long-haul truck traffic along this corridor, which the railroad industry has historically not strongly developed. A major intermodal terminal was recently opened at Charlotte-Douglas International Airport as part of their Main Line corridor plan. **CSX**'s National Gateway corridor includes an axis from the port of Wilmington to Charlotte. Both railroads are currently working with state and municipal governments to develop plans and funding for these corridors.

Conditions and Trends in the RFATS Region

Figure 7.7 shows railroads in the RFATS region. These include routes owned by both Norfolk Southern (NS) and CSX, the two major railroads in the eastern US, as well as the Lancaster and Chester (L & C) Railroad.

The NS secondary main line from Charlotte to Chester and Columbia (known as the 'R' line, part of NS Piedmont Division) passes through Fort Mill and Rock Hill, serving a number of industrial customers with a small switching yard in Rock Hill. SCDOT's *Rail Right-Of-Way Inventory* identifies this as a

potentially important line because it follows the SC 72 highway corridor, and its future appears to be secure. Although a single-track line, it has automatic block signaling and a relatively high density of traffic. Passing sidings exist at the Rock Hill yard and in Fort Mill.

The CSX line from Monroe (NC) to Chester passes through Catawba, as part of CSX's mainline axis from Hamlet (NC) to Atlanta and New Orleans. This line has centralized traffic control and a high traffic density, and its future also appears secure.

NS also operates a local line (the 'SB' line) that connects with the main 'R' line at Rock Hill, extending west to Tirzah and east to meet the CSX line at Catawba. Also serving Catawba is the independent Lancaster and Chester Railroad (L&C), a shortline (minor railroad).

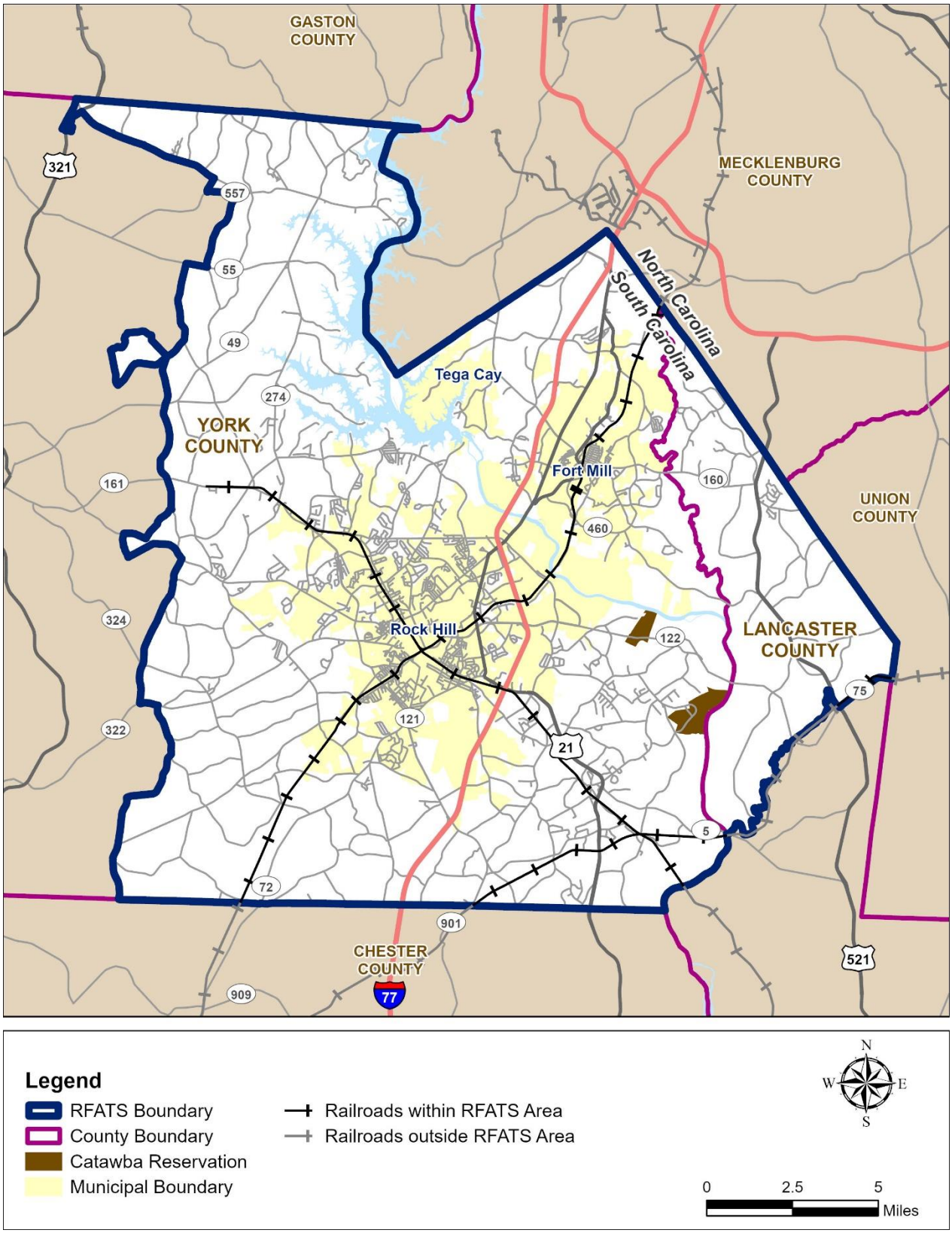
The rail lines within the RFATS region are not major inter-state corridors. Their future remains tied to the overall health of the railroad industry and to the decisions of individual customers along the route. Although the future of the two main lines through the RFATS region appears secure, the NS and L&C lines are, like any local routes, dependent on the presence of a small numbers of individual customers, and changes in the industrial base can therefore easily affect those lines.

Highway-Rail Grade Crossings

The region includes a number of grade crossings where railroads and highways meet. Any future increase in train traffic may lead to additional congestion impacts on the highway network. In addition, grade crossings also represent a safety issue and have an impact on adjacent development. When individual crossings or entire corridors become busier, programs to upgrade, close or construct grade-separate the crossings are often introduced.

RFATS has funded a project to improve the efficient routing of travel demand at/near several highway-railroad at-grade crossing points within downtown Rock Hill. The project includes a coordinated signal system and supporting electronic signage to alert drivers on preferred routing during train operations and related rail yard activities. Funding for this project came from the Congestion Mitigation and Air Quality Management (CMAQ) program.

Figure 7.7: Rail Corridors in the RFATS Region



Summary and Recommendations

Regional freight-related discussions should continue to focus on these goals:

- Identify ways to effectively and consistently address freight congestion and key bottlenecks.
- Identify freight links that will connect mobility to regional economic development goals.
- Identify and prioritize improvements for reducing congestion, bottlenecks, and efficiency.
- Promote effective land uses to support freight mobility, economic development, and job growth.

Recommendations

The completed Greater Charlotte Regional Freight Mobility Plan recommends a congestion and safety improvement project be undertaken at the freight bottleneck location on US 21 near I-77, as referenced earlier. This project would help mitigate any adverse impacts to freight movement and freight related land use. Other recommendations include:

- Identify areas of needed truck parking and rest areas along the region's Strategic Freight Network.
- Prioritize projects designed to improve freight mobility and eliminate freight bottlenecks.
- Address and prioritize functionally obsolete and structurally deficient bridges on the region's Strategic Freight Network.
- Expand the use of Intelligent Transportation Systems, technology, and innovation to improve the flow of freight.
- Encourage alternative options such as Compressed Natural Gas (CNG)/Liquefied Natural Gas (LNG) for trucks, including fueling stations, and participation in the FAST Act's Alternative Fuel Corridors program.
- Use technological solutions to address truck parking such as real time parking availability, reservation systems, cashless payment, and navigation using smart phone technology.
- Continue to identify and close any first/last mile gaps near major intermodal centers and manufacturing hubs.

- Identify corridors where congestion may be significantly reduced through non-traditional improvements such as Intelligent Transportation Systems, managed lanes, or value pricing.
- Work with the Class I railroads and local stakeholders to develop programs and policies to improve operational efficiencies.
- Retain existing rail corridors and halt track removal.
- Create rail-focused business parks.
- Develop local transportation plans for areas adjacent to freight intermodal facilities.

Introduction

This chapter covers the range of public transportation services currently operating within the RFATS Planning Area as well as on-going initiatives to further strengthen overall availability, routing connections, and network efficiency for all users of the transportation system.

As a point of reference - key variables influencing public transportation's capacity to operate with the greatest efficiency and effectiveness include the following:

- **Population Density** - the population of the RFATS region is broadly distributed at relatively low densities. Transit, like other public services, is more cost-effective when it serves a higher number of residents per mile.
- **Bicycle / Pedestrian Infrastructure** - safe, comfortable transit use relies heavily on a network of sidewalks, safe street crossings, and lighting because most regular transit users walk or bike to and from a given stop.
- **Road Network Connectivity** - transit efficiency is improved when the area's road system is interconnected. This makes it easier to design efficient bus routes that do not require turnarounds or back-tracking.

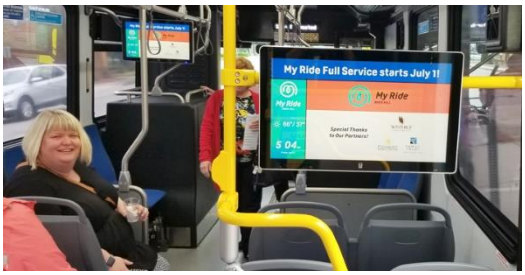
Existing Public Transportation Services

MyRide

In June 2019, the City of Rock Hill began offering free bus service through MyRide, which operates four fixed routes along key corridors within the expanded downtown area of Rock Hill. These routes were based on recommendations outlined in the 2015 *Urbanized Area Transit Implementation Study completed by RFATS.*

As a point of reference – *this study comprehensively evaluated* those areas with the highest potential transit demand as well as the characteristics necessary to support fixed-route transit service. Key elements of the assessment included analysis of demographic characteristics, evaluation of land use and transportation infrastructure, as well as identification of key activity / destination centers.

The study also evaluated other existing transit services in the RFATS Planning Area, including the express bus route and demand response program. Specifically, existing ridership data was analyzed to determine utilization levels as well as the potential for further service expansion and/or initiation of new routing options.



The MyRide operational schedule runs from 7am to 7pm Monday through Saturday, and holiday hours for 6 holidays operating from 9am to 5pm – no service provided on Thanksgiving day nor Christmas Day. MyRide is an all-electric system with buses equipped with free Wi-Fi, mobile charging ports, bike racks, and infotainment screens. The four routes have connecting destinations such as Winthrop University, Downtown Rock Hill, Piedmont Medical Center, Rock Hill Galleria, and other locations. The Transit Hub is located at 343 Technology Center Way, just off West White Street in front of the Rock Hill Sports and Event Center.

Route information is as follows:

Route 1: Downtown/Knowledge Park Loop

- Loop connecting Winthrop University and Downtown Rock Hill, via W White St, Columbia Ave, Oakland Ave, Ebenezer Rd, Herlong Ave, India Hook Rd, Charlotte Ave, Johnston St, Hampton St, W Black St, and N Wilson St.
- Frequency—30 minutes

Route 2: Saluda/Heckle Loop

- Loop serving areas along Saluda St, Heckle Blvd, W. Main St, Herlong Ave, Piedmont Medical Center, Clinton College, Constitution Blvd, and W. Main St.
- Frequency—60 minutes

Route 3: Cherry/Riverwalk Line

- Out and back route connecting Downtown Rock Hill, Winthrop University, Riverwalk YMCA, and Riverwalk, via Cherry Road.
- Frequency—60 minutes

Route 4: Dave Lyle/Galleria Line

- Out and back route connecting Downtown Rock Hill and Galleria Mall, via Dave Lyle Blvd.
- Frequency—60 minutes

Figure 8.1 – MyRide Route 1

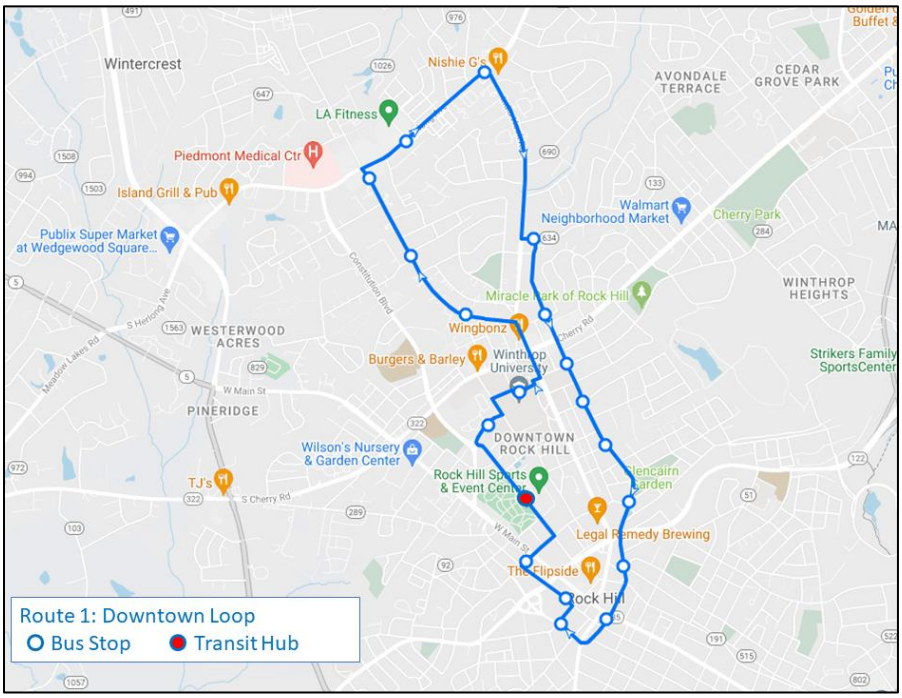


Figure 8.2 – MyRide Route 2

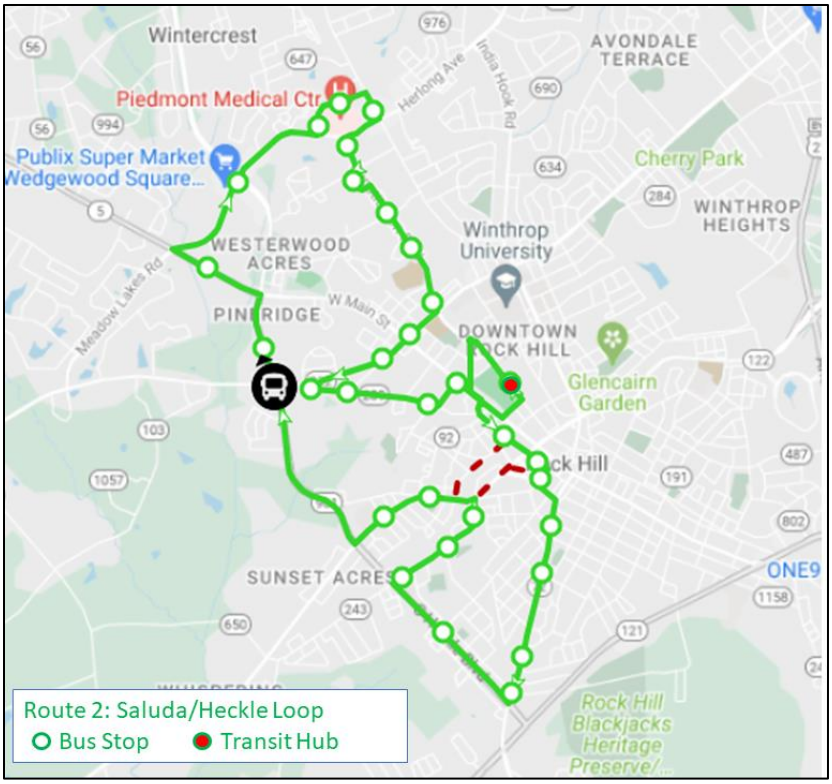


Figure 8.3 – MyRide Route 3

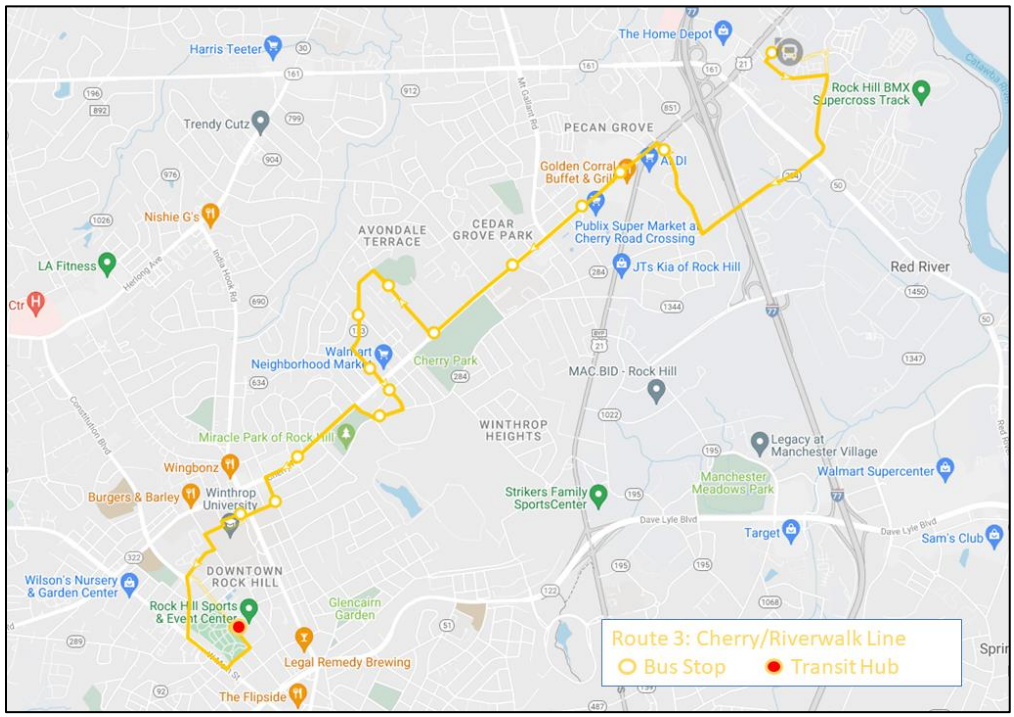
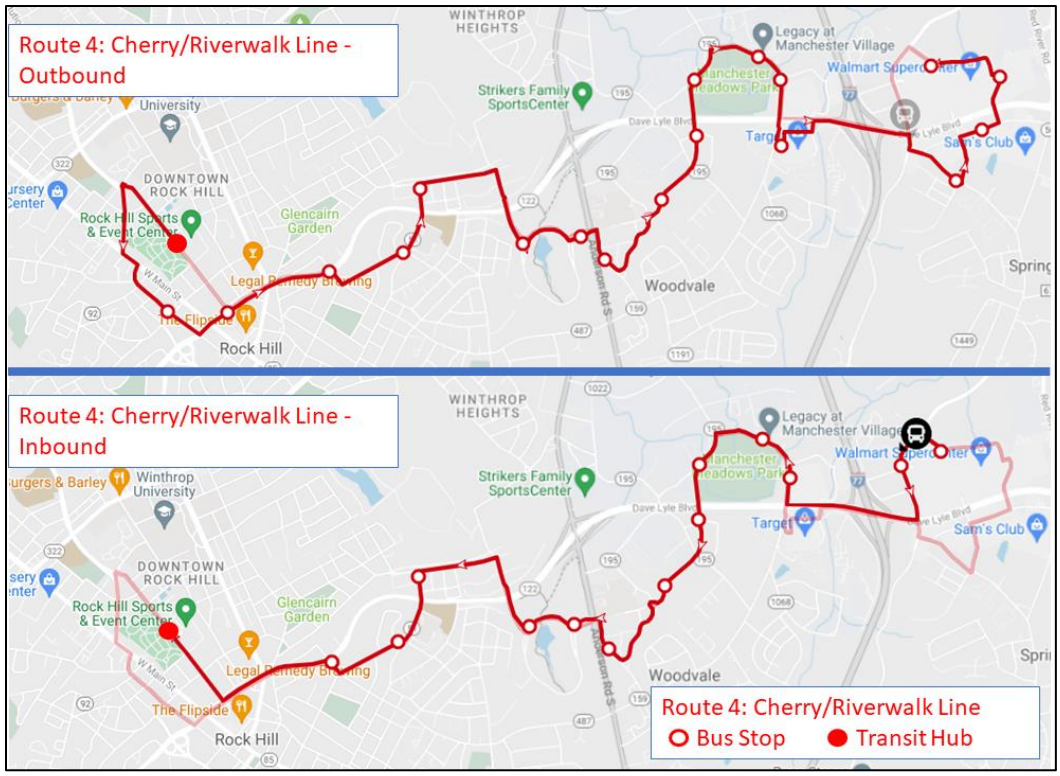
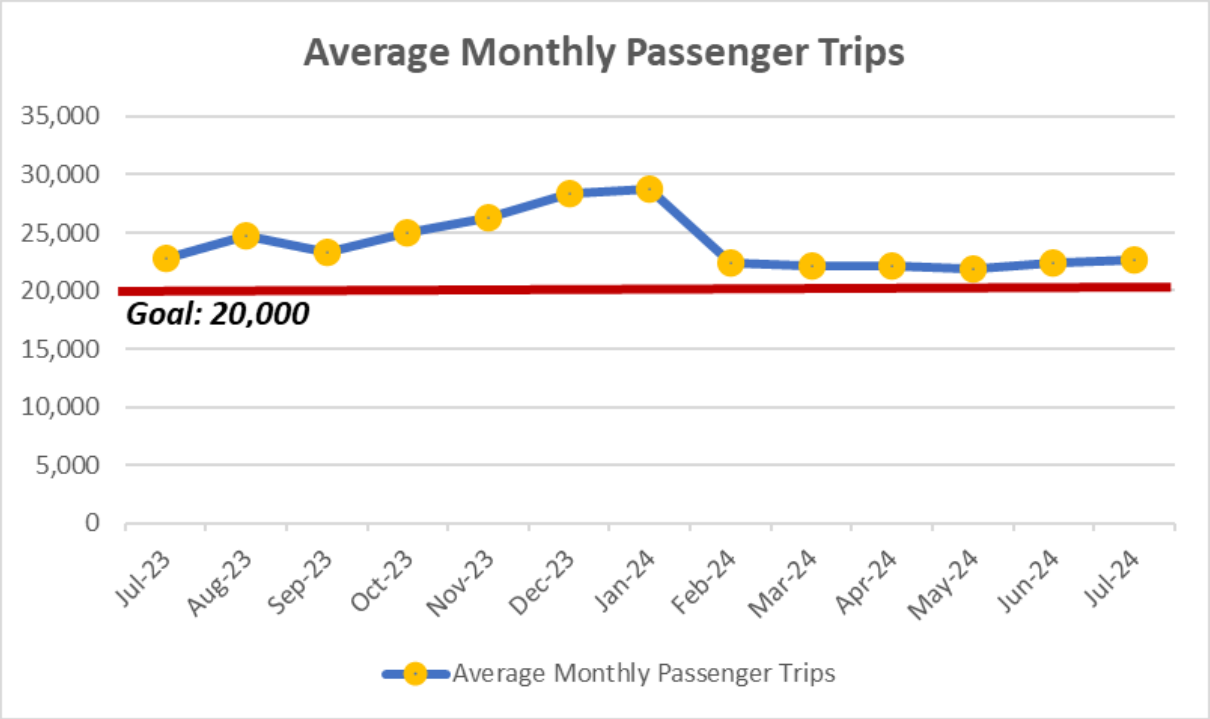
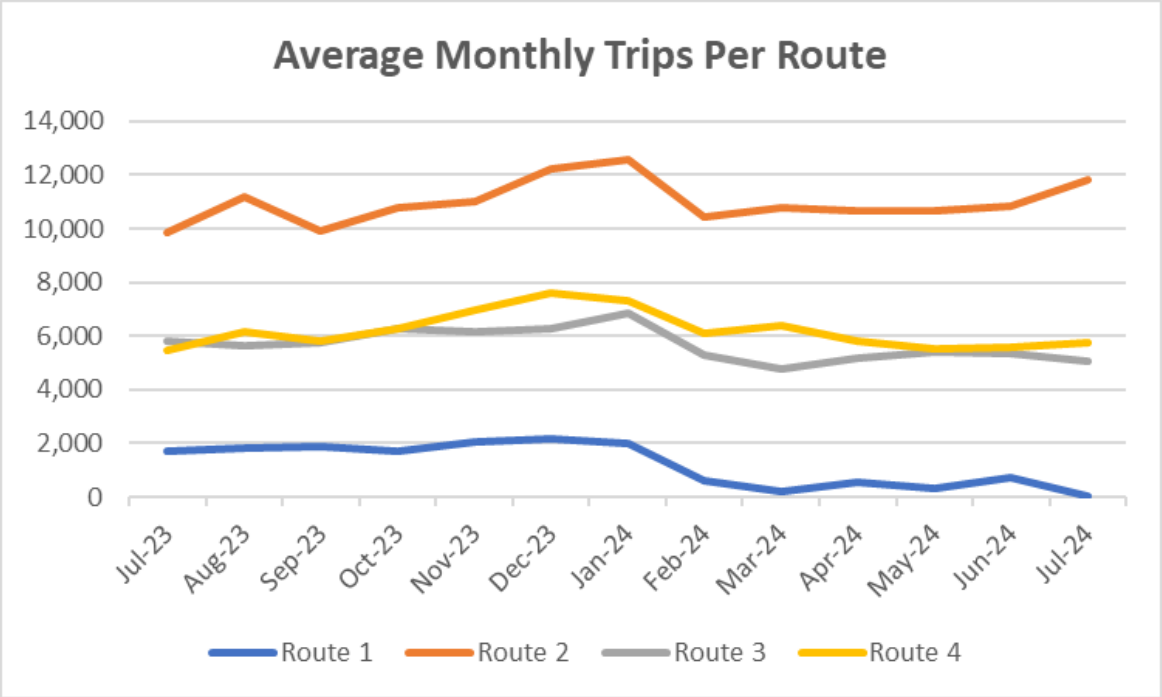


Figure 8.4 – MyRide Route 4



The City of Rock Hill has set an operating goal for MyRide to average 20,000 passenger trips per month. The City also set an On-Time Performance (OTP) for at 82% overall. The graphs below reflect average passenger trips per month for Fiscal Year 2023-2024 for all routes.





