

Introduction

This chapter outlines the growth trends and socioeconomic information used to project and evaluate future transportation needs. It also considers the social and environmental impacts of the recommended investments in the Long Range Transportation Plan, and discusses ways in which adverse impacts may be avoided or otherwise addressed.

Socio-Economic Information

Metrolina Model

To help understand the influence of development on transportation needs, the RFATS long range planning process is supported by the ongoing collection of socio-economic data and other forecast information. This data provides important inputs to the regional travel demand model, which encompasses RFATS as well as several other Metropolitan Planning Organizations in the greater Charlotte region.

The Metrolina Regional Travel Demand Model ('Metrolina model') is divided into Traffic Analysis Zones (TAZs) which represent the basic areas for forecasting. Based on the estimated population and employment in each Traffic Analysis Zone, the model estimates future travel demand between various parts of the RFATS area and greater region. The model outputs are in the form of "volume/capacity ratios" that help to identify facilities where future traffic volumes may exceed the operating capacity of a particular roadway.



Data and Sources

For the 2045 LRTP, RFATS staff updated current planning data such as housing, employment and school enrollment, and developed projections for the plan's "horizon years" of 2025, 2035, and 2045. Since trip-making characteristics vary by household size, income, and type of employment, information was collected at a level of detail sufficient to allow reasonable estimation of detailed trip purposes.

Table 11.1: Subcategories of Socio-Economic Data

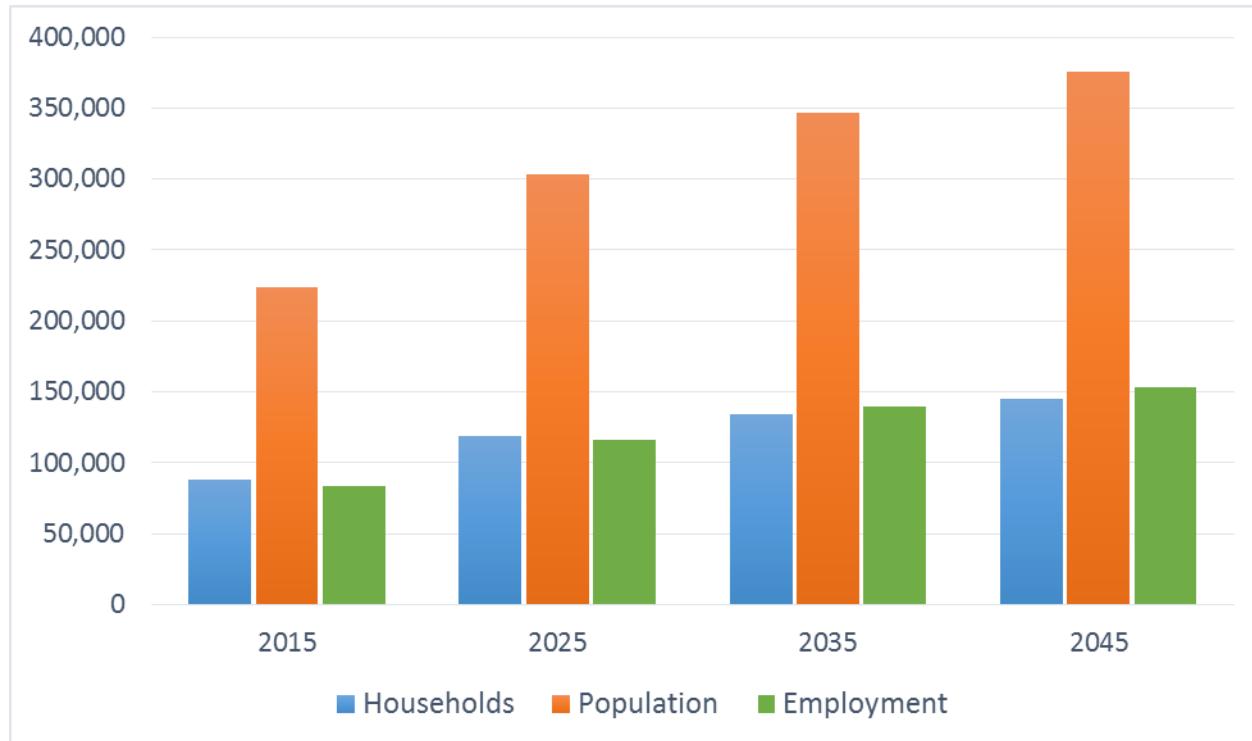
Housing	Employment	School Enrollment
<ul style="list-style-type: none"> • Households • Population • Population in Households • Population in Group Quarters • Mean Household Income 	<ul style="list-style-type: none"> • Total Employment • Employment - Manufacturing, Industrial, Warehouse, Transportation, Communications, Utilities • Employment - Retail • Employment - Highway Retail • Low-Traffic Service Employment • High-Traffic Service Employment • Employment - Office & Government • Employment - Bank • Employment - Education 	<ul style="list-style-type: none"> • Students - Grades K-8 • Students - High School • Students - College

Socio-Economic Forecast

Table 11.2 summarizes the socio-economic data used in the Metrolina model for the RFATS region. Total population is expected to rise by more than 40 percent, from 233,386 in 2015 to 375,958 by the year 2045. Total regional employment is estimated to rise from 83,640 in 2015 to 152,805 in 2045, an increase of 45 percent. This is charted in **Figure 11.1**.

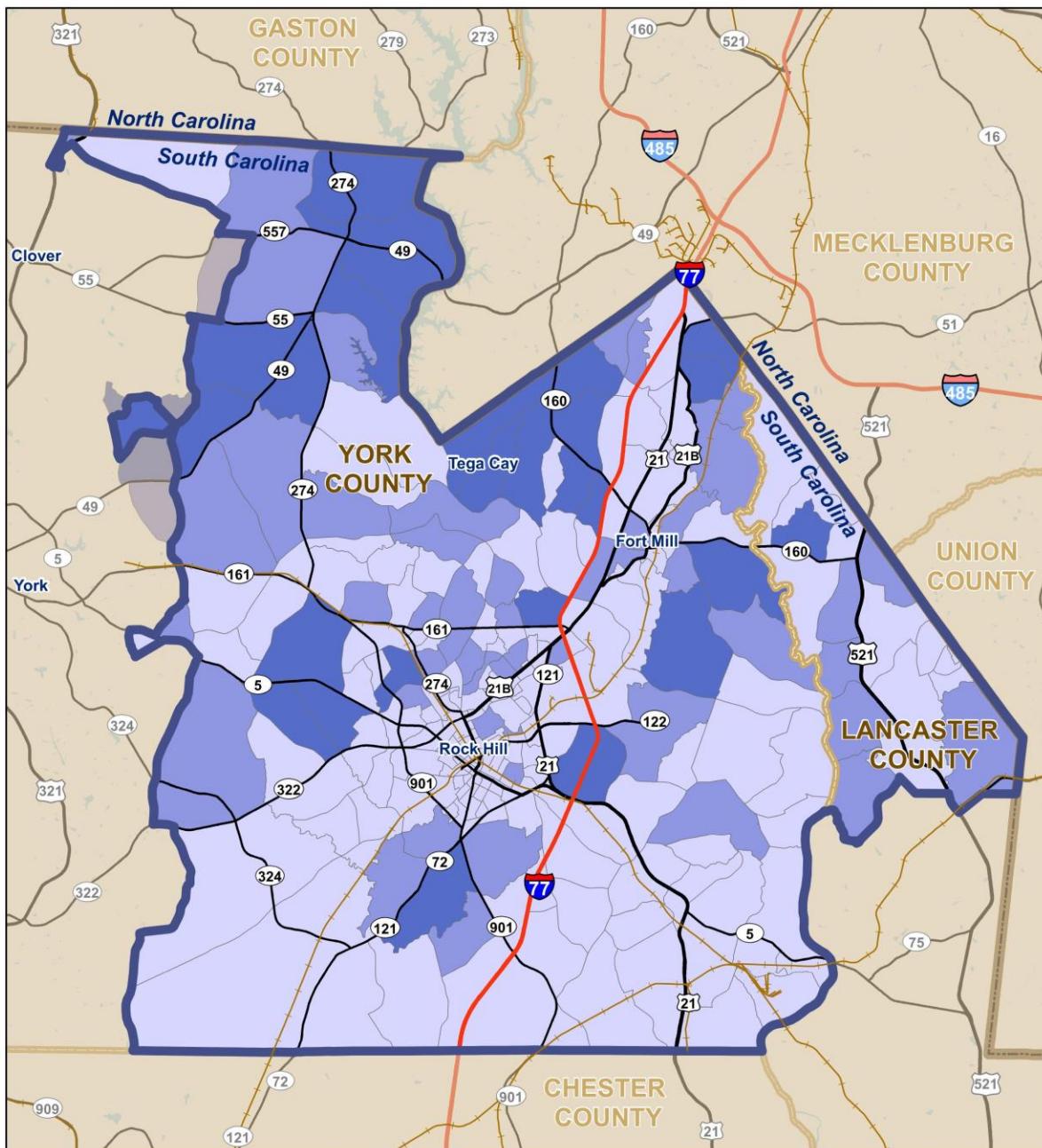
Table 11.2 – RFATS Area Population and Employment Forecasts

