Introduction

Purpose of Chapter

As development continues and population increases, traffic volumes can be expected to climb. This increase in traffic volumes will create new deficiencies on the existing transportation network. Traffic bottlenecks may become evident in places that currently function adequately and existing deficiencies will be magnified.

Evaluating the existing transportation system helps to better identify needs and priorities for the purposes of planning. 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.

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 urban areas of Rock Hill, Tega Cay and Fort Mill with Lancaster County 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.

Existing Conditions and Trends

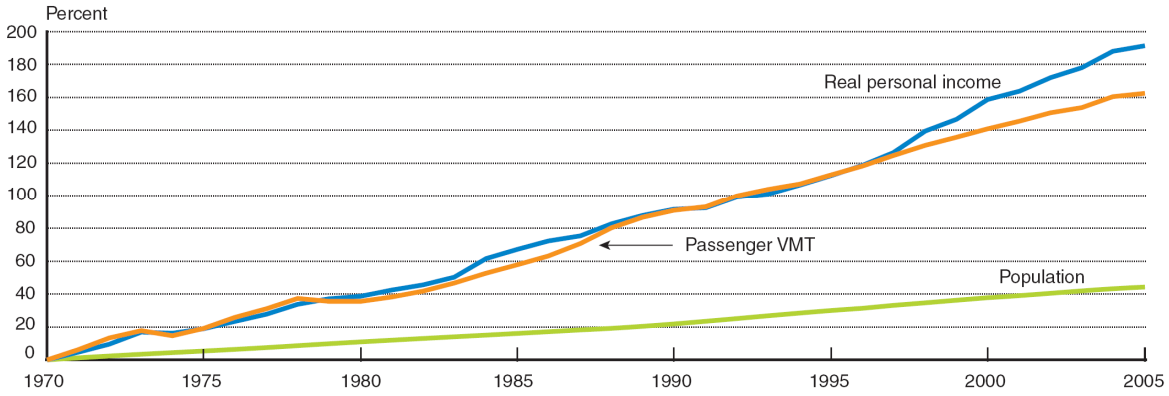
National Conditions and Trends

For the past three decades or more, personal highway travel has been increasing steadily, much faster than the rate of population increase (see chart below). 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.

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

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.

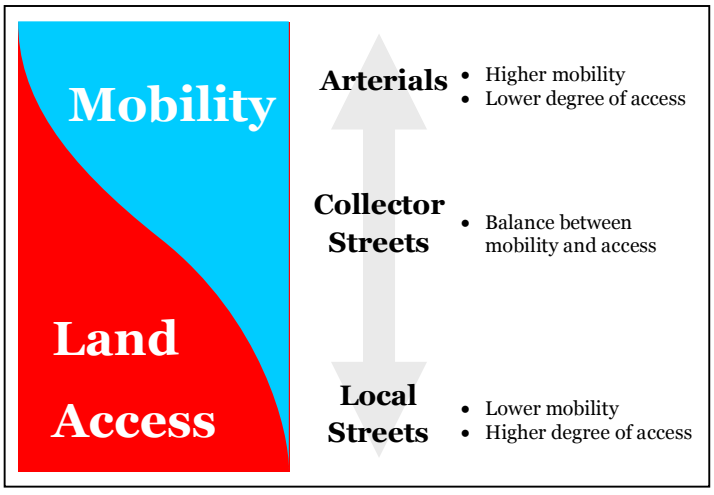
The South Carolina Department of Transportation (SCDOT) recognized this challenge in its 2008 Multimodal Long Range Transportation Plan. While the state is fortunate not to have the extreme congestion problems of large metropolitan areas, South Carolina is growing and congestion is worsening.

Conditions and Trends in the RFATS Study Area

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 (see graph below). The four classifications for urbanized areas are principal arterials, minor arterials, collector streets, and local streets.

Highway Classification: Mobility vs. 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,
- US-521,
- 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.

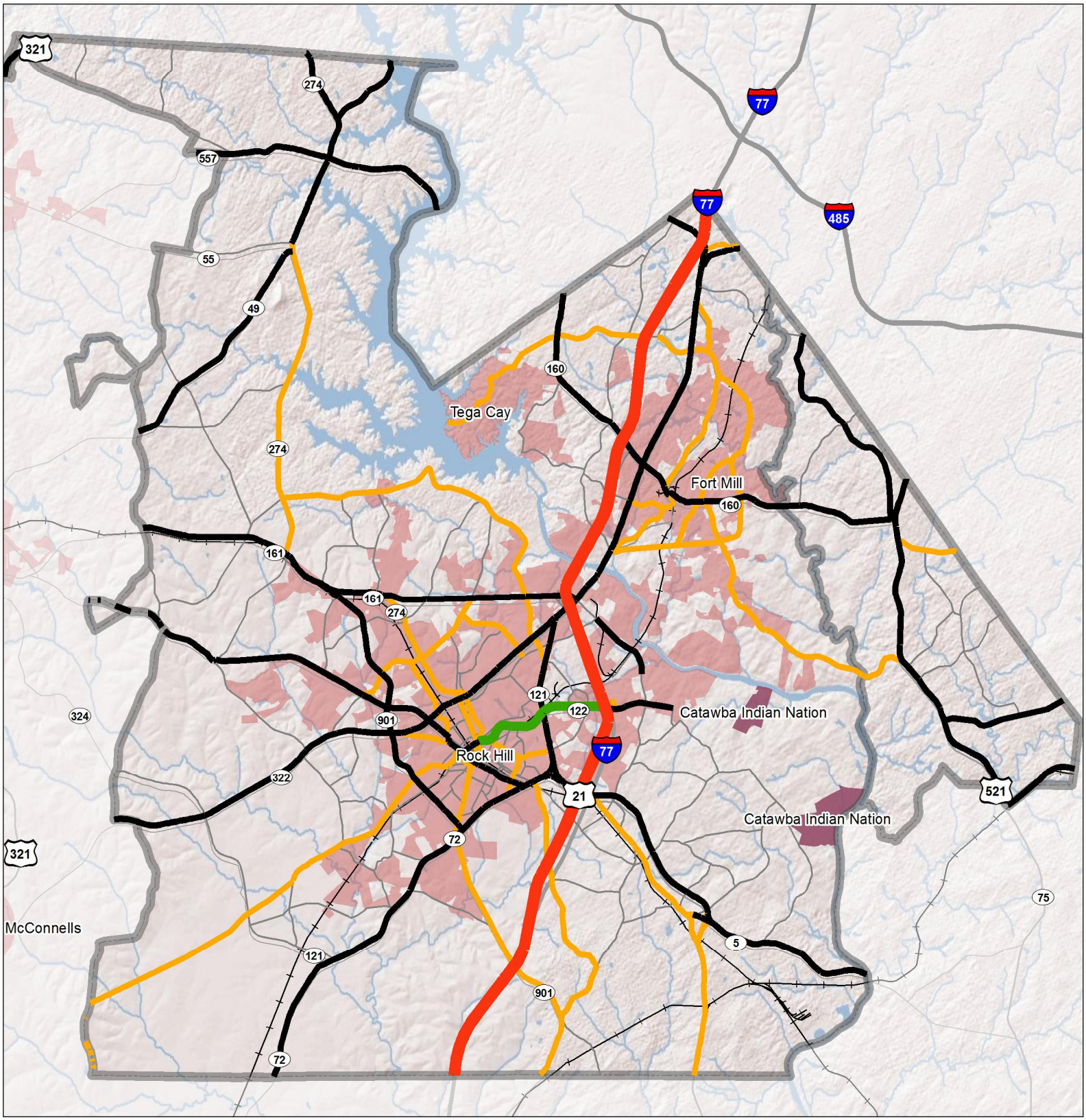
Collector streets collect traffic from residential areas and channel it to the arterials. The collector streets include:

- Doby's 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 4.1 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.



Functional Classification

- RFATS Boundary
- Municipal Boundary
- Catawba Indian Reservation
- Freeway
- Expressway
- Major Thoroughfare
- MinorThoroughfare
- Collector and Local Street

Source: Metrolina Regional Travel Demand Model

0 3 6 Miles

N W E S

Traffic Volumes

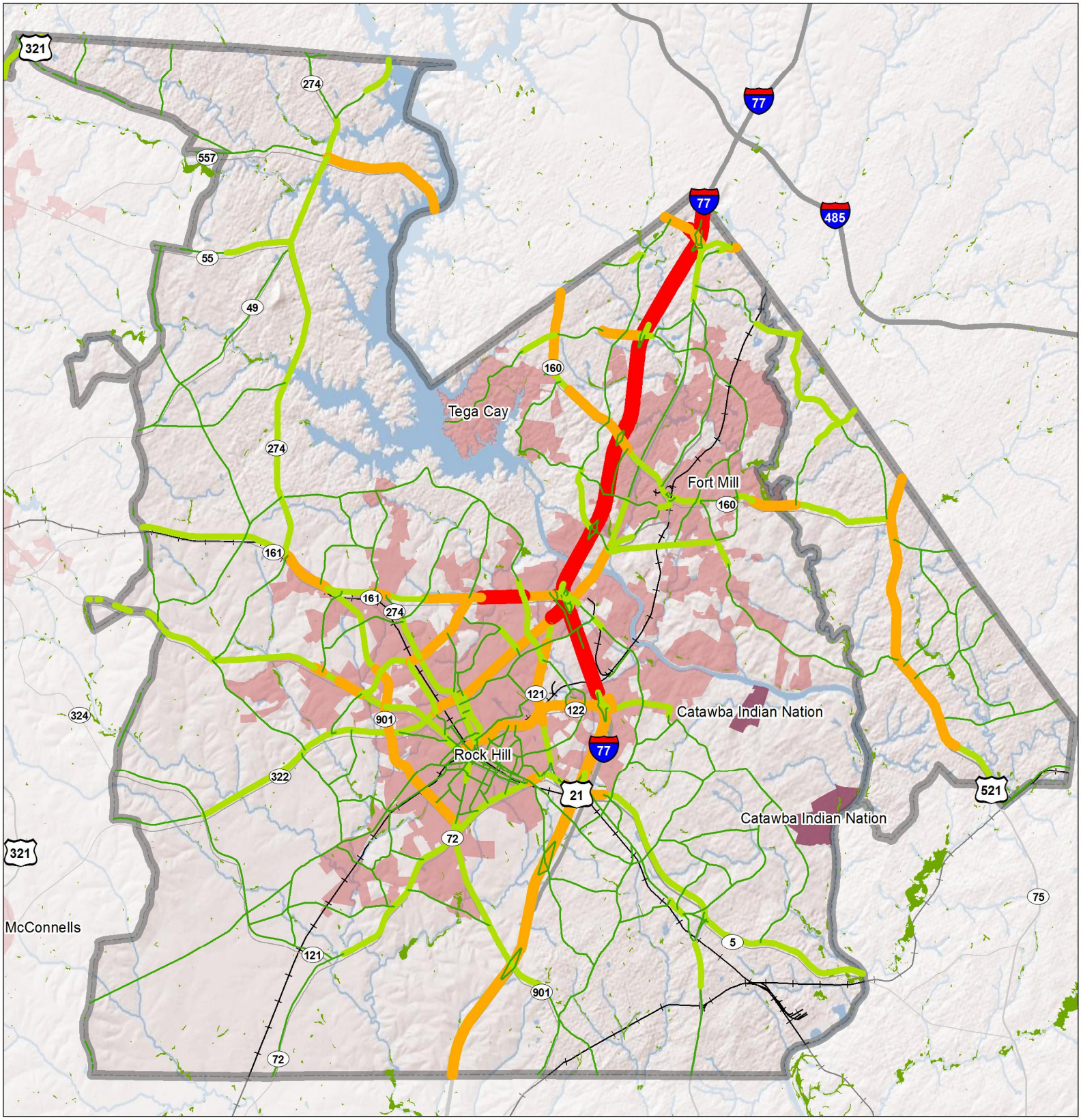
Generally, the higher the level of functional classification, the higher the volume of traffic that the highway carries. **Figure 4.2** shows the estimated daily traffic volumes in the RFATS Study Area in the year 2013. I-77 carries the highest number of vehicles per day in the study area. The volumes ranged from approximately 49,000 vehicles per day at the southern edge of the RFATS Study Area to nearly 140,000 at the North Carolina border. Arterials in the study area with the highest traffic volumes included: Celanese Road, Cherry Road, US 21, and Dave Lyle Boulevard.