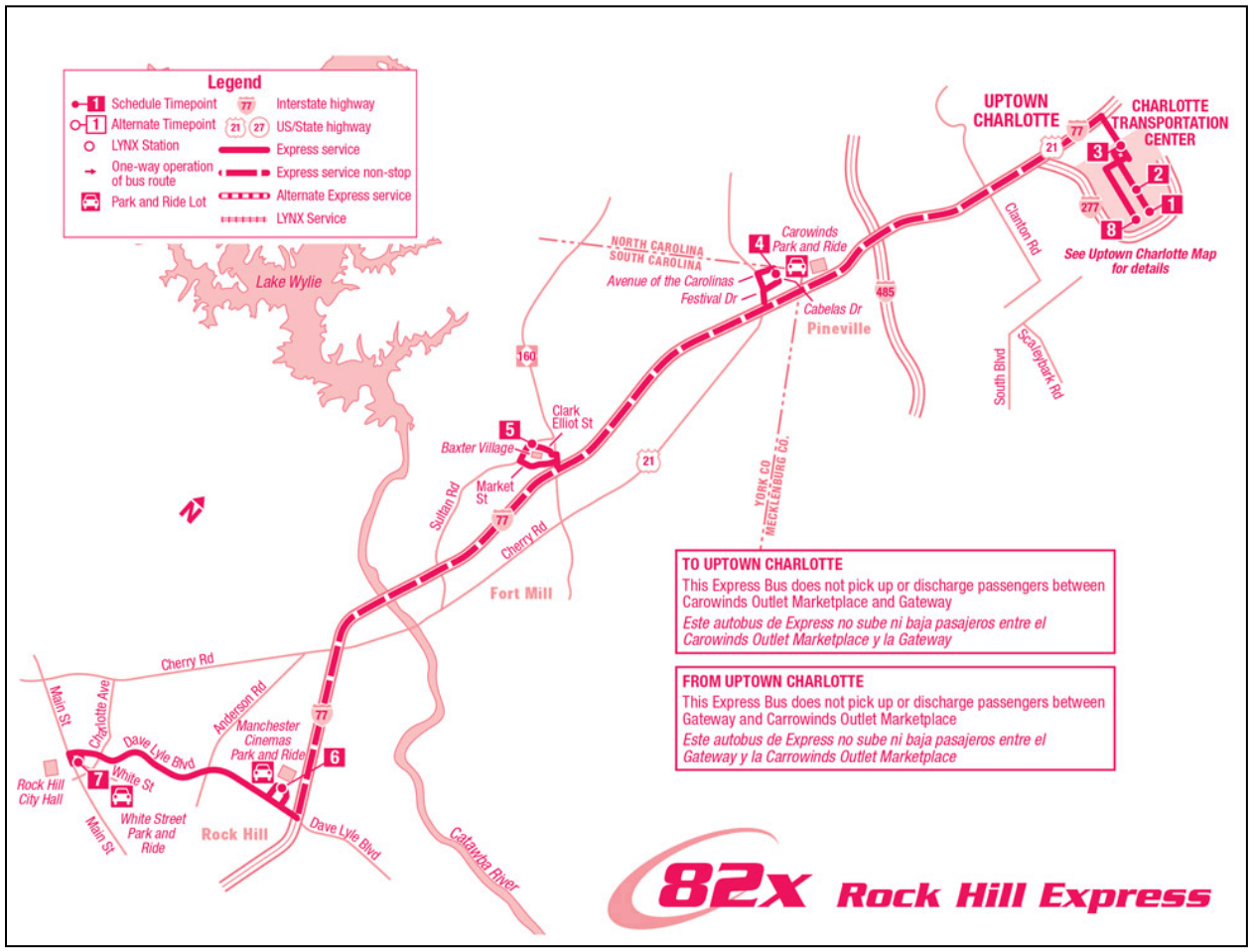
Rock Hill – Charlotte Express Bus Service

The CATS 82X Express Bus Route runs at peak hours on weekdays, connecting uptown Charlotte with several stops in the RFATS Planning Area (**Figure 8.5**):

- Rock Hill Park and Ride lot in downtown Rock Hill,
- Manchester Cinemas (a park-and-ride lot adjacent to I-77),
- Baxter Village in Fort Mill, and
- Carowinds/Cabela's.

Established in 2001, this route provides service to area residents who commute to employment in Charlotte and is funded through a cost-sharing arrangement between CATS and RFATS.

Figure 8.5 - CATS Express Bus Route 82X



82x-Rock Hill Express - *WEEKDAYS*

Inbound

7 White Street Park and Ride	6 Manchester Cinemas	5 Baxter Village	4 Carowinds Park and Ride	3 Johnson and Wales Way	3rd & McDowell	2 Charlotte Transportation Center
6:10 AM	6:19 AM	6:35 AM	6:47 AM	7:14 AM	7:22 AM	-----
7:00 AM	7:09 AM	7:26 AM	7:43 AM	8:18 AM	8:26 AM	-----
5:35 PM	-----	-----	-----	-----	-----	6:20 PM
6:35 PM	-----	-----	-----	-----	-----	7:15 PM

82x-Rock Hill Express - *WEEKDAYS*

Outbound

1 4th & McDowell	2 Charlotte Transportation Center	3 Johnson and Wales Way	4 Carowinds Park and Ride	5 Baxter Village	6 Manchester Cinemas	7 White Street Park and Ride
-----	5:22 AM	-----	-----	-----	-----	6:00 AM
-----	6:12 AM	-----	-----	-----	-----	6:50 AM
4:10 PM	4:12 PM	4:18 PM	4:55 PM	5:10 PM	5:21 PM	5:30 PM
5:10 PM	5:12 PM	5:18 PM	5:55 PM	6:10 PM	6:21 PM	6:30 PM

Source: CATS online schedules, as of July 2024

Recent MPO transit planning efforts have identified opportunities to expand the use of Route 82X to serve "reverse commuters." Currently, the AM bus arrives to the RFATS area empty with the sole mission of bringing workers into Charlotte. The reverse commute scenario would have the AM bus leave Charlotte with workers whose destination is within the RFATS region, such as the Kingsley Park area of Fort Mill or downtown Rock Hill. The AM bus would then operate its current route and provide service to RFATS residents whose work destination is in uptown Charlotte.

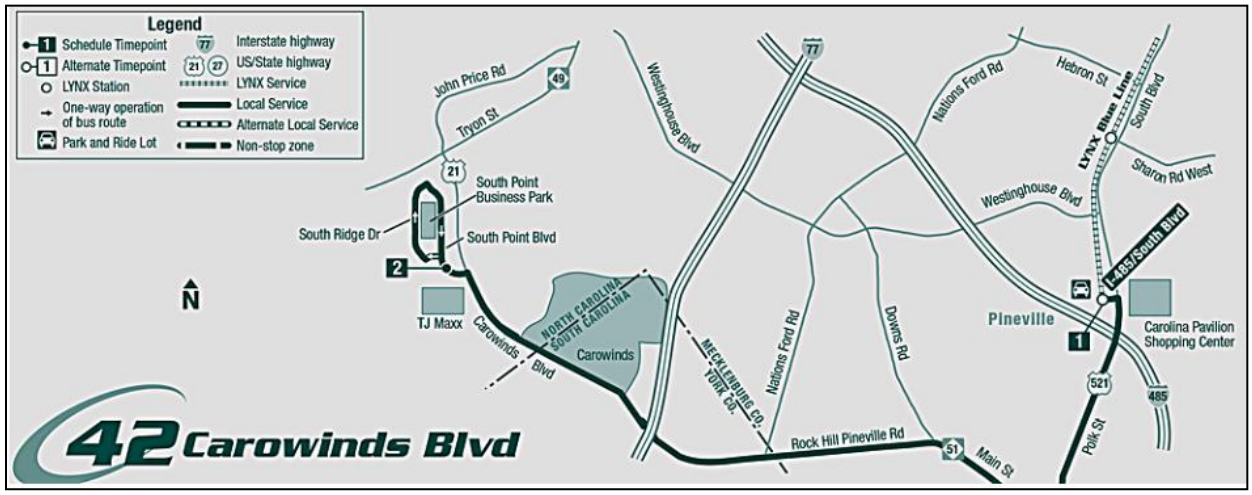
The strategy could also be used in the late afternoon, bringing RFATS residents' home from Charlotte and picking up those workers who are

heading back to Charlotte. This arrangement could yield increased revenue for the 82X and eliminate additional single-occupant highway trips.

Lynx Blue Line Feeder Bus Route

The northern end of the RFATS region has a bus service connection to the Charlotte LYNX Blue Line light rail system. (**Figure 8.6**). CATS Route 42 operates during weekday peak periods only from the I-485 light rail station to the d South Point Business Park.

Figure 8.6: CATS Bus Route 42



42-Carowinds - *WEEKDAYS*	
Inbound	
2 Southpoint Business Park	1 LYNX I-485 Station
3:45 PM	4:13 PM
5:15 PM	5:43 PM

42-Carowinds - *WEEKDAYS*	
Outbound	
1 LYNX I-485 Station	2 Southpoint Business Park
6:30 AM	6:52 AM
7:18 AM	7:40 AM

Source: CATS online schedules, as of July 2024

Additionally, a LYNX System Update has been completed that considered adding rapid transit service between Charlotte, the Town of Pineville and Ballantyne. Given the proximity to the RFATS Planning Area, it is important to take note of this work effort, and the expansion of transit service availability in this area.

CATS Vanpool Program

CATS sponsors a vanpool program that makes 15-passenger vans and 7-passenger minivans available to commuters who wish to share rides to a common destination that is usually not served by regular CATS service. Riders are charged a monthly fee and CATS supplies the van, fuel, insurance and other administrative expenses.

Vanpool service consists of nine to 15 passengers with one rider agreeing to be the driver and at least one other rider agreeing to be the backup driver. The minivan service consists of four to seven passengers with one rider agreeing to be the driver and at least one other rider agreeing to be the backup driver, but they can be started with three to four passengers. Operationally, there are several active vanpools providing service to employment destinations such Duke Energy.

York County Access

York County Access is a demand-response service providing public transportation for residents of rural York County and the Rock Hill Urbanized Area. York County Access is operated by the York County Council on Aging and represents a cooperative effort between York County and the City of Rock Hill. York County Access provides two types of services:

- **Essential Service:** The Essential Service provides transportation countywide for people who need a ride to the doctor, pharmacy, grocery store, or transportation to facilities for medical treatment such as dialysis, chemotherapy, etc. The service is available on weekdays between 6:00 AM and 6:00 PM, and rides must be scheduled 48 hours in advance.
- **Ride-to-Work Service:** Within the City of Rock Hill, a Ride-to-Work service is available and provides transportation to Rock Hill residents who need transportation to work within the city. Operating hours are Monday-Friday, 5:30am to 9:00am and 3:30pm to 6:00pm, and rides must be scheduled at least 24 hours in advance.

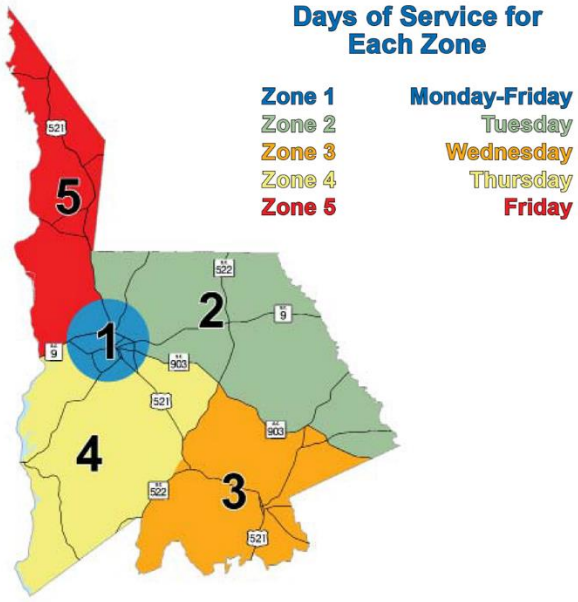
****Fares for both services are $2.50 each way****

Lancaster Area Ride Service (LARS)

Similar to York County Access, the Lancaster Area Ride Service, or LARS, operates Monday through Friday from 9:00am to 3:00pm on a rotational basis in five different geographic areas of the county. The service is operated by the Lancaster County Council on Aging with funding from SCDOT and Lancaster County. Fares are charged each way at the following rates:

- Trips within Lancaster County: $2
- To and from Rock Hill: $5
- To and from Columbia or Charlotte: $10

This service provides a "dial-a-ride" option for residents who do not qualify for Medicaid, but do not have transportation alternatives needed for getting to medical appointments.



AmbuStar Ambulance and Wheelchair Services

AmbuStar provides wheelchair transport to hospitals, nursing homes, dialysis clinics, doctor's offices and private practices in seven counties in South Carolina, including both Lancaster and York counties. Service is available 24 hours a day, 7 days a week (including holidays). AmbuStar is listed as an Advanced Provider by the SC Department of Health and Human Services and accepts Medicare, Medicaid, private insurance, and credit cards.

Inter-City Bus

Within the U.S., inter-city bus service has historically been provided mostly by Greyhound, its subsidiaries and its business partners. Together these services provide a nationwide city-to-city network, including stops at smaller locations that are not served by either air or rail. They are widely recognized as an affordable option for long-distance travel.

In the past few years, Greyhound has restructured many of its service patterns to concentrate on main flows and make fewer stops. Some smaller communities – including Rock Hill – have lost their inter-city transit connections as a result. The closest available service is now in the neighboring communities of Charlotte, Monroe, and Gastonia, NC and Spartanburg, SC.

Other companies such as Megabus have recently entered the Charlotte market, stimulating price competition. The connections currently offered by

Megabus from Charlotte are to New York City, Philadelphia, Atlanta, Athens, Durham, Richmond, and Washington, D.C.

Inter-City / Commuter Rail

Inter-city passenger rail service is provided by Amtrak, an arm of the Federal government. Outside the northeastern U.S., the services fall into two kinds: long-distance services, often running once a day, and shorter-distance 'corridor' services, often with several trips per day and usually supported financially by states. Amtrak mostly operates over track owned by freight railroads ('host' railroads). Although Amtrak's operations and expansion have been hampered by budget restrictions, there is increasing political recognition of inter-city rail's potential contribution to energy independence, offering an alternative to highway congestion, and providing resilience in the event of disruption to civil aviation.

The State makes no contribution to the capital or operating cost of the Amtrak service.

There are currently no passenger rail services within the RFATS region. The nearest Amtrak stations are Charlotte NC, Gastonia NC, Camden SC and Spartanburg SC. These stations are currently served by the following trains:

- *The Crescent* (serving Spartanburg, Gastonia, and Charlotte) – a long-distance service between New York and New Orleans. One train each way, daily. Other key destinations along this route include Atlanta, Baltimore, and Philadelphia. The schedule for this service is determined by the main points on the route, which leads the timings at the three stations near the RFATS area can be inconvenient; currently the train calls at these stations during the late night/early morning in both directions.
- *The Silver Star* (serving Camden) – a long-distance service between New York and Miami. One train each way, daily. Other key destinations on this route include Washington, DC, Savannah, and Orlando. The schedule for this service is determined by the main points on the route, and so the timings at the Camden Station can be inconvenient; currently the train calls at this station during the late night/early morning in both directions. (Additional services between New York and Florida operate through the eastern part of the state via Florence and Charleston.)

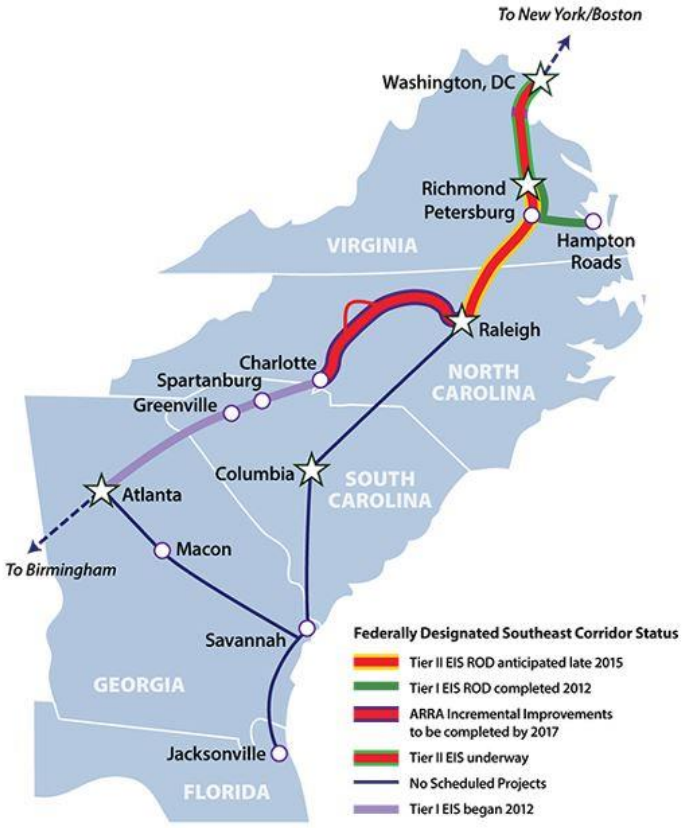
- *The Carolinian* (serving Charlotte) – a long-distance service between Charlotte and New York. One train each way, daily. This is potentially the most useful service for rail passengers living within the RFATS region, as it offers daytime service between Charlotte and the mid-Atlantic states. This train is supported financially by the North Carolina Department of Transportation (NCDOT).
- *The Piedmont (*serving Charlotte) – a short-distance ('corridor') service between Charlotte and Raleigh. This service is supported financially by NCDOT. There are currently three trains each way, daily.

Planned, Potential, and Future Transit Opportunities

A step-change in inter-city rail service could come from the development of a national **high-speed passenger rail** (HSR) network. This network is similar in scope to the interstate highway system and similar in concept to the high-speed rail networks already in place in other advanced nations and being planned in California. One of the HSR corridors designated by the US Department of Transportation (USDOT) – the Southeast High-Speed Rail Corridor – would serve Charlotte, potentially providing access to RFATS area residents.

The Southeast HSR Corridor broadly shadows the Norfolk Southern (NS) main line and I-85. It was originally designated in a 2002 Tier I study as running from Washington, DC through Richmond, VA and Raleigh, NC to Charlotte, NC with maximum speeds of 110 mph. It is part of an overall plan to extend service from the existing high-speed rail on the Northeast Corridor (Boston, MA to Washington, DC) to points in the Southeast.

Extensions outlined in 1998 included a link from Charlotte through Spartanburg and Greenville, SC to Atlanta, GA and on through Macon, GA to Jacksonville, FL. While this extended corridor passes close to the RFATS region, there are no firm timelines for implementation on any segment for this region to plan around.

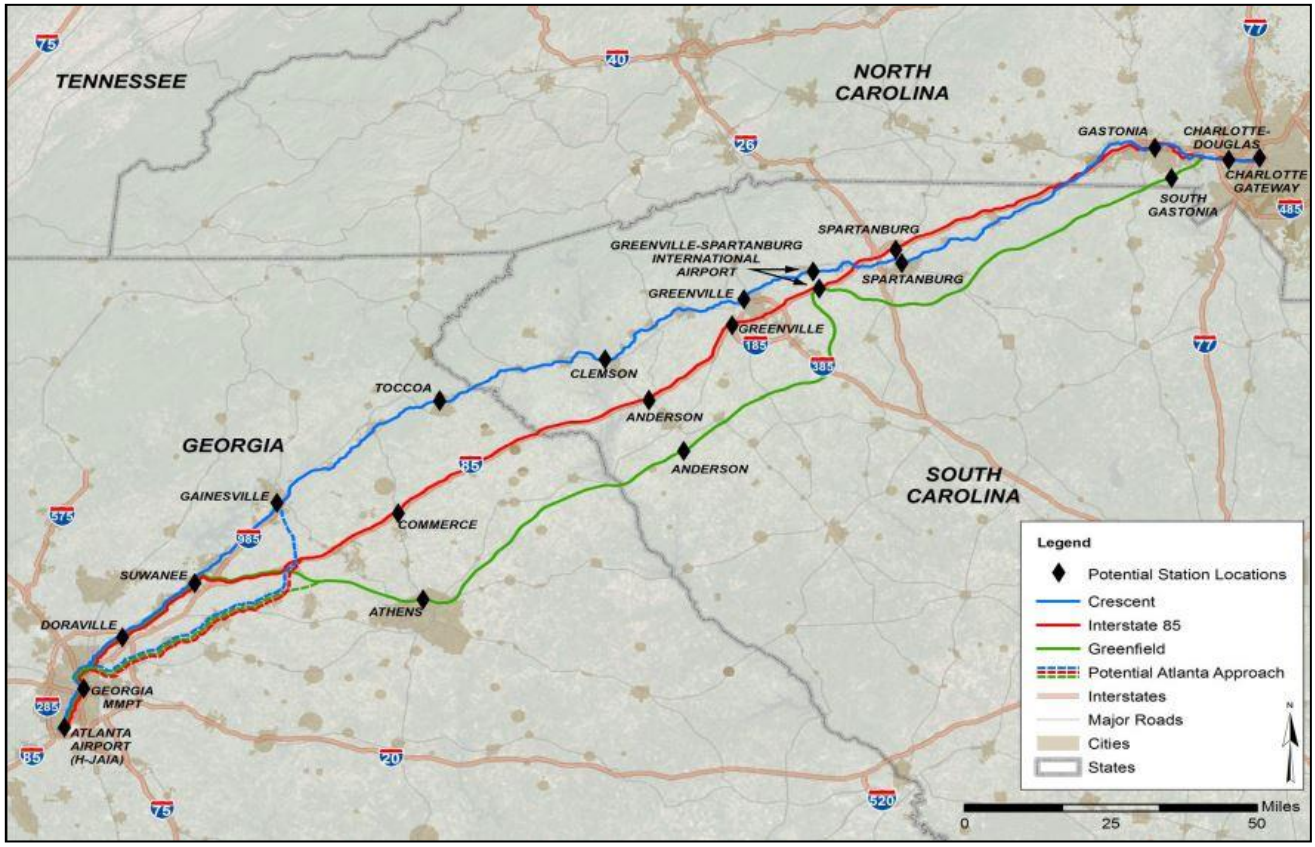


Environmental studies for the Raleigh-Charlotte segment are complete, and incremental improvements along this rail corridor have been completed as part of the Piedmont Improvement Program, which was largely funded through the American Recovery and Reinvestment Act. The initial technical work suggested that high-speed service could be extended from the new Charlotte Gateway station to a new station (and servicing facility) at Charlotte-Douglas International Airport.

The proposed extension through South Carolina to Atlanta was analyzed through a Tier I Environmental Impact Statement (EIS), which assessed potential route alternatives and station locations and was completed in September 2019. Three potential alternatives were studied **(Figure 8.7)**:

- Alternative 1: The Norfolk Southern (NS) railroad corridor (also referred to as the Southern Crescent route);
- Alternative 2: The I-85 corridor; and
- Alternative 3: A "greenfield" corridor which offers the opportunity to define a fully grade-separated route alignment with optimal geometric characteristics for high-speed passenger rail service.

Figure 8.7: Potential High-Speed Rail Routes from Charlotte to Atlanta



Source: GDOT Project Facts Vol. 2, Atlanta to Charlotte Passenger Rail Corridor Investment Plan, Fall 2015.

On June 30, 2021, FRA issued a combined Final EIS and ROD (FEIS/ROD). In the FEIS/ROD, FRA identified the Greenfield Corridor Alternative as the Preferred Corridor Alternative. The Greenfield Corridor Alternative is a 274-mile route that connects Charlotte, NC (Charlotte Gateway Station), and Atlanta, GA (Hartsfield-Jackson Atlanta International Airport), and generally follows a new dedicated alignment between the Charlotte Douglas International Airport and northeast Atlanta. A future Tier II study will define the specific alignment for the Greenfield Corridor Alternative, including the final approaches into Atlanta and Charlotte.

Additionally, the *Southeast Regional Rail Planning Study* is a fully funded, USDOT-led effort by the FRA that may lead to recommendations for the rail network within the RFATS region. FRA established the Southeast Corridor Commission (SEC) to govern the development of the study. In 2021, the SEC adopted the Plan to provide access to high-performance rail services for the residents within he Southeast. The study built upon current rail planning

efforts within the six states of Florida, Georgia, North Carolina, South Carolina, Tennessee and Virginia and the District of Columbia, and explored the potential for a fully integrated rail network linking rail passengers and freight with intermodal transit and ports across the region.

As part of the Infrastructure Investment and Jobs Act (IIJA), FRA established the Corridor ID Program to facilitate the development of intercity passenger rail corridors. DOT's could submit an application to FRA for selection into the Corridor Identification and Development Program to obtain grant funding for further studies of implementing or enhancing existing intercity passenger rail service. The Charlotte to Atlanta HSR corridor was one of the corridor recipients to continue to evaluate the corridor for future HSR service.

Commuter rail services, which are intended to serve shorter distances within a major metropolitan area, have become increasingly common in recent years. There is now considerable experience in implementing these services on existing railroad corridors, in some cases shared with existing freight services. Typically, these new services are operated by local or state agencies as a part of the regional transit system, rather than by Amtrak.

SCDOT's Statewide Multimodal Transportation Plan (2014) does identify the Rock Hill to Charlotte corridor as having potential for commuter rail. Local support has grown for addition of a commuter light rail line from Rock Hill through Fort Mill ending at the new Gateway Station. This would allow passengers to connect to the Blue Line light rail or the future Silver Line that will extend from Matthews to Belmont in Gaston County, NC. Currently, SCDOT is developing the Momentum 2050 Moving South Carolina Forward Transportation Plan.