Year	Population	Employment
2015	223,386	83,640
2025	303,154	116,012
2035	346,224	139,316
2045	375,958	152,805

Figure 11.1 – RFATS Area Households, Population and Employment Forecasts

Reflects current and projected changes in population, employment, and number of households from 2015 through forecast year 2045.

Figure 11.2: 2015 Population by Traffic Analysis Zone

**Legend****Total Persons Per TAZ in 2015**

0 - 1,000	Catawba Reservation
1,001 to 2,000	RFATS Boundary
2,001 to 5,000	

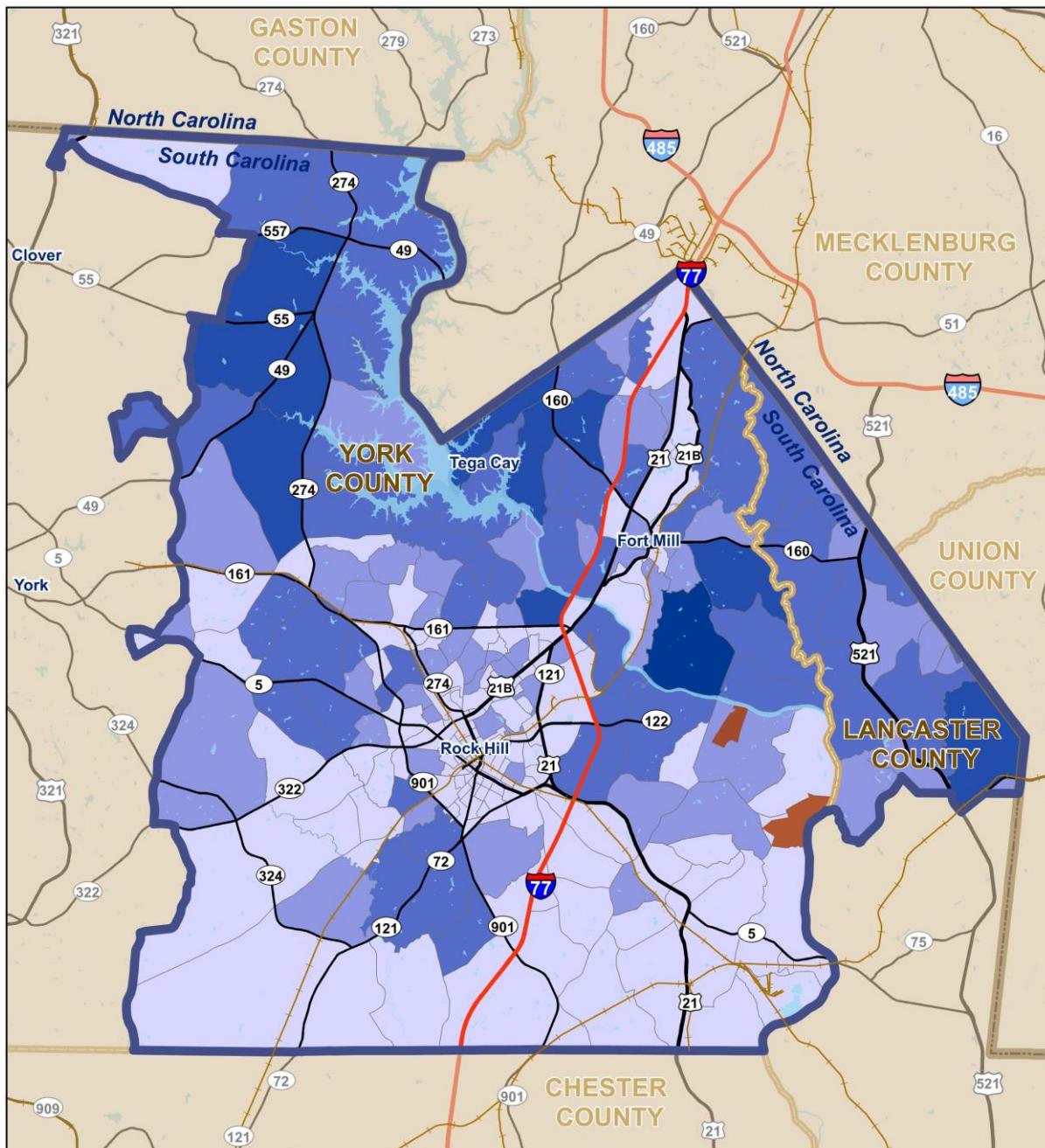
Road Network

- Interstates
- US Highways
- State/County Highways



0 2.5 5 Miles

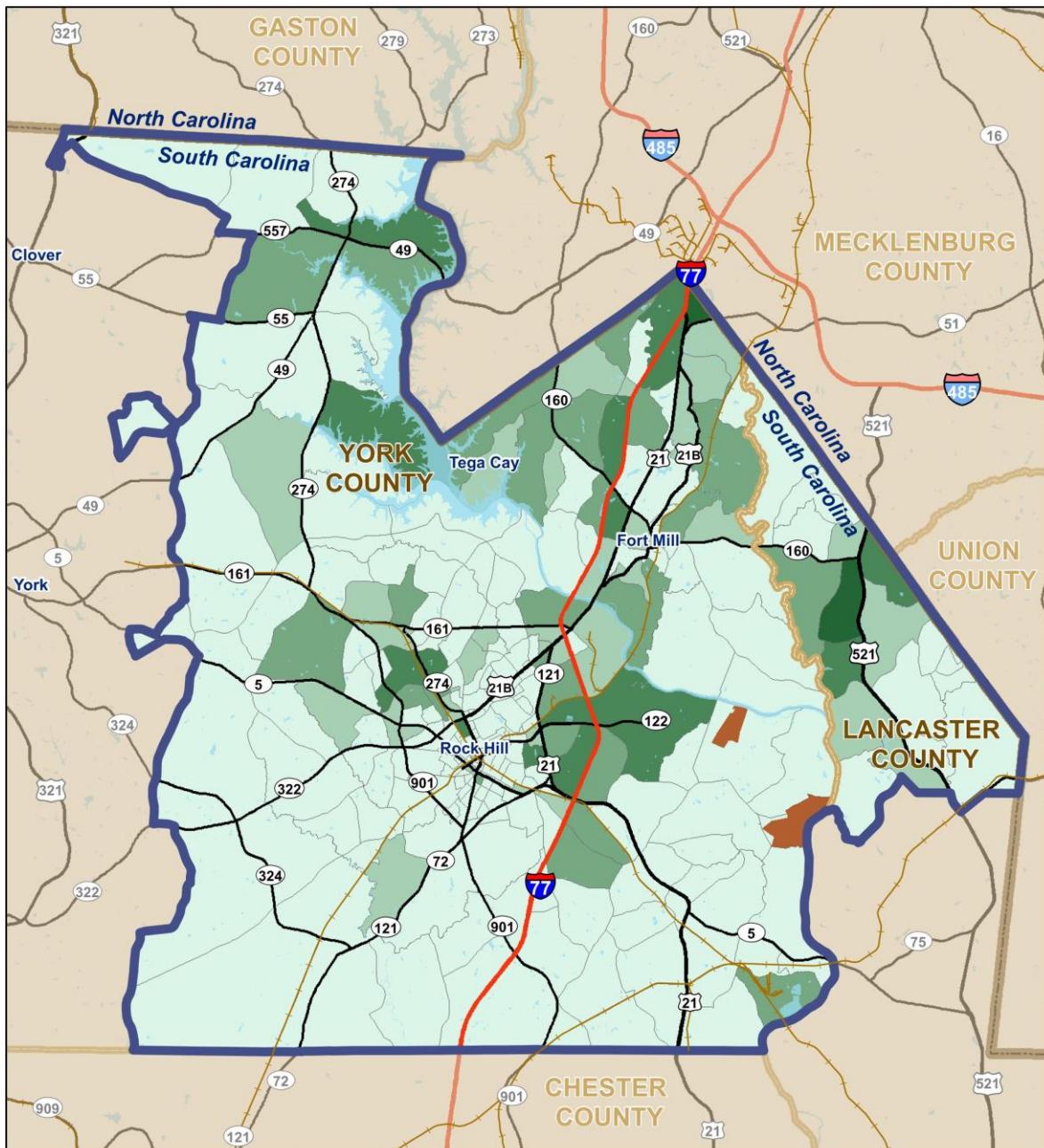
Figure 11.3: 2045 Projected Population by Traffic Analysis Zone

**Legend**

Total Persons Per TAZ in 2045	
	Catawba Reservation
	RFATS Boundary
	Road Network
—	Interstates
—	US Highways
—	State/County Highways