Traffic Congestion

Traffic congestion is a major consideration in judging the efficiency of a highway network system. **Figure 4.3** shows the estimated traffic congestion during the P.M. peak period in 2013. 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 currently over capacity in at least one direction during the P.M. peak period include:

- SC 51 between Springhill Farm Road and Nations Ford Road
- Galleria Boulevard near Dave Lyle Boulevard
- SC 160 between Gold Hill Road and the York County Line
- Gold Hill Road at I-77
- US 21 near Regent Parkway
- Dave Lyle Boulevard (S 122) near Oakland Avenue
- Carowinds Boulevard
- Celanese Road (SC 161) between Riverview Road and Mt. Gallant Road
- Several I-77 interchange ramps, including Cherry Road, Gold Hill Road, Celanese Road, SC 160, and Dave Lyle Boulevard



Existing (2013) Traffic Volumes

- RFATS Boundary
- Municipal Boundary
- Catawba Indian Reservation

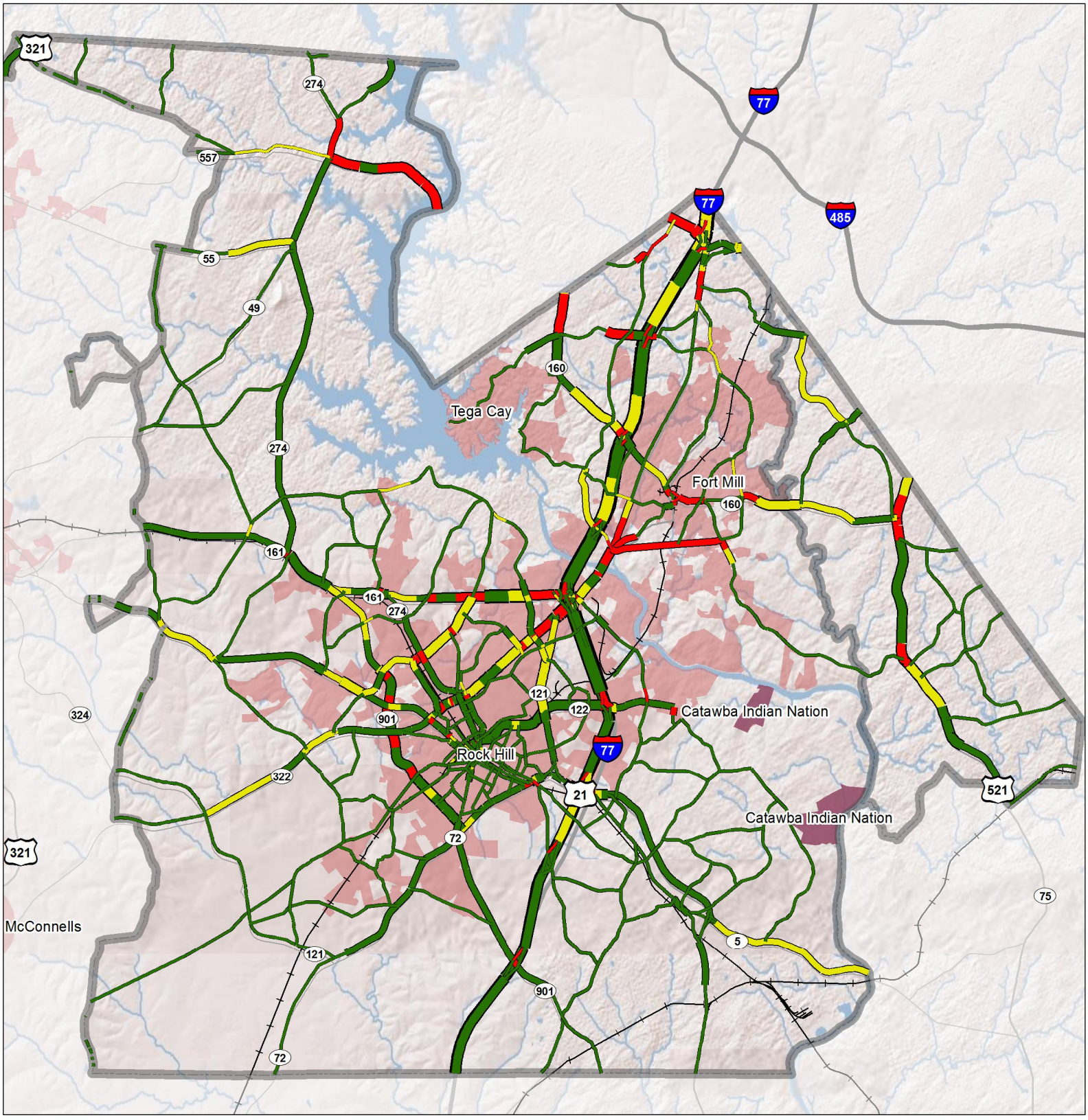
Source: Metrolina Regional Travel Demand Model

Vehicles Per Day

- Less than 10,000 vpd
- 10,000 to 20,000 vpd
- 20,000 to 40,000 vpd
- More than 40,000 vpd

0 3 6 Miles

N W E S



Existing (2013) Congestion

- RFATS Boundary
- Municipal Boundary
- Catawba Indian Reservation

- Less than 10,000 vpd
- 10,000 to 20,000 vpd
- 20,000 to 40,000 vpd
- More than 40,000 vpd

- Under Capacity
- At Capacity
- Above Capacity

Source: Metrolina Regional Travel Demand Model

N W E S

0 3 6 Miles

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, with subsequent referendums passed in 2003 and 2011.**

Table 4.1 includes the planned projects within the RFATS Study Area that are funded by each Pennies for Progress program.

Current and Future Issues

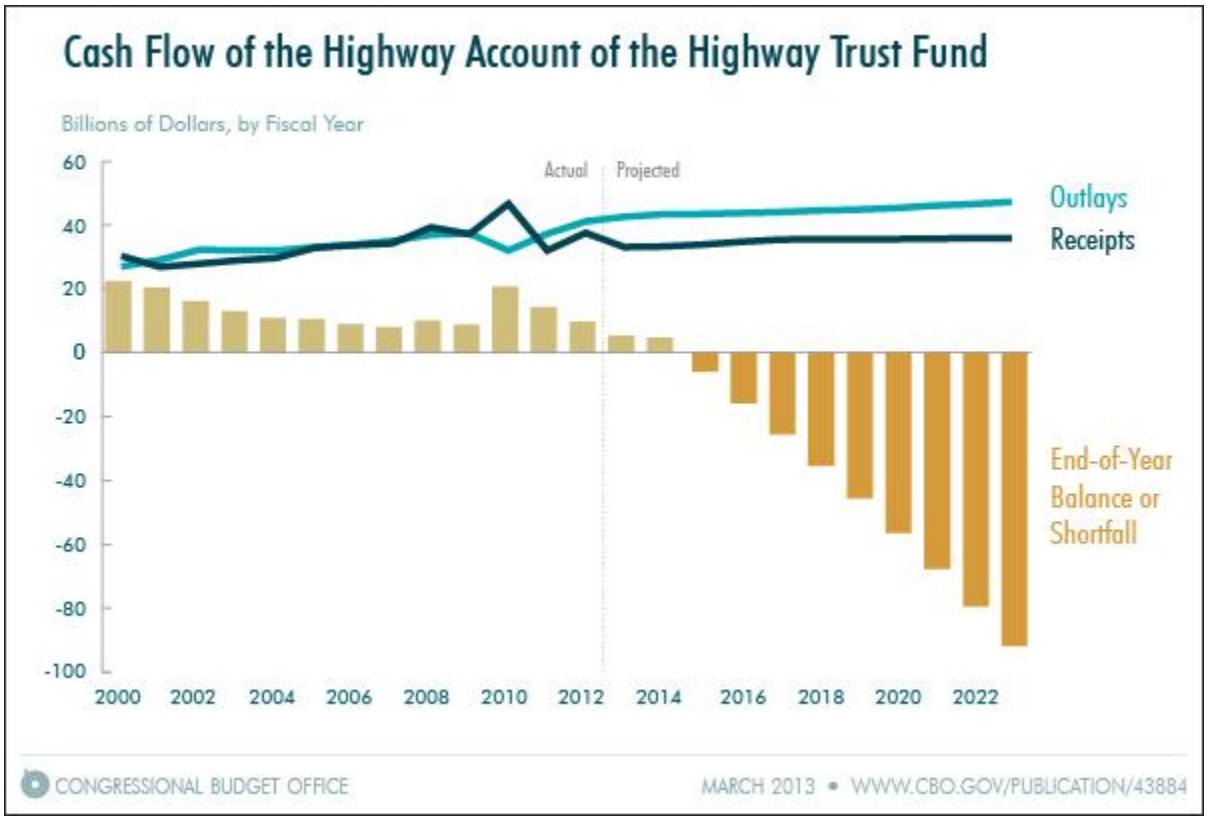
National Current and Future Issues

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.

According to the CBO, "The current trajectory of the Highway Trust Fund is unsustainable. Starting in fiscal year 2015, the trust fund will have insufficient amounts to meet all of its obligations, resulting in steadily accumulating shortfalls. Since 2008, Congress has avoided such shortfalls by

transferring funds from the general fund of the Treasury." Lawmakers could choose to address the shortfall by substantially reducing spending for surface transportation programs, by boosting revenues, or by adopting some combination of the two.



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 2030 estimated needs total $11 billion, but less than $3 billion of funding is projected to be available.

Current and Future Issues in the RFATS Study Area

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 4.4 shows the forecast traffic volumes for this Existing and Committed network. The increased traffic volumes have an effect on congestion. **Figure 4.5** shows the estimated traffic congestion during the P.M. peak period in 2035 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 51 between Springhill Farm Road and Nations Ford Road
- Sections of Dave Lyle Boulevard (SC 122), including between Charlotte Avenue and Oakland Avenue and near I-77
- Sections of US 21, including near Eden Terrace and Pineville Rock Road
- US 521 (Lancaster Highway) near SC 160
- Gold Hill Road near I-77
- Anderson Road near I-77
- Carowinds Boulevard

In addition, several other stretches of roadway are at capacity, notably additional portions of I-77, SC 160, Celanese Road (SC 161), and Gold Hill Road.