An interim option could be to create a bus rapid transit (BRT) link between Rock Hill and Charlotte, as previously studied by the MPO and described further below. The BRT service could ultimately be replaced or supplemented by commuter rail service as ridership grows.

Rock Hill-York County-Charlotte Bus Rapid Transit (BRT) Service

In 2007 the MPO completed a study of various alternatives to provide high-capacity transit service to and from Charlotte. The *Rock Hill-York County-Charlotte Rapid Transit Study* proposed a Bus Rapid Transit (BRT) line running from downtown Rock Hill via US-21 to the I-485 CATS LYNX Blue Line light rail station **(Figure 8.8)**. The BRT line would operate partly on a dedicated bus-way and partly in general traffic.

Starting in downtown Rock Hill, buses would operate in mixed traffic along White Street to Winthrop University. White Street would be extended to Cherry Road, with a station at the intersection of the two streets. From there,

buses would operate in a dedicated guide-way along Cherry Road within the existing right-of-way. In locations on Cherry Road where roadway expansion is constrained, buses will operate in the general-purpose lanes, using queue-jump lanes and traffic signal pre-emption to increase bus travel speeds.

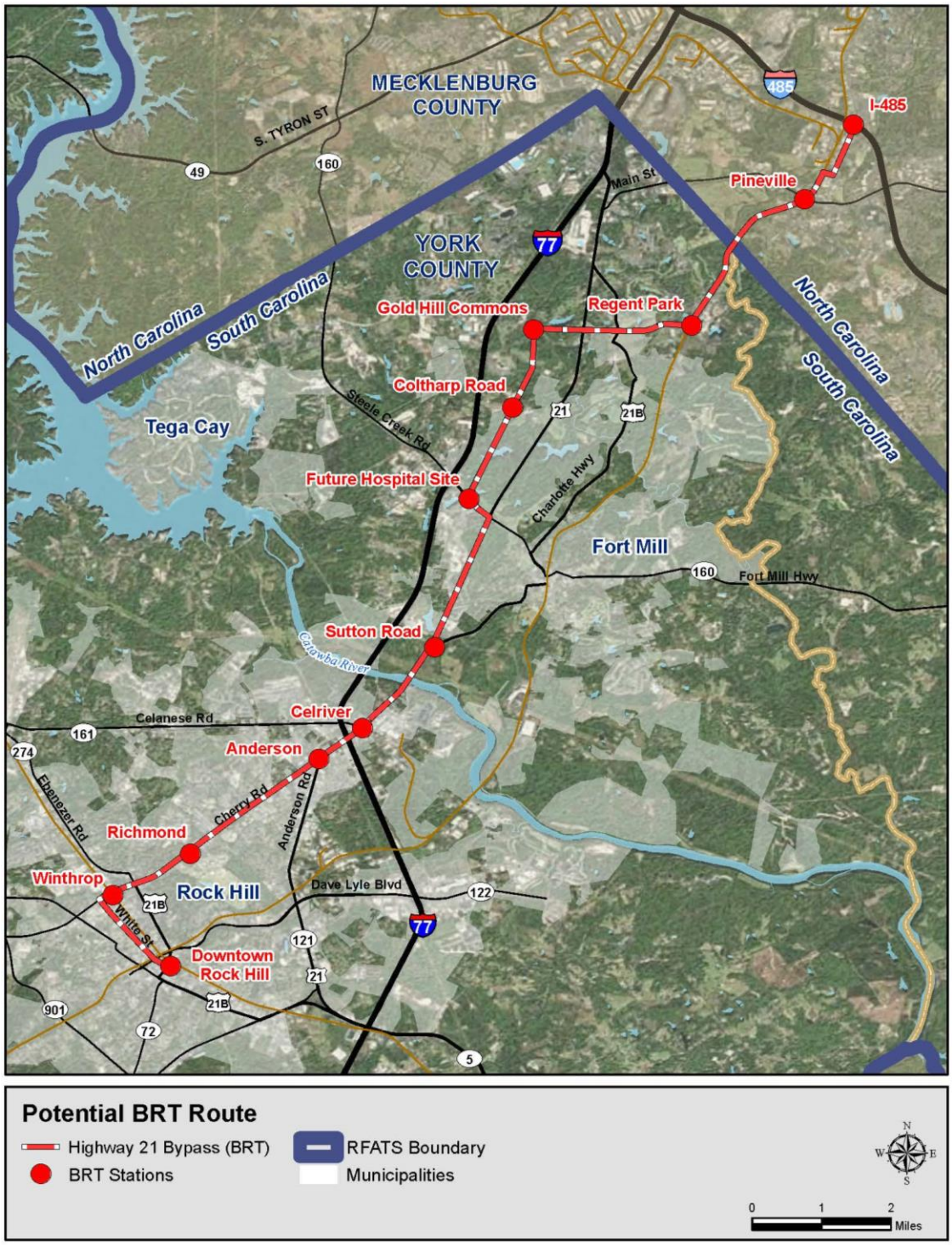
North of the Cherry Road / Anderson Road station, buses would operate in a dedicated guide-way along US-21 to SC-160 in Fort Mill. The service would then travel west a short distance on SC-160 to a new roadway, parallel to US-21 and I-77, extending from SC-160 to Gold Hill Road improving transit access in the Kingsley Park and former Knights Stadium areas.

The service would continue in mixed traffic along York Southern Road from Gold Hill Road toward the Norfolk Southern railroad corridor near Regent Parkway. Here, a dedicated two-lane guide-way would be built parallel to the railroad, extending north to Commerce Drive in Pineville. The service would then operate in mixed traffic along Commerce Drive and South Boulevard to the I-485 station on the CATS LYNX Blue Line.

The BRT scheme also includes a four-mile spur from the Cherry/Anderson station, along Anderson Road and Dave Lyle Boulevard to the Galleria Mall just east of I-77. The spur would have a dedicated two-lane guide-way.

The line would have service every 15 minutes at peak times and every 30 minutes at off-peak times. The hours of operation would match those of the Lynx Blue Line service.

Figure 8.8: Proposed Rock Hill-York County-Charlotte Bus Rapid Transit Service



Source: Rock Hill-York County-Charlotte Rapid Transit Study Locally Preferred Alternative Refined Screening Analysis Report, April 2007.

The study estimated the capital cost of the project between $511 and 516 million. It recommends four phases of implementation:

- Phase 1: start-up phase with all-day limited-stop service connecting the RFATS Study Area with the I-485 light rail station.
- Phase 2: Addition of local bus service to Tega Cay and Fort Mill and new connections to Gold Hill Commons.
- Phase 3: Implement first stage of exclusive BRT right-of-way segments.
- Phase 4: Implementation of the remaining exclusive BRT right-of-way segments.

The study also recommends focusing on appropriate transit supportive land use and development regulations, connecting major corridor destinations, and preserving rights-of-way for the transit alignment where appropriate through new development areas. These land use recommendations mirror Charlotte's initiatives to make land use and zoning policy changes early in the transit development process in order to make transit projects more viable and competitive for federal funds.

Transit planning efforts by RFATS' partners have echoed the long-term goal of operating BRT along this corridor. Multiple elements of the 2014 SCDOT *Statewide Multimodal Plan* address the issue:

- The *State Transit Plan* identifies BRT as a premium transit need for the Rock Hill/York County to Charlotte, NC corridor. In a statewide survey, BRT was one of the top three responses when respondents were asked what would encourage them to use public transit.
- The *Catawba Regional Public Transit and Human Health Service Coordination Plan*, incorporated as part of the SCDOT Statewide Multimodal Plan, proposes the integration of intercity bus service to connect patrons from the Rock Hill area to high-speed rail along the I-85 corridor in Charlotte.
- The CONNECT Beyond Plan (CRAFT Planning Partners) reflects additional action steps to improve and strengthen broad operational capability among the different transit service providers and types of service – to extend the reach of transit system users across the Metrolina Region

RFATS Urbanized Area Transit Implementation Plan

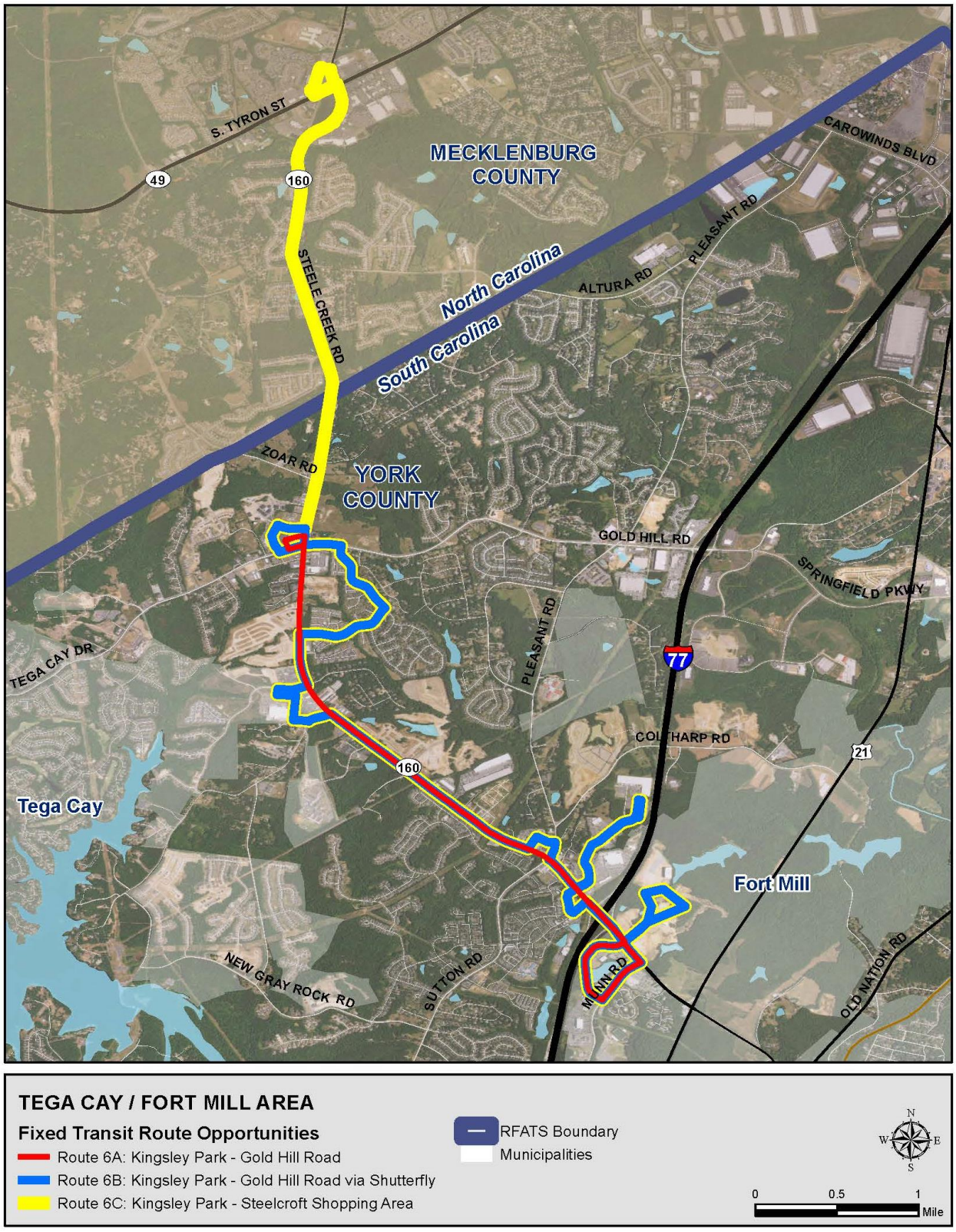
As noted earlier, RFATS completed an Urbanized Area Transit Implementation Plan; and one key recommendation that has not been covered yet, is the establishment of a circulator service along the SC 160 Corridor. Potential future routes include following (**Figure 8.9**):

Route 6A: Efficiency-Focused Approach (more direct)

Route 6B: Coverage-Focused Approach (less direct to provide easier access by pedestrians)

Route 6C: Regional Connectivity-Focused Approach (less direct, extends into southern Charlotte)

Figure 8.9: Potential Fixed Route Options, Fort Mill & Tega Cay Area



Resiliency of Public Transit Systems

Public transit systems are vulnerable to decreases or stoppages in ridership caused by natural disasters, public health crises, and other unpredictable large-scale events. While this leads to a significant loss of fare revenues for agencies in the short term, a long-term distrust of shared spaces among the public can also arise. Such crises place additional demands on transit staff, who may be required to comply with enhanced safety procedures while protecting their own personal health and continuing to link riders to medical appointments, jobs, and necessary errands. As witnessed in the 2020 outbreak of COVID-19, the rising costs incurred by these events can affect the ability of an agency to provide service as planned in the months or years that follow. They can also delay planned service expansion or improvements to transit facilities, further affecting ridership.

As the region, and nation, come out of the COVID-19 pandemic, transit agencies across the U.S. are constantly reviewing and updating ridership, fiscal budgets, and operating characteristics to better serve the needs of transit users. With the continued Hybrid work environment, peak period travel has changed and transit agencies should be flexible and constantly reviewing the fixed route service operating plans to determine if routes should change, headways change, or the end user.

Lastly, crisis recovery can expedite the process of innovation in transit planning. Areas of innovation that could be explored by agencies in the RFATS area include updating safety policies, revising design criteria/standards, and updating fare payment technology to replace aging systems and incorporate contactless features.

Recommendations

- RFATS should continue to monitor and augment (where appropriate) expanded transit service to meet area demand levels.
- The region should pursue the options suggested in the *Transit Implementation Study* to make ridesharing programs available to commuters whose trips begin and end within the RFATS region. Ridesharing could help meet some trip needs for residents in areas where fixed-route public transportation is not yet available.
- RFATS should consider sponsoring efforts to raise local leaders' awareness of the role that public transportation and ridesharing play in economic prosperity. People with reliable access to transportation are better able to obtain (and maintain) employment, and workforce availability is important to the region's continued growth. Transit also

plays an important role in quality of life, especially for people who do not, or cannot drive.

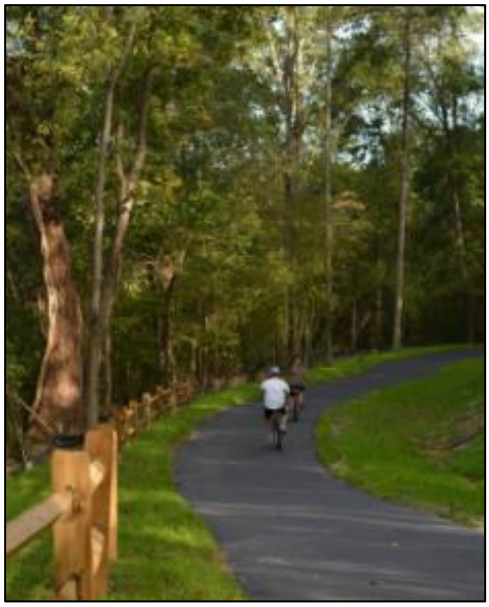
- RFATS and local jurisdictions should continue to explore opportunities for funding various elements of the *Transit Implementation Study* and the proposed BRT corridor during and after the completion of the update. This should include considering whether, and to what extent, the flexible surface transportation funds (which have traditionally been seen as highway funds) could increasingly also be used for public transportation projects.
- RFATS and local jurisdictions should monitor the extent to which the region is implementing the conditions needed for successful public transportation: higher-density development, a safe sidewalk and bicycling network, and a more interconnected road system.

Introduction

The benefits of cycling and walking have become an integral part of discussions about shaping the built environment. Taking trips by bike or on foot promotes good health, saves money, does not negatively impact the environment, and can even ease some roadway traffic. In addition, cycling and walking can be accessible travel modes for children, persons with disabilities, older adults, users of transit, and those without automobile access.

Road improvement projects that use federal funds are currently required to incorporate reasonable pedestrian and bicycle accommodations into their design and construction. This helps to prepare for future needs; and with the recent adoption of a Complete Streets policy statewide, along with increased awareness / utilization at the local level, the RFATS region looks forward to continuing to advance these important planning connections across the transportation network to be benefit of all system users.

Due to increased public awareness of the health and economic benefits of living in a walkable and bicycle-friendly community, public support for expenditures for these facilities has grown. In a survey conducted as part of the *Walk Bike RFATS 2025 Bicycle Pedestrian Plan Update* during the fall of 2024, over **79% of respondents agreed or strongly agreed with the statement, "I would like my road enhancement tax dollars to provide pedestrian and bicycle infrastructure."** The desire for safe and connected facilities has been reflected throughout this chapter and in the Bike Walk RFATS 2025 Update.



Since the **City of Rock Hill** first adopted its Trails and Greenways Master Plan in 2003, its trail network has significantly grown. In 2017, Rock Hill published the *Connect Rock Hill: Bicycle and Pedestrian Master Plan*. The 2017 Plan notes that there are now 210 miles of sidewalks, 35 miles of bikeways, and 23 miles of paths in the Rock Hill. The City has also earned designation as a bronze-level Bicycle Friendly Community, one of only five in the state.

Fort Mill's historic core has a grid pattern of streets that is supportive of cycling and walking, and the challenge in this area is connecting newer developments to the historic core and to community facilities. Currently, Fort Mill has approximately 5

miles of sidewalk and approximately 15 miles of bike routes. The Anne Close Springs Greenway is an award-winning private greenway system which is open to the public and serves as a green belt around the town. The Greenway operates a trail system that is 36 miles long. The Town of *Fort Mill Trail Master Plan* (2023) identified several priority projects within the recommended network to streamline implementation efforts. Priority projects were prioritized based on a set of four criteria including community needs (public input), connections to schools, parks, and major activity centers.

Much of the development in **Tega Cay** took place in the 1970s and 1980s as one of the first master planned communities in South Carolina. At the time, sidewalks were not always constructed in residential subdivisions. However, all new subdivisions are now required to have bicycle and pedestrian facilities to suit the active lifestyle sought by many of the residents attracted to the lakeside community. The City of Tega Cay published a Comprehensive Plan in 2020 which identifies trails, bike lanes, and sidewalks. The City currently has approximately 35 miles of sidewalk, 7 miles of trails, and 5 miles of bike routes.

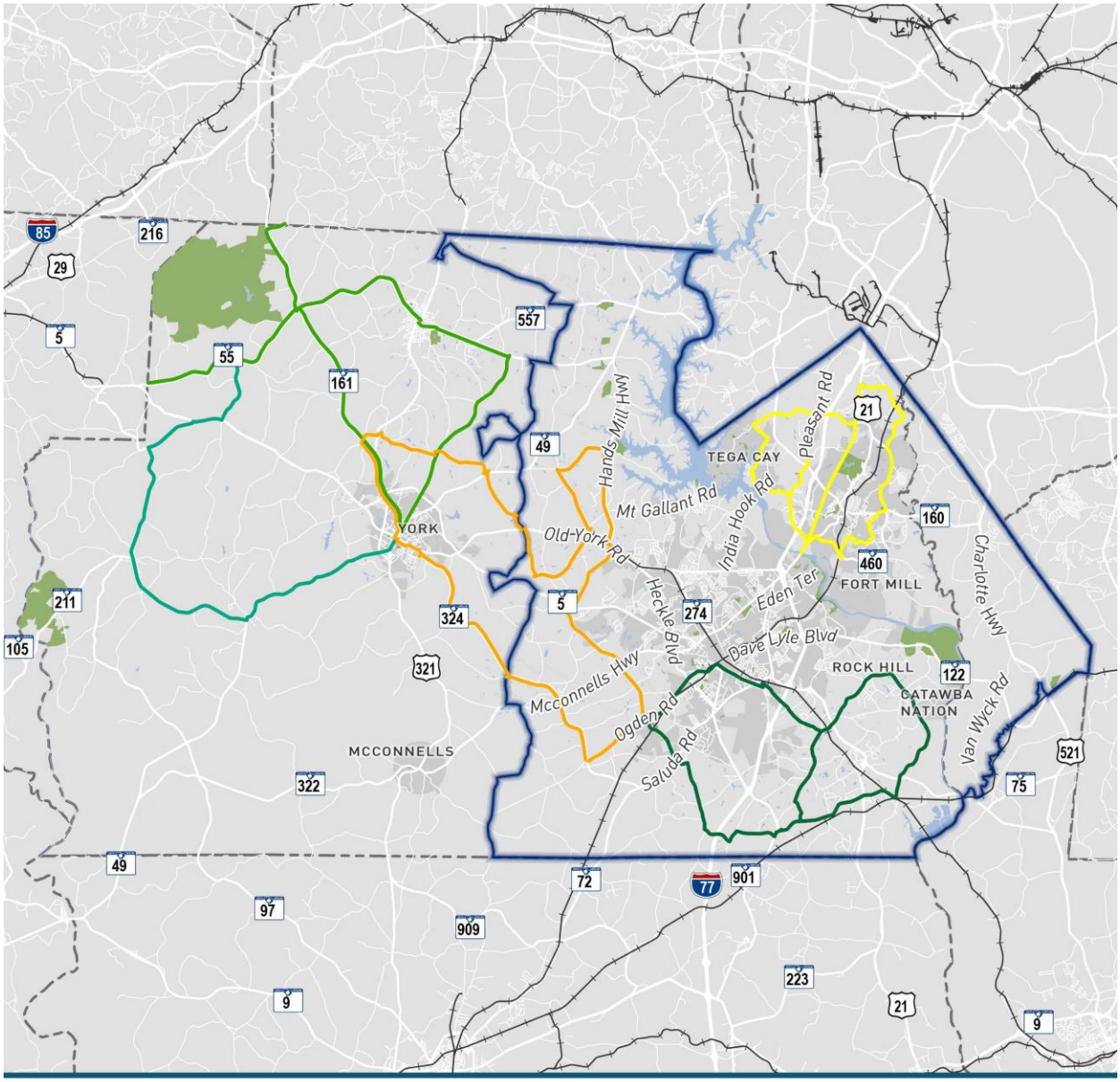
The RFATS Study Area expanded in 2013 to include the northern panhandle of **Lancaster County**. This eastern expansion extends the MPO boundary to areas east of Sugar Creek and the Catawba River, including the rapidly developing area of Indian Land along the US 521 Corridor. The Lancaster County Comprehensive Plan (2024) prioritizes connecting development in the Panhandle while reducing traffic on roadways by providing opportunities for walking and biking. Supporting actions include: prioritizing the development of the Carolina Thread Trail, requiring the dedication of recreational land and/or amenities in all new major subdivsions, and working to improve coordination between the County and SCDOT on the planning and implementation of transportation projects. These actions will play an improvement role in improving accessibility between York and Lancaster County destinations.

York County's one-cent sales tax program (Pennies for Progress) has been effective in providing funding for sidewalks to be constructed in conjunction with most road improvements. The program has also funded a large number of small-scale sidewalk and bicycle-shoulder projects on existing streets and includes

bicycle lanes in some locations. As shown in **Figure 9.1**, there are five bike routes established in York County that were designed to link with other existing and planned routes in Rock Hill, Fort Mill, Tega Cay, and York. *The York Forward 2035 Comprehensive Plan* (2022) supports goals and initiatives that promote a well-connected and efficient transportation system for all modes with an extra focus on pedestrians and bicyclists.

The **Carolina Thread Trail** is in the process of formalizing the *State Line to Fort Mill Feasibility Study*. This will connect Fort Mill and York County to the broader Thread Trail system via the Little Sugar Creek Greenway and add approximately 27 new miles of trail facility. Users will be able to travel from Fort Mill to as far north as Villa Heights in Charlotte, North Carolina. The document is expected to be published in spring 2025.

Figure 9.1: York County Bicycle Routes



Source: York County, SCDOT, SCDNR, NCDOT, USGS

The Regional Plan: *Bike Walk RFATS 2025 Update*

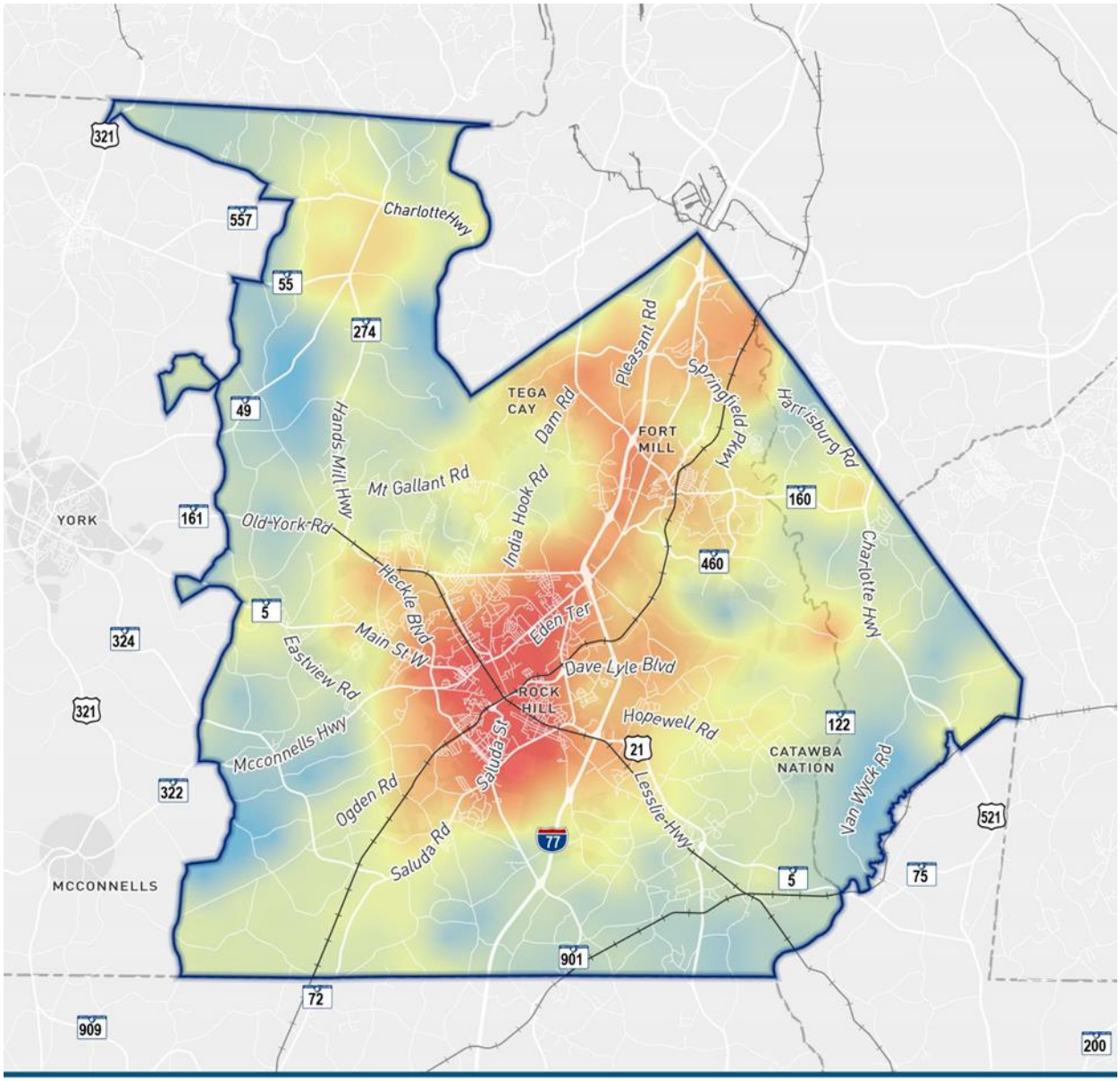
The *Bike Walk RFATS 2025 Update* serves as an update to the 2016 Plan. Local planning efforts, completed since 2016, helped to identify local and regional project types for future pedestrian and bicycle projects. RFATS developed a plan that outlines a regional priority network to better coordinate local investments and ensure an expanded range of connectivity for these facilities. *Bike Walk RFATS 2025 Update* was developed through collaboration with York and Lancaster counties, the Catawba Nation, City of Tega Cay, City of Rock Hill and the Town of Fort Mill, along with other key local and regional organizations that advocate for active forms of mobility including the Bike/Ped Coalition of York County (BPCYC).