	0 - 1,000
	1,001 to 2,000
	2,001 to 5,000
	5,001 to 10,000
	More than 10,000



0 2.5 5 Miles

Figure 11.4: 2015 Employment by Traffic Analysis Zone**Legend**

Total Employment per TAZ in 2015	Catawba Reservation
0 - 250	
251 - 500	
501 - 1000	
1001 - 3000	
3001 & Greater	

RFATS Boundary

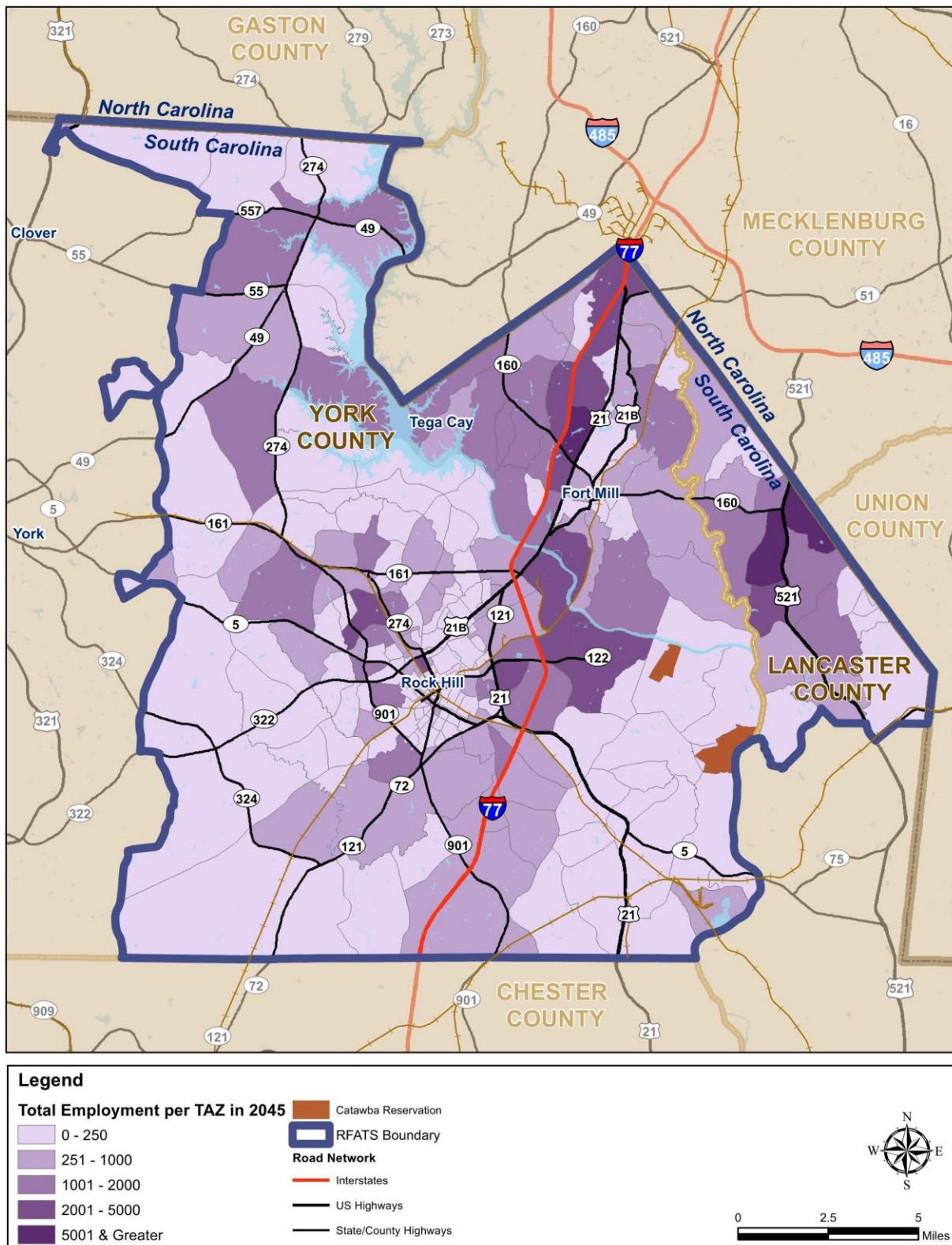
Road Network

- Interstates
- US Highways
- State/County Highways



0 2.5 5 Miles

Figure 11.5: 2045 Projected Employment by Traffic Analysis Zone



Potential Impacts of the 2045 Plan

The 2045 LRTP includes projects that vary in scope from signalization, intersection improvements, minor and major reconstruction, to new corridors. This section identifies where projects may impact sensitive natural and/or cultural resources, discusses the potential types of impact, and outlines potential mitigation activities at the policy/strategy level.

