4 Highway Element

4.1 Introduction

4.1.1 Purpose of Chapter

This chapter provides the highway element of the RFATS 2035 Long Range Transportation Plan (LRTP). It describes the existing conditions and trends at the national level, at the statewide/regional level and within the RFATS Study Area. It then describes the current and future issues, at the same set of levels. The proposed highway projects are then listed. Stakeholder input is summarized, followed by a review of key points and a list of recommendations.

4.1.2 Relevance to the Transportation System and the Plan

The highway system is the principal means of mobility and accessibility within the overall transportation system. An efficient highway system provides a strong foundation upon which a regional economy can prosper.

There are also important linkages between transportation and land use. This was true in the 19th century when the City of Rock Hill developed with the building of the railroad, and it remains true today, particularly in relation to the highway system. Land use patterns determine travel needs and the demands placed upon highways. The need for changes to highways, whether widening, bypasses or simply a more context-sensitive street design, often reflects the adjoining land uses. Highways in turn have a major influence on land use, particularly by encouraging developments in highly accessible locations, and these land uses in turn feed into traffic volumes.

The highway system in the RFATS Study Area connects the Rock Hill and Fort Mill urban areas to each other, connects the smaller communities within each urban area, and connects to the wider regional and national networks. The system includes an interstate route and a US highway that connect the RFATS Study Area with Charlotte to the north and Columbia to the south.

4.2 Existing Conditions and Trends

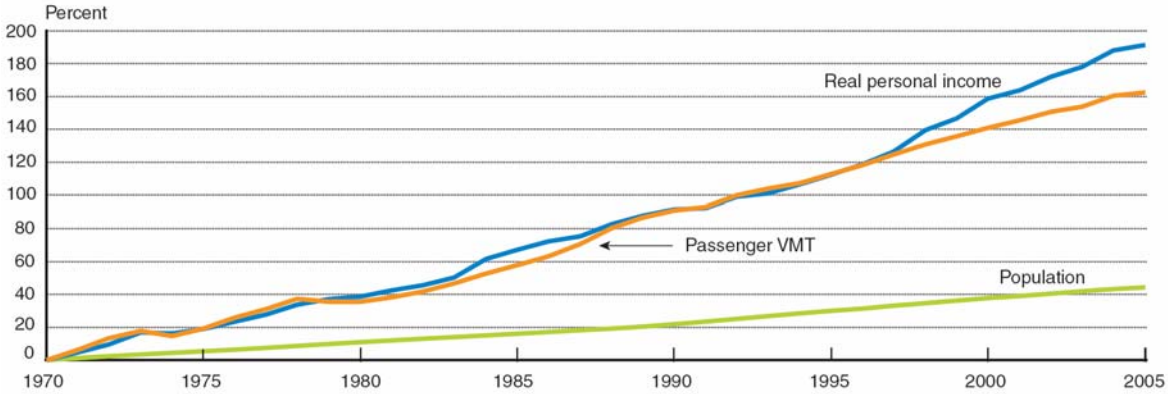
4.2.1 National Conditions and Trends

For the past three decades or more, personal highway travel has been increasing steadily, much faster than the rate of population increase (Figure 4.1). This has essentially been due to steadily rising incomes, which in turn have led to rising rates of car ownership, increasing suburbanization and the increasing affordability of longer trips rather than shorter ones.

However, since 1997 the relationship between incomes and highway travel has become weaker. Travel is still increasing, but falling behind the growth in incomes. This is likely due to a combination of factors: vehicle availability is reaching a saturation point (the vast majority of households already have one or more vehicles per adult), and the historical trend of falling travel costs and rising average speeds has begun to reverse.

Nevertheless, it is still likely that travel demand will continue to grow, reflecting both economic and population growth. The challenge therefore remains to accommodate (or manage) this growth. The problem can also be seen in terms of rising congestion, particularly in metropolitan areas, which acts as a brake on growth and a cost to the economy.

Figure 4.1 National Trend in Highway Passenger Vehicle Miles (VMT)



Source: Bureau of Transportation Statistics, Special Report
'Trends in Personal Income and Passenger Vehicle Miles', October 2007

4.2.2 Statewide and Regional Conditions and Trends

South Carolina reflects the national trends. Between 1990 and 2005, the state's population increased by 22% but traffic (measured in Vehicle Miles Traveled (VMT))

increased by 39%[1]. Put another way, the annual mileage per person increased by 14% over that period. The South Carolina Department of Transportation also estimates that congestion within the state cost $345 million in 2006. This includes more than $6 million within the RFATS Study Area.

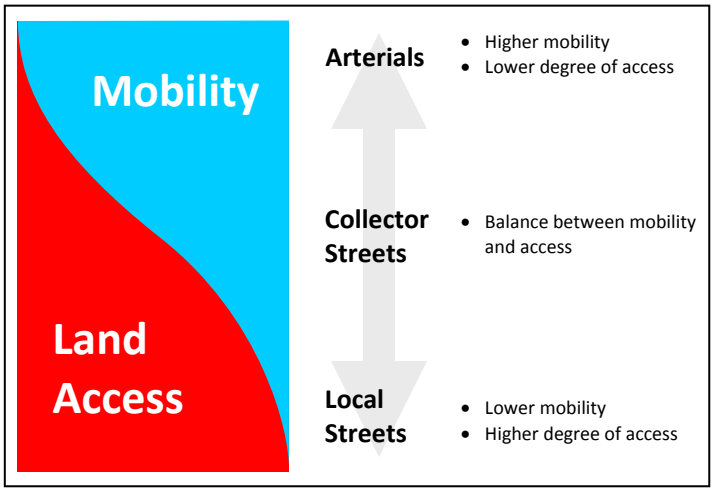
The South Carolina Department of Transportation (SCDOT) recognized this challenge in its 2008 Multimodal Long Range Transportation Plan. While the state is fortunate not to have the extreme congestion problems of large metropolitan areas, South Carolina is growing and congestion is worsening.

4.2.3 Conditions and Trends in the RFATS Study Area

4.2.3.1 Highway Functional Classification

Highways are divided into functional classifications that reflect the balance between their role in providing mobility and their role in providing access to land (Figure 4.2). The four classifications for urbanized areas are principal arterials, minor arterials, collector streets, and local streets.

Figure 4.2 Highway Classification: Mobility Versus Land Access



[1] Source: South Carolina Comprehensive Multimodal Long Range Transportation Plan (2008), Table 3. Figures rounded for clarity.

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

- I-77,
- US-21,
- SC-161 (Celanese Road),
- Dave Lyle Boulevard,
- SC-160 (Clebourne Street), and
- SC-5 (Main Street).

Example of a principal arterial – Cherry Road in Rock Hill

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

- SC-274 (Hands Mill Highway),
- SC-160 (West of I-77), and
- India Hook Road/Herlong Avenue.

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

- Dobys Bridge Road,
- Twin Lakes Road, and
- Ebinport Road.

Example of a collector street – Main Street in Fort Mill

Local streets provide direct access to adjacent land. Streets within residential subdivisions would be classified as local streets.

Figure 4.3 shows the functional classifications for the RFATS Study Area as used in the Metrolina Travel Demand Model ('Metrolina Model'). These classifications are designed for modeling purposes and are therefore different from the functional classifications described above.

4.2.3.2 Traffic Volumes

Generally, the higher the level of functional classification, the higher the volume of traffic that the highway carries. Figure 4.4 shows the estimated daily traffic volumes in the RFATS Study Area in the year 2005. I-77 had a volume of nearly 38,000 vehicles per day at the southern edge of the RFATS Study Area, increasing to 120,000 at the North Carolina border. Of the other streets in the RFATS Study Area, the arterials SC-161, Cherry Road, Dave Lyle Boulevard, SC-5, and US-21 had the highest traffic volumes.

4.2.3.3 Traffic Congestion

Traffic congestion is a major consideration in judging the efficiency of a highway network system. Figure 4.5 shows the estimated traffic congestion during the P.M. peak period in 2005. The estimates were generated by the Metrolina Model, which estimates the traffic-volume to highway-capacity ratio (the primary measure of congestion) for each segment of roadway. The arterials show the highest levels of congestion, especially at the interstate interchanges where large retail shopping centers exist. In addition , several other stretches of roadway are at capacity, notably I-77 south from the State Line to the Catawba River.

Routes that are currently over capacity in at least one direction during the P.M. peak period include:

- SC-21/5 (Albright Road) between Black Street and Firetower Road, in Rock Hill.

- Celanese Road east of India Hook Road, in Rock Hill,
- sections of the US 21 Bypass from Mount Gallant Road in Rock Hill to Spratt Street near Fort Mill,
- Spratt Street east of US 21, near Fort Mill
- SC-160 (Tom Hall Street) directly eastward from downtown Fort Mill,
- SC-160 west of Sutton Road and Pleasant Road,
- US-21 Bypass from Old Nation Road to I-77, near the State line,
- Rock Hill Pineville Road east of US 21 Bypass, and
- a number of ramps at interchanges on I-77.

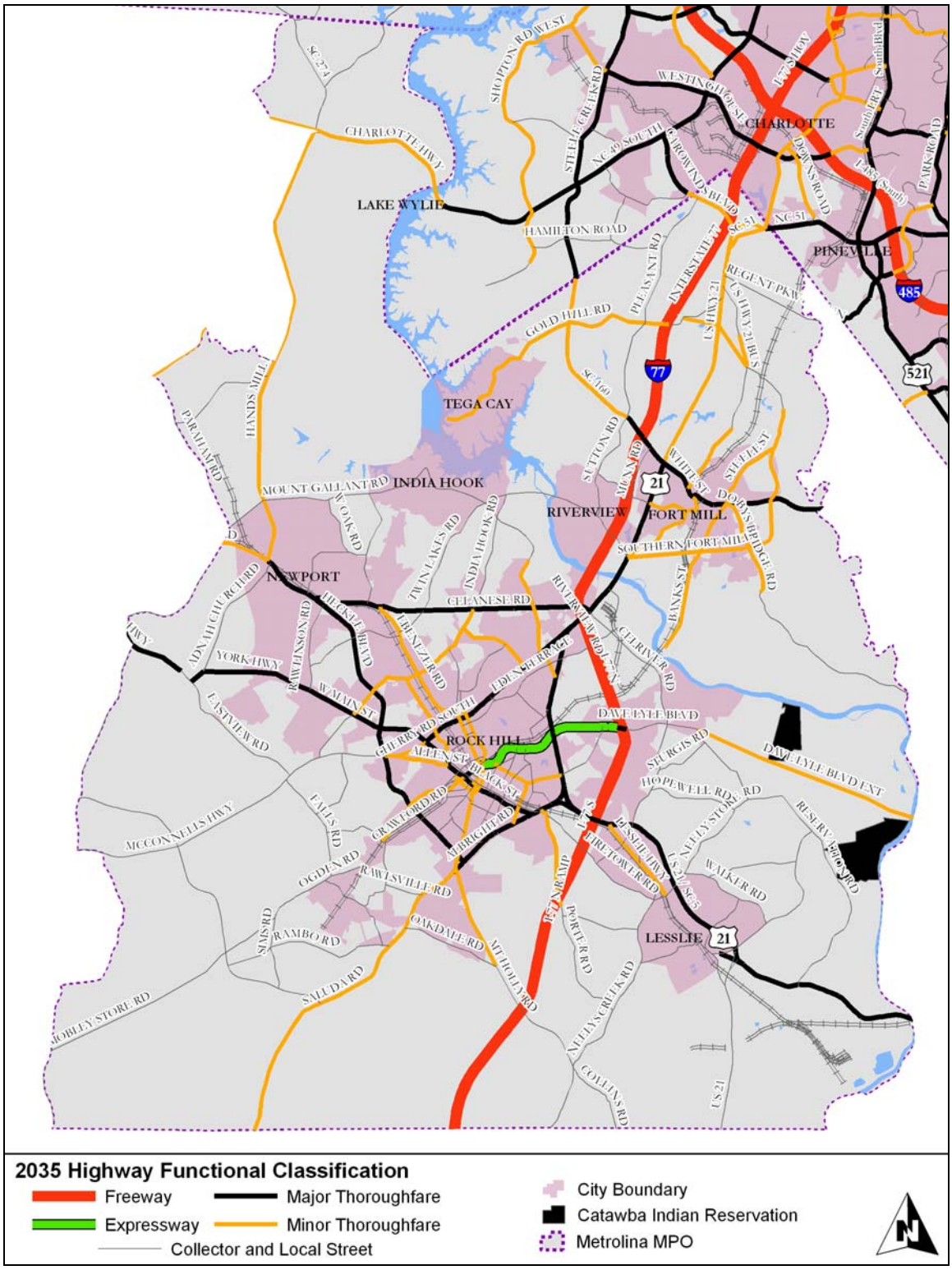
4.2.3.4 Pennies for Progress

The York County Local Option Sales Tax program (known as 'Pennies for Progress') has allowed a number of recent projects to be implemented that otherwise would have remained unfunded, and will continue to do so for several more years.

The Pennies for Progress Program was initiated by York County to provide the citizens with a safer and more efficient roadway system. The projects were chosen by a Sales Tax Commission that represented 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.

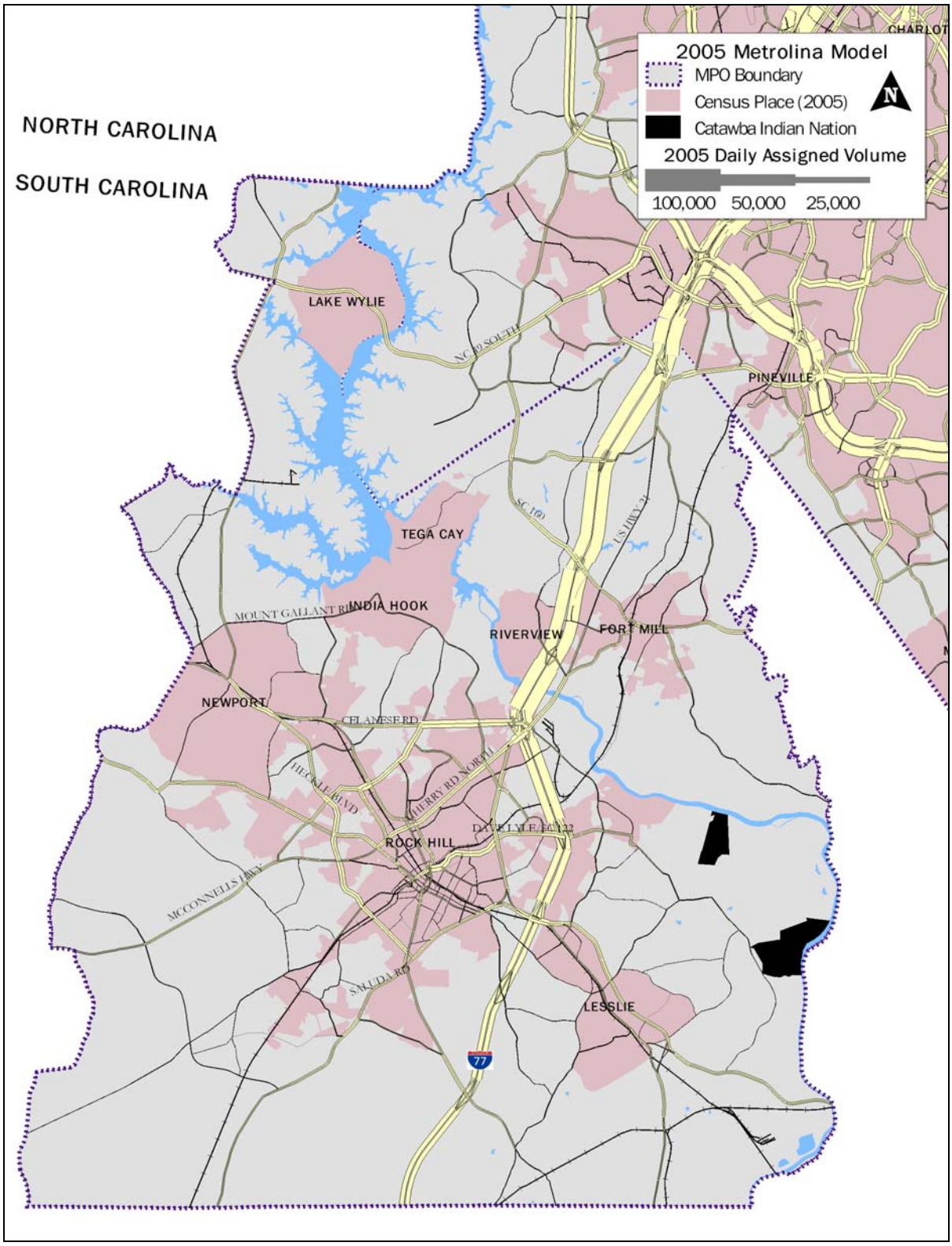
The first Pennies for Progress referendum was passed in 1997, authorizing a sales tax that funded a range of projects for the period 1998 to 2009. A referendum in 2003 effectively renewed the sales tax until 2011 (or until the target amount is raised, whichever comes first) to fund a second program of projects for the period to 2013. Table 4.2 includes the planned projects within the RFATS Study Area that are funded by each Pennies for Progress program.

Figure 4.3 Functional Classification of Highways in the RFATS Study Area



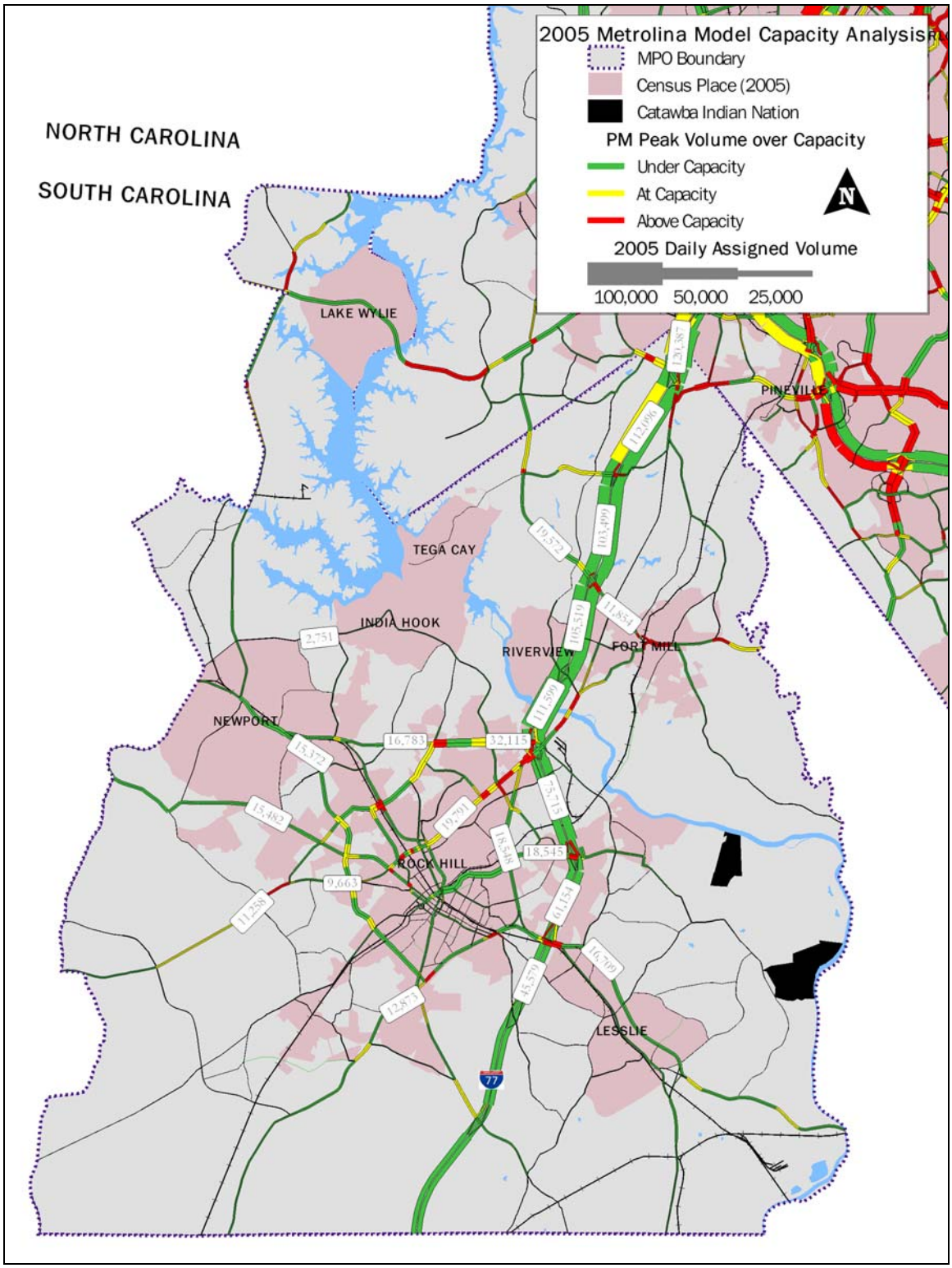
Source: Metrolina Travel Demand Model

Figure 4.4 Existing (2005) Traffic Volumes



Source: Metrolina Regional Travel Demand Model

Figure 4.5 Existing (2005) Congestion



Source: Metrolina Regional Travel Demand Model

4.3 Current and Future Issues

4.3.1 National Current and Future Issues

Currently there is growing concern at the national level not only about the ability to add roadway capacity, but also about the ability to simply maintain the existing highway network to desired standards. The collapse of an interstate bridge in Minnesota in 2007, although not directly related to ongoing maintenance levels, drew national attention to this issue.