Figure 9.3: *Bike Walk RFATS* 2025 Update Vision Statement

> Bike, Walk RFATS envisions a region of **healthy, vibrant, and prosperous communities** that support residents', students', workers', and visitors' daily mobility and access needs efficiently and effectively.
>
> A **connected, convenient, and safe network** of sidewalks, shared-use paths, transit, and on street bicycle connections **link people of all ages and abilities locally and across the region**.
>
> Because our transportation system needs to move people, and not just vehicles, **walking, biking, and transit are critical transportation modes, and investment priorities**. They are also integral to regional strategies for congestion reduction, improved air quality, roadway safety, and economic opportunity.

Active transportation demand played a crucial role in the prioritization analysis. To assess demand in the area, a demand model was developed incorporating several key variables (commercial and high-density/mixed-use residential zoning, population and employment density, minority population density, households living below the poverty level, and proximity to parks and schools). Each variable was assigned a specific weight, and these were combined to determine the overall demand shown in **Figure 9.3**. Facilities that support active transportation are most sought after in Downtown Rock Hill and the surrounding areas, the Fort Mill and Tega Cay areas, and in the space that connects the three areas.

Figure 9.3: Active Transportation Demand Model Results



Recommended Bicycle and Pedestrian Projects

Bike Walk RFATS 2025 Update has identified linear improvements within the RFATS area to promote a safer and more connected network for non-motorized travel across the region.

Identified projects are based on eight criteria that informed the prioritization analysis:

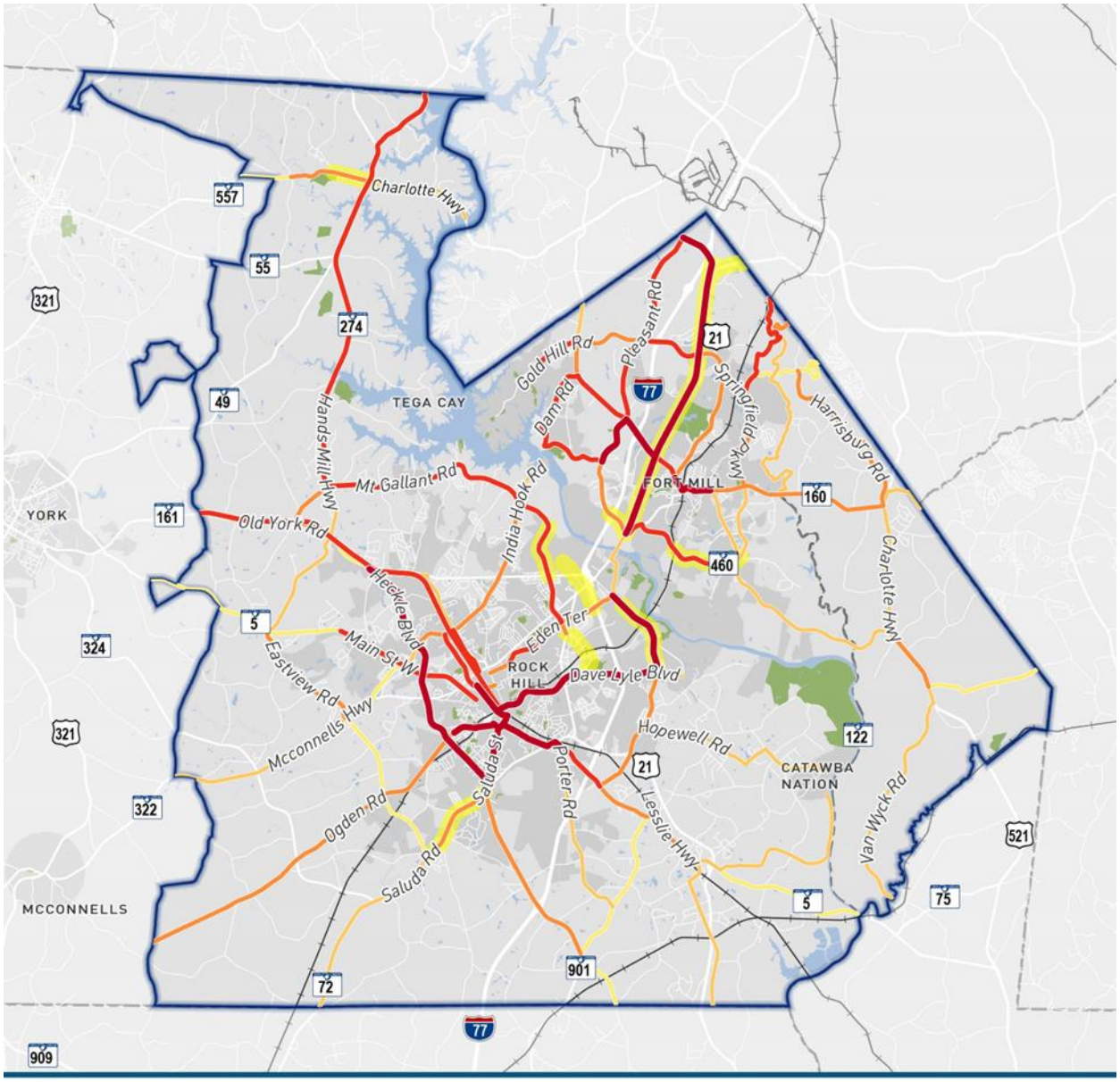
- Safety
- Active Transportation Demand
- Feasibility
- Economic Development & Tourism
- Leveraging Investments
- Network Quality
- Local Access
- Equity & Transit Access

Based on this evaluation, the network improvements were prioritized to meet the following goals:

1. Projects of greatest need and benefit are implemented first,
2. Implementation capitalizes on programmed investments and leverages new infrastructure, and
3. Improvements are distributed equitably.

Figure 9.4 shows the Regional Network Prioritization and **Figure 9.5** shows the Regional Priority Network by Facility Type. **Table 9.1** provides more details for each project with cost estimates provided for the top 12 Priority Projects.

Figure 9.4: Prioritized Regional Bicycle/Pedestrian Network Projects



Regional Network Prioritization

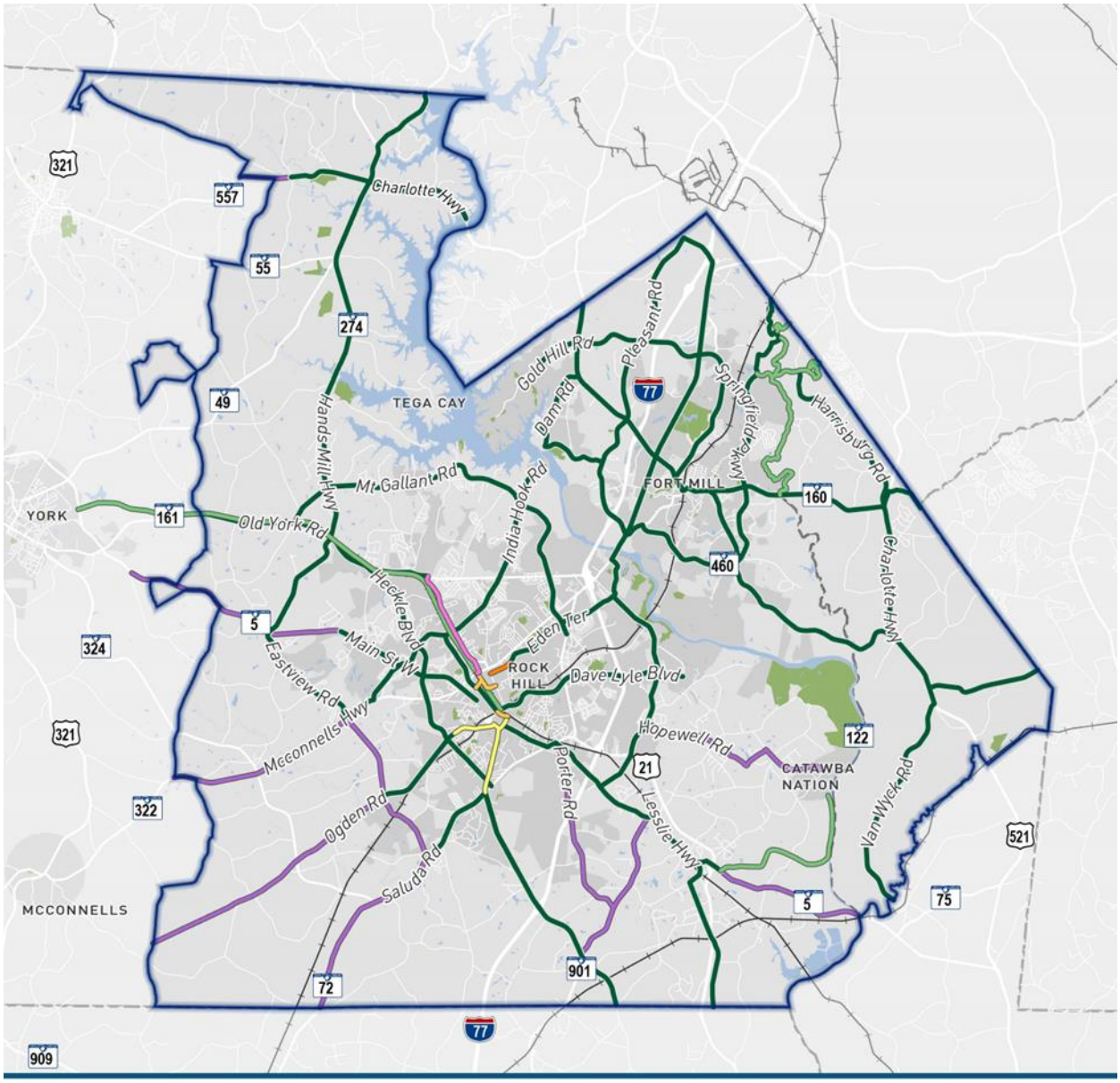
0 4 Miles

Prioritization Score
- 106 - 145
- 86 - 105
- 66 - 85
- 36 - 65
- 15 - 35

- Planned Pennies Projects
- Parks
- RFATS Boundary
- Municipalities
- County Boundaries

Source: York County, SCDOT, SCDNR, NCDOT, USGS

Figure 9.5: Recommended Bicycle/Pedestrian Projects by Facility Type



Regional Priority Network Asset Types

0 4 Miles

- Shared-Use Path/Sidepath
- Greenway
- Bike Lane
- Sharrow
- Sidewalk/Sharrows
- Sidewalk
- Shoulder Improvement
- Railroads
- Parks
- RFATS Boundary
- Municipalities
- County Boundaries

Source: York County, SCDOT, SCDNR, NCDOT, USGS

Table 9.1: Proposed Bicycle and Pedestrian Improvements

Prioritization Score	Project Name	Start	End	Proposed Facility Type	Length (Mi)	Estimated Segment Cost		Planned Pennies Project?
						Low	High	
145	Ogden Road / Hampton Street	Barnes Street	Saluda Street	Bike Lane	1.22	$160,000	$370,000	No
140	E Black Street	Elizabeth Lane	Porter Road	Shared-Use Path	1.60	$690,000	$2,460,000	No
140	U.S. Highway 160	Old Nation Road/U.S. Highway 21	Dobys Bridge Road	Shared-Use Path	1.13	$1,600,000	$3,010,000	No
130	White Street / Elizabeth Lane	White Street	Johnston Street	Bike Lane	.40	$50,000	$130,000	No
125	Dave Lyle Boulevard	White Street	Red River Road	Shared-Use Path	4.41	$4,080,000	$9,280,000	No
125	Saluda Street	Johnston Street	Saluda Street / Albright Road	Bike Lane	1.63	$210,000	$500,000	No
115	U.S. Highway 160	Sutton Road / Pleasant Road	U.S. Highway 21	Shared-Use Path	1.18	$510,000	$1,810,000	No
115	U.S. Highway 21 Bypass	Pleasant Road	Springfield Parkway	Shared-Use Path	3.30	$3,050,000	$6,940,000	Yes
115	U.S. Highway 21 Bypass	U.S. Highway 160	Sutton Road / Spratt Street	Shared-Use Path	2.07	$1,920,000	$4,360,000	Yes
115	Sutton Road	U.S. Highway 160	New Gray Rock Road	Shared-Use Path	1.30	$560,000	$2,010,000	No
115	Heckle Boulevard	Old York Road	Albright Road	Shared-Use Path	6.62	$2,820,000	$10,160,000	No
115	White Street / Elizabeth Lane	Columbia Avenue	Dave Lyle Boulevard	Sharrow	0.29	$20,000	$40,000	No

Table 9.1: Proposed Bicycle and Pedestrian Improvements

Prioritization Score	Project Name	Start	End	Proposed Facility Type	Length (Mi)	Planned Pennies Project?
110	Red River Road	Eden Terrance	Dave Lyle Boulevard	Shared-Use Path	2.35	Yes
110	Highway 21 Bypass	Springfield Parkway	U.S. Highway 160	Shared-Use Path	2.78	Yes
110	W White Street	Columbia Avenue	Dave Lyle Boulevard	Shared-Use Path	0.82	No
105	U.S. Highway 160	Stonecrest Boulevard	Pleasant Road / Sutton Road	Shared-Use Path	1.65	No
105	Mount Gallant Road / U.S. Highway 195	India Hook Road	Eden Terrace	Shared-Use Path	3.60	Yes
105	U.S. Highway 160	Highway 21 Bypass N	Old Nation Road	Shared-Use Path	0.75	No
100	Fort Mill Parkway	Highway 21 Bypass S	Dobys Bridge Road	Shared-Use Path	3.25	Yes
100	Eden Terrace	Mt. Gallant Road	Myrtle Drive	Shared-Use Path	1.73	No
100	Pleasant Road	Gold Hill Road	Carowinds Boulevard	Shared-Use Path	2.91	No
100	A.O. Jones Boulevard	Springfield Parkway	SC/NC State Line	Shared-Use Path	3.18	No
95	Fire Tower Road	Porter Road	W Springdale Road	Shared-Use Path	1.47	No
95	Highway 274	Mt. Gallant Road	Highway 557 / Charlotte Highway	Shared-Use Path	7.96	No
95	Highway 274/279	Highway 557 / Charlotte Highway	SC/NC State Line	Shared-Use Path	2.81	No

Table 9.1: Proposed Bicycle and Pedestrian Improvements

Prioritization Score	Project Name	Start	End	Proposed Facility Type	Length (Mi)	Planned Pennies Project?
95	Highway 195	Hands Mill Highway	India Hook Road	Shared-Use Path	5.32	No
95	Stewart/Alumni Drive	Herlong Avenue	Alumni Drive	Sidewalk	1.29	No
95	Pleasant Road	Highway 160 W	Gold Hill Road	Shared-Use Path	2.10	No
95	Gold Hill Road / Tega Cay Drive	Highway 160 W	Trailhead Park Parking Lot	Shared-Use Path	1.36	No
95	Highway 5	Montgomery Drive	Wylie Street	Shared-Use Path	3.88	No
90	Ebenezer Rail-to-Trail Opportunity	Dave Lyle Boulevard	RFATS Boundary	Greenway	12.95	No
90	Dam Road / Highway 251, New Gray Rock Road	Highway 160 W	Sutton Road	Shared-Use Path	3.89	No
90	Springfield Parkway	Highway 21 Bypass N	Pleasant Road	Shared-Use Path	1.61	No
85	Highway 160	Springfield Parkway	Harrisburg Road	Shared-Use Path	3.63	No
85	Ogden Road	Falls Road / Robertson Road West	Heckle Boulevard	Shared-Use Path	2.25	No
85	Highway 195	Old York Road	Hands Mill Highway	Shared-Use Path	1.24	No
85	Eden Terrace	Cel-River Road	Mt. Gallant Road	Shared-Use Path	1.45	No
85	Red River Road	Fire Tower Road	Dave Lyle Boulevard	Shared-Use Path	3.37	No

Table 9.1: Proposed Bicycle and Pedestrian Improvements

Prioritization Score	Project Name	Start	End	Proposed Facility Type	Length (Mi)	Planned Pennies Project?
85	Eastview Road	McConnells Highway	York Highway	Shared-Use Path	3.08	No
80	Mount Gallant Road	Eden Terrace	Anderson Road N	Shared-Use Path	0.32	No
80	Ogden Road	Brattonsville Road	Robertson Road W	Shoulder Improvement	6.91	No
80	Highway 557	Riddle Mill Road / Bethel School Road	Highway 274	Shared-Use Path	2.03	Yes
80	Herlong Avenue / India Hook Road / Highway 30	Mt. Gallant Road	Ebenezer Road	Shared-Use Path	3.75	No
80	Gold Hill Road / Highway 460	Pleasant Road	Highway 160 W	Shared-Use Path	1.67	No
80	Fire Tower Road	W Springdale Road	Schoolside Drive / Neelys Creek Road	Shared-Use Path	1.43	No
80	Springfield Parkway	Old Nation Road	Highway 21 Bypass N	Shared-Use Path	0.99	No
80	Stewart / Alumni Drive	Cherry Road	Oakland Ave	Sharrow	0.69	No
80	SC 121	Rambo Road E	Mt. Holly Road	Shared-Use Path	2.14	Yes
75	Harrisburg Road	Fort Mill Highway	Sugar Creek Road	Shared-Use Path	4.50	No
75	Lesslie Highway	Old Friendship Road	Schoolside Drive / Neelys Creek Road	Shared-Use Path	1.83	No
75	Herlong Avenue	Ebenezer Road	Heckle Boulevard	Shared-Use Path	1.05	No

Table 9.1: Proposed Bicycle and Pedestrian Improvements

Prioritization Score	Project Name	Start	End	Proposed Facility Type	Length (Mi)	Planned Pennies Project?
75	Sutton Road N	Highway 21 Bypass S	New Gray Rock Road	Shared-Use Path	2.03	Yes
75	Proposed Carolina Thread Trail	Shared-Use Path along County Line	SC/NC State Line	Greenway	0.64	No
75	Mt. Holly Road	Neelys Creek Road	Saluda Street / Albright Road	Shared-Use Path	7.03	No
75	Highway 160	A.O. Jones Boulevard	Tom Hall Street / Highway 160 E	Shared-Use Path	2.60	No
75	Ogden Road / Hampton Street	Barnes Street	Heckle Boulevard	Shared-Use Path	0.24	No
70	Highway 160 West	Gold Hill Road	Stonecrest Boulevard	Shared-Use Path	0.87	No
70	Charlotte Highway	Jim Wilson Road	Dobys Bridge Road	Shared-Use Path	1.64	No
70	Highway 161	Mt. Gallant Road	Hands Mill Highway / Adnah Church Road	Shared-Use Path	1.00	No
70	Highway 160	Dobys Bridge Road	Springfield Parkway	Shared-Use Path	0.86	No
70	U.S. 21	Springfield Parkway	White Street N	Shared-Use Path	2.91	No
70	Eden Terrace	Myrtle Drive	Oakland Ave	Sidewalk / Sharrows	0.57	No
65	N Dobys Bridge Road	Fort Mill Parkway	Tom Hall Street	Shared-Use Path	1.87	No
65	Highway 30	Sand Island Road	Mt. Gallant Road	Shared-Use Path	1.12	No

Table 9.1: Proposed Bicycle and Pedestrian Improvements

Prioritization Score	Project Name	Start	End	Proposed Facility Type	Length (Mi)	Planned Pennies Project?
65	Highway 161	Shiloh Road S	Mt. Gallant Road	Shared-Use Path	2.37	No
65	Highway 49	Highway 274	Buster Boyd Bridge	Shared-Use Path	2.76	No
65	Catawba Nation Greenway Trail	Highway 5	Tom Steven Road	Greenway	4.67	No
65	Porter Road	Neelys Creek Road	Fire Tower Road	Shoulder Improvement	5.09	No
60	Fort Mill Parkway	Dobys Bridge Road	Tom Hall Street / Highway 160 E	Shared-Use Path	2.15	No
60	Van Wyck Road	Brickyard Drive	Jim Wilson Road	Shared-Use Path	6.14	No
60	Dunkins Ferry Road / U.S. Highway 21 Bypass	S Sutton Road / Spratt Street	Cel-River Road	Shared-Use Path	1.77	No
60	Hopewell Road	Springdale Road	River Bottom Road	Shoulder Improvement	5.10	No
60	Columbia Avenue	Alumni Drive	Constitution Boulevard	Sharrow	0.22	No
55	Proposed Carolina Thread Trail	RFATS Boundary	Old Friendship road	Shared-Use Path	3.93	No
55	Dave Lyle Boulevard	Red River Road	Waterford Park Drive	Shared-Use Path	0.63	No
55	Highway 274	Old York Road	Mt. Gallant Road	Shared-Use Path	1.31	No
55	Springfield Parkway	A.O. Jones Boulevard	Springfield Parkway	Shared-Use Path	0.63	No

Table 9.1: Proposed Bicycle and Pedestrian Improvements

Prioritization Score	Project Name	Start	End	Proposed Facility Type	Length (Mi)	Planned Pennies Project?
55	Adnah Church Road	York Highway	Old York Road	Shared-Use Path	3.01	No
55	Highway 5	Lesslie Highway	Turkey Lane	Shared-Use Path	0.71	No
50	Highway 160	SC/NC State Line	Gold Hill Road	Shared-Use Path	0.94	No
50	SC 274	Herlong Ave	Celanese Road	Sidewalk	1.54	No
50	S Doby Bridge Road	Charlotte Highway	Fort Mill Parkway	Shared-Use Path	5.08	No
50	Charlotte Highway	Dobys Bridge Road	Six Mile Creek / SC/NC State Line	Shared-Use Path	4.68	No
50	S Herlong Avenue	Heckle Boulevard	Main Street West	Shared-Use Path	0.69	No
50	SC 274	Ebenezer Road	Heckle Boulevard	Shared-Use Path	1.48	No
45	SC 121	Strait Road/E Chappell Road	Rambo Road E	Shoulder Improvement	5.00	No
45	York/Lancaster County Line Greenway	Highway 160 E / Fort Mill Highway	Regent Road E	Greenway	6.04	No
40	McConells Highway	Gordon Road	Eastview Road	Shoulder Improvement	4.75	No
35	Meadow Lakes Road	Eastview Road	Main Street W	Shared-Use Path	2.00	No
35	Highway 161	Adnah Church Road	Old York Road	Shared-Use Path	1.28	No

Table 9.1: Proposed Bicycle and Pedestrian Improvements

Prioritization Score	Project Name	Start	End	Proposed Facility Type	Length (Mi)	Planned Pennies Project?
35	Robertson Road	Ogden Road	Rambo Road E	Shoulder Improvement	1.90	No
35	Highway 5	Park Place Road	Montgomery Drive	Shoulder Improvement	5.72	No
35	Neelys Creek Road	Fire Tower Road	Mt. Holly Road / Collins Road	Shoulder Improvement	4.01	No
35	Falls Road	Ogden Road	McConnells Highway	Shoulder Improvement	2.25	No
30	Proposed Carolina Thread Trail	A.O. Jones Boulevard	SC/NC State Line	Greenway	2.65	No
30	Highway 557	Cross Road	Riddle Mill Road / Bethel School Road	Shoulder Improvement	1.29	No
20	Jim Wilson Road	Charlotte Highway	SC/NC State Line	Shared-Use Path	2.87	No
20	Highway 5	Turkey Lane	Catawba River	Shoulder Improvement	3.82	No
20	Collins Road	Neelys Creek Road	Harmony Road / RFATS Boundary	Shared-Use Path	1.60	No

Recommended Bicycle and Pedestrian Policies and Programs

Bike Walk RFATS 2025 Update recommends several policies and programs (**Table 9.2**) to strengthen the regional foundation for bicycle and pedestrian planning.