This section also assesses the extent to which the 2045 LRTP fulfills the principles of the U.S. Executive Order on Environmental Justice. A geographic analysis is performed for proposed transportation investments to identify whether there could be disproportionate impacts on minority or low-income populations, either through direct effects or through the lack of transportation investment.

Environmental Screening and Mitigation

Federal legislation requires RFATS to consider potential impacts and planning-level strategies for mitigating those potential impacts. This section presents an overview of known environmentally sensitive areas in relation to the proposed projects and programs in the 2045 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 (e.g. the TIP) for project implementation.

Incorporating environmental considerations early in the transportation planning process helps to streamline project development by providing realistic assumptions about potential environmental considerations, impacts and costs.

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

However, the screening is not intended as a replacement for a more thorough evaluation of each project as it progresses. Most projects will require a more detailed environmental assessment as the project enters the development phase. For example, an Advanced Project Planning Report has already been completed for the project to widen a 2.1 mile segment of the US 21 Bypass from Springfield Parkway to SC 51 in northeastern York County. Some of the other projects listed in the LRTP have also progressed beyond the design phase, in which case the necessary environmental reviews and approvals have already occurred.



Air Quality Impacts

One of the overarching environmental issues for transportation – not geographically specific to one area – is air quality. Vehicles that use fossil fuels produce certain 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 and is also affected by driving conditions (e.g., extended idling and stop-and-go traffic are associated with higher levels of pollution).

The RFATS region was previously designated as a “non-attainment area” for ground level ozone back in 2004, along with a number of adjacent planning partners within the broader Metrolina region. Since this time, RFATS has implemented a series of targeted improvements to favorably impact air quality. In January 2016, EPA officially recognized these efforts and re-designated RFATS as a “maintenance area” for ground level ozone, indicating that while progress has been achieved, that continued monitoring will continue to apply to transportation programs and project activity. This is commonly referred to as transportation conformity – which means that RFATS will complete a comprehensive evaluation of its planned improvements to ensure that they will function in compliance with applicable air quality standards over the duration of the 2045 Long Range Transportation Plan. This is documented in the “Conformity Demonstration Report,” and is available from RFATS upon request.



Other Types of Impacts

Roadway projects generally have the most potential to produce adverse environmental impacts due to land clearing and grading, modification of natural drainage, increased stormwater runoff, and traffic. In addition, major roads can become barriers within communities, affecting the way residents live and interact. However, it is also possible that the absence of roadway investment in a community can have negative economic impacts.

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 only involve bus route and service expansions are expected to have minimal negative impacts. Fixed-guideway systems such as the proposed bus rapid transit service will potentially have more impacts and

will be evaluated in the same way as roadway projects. Generally, transit projects have a positive impact on the overall system by offering enhanced mode choice, increased accessibility and an option other than the single occupant vehicle.

Consultation with Resource Agencies

To prepare this planning-level screening, RFATS staff consulted the plans, data and other documents of various agencies responsible for resource management and development, including the South Carolina Department of Health & Environmental Control (DHEC); SC Department of Natural Resources (DNR); SC Department of Fish & Wildlife Services; SC Department of Archives and History; and the Environmental Protection Agency (EPA).

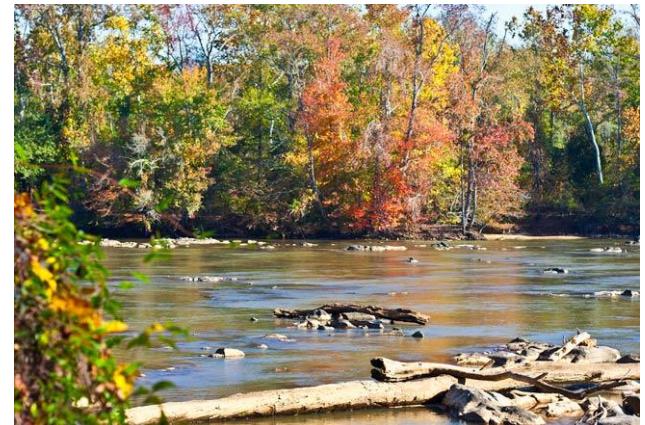
Items noted during this process included an environmental summary of natural resources and advisory guidance regarding identified endangered species within the study area. The draft LRTP was also sent to agency representatives to provide an opportunity for comments and additional information.

Natural and Cultural Resources

The planning area includes a variety of natural and cultural resources that should be considered when advancing proposed transportation projects.

The Catawba River corridor and Lake Wylie provide distinct natural habitats and scenic enjoyment to residents and visitors alike. The U.S. Fish and Wildlife Service does not identify any critical habitat within the area, but does indicate eight species of concern which may be present within the planning region:

- Carolina Heelsplitter clam (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 rich in cultural diversity with many historic and cultural resources that still endure today. Major cultural features include: parks,

several historic districts (including downtown Fort Mill and downtown Rock Hill), and numerous individual historic buildings.

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

The Bethel community, in the northwest part of the RFATS planning area, is one of the oldest communities in York County, having developed around Bethel Presbyterian Church which was organized in 1764.

Development around Lake Wylie is rapidly changing the rural character of the community. Although this community currently has no listings on the National Register of Historic Places, 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. Also in the area is 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, which is significant for that reason. This mountain has been purchased by York County for public recreation. Other cultural sites in the area include several individual sites that the 1992 inventory considered worthy of further investigation for local protection. There are also several abandoned cemeteries in the area.

Rock Hill has many cultural resources. These include the Museum of York County, Winthrop University, York Technical College, Clinton Junior College, and a wide range of others such as the Rock Hill Telephone Company Museum, Cherry Park, and the relatively recent Center for the Arts. Within the City of Rock Hill or nearby, there are currently five historic districts, one historic complex and thirteen individual sites on the National Register. The 1992 survey recommended that additional sites and historic districts be added to the Register, and also 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 the Catawba Indians and soldiers who died in the Civil War. The Anne Springs Close Greenway, a protected natural area north of Fort Mill, includes several historically-significant buildings on its property. In Fort Mill itself, the National Register listings include the Downtown Historic District, the Unity Presbyterian Church Historic District, and a number of individual listings. The 1992 survey recommended adding



Bethel Presbyterian Church
(Photo: Bill Fitzpatrick)

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 connection to the Twelve Mile Creek Greenway in Waxhaw, NC.

Analysis of Potential Resource Impacts

Figures 11.6 and 11.7 show the location of proposed projects in the 2045 LRTP in relation to known natural and cultural resources that may be sensitive to impacts.