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 fourth 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.

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.

Regional Planning Initiatives

Additionally, there are two projects of regional importance that although currently unfunded, nonetheless deserve special note – (1) Proposed Dave Lyle Boulevard Extension; and (2) East-West Connector Project. Both projects would represent significant additions to the Regional Transportation Network and are briefly summarized below:

1) Dave Lyle Blvd Extension – This project has been identified and discussed as a significant opportunity to improve area roadway capacity, traffic operations and regional connectivity within the RFATS Study Area. Specifically, this project would involve widening (5 lanes) and extending Dave Lyle Boulevard from the Rock Hill Galleria Mall Area to Highway 521 in Lancaster County. When current and future congestion on Dave Lyle Boulevard as well as on important east-west corridors adjacent to Dave Lyle are taken into consideration, the potential long term value and impact of this project supports continued attention by all local governments.

It should be noted that funding for the extension of Dave Lyle Boulevard would need to come from several sources, including the State Infrastructure Bank, as well as federal, state and local agencies.

2) East / West Connector – This project is a 5.2 mile, four lane divided roadway that would facilitate a new connection between I-77 at Coltharp Road to the India Hook / Mt Gallant area. This project has been identified as one option for lessening congestion levels on SC 160, Gold Hill Road, as well as along the Celanese Road Corridor. Specifically, this project would involve the construction of a new interchange at I-77 / Coltharp Road as well as a new bridge crossing of the Catawba River. It is important to note that this project is currently in the very early stages of development. With this in mind, to further evaluate the possible impacts of this type of a project, a feasibility study has been recommended as a part of this 2035 LRTP update.

It should similarly be noted that funding for the East / West Connector would need to come from several sources, which may include the State Infrastructure Bank, as well as other local sources.

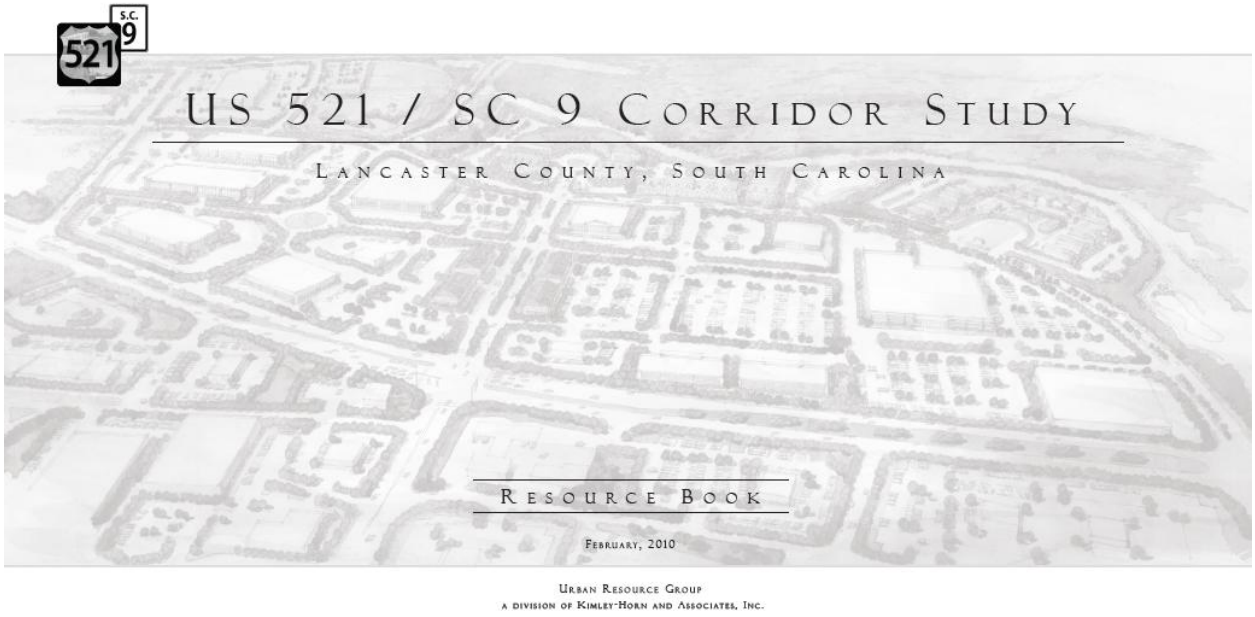
Catawba Indian Nation Transportation Plan

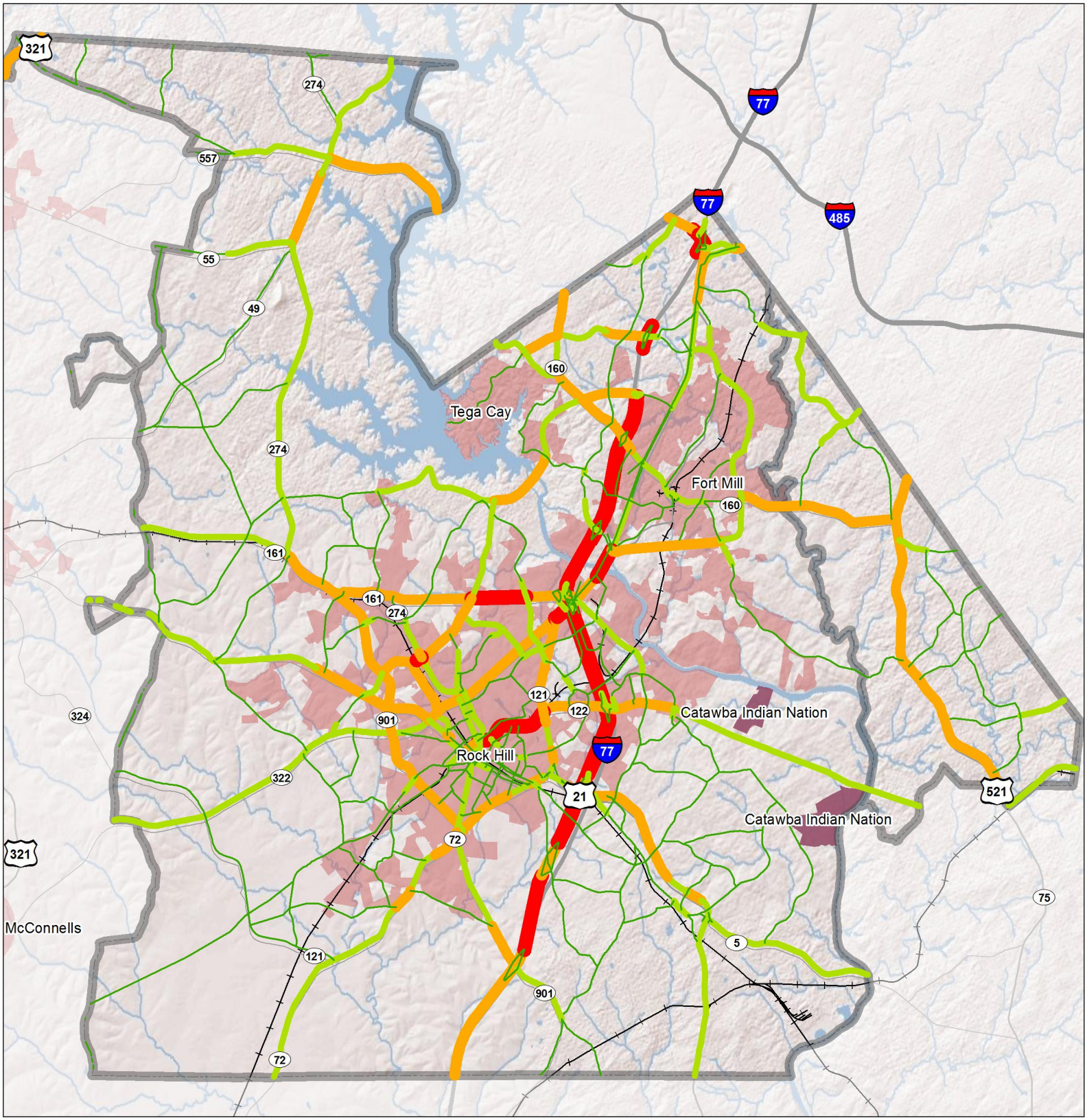
The Catawba Indian Nation participates in the Indian Reservation Road Inventory (IRR). This is a program addressing the transportation needs of tribes by providing funds for planning, design, construction, and maintenance activities. This program is jointly administered by the Federal Highway Administration's 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.

US 521/ SC 9 Corridor Study (Lancaster County)

In 2010, Lancaster County conducted an extensive corridor study on US 521 and SC 9 to provide a vision for existing and future multimodal transportation and development within the region (horizon year of 2035). It is a guide for preferred development patterns, design qualities, and transportation systems in the community. It also provides a strategy for economic vitality to build upon the Lancaster County Economic Development Corporation's (LCEDC) efforts to foster a healthy and sustainable economic environment. The study also offers recommendations supported by the Project Advisory Committee (PAC) and is complete with an Action Plan and objectives.

The link to this study can be found on the Lancaster County website (www.mylancastersc.org) and also the Catawba Regional Council of Governments' website (www.catawbacog.org).





Future (2035) Traffic Volumes

- RFATS Boundary
- Municipal Boundary
- Catawba Indian Reservation

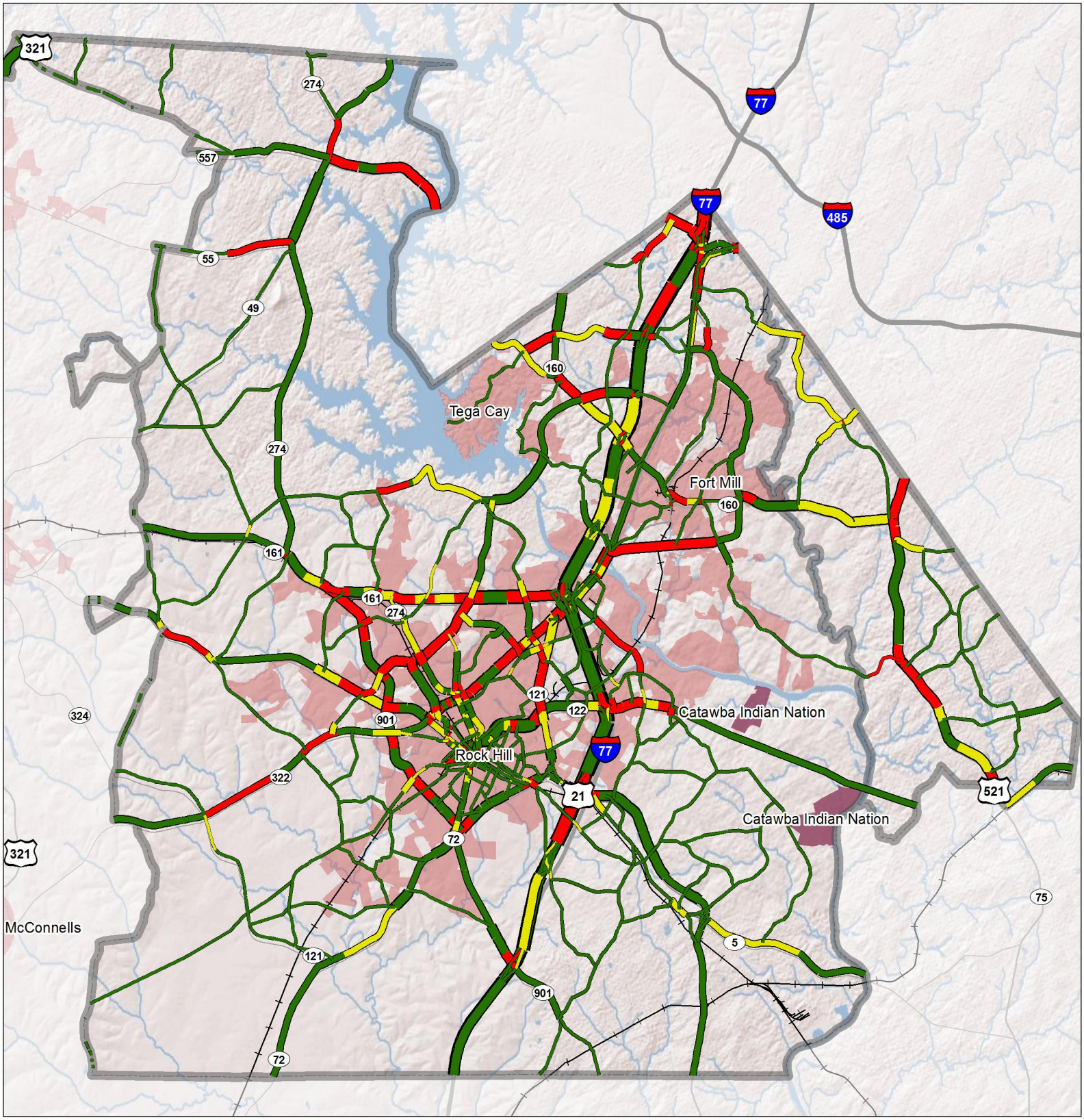
Source: Metrolina Regional Travel Demand Model