Table 9.2: "Top Ten" Priority Program and Policy Recommendations

Active Transportation Summit
Host an annual, half- to full-day workshop for dialogue related to designing and building Complete Streets, local active transportation initiatives, and funding strategies.
Regional Safe Routes to School Coordination
Develop a central repository of information about SRTS, from mapping, planning efforts, and funding.
Help jurisdiction build on lessons learned; provide local training to help schools understand the SRTS activities toolkit.
Regional Active Transportation Safety Plan
Develop an action plan that identifies crucial bike and pedestrian safety needs and develops clear actions to improve safety in the RFATS region.
Regional Bicycle & Pedestrian Count Program
Provide training manuals to communities on how to conduct bicycle and pedestrian counts.
Collaborate with local organizations to enlist volunteers to perform counts.
Create funding incentives for communities to include permanent counters as part of implementing projects.
Region-Wide User Maps and Guides
Build on York County's successful effort to promote countywide bicycling routes and promote outdoor recreational attractions (Velodrome, Game On, Riverwalk, and others).
Develop publicly-distributed materials that describe safe and comfortable routes to local and visitor destinations.
Professional Training Opportunities
Provide webinars, courses, and other professional training opportunities to the region's city and county engineers, planners, police, and other staff. Topics could include bike and pedestrian design standards, funding opportunities, and interdepartmental coordination on bike/ped issues.
Adopt Regional Design Standards
Promote adoption of active transportation design guidelines by each local government in the RFATS region to promote consistency and efficient coordination of facilities.
Regional Complete Streets Policy
Adopt a regional Complete Street policy to ensure all roadway users are considered in the planning, design, engineering, and funding of capital projects.
Health and Equity-Based Project Prioritization
Incorporate factors related to health and equity in the scoring and prioritization of RFATS projects.
Regional Target Zero Policy
Support SCDOT efforts for the Target Zero Plan with a regional Vision Zero which targets the most dangerous corridors and crash hotspots for safety improvements.

Implementation

Funding for pedestrian and bicycle facilities can come from a variety of sources. Federal funds include Transportation Alternatives Program (TAP) grants; South Carolina Department of Parks, Recreation, and Tourism (SCPRT) Recreational Trail grants, safety funds for spot improvements such as pedestrian crossings, as well as Guideshare and CMAQ funds allocated to RFATS. Communities may also continue to use local and private funds to meet pedestrian and bicycle needs.

Federal and State Policies

Some of the proposed network and spot improvements can be built through the roadway projects included in the 2055 LRTP. In accordance with Federal Highway Administration requirements, bicycle/pedestrian facilities will be incorporated into all federally funded projects in the RFATS area that reconstruct or widen a road. Similar policies exist at the state level, dating from 2003 when the SCDOT Commission directed that accommodating bicycles should be a routine part of the Department's planning, design, construction and operating activities. SCDOT developed a Bicycle Pedestrian Safety Action Plan to enhance regional multimodal planning by MPOs and COGs; revise statewide design policies and provide training; outline strategies for engagement, education, enforcement, and outreach; and reform the Transportation Alternatives Program.

SCDOT's Comprehensive Multimodal Long Range Transportation Plan recognizes cycling and walking as modes of transportation. The statewide plan notes that SCDOT works collaboratively with local jurisdictions to identify suitable bicycle improvements (such as shoulders or restriping with bike lanes) to incorporate in highway projects, as well as to identify funding for these projects. However, local support from MPOs, particularly in advance of the project design process, is seen as critical to implementing bicycle and pedestrian improvements. The responsibility is therefore on MPOs and municipalities to bring these issues to the table during project discussions.

Local Policies

Local policies are also an essential part of ensuring that the pedestrian and bicycle system expands as the area grows. Many of the area's less "walkable" communities were built at a time when local development regulations did not require sidewalks or bike lanes to be incorporated with new subdivisions or non-residential developments. As such, communities should adopt Complete Streets design standards to ensure that locally funded transportation projects,

through funds such as Pennies for Progress, include facilities to allow safe travel by non-motorized users.

Additionally, as the RFATS region grows, land use and subdivision regulations at the county and local levels will be of the utmost importance in establishing a bike and walk-friendly environment, especially with connections to schools. These regulations should be reviewed regularly to ensure they meet the needs of the region.

Introduction

The RFATS region is fortunate to benefit from proximity to a major international airport, Charlotte-Douglas International Airport, and the region's own corporate/business airport - Rock Hill-York County Airport. The region's challenge is to maximize the benefits of both facilities to serve the needs of area residents and businesses.

Commercial aviation provided by Charlotte-Douglas International Airport allows citizens to travel domestically and internationally from the RFATS region. Commercial freight operations, including those carried out by major parcel companies are a means of delivering commercial freight within the RFATS region and are carried out at both airports. Additionally, important niche operations such as medical helicopters are available at both Charlotte International airports.

Aviation activities can affect many parts of the transportation system. For example, large airports and associated aviation-related businesses are significant generators of roadway travel demand and freight delivery services.

Existing Facilities and Conditions

Charlotte Douglas International Airport

Charlotte Douglas International Airport (CLT) is located just north of the state border in North Carolina. CLT serves as the region's primary commercial airport and offers direct service to 186 destinations. American Airlines uses CLT as a major hub for domestic and international air travel operations.

Between 2009 and 2019, CLT experienced an overall 23 percent increase in passenger traffic. In 2023 it ranked as the nation's 10th busiest airport, with more than 25 million enplanements (passengers boarded).[1]

[1] U.S DOT Bureau of Transportation Statistics.

To meet growing needs, CLT completed airfield and terminal capacity enhancement studies, which together form the airport's master plan. This plan outlines near- and long-term airfield and terminal updates, guiding construction and development at CLT through 2035.

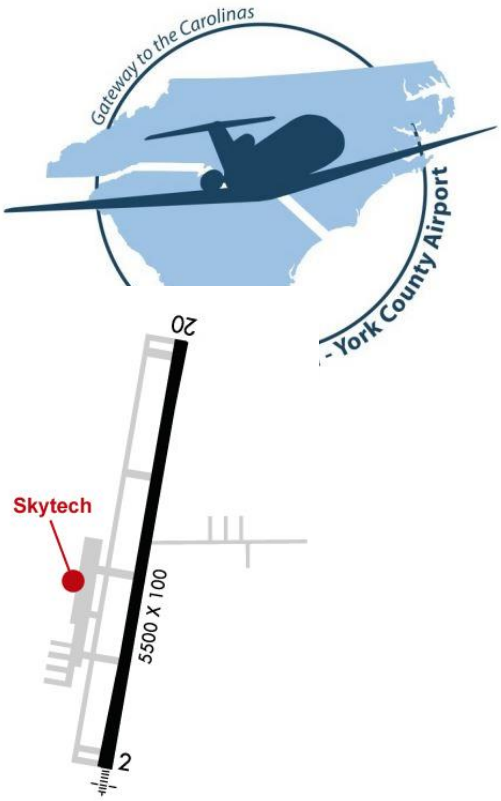
Proposed improvements (shown in **Table 10.1)** include expansion of multiple concourses, terminal renovation and expansion, and addition of a fourth parallel runway.

Table 10.1: CLT Master Plan Projects

Proposed Improvement	Status	Completion
Elevated Roadway and Terminal Curb Front Improvements	Complete	Fall 2019
Concourse A Expansion - Phase I	Complete	Summer 2018
East Terminal Expansion - Phase II	Complete	Fall 2019
Air Traffic Control Tower	Complete	Spring 2022
Terminal Renovations	Under Construction	2025
Concourse E Expansion - Phase VIII and IX	Under Construction	Summer 2021
Terminal Lobby Expansion	Under Construction	Fall 2025
Concourse A Expansion - Phase II	Design	Fall 2024
Fourth Parallel Runway	Planning	2027
Concourse B Expansion	Planning	TBD
Concourse C Expansion	Planning	TBD
North End Around Taxiway	Under Construction	Winter 2025
South End-Around Taxiway	Planning	Spring 2027
South Ramp Extension	Planning	Spring 2030

Rock Hill-York County Airport

Rock Hill-York County Airport is a general aviation SCII (corporate/business) classified airport located approximately four miles north of the center of Rock Hill and approximately 17 miles from Charlotte Douglas International Airport **(Figure 10.1)**. The airport property encompasses nearly 500 acres and includes a 5,500-foot runway. According to the South Carolina Aeronautics Commission, it has 164 based aircraft and 28,100 aircraft operations for the year 2023.

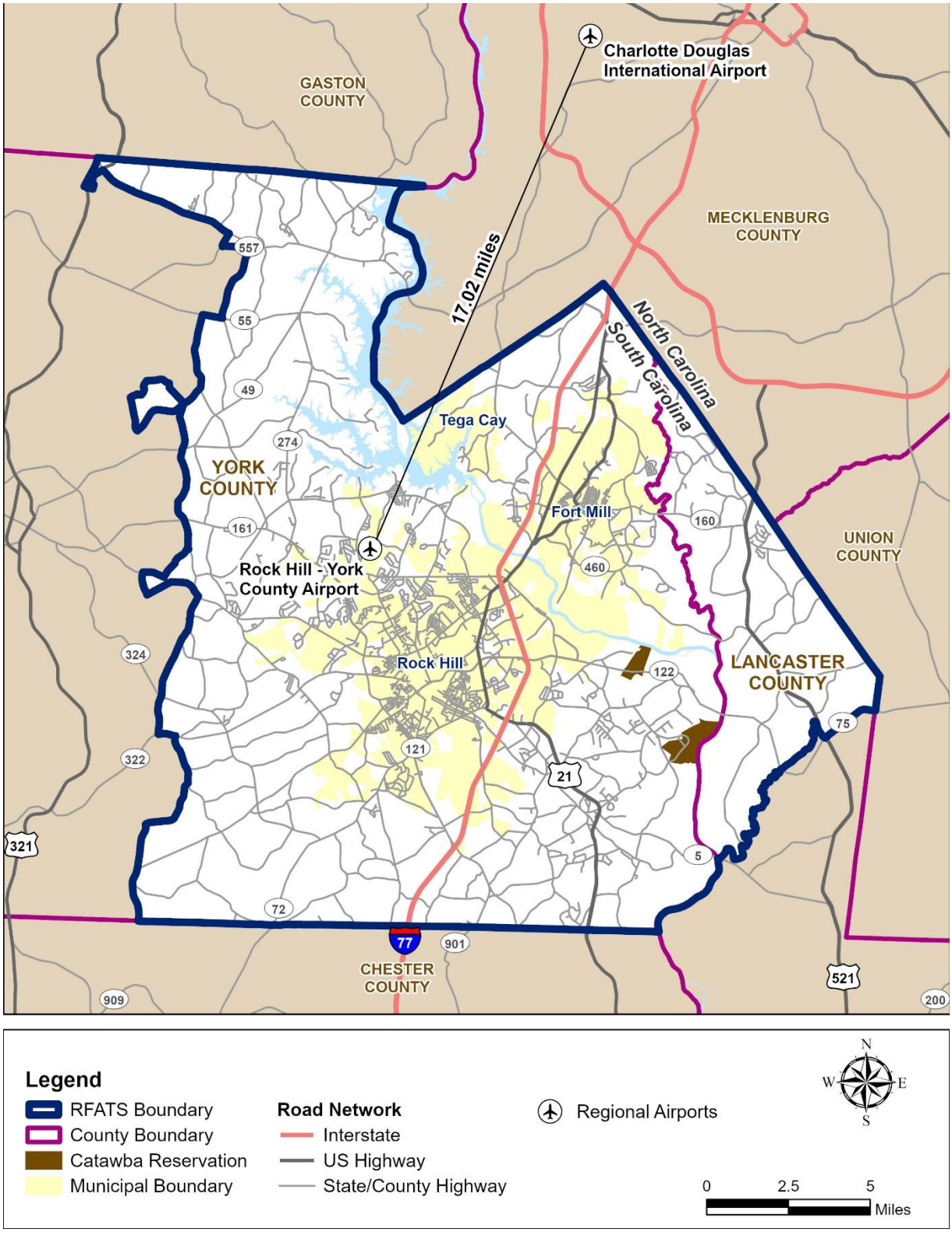


Day-to-day airport business operations are managed by SkyTech, which leases the facilities on the west side of the airport from the City of Rock Hill. Operations include general aviation local aircraft operations, general aviation itinerant operations, and a small number of military operations. Ground transportation includes rental car agencies and taxi service. The airport also offers flight training, ground schools, aircraft rental, and sightseeing flights.

Development of an airport to serve the Rock Hill area was first initiated in 1956 with the creation of an Airport Commission. Under a management agreement between the City of Rock Hill and York County, the City remains the official sponsor of the airport with both entities contributing equal funding. The Airport Commission makes recommendations to the City on the airport's policies and operations as well as advising the City and County on planning matters and capital improvements.

The City and County have contracted with SkyTech to handle day-to-day management of the airport.

Figure 10.1 – Physical Relationship of Charlotte-Douglas International and Rock Hill-York County Airports



Rock Hill-York County Airport's SCII classification indicates that it falls within the second of four tiers used to classify airports by level of activity and purpose. As explained in the South Carolina Airport Systems Plan (2008), the state's airports can be grouped into four categories:

- **Commercial Service Airports (SCI)** are airports with scheduled services and at least 10,000 passenger boardings annually.
- **Corporate/Business Airports (SCII)** are urban/multi-jurisdictional airports with a runway of at least 5,000 feet and full services. They are seen as having a high economic impact, and 30 to 50 percent of their activity is in corporate aviation. The Rock Hill-York County Airport falls into this category.
- **Business/Recreation Airports (SCIII)** are rural airports with a runway of at least 3,200 feet and moderate economic impact.
- **Recreational/Local Service Airports (SCIV)** are low-activity airports with a runway of at least 2,000 feet and limited facilities. They have a low economic impact and may have expansion constraints.

The FAA designates Rock Hill-York County Airport as a "reliever" for Charlotte-Douglas International Airport. This reflects the potential to attract additional general aviation users who wish to avoid growing congestion at CLT as well as on surrounding roadways.

Aerial photo of the Rock Hill/York County Airport with 5,500' runway

Other Aviation Facilities in the Region

The RFATS region has three privately-owned aviation facilities including one heliport located at Piedmont Medical Center in Rock Hill.

Lancaster County Airport-McWhirter Field, located outside the RFATS region, is a county-owned, public-use airport with one runway, facilities for fueling and maintenance, and a small terminal building.

Future Plans

Airport Master Plan for Rock Hill-York County Airport

Since its opening in 1960, Rock Hill-York County Airport facilities have expanded under the direction of a series of Master Plans and with the help of a series of federal grants. The airport experienced particularly rapid growth during the 1970s and early 1980s, both in operations and the number of aircraft based there. Subsequent Master Plans in 1983, 1994, and 2003 included further development of the airport infrastructure.

The current Airport Layout Plan was completed in June 2016. Its goal is "to provide guidelines for future airport development which will satisfy aviation demand in a cost-effective, feasible manner, while resolving aviation, environmental, and socioeconomic issues of the community."

Table 10.2 provides a summary of the forecasts for the Rock Hill – York County Airport throughout the 20-year Airport Layout Plan planning period. **Table 10.3** summarizes the airport's facility requirements and lists the phases in which various facilities will be needed, as driven by demand.

Proposed improvements in the 20-year airport improvement program are categorized into one of three development phases:

- Phase I (2016-2021)
- Phase II (2022-2026)
- Phase III (2027-2035)

The airport is not projected to reach its capacity or volume service limits within the 20-year planning period. However, it is anticipated that over time the composition of the based aircraft will become larger, requiring a longer runway and additional hangar space.

Table 10.2: Aviation Forecast Summary, Rock Hill-York County Airport

	2015 (Existing)		2016		2021		2026		2035	
	Forecast	TAF	Forecast	TAF	Forecast	TAF	Forecast	TAF	Forecast	TAF
BASED AIRCRAFT										
Single-Engine Piston	133		137		153		170		200	
Multi-Engine Piston	12		12		13		14		15	
Turboprop	0		0		2		3		5	
Jets	5		5		5		6		7	
Helicopters	2		2		3		3		5	
Total Based Aircraft	**152**	**133**	**156**	**133**	**176**	**133**	**196**	**133**	**232**	**133**
AIRCRAFT OPERATIONS										
GA Local	25,015	25,015	25,692	25,015	28,986	25,015	32,279	25,015	38,208	25,015
GA Itinerant	10,500	10,500	10,785	10,500	12,167	10,500	13,550	10,500	16,039	10,500
Air Taxi	400	400	410	400	463	400	516	400	610	400
Military	85	85	89	85	100	85	111	85	132	85
Total Operations	**36,000**	**36,000**	**36,972**	**36,000**	**41,712**	**36,000**	**46,452**	**36,000**	**54,984**	**36,000**
Operations per Based Aircraft	237	237	237	237	237	237	237	237	237	237

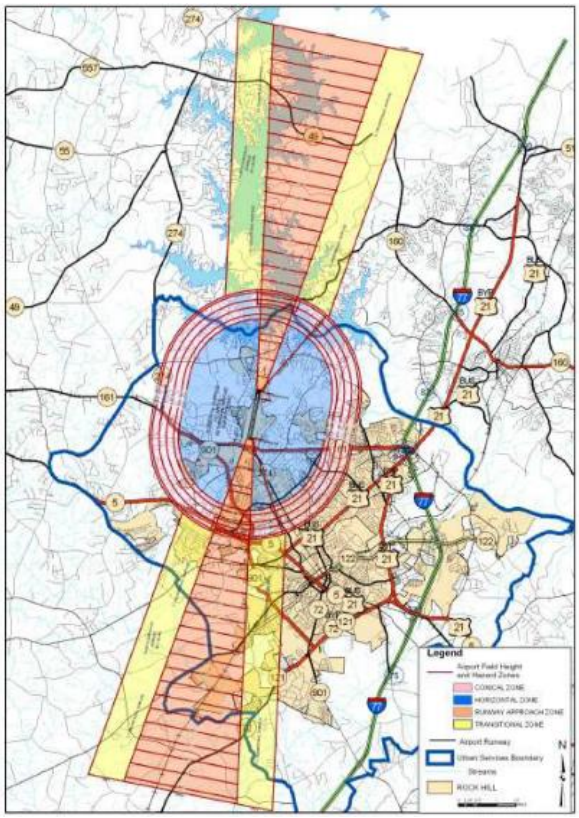
Source: Federal Aviation Administration, "FAA APO Terminal Area Forecast Detail Report," <http://aspm.faa.gov/>, accessed January 14, 2015.
Talbert, Bright & Ellington, Inc., January 2015.

Table 10.3: Facility Requirements Summary, Rock Hill-York County Airport

Facility	Existing	2016	Phase 1 2021	Phase 2 2026	Phase 3 2035
Runway 02/20	5,500' x 100'	5,500' x 100'	6,555' x 100'	6,555' x 100'	6,555' x 100'
Taxiway	1 Full-Parallel	1 Full-Parallel	1 Full-Parallel	1 Full-Parallel	1 Full-Parallel
T-Hangar Units	97	130	149	165	194
Conventional Hangar (sf)	36,900 sf	66,100 sf	84,712 sf	100,859 sf	130,050 sf
Total Apron Area (sf)	410,650 sf	76,478 sf	88,654 sf	98,507 sf	116,766 sf
Terminal (sf)	7,366 sf	7,366 sf	8,679 sf	11,264 sf	12,829 sf

Source: Talbert, Bright & Ellington, Inc., January 2015.

Based on these forecasted operations, the Airport Layout Plan calls for a range of improvements including a 6,555-foot runway and nearly 13,000 square feet of terminal area. The plan also recommends doubling the number of T-hangar units for aircraft storage by 2035.



Future Airport Development

Some additional land may be required to extend the runway as recommended in the 2016 Airport Layout Plan.

The City of Rock Hill and York County have adopted an Airport Overlay District aimed at protecting the interests of the airport and surrounding areas. This includes land use standards and restrictions for areas around the airport.

Recommendations

- RFATS should work with the Airport Commission to study whether, and how, the forecast congestion at Charlotte Douglas International Airport (CLT) will affect likely demand on the Rock Hill/York County Airport and its potential for growth.
- RFATS stakeholders should remain involved in the planning of any expansion at CLT. CLT has a major impact on both airspace management and the commercial prospects of Rock Hill-York County's public airport.
- The City of Rock Hill and York County should continue to protect citizens, businesses, and the airport itself from noise-incompatible land uses by approving development in accordance with the adopted Airport Zoning Overlay.

Introduction

This chapter outlines the growth trends and socioeconomic data used to project and evaluate future transportation needs. It also considers the human and natural environmental impacts of the recommended investments in the Long Range Transportation Plan, and discusses ways to avoid or address potential adverse impacts.

Socio-Economic Information

Metrolina Model

In an effort to understand the influence of development on transportation needs, the RFATS long range planning process includes the ongoing collection and analysis of socio-economic data and other forecasting information. These data sets are important inputs to the regional travel demand model, which encompasses the RFATS study area as well as several other Metropolitan Planning Organizations (MPOs) and Rural Planning Organizations (RPOs) (specifically a North Carolina designation) in the greater Metrolina region.

The Metrolina Regional Travel Demand Model ('Metrolina model') is divided into Traffic Analysis Zones (TAZs), which are the basic geographic units for which forecasting is conducted. A TAZ is the unit of geography delineated by state and/or local transportation officials to assess traffic-related data – especially commuting and workplace statistics. A TAZ is typically comprised of one or more census blocks, block groups, or census tracts. Based on the approximate population and employment in each Traffic Analysis Zone, the model estimates future travel demand within the RFATS area as well as a range of unique and distinct planning "sub-areas" across the Metroliona region. The model facilitates the generation of "volume/capacity ratios" that are used to identify where future traffic volumes may exceed the operating capacity of the roadway.

Data and Sources

As part of the greater Metrolina region, RFATS and adjacent planning agencies cooperatively retained the services of an economic consultant to help evaluate future socio-economic conditions (population, households, and employment per category) across the Metrolina modeling area, utilizing the 2020 Census as the basis in order to develop updated horizon year projections for every five years up to the 2055 horizon year for the LRTP, but also through 2065.

The development of this approach relies on the collection of various development status, existing and future land use designations, as well as future growth data. This data includes the U.S Census Bureau 2020 Decennial Census; Centers for Disease and Control and Prevention (CDC) data; existing and projected population of federal and state planning agencies (MPOs; RPOs, etc), and counties; Bureau of Labor Statistics, the Bureau of Economic Analysis, and the Census Quarterly Workforce Indicators; land use categories and development status (developed, agriculture, undeveloped, under-developed,

water, and permanent open space); place types (general development characteristics); and community types (urban, suburban, rural).

The economic consultant used a cohort component method to estimate projected population at the county level, and aggregated county level projections at a level to reflect the Metrolina region. The cohort component method allows for a more descriptive interpretation of factors that contribute to a county's population. Using publicly available census data and open-source statistical software, population projections were developed for the counties across the Metrolina region. As for the employment projections the project team collected historical employment data from the Bureau of Labor Statistics, the Bureau of Economic Analysis, and the Census Quarterly Workforce Indicators for 2001 to 2021.

The model employed a modified shift-share projection that incorporated how much national growth would contribute to (or reduce) county growth, how much each industry would contribute to (or reduce) county growth, and finally how aggregate growth dynamics and competitiveness (overall employment growth and industry trends across the Metrolina region) contribute to (or reduce) county growth. Although the model incorporated national growth effects, it was not a top-down model but one built on the economic dynamics of each county. To develop employment projections, the study then aligned the base model with the population projections and adjusted for known developments in the pipeline that were not reflected in current employment estimates, and the most current base year (2022) employment estimates for each county.

For the 2055 LRTP, RFATS utilized the results of the economic consultants' study for allocating the horizon year projections relating to households, population, employment, and school enrollment for the plan's "horizon years" of 2025, 2035, 2045, 2050, and 2055 within each of the respective TAZs. RFATS also coordinated with the local municipalities to review the outputs for each horizon year to verify that future development and types were in-line with their comprehensive plans and local vision. The tables that follow summarize socio-economic projections generated by the economist and federal / state planning agency input across the Metorlina region for each horizon year.

Table 11.1: Subcategories of Socio-Economic Data

Housing	Employment	School Enrollment
• Households • Population • Population in Households • Population in Group Quarters • Mean Household Income	• Total Employment • Employment - Manufacturing, Industrial, Warehouse, Transportation, Communications, Utilities • Employment - Retail • Employment - Highway Retail • Low-Traffic Service Employment • High-Traffic Service Employment • Employment - Office & Government • Employment - Bank • Employment - Education	• Students - Grades K-8 • Students - High School • Students - College

Socio-Economic ForecastTable 11.**2** summarizes the socio-economic data used in the Metrolina model for the RFATS region. Total population is expected to increase from 284,697 in 2022 to 414,601 by the year 2055, a rise of 32%. Total employment is expected to increase from 112,391 in 2022 to 201,568 in 2055, an increase of 44%. This increase is also shown in **Figure 11.1**.

Table 11.2: RFATS Area Population and Employment Forecasts

Year	Population	Employment
2022	284,697	112,391
2025	295,057	120,484
2035	334,597	147,516
2045	373,546	174,458
2050	393,829	188,182
2055	414,601	201,568

Figure 11.1: RFATS Area Housing, Population and Employment Forecasts

On the following pages, **Figures 11.2 – 11.5** show the geographic distribution of growth in population and employment in each traffic analysis zone (TAZ) within the RFATS Study Area between 2022 and 2055.