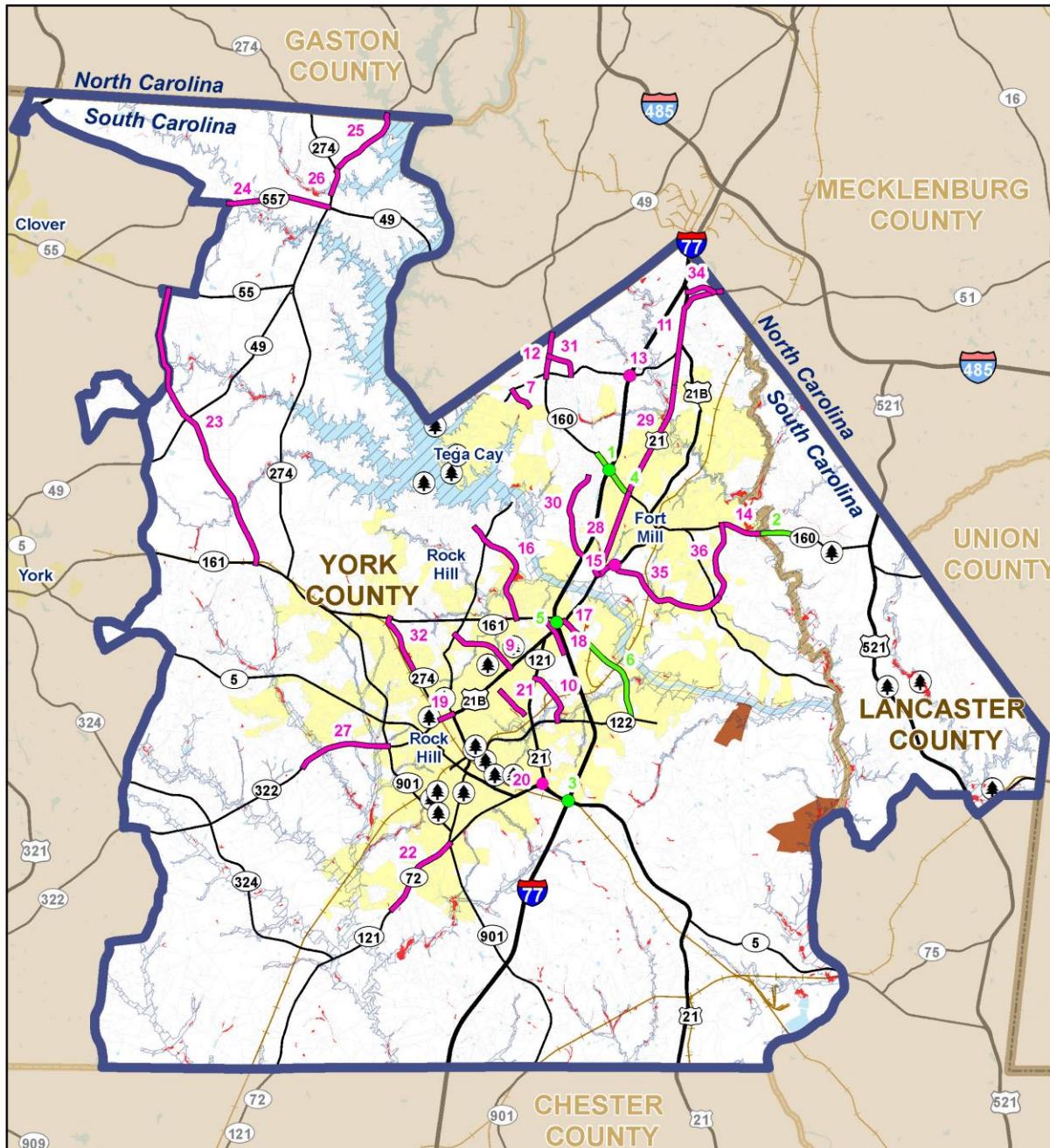
The screening identified only one project with potential cultural resource impacts: the proposed widening of Ebenezer Road from Celanese Road to Dr. Frank Gaston Boulevard (a Pennies for Progress project), which could potentially affect the Ebenezer Academy historic property.

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

Proj ID	Route	Project Description
2	SC 160	Widen to 5 lanes from Rosemont Dr to Springfield Pkwy
6	Cel-River / Red River Road	Widen to 5 lanes from the Southern Eden Terrace Extension (S-645) to Dave Lyle Blvd (SC 122)
9	Ebinport Road (SC 904)	Widen from 2 to 3 lanes from Cherry Road to India Hook Road
10	Mt Gallant Road	Widen from 2 to 3 lanes from Anderson Road (US 21 Byp) to Dave Lyle Blvd (SC 122)
16	Mt Gallant Road	Widen to 3 lanes from Celanese Road (SC 161) to Twin Lakes Road (SC 196)
22	SC 72 (Saluda Street)	Widen from 2 to 3 lanes from SC 901 to Rambo Road
25	Hands Mill Highway (SC 274/SC 279)	Widen to 3 lanes from Pole Branch Road to NC State Line
26	Hands Mill Highway (SC 274/SC 279)	Widen to 5 lanes from Landing Pointe Dr to Pole Branch Road
27	McConnell's Highway (SC 322)	Widen to 3 lanes from Heckle Blvd to Falls Road
28	US 21 N	Widen from 2 to 5 lanes from Sutton Road to SC 160