Vehicles Per Day

- Less than 10,000 vpd
- 10,000 to 20,000 vpd
- 20,000 to 40,000 vpd
- More than 40,000 vpd

0 3 6 Miles

N W E S



Future (2035) Congestion

- RFATS Boundary
- Municipal Boundary
- Catawba Indian Reservation

- Less than 10,000 vpd
- 10,000 to 20,000 vpd
- 20,000 to 40,000 vpd
- More than 40,000 vpd

- Under Capacity
- At Capacity
- Above Capacity

Source: Metrolina Regional Travel Demand Model

0 3 6 Miles

N W E S

2035 Long Range Transportation Plan Projects

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 of ranking criteria, outlined in sections 57-1-370 and 57-1-460, 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 2035 LRTP update. The criteria are broken down and weighted based on the following factors:

For ranking **new location** projects:

- Traffic volume and congestion (45%). Considered as a quantifiable criterion based on a comparison of network hours of delay between build and no-build scenarios.
- Economic Development (20%). Considered as a quantifiable criterion based on an assessment of short-term, intermediate, and long-term development potential as a result of the proposed improvement.
- Environmental Impact (15%). Considered as a quantifiable criterion based on an assessment of potential impacts to natural, social, and cultural resources.
- Financial Viability (20%). Considered as a quantifiable criterion based on estimated project cost in comparison to the six-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. 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 (25%). Considered as a quantifiable criterion based on current traffic volumes.
- Truck Traffic (15%). Considered as a quantifiable criterion based on current volume and average daily truck traffic estimates.

- Public Safety (20%). Considered as a quantifiable criterion based on collision data.
- Economic Development (10%). Considered as a quantifiable criterion based on an assessment of short-term, intermediate, and long-term development potential as a result of the proposed improvement.
- Environmental Impact (10%). Considered as a quantifiable criterion based on an assessment of potential impacts to natural, social, and cultural resources.
- Traffic Status (20%). Considered as a quantifiable criterion based on an assessment of the intersection's functionality and operational characteristics.
- Financial Viability. Considered independently of ranking.
- Pavement Quality Index. Considered independently of ranking.
- Alternative Transportation Solutions. Considered independently of ranking.
- Consistency with Local Land Use Plans. Considered independently of ranking.

For ranking **widening** projects:

- Traffic Volume and Congestion (35%). Considered as a quantifiable criterion based on current traffic volumes and the associated level-of-service condition.
- Public Safety (15%). Considered as a quantifiable criterion based on collision data. Pavement Quality Index (PQI) (10%). Considered as a quantifiable criterion based on pavement condition assessments.
- Truck Traffic (10%). Considered as a quantifiable criterion based on current volume and average daily truck traffic estimates.
- Economic Development (10%). Considered as a quantifiable criterion based on an assessment of short-term, intermediate, and long-term development potential as a result of the proposed improvement.
- Environmental Impact (10%). Considered as a quantifiable criterion based on an assessment of potential impacts to natural, social, and cultural resources.

- Financial Viability (10%). Considered as a quantifiable criterion based on estimated project cost in comparison to the six-year Statewide Transportation Improvement Program (STIP) budget. Additional consideration will be given to projects supplemented with local project finding and/or other federal and state finding.
- 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 2005 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 the consideration of project cost in comparison to the six-year Statewide Transportation Improvement Program (STIP) budget.
- 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:

- 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, and
- Other Property Damage Crashes.

The above referenced criteria represent 80 percent of the total weighted scoring for interstate interchanges. These criteria are included in the Interstate Interchange Management System (IIMS). The remaining inputs to comprise the total score include 10 percent from economic development and 10 percent from environmental impacts, similar to interstate mainline capacity projects.

List of Projects

Table 4.1 presents the 2035 Long Range Transportation Plan projects. The table is divided into several sections:

- Fiscally-constrained projects,
- State Transportation Improvement Program (STIP) projects,
- York County one-cent sales tax projects for 1997, 2003 and 2011,
- Privately-funded projects from the I-77 traffic study,
- Unfunded new alignment, widenings, intersection and interchange improvement projects, and
- Circulation and collector road studies.

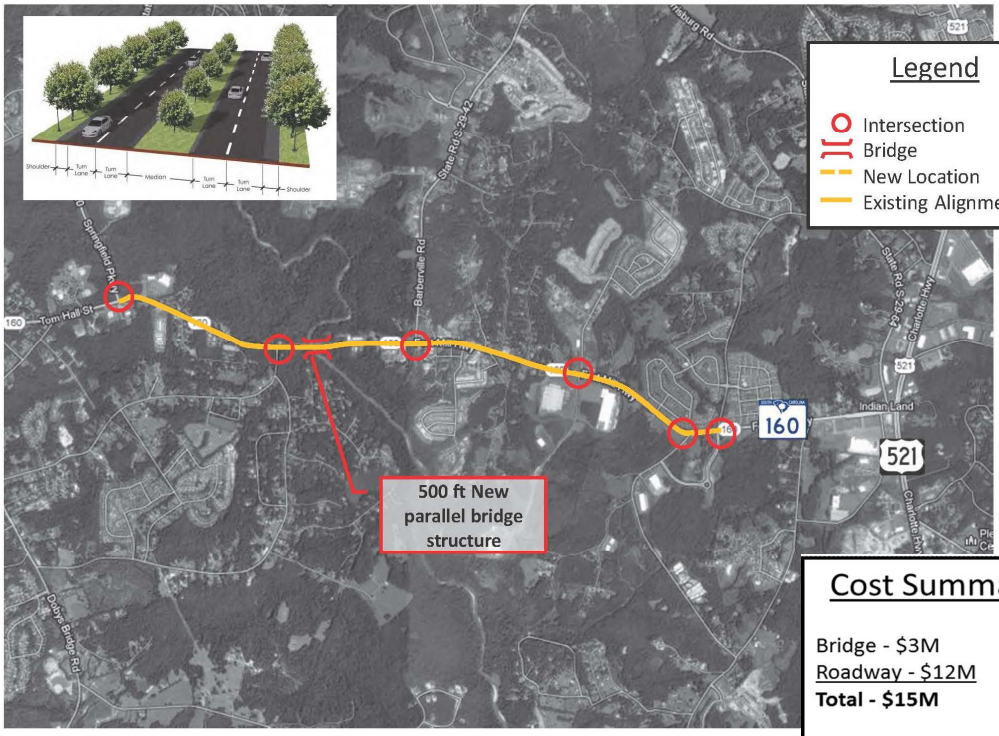
The **York County Sales Tax programs** fund $176.3 million of intersection and other road projects including US-21 (SC-161 to US-21 Bypass in Fort Mill), Fort Mill Southern Bypass, Mount Gallant Road, and SC-72. Nearly six miles of **projects around the I-77 interchanges** in Rock Hill are identified 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) are scheduled to move forward in the next five years. **Where applicable, these projects have conformity emissions analysis performed.**

The **fiscally-constrained projects** include road widenings, traffic flow improvements in and around heavily congested interchange areas as well as priority intersection locations. The list of projects which have completed conformity analysis comprise the following:

- SC 160 – Fort Mill Highway
- Celanese at I-77
- Cel-River Road
- SC 160 at I-77
- SC 5/ US 21 (Anderson Road) at I-77