Figure 11.2: 2022 Population by Traffic Analysis Zone

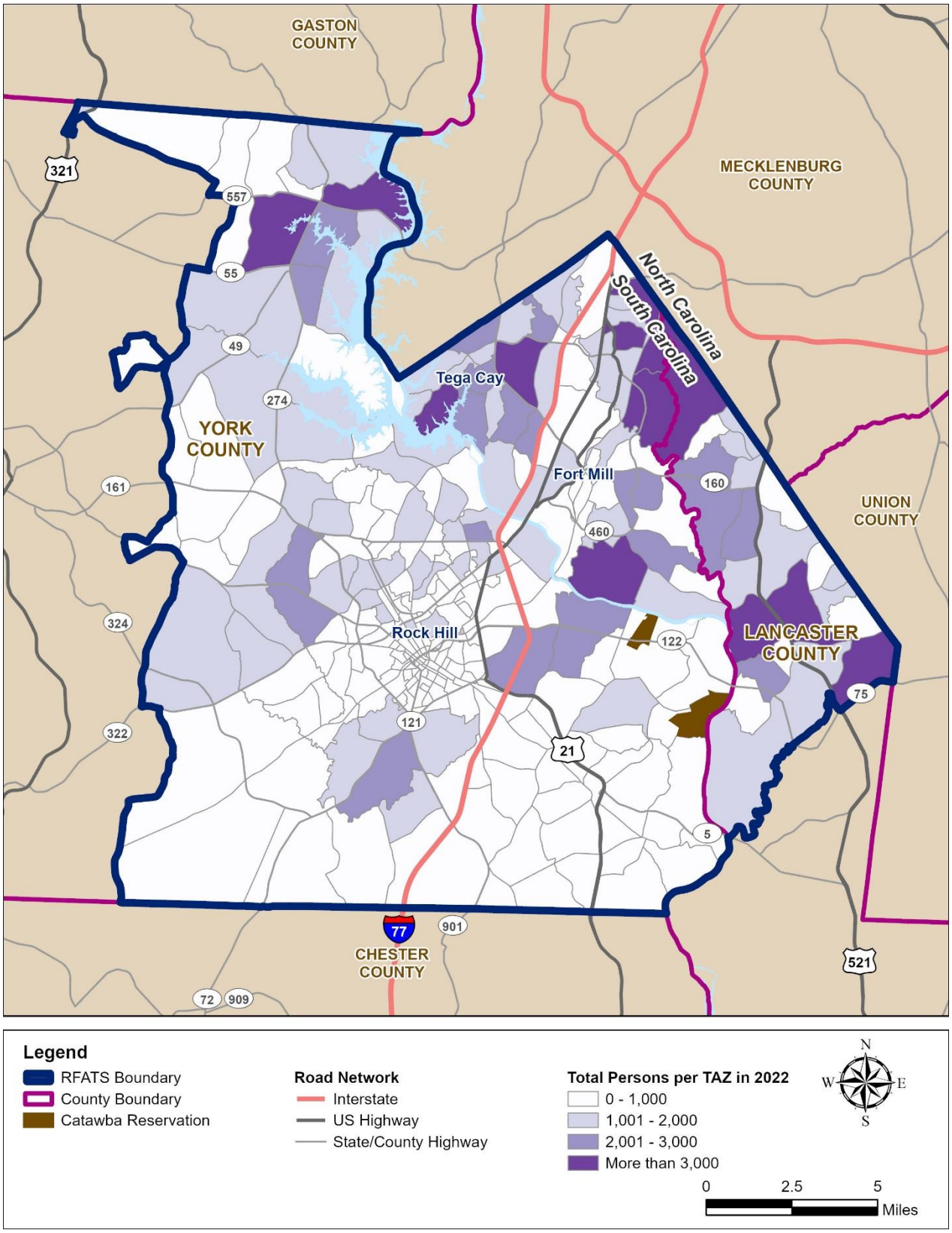


Figure 11.3: 2055 Projected Population by Traffic Analysis Zone

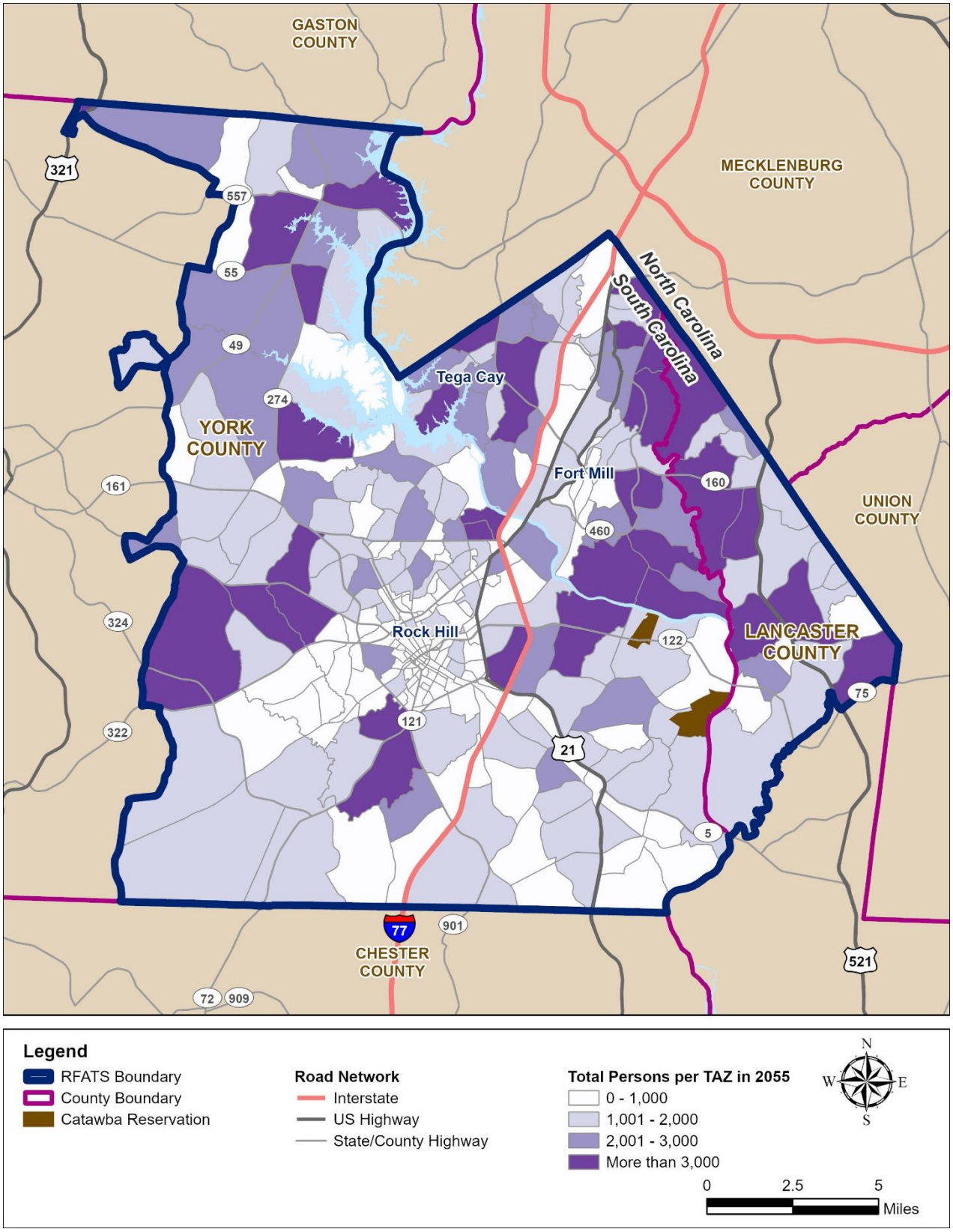


Figure 11.4: 2022 Employment by Traffic Analysis Zone

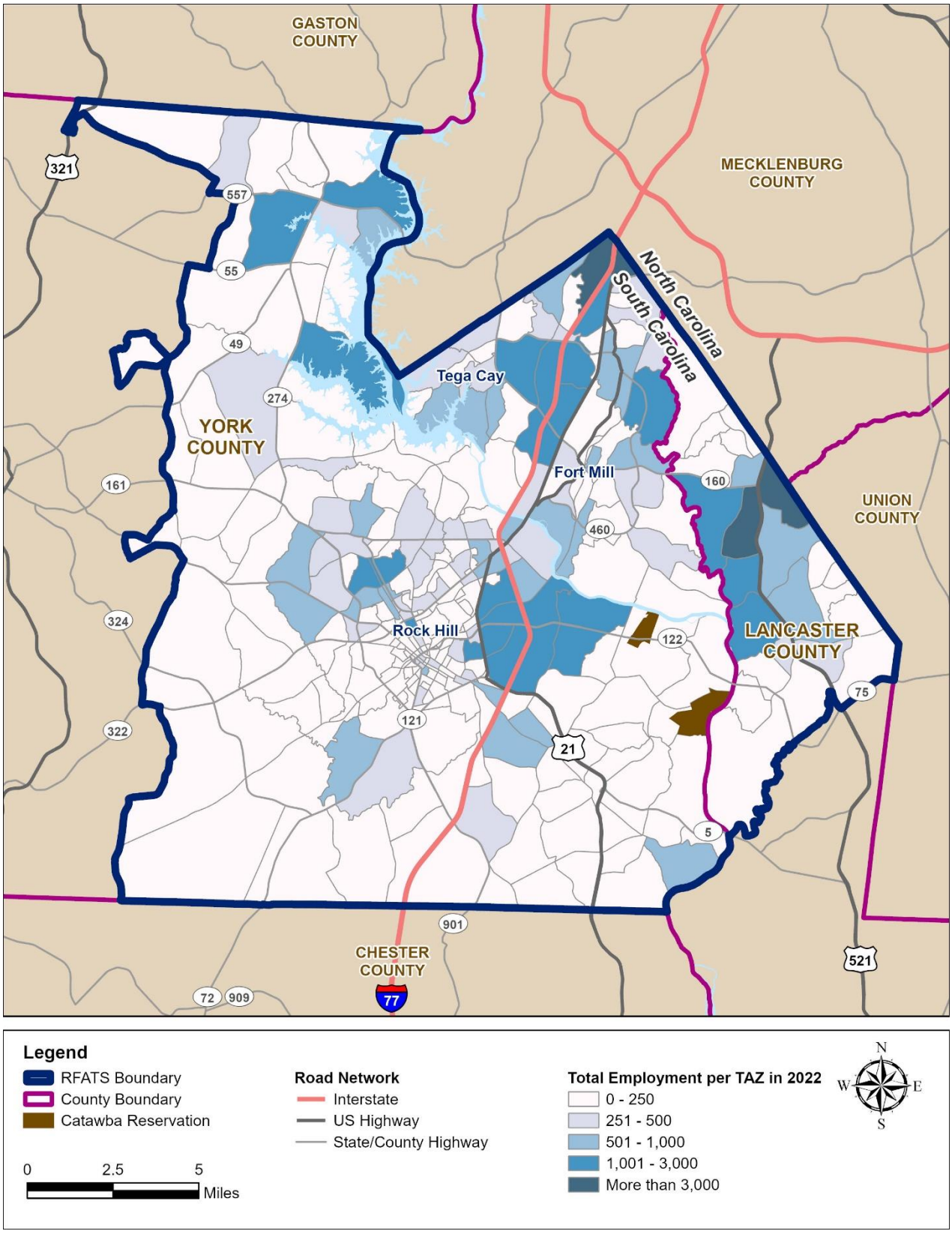
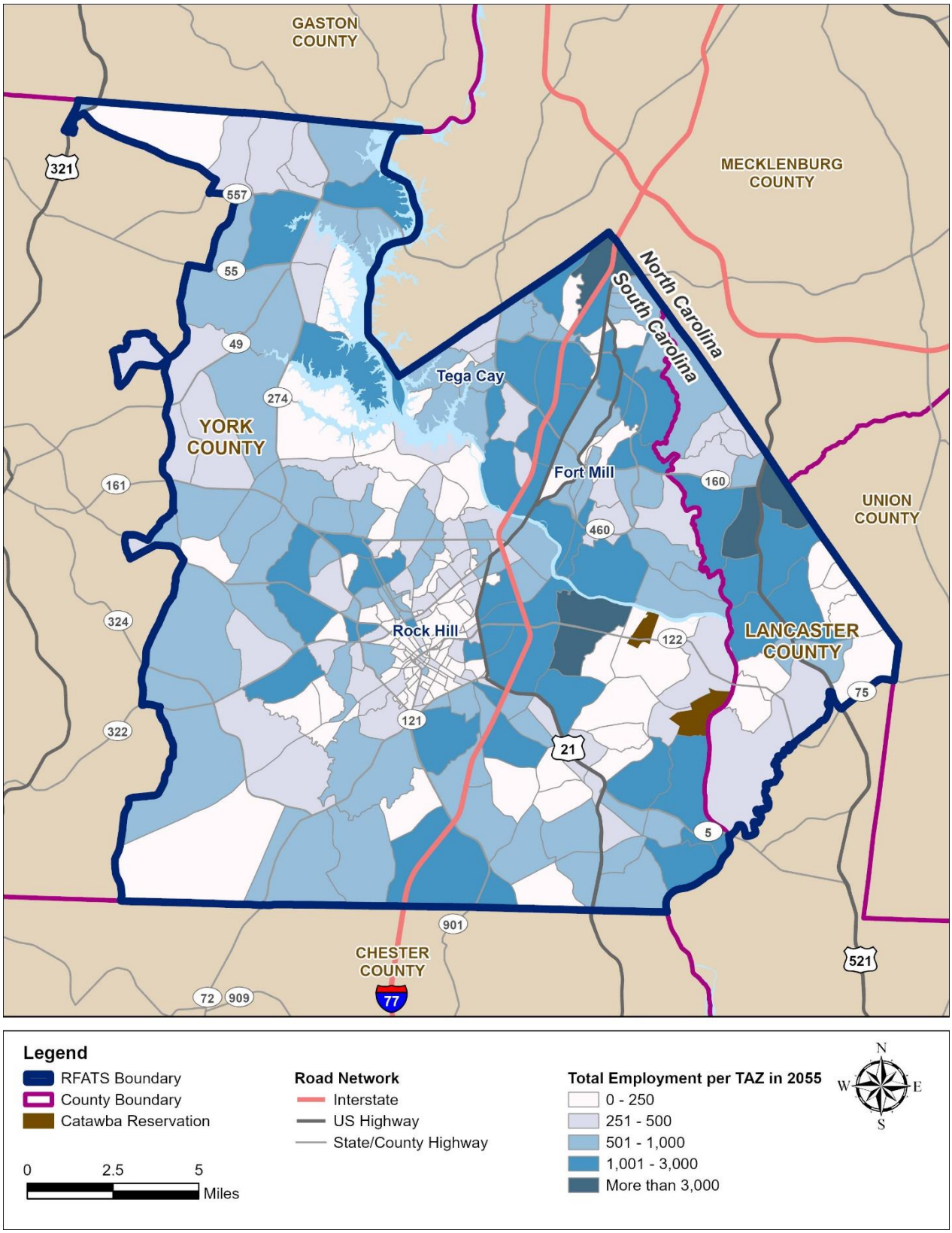


Figure 11.5: 2055 Projected Employment by Traffic Analysis Zone



Potential Impacts of the 2055 Plan

Projects included in the 2055 LRTP vary in scope from minor improvements to widening of major corridors. This section identifies areas where projects may impact sensitive natural and/or cultural resources, outlines potential impact types, and discusses planning-level policies and strategies that can be used to mitigate these impacts.

This section also assesses the extent to which the 2055 LRTP addresses the principles of the U.S. Executive Order on Environmental Justice. Geographic analysis is performed for proposed transportation investments to identify whether they could cause disproportionate impacts to minority or low-income populations through direct effects or due to a lack of transportation investment.

Environmental Screening and Mitigation

This section presents an overview of known environmentally sensitive areas in relation to the proposed projects and programs in the 2055 LRTP. This information can be used to assist in the project development process once a project has moved from the planning stage to the programming stage (the Transportation Improvement Plan, or TIP) for project implementation. Incorporating environmental considerations early in the transportation planning process helps to streamline project development by providing background information about potential impacts and mitigation costs.

As described in Chapter 4 (Roadways), one of the factors used to rank a proposed transportation project is its potential impacts to environmental, social, and cultural resources. This includes identifying major environmental impacts that diminish a project's feasibility.

The screening is not intended to replace a thorough evaluation of each project as it progresses. Most projects will require a more detailed environmental assessment as the project enters the development phase. Some of the projects listed in the LRTP have progressed beyond the design phase. For these projects, necessary environmental reviews and approvals have already occurred.

Air Quality Impacts

A dominant environmental issue for transportation project planning is the expected impact on air quality. Vehicles that use fossil fuels produce chemical compounds that contribute to local air pollution. The amount of pollution generated by traffic typically increases with the number of miles being driven in the area as well as by driving conditions (e.g., stop-and-go traffic has been shown to produce higher levels of pollution).

Along with a number of adjacent planning partners within the broader Metrolina region, the RFATS region was designated as a "non-attainment area" for ground level ozone

back in 2004. In the years that have followed, RFATS has implemented a series of targeted improvements to decrease adverse impacts to air quality. In January 2016, the Environmental Protection Agency (EPA) officially recognized these efforts and re-designated RFATS as a "maintenance area" for ground level ozone. This classification indicates that progress has been achieved and that there will be continued monitoring of transportation programs and project activity. This is commonly referred to as "transportation conformity", which means that RFATS will complete a comprehensive evaluation of planned improvements to ensure their compliance with applicable air quality standards over the duration of the 2055 Long Range Transportation Plan. This is documented in the "Conformity Demonstration Report", which is available from RFATS upon request.

Other Impacts

Roadway projects also have the potential to produce adverse environmental impacts through land clearing and grading, modification of natural drainage, increasing stormwater runoff, and generation of traffic. In addition, major roads can serve as barriers within and across communities, affecting the way residents can travel and interact. It is also possible for the *absence* of roadway investment to have negative economic impacts within a community.

Sidewalks and bicycle facilities generally have relatively low negative impacts because of their small cross-sections and greater flexibility to avoid problem areas. They often have very positive effects, especially in areas where many people do not have ready access to a vehicle, because they provide safe facilities to make trips on foot or by bicycle.

Transit improvements that require only bus route and service expansions typically have minimal negative impacts. Dedicated fixed-guideway systems, such as the proposed bus rapid transit service, are likely to have greater environmental impacts and are typically evaluated in the same way as roadway projects. Generally, transit projects have a positive impact on the overall system by offering an additional mode choice and increasing the accessibility of the transportation network.

Consultation with Resource Agencies

To prepare this planning-level screening, RFATS consulted plans, geographic data, and other information from various agencies responsible for resource management and development. These include the South Carolina Department of Environmental Services (SCDES); SC Department of Natural Resources (DNR); SC Department of Fish & Wildlife Services; and EPA.

Items of note reviewed during this process included an environmental summary of natural resources and advisory guidance regarding identified endangered species within the planning area. The draft LRTP was also sent to agency representatives to provide an opportunity for comments and additional information.

Natural and Cultural Resources

The planning area includes a variety of natural and cultural resources that should be considered when evaluating transportation projects. The Catawba River corridor and Lake Wylie provide unique natural habitats for a variety of species as well as recreational opportunities for residents and visitors alike. The U.S. Fish and Wildlife Service has not identified any critical habitat within the area, but there are nine species of concern which may be present within the planning region:

- Carolina Heelsplitter clam (endangered)
- Red-cockaded Woodpecker (endangered)
- Northern Long-Eared Bat (threatened)
- Dwarf-Flowered Heartleaf plant (threatened)
- Little Amphianthus plant (threatened)
- Schweinitz's Sunflower plant (endangered)
- Michaux's Sumac plant (endangered)
- Smooth Coneflower plant (endangered)
- Black Spored Quillwort (endangered)

The area is also home to many historic and cultural resources, including parks, several historic districts (such as downtown Fort Mill and Old Town in Rock Hill), and numerous individual historic buildings. The Bi-State Carolina Thread Trail that crosses the area is a burgeoning cultural resource due to the natural and recreational landscapes it traverses.

The presence of the Catawba Nation is also an important cultural asset. The Catawba Cultural Center, located on the Catawba Reservation, presents tours and programs.

Bethel Presbyterian Church
(Photo: Bill Fitzpatrick)

The Bethel community in the northwest part of the RFATS planning area is one of the oldest in York County, having developed around Bethel Presbyterian Church (founded in 1764). The church, which is just outside the RFATS Study Area, was added to the National Register of Historic Places in 1980. Development around Lake Wylie is rapidly changing the rural character of this community. In addition, a 1992 inventory conducted by the South Carolina Department of Transportation identified a number of individual sites which are considered eligible for National Register nomination. These include Hill's Iron Works on Highway 264 at Allison Creek, where weapons were produced during the Revolutionary War. The ore for the iron works was mined at nearby Nanny's Mountain, making this another significant

property. This mountain has been purchased by York County for public recreation. There are also several abandoned cemeteries in the area.

Rock Hill has a variety of cultural resources. These include the Museum of York County, Winthrop University, York Technical College, Clinton Junior College, the Rock Hill Telephone Company Museum, Cherry Park, and the relatively new Center for the Arts. Within or near the City of Rock Hill, there are currently five historic districts, one historic complex, and fifteen individual sites on the National Register. The 1992 survey recommended that additional sites and historic districts be added to the Register and listed other sites as being worthy of additional investigation. This area also includes a number of abandoned cemeteries.

The cultural resources in and around the town of Fort Mill and the City of Tega Cay reflect the recent rapid growth in these areas. In addition to neighborhood parks, Confederate Park serves as a town square for Fort Mill and includes monuments to both members of the Catawba Nation and soldiers who died in the Civil War. The Anne Springs Close Greenway property, a protected natural area north of Fort Mill, includes several historically-significant buildings. In Fort Mill, National Register listings include the Downtown Historic District, the Unity Presbyterian Church Historic District, and ten individual listings. The 1992 survey recommended adding one additional listing and identified a number of other structures as worthy of further consideration.

Near Fort Mill, the prehistoric and historic site of Spratt's Bottom is located on the Catawba Valley floodplain. Nauvasee, the main village of the Catawbas, was located less than a mile to the south of Fort Mill. There are also several abandoned cemeteries in this area.

There are a number of historically significant sites within the panhandle of Lancaster County. These include:

- The Old Six Mile Creek Presbyterian Church and Cemetery (circa 1800), located near the intersection of US 521 and Six Mile Creek Road;
- Sumter's Camp at Clems Branch (circa 1780), located on Harrisburg Road near Barberville Road, a Revolutionary War site which is included in the National War Memorial Registry;
- Culp House (circa 1860), located on Harrisburg Road near the intersection of SC 160; and
- Chaney Tavern site (circa 1800), located near the northeast quadrant of the intersection of US 521 and SC 75.

Natural resources in the panhandle area include a branch of Twelve Mile Creek Trail located north of SC 75 which provides a connection to the Twelve Mile Creek Greenway in Waxhaw, NC. A 170-foot suspension bridge links the Twelve Mile Creek trail in SC to a segment of the trail in Waxhaw, NC, thereby connecting the two states by trail.

Analysis of Potential Resource Impacts

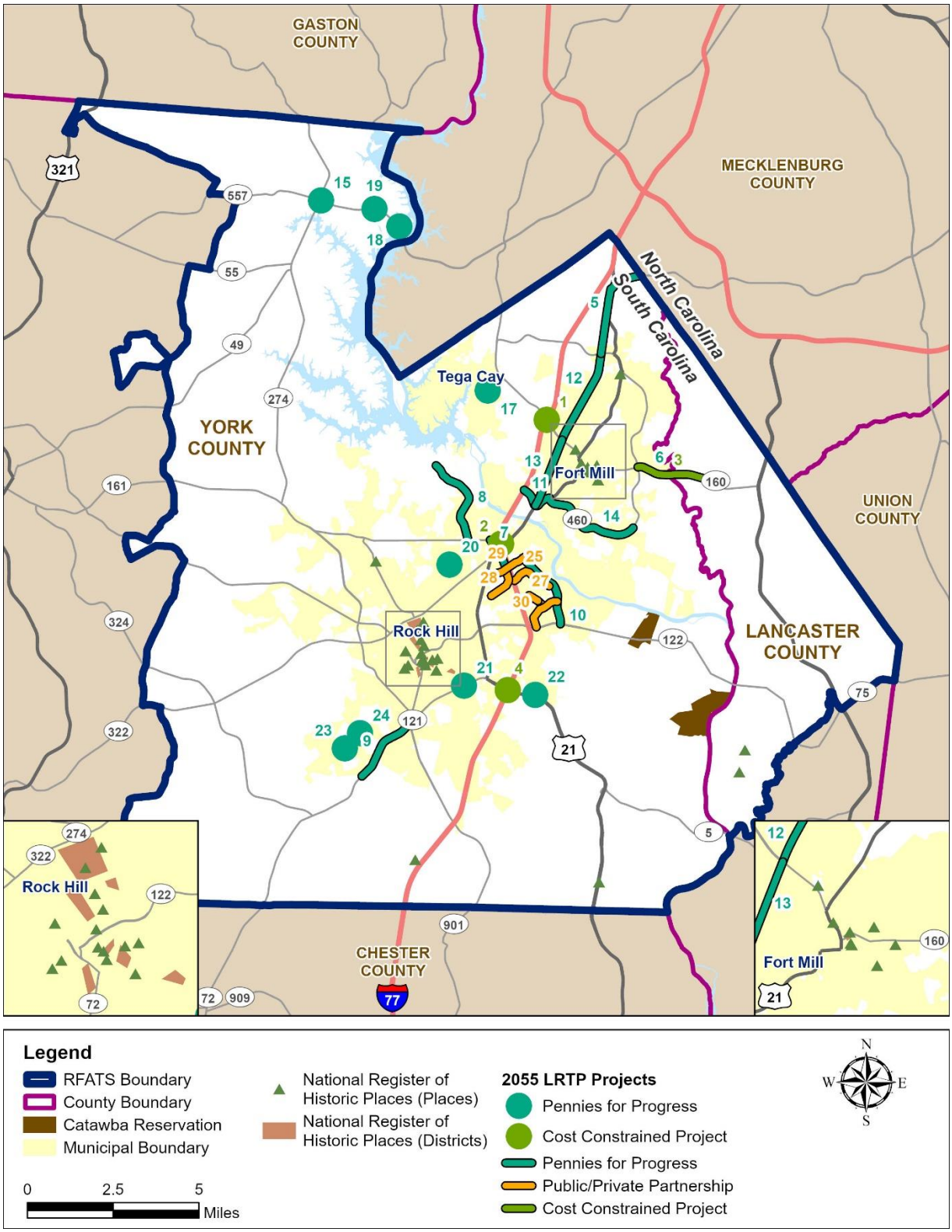
Figures 11.6 and **11.7** show the location of proposed projects in the 2055 LRTP in relation to known natural and cultural resources that may be sensitive to impacts. Through the high-level environmental

screening process, no major project-related impacts to cultural resources were identified; however, further analysis will be required through the National Environmental Policy Act (NEPA) process. Projects with potential impacts to natural resources (primarily floodplains and/or wetlands larger than one acre) are shown in **Table 11.3**.