There are particular concerns over the main funding source, which is the federal gasoline tax. This is set at a fixed cents-per-gallon rate, so it does not rise with inflation, and the revenue it generates is therefore vulnerable to both long-term trends in fuel-efficiency and short-term variation in vehicle mileage (noticed recently in the tightening economic climate). In addition, strong price inflation in the construction sector has recently led to major increases in project costs, although it is not clear if this will be a long-term trend.

Several recent studies and initiatives by the Federal legislative and executive branches have attempted to plot a way forward. There is widespread recognition that a greater focus on alternatives to traditional highway construction should be part of the solution. However, there will remain a pressing need to provide secure long-term levels of funding, and political consensus has yet to be reached on how this should be achieved.

Meanwhile, the current economic situation has led to a focus on possible 'economic stimulus packages' of public expenditure, particularly at the national level. This may ultimately lead to a short-term boost for highway spending, but likely not enough to significantly affect the long-term gap between needs and resources.

4.3.2 Statewide and Regional Current and Future Issues

South Carolina is not immune from the nationwide gap between identified needs and funding. The statewide plan estimates that the necessary upgrades to primary and secondary highways in the next 20 years alone will cost around $7 billion. However, funding constraints mean that in most cases projects will be limited to those that upgrade existing routes, rather than construction of new routes. On the interstate network, the estimated needs to 2030 total $11 billion, but less than $3 billion of funding is

projected to be available. This means that many interstate projects, including widening of I-77 within the RFATS Study Area, cannot be scheduled for construction and would need to be candidates for 'extraordinary funding opportunities in the future'.

4.3.3 Current and Future Issues in the RFATS Study Area

4.3.3.1 Forecast Traffic Volumes and Congestion

This LRTP looks toward the year 2035. The Metrolina Model provides traffic forecasts for 2035, based on the existing highway network plus projects for which money has been committed (the 'Existing and Committed' or 'E&C' network). This model therefore shows the traffic conditions in 2035 if only fiscally-constrained projects are built.

Figure 4.6 shows the forecast traffic volumes for this Existing and Committed network. Figure 4.7 shows how these volumes have changed compared to 2005. The increased traffic volumes have an effect on congestion. Figure 4.8 shows the forecast volume-to-capacity ratios during the P.M. peak period for the Existing and Committed network, and shows increasing congestion on the highway system.

Routes that are expected to be over capacity for significant stretches in at least one direction during the P.M. peak period include:

- SC-21/5 (Albright Road) between Black Street and the railroad, in Rock Hill.
- sections of Celanese Road and Old York Road from I-77 to SC-274, in and near Rock Hill,
- Cherry Road from Main Street to I-77, in Rock Hill,
- US-21 Bypass (Cherry Road) from I-77 to Spratt Street near Fort Mill,
- Spratt Street east of US-21, near Fort Mill,
- the proposed Fort Mill Southern Bypass, from US-21 to Dobys Bridge Road,
- sections of SC-160 (Tom Hall Street) eastward from downtown Fort Mill,
- SC-160 from the State line to Gold Hill road and in some other locations,
- US-21 Bypass from Old Nation Road to I-77, near the State line,
- Springhill Farm Road from I-77 to Rock Hill-Pineville Road,
- Carowinds Boulevard from I-77 to the State line,
- SC-274 through Newport,
- sections of Heckle Boulevard,
- sections of Herlong Avenue from Heckle Boulevard to Celanese Road,
- US-21 (Anderson Road) from the railroad to Mount Gallant Road in Rock Hill,
- I-77 south from US-21 (Anderson Road) to the lane-drop near Firetower Road, and
- a number of ramps at interchanges on I-77.

In addition, several other stretches of roadway are at capacity, notably I-77 in both directions from the State line to Celanese Road and south from US-21 (Anderson Road) to the County line.

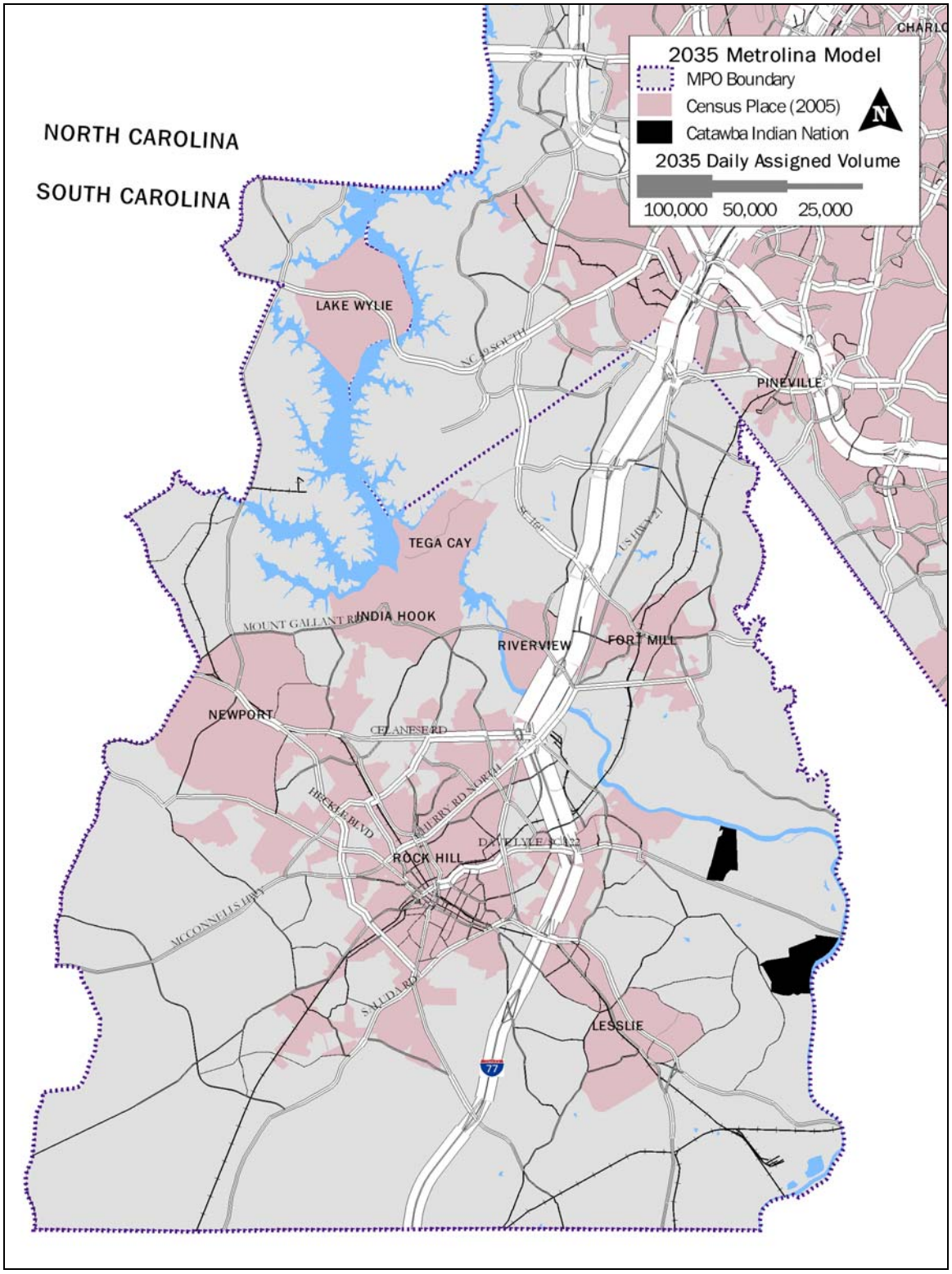
It is important to reiterate that this forecast congestion has taken into account the projects expected to be funded. That is, even with full use of available funds, congestion is expected to worsen on many roads that are important for regional mobility. This will also have an impact on air quality, within the RFATS Study Area.

It will therefore be important to seriously consider what can be done beyond simply using the forecast resources. One approach is for citizens to agree to additional local funding for highway capacity, perhaps through a third Pennies for Progress program. Another approach is to focus on providing and promoting better use of the available capacity – for example, by promoting higher vehicle occupancies and greater use of transit.

4.3.3.2 Operations and Maintenance

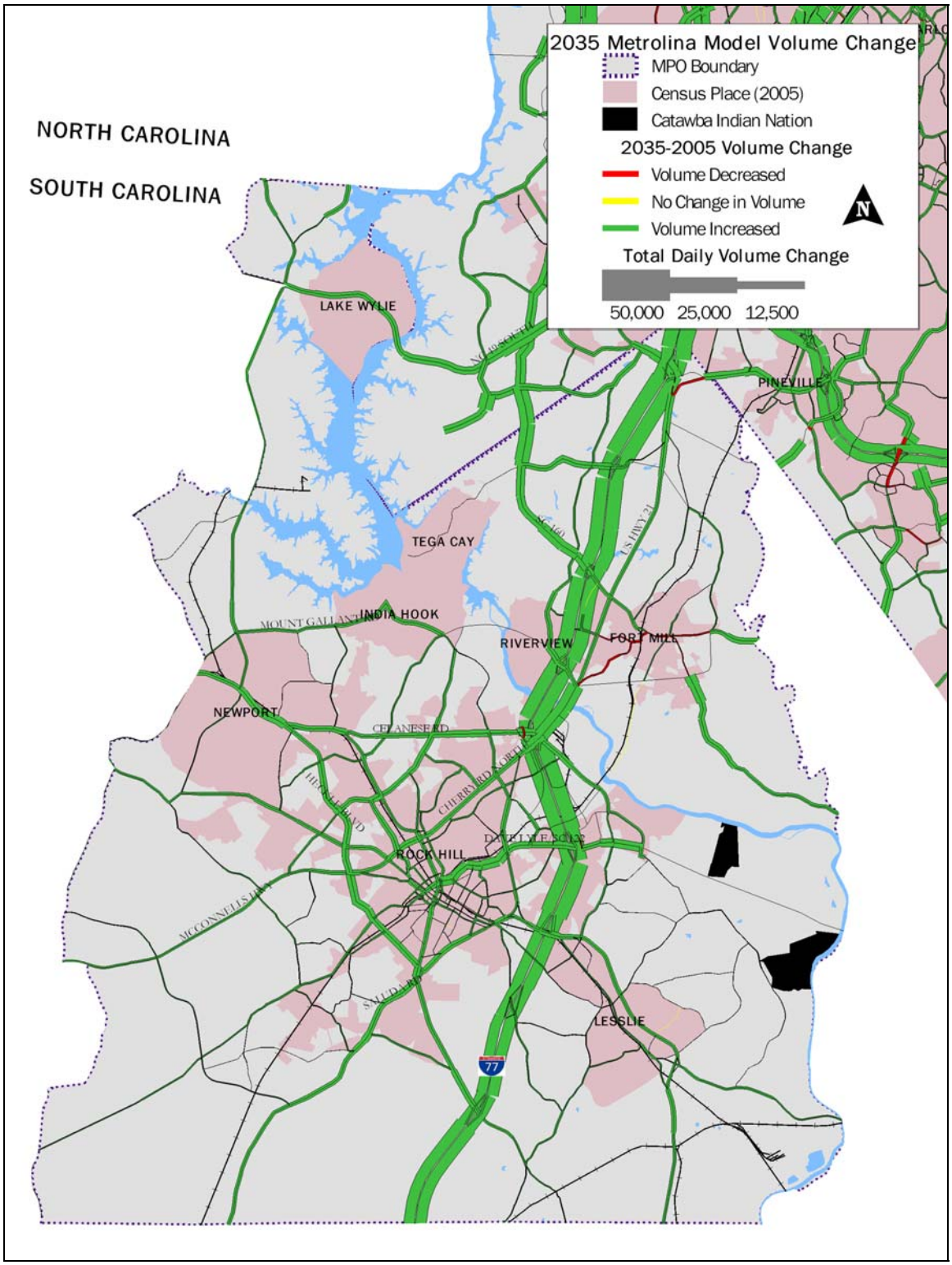
A full description of operations and maintenance measures on the highway network is given in the Congestion Management Process element. Progress so far includes adoption of a Congestion Management Network (CMN), identification of recommended intersection improvements, and traffic management along I-77.

Figure 4.6 Future (2035) Traffic Volumes (E+C Network)



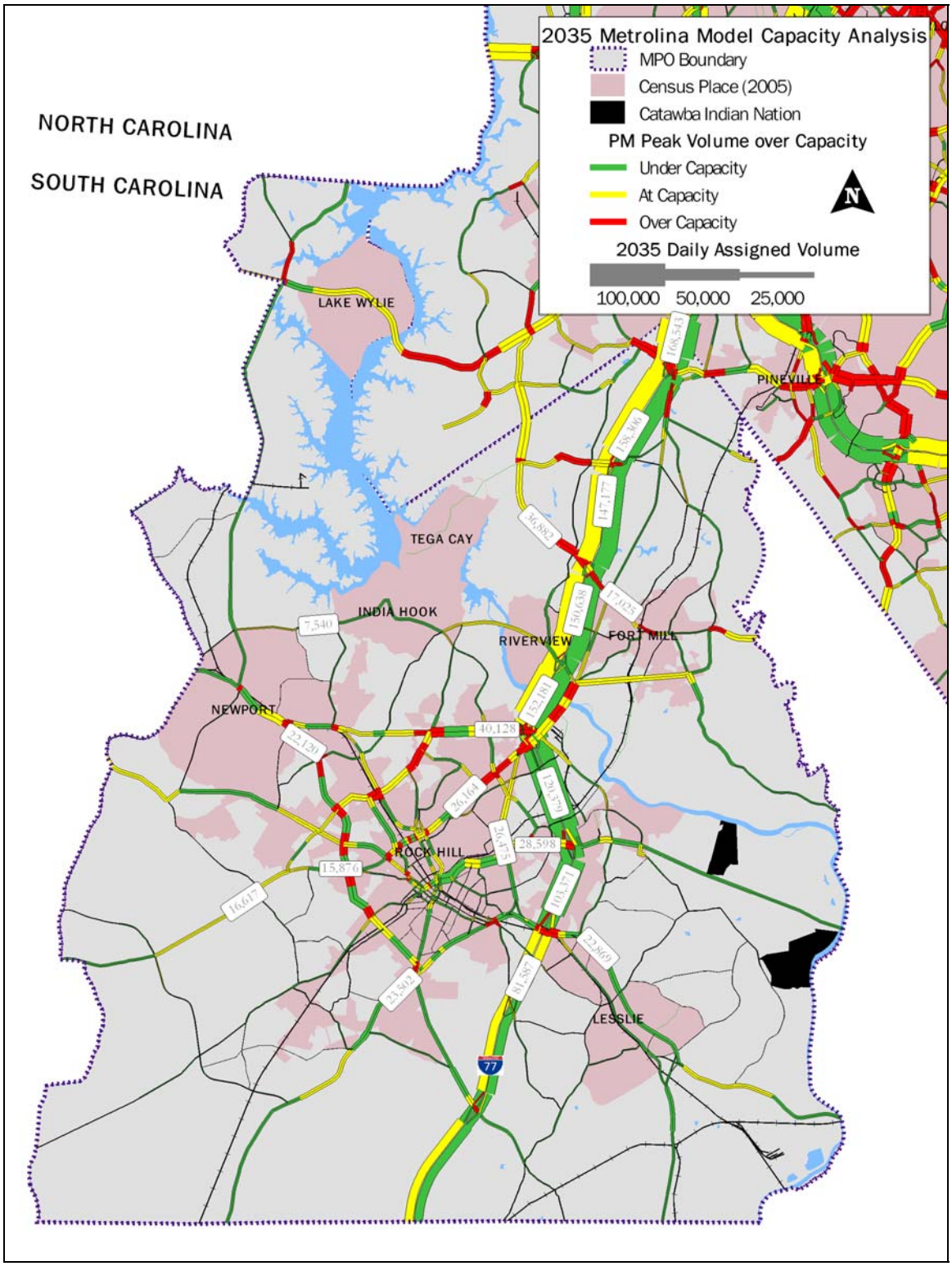
Source: Metrolina Regional Travel Demand Model

Figure 4.7 Future (2035) Traffic Volume Change (2035 – 2005)



Source: Metrolina Regional Travel Demand Model

Figure 4.8 Future (2035) Congestion (E+C Network)



Source: Metrolina Regional Travel Demand Model

4.4 2035 Long Range Transportation Plan Projects

4.4.1 Project Selection Criteria

A number of factors were considered in setting priorities for the RFATS Long Range Transportation Plan. In response to State Law (Act 114 of 2007), SCDOT developed a set ranking criteria for three types of projects: new locations, intersections, and widenings. For the new Catawba River crossing project, the new location project ranking was used. The criteria for new locations are:

- Financial Viability and Maintenance Cost,
- Potential for Economic Development,
- Traffic Volume and Congestion,
- Environmental Impact,
- Alternative Transportation Solutions,
- Consistency with local Land-Use Plan, and
- Public Safety

Table 4.1 shows the criteria in more detail; it should be noted that in April 2008, the RFATS Policy Committee endorsed SCDOT's project criteria for its own use in the 2035 LRTP update.

Table 4.1 Project Ranking Criteria

Section 57-1-370 - Criteria for Statewide Ranking of New Location Projects	
Criterion	**Weight**
Financial Viability and Maintenance Cost • Will use project cost per vehicle mile of travel and a 20-year maintenance cost per mile in combination as a scoring system	20%
Potential for Economic Development • Department of Commerce has agreed to score projects • Projects will be judged based on potential impact to employment and investment • Will use a 1, 3, and 5 scoring system with 5 representing greatest positive impact	20%
Traffic Volume and Congestion • Will compare network hours of delay for build and no build scenario to estimate project delay reduction. May also be used as a basis for comparing widening projects against new location alternatives. • Analysis will be based on available MPO, COG, statewide models.	45%
Environmental Impact • Assessment will come from the long-range plan environmental screening analysis • Will consider potential impacts to environmental, social, and cultural resources • Will use a 1, 3 and 5 scoring system, with 5 representing no significant impacts	15%
Alternative Transportation Solutions • Interpreted to imply consideration of transit as an alternative to or in addition to a widening project. • Recommending that the Alternative Transportation Solutions criteria not be included as a quantifiable criteria within the statewide ranking process. Instead, incorporate a transit propensity assessment in the long-range planning process and documented in the Advance Project Planning Reports (APPRs). As warranted, based on the transit propensity score additional analysis would be initiated during the NEPA process.	See descrip-tion
Consistency with Local Land Use Plans • Inherent in the federal transportation planning process • Recommend that the Consistency with Local Land Use Plans criteria not be included as a quantifiable criteria within the statewide ranking process. Instead, consider this criteria as either a yes or no evaluation.	See descrip-tion

Project Ranking Criteria

Section 57-1-370 - Criteria for Statewide Ranking of Intersection Projects	
Criterion	**Weight**
Traffic Status • Considers design deficiencies	20%
Traffic Volume and Congestion • Considers average daily volumes • Based on current traffic count data	25%
Truck Traffic • Data provided by SCDOT Road Data Service • Truck percentage converted to a truck ADT to give greater consideration to higher volume roads • Based on current traffic count data	15%
Safety • Provided by SCDOT Traffic Engineering	20%
Potential for Economic Development • Can be provided by Department of Commerce	10%
Environmental Impact • Can be provided by Environmental Office	10%

4.4.2 List of Projects

Table 4.2 presents the 2035 Long Range Transportation Plan projects. The table is divided into several sections:

- Fiscally-constrained projects,
- York County one-cent sales tax projects for 1997 and 2003,
- Privately-funded projects from the I-77 traffic study,
- Unfunded new alignment, widenings, intersection improvement projects, and
- Circulation and collector road studies.

The **fiscally-constrained projects** include various intersection improvements identified through the congestion management process, and the Catawba River bridge link between Mount Gallant Road / India Hook area to Sutton Road area. The total cost of these projects is estimated to be $55.5 million to the year 2035 (based on year-of-expenditure dollars). The **York County Sales Tax programs** fund $133.5 million of

intersection and other road projects including US-21 (SC-161 to US-21 Bypass in Fort Mill), Fort Mill Southern Bypass, Mount Gallant Road, and SC-72. Nearly six miles of **projects around the I-77 interchanges** in Rock Hill are identified in the plan. A number of **unfunded highway needs** are included in the 2035 LRTP. In addition, several traffic studies are **recommended in the Congestion Management process** which includes: the India Hook / Twin Lakes / Museum Road area and the Spring Hill Farm / SC-51 / Regent Park area.