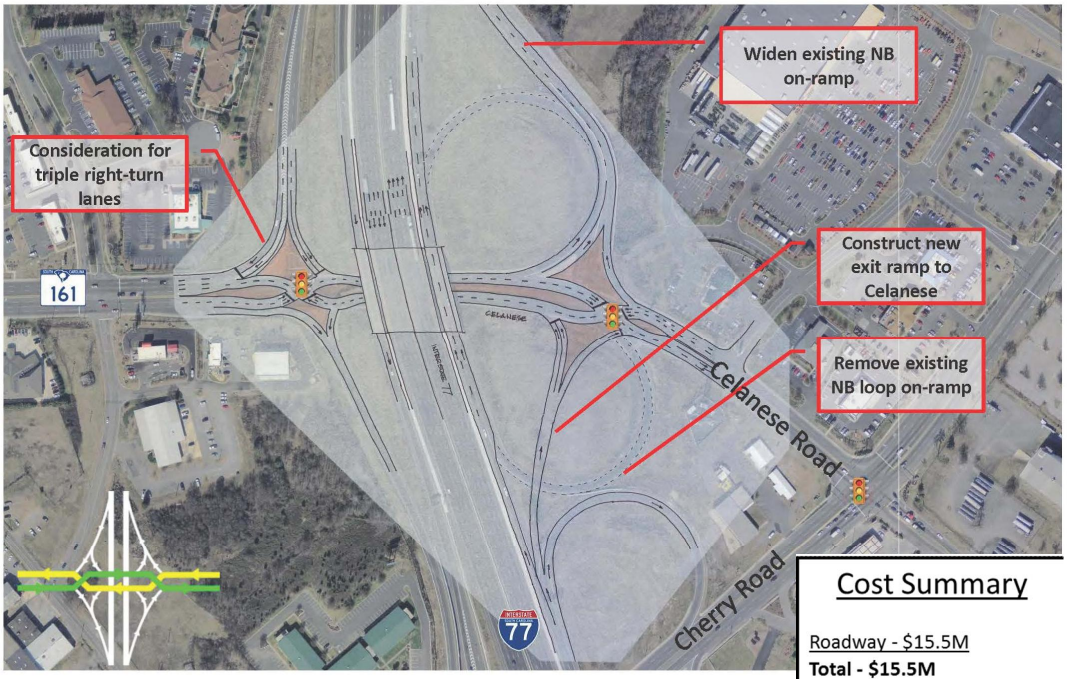
SC 160 – Fort Mill Highway



Cost Summary

Bridge - $3M
Roadway - $12M
Total - $15M

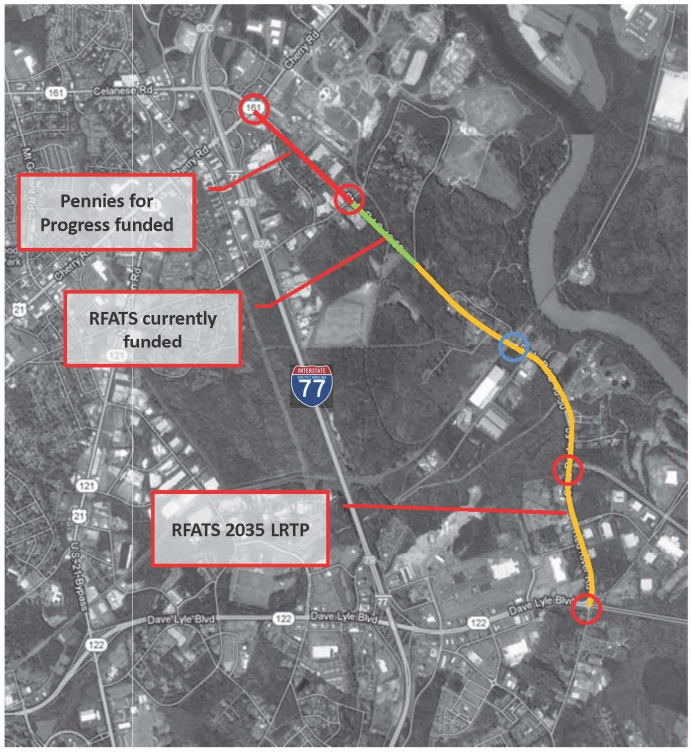
Celanese at I-77



Cost Summary

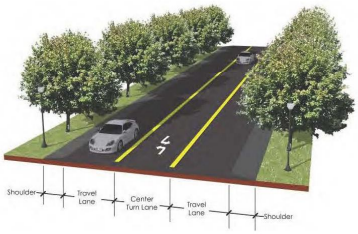
Roadway - $15.5M
Total - $15.5M

Cel-River Road



Legend

- Rail Road Crossing
- Intersection
- Bridge
- New Location
- Existing Alignment



Cost Summary

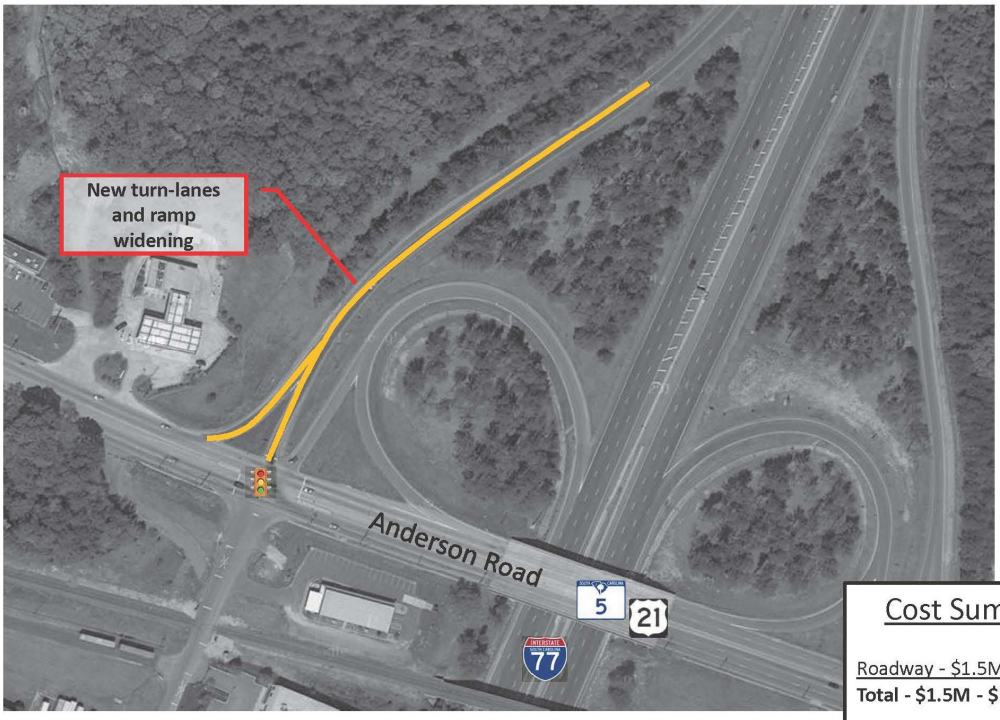
Roadway - $14m
Total - $14M

SC 160 at I-77

Cost Summary

Roadway - $15.5M
Total - $15.5M

SC 5/US 21(Anderson Road) at I-77



Cost Summary

Roadway - $1.5M - $2.0M
Total - $1.5M - $2.0M

Table 4.1 - RFATS 2035 Long Range Transportation Plan Highway Projects

Approved by RFATS Policy Committee on March 22, 2013

FINANCIALLY FEASIBLE PLAN (2035)				
Ref	**Project description**	**Funding Source**	**RFATS Obligation (millions)**	**Length (miles)**
1	Fort Mill Highway (SC 160) from Springfield Parkway (SC 460) to Calvin Hall Road (SC -336)	Guideshare	$15.7	2.86
2	Cel-River Road/Red River Road (S-50) from Southern Eden Terrance Ext. (S-645) to Dave Lyle Boulevard (SC 122)	Guideshare	$14.0	1.95
3	I-77 (Exit 82C) and Celanese Road (SC 161)	Guideshare	$15.5	N/A
4	I-77 and SC-160	Guideshare	$15.5	N/A
5	I-77 and Anderson Road (SC 5/US 21)	Guideshare	$2.0	N/A
6	East-West Connector Feasibility Study	Guideshare	$0.35	N/A
	Total		**$63.1**	
	Estimate of available Guideshare funding through 2035 ($4.390 million annually)		**$64.3**	

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	$57.2	N/A
2	CMAQ (Congestion Mitigation & Air Quality Improvement Program)	FHWA	$9.9	N/A
3	TAP (Transportation Alternatives Program - Formerly TEP Program)	FHWA	$420	N/A
	Total		**$67.5**	

FUNDED ONE CENT SALES TAX PROJECTS (1997) [Figure 4.6.1]				
Ref	**Project description**	**Funding Source**	**Project Obligation (millions)**	**Length (miles)**
1	SC-901 (SC 72 to I-77) – 4/5 Lanes	One Cent I	$6.5	3.00
	TOTAL		**$6.5**	

FUNDED ONE CENT SALES TAX PROJECTS (2003) [Figure 4.7.1 - 4.7.9]				
Ref	**Project description**	**Funding Source**	**Project Obligation (millions)**	**Length (miles)**
1	Mt. Gallant Road (Anderson Road to 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 (INCLUDES SAFETEA-LU EARMARK OF $666,900)	One Cent II	$2.2	0.57
4	Intersection Improvements - Hwy 274 Corridor	One Cent II	$7.1	N/A
5	US 21 (North of Celanese Road 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 Hwy 324) - 2 / 3 Lanes	One Cent II	$7.6	0.50
8	Mt. Gallant Road (From Dave Lyle Boulevard to Anderson Road) - 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
	TOTAL		**$73.1**	

FUNDED ONE CENT SALES TAX PROJECTS (2011) [Figure 4.8.1 – 4.8.15]				
Ref	**Project description**	**Funding Source**	**Project Obligation (millions)**	**Length (miles)**
1	SC 160 (Gold Hill Road to NC State Line) - 5 Lanes	One Cent III	$8.8	1.10
2	SC HWY 274 / 279 (Pole Branch Road) - 5 Lanes	One Cent III	$25.8	2.40
3	US 21 North Phase I & SC 51 (Springfield Parkway to NC State Line) - 5 Lanes	One Cent III	$22.4	2.90
4	Cel-River / Red River Road (Cherry Road to Eden Terrance) - 5 Lanes	One Cent III	$5.8	0.63
5	Gold Hill Road / I-77 (Gold Hill Road / I-77 Interchange Improvement)	One Cent III	$11.6	1.00
6	US 21 / Anderson / Cowan Farm Road Intersection Realignment	One Cent III	$28.9	1.75
7	Sullivan Middle School (Cherry Road / Eden Terrace near Anderson Road) - Pedestrian Safety Improvements	One Cent III	$564	1.00
8	Cherry Road -- Pedestrian Safety Improvements adjacent to Winthrop University)	One Cent III	$1.2	1.50
9	White Street / West Main / Constitution / West Black Street Realignment and Round-a-bout	One Cent III	$5.0	2.00
10	Paraham Road (SC 55 to SC 161) Base Stabilization and Shoulder Widening)	One Cent III	$6.5	7.2
11	SC 160 East (Springfield Parkway to Lancaster County Line; formerly project in 2003 PFP) - 3 Lanes	One Cent III	$4.8	0.75
12	Riverview Road (From Eden Terrace to Celanese Road) - 3 Lanes	One Cent III	$7.9	1.0
13	Mt Gallant Road (Celanese / Twin Lakess - Intersection Corridor Improvement)	One Cent III	$12.0	2.5
14	SC HWY 72 (SC 901 - Saluda Street to Rambo Road; formerly in 2003 PFP) - Multilane	One Cent III	$12.6	2.0
	TOTAL		**$153.9**	

PRIVATELY- FUNDED: IDENTIFIED FROM I-77 CORRIDOR TRAFFIC STUDY (Figure 4.9)				
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	Connector across the Railroad between the Riverwalk Spine Road and Galleria Boulevard (Developer / City)	Private	$2.7	0.25
4	Riverview Road Extension from Eden Terrace to Mt Gallant (Developer Paid)	Private	$5.2	1.20
5	Eden Terrace through to Cherry Road [Riverwalk] Extension (Developer Paid)	Private	$2.9	1.00
6	Galleria to Meeting and Cel-River @ Waterford Extension (Developer / City)	Private	$1.8	1.25

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 *			2.30
2	Mt Gallant Road (Museum Road to SC 274 - Phase II) - 3 Lanes			2.30
3	Riverview / Riverchase Area Phase III - New 2 Lane link between Automall and Riverview Road			
4	Eden Terrace (Bradley to Anderson Road) - 3 Lanes			
5	Eden Terrace (Anderson Road to Dunkins Ferry; Riverwalk Development) - 3 Lanes			
6	John Ross Parkway (Dave Lyle Blvd to Mt Gallant Road) - 4 Lanes			
7	Dave Lyle Boulevard Extension - SC 161 to US 521 Multi-laning		$220.0	4.50
8	Cel-River / Red Red River Road (Southern Eden Terrace Extension to SC 122) - 5 Lanes UF w / sidewalks & dedicated bike lanes		$14.0	2.00
9	Cel-River / Red Red River Road (SC 122 to US 21) - 3 Lanes RF; Consider Interchange Improvements			
10	Springsteen Road (US 21 to Dave Lyle Blvd) - 3 Lanes UF w/sidewalks			
11	Galleria to Manchester Flyover -- New Road bridging over I-77 connecting Commerce Drive to John Ross Pkwy			
12	US 21 Bus Rapid Transit - Downtown Rock Hill to I-485		$515.0	N/A
13	Springfield Pkwy from SC 160 to Gold Hill Road - 5 Lanes UF W / Sidewalks & Shared Use Bike Lanes			
14	Fort Mill Southern Bypass from US 21 to SC 160 - 5 Lanes UF W / Sidewalks & Shared Use Bike Lanes			
15	Sutton Road S-49 (From US 21 to SC 160) - 3 Lanes with sidewalks and bike lanes		$1.9	2.20
16	Ridge Road (SC 557 to US 321) - 3 Lanes RF			