Table 11.3: Projects with Potential Impacts to Natural Resources

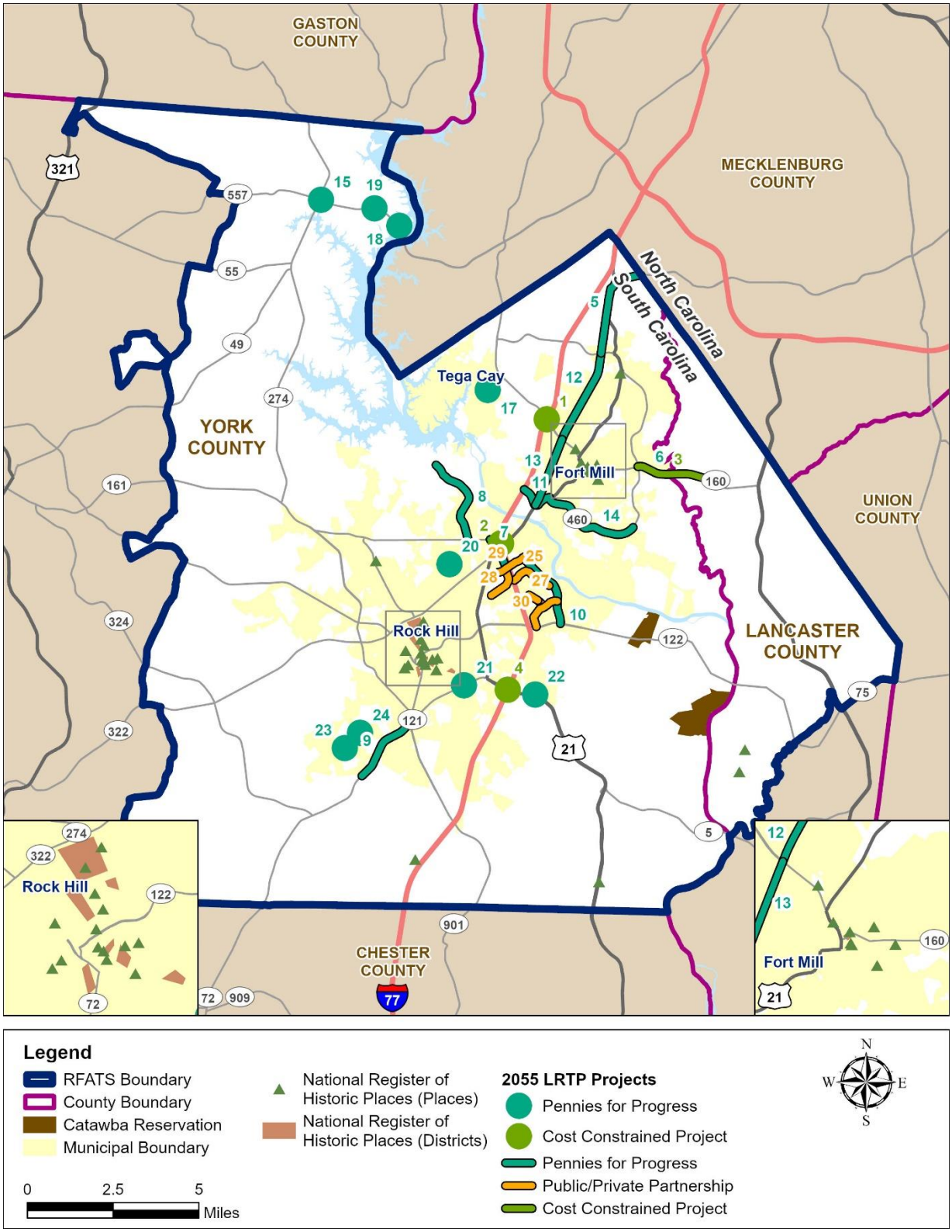
Project ID	Route	Project Description
3	SC 160 Widening	(Rosemont / McMillan to Springfield Parkway) - 5 Lanes
6	SC 160 East	Springfield Parkway to Lancaster County Line - 3 Lanes
8	Mt Gallant Road	Celanese to Twin Lakes Road - 3 Lanes

Figure 11.6: 2055 LRTP Projects in Relation to Sensitive Natural Resources



Sources: US Fish and Wildlife Service, National Hydrography Dataset, FEMA National Flood Hazard Layer

Figure 11.7: 2055 LRTP Projects in Relation to Sensitive Cultural Resources



Sources: National Parks Service

Potential Mitigation Strategies

Mitigation measures aim to avoid or minimize a project's impact on the environment. These measures can include one or more of the following:

- Avoiding the impact through the development of alternatives that either avoid the resource altogether or in implementing a specific element that avoids the resource,
- Minimizing impacts by limiting the degree or size of a project element,
- Rectifying the impact by repairing, rehabilitating or restoring an environment that has been affected,
- Reducing or eliminating the impact over time through preservation and maintenance operations during the life of the project, and
- Compensating for the impact by replacing or providing substitute natural resources or environments.

Not every project will require the same level of mitigation. All impacts on environmentally sensitive areas will be analyzed on a project-by-project basis to determine which mitigation strategies are appropriate.

Climate Change

Other environmental concerns relate to the effects of the built environment on the earth's climate. There is general scientific consensus that the earth is experiencing a warming trend and that human-induced increases in atmospheric greenhouse gases (GHGs) are the leading cause. The combustion of fossil fuels is the biggest source of GHG emissions. According to the United Stated Environmental Protection Agency (EPA), nearly 30 percent of GHG emissions in the United States are from transportation sources.

Because greenhouse gas emissions from transportation sources (fuel combustion and vehicle air conditioning systems) account for a large percentage of the nation's total GHG emissions, the transportation sector will play a large role in the ongoing discussion of GHG reduction goals. Strategies to reduce transportation GHG emissions include:

- **Introduction of low-carbon fuels.** The advantages of using alternative fuels include lower carbon content and the generation of fewer GHG emissions. Currently available alternative fuels include ethanol, biodiesel, natural gas, liquefied petroleum gas, low-carbon synthetic fuels (such as biomass-to-liquids), hydrogen, and electricity.

- **Increasing vehicle fuel efficiency and use of alternative fuels.** GHG emissions can also be reduced through vehicle improvements that allow less fuel to be used per mile traveled. Fuel efficiency improvements include advanced engine and transmission design, lightweight materials, improved aerodynamic design, and reduced rolling resistance.

- **Improving transportation system efficiency.** This group of strategies seeks to improve the operation of the transportation system through reduced vehicle travel time, improved traffic flow, decreased idling, and other efficiency improvements that result in lower energy use and GHG emissions. The 2055 LRTP recommends continued implementation of projects to improve traffic flow through signal system upgrades and intersection modifications. Efficiency can also be improved by shifting travel to more efficient modes when practical in terms of price and convenience (e.g. passenger vehicle to bus or truck to rail).

- **Reducing carbon-intensive travel activity.** This group of strategies seeks to influence travelers to shift to more efficient modes, increase vehicle occupancy, eliminate the need for some trips, or take other actions to reduce energy use and GHG emissions associated with personal travel. The 2055 LRTP proposes to increase the frequency and availability of public transit and continue to support ridesharing. Projects to improve and expand pedestrian and bicycle infrastructure will also provide more opportunities for sustainable travel.

Adapting to Climate Change Impacts

Climate change is likely to impact transportation infrastructure through increases in severe weather events and extreme temperatures. As a result, the LRTP has considered strategies to mitigate and adapt to these impacts as part of the planning process. The climate change challenges most likely to impact transportation infrastructure are:

- Increases in the number of very hot days and heat waves;
- Increases in Arctic temperatures;
- Increase in air quality issues related to ground-level ozone;
- Increases in the number of intense precipitation events; and
- Increases in hurricane intensity.

The transportation system in the RFATS region will be affected by more intense and longer lasting heat waves as well as by increases in the intensity of precipitation events. Both of these issues are further discussed below.

Managing Stormwater Impacts

The Long Range Transportation Plan also considers ways to reduce or mitigate stormwater impacts on surface transportation. Rapid flooding can occur when precipitation falls at an elevated rate or quantity. This is particularly common in urban areas where more of the earth's surface is paved and there is less opportunity for runoff to be absorbed, and urban areas across the country are experiencing more frequent flooding and other stormwater issues. Potential strategies for reducing stormwater- or flooding-induced damage include:

- Restricting development of floodplains along rivers and creeks to open space, greenways and other uses that can withstand periodic flooding. For example, the zoning ordinance of Evansville, Indiana, permits only some agricultural and public recreation uses.
- Installing real-time weather and hydrologic data monitoring equipment at area bridges to notify transportation and emergency agencies when they may need to check a particular location for flooding, scouring, or other problems. For example, the National Weather Service currently operates 9 river observation points within the RFATS region, but none of these are currently equipped for forecasting.

Flooding on Dave Lyle Boulevard, May 2016
(Photo by Jeff Sochko, Special to The Herald)

- Increasing the resources allocated to critical ongoing road maintenance activities such as street sweeping and clearing of clogged storm drains. Regular maintenance can reduce the risk of road closures or hazards from flooding. For example, the City of Florence, South Carolina has a preventative maintenance plan for its stormwater collection. These activities include ditch maintenance and clearing, routine street sweeping, and regular monitoring of "hot spots".

Improving Resiliency to Other Transportation System Impacts

Intense heat is damaging to transportation infrastructure, causing kinks in steel rails, placing stress on bridge joints, and softening asphalt. On routes with a large percentage of heavy truck traffic, it is not uncommon to see the roadway become rippled at the approaches to intersections. This damage is caused by the force of braking trucks on hot asphalt, and sustained heat waves can result in more frequent road maintenance.

Under the FAST Act, MPOs are charged with planning transportation infrastructure resilience. This can entail undertaking large-scale efforts to rebuild an important facility that could be impacted by climate change or building a new road or bridge as an alternative to that facility.

There are also relatively small decisions that can be made by individual agencies to increase system resiliency as they replace or upgrade equipment. For example, some traffic signals are activated by loop detectors. These are metal loops embedded in the pavement at an intersection that detect when a vehicle is located directly above. Loops embedded at intersections in an asphalt road can be easily damaged and broken on a hot day when the asphalt partially softens. If local temperatures rise, the region could experience more frequent loop damage. Rather than continue to repair and replace the loops, some cities are switching to alternatives, such as video, radar detection, or adaptive signal control technology.

Environmental Justice and Title VI

Environmental Justice (EJ) legislation originated in Title VI of the 1964 Civil Rights Act. This Act and subsequent legislation aim to ensure that services and benefits are fairly distributed to all people, regardless of race, national origin, or income, and that all people have access to meaningful participation.

Environmental Justice Executive Order (EO) 12898 calls for identifying and addressing disproportionately high and adverse human health or environmental effects of programs, policies and activities on minority and low-income populations. This includes metropolitan transportation plans that use federal funds to accomplish their goals.

A disproportionately high and adverse effect is one that is:

- Predominantly borne by a minority and/or low-income population; or
- Suffered by a minority and/or low-income population more severely or in greater magnitude than the adverse effect suffered by the non-protected population.

Disproportionately high and adverse effects are not determined solely by the size of the population, but rather by the comparative effects on these populations in relation to either non-minority or higher income populations. In this EJ assessment, U.S. Census data was used to identify the demographics of the area in order to recognize potential "communities of concern." Communities of concern are areas where the percentage of low-income households or minorities is greater than that of the entire MPO area.

It is important to note that the determination of what is disproportionately high and adverse human health or environmental effect is context-dependent. All block groups/tracts include some members of protected populations, and the approach used here is based only on Census data and the proportion of protected populations that they contain. As each project enters the development process, additional local knowledge of individual neighborhoods should be used to identify potential communities of concern that may not have been identified through this quantitative analysis.

Understanding the likelihood that a given project will have disproportionately high and adverse effects is crucial to calculating the likelihood that a project will be constructed as well as how and where it will

be constructed. For federally funded projects, the design alternatives that avoid and minimize impacts to these populations can advance through the NEPA process and become preferred alternatives that advance to a more detailed level of design and potentially construction. The alternatives that have disproportional impacts will not.

Analysis

Minority Persons

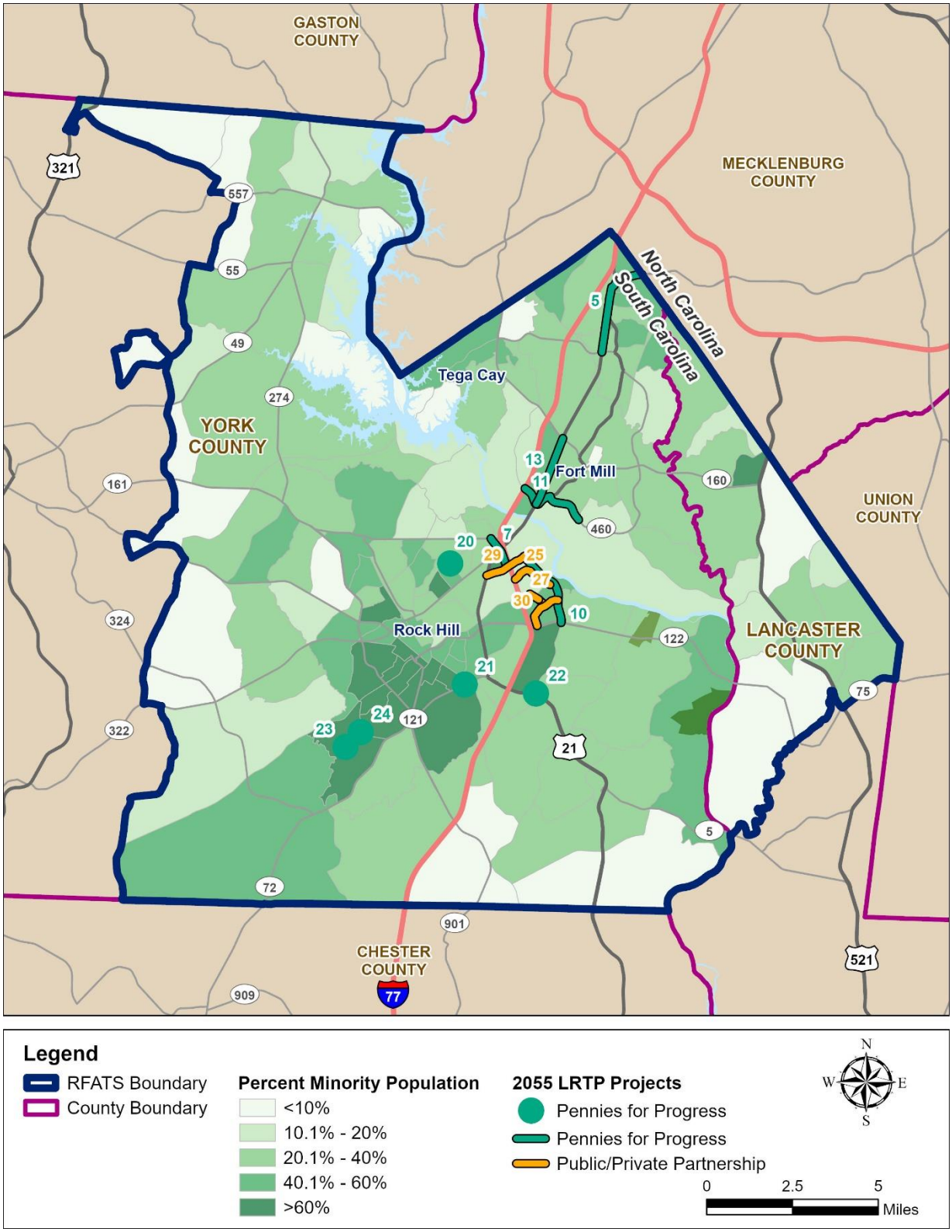
In this analysis, estimates of the minority population were obtained from Census data based on two types of survey responses: (1) persons identifying themselves as African American, Asian American, American Indian and Alaskan Native, Native Hawaiian or Other Pacific Islander; and (2) persons identifying themselves as being of Hispanic or Latino origin. The two categories are not mutually exclusive.

Figure 11.8 shows the distribution of minority populations in the RFATS Study Area in relation to the locations of projects proposed in the 2055 LRTP. A complete list of the projects proposed can be found in Chapter 4. **Table 11.4** lists only the proposed projects (also provided in Figure 11.8) within the potentially affected communities in Block Groups with a relatively high percentage of minority residents as determined in this analysis.

Table 11.4: Projects with Potential Impact on Minority Communities

Project ID	Location	Project Description	Funding Type
5	US 21 North Phase I & SC 51	Springfield Parkway to NC State Line - 5 Lanes	Pennies for Progress
6	Riverview Road	Eden Terrace to Celanese Road - 3 Lanes	Pennies for Progress
10	Cel River / Red River	Eden Terr to Dave Lyle Blvd – 5 Lanes	Pennies for Progress
11	Sutton / Spratt / FMSB	I-77 to CSX Railroad – 5 Lanes	Pennies for Progress
13	Fort Mill Parkway	Railroad bridge to Holbrook Road – 5 Lanes	Pennies for Progress
20	Ebinport Rd / Marrett Blvd	Intersection Improvements	Pennies for Progress
21	Albright Rd / Black St	Intersection Improvements	Pennies for Progress
22	US 21 / Springdale Rd	Intersection Improvements	Pennies for Progress
23	Neely Rd / Robertson Rd	Intersection Improvements	Pennies for Progress
24	Neely Rd / Rawlsville Rd	Intersection Improvements	Pennies for Progress
25	New Roadway Segment #1	Connect Corporate Blvd / Cel-River Rd / and Commerce Dr	Public/Private Partnership
26	New Roadway Segment #2	Connect Commerce Blvd and Galleria Blvd	Public/Private Partnership
27	New Roadway Segment #3	Connector across the Railroad between the Paragon Way and Galleria Blvd	Public/Private Partnership
29	Eden Terrace	Anderson Road to Dunkins Ferry	Public/Private Partnership
30	Galleria Blvd	Meeting Blvd and Cel-River Rd @ Waterford Extension	Public/Private Partnership

Figure 11.8: 2055 LRTP Projects in Block Groups to Areas of Minority Communities



Source: American Community Survey 5-Year Estimates (Table B03002, 2022)

Low-Income Households

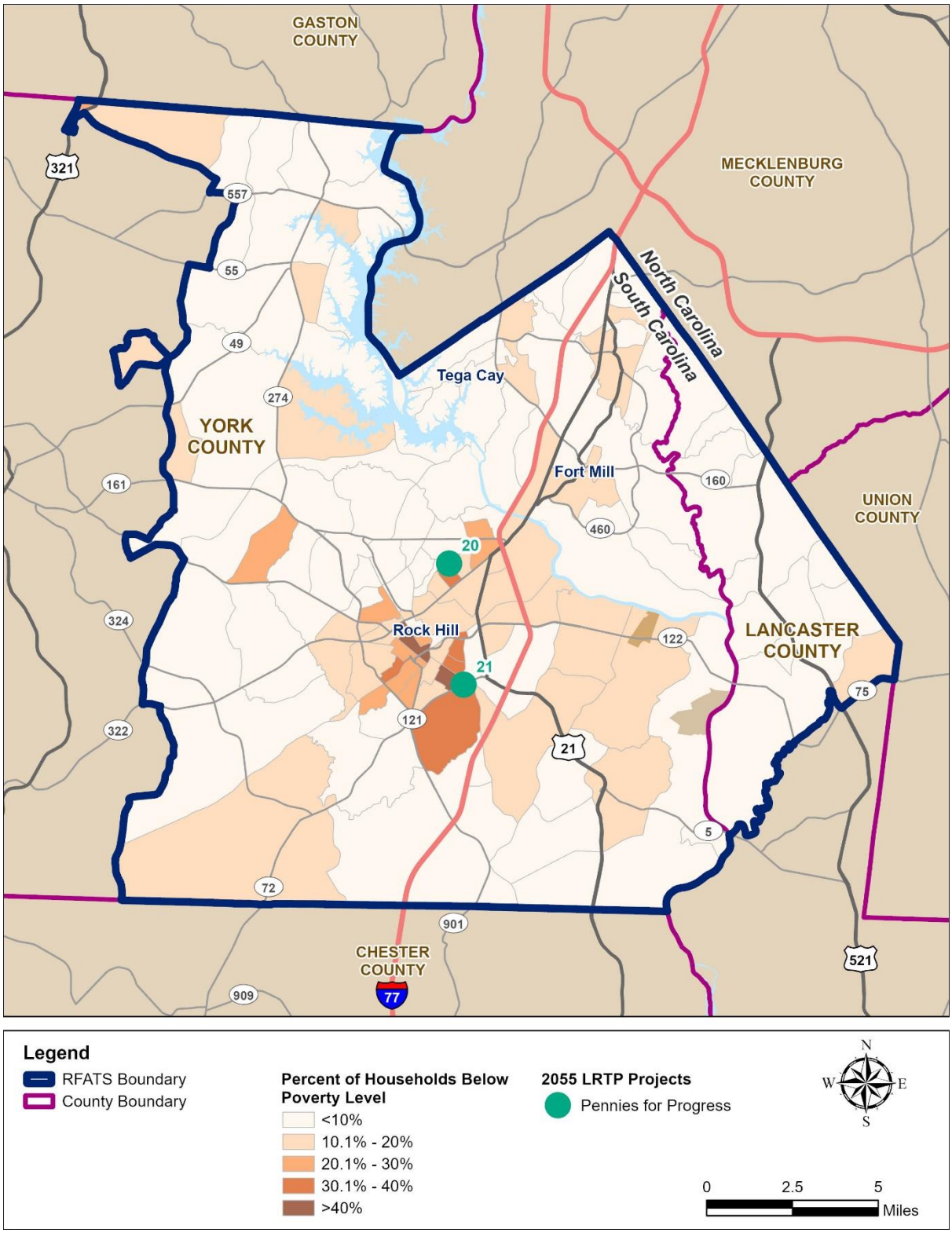
For purposes of this analysis, low-income households are defined as those whose income is at or below the Department of Health and Human Services poverty guidelines. Although these guidelines are referenced in the EJ Executive Order as the standard, they are actually simplified from the U.S. Census Bureau's poverty thresholds on which this plan's analysis is based. The Census Bureau's determination of whether a household is living at or below the poverty level uses a set of dollar value thresholds that vary by family size and composition.

Figure 11.9 shows the distribution of low-income households in the RFATS Study Area in relation to the location of projects proposed and/or otherwise included in the 2055 LRTP (e.g., locally funded Pennies projects). **Table 11.5** lists two projects identified in Figure 11.9 with the potentially affected communities within Block Groups with a relatively high percentage of low-income residents as determined in this analysis.

Table 11.5: Projects with Potential Impacts on Low-Income Persons

Project ID	Location	Project Description
20	Ebinport Rd / Marrett Blvd	Intersection Improvements
21	Albright Rd / Black St	Intersection Improvements

Figure 11.9: 2055 LRTP Projects in Block Groups with Low-Income Households



Source: American Community Survey 5-Year Estimates (Table B17017, 2022)

Households with Limited English Proficiency (LEP)

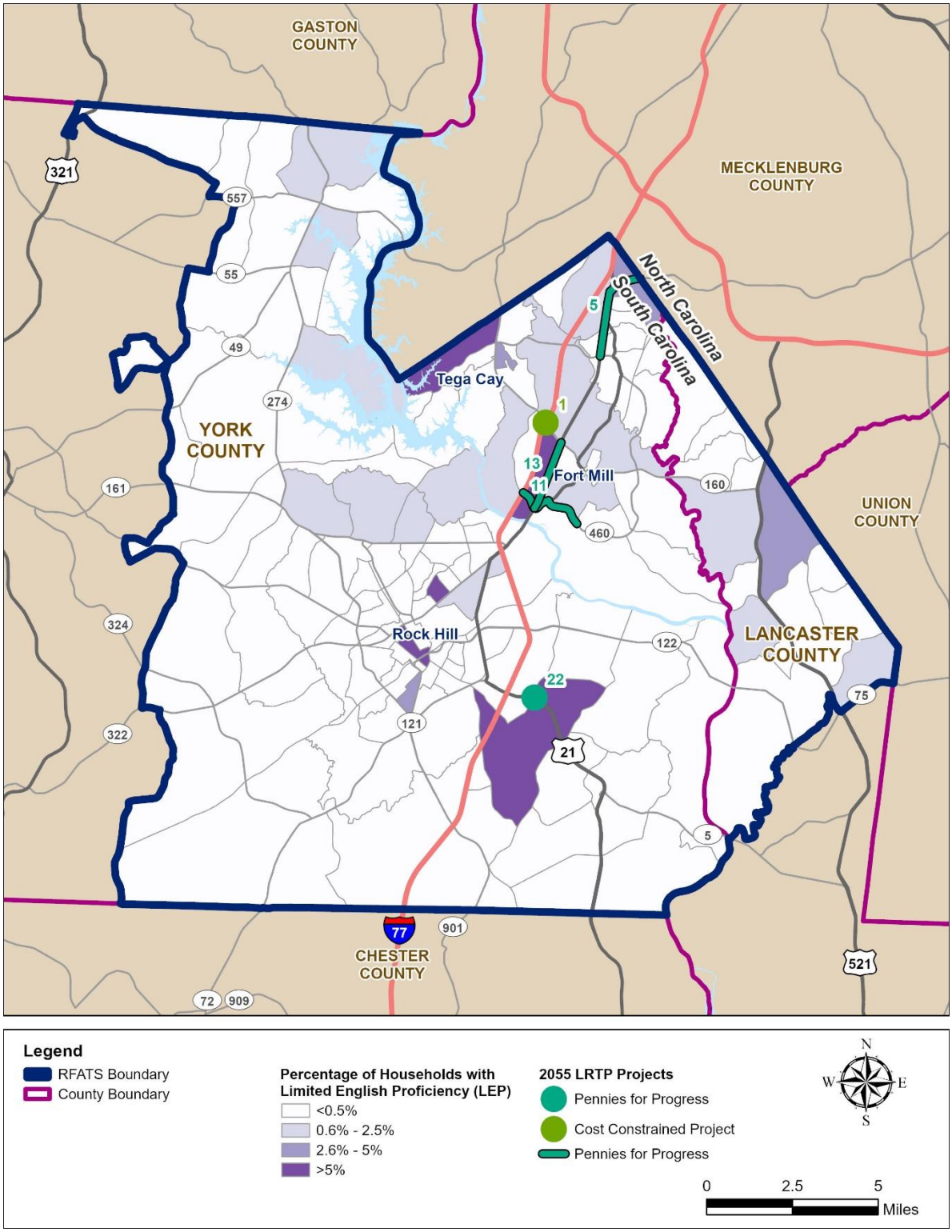
The U.S. Census Bureau definition of Limited English Proficiency applies to adults who indicate they speak English less than 'very well.' Given the low percentage of LEP in the region, broad measures such as translating all documents and providing interpreters for all RFATS public meetings may not be warranted. However, a review of the data does show some locations where adults with LEP make up at least five percent of the total adult population of a given Census block. (**See Figure 11.10**.)