Projects identified in the 2035 LRTP form RFATS' Transportation Improvement Program (TIP) for the next five years. The TIP reflects projects that are scheduled to move forward in the short-term. Figure 4.9 shows the FY 2009-2015 Transportation Improvement Program (TIP) highway projects on a map. Individual maps of each project are also provided as follows:

- Catawba River Bridge (Figure 4.10)
- I-77 / US-21 Interchange (Figure 4.11)
- Cherry Road (York Avenue to Heckle Blvd) (Figure 4.12)
- SC-72 (Black Street to Heckle Boulevard) (Figure 4.13)
- SC-901 (SC 72 to I-77) (Figure 4.14)
- SC-274 (Intersection Improvements) (Figure 4.15)
- Mount Gallant Road (Anderson Road to SC-161) (Figure 4.16)
- Fort Mill Southern Bypass (SC 160 to US 21) (Figure 4.17)
- Tega Cay / Gold Hill Connector (Figure 4.18)
- US-21 (North of SC 161 to US 21 Business) (Figure 4.19)
- SC-322 / McConnells Highway (Heckle Blvd to Hwy 324) (Figure 4.20)
- Ebinport Road (Cherry Road to India Hook) (Figure 4.21)
- SC-160 / Fort Mill Highway (Sugar Ck to FM N. Bypass) (Figure 4.22)
- Riverview Road (Eden Terrace to SC 161) (Figure 4.23)
- SC-72 (Saluda Street to Rambo Road) (Figure 4.24)
- Mount Gallant Road (SC-161 to Twin Lakes Road) (Figure 4.25)
- Pole Branch Road (SC-274/279) (Figure 4.26)
- Springhill Farm Road (US 21 to SC 51) (Figure 4.27)
- SC-51 (US 21 to NC State Line) (Figure 4.28)
- Eden Terrace (Bradley to Anderson Road) (Figure 4.29)
- Corporate Blvd Connector (Celriver to Commerce Dr) (Figure 4.30)
- Commerce Drive – Galleria Blvd (Galleria to Celriver) (Figure 4.31)
- Galleria Blvd Extension (Paddock Pkwy to Galleria) (Figure 4.32)
- Commerce Drive – Riverwalk Spine Road Connector Road (Figure 4.33)
- Riverview Road Extension (Eden Terrace to Mt. Gallant) (Figure 4.34)
- Eden Terrace Extension (Cherry Road to Riverwalk) (Figure 4.35)
- Galleria Blvd Connector Rd (Mtg St, Celriver, Waterford) (Figure 4.36)
- Celriver Road (S-50) Widening (US 21 to North of S-645) (Figure 4.37)

Table 4.2 RFATS 2035 Long Range Transportation Plan Highway Projects

Approved by RFATS Policy Committee on November 21, 2008

FINANCIALLY FEASIBLE PLAN (2035)				
Ref	**Project description**	**Funding Source**	**RFATS Obligation (millions)**	**Length (miles)**
1(a)	Intersection Improvements / Congestion Mitigation Projects (TBD)	Guideshare	$10.5	NA
1(b)	Safety / Ped / Bike Project - (SC State Trails Project – SC-5 from US-21/5 interchange to Lancaster County Line)	Guideshare	$2.5	3.90
2	Catawba River Bridge, India Hook / Mt. Gallant to Sutton Road - Feasibility / PE / Environmental / ROW	Guideshare	$10.5	0.10
3	Catawba River Bridge, India Hook / Mt. Gallant to Sutton Road - 5 Lane New Alignment	Guideshare	$32.0	3.00
	Total		**$55.5**	
	Estimate of available Guideshare funding through 2035 ($2.819 million annually)		**$55.5**	

STATE TRANSPORTATION IMPROVEMENT PROGRAM (STIP) PROJECTS				
Ref.	**Project description**	**Funding Source**	**Project Obligation (millions)**	**Length (miles)**
1	System Improvement Projects (Bridge Replacements, Safety, Road Widenings, Interstate Program)	FHWA / SCDOT	$60.0	N/A
2	Congestion Mitigation & Air Quality (CMAQ) Improvement Program	FHWA	$8.8	N/A
3	Transportation Enhancement Program (TEP)	FHWA	$1.3	N/A
4	Federal Transit Administration (FTA) - Trolley Town Tourist Loop	FTA	$1.2	N/A
5	City of Rock Hill Hard Rail Trolley Study (Appropriation Earmark)	FTA	$0.396	N/A
	Total		**$71.7**	

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	FUNDED ONE CENT SALES TAX PROJECTS (1997)			
Ref	**Project description**	**Funding Source**	**Project Obligation (millions)**	**Length (miles)**
1	Cherry Road (York Avenue to Heckle Boulevard) - 5 Lanes	One Cent I	$1.3	0.70
2	SC-72 (Albright Road from Black Street to Heckle Boulevard) - 5 Lanes	One Cent I	$5.5	1.70
3	SC-901 (SC-72 to I-77) - 4 / 5 Lanes. Funded by SAFETEA-LU Earmark / SC State Infrastructure Bank	See description	$6.5	3.00
	TOTAL		**$13.3**	

	FUNDED ONE CENT SALES TAX PROJECTS (2003)			
Ref	**Project description**	**Funding Source**	**Project Obligation (millions)**	**Length (miles)**
1	Mt. Gallant Road (Anderson Road to SC-161 (Celanese Road) - 3 Lanes	One Cent II	$8.5	1.00
2	Fort Mill Southern Bypass (SC-160 to US-21 Business) - 2 Lanes	One Cent II	$15.0	5.70
3	Tega Cay / Gold Hill Connector - 2 Lanes	One Cent II	$1.5	1.20
4	Intersection Improvements - Hwy 274 Corridor	One Cent II	$7.1	N/A
5	US-21 (North of SC-161 to US-21 Business, including bridge cost) – Multilane	One Cent II	$17.1	0.80
6	White Street Rail Crossing including Realignment	One Cent II	$2.5	N/A
7	McConnells Highway (Heckle Boulevard to Highway 324) - 2/3 Lanes	One Cent II	$7.6	0.50
8	Mt. Gallant Road (Dave Lyle Bvd to Anderson Rd) - 3 Lanes	One Cent II	$6.8	1.50
9	Ebinport Road (Cherry Road to India Hook) - 3 Lanes	One Cent II	$6.3	2.00
10	SC-160 (Sugar Ck. To Fort Mill Northern Bypass) - 3 Lanes	One Cent II	$2.6	0.80
11	Riverview Road (Eden Terrace to SC-161) - Safety / Improvements	One Cent II	$1.2	1.00
12	SC-72 Improvements (Saluda Street to Rambo Road) - 3 Lanes	One Cent II	$6.8	2.00

13	Mt. Gallant Road, S-195 (SC-161 to Twin Lakes Road) - 3 Lanes	One Cent II	$8.0	3.00
14	Highways 274 / 279 (Pole Branch Road)	One Cent II	$8.6	2.40
15	Ebenezer Road (SC-161 to Frank Gaston Blvd) - 3 Lanes	One Cent II	$4.0	1.40
16	Springhill Farm Road (US-21 to SC-51) - 5 Lanes	One Cent II	$4.6	0.70
17	SC-51 (US-21 to NC State Line) - 5 Lanes	One Cent II	$5.9	1.00
18	Eden Terrace (Bradley to Anderson Road) - 3 Lanes	One Cent II	$4.5	1.50
19	SC-160 (Gold Hill Road to Zoar Road) - 3 Lanes	One Cent II	$1.6	0.50
	TOTAL		**$120.2**	

PRIVATELY- FUNDED: IDENTIFIED FROM I-77 CORRIDOR TRAFFIC STUDY

Ref	Project description	Funding Source	Project Obligation (millions)	Length (miles)
1	Connect Corporate / Cel-river / and Commerce in River Walk Industrial (Developer Paid)	Private	$4.4	1.25
2	Connect Commerce and Galleria (Developer Paid)	Private	$5.2	0.25
3	Extend Galleria to US-21 through Antrim (Developer Paid)	Private	$1.7	0.50
4	Connector across the Railroad between the Riverwalk Spine Road and Galleria Boulevard (Developer / City)	Private	$2.7	0.25
5	Riverview Road Extension from Eden Terrace to Mt Gallant (Developer Paid)	Private	$5.2	1.20
6	Eden Terrace through to Cherry Road [Riverwalk] Extension (Developer Paid)	Private	$2.9	1.00
7	Galleria to Meeting and Cel-River @ Waterford Extension (Developer / City)	Private	$1.8	1.25
8	Ligon Drive Extension (Developer Paid)	Private	$0.645	0.06

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UNFUNDED TRANSPORTATION NEEDS: ROAD WIDENINGS / NEW ALIGNMENTS				
Ref	**Project description**	**Funding Source**	**Project Estimate (millions)**	**Length (miles)**
1	Mt. Gallant Road, S-195 (Twin Lakes Road to Museum Road - Phase I) - 3 Lanes *	Unfunded		2.30
2	Plantation Rd / Twin Lakes Rd (Ebenezer Rd to SC-161) *	Unfunded		0.70
3	Dave Lyle Boulevard Extension – SC-161 to US-521 Multi-laning	Unfunded	$140.0	4.50
	(a) Cel-River - Multi-laning from SC-161 to SC-122	Unfunded		3.00
4	US-21 Bus Rapid Transit - Downtown Rock Hill to I-485	Unfunded	$515.0	N/A
5	US-21 - Northern Fort Mill Bypass to SC 51 - Multi-laning & Right-of-Way Preservation for BRT	Unfunded	$13.3	2.10
6	US-21 (US-21 Business to Northern Fort Mill Bypass) - Multi-laning & Right-of-Way Preservation for BRT	Unfunded	$28.5	4.50
7	Fort Mill Southern Bypass (Phase II) – 4 Lanes	Unfunded		5.70
8	SC-160 from Gold Hill Road to NC State Line – 5 Lanes	Unfunded		9.40
9	Sutton Road S-49 (From US-21 to SC-160) - 3 Lanes	Unfunded	$1.9	2.20
10	Mt. Gallant Road (Museum Road to SC-274 - Phase II) - 3 Lanes	Unfunded	$6.6	2.30
11	SC-49 (Hwy 274 to Hwy 557) - 7 Lanes	Unfunded		2.00
12	Pleasant Road (SC-160 to Carowinds Boulevard) - 3 Lanes	Unfunded	$4.5	5.10
13	Hubert Graham Parkway (Extension to Youngblood Road)	Unfunded		1.00
14	Doby's Bridge Road Widening - Phase I (SC-160 to White Road)	Unfunded		2.00
15	Doby's Bridge Road Widening - Phase II (DBR / FMSB to end of the RFATS Area)	Unfunded		3.70
16	SC-72 Multi-laning from SC-901 to Rambo Road (3 to 5 lanes) Supplement to 2003 PFP	Unfunded		2.00
17	White Street / McCammon to US-21 Bypass (Widen to 4 lanes)	Unfunded		0.94
18	Connector between Galleria Boulevard and John Ross Parkway - 4 Lanes **	Unfunded		1.50
19	India Hook from Celanese to New Bridge Connector Road - 5 Lanes **	Unfunded		3.00
20	Sutton from New Bridge Connection to US-21 and beyond - 5 Lanes **	Unfunded		2.00
	** No guideshare funds available; moved to unfunded needs*			
	*** Projects #18, #19 and #20 - Identified from I-77 Traffic Study*			
	Reflected project costs are not current			

	UNFUNDED TRANSPORTATION NEEDS: INTERSECTION IMPROVEMENTS			
Ref	**Project description**	**Funding Source**	**Project Obligation (millions)**	**Length (miles)**
1	Neely & Rawlsville Roads (Intersection Improvement)			N/A
2	Neely Road & Crawford Road (Intersection Improvements)			N/A
3	Dave Lyle Boulevard / Tinsley (Create dual left turn lanes on westbound Dave Lyle and northbound Tinsley)			N/A
4	Exit 90 at US-21 and I-77 (Congestion at Carowinds Boulevard)			N/A
5	Clebourne Street / Grier Street (Extension of CMS Intersection Project to improve traffic flow operation)			N/A
6	SC-160 at Steele / Bank Streets / Doby's Bridge Road			N/A
7	Exit 82C at SC-161 and I-77 (Ramp improvements needed to better facilitate southbound traffic on I-77)			N/A
8	Eden Terrace & Mt. Gallant Road			N/A
9	Robertson Road / Rambo Road Intersection Realignment			N/A
10	Cherry Road (Congestion Between Ebinport & West Main Street)			N/A
11	West Main Street / Constitution Boulevard and West Black Street			N/A
12	Saluda Road at Oakdale and Saluda Trail Middle School			N/A
13	Mt. Gallant Road at SC-161			N/A
14	Hensley Road & SC-160 (Turn Lanes)			N/A
15	Gold Hill Road and I-77 Interchange			N/A
16	US-21 / Anderson Road and East Main Street			N/A
17	Spratt Street & Fort Mill Southern Bypass Intersection			N/A
18	Market Street (Exiting I-77) at SC-160			N/A
19	India Hook / SC -161 (Turn Lanes)			N/A
20	**US-21 INTERSECTIONS:**			N/A
a	US-21 / Woodglenn (Northbound offset left turn lane on US-21)			N/A
b	US-21 / Stevenson / Weir (Southbound offset left turn lane and acceleration lane on US-21)			N/A
c	US-21 @ Res Dr / Hopewell Ch (SB acceleration lane from Stevenson / Weir then offset LT lane on US-21)			N/A
d	US-21 / Preston (Northbound offset left turn lane on US-21)			N/A
e	US-21 / Poverty Hill (Southbound offset left turn lane on US-21)			N/A

f	US-21 at Palmetto Hills Paintball (Southbound offset left turn lane and acceleration lane on US-21)			N/A
g	US-21 / McAllister (Southbound offset left turn lane on US-21)			N/A
h	US-21 / Liberty Hill (Northbound offset left turn lane on US-21)			N/A
i	US-21 / Emma Wood (Northbound offset left turn lane on US-21)			N/A
j	US-21 / Dot Faris (Southbound offset left turn lane on US-21)			N/A
k	US-21 / Catawba Baptist (Northbound offset left turn lane on US-21)			N/A
l	US-21 / Cannon (Southbound offset left turn lane on US-21)			N/A
m	US-21 / Benson (Northbound offset left turn lane on US-21)			N/A
n	Oakland / India Hook / Alexander (Signal / Pavement Marking Improvements)			N/A

	SUB-AREA CIRCULATION AND COLLECTOR ROAD STUDIES (CMS RECOMMENDATIONS)
Ref	**Project description**
1	Fort Mill Southern Bypass Area
2	India Hook / Twin Lakes / Museum Road Area
3	Rawlinson Road / McConnells Road Area
4	Saluda Road Area
5	Sutton Road / Pleasant Road Area
6	Spring Hill Farm / SC-51 / Regent Park Area
7	Tega Cay Connector Extension (Zoar Road to NC-49)