UNFUNDED TRANSPORTATION NEEDS: ROAD WIDENINGS / NEW ALIGNMENTS				
Ref	**Project description**	**Funding Source**	**Project Estimate (millions)**	**Length (miles)**
17	SC 49 (Hwy 274 to Hwy 557) - 7 Lanes			2.00
18	Pleasant Road (SC 160 to Carowinds Boulevard) - 3 Lanes with sidewalks and bike lanes		$4.5	5.10
19	Zoar Road Extension - (SC 160 and Zoar to Gold Hill Road) - New 2 Lane Facility			
20	Munn Road from Harris Street to Fort Mill High School - Capacity Issue, Possibly Consideration of Alt. Access From US 21			
21	River Parkway from Banks Street to Doby's Bridge Road - Recommend New Road; Congestion Mgmt (TBD Funded)			
22	Whites Road from FMSB to end of County; 1,200 Acres of Developable land - 3 Lanes Widening (TBD Funded)			
23	Doby's Bridge Road Widening (FMSB to US 521) - 5 Lanes UF W/Sidewalks			
24	White Street / McCammon to US 21 Bypass (Portion of White St closer to US 21 will be developed) - 4 Lanes. (TBD Funded)			0.94
25	Main St from Tom Hall St to N. White St - At-grade RR crossing & Main / Tom Hall /Springs / Clebourne Intersection			
26	Connector between Galleria Boulevard and John Ross Parkway - 4 Lanes			1.50
27	SC 160 from Pleasant Road to I-77 (including Exit 85 interchange) (Congestion; Capacity; Safety; Connectivity)			
28	SC 160 (Springfield Pkwy to US 521) - 5 Lanes W / Sidewalks & Dedicated Bike Lanes			
29	SC 160 (Possum Hollow Road to York County Line - PFP II #10) - 5 Lanes			
30	Henry Harris Road from US 521 to Marvin Road - 5 Lanes			

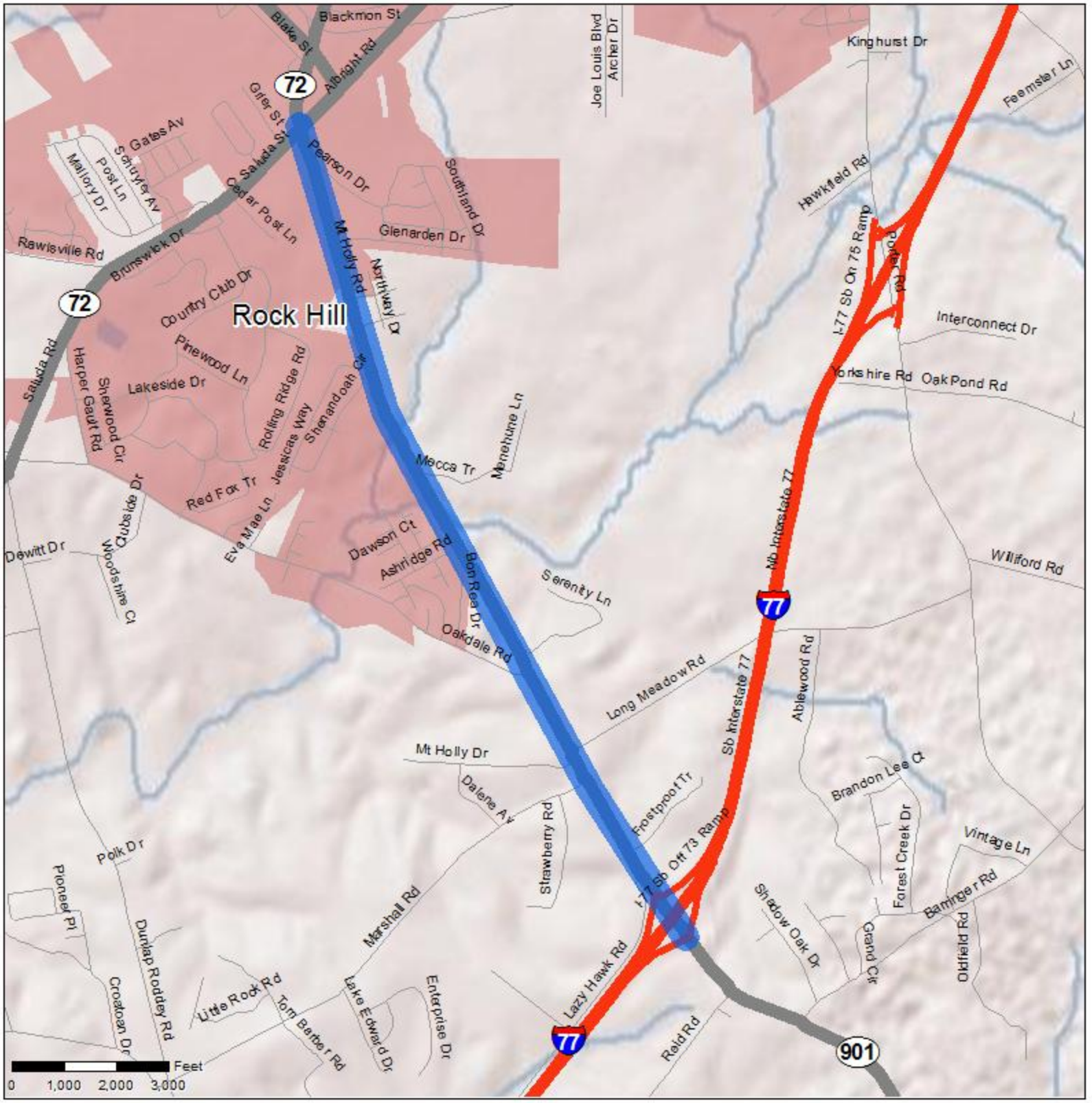
UNFUNDED TRANSPORTATION NEEDS: ROAD WIDENINGS / NEW ALIGNMENTS				
Ref	**Project description**	**Funding Source**	**Project Estimate (millions)**	**Length (miles)**
31	New Bridge (India Hook / Twin Lakes Area to New Gray Rock Road; New East-West Connector near SC 160 / Len Patterson Road			
32	Jim Wilson Road from US 521 to Henry Harris Road - 5 Lanes			
33	Jim Wilson Road from intersection of Henry Harris / Jim Wilson to Union County Line - 3 Lanes			
34	Shelley Mullis Road from US 521 to Union County Line - 3 Lanes			
35	Collins Road from US 521 to Union County Line - 3 Lanes			
36	Possum Hollow Road from US 521 to SC 160 - 3 Lanes			
37	Marvin Road from US 521 to Union County line - 3 Lanes (Potential 4 lane from US 521 to Henry Harris Road)			
38	Harrisburg Road from SC 160 to Mecklenburg County line - 3 Lanes			
39	Harrisburg Road - Realignment with Possum Hollow Road at SC 160			
40	Barberville Road from SC 160 to Mecklenburg County line - 3 Lanes			
41	SC 5 (US 21 to Lancaster County Line) - 3 Lanes (Extent of RFATS Area?)			

UNFUNDED TRANSPORTATION NEEDS: INTERSECTION IMPROVEMENTS		
Ref	**Project description**	**Project Obligation (millions)**
1	Neely & Rawlsville Roads (Realignment & Improvement)	
2	Neely Road & Crawford Road (Realignment & Improvement - adjustment for railroad)	
3	Oakdale Road / SC 72 / Dunlap Roddey Road - Realignment & Improvement	
4	Dave Lyle Boulevard / Tinsley (Create dual left turn lanes on west bound Dave Lyle and north bound Tinsley)	
5	SC 160 at Steele / Bank Streets / Doby's Bridge Road	
6	Exit 82C (Celanese Road and I-77) - Additional Turn Lane; Incorporate Entry Points For NB Traffic Movement	
7	Eden Terrace & Mt. Gallant Road - Additional left turn storage capacity needed	
8	Rambo Road / SC 72 - Realignment & Improvement	
9	Robertson / Rambo Road Intersection Realignment	
10	Cherry Road (Congestion Between Ebinport & West Main Street)	
11	Saluda Road at Oakdale and Saluda Trail Middle School	
12	SC 160 / Banks Street (Congestion / Capacity; Safety Issues)	
13	SC 160 / Springfield Parkway (Congestion; Safety concerns)	
14	SC 160 (Both Ends of Fairway Dr) -- Turns lanes to accommodate conflicting turning movements and reduce backups	
15	Hensley Road & SC 160 (Turn Lanes)	
16	Doby's Bridge Road / Nims Lakes Road / Williams Road (Consider Realignment to Nims Lakes Road - Safety / Visibility)	
17	Doby's Bridge Road / Doby's Bridge Park (Potential Congestion; Safety Issues)	
18	US 21 / Anderson Road and East Main Street	
19	Market Street (Exiting I-77) at SC 160	

UNFUNDED TRANSPORTATION NEEDS: INTERSECTION IMPROVEMENTS		
Ref	**Project description**	**Project Obligation (millions)**
20	India Hook / Celanese Road (Additional Storage Capacity; Turn Lanes)	
21	Cherry Road - Construct southbound left turn lane on Dorchester Road	
22	N. Oakland / India Hook / Alexander (Signal / Pavement Marking Improvements)	
23	Tom Hall Street / Doby's Bridge Road (Congested Intersection; Consider Realignment of Joe Louis Street	
24	Old Nation Road & North White Street (Visibility Concerns with left turn movement from Old Nation Road onto N. White St)	
25	Anderson Road / I-77 Interchange (Adjustment to interchange ramp to lessen backups)	
26	Airport Road / Museum Road Intersection (Reroute 200 ft of road to make right angle approach)	
27	Carowinds Blvd (I-77 Interchange from SC 51 to Lakemont Business Park) - Reconfiguration; Consider DD or ISPUI	
28	Carowinds Blvd / Pleasant Road - Consider lengthening left turn lane while retaining median for access mgmt purposes	
29	SC 160 / I-77 Interchange - Reconfiguration; possibly relocate southbound exit ramp	
30	Cavlin Hall / Harrisburg Road (Traffic Impact of Elementary School) - Realignment;signalization; Traffic Circle; B/P Improvements	
31	Sandra Lane / Hwy 521 Intersection (Gateway Entry Point; changing development pattern)	
32	US 521 / Marvin Road / Blackhorse Run Road - Consider realignment; additional approach turn lanes	
33	US 521 / River Road - Consider addition of right turn lane onto to US 521	
34	US 521 / Jim Wilson Road - Consider addition of turn lanes and/or widening of JWR; addition of median between SC & JWR	