Figure 11.6: 2045 LRTP Projects in Relation to Sensitive Natural Resources



Legend

2045 LRTP Intersection/Interchange Projects

- Pennies for Progress
- Cost Constrained



100 Year Floodzone



Parks

Catawba Reservation

Municipalities

NWI Wetlands Greater than One Acre



2045 LRTP Roadway Projects

- Pennies for Progress
- Cost Constrained



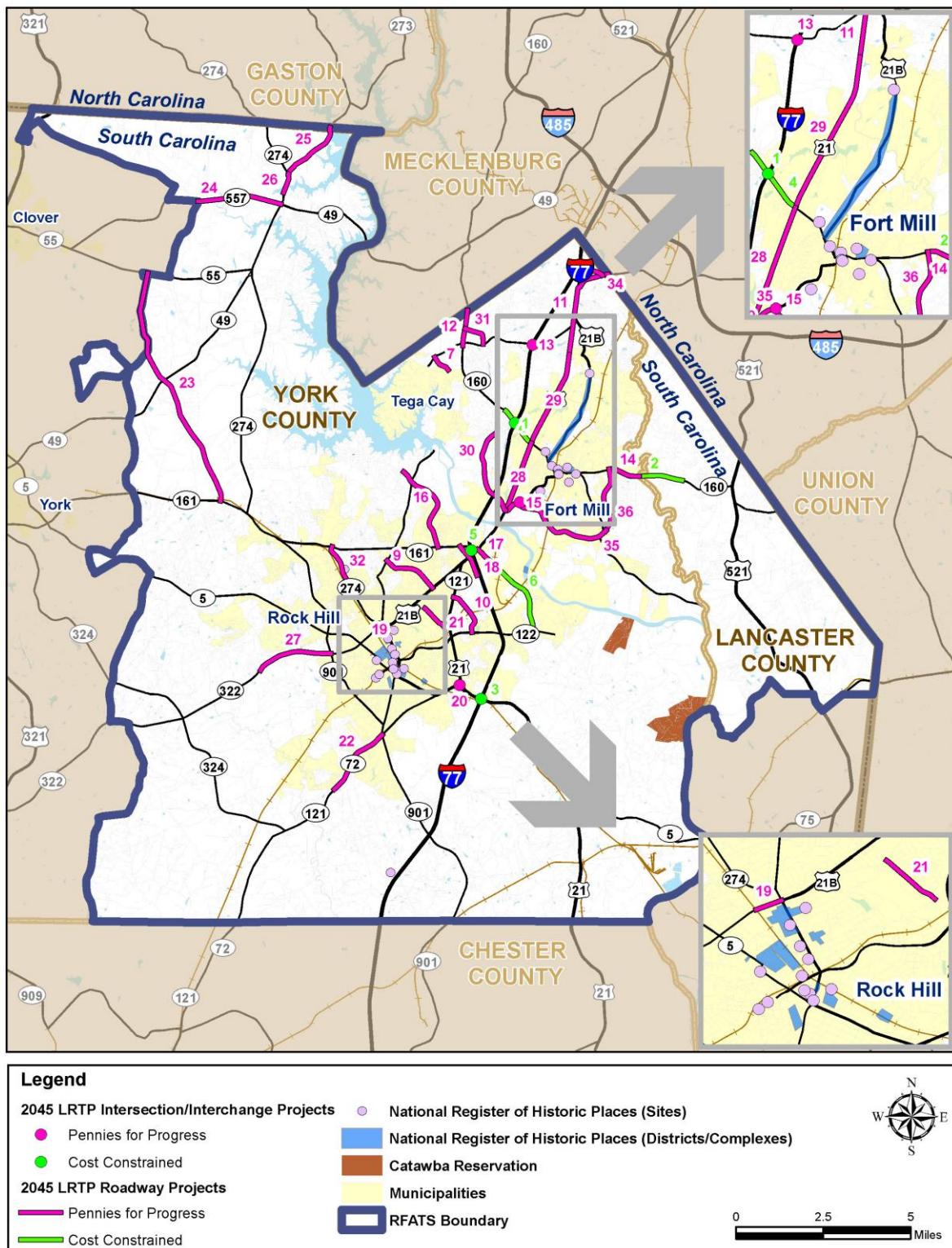
RFATS Boundary

Counties

0 2.5 5 Miles

Source: NWI, FEMA (data collected 8/2016), US Fish & Wildlife (2/2017)

Figure 11.7: 2045 LRTP Projects in Relation to Sensitive Cultural Resources



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 altogether, by not implementing a project or a specific element of a project,
- 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, by 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

Another area of environmental concern relates to the implications 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 by far the biggest source of GHG emissions. In the United States, approximately 30 percent of GHG emissions 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 likely play a large role in the ongoing discussion of GHG reduction goals.

Strategies to reduce transportation GHG emissions include:

- **Introduction of low-carbon fuels.** Alternative fuels are available that have lower carbon content and therefore generate fewer transportation GHG emissions. These 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.** GHG emissions can also be reduced by vehicle improvements that allow less fuel to be used per mile traveled. Fuel efficiency improvements include advanced engine and transmission designs, lighter-weight materials, improved aerodynamics, 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 of operations – improvements that can also result in lower energy use and GHG emissions. The 2045 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, where such shifts are practical in terms of price and convenience—such as 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 that reduce energy use and GHG emissions associated with personal travel. The 2045 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.



Adaptation to Climate Change Impacts

Climate change is also likely to impact transportation infrastructure through the predicted 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.

Based on current information and models, the climate change challenges most likely to impact transportation infrastructure are:

- Increases in very hot days and heat waves;
- Increases in Arctic temperatures;
- Increases in intense precipitation events; and
- Increases in hurricane intensity.

Although the RFATS region will not be directly affected by all of these challenges, its short-term and long-term transportation system needs will be affected by more intense and longer lasting heat waves, as well as increases in

the intensity of precipitation events. Both of these issues are further discussed below.

Managing Stormwater Impacts

With the passage of the FAST Act, Congress has directed that Long Range Transportation Plans consider how to reduce or mitigate stormwater impacts on surface transportation.

Rapid flooding can result when precipitation falls at an increased rate or quantity. This is particularly likely in urban areas where more of the earth's surface is paved, providing less opportunity for runoff to be absorbed.

Numerous urban areas across the country are experiencing more frequent flooding and stormwater issues. Potential strategies to adapt to the stormwater impacts associated with increased flooding include:

- Restricting use of floodplains along rivers and creeks for open space, greenways and other purposes that can withstand periodic flooding.
- Installing real-time weather and hydrologic data monitoring equipment at area bridges, so that transportation agencies and emergency agencies are notified when they may need to check a particular location for flooding, scouring or other problems.
- Increasing the resources given to critical ongoing road maintenance activities such as street sweeping and clearing clogged storm drains. Such regular maintenance can help mitigate the risk of road closures or hazards from flooding.



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

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 heavily rippled at the approaches to intersections, a type of damage generated from the force of braking trucks on hot asphalt. Sustained heat waves could result in the need for more frequent road maintenance.

Under the FAST Act, MPOs are charged with planning ways to make transportation infrastructure more resilient. This can involve large-scale efforts to rebuild a critical facility that could be impacted by climate change, or build a new road or bridge as an alternative to that facility. However, 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, which are able to detect when a vehicle is located directly above them.) 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 become more extreme, the region could experience more frequent loop damage as the number of very hot days increases. Rather than continue to repair and replace the loops, some cities are choosing to change to video or radar detection.



Environmental Justice and Title VI

Environmental Justice (EJ) legislation originated in Title VI of the 1964 Civil Rights Act. This Act, and subsequent legislation, aims 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 purposes.

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 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 simply 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 might have been missed during this census-based analysis. RFATS has a Title VI program to ensure that regional transportation planning and programming activities are carried out in compliance with all relevant regulations and procedures.

Analysis

Minority Persons

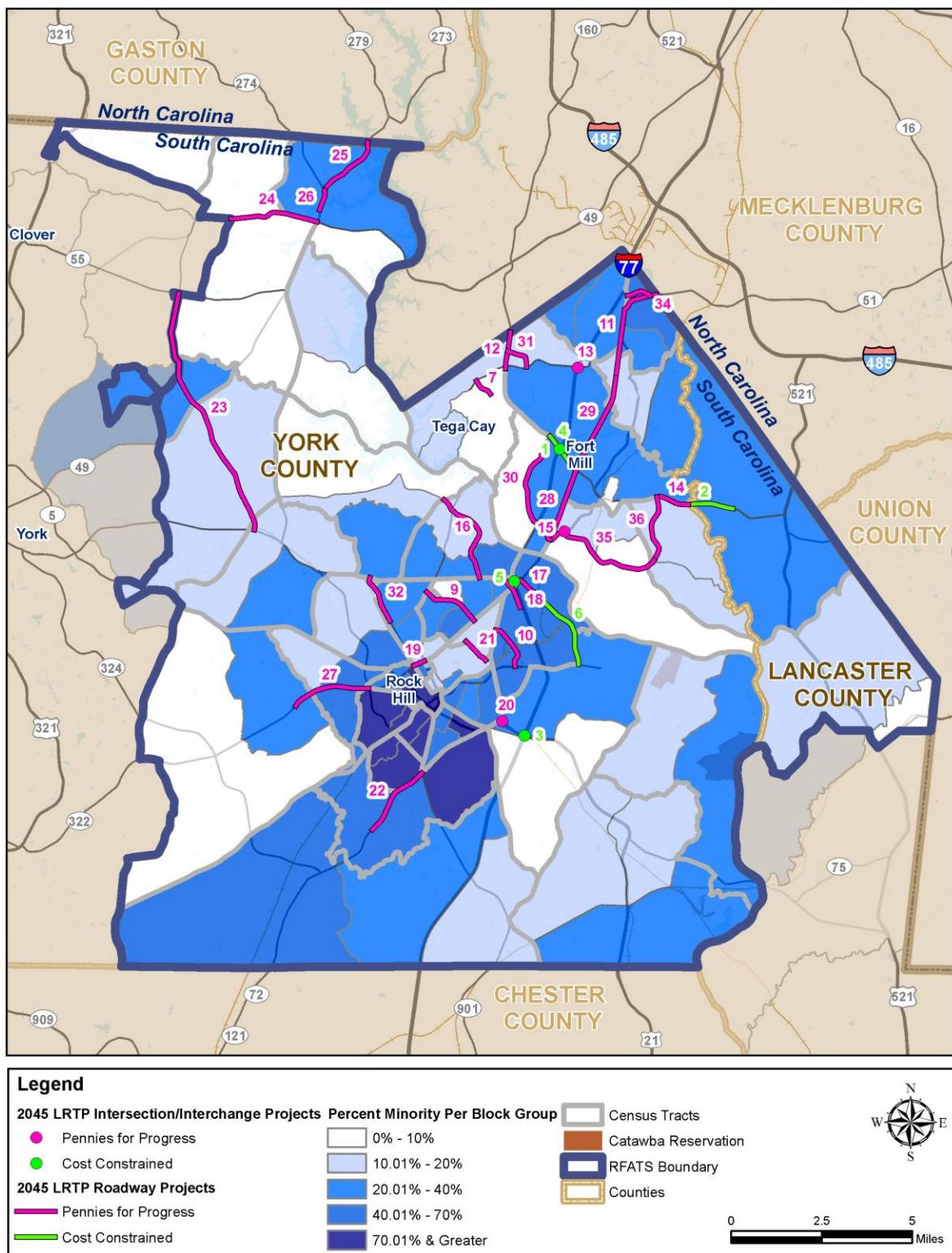
In this analysis, estimates of the minority population were obtained from census data based on two types of survey responses: (1) persons identifying themselves as African American, Asian American, American Indian and Alaskan Native, Native Hawaiian or Other Pacific Islander; and (2) persons identifying 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 area, in relation to the locations of projects proposed by the 2045 LRTP. Listed below in **Table 11.4** are projects with potential impact, based on this analysis, to areas with a relatively high percentage of minority residents.