When projects are under development in these areas, RFATS, SCDOT and other responsible agencies could consider targeted outreach requiring that an interpreter attend public meetings. **Table 11.6** lists those projects.

Table 11.6: Projects in Block Groups with High LEP Populations

Project ID	Location	Project Description
1	SC 160 / I-77	Interchange Reconfiguration
5	Riverview Road	Eden Terrace to Celanese Road - 3 Lanes
11	Sutton / Spratt / FMSB	I-77 to Railroad – 5 Lanes
13	US 21	Sc 160 to Sutton Rd – 5 Lanes
22	US 21 / Springdale Rd	Intersection Improvements

Figure 11.10: 2055 LRTP Projects in Relation to Areas of Persons with Limited English Proficiency



Source: American Community Survey 5-Year Estimates (Table C16002, 2022)

Introduction

Purpose of Chapter

The purpose of the Financial Plan is to demonstrate that the costs of proposed transportation improvements identified in the RFATS 2055 Long-Range Transportation Plan are consistent with projected revenues. Transportation needs in most localities, if not all, far exceed funding resources available. For this reason, federal legislation requires financial planning to be performed as a component of Long-Range Transportation Plans. Plans must be "fiscally constrained," meaning that the costs of proposed improvements do not exceed the projected revenue stream.

This chapter provides an overview of projected revenues and costs, applicable assumptions (e.g., projected implementation, inflationary assumptions, etc.), and demonstrates that the proposed LRTP is fiscally constrained. Project costs have been developed at the planning level and will likely change as a project enters the formal development process, when more information becomes available about right-of-way, utilities, and other related factors. All project costs and assumptions provided should be re-evaluated in future plan updates.

Federal Funding Sources

Surface Transportation Block Grant Program (Guideshare)

Surface Transportation Block Grant (STBG) funds can be used for a broad range of transportation improvements including roadways, intersection upgrades, intelligent transportation system enhancements, transit, freight, as well as bicycle / pedestrian projects, among others.

A portion of the STBG funds distributed to the South Carolina Department of Transportation (SCDOT) are made available for transportation investments anong the state's Metropolitan Planning Organizations (MPOs).

SCDOT sets aside funds each year and then distributes this funding among the state's Metropolitan Planning Organizations (urbanized areas) and Councils of Government (rural areas). The allocation formula is based on the population totals within the urban and rural areas and/or region. RFATS current annual allocation is approximately $12.411 million dollars.

Projects Exempt from the SCDOT Guideshare

Certain projects are funded on a statewide basis through federal programs other than Guideshare. These include improvements on the Interstate

Highway System, for which SCDOT takes the lead to identify and address system needs. Other projects in this category include bridge replacements, resurfacing, safety and other statewide programs. Such projects are described in the RFATS Transportation Improvement Program as "exempt from Guideshare."

Transportation Alternatives

The Transportation Alternatives Program (TAP) or Transportation Alternatives (TA) as it is commonly known, is considered a set-aside of the Surface Transportation Block Grant (STBG) program. The RFATS region receives an annual allocation of TA funds from SCDOT to implement improvements to facilities for bicycles and pedestrians.

MPOs are able to use up to 50% of sub-allocated TA funds to any STBG-eligible purpose so long as a competitive project selection process is maintained. This includes activities that would have been funded under the Safe Routes to School program (since rolled into TA). State DOTs and MPOs produce annual reports detailing the applications for and projects that received TA funding.

Congestion Mitigation and Air Quality Improvement Funds

In 1990, Congress amended the Clean Air Act (CAA) to bolster America's efforts to attain the National Ambient Air Quality Standards (NAAQS). The amendments required further reductions in the amount of permissible tailpipe emissions, initiated more stringent control measures in areas that still failed to attain the NAAQS (nonattainment areas), and provided for a stronger, more rigorous link between transportation and air quality planning. In 1991, Congress adopted the Intermodal Surface Transportation Efficiency Act (ISTEA). This law authorized the Congestion Mitigation and Air Quality (CMAQ) program and provided $6.0 billion in funding for surface transportation and other related projects that contribute to air quality improvements and reduce congestion. The CAA amendments, ISTEA and the CMAQ program together were intended to realign the focus of transportation planning toward a more inclusive, environmentally-sensitive, and multimodal approach to addressing transportation problems.

The CMAQ program was reauthorized in 2015 under the Fixing America's Surface Transportation (FAST) Act and provides funds that can be used by State DOTs, MPOs, and transit agencies for projects that reduce regulated air pollutants from transportation-related sources.

RFATS was first designated by EPA as a non-attainment area for ground-level ozone in 2004. Since this time, RFATS has made a series of targeted

improvements at key "hot spots" throughout the transportation network that have yielded favorable results. In 2016, EPA officially reclassified RFATS as being in "attainment" for ground level ozone and changed its air quality status to a "maintenance area." With this designation, RFATS will continue to receive CMAQ funding to make further improvements to strengthen regional air quality.

Typical projects that qualify for CMAQ funds include:

- Improved and/or expanded public transit options,
- Traffic flow improvements and high-occupancy vehicle lanes,
- Shared-ride services,
- Bicycle/pedestrian facilities, and
- Flexible work schedules.

State Funding Sources

State Infrastructure Bank

This institution provides financing for a wide variety of highway and transit projects through loans and credit enhancements. The South Carolina State Infrastructure Bank (SIB) is designed to complement the traditional Federal Aid highway and transit grants administered by SCDOT. In 2016 York County submitted an application to the SIB Board for funding support to upgrade key infrastructure along the I-77 Corridor. The application outlined the importance and need for improving the following interchanges:

- Exit 90 – Carowinds Boulevard (A Feasibility Study was announced by Governor McMaster in December 2024).
- Exit 88 – Gold Hill Road (Construction completed in 2022)
- Exit 85 – SC 160 (currently under construction)
- Exit 82 A-C – Celanese and Cherry Roads (Interchange Evaluation Study is in the final stages of completion).

At the time of the application, the interchanges were ranked on the SCDOT Interstate Interchange Management System Program (IMMS) most needed improvements. In 2020, the SIB authorized $82.1M towards two interchange locations:

- I-77 and SC-160 Interchange Reconfiguration and Fort Mill Highway (SC-160) from US 21 to Sutton Road: Widen to 6 lanes ($49.6M)

- Celanese and Cherry Road / I-77 Interchange Reconfiguration ($32.5M)

The SIB award at these two locations is critical for improving operating efficiency, safety and overall system reliability across the transportation network. Due to the inflationary environment and other variables, Exit 85 project costs have escalated considerably with both York County and RFATS augmenting prior budgetary commitments so that project construction could be initiated in 2024, and completion is anticipated by 2028.

C-Funds

The C-Funds Program is a partnership between SCDOT and the forty-six counties of South Carolina. The program is intended to fund local transportation projects and improvements to state and county roads as well as city streets. These funds are derived from state gasoline tax revenue. Funding amounts are then distributed to each of the 46 counties based on a three-part formula. The formula allocates (1) one third of the C funds based on the ratio of the land area of the county to the land area of the state, (2) one third based on the ratio of the county population to the state population as determined by the latest decennial census, and (3) one third based on the rural road mileage in the county to the rural road mileage in the state.

Local Funding Sources

Pennies for Progress

Pennies for Progress – more formally known as the York County Capital Projects Sales and Use Tax Program – was initiated by York County to provide its citizens with a safer and more efficient roadway system by supplementing other transportation funding sources.

Projects are chosen by a Sales Tax Commission representing the citizens of York County and then approved by York County voters. York County was the first in the State of South Carolina to pass this type of sales tax to improve the road system. A benefit of this tax is ninety-nine cents of every sales tax dollar raised in York County remains in York County.

Since its initial passage in 1997, this program has been renewed four additional times in 2003, 2011, 2017, and 2024. The following is a brief overview of the five programs:

	1997 Pennies for Progress	2003 Pennies for Progress	2011 Pennies for Progress	2017 Pennies for Progress	2024 Pennies for Progress
Referendum	November 1997	November 2003	August 2011	November 2017	November 2024
Tax Expired	6 Years	No later than August 2011	April 2018	1st Quarter 2025	1st Quarter 2032
Budget	$185,751,077	$173,000,000	$161,000,000	$277,920,000	$410,650,000
Number of Projects	14	25	14	16	20
Program Duration	1998 to 2009	2004 to 2013	2012 to 2018	2018 to 2025	2025 to 2032

Other Funding Sources

Private Funds

Since the previous LRTP was adopted, developers have directly completed several new road projects, as well as smaller scale location specific improvements (e.g., dedicated turn lanes, extension of storage capacity, etc.) at different points within the planning area as one component to mitigating operational impacts associated with new development activity. As the region continues to experience elevated growth pressures, partnering with the development community will be a critical element to being able to proactively plan for needed collector roads, protecting future thoroughfare corridors, and securing necessary right-of-way to reduce long term traffic congestion and best address overall transportation network needs. To accomplish this outcome, it will take a cooperative effort between local planning staff, SCDOT, and the development community.

Projected Revenues

Guideshare Funding

Table 12.1 identifies projected Guideshare revenue available to RFATS for implementation of the plan; and **Table 12.2** presents current and funding year cost estimates of priority projects identified in the LRTP. Based on these estimates, projected revenues will be sufficient to fund the cost constrained projects of this plan.

Table 12.1: RFATS Guideshare Funding

Year	Guideshare	Debt Service	Available Funding
2024	$10,079,000	$0	$10,079,000
2025	$12,411,000	$0	$12,411,000
2026	$12,411,000	$21,297,141	($8,886,141)
2027	$12,411,000	$18,278,000	($5,867,000)
2028	$12,411,000	$0	$12,411,000
2029	$12,411,000	$12,411,000	$0
2030	$12,411,000	$12,411,000	$0
2031	$12,411,000	$12,411,000	$0
2032	$12,411,000	$2,340,735	$10,070,265
2033	$12,411,000	$0	$12,411,000
2034	$12,411,000	$0	$12,411,000
2035	$12,411,000	$0	$12,411,000
2036	$12,411,000	$0	$12,411,000
2037	$12,411,000	$0	$12,411,000
2038	$12,411,000	$0	$12,411,000
2039	$12,411,000	$0	$12,411,000
2040	$12,411,000	$0	$12,411,000
2041	$12,411,000	$0	$12,411,000
2042	$12,411,000	$0	$12,411,000
2043	$12,411,000	$0	$12,411,000
2044	$12,411,000	$0	$12,411,000
2045	$12,411,000	$0	$12,411,000
2046	$12,411,000	$0	$12,411,000
2047	$12,411,000	$0	$12,411,000
2048	$12,411,000	$0	$12,411,000
2049	$12,411,000	$0	$12,411,000
2050	$12,411,000	$0	$12,411,000
2051	$12,411,000	$0	$12,411,000
2052	$12,411,000	$0	$12,411,000
2053	$12,411,000	$0	$12,411,000
2054	$12,411,000	$0	$12,411,000
205	$12,411,000	$0	$12,411,000
Total	$394,820,000	$79,148,876	$315,671,124

Table 12.2: RFATS Guideshare Projects

Project	Current Cost Estimate	Funding Year Cost Estimate
Interchange Projects		
SC 160 / I-77 Interchange Reconfiguration and Widen to 6 lanes from Sutton Road to US 21	$84,600,000	$86,715,000
Celanese / I-77 Interchange Reconfiguration	$102,800,000	$105,370,000
SC 160 / I-77 Interchange Reconfiguration and SC 160 Widen tot 5 lanes from Rosemont / McMillan to Springfield Parkway	$28,500,000	$29,212,521
I-77 and Anderson Road (SC 5/US 21) Interchange Reconfiguration	$17,700,000	$18,142,500
Bike and Pedestrian Projects		
Jack White Trail - Northside Trail Ext (Dave Lyle Blvd Shared Use Path from Annafrel Street to Charlotte Ave via Hope Street)	$1,527,006	$1,565,181
US 521 (Shared Use Path from Potts Lane to Doby's Bridge Road)	$1,948,835	$1,997,556
Fort Mill Southern Pkwy (Shared Use Path and Bike Lane from Spratt St at US 21 to Holbrook Road)	$1,970,314	$2,019,572
Gold Hill Road - Tega Cay Drive (Bike lanes from end of Sidepath near Shoreline Pkwy to SC 160)	$96,721	$99,139
TOTAL	$239,142,876	$245,121,469

Federal & State Transit Funding

FTA & SMTF Funding

Transit funding for the RFATS area is provided by the Federal Transit Administration (FTA) and the South Carolina Department of Transportation (SCDOT) Office of Public Transit.

FTA Section 5307 Funding

The FTA administers the Section 5307 Urbanized Area Formula Funding Program. Section 5307 provides funding for planning and capital items at 80% of their cost, and the federal share may not exceed 50% of the net project cost of operating assistance. Funds are apportioned to urbanized areas using a formula based on population, population density, and other factors associated with transit service ridership such as bus revenue vehicle miles, bus passenger miles, fixed guideway revenue vehicle miles, and fixed guideway route miles.

These funds are apportioned annually and remain available for 6 fiscal years (the year of apportionment plus 5 additional years). The federal apportionment must be matched by state and local funds. Local matching

funds can be cash or cash-equivalents, depending upon the expenditure. Non-cash shares such as donations, volunteered services or in-kind contributions are eligible to be counted toward the local match only if the value of each is formally documented and supported and represents a cost which would otherwise be eligible under the project.

Within the RFATS Planning Area, there are two 5307 funding allocations available for transit service planning and operations (e.g., the Rock Hill Urbanized Area and a small extension of the Charlotte Urbanized Area into Lake Wylie). Listed in **Table 12.3** below are estimates of funding availability for each of these allocations.

Table 12.3: FTA Section 5307 Transit Funding

Year	Allocations	
	Rock Hill UA	Charlotte UA
2024	$1,985,527	$139,327
2025	$2,014,119	
2026	$2,043,122	
2027	$2,072,543	
2028	$2,102,387	
2029	$2,132,662	
2030	$2,163,372	
2031	$2,194,525	
2032	$2,226,126	
2033	$2,258,182	
2034	$2,290,700	
2035	$2,323,686	
2036	$2,357,147	
2037	$2,391,090	
2038	$2,425,522	
2039	$2,460,449	
2040	$2,495,880	
2041	$2,531,820	
2042	$2,568,279	
2043	$2,605,262	
2044	$2,642,778	
2045	$2,680,834	
2046	$2,719,438	
2047	$2,758,597	
2048	$2,798,321	
2049	$2,838,617	
2050	$2,879,493	
2051	$2,920,958	
2052	$2,963,020	
2053	$3,005,687	
2054	$3,048,969	
2055	$3,092,874	

SMTF Funding

State Mass Transit Funds (SMTF) are allocated by the South Carolina Department of Transportation to urbanized areas as a portion of the matching funds needed to meet funding requirements to access federal transit funding sources (e.g., 5307 funds, etc). Similar to the two 5307 allocations, there are two SMTF amounts for these same two areas. Eligible assistance categories include capital, administration, and operations. Essentially, these categories correspond to the federal program category which the SMTF funds are matching.

SMTF funds are generated from highway use taxes on motor vehicle fuel. As a general rule, this generates approximately $6 million a year on a statewide basis. Funds are applied for through the Office of Public Transit at SCDOT. Listed below in **Table 12.4** are the SMTF allocation amounts for each of the two urbanized areas.

Table 12.4: State Mass Transit Funds

Year	Allocations	
	Rock Hill UA	Charlotte UA
2024	$228,342	$Pending
2025	$228,342	
2026	$228,342	
2027	$228,342	
2028	$228,342	
2029	$228,342	
2030	$228,342	
2031	$228,342	
2032	$228,342	
2033	$228,342	
2034	$228,342	
2035	$228,342	
2036	$228,342	
2037	$228,342	
2038	$228,342	
2039	$228,342	
2040	$228,342	
2041	$228,342	
2042	$228,342	
2043	$228,342	
2044	$228,342	
2045	$228,342	
2046	$228,342	
2047	$228,342	
2048	$228,342	
2049	$228,342	
2050	$228,342	
2051	$228,342	
2052	$228,342	
2053	$228,342	
2054	$228,342	
2055	$228,342	

FTA Section 5309 Funding

In addition, the FTA administers the Section 5309 Fixed Guideway Capital Investment Grants (CIG) program. This program provides assistance for fixed-guideway projects such as new and expanded rapid rail, commuter rail, light rail, streetcars, bus rapid transit, ferries, and bus rapid transit projects that feature qualities of rail.

The CIG has four categories of potential eligible projects:

- New Starts:
    - Eligible projects include the design and construction of new fixed-guideway systems or extensions to existing fixed guideway systems.
    - The total project cost must be equal to or greater than $400 million or total New Starts funding sought equals or exceeds $150 million.
    - New Starts projects are limited to a maximum Section 5309 CIG program share of 60%. The maximum Federal contribution from all Federal sources to a New Starts project is 80%.
- Small Starts
    - Eligible projects include design and construction of new fixed-guideway or extensions to fixed-guideways and the design and construction of corridor-based bus rapid transit projects operating in mixed traffic.
    - Projects must have total estimated capital costs of less than $400 million and be requesting less than $150 million in CIG funds.
    - CIG funds can make up no more than 80% of estimated project costs and total Federal funding may not exceed 80%.
- Core Capacity
    - Eligible projects include the design and construction of corridor-based investment in an existing fixed-guideway system that improves capacity at a minimum of 10% in a corridor that is at capacity or will be in five years.
    - CIG funds can make up no more than 80% of estimated project costs and total Federal funding can make up no more than 80% of estimated project costs.

- Programs of Interrelated Projects
    - Eligible programs include design and construction of two or more projects that have logical connectivity between them, and projects will have a majority of their construction timelines overlapping. Projects may include any of the eligible projects covered in New Starts, Small Starts, and/or Core Capacity.
    - CIG funds can make up no more than 80% of estimated project costs and total Federal funding may not exceed 80%.

The FAST Act approved a pilot program to streamline the regulatory process for up to eight grants. Federal funds can comprise no more than 25% of estimated total project costs made up of Federal funds. Projects must also feature a public-private partnership funding component and be operated and maintained by employees of an existing public transportation provider. In order for a fixed-guideway project to be recommended by the FTA to Congress for discretionary funding, it must receive favorable ratings on the following "New Starts" criteria:

- Level of mobility improvement provided by the project
- Extent to which land use policies are supportive of rapid transit
- Environmental benefits
- Congestion Relief
- Cost effectiveness (cost per trip)
- Economic Development

The local project must receive a favorable rating on the above criteria in comparison to competing projects seeking federal funds throughout the country. Section 5309 funds must be matched by state and local funds. Local matching funds can be cash or cash-equivalent, depending upon the expenditure. Non-cash shares, such as donations, volunteered services, or in-kind contributions, are eligible as local match only if the value of each share is formally documented. Capital assistance grants made to local agencies are funded up to 80% of net project costs, unless the grant recipient requests a lower federal grant percentage.

Any public body or agency is eligible to apply for "Small Starts" funds as long as it has the legal, technical, and financial capacity to carry out the project. If the grant applicant is not expected to be the project operator, the applicant must demonstrate how the project will be operated and maintained and provide an executed agreement before a Project Construction Grant Agreement can be finalized.

In addition to the aforementioned cost and funding limits, a "Small Starts" bus project must be a fixed guideway for at least 50% of the project length in the peak period or a corridor-based bus project with the following minimum elements:

- Substantial Transit Stations
- Signal Priority/Pre-emption (for Bus/LRT)
- Low Floor / Level Boarding Vehicles
- Special Branding of Service
- Frequent Service - 10 min peak/15 min off peak
- Service offered at least 14 hours per day

Since the enactment of MAP-21 legislation (and continued in the BIL), all projects seeking Section 5309 Capital Program funds must be evaluated and rated according to the criteria specified in law either as a New Starts project, a Small Starts project, or a Core Capacity project. Programs of Interrelated Projects are comprised of any combination of two or more New Starts, Small Starts, or Core Capacity projects. (Under previous authorizing laws, projects seeking less than $25 million in Capital Investment Program funds could be exempt from evaluation and rating if they chose to be, but that option was discontinued in MAP-21.)

As the existing roadway network continues to experience increasing congestion and a reduced level of service (LOS), the need for further discussion about the role and function of a mass transit component continues to increase as one of a range of important strategies for meeting current as well as projected demand levels within the RFATS region.

FTA Section 5310 Funding

The FTA also administers the Section 5310 program. This program provides formula funding to states for the purpose of assisting private nonprofit groups in meeting the transportation needs of older adults and people with disabilities when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs. Funds are apportioned based on each state's share of the population for these two groups. The program aims to improve mobility for seniors and individuals with disabilities by removing barriers to transportation service and expanding transportation mobility options. Listed below in **Table 12.5** are the Section 5310 allocation amounts.

Table 12.5: Section 5310 Funding

Year	Allocation
2024	$267,648
2025	$271,663
2026	$275,738
2027	$279,874
2028	$284,072
2029	$288,333
2030	$292,658
2031	$297,048
2032	$301,503
2033	$306,026
2034	$310,616
2035	$315,276
2036	$320,005
2037	$324,805
2038	$329,677
2039	$334,622
2040	$339,641
2041	$344,736
2042	$349,907
2043	$355,156
2044	$360,483
2045	$365,890
2046	$371,379
2047	$376,949
2048	$382,604
2049	$388,343
2050	$394,168
2051	$400,080
2052	$406,081
2053	$412,173
2054	$418,355
2055	$424,631

Transportation Alternatives Funding

As noted previously, the RFATS region receives an annual allocation of Transportation Alternative (TA) funds from SCDOT to implement improvements to facilities for bicycles and pedestrians. Listed below in **Table 12.6** are the TA allocation amounts. Since this funding program is periodically updated per the re-authorization of the federal transportation bill (currently the BIL) and assumed funding allocations is unknown, the yearly allocations are identified as a constant value related to the current allocation. This is due to the unknown future funding allocations and federal budgets.

Table 12.6: Transportation Alternatives Program Funding

Year	Allocation
2024	$729,903
2025	$729,903
2026	$729,903
2027	$729,903
2028	$729,903
2029	$729,903
2030	$729,903
2031	$729,903
2032	$729,903
2033	$729,903
2034	$729,903
2035	$729,903
2036	$729,903
2037	$729,903
2038	$729,903
2039	$729,903
2040	$729,903
2041	$729,903
2042	$729,903
2043	$729,903
2044	$729,903
2045	$729,903
2046	$729,903
2047	$729,903
2048	$729,903
2049	$729,903
2050	$729,903
2051	$729,903
2052	$729,903
2053	$729,903
2054	$729,903
2055	$729,903

Congestion Mitigation and Air Quality (CMAQ) Program

The Congestion Mitigation & Air Quality Improvement Program provides funding support for a range of improvement planning that do not add new capacity to the transportation system; and that favorably impact regional air quality. Listed below in **Table 12.7** are the CMAQ allocation amounts. Since this funding program is periodically updated per the re-authorization of the federal transportation bill (currently the BIL) and assumed funding allocations is unknown, the yearly allocations are identified as a constant value related to the current allocation. This is due to the unknown future funding allocations and federal budgets.

Table 12.7: Congestion Mitigation and Air Quality Program Funding

Year	CMAQ
2024	$3,661,000
2025	$3,661,000
2026	$3,661,000
2027	$3,661,000
2028	$3,661,000
2029	$3,661,000
2030	$3,661,000
2031	$3,661,000
2032	$3,661,000
2033	$3,661,000
2034	$3,661,000
2035	$3,661,000
2036	$3,661,000
2037	$3,661,000
2038	$3,661,000
2039	$3,661,000
2040	$3,661,000
2041	$3,661,000
2042	$3,661,000
2043	$3,661,000
2044	$3,661,000
2045	$3,661,000
2046	$3,661,000
2047	$3,661,000
2048	$3,661,000
2049	$3,661,000
2050	$3,661,000
2051	$3,661,000
2052	$3,661,000
2053	$3,661,000
2054	$3,661,000
2055	$3,661,000

State Infrastructure Bank

The South Carolina State Infrastructure Bank is an institution established to select and assist in financing major qualified projects by providing loans and other financial assistance to government units as well as private entities for constructing and improving highway and transportation facilities necessary for public purposes.

Summary and Recommendations

Summary of Key Points

- Transportation needs in most, if not all localities far exceed the funding resources available.
- Revenue is provided through Federal, State and Local programs.
- "Year of Expenditure" costs were determined by assuming a 2.5% inflation rate per SCDOT.
- By reviewing revenues versus costs, a cost constrained financial plan can be developed to address transportation system needs in the RFATS Planning Area.

Recommendations

- Assist York & Lancaster Counties in advancing and highlighting the critical role local option sales tax program play in infrastructure planning and network outcomes.
- Develop plans, regulations, policies, and procedures to protect future thoroughfare and collector street corridors and require contributions from developers.
- Monitor and Provide Guidance on Transit Service Availability Across the Planning Area.
- Continue to monitor roadway congestion and evaluate public transit demand and operating needs.
- Continue the Capital Sales and Use Tax Program as a local funding source to leverage federal and state funds for road improvements.
- Continue to integrate new and/or improved pedestrian and bicycle facilities along with road improvements proposed in the "Pennies for Progress" program.