CONGESTION MANAGEMENT PROCESS/OPERATION & MAINTENACNE/ SUB AREA STUDIES	
Ref	**Project description**
1	Celanese Road (Cherry Road / Mt Gallant Road) - Evaluate access management improvements at strategic locations
2	Hwy 274/49/557 -- Median Enhancement
3	SC 160 / I-77 SB Exit Ramp - Consider realignment with Market St; broader access management review
4	Marvin Road / Hwy 521 - Evaluation of open median access points approaching this intersection
5	Cherry Road -- (Cherry Park to Catawba River) Incorporation of access management strategies consistent w / CTAP & other redevelopment
6	Hwy 49 (Hwy 49/ 557 /274 to Buster Boyd Bridge) -- Consider conversion to controlled access
7	SC 160 (US 21 to Lancaster County Line) -- Traffic Signal Synchronization Improvements
8	US 521 (Van Wyck to NC State Line) -- Traffic Signal Synchronization Improvements

BIKE & PEDESTAIN NEEDS / PLANNING	
Ref	**Project description**
1	Hwy 521 / Marvin Road, Collins Road, Shelley Mullins, River Road, DB, SC 160 - sidewalks needed near the intersection
2	SC 160 / Barberville Road and Harrisburg Road - Sidewalks and Bike Lanes
3	Heckle Blvd (Herlong Ave / Wade Hampton Blvd) -- Extension of Area Sidewalk Improvements
4	A.O. Jones (Starlight Drive / Springfield Parkway -- Sidewalk Construction
5	Highway 321(Barrett Road / Flat Stone Dr) -- Sidewalk Construction
6	Pleasant Road (Hwy 160 / Gold Hill Road) -- Sidewalk Construction
7	Rawlinson Road -- Extension of Multi-Use Trail
8	Hwy 49 / Liberty Hill Road (Daimler Blvd / Nanny's Mountain) -- Construction of bike lane or asphalt multi-use trail
9	SC 160 / Munn Road to Market Street - Recommend Connection of Fort Mill Trails W / Baxter Trails & SC 160 Sidewalks
10	Dobys Bridge Road / Tom Hall Street (SC 160) to FMSB - Recommended Connection of Neighborhoods & Parks

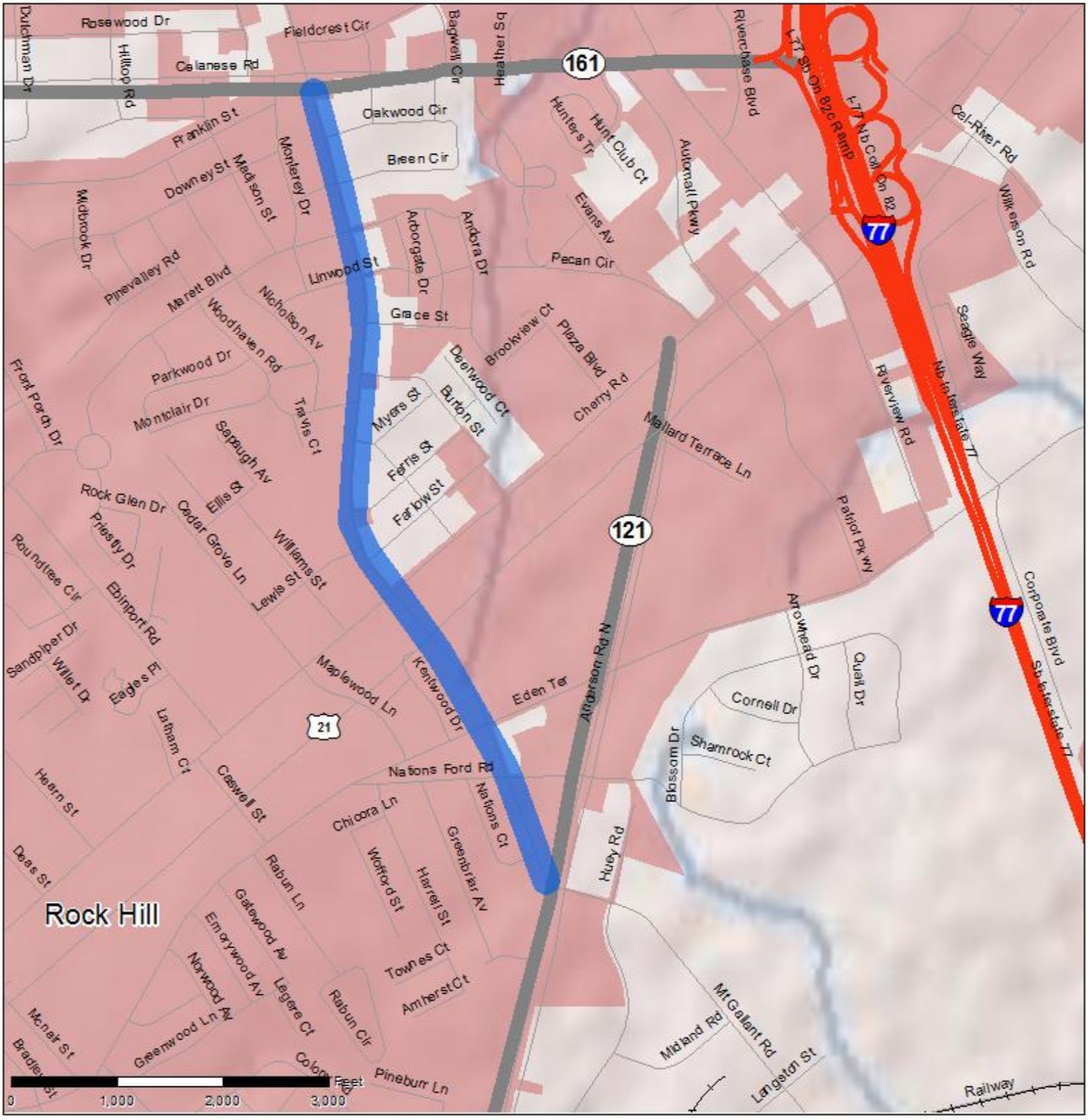


Funded One Cents Sales Tax Project (1997)

SC 901

SC 72 to I-77 - 4/5 Lanes
3.0 Miles

Project Limits
Interstates
State Highway
Railroad
Local Street
Municipal Boundary

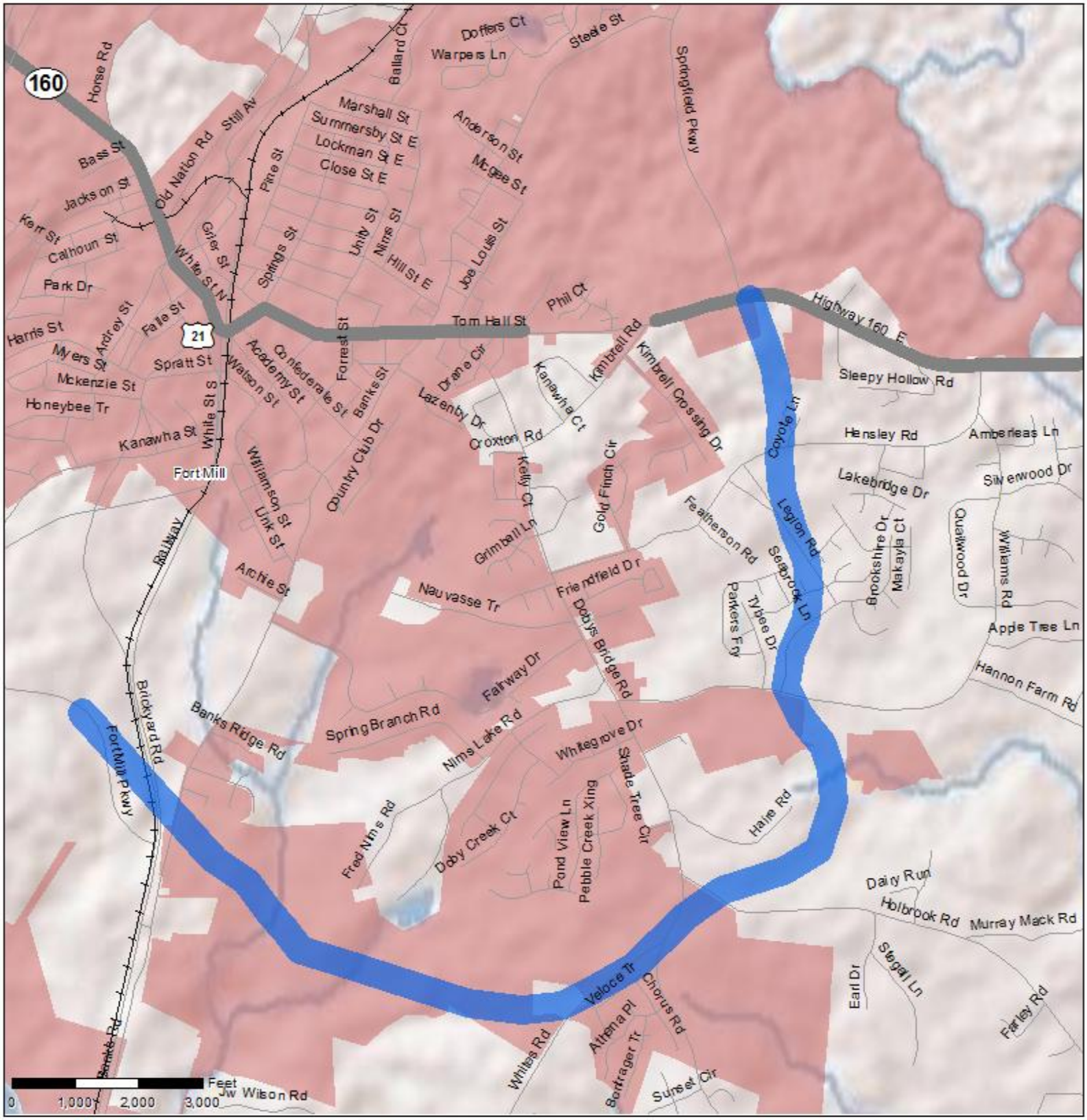


Funded One Cents Sales Tax Project (2003)

Mt. Gallant Road

Celanese Road to US 21 (Anderson Road) - 3 Lanes
1.0 Miles

- Project Limits
- Interstates
- State Highway
- Railroad
- Local Street
- Municipal Boundary