Table 11.4: Projects With Potential Impact on Minority Communities

Project ID	Route	Project Description
5	I-77 at Cherry & Celanese Rd	Interchange improvements at Exits 82 A, B, C
6	Cel-River / Red River Road	Widen to 5 lanes from the Southern Eden Terrace Extension (S-645) to Dave Lyle Blvd (SC 122)
10	Mt Gallant Road	Widen from 2 to 3 lanes from Anderson Rd (US 21 Byp) to Dave Lyle Blvd (SC 122)
11	US 21N and SC 51	Widen from 2 to 5 lanes from Springfield Pkwy to NC state line
18	Riverview Road	Widen from 2 to 3 lanes from Eden Terrace to Celanese Rd
19	US 21 (Cherry Street)	Pedestrian safety improvements near Winthrop University
22	SC 72 (Saluda Street)	Widen from 2 to 3 lanes from SC 901 to Rambo Rd
27	McConnell's Highway (SC 322)	Widen to 3 lanes from Heckle Blvd to Falls Rd
34	Springfield Farm Road	Widen from 2 to 5 lanes from US 21 to SC 51

Figure 11.8: 2045 LRTP Projects in Relation to Areas of Minority Residents



Source: American Community Survey 5-Year (2009-2014)

Low-Income Persons

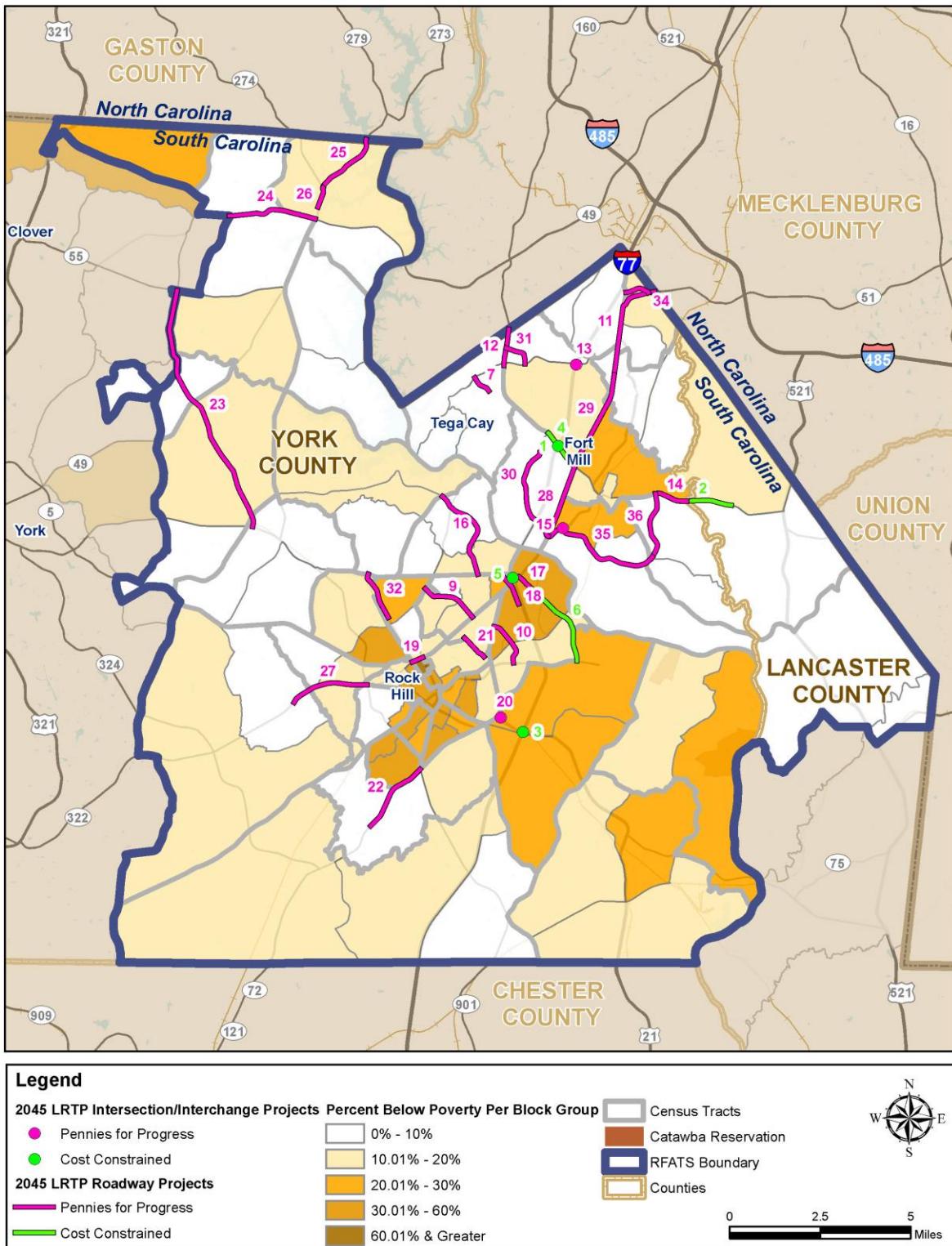
For purposes of this analysis, low-income persons are defined as those whose median household income is at or below the Department of Health and Human Services poverty guidelines. Although these guidelines are referenced in the EJ Executive Order as the standard, they are actually a simplified version of the U.S. Census Bureau's poverty thresholds, on which this plan's analysis is based. The Census Bureau's determination of whether an individual 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 populations in the RFATS area, in relation to the location of projects proposed and/or otherwise included in the 2045 LRTP (e.g., locally funded Pennies projects, etc). Listed below in **Table 11.5** are projects with potential impact, based on this analysis, to areas with a relatively high percentage of low-income residents.