Figure 4.9 RFATS 2035 Long Range Transportation Plan Highway Projects

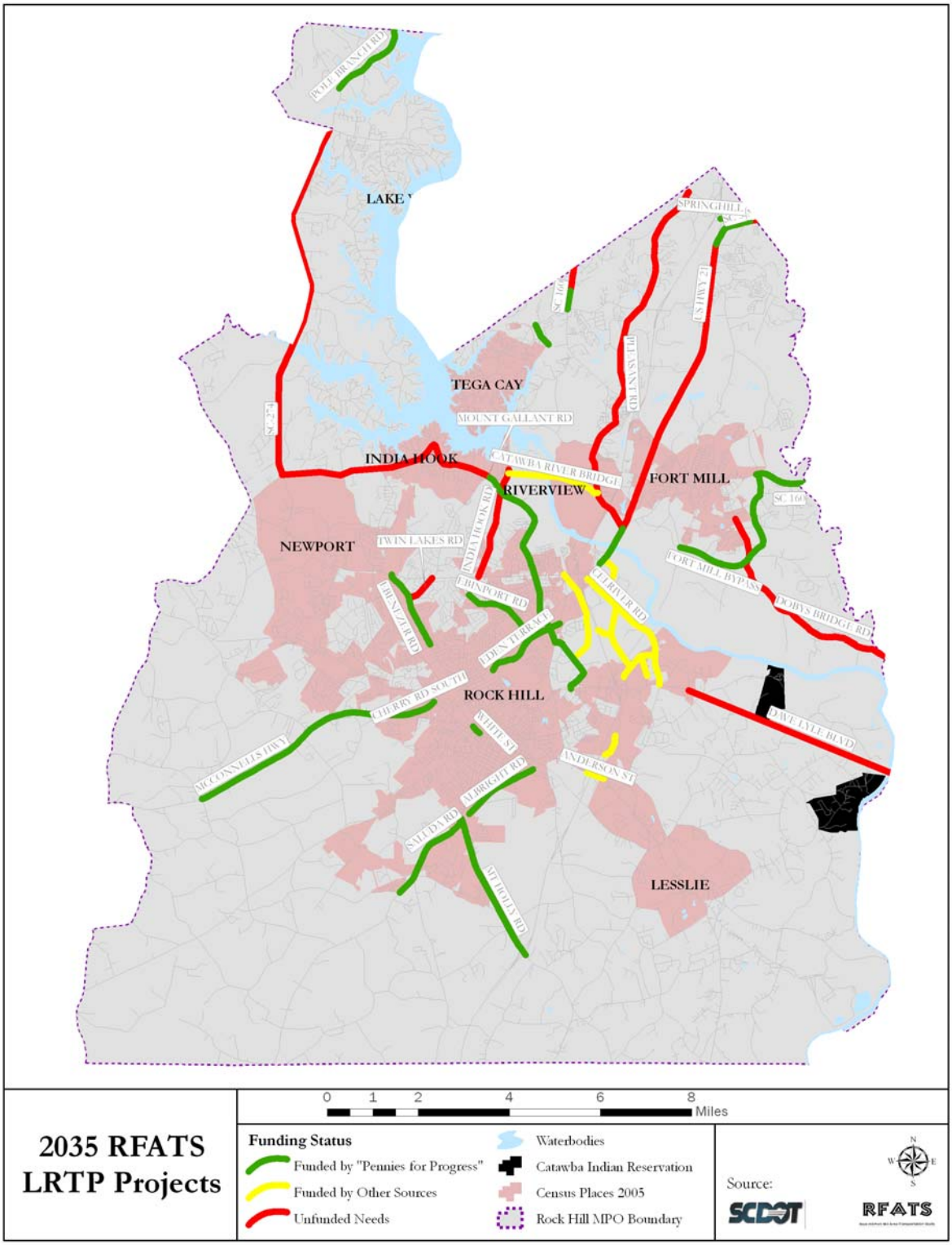


Figure 4.10: Catawba River Bridge Project Area

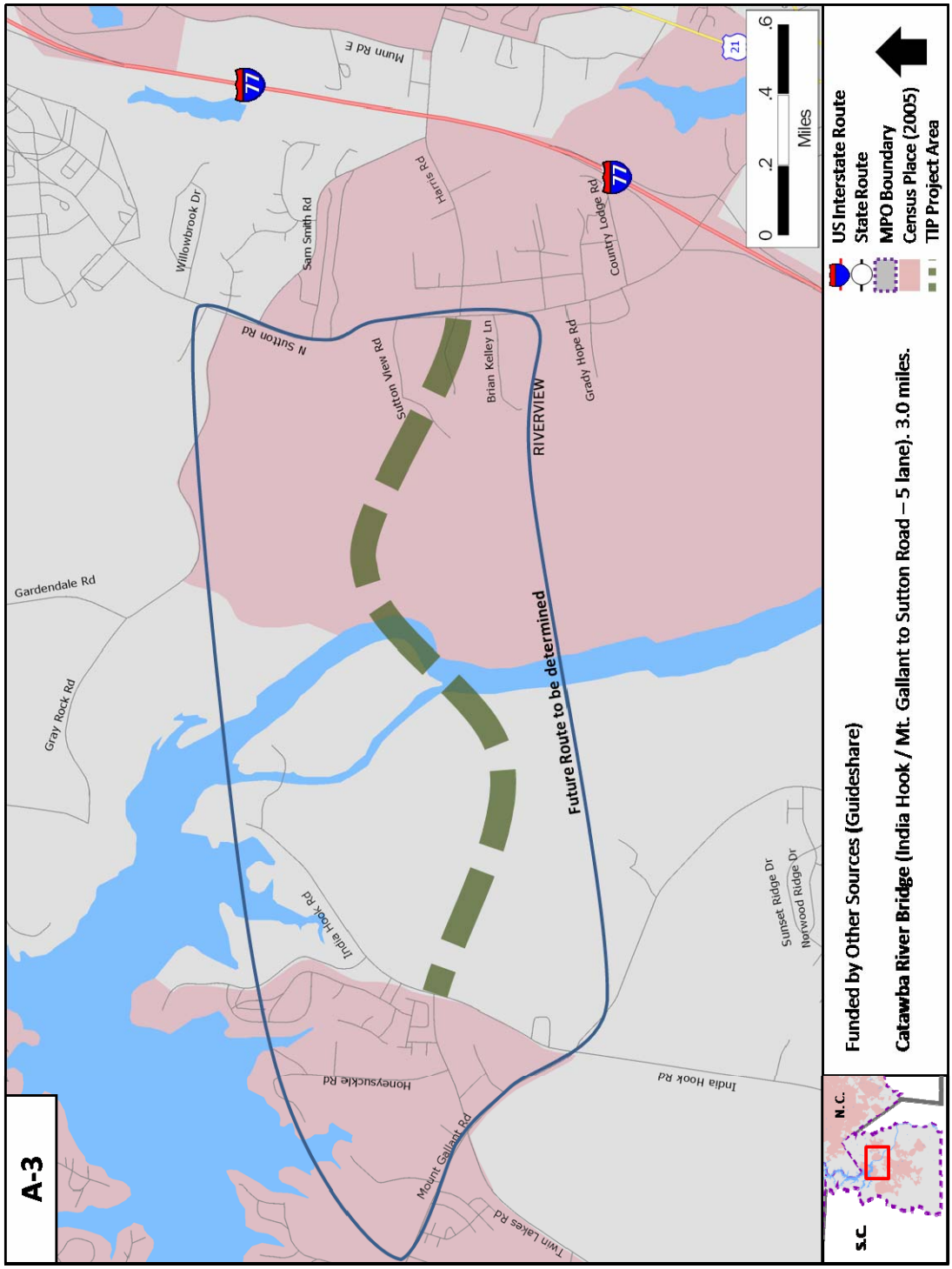


Figure 4.11: I-77 / US-21 Interchange

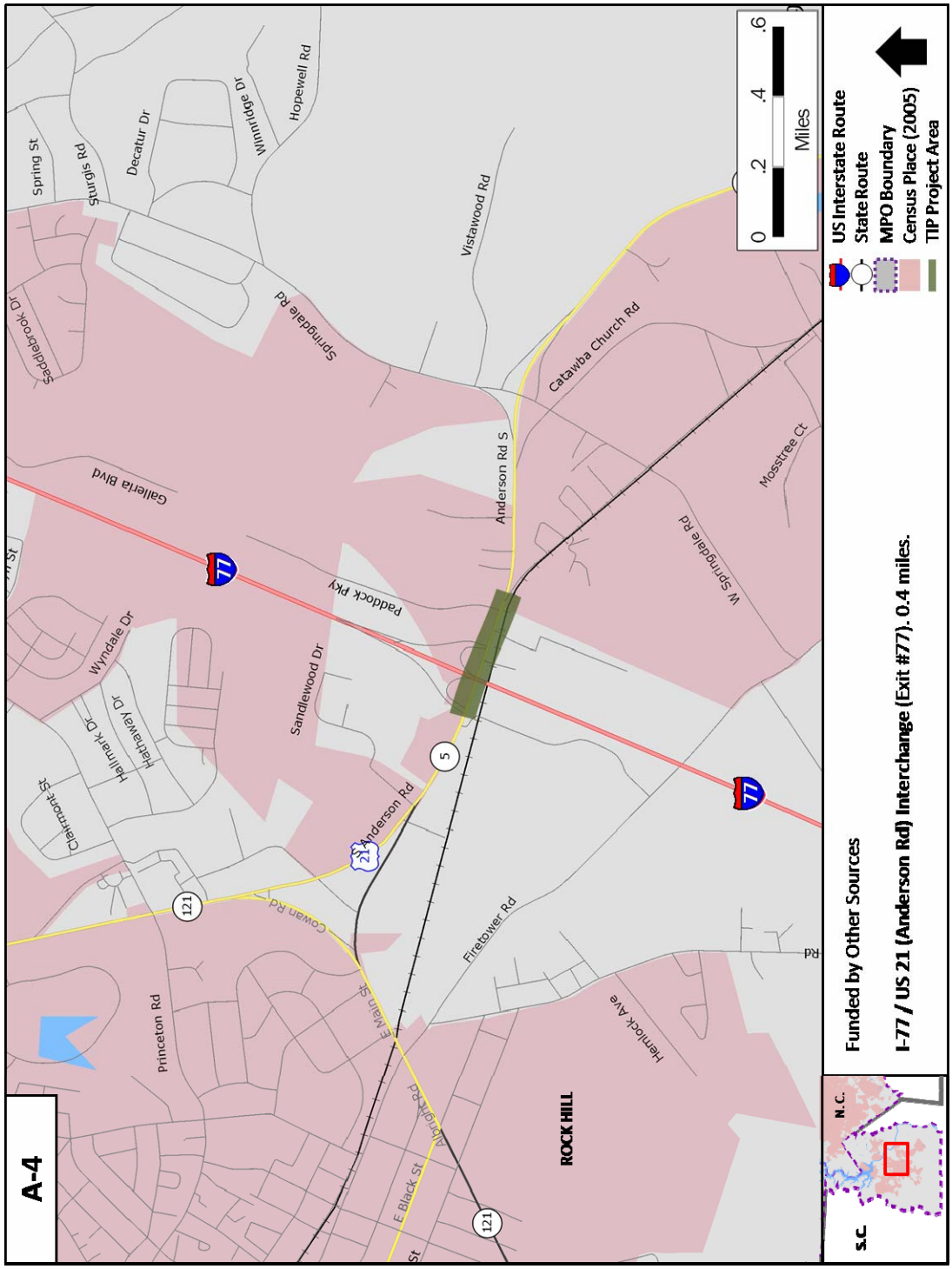


Figure 4.12: Cherry Road Project Area

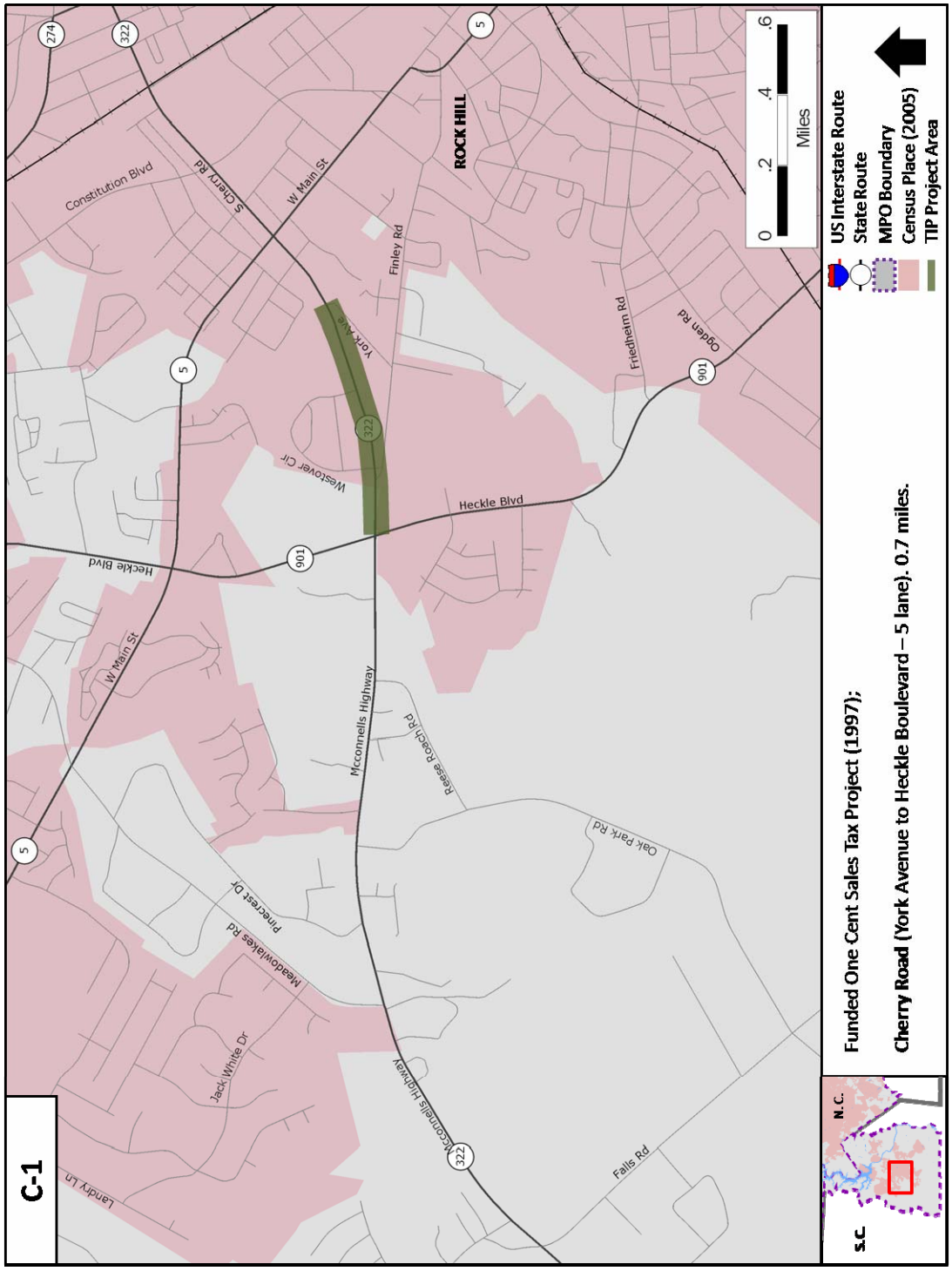


Figure 4.13: SC-72 (Black Street to Heckle Boulevard) Project Area

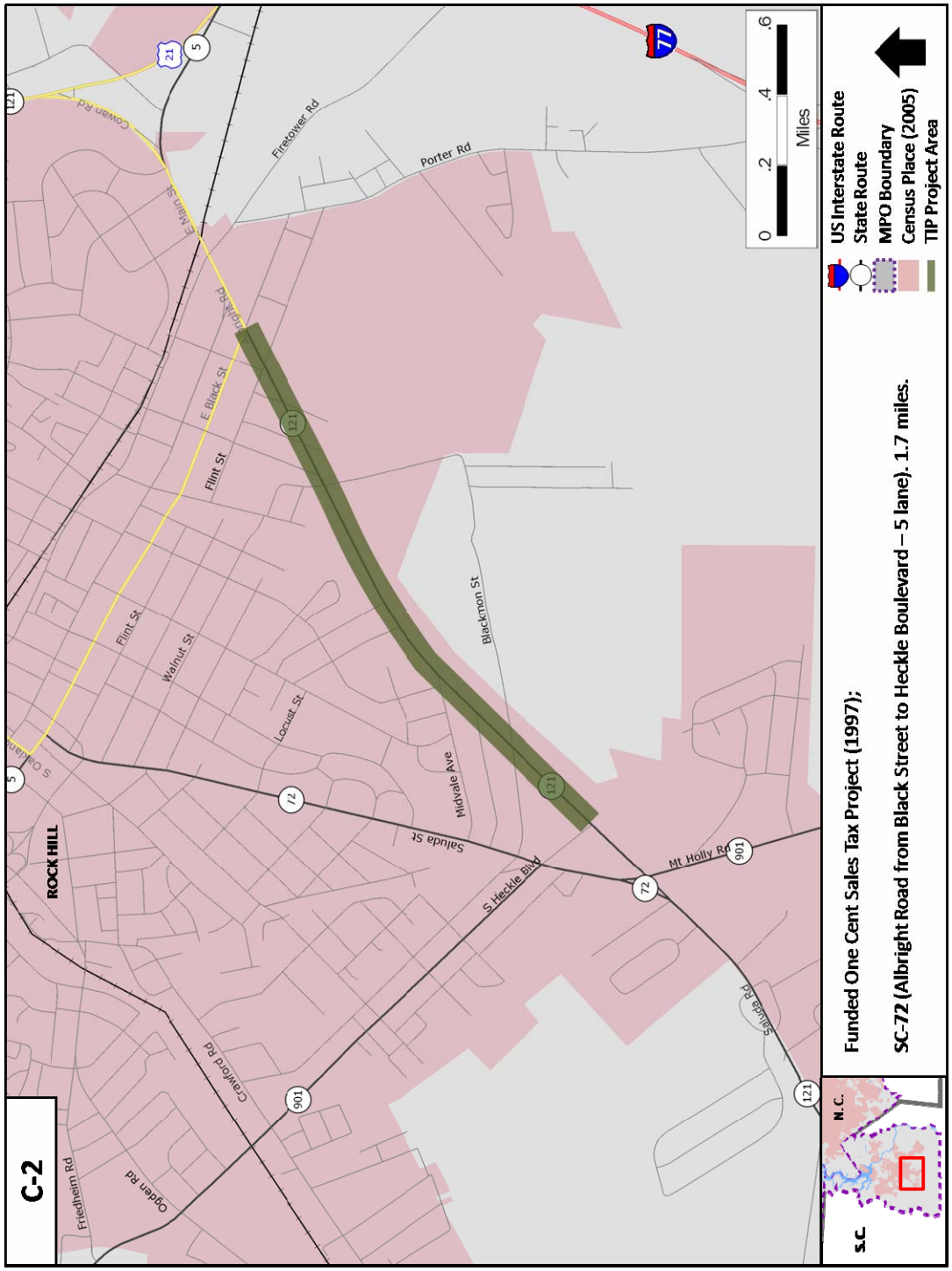


Figure 4.14: SC-901 Project Area

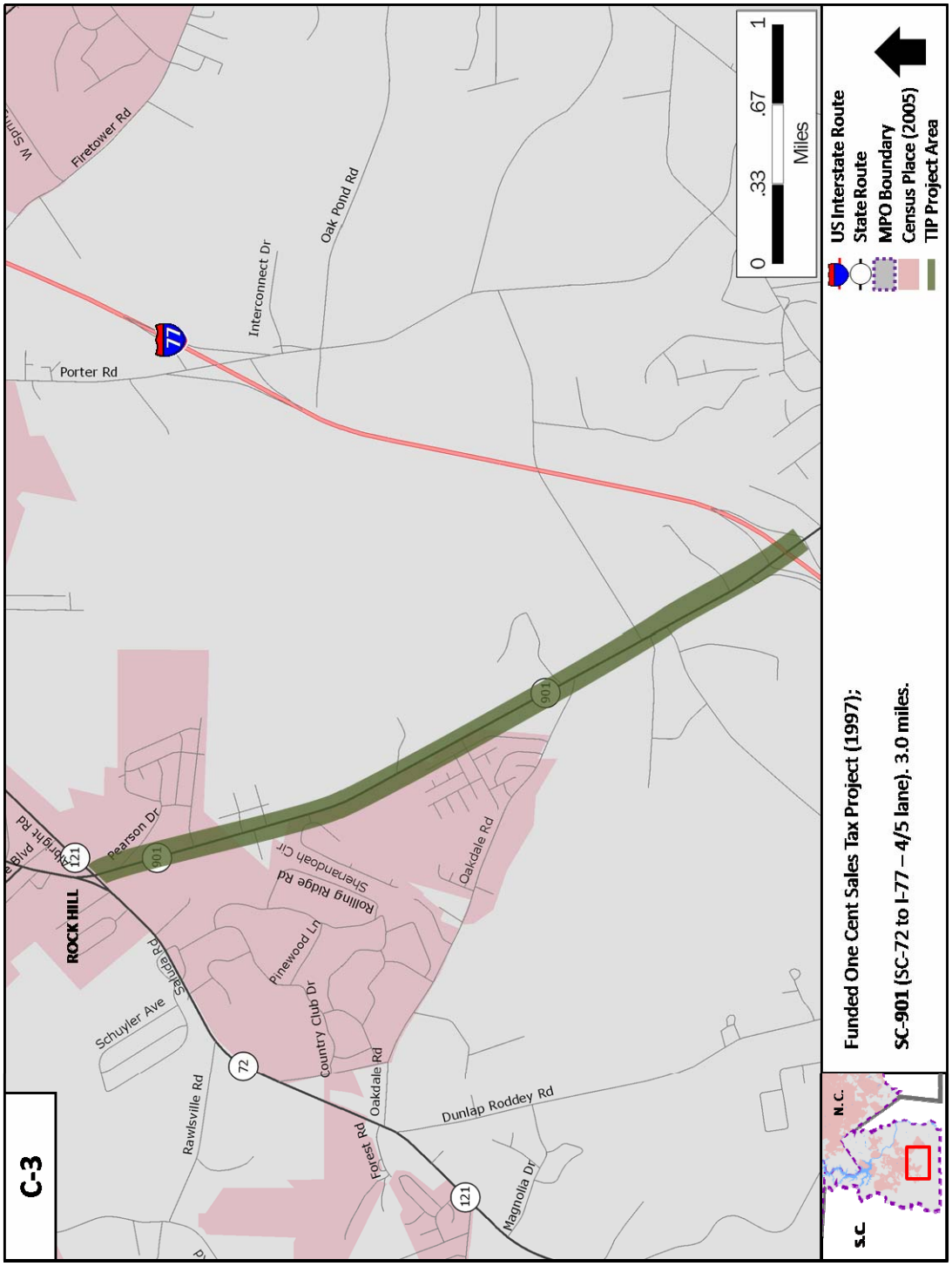


Figure 4.15: SC-274 Project Area

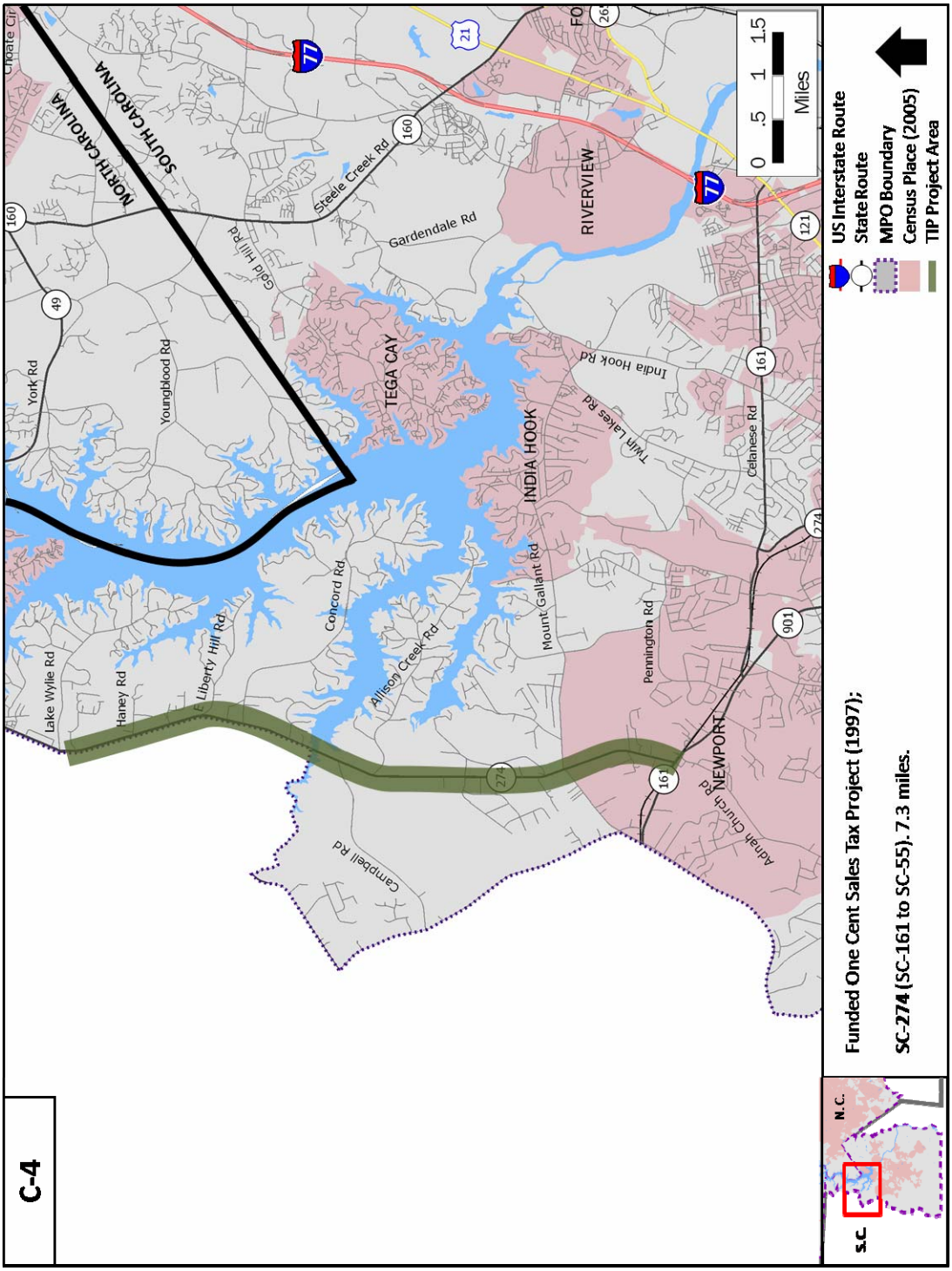


Figure 4.16: Mount Gallant Road (Anderson Road to SC-161) Project Area

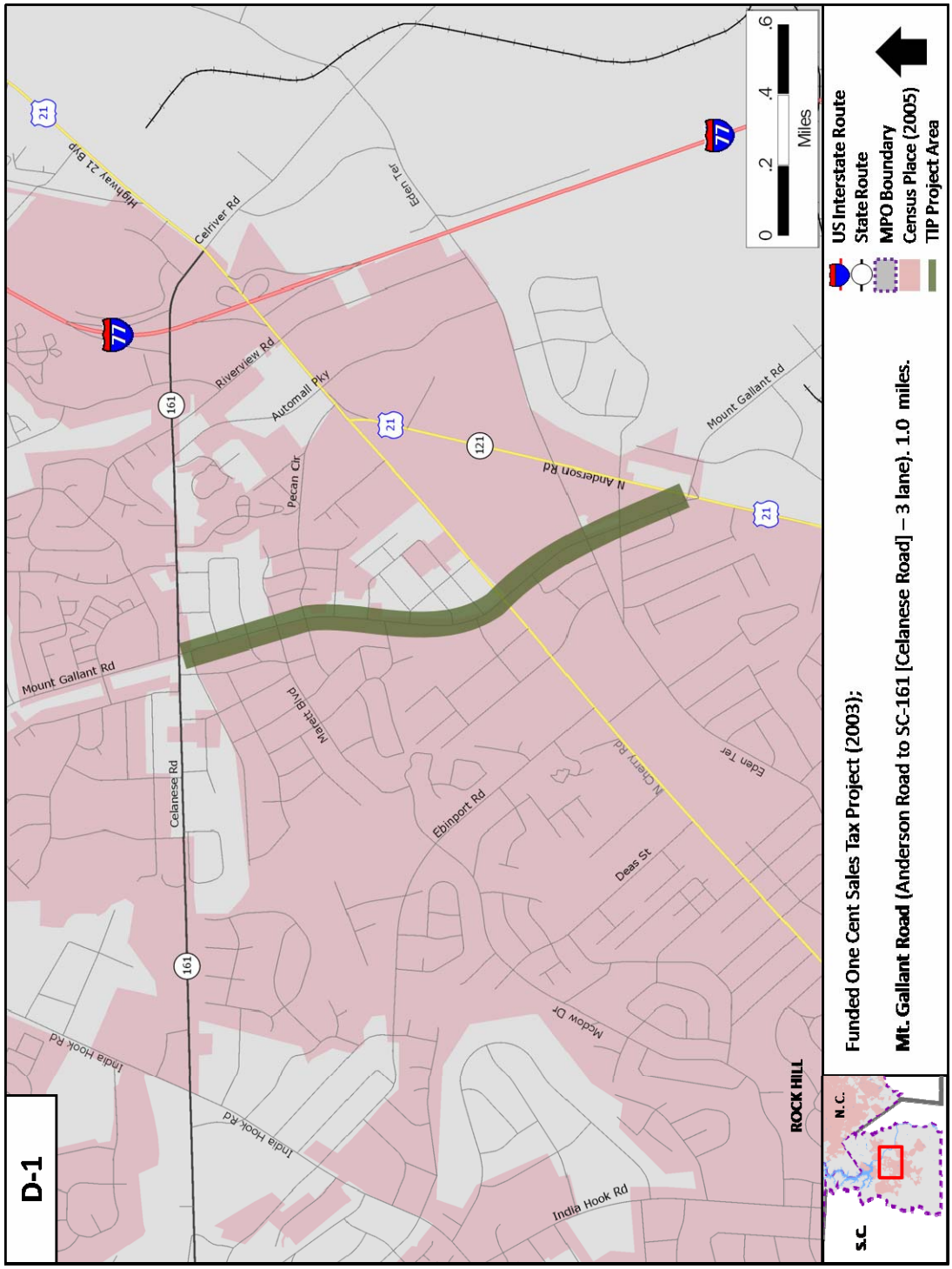


Figure 4.17: Fort Mill Southern Bypass Project Area

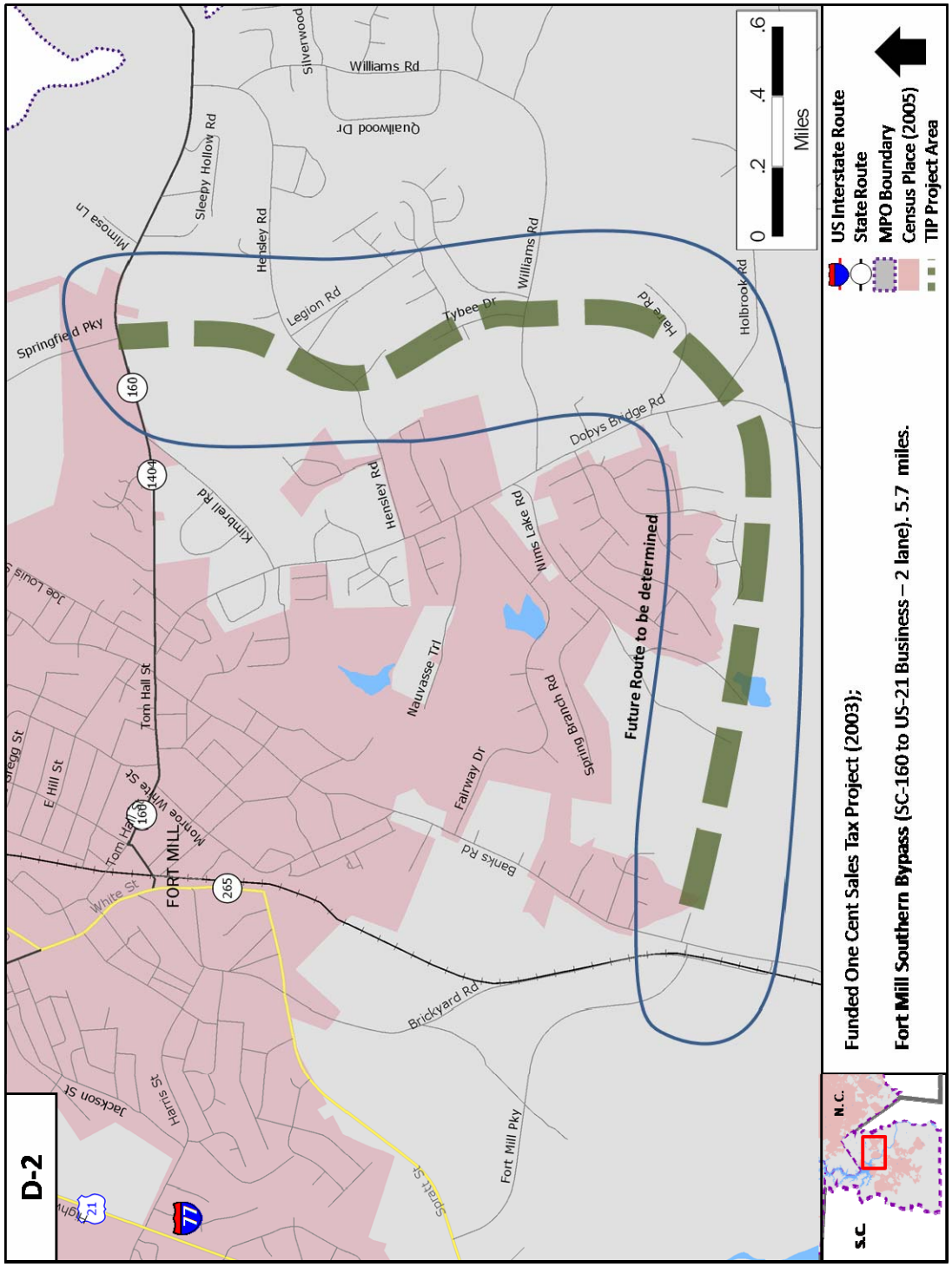


Figure 4.18: Tega Cay / Gold Hill Connector Project Area

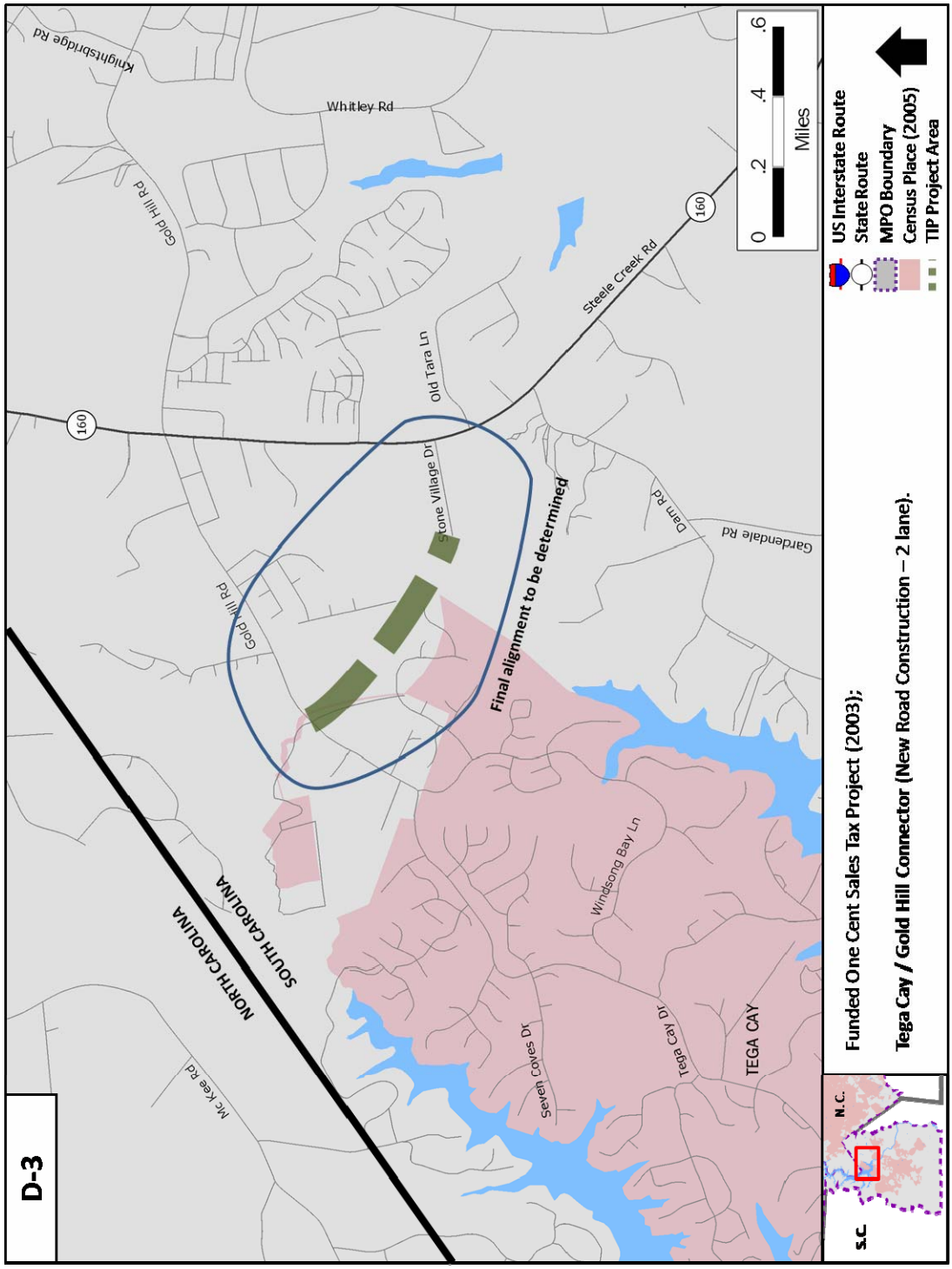


Figure 4.19: US-21 Project Area

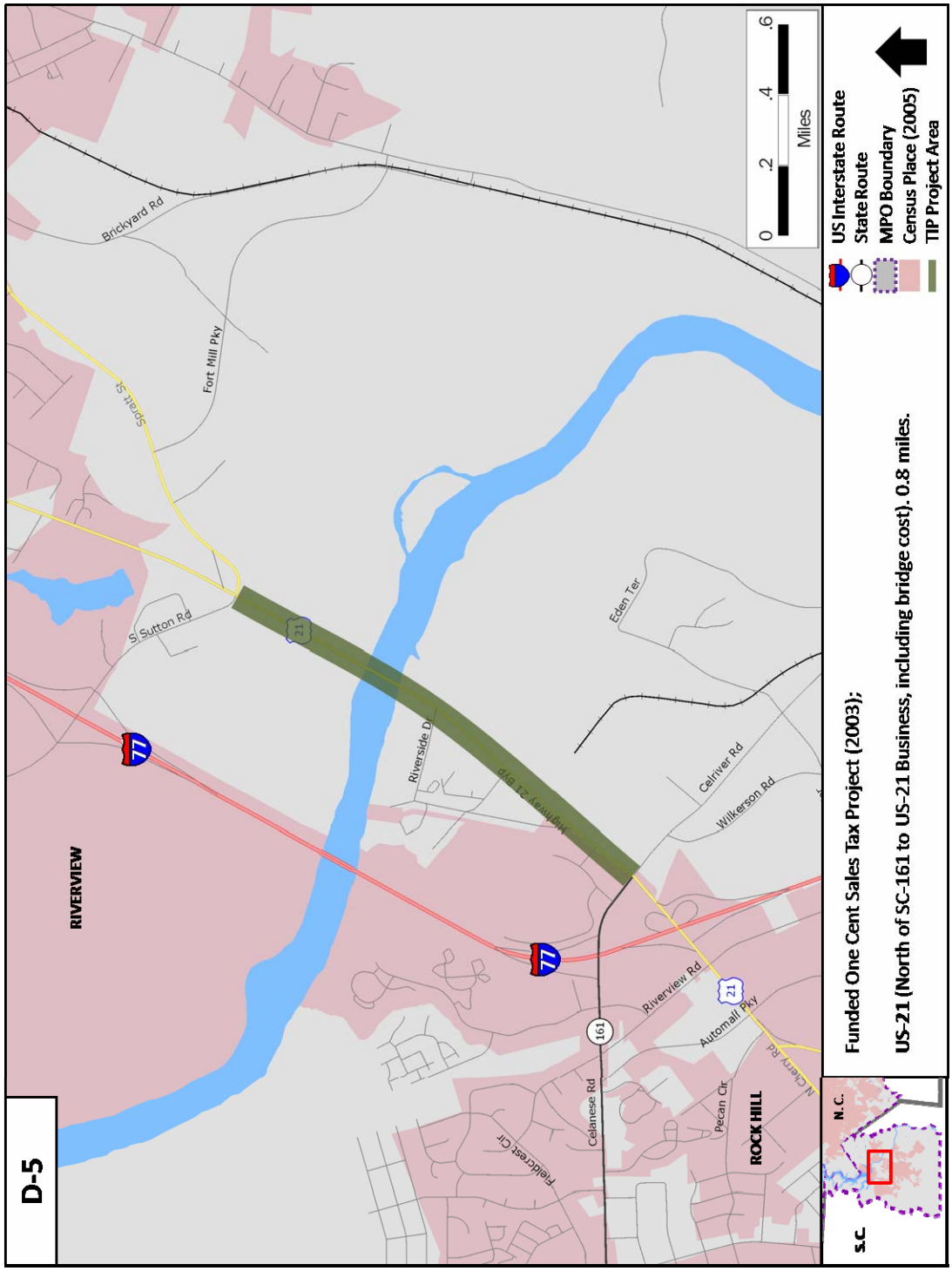


Figure 4.20: SC-322 / McConnells Highway Project Area

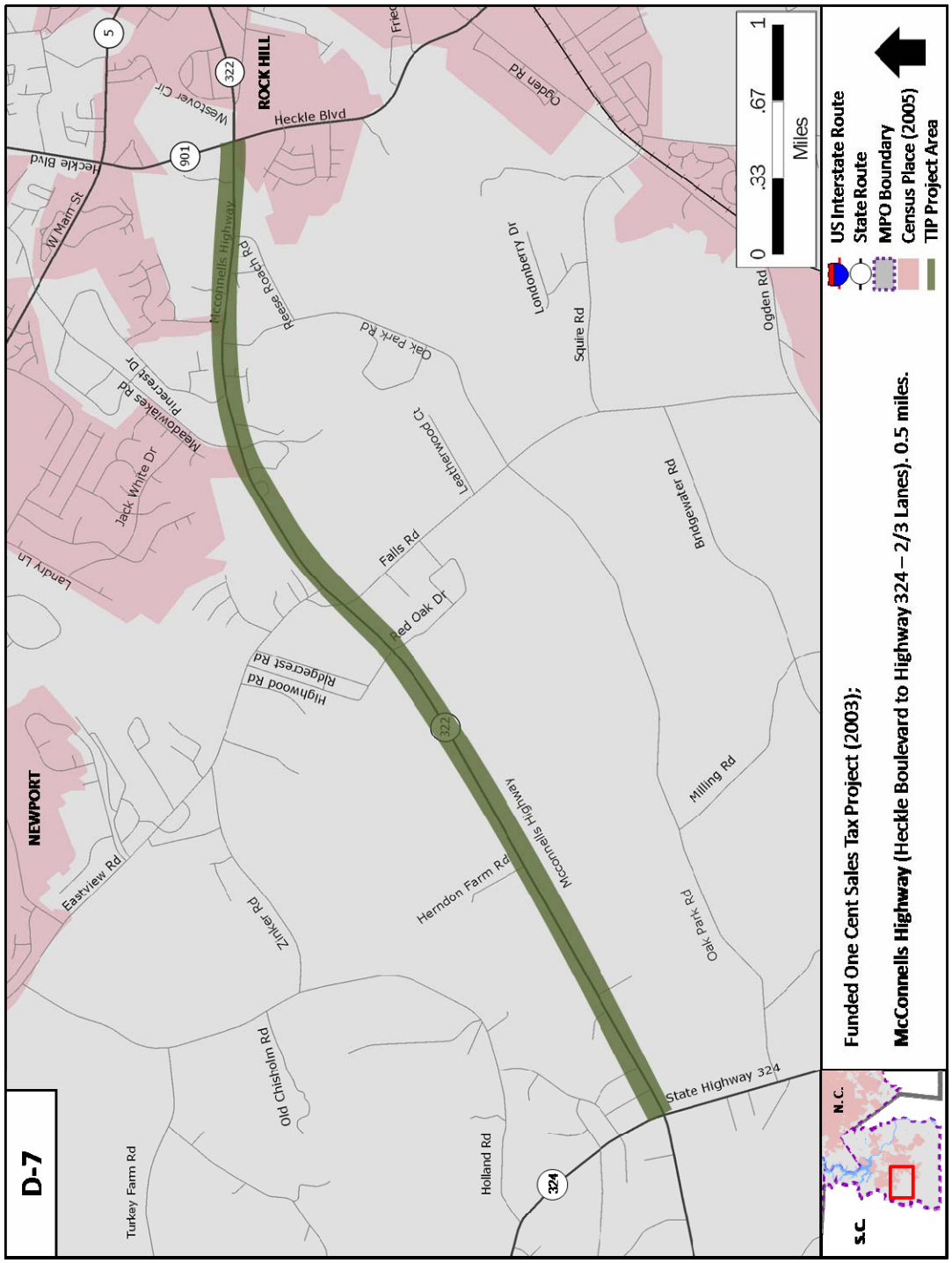


Figure 4.21: Ebinport Road Project Area

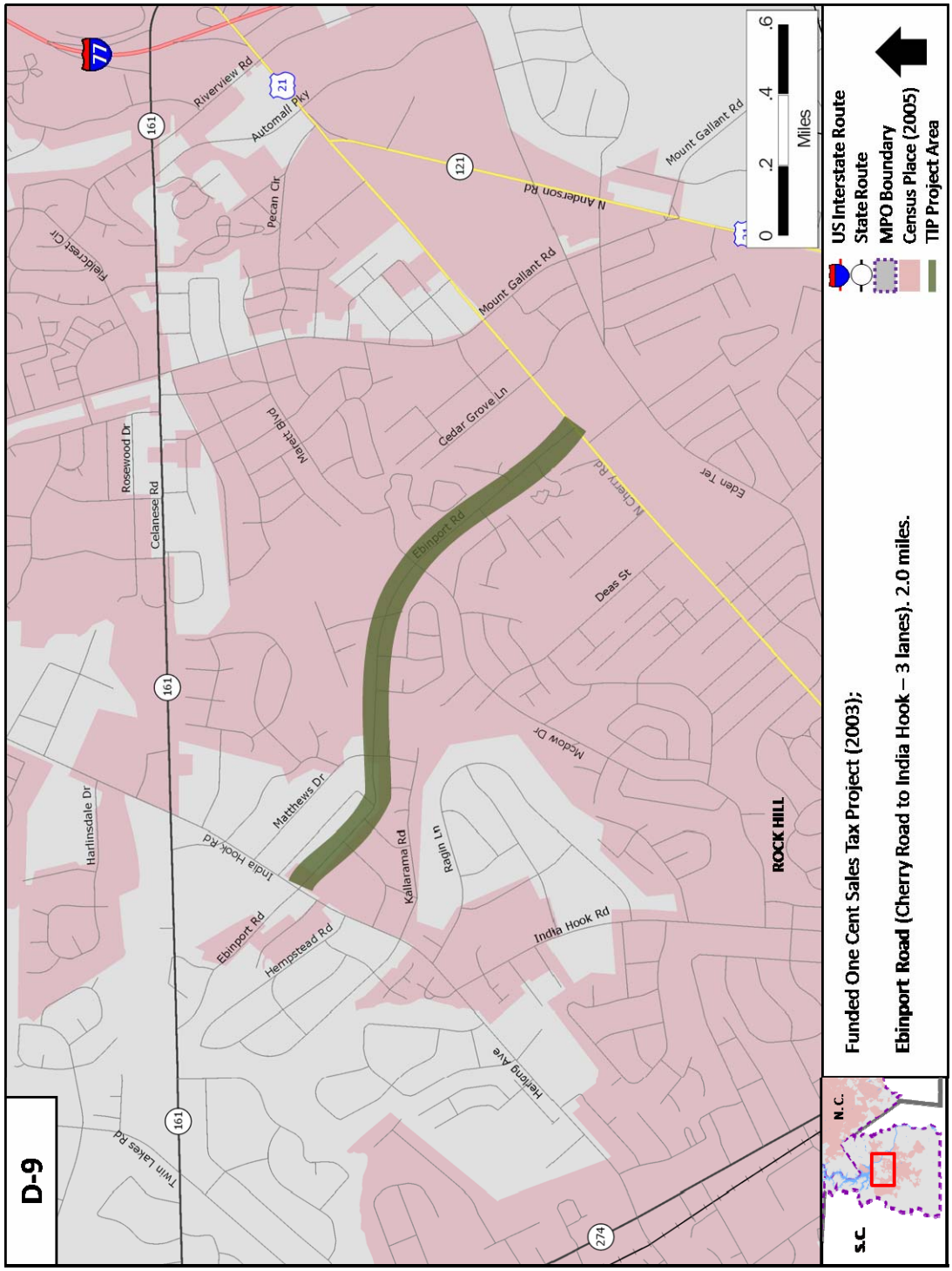


Figure 4.22: SC-160 / Fort Mill Highway Project Area

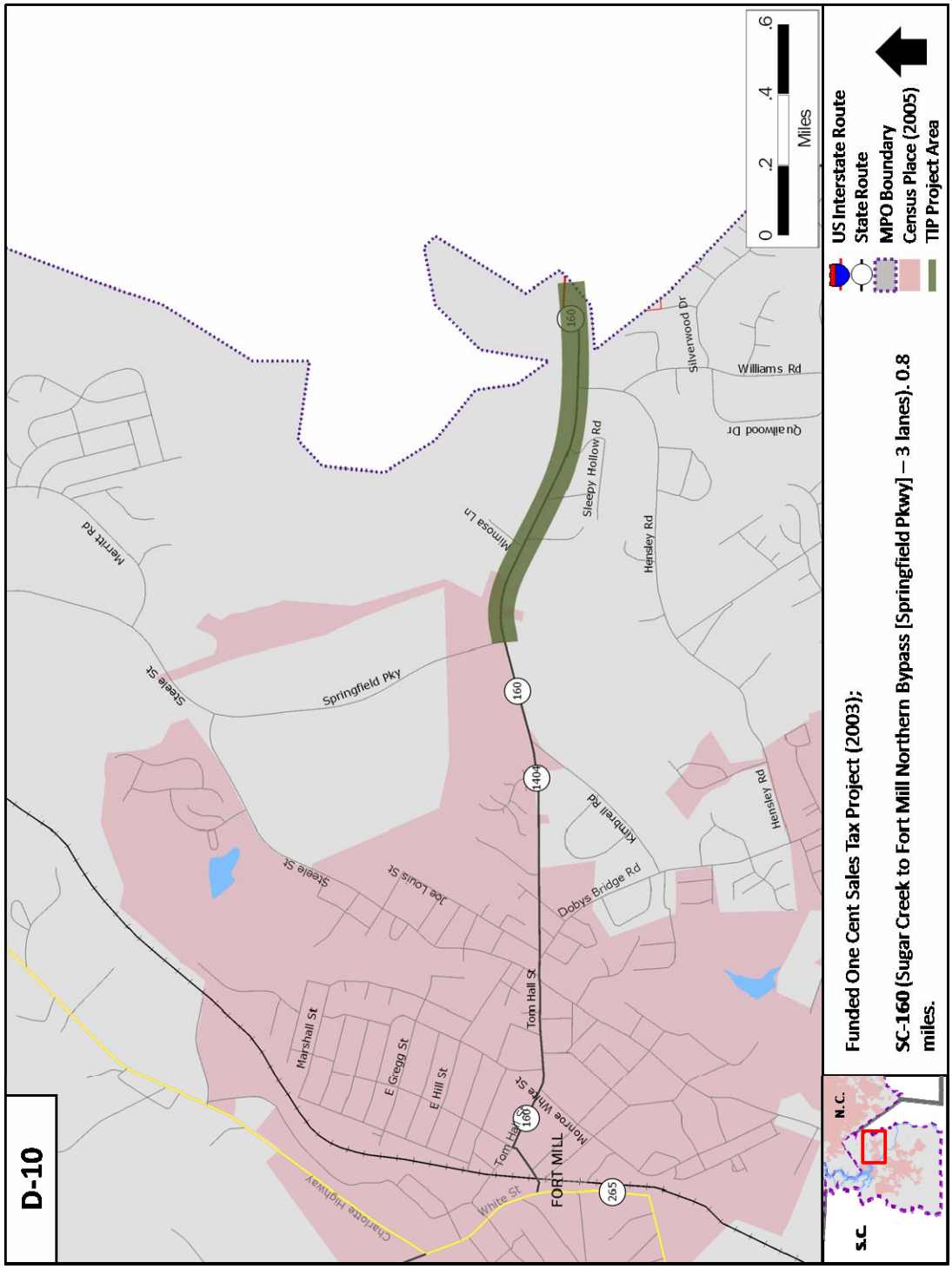


Figure 4.23: Riverview Road Project Area

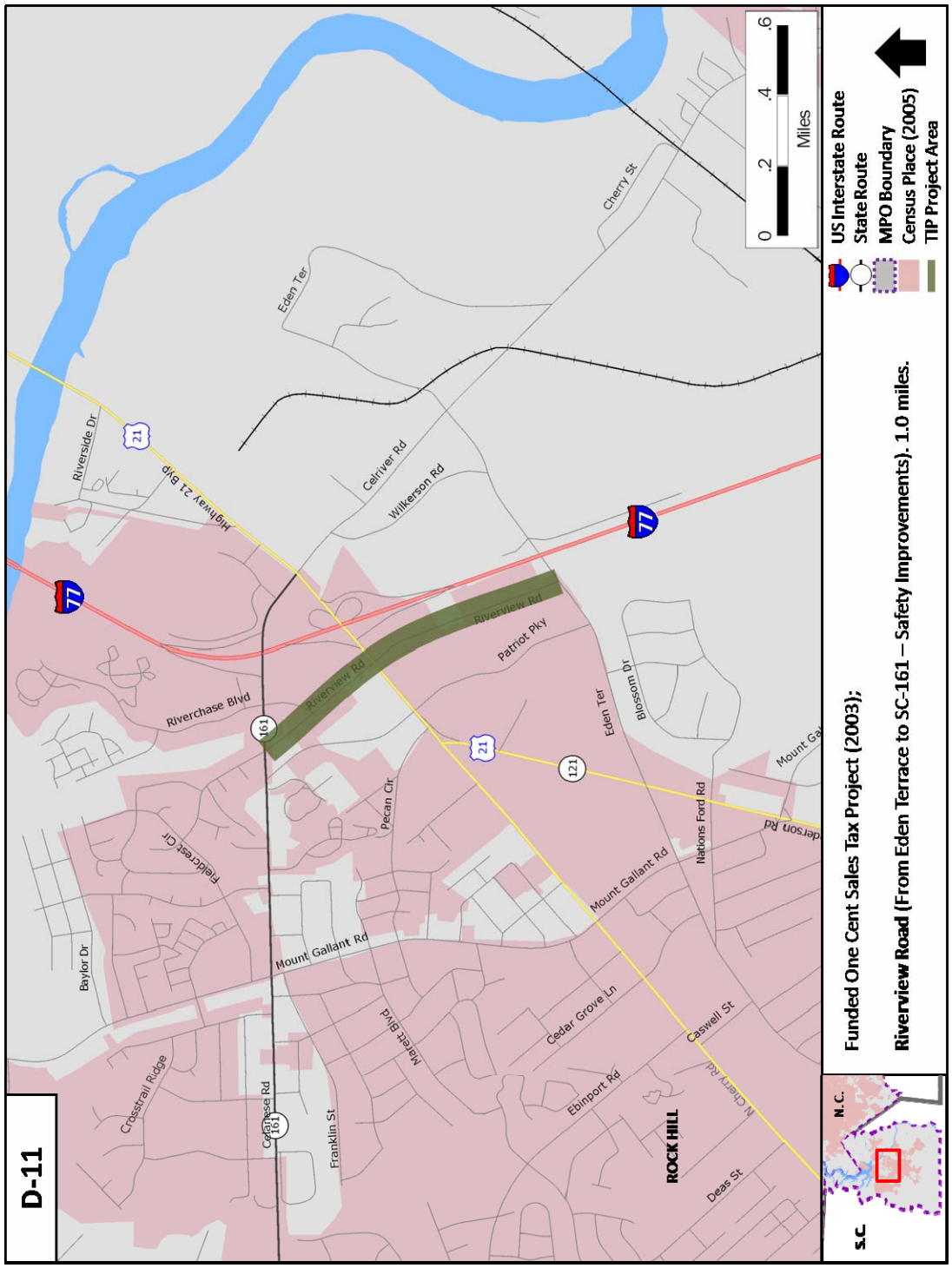


Figure 4.24: SC-72 (Saluda Street to Rambo Road) Project Area

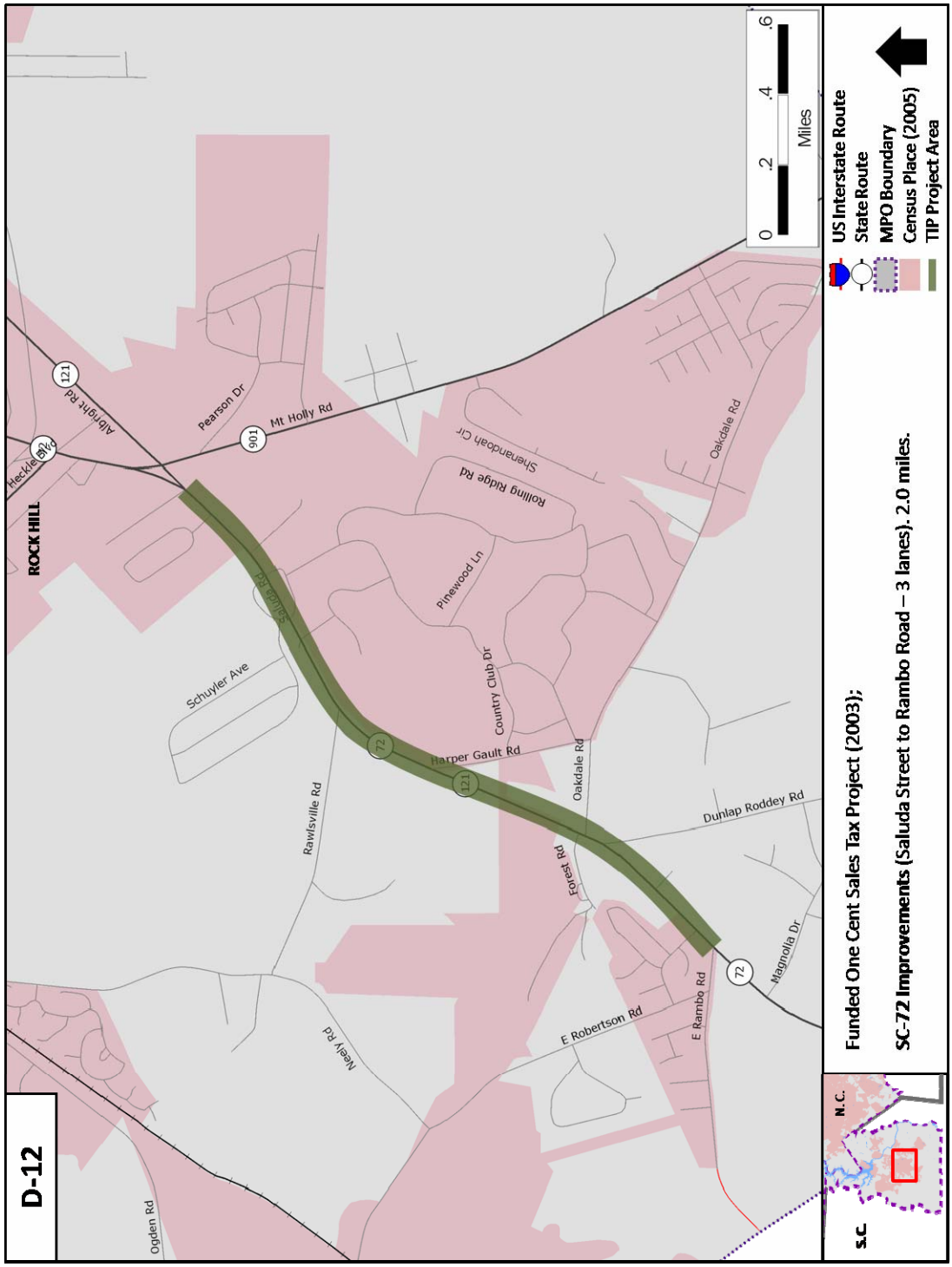


Figure 4.25: Mount Gallant Road (SC-161 to Twin Lakes Road) Project Area

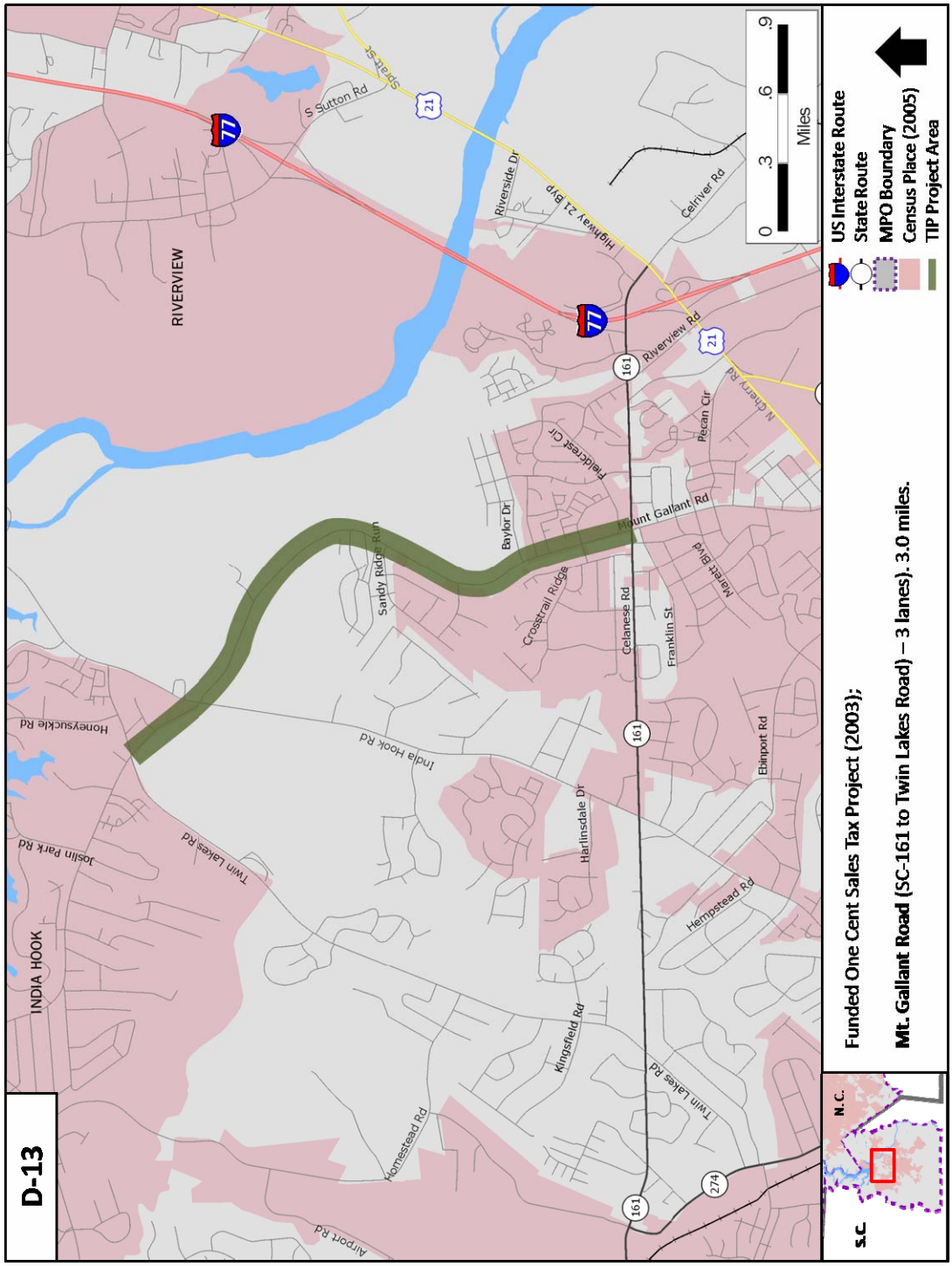


Figure 4.26: Pole Branch Road (SC-274/279) Project Area

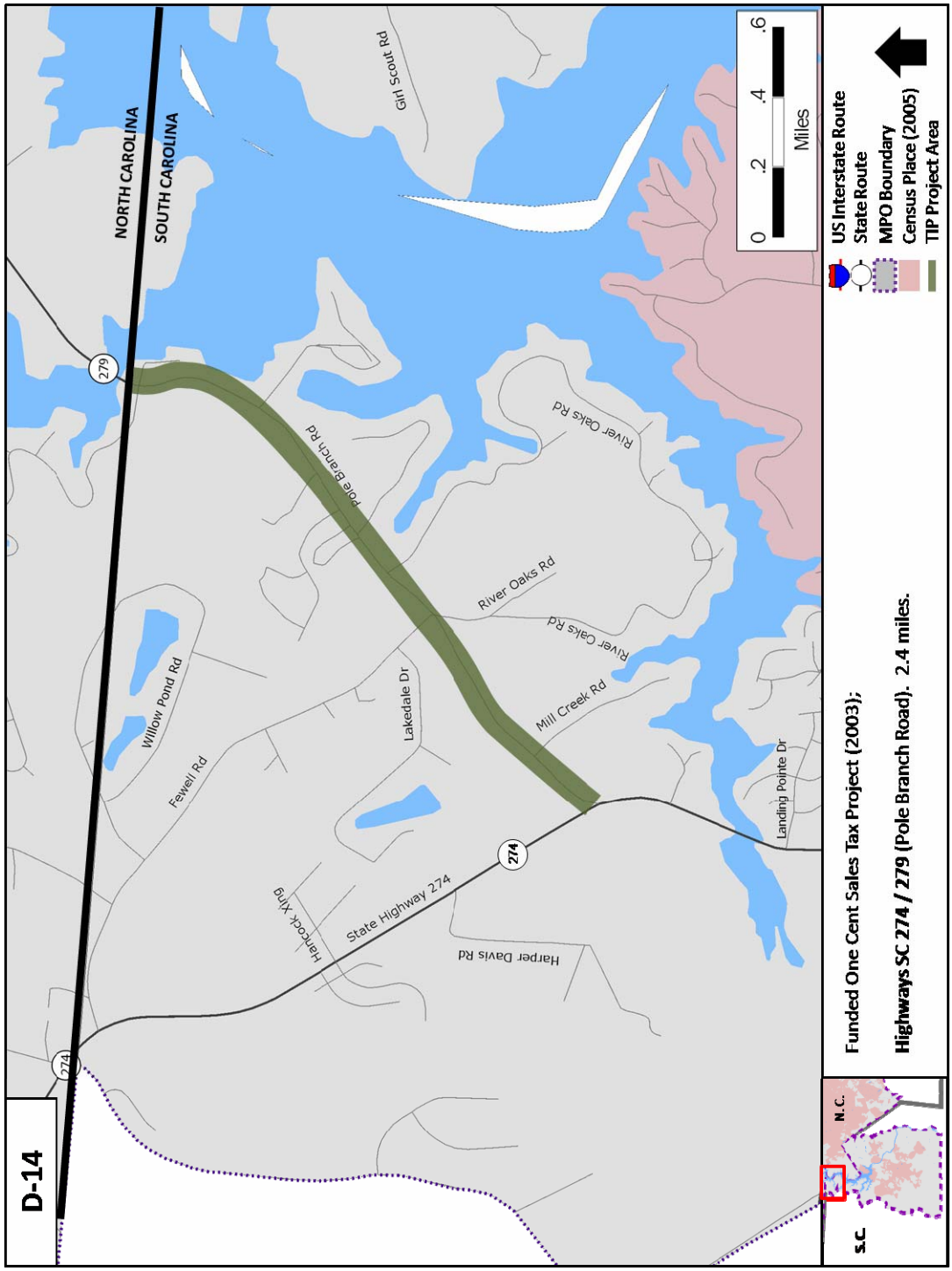


Figure 4.27: Springhill Farm Road Project Area

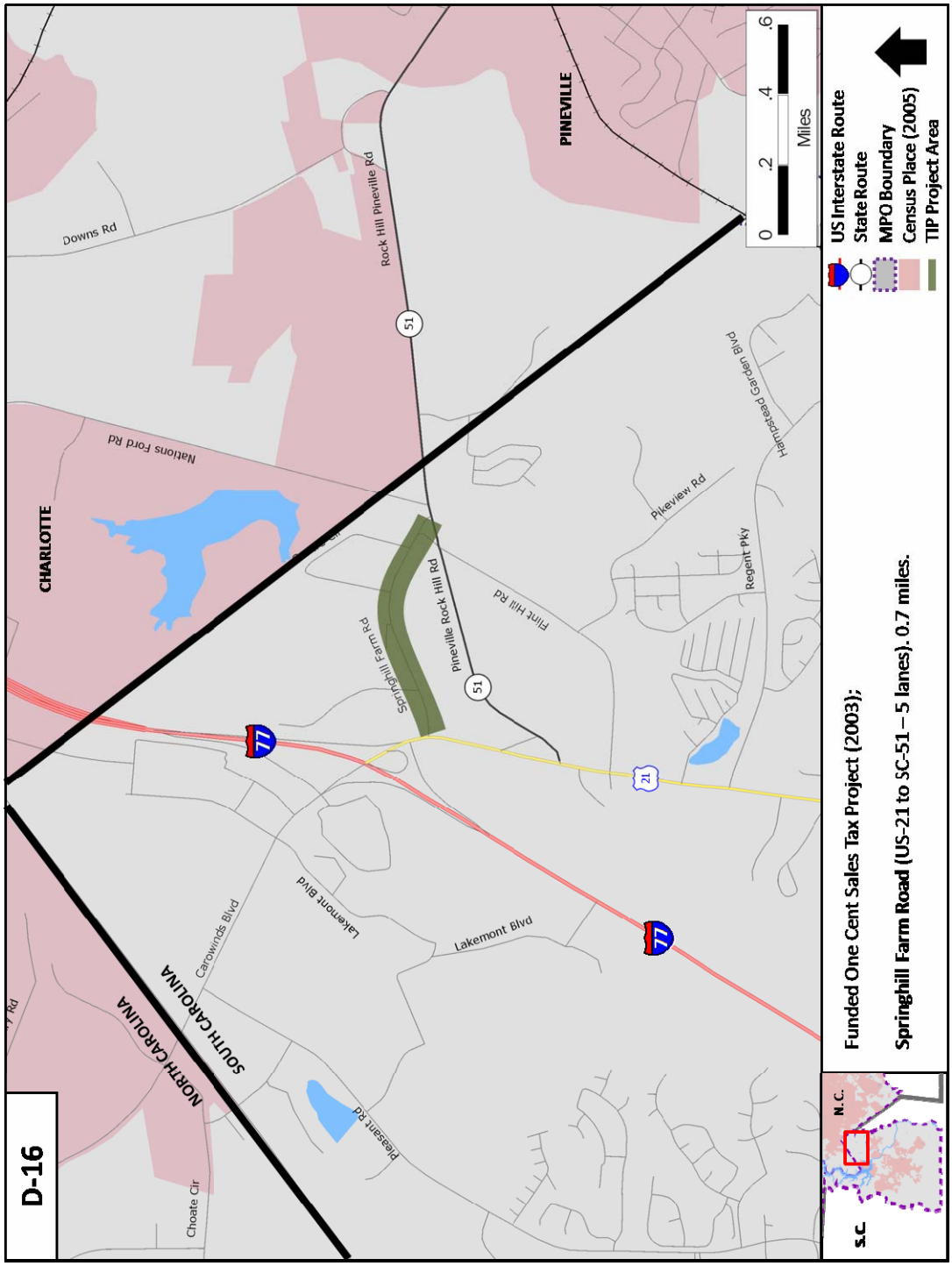


Figure 4.28: SC-51 Project Area

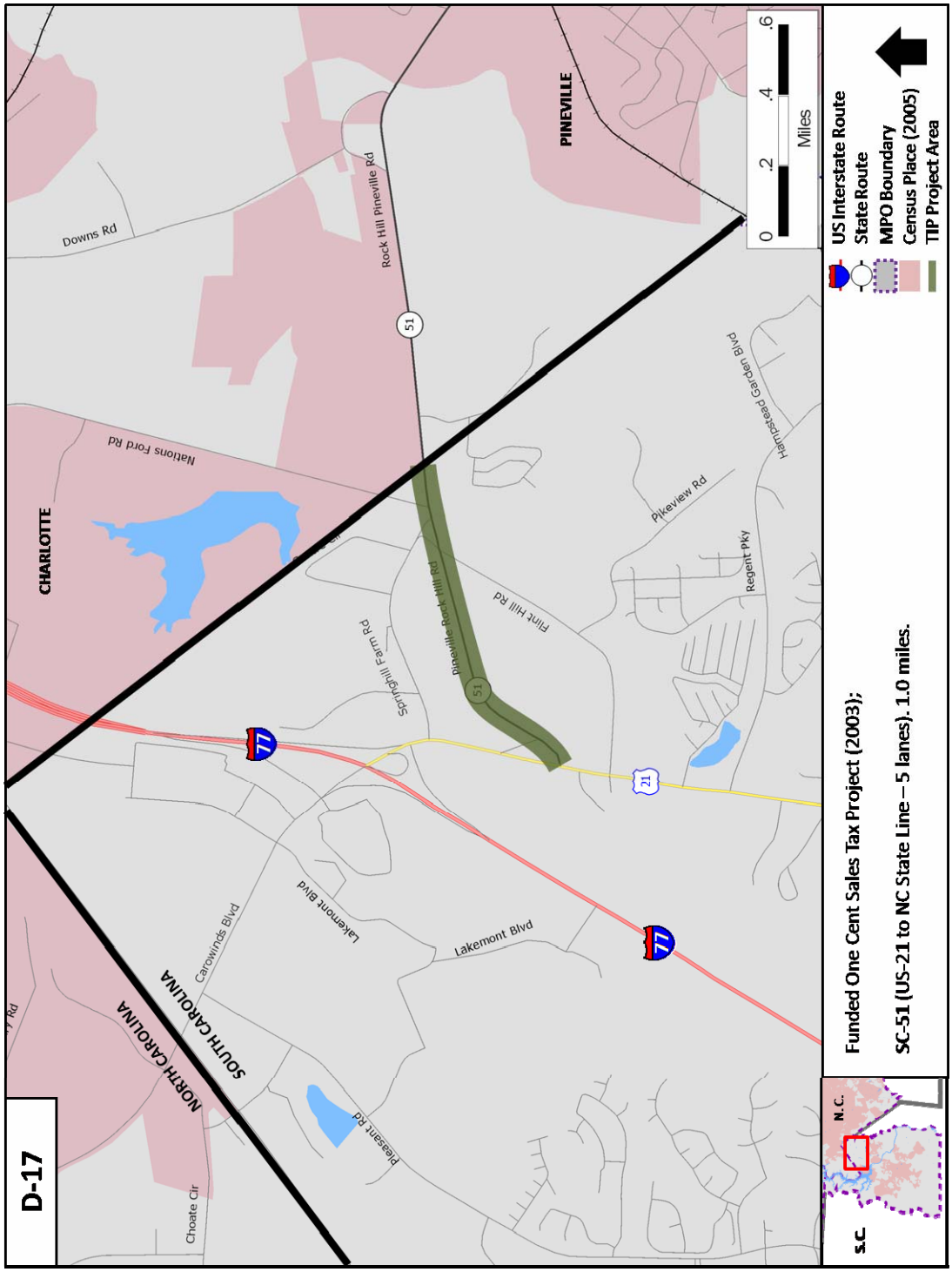


Figure 4.29: Eden Terrace Project Area

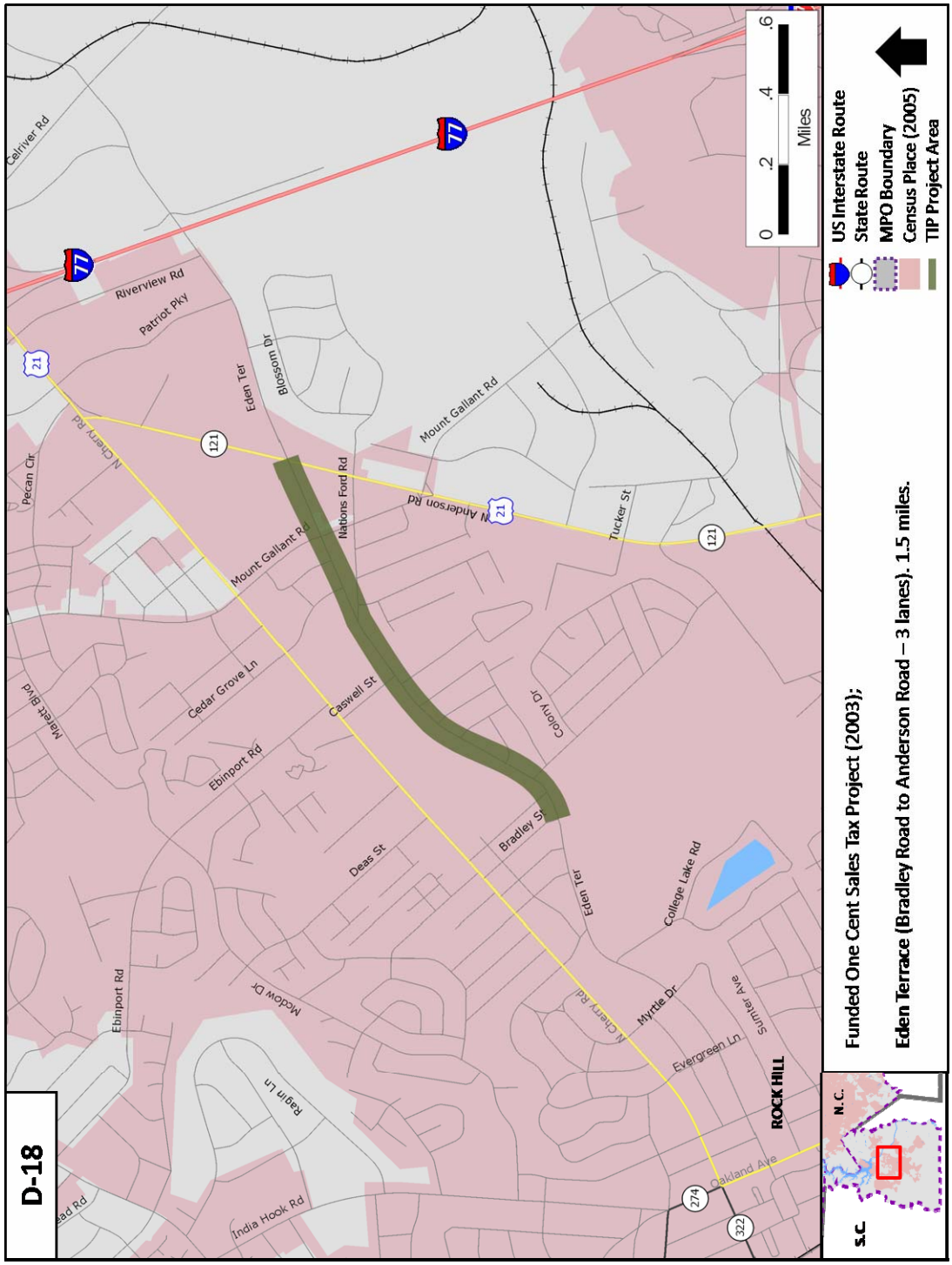


Figure 4.30: Corporate Boulevard Connector Project Area

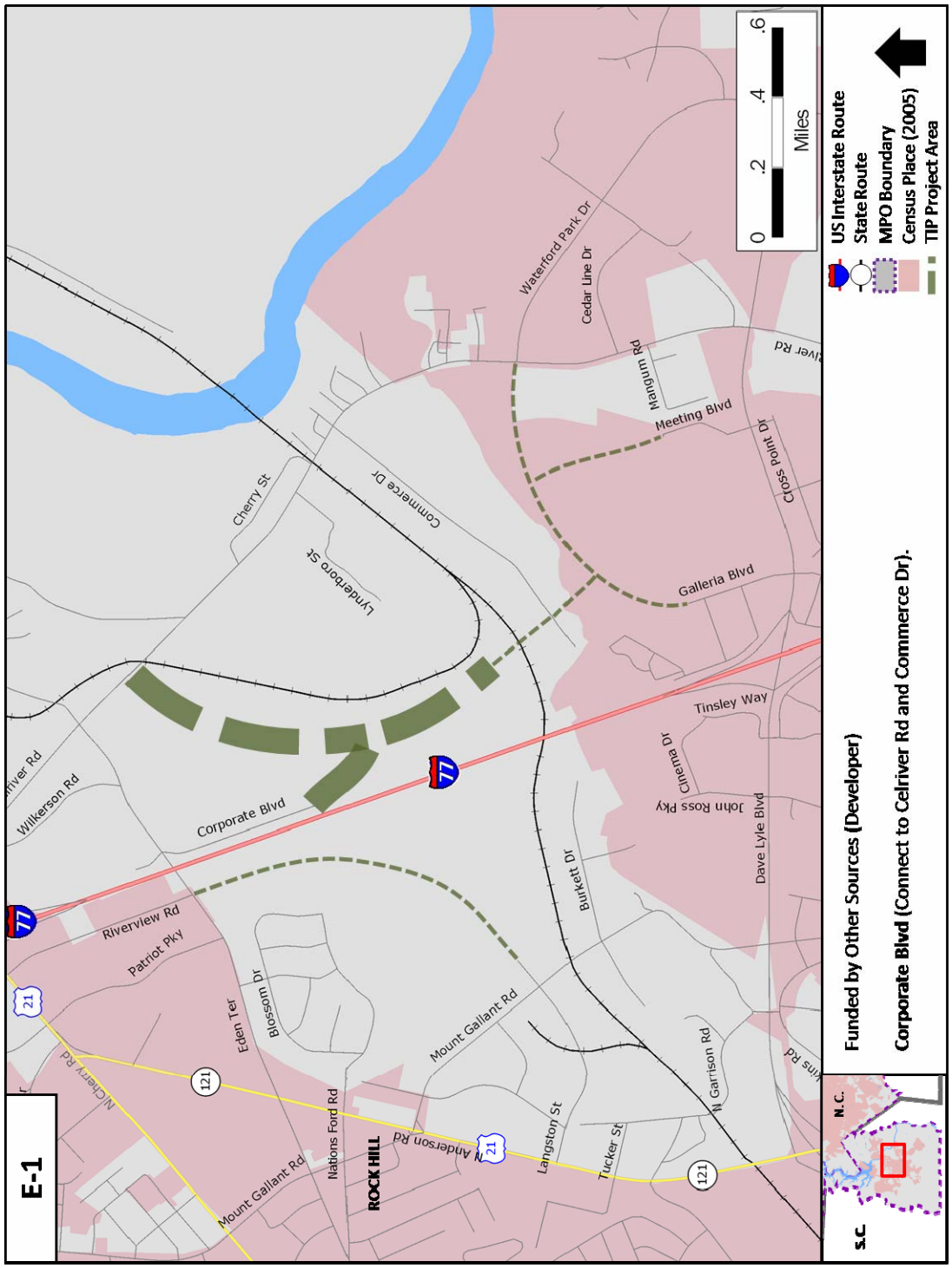


Figure 4.31: Commerce Drive – Galleria Boulevard Connector Road Project Area

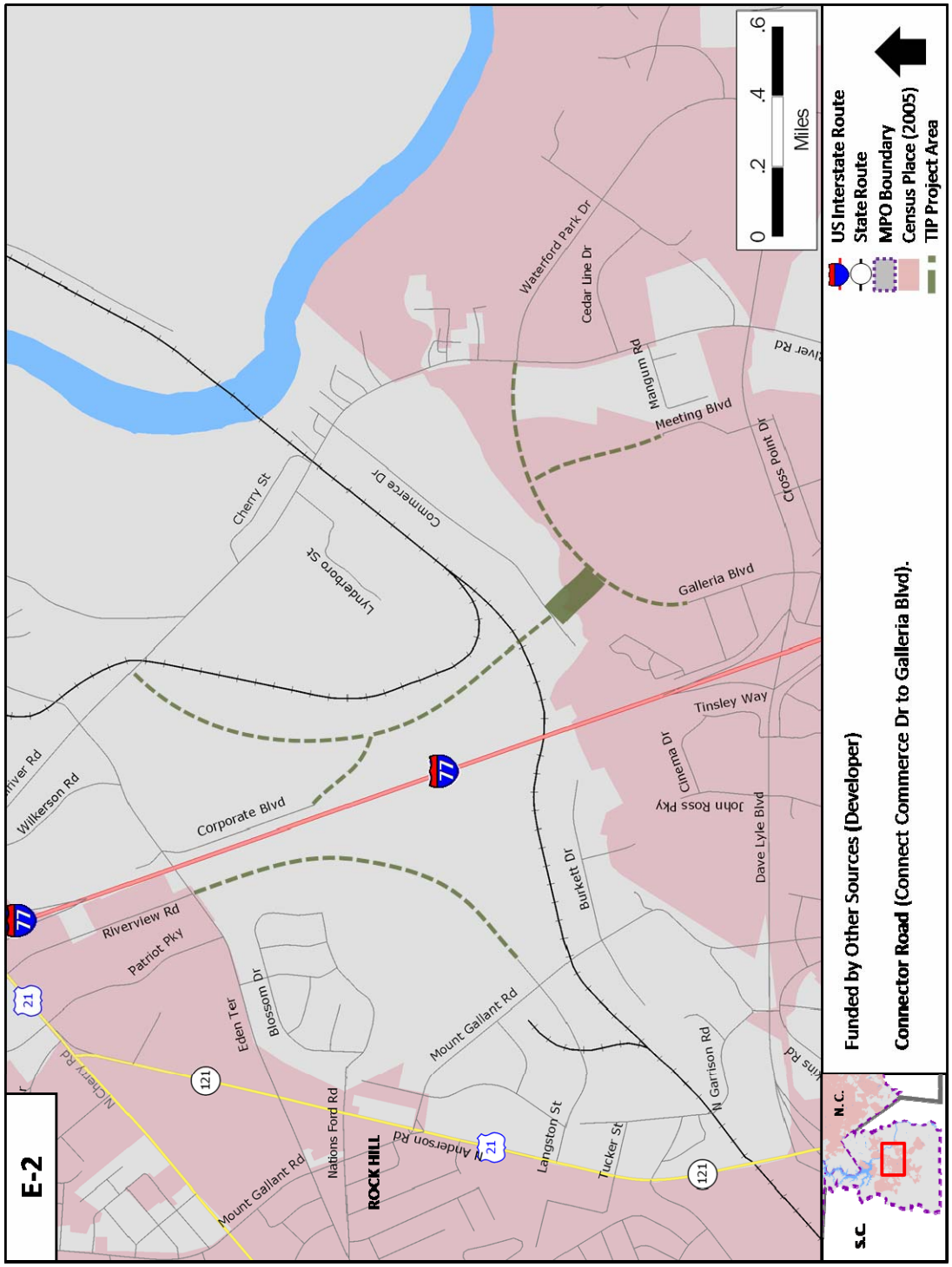


Figure 4.32: Galleria Boulevard Extension Project Area

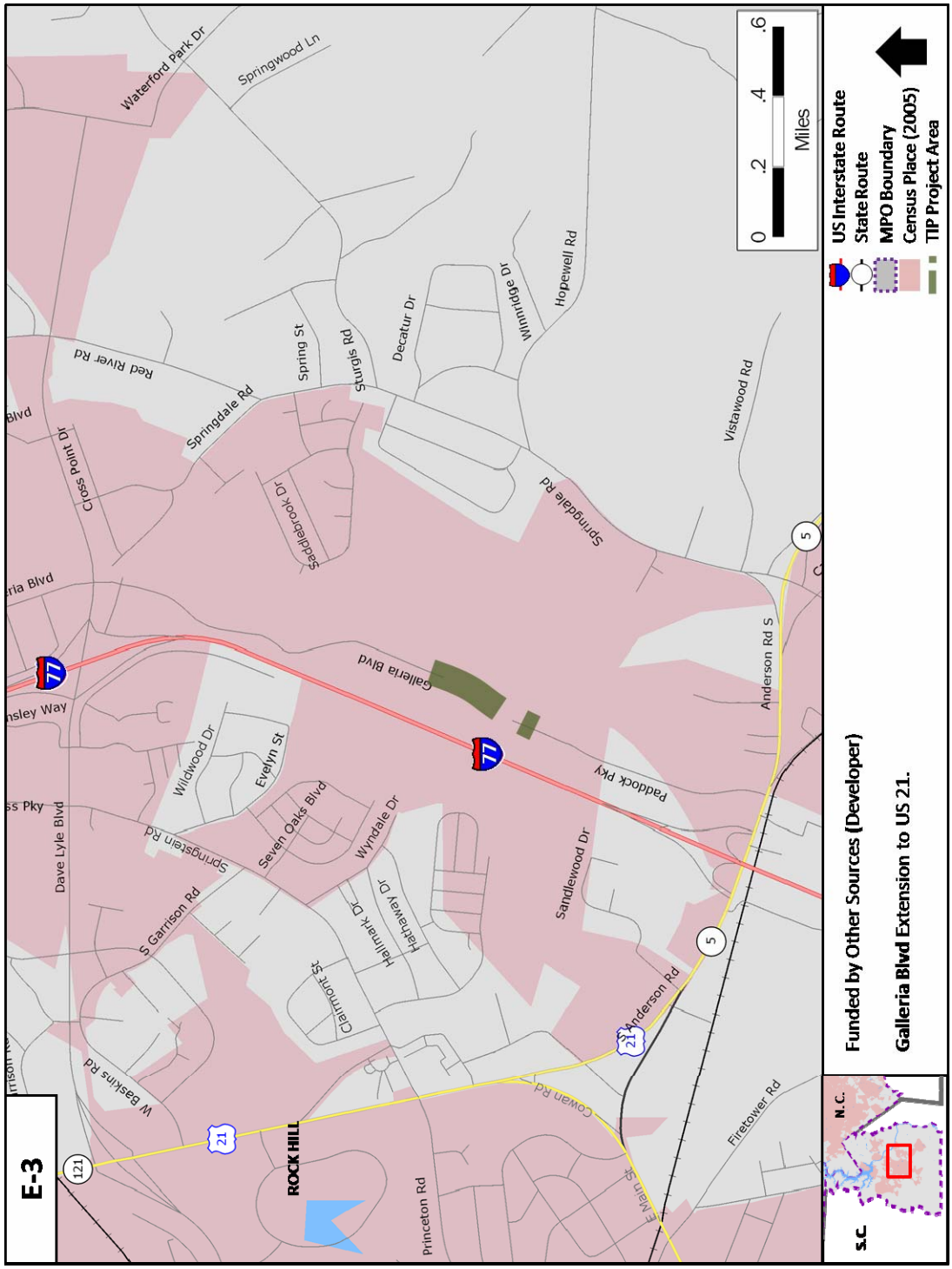


Figure 4.33: Commerce Drive – Riverwalk Spine Road Connector Road Project Area

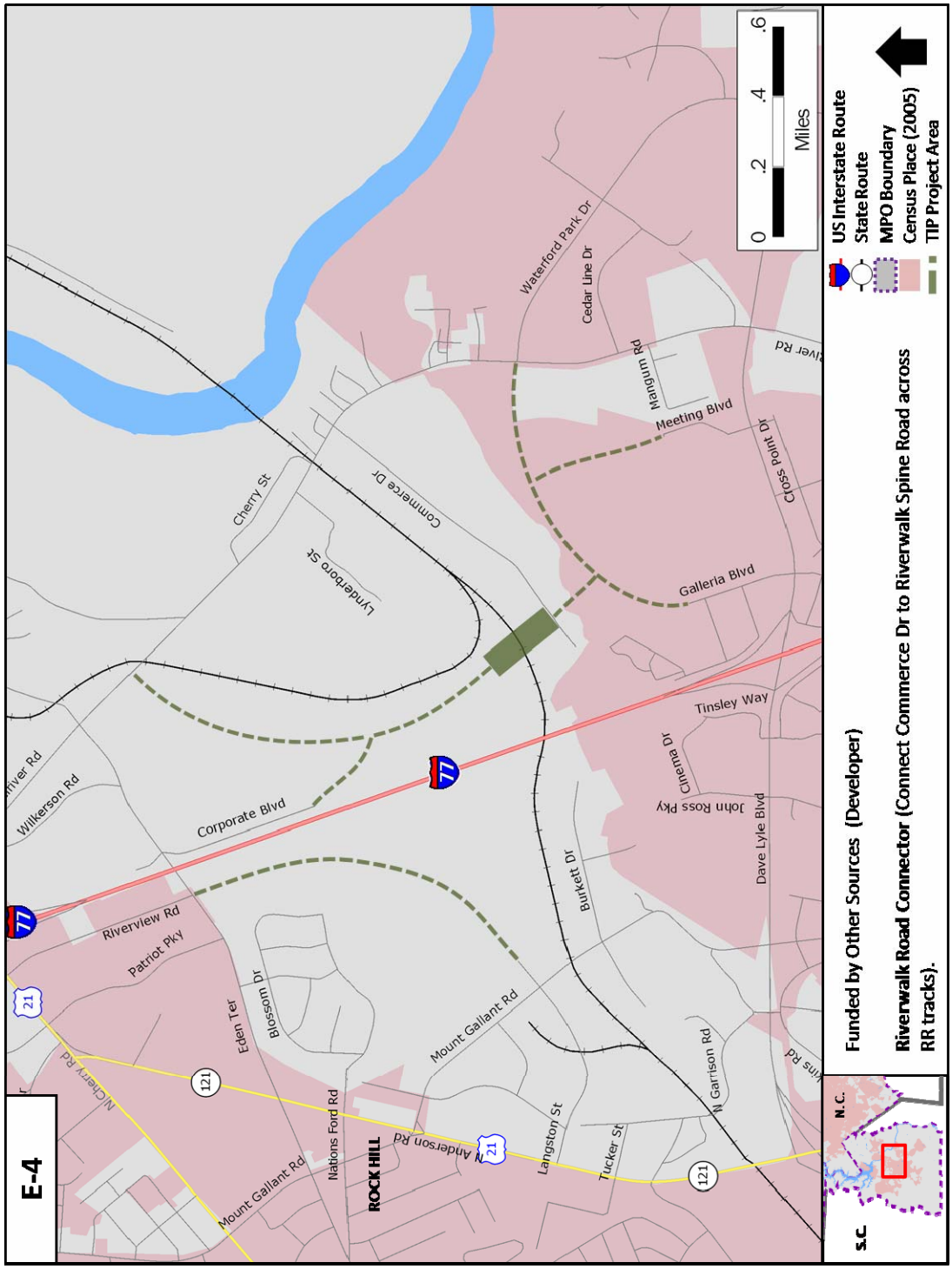


Figure 4.34: Riverview Road Extension Project Area

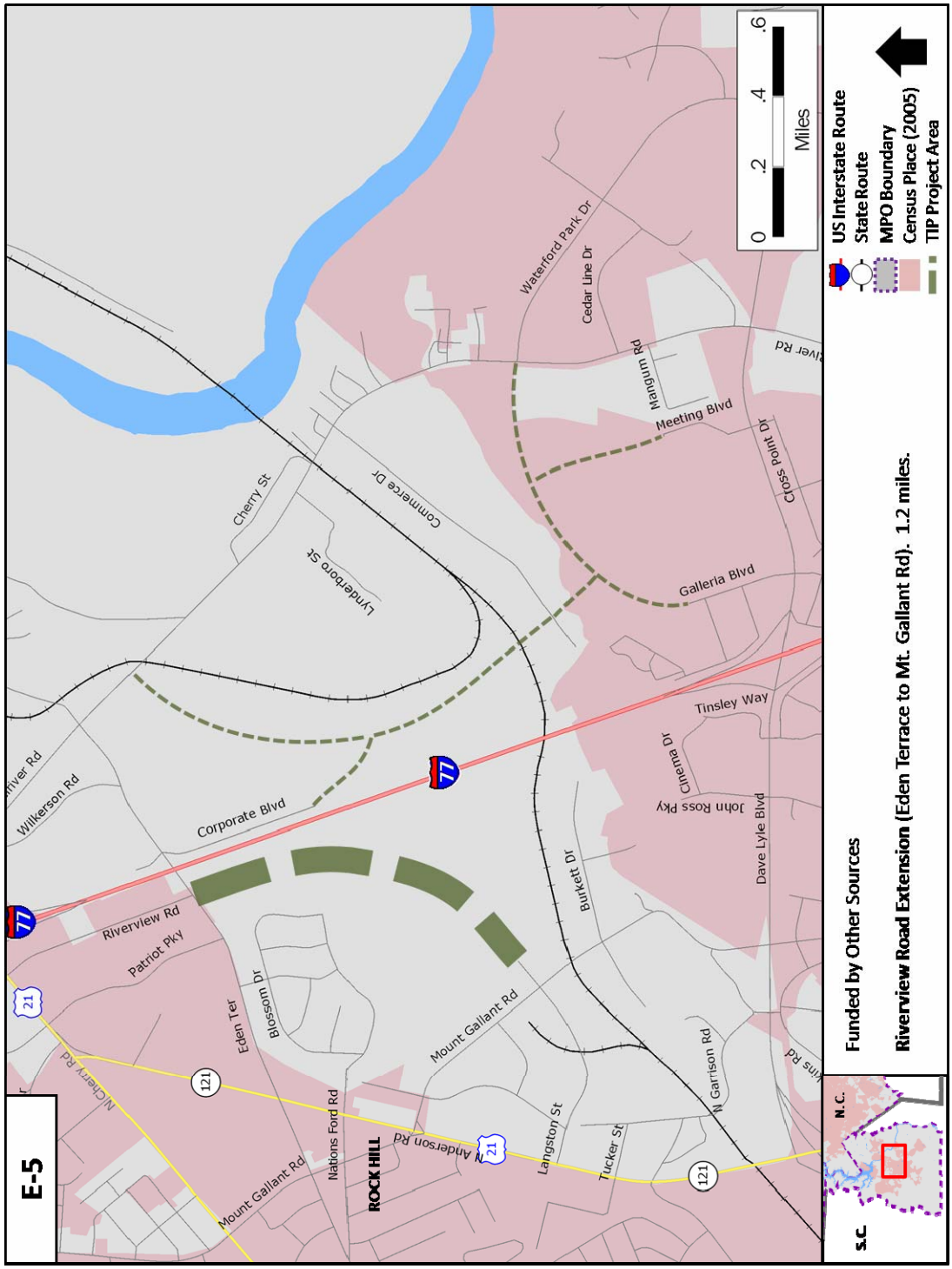


Figure 4.35: Eden Terrace Extension Project Area

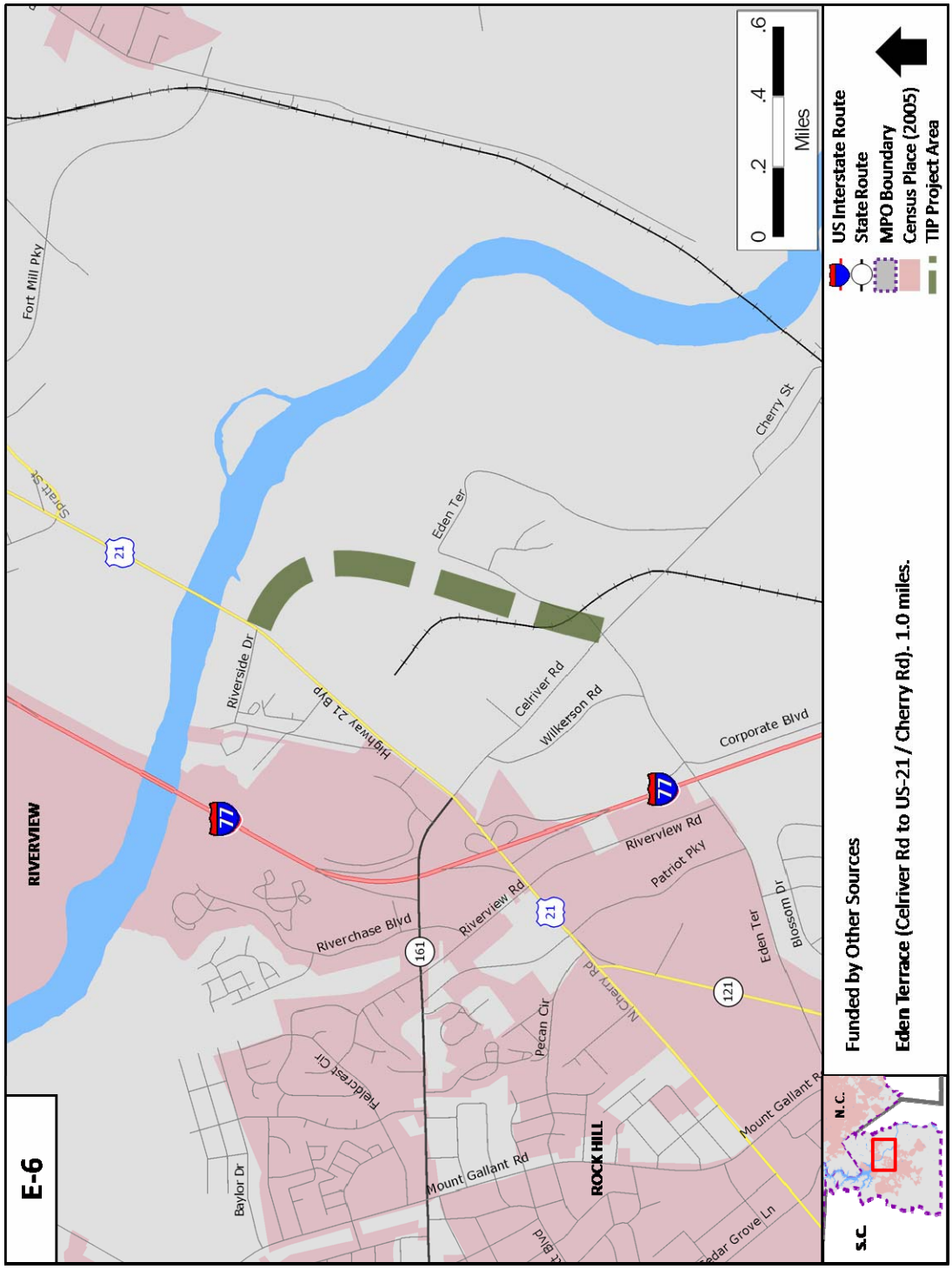


Figure 4.36: Galleria Boulevard Connector Road Project Area

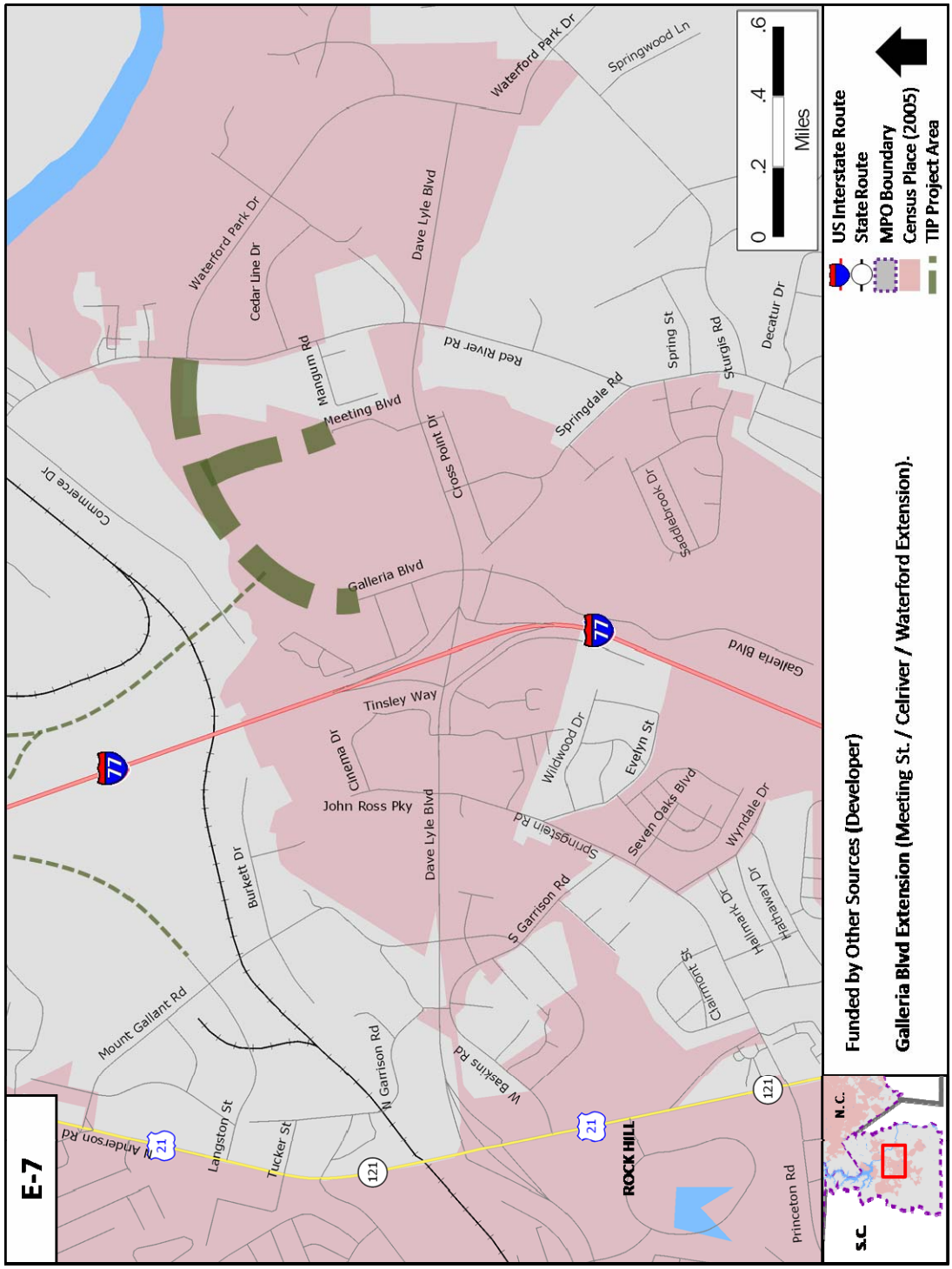
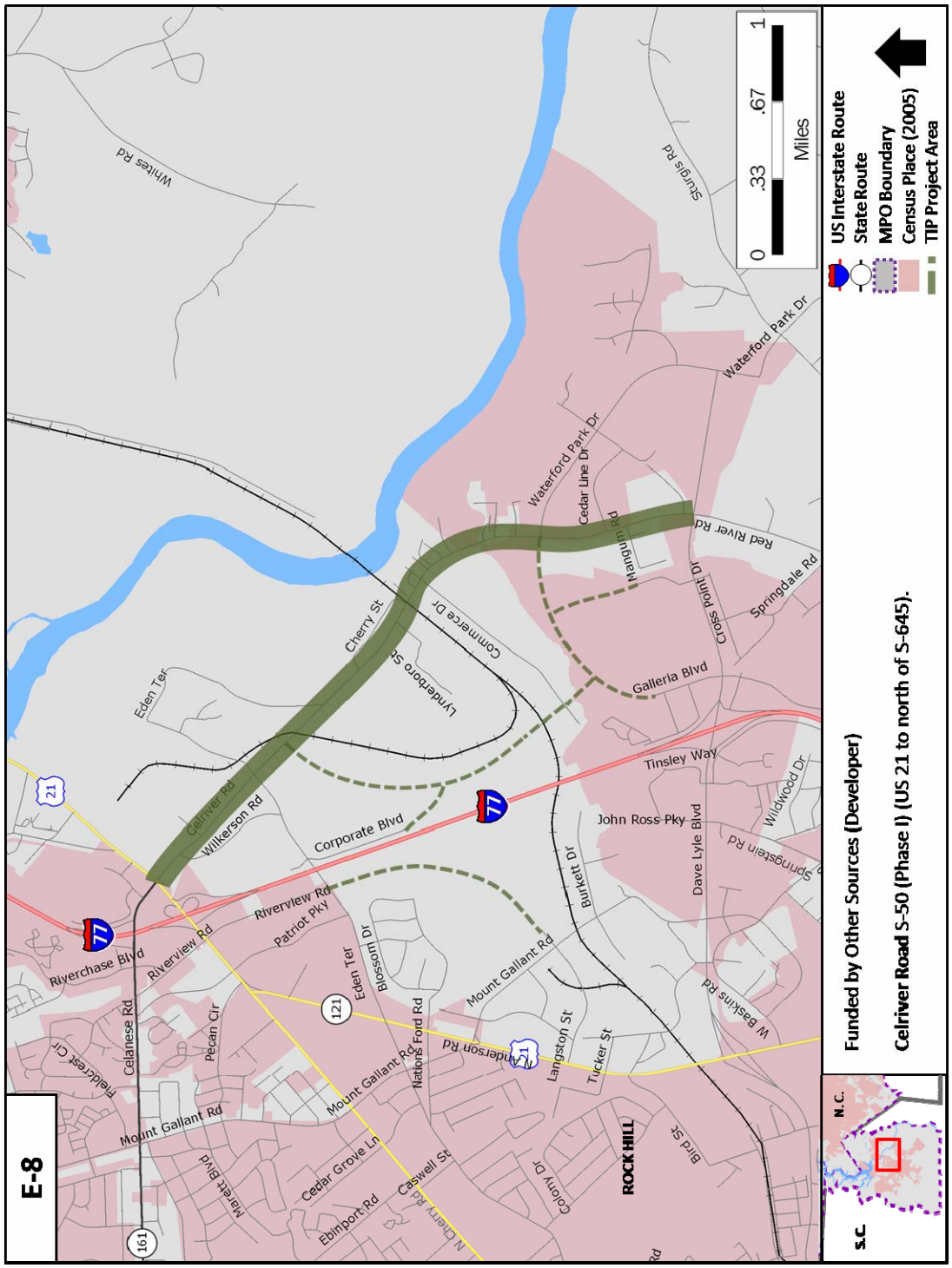


Figure 4.37: Celriver Road (S-50) Widening Project Area



4.4.3 Catawba Indian Nation Transportation Plan

The Catawba Indian Nation participates in the Indian Reservation Road Inventory (IRR). 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). The inventory spreadsheets are provided in Appendix 1 and reflect the most recent update conducted in 2007.

4.5 Stakeholder Input

A number of stakeholders provided input in developing the highway element of the 2035 LRTP. These included SCDOT, York County, the City of Tega Cay, the Town of Fort Mill, and the Federal Highway Administration.

The public participation process identified issues regarding congestion at the I-77 interchanges, in downtown Fort Mill, and at a number of other intersections.

4.6 Summary and Recommendations

4.6.1 Summary of Key Points

- The highway system is a core element of the RFATS Study Area's multimodal transportation system.
- Existing facilities include an interstate highway and numerous arterial and collector roadways that provide paths of mobility and accessibility within the area and to regional economic centers.
- Continuing population growth in the RFATS Study Area, due in part to its close proximity to the Charlotte metropolitan area, has increased highway congestion throughout the urban area, as many stakeholders have identified.
- Future projections show the congestion is expected to increase.
- The primary highway project in this Plan emerged in the late 1990s through modeling analysis as the #1 project to relieve congestion in the I-77 corridor and provide additional east-west access to I-77. The I-77 traffic study completed in 2008 further documented the need for the additional bridge crossing in this area.
- 'Pennies for Progress' is an important funding source that has allowed many projects to be funded.
- However, there are many other needs that are unmet due to lack of funding.

4.6.2 Recommendations

- RFATS should consider supporting a third 'Pennies for Progress' program, to allow implementation of some of the projects that are currently unfunded.
- RFATS communities should adopt 'complete streets' policies. RFATS may be in the best position to lead this development on behalf of the communities.