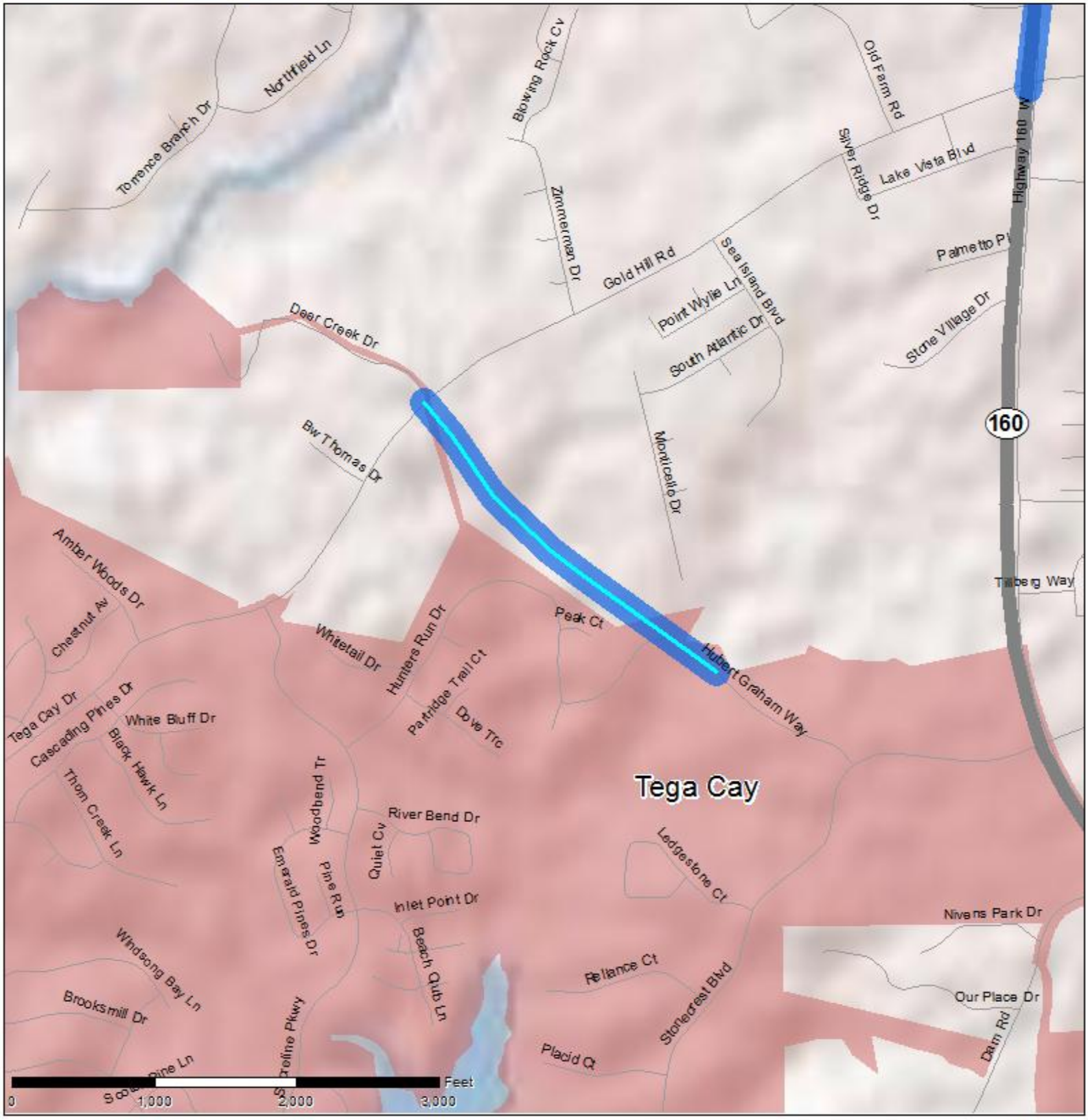


Funded One Cents Sales Tax Project (2003)

Fort Mill Southern Bypass

SC 160 to US 21 Business - 2 Lanes
5.7 Miles

Project Limits
Interstates
State Highway
Railroad
Local Street
Municipal Boundary



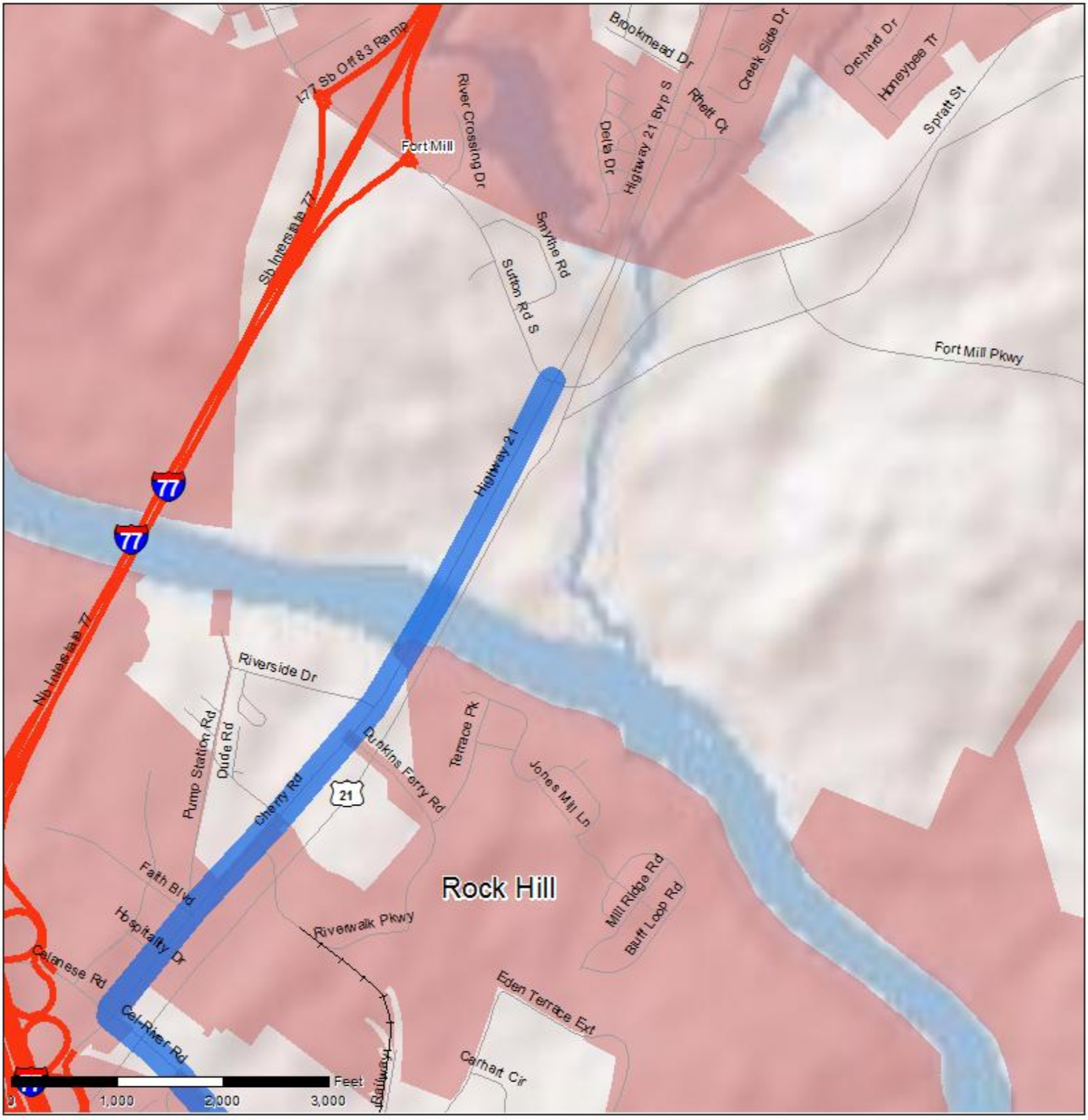
Funded One Cents Sales Tax Project (2003)

Tega Cay / Gold Hill Connector

Gold Hill Road to Stone Village Drive - 2 Lanes

1.20 Miles

- Project Limits
- Interstates
- State Highway
- Railroad
- Local Street
- Municipal Boundary



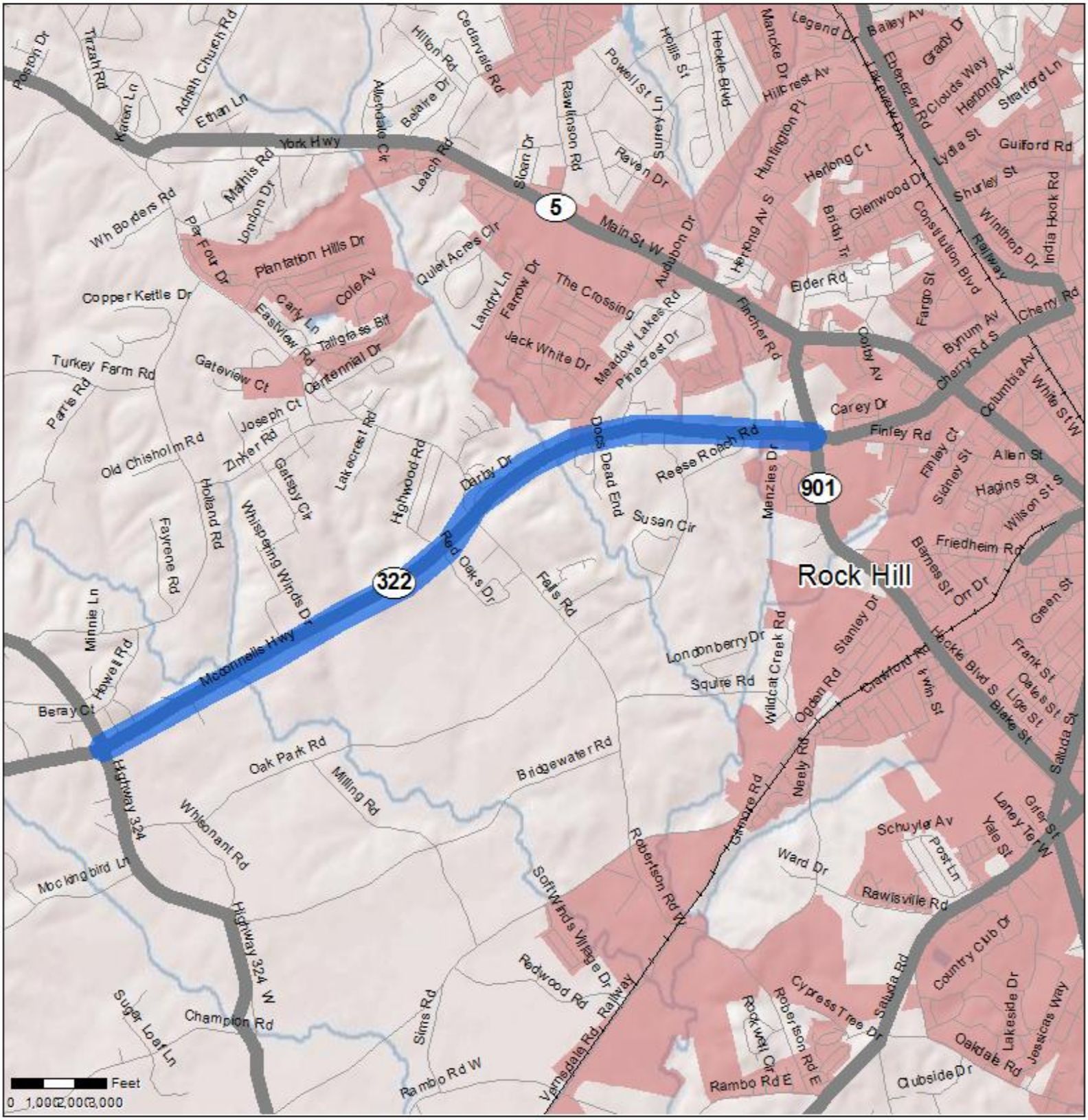
Funded One Cents Sales Tax Project (2003)

US 21

SC 161 to US 21 Business - 4/5 Lanes

0.8 Miles

- Project Limits
- Interstates
- State Highway
- Railroad
- Local Street
- Municipal Boundary