Table 11.5: Projects With Potential Impact on Low-Income Persons

Project ID	Route	Project Description
5	I-77 at Cherry & Celanese Rd	Interchange improvements at Exits 82 A, B, C
10	Mt Gallant Road	Widen from 2 to 3 lanes from Anderson Road (US 21 Byp) to Dave Lyle Blvd (SC 122)
15	Intersection area: Ft Mill Southern Bypass, Spratt St, S. Sutton Rd (SC 49)	Intersection reconfiguration
18	Riverview Road	Widen from 2 to 3 lanes from Eden Terrace to Celanese Road
19	US 21 (Cherry Street)	Pedestrian safety improvements near Winthrop University
20	Anderson Road (US 21)/Cowan Farm Road	Intersection improvements
22	SC 72 (Saluda Street)	Widen from 2 to 3 lanes from SC 901 to Rambo Road
29	US 21 North	Widen from 2 to 5 lanes from SC 160 to Springfield Pkwy
33	Cel-River Road	Widen from Dave Lyle Blvd (SC 122) to Anderson Road
35	Fort Mill Southern Parkway	Widen from 2 to 5 lanes from I-77 to Holbrook Road

Figure 11.9: 2045 LRTP Projects in Relation to Areas of Low-Income Persons



Source: American Community Survey 5-Year (2009-2014)

Persons with Limited English Proficiency (LEP)

The U.S. Census Bureau defines a limited English-speaking household as “one in which no member 14 years old and over (1) speaks only English or (2) speaks a non-English language and speaks English ‘very well.’ In other words, all members 14 years old and over have at least some difficulty with English.”

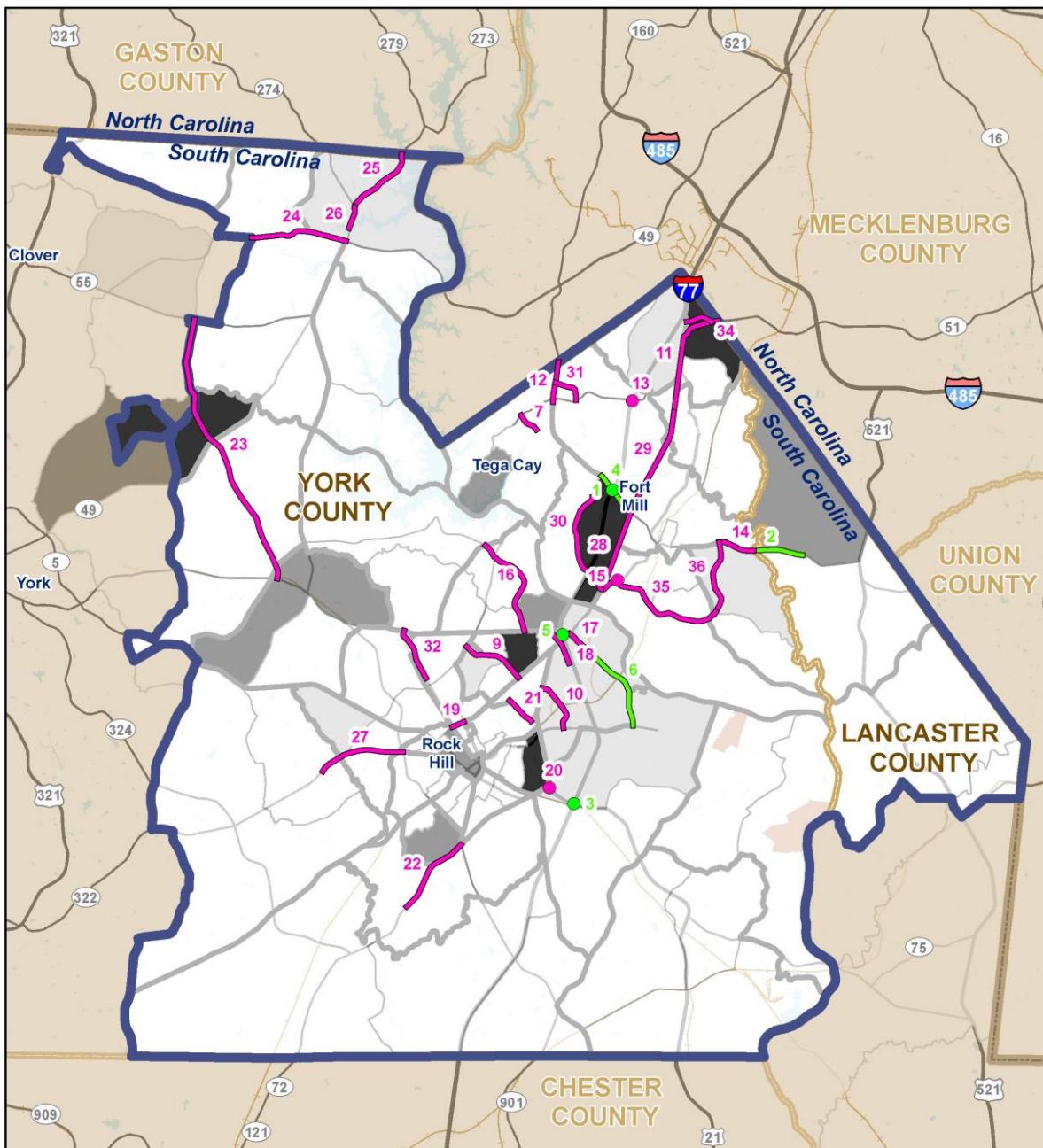
Given the low percentage of LEP households in the region, broad measures such as translating documents and providing interpreters for all of RFATS public meetings may not be warranted. However, a review of the data does show some locations where LEP households make up at least five percent of total households in a given census block. (**See Figure 11.10.**)

When projects are under development in these areas, it is particularly appropriate for public agencies to consider targeted outreach or having an interpreter at meetings. **Table 11.6** lists those projects.

Table 11.6: Projects in Areas with High Percentage of LEP Households

Project ID	Route	Project Description
1	I-77 / SC 160	Interchange reconfiguration
4	SC 160	Widen to 6 lanes from US 21 to Sutton Road
9	Ebinport Road (SC 904)	Widen from 2 to 3 lanes from Cherry Road to India Hook Road
11	US 21 North and SC 51	Widen from 2 to 5 lanes from Springfield Pkwy to NC State Line
20	Anderson Road (US 21)/Cowan Farm Road	Intersection improvements
23	Paraham Road (S 46-54)	Add 3-foot paved shoulders from SC 161 to SC 55
28	US 21 North	Widen from 2 to 5 lanes from Sutton Road to SC 160
30	Sutton Road	Widen from 2 to 5 lanes from 6 th Baxter to US 21
34	Springfield Farm Road	Widen from 2 to 5 lanes from US 21 to SC 51
35	Fort Mill Southern Parkway	Widen from 2 to 5 lanes from I-77 to Holbrook Road

Figure 11.10: 2045 LRTP Projects in Relation to Areas of Persons with Limited English Proficiency



Legend

2045 LRTP Intersection/Interchange Projects Percent Limited English Proficiency (LEP) per Household

● Pennies for Progress	0% - 0.5%
● Cost Constrained	0.51% - 2.5%
2045 LRTP Roadway Projects	
● Pennies for Progress	2.51% - 5%
● Cost Constrained	5.01% & Greater

Census Tracts

Catawba Reservation

RFATS Boundary

Counties



0 2.5 5 Miles

Source: American Community Survey 5-Year (2009-2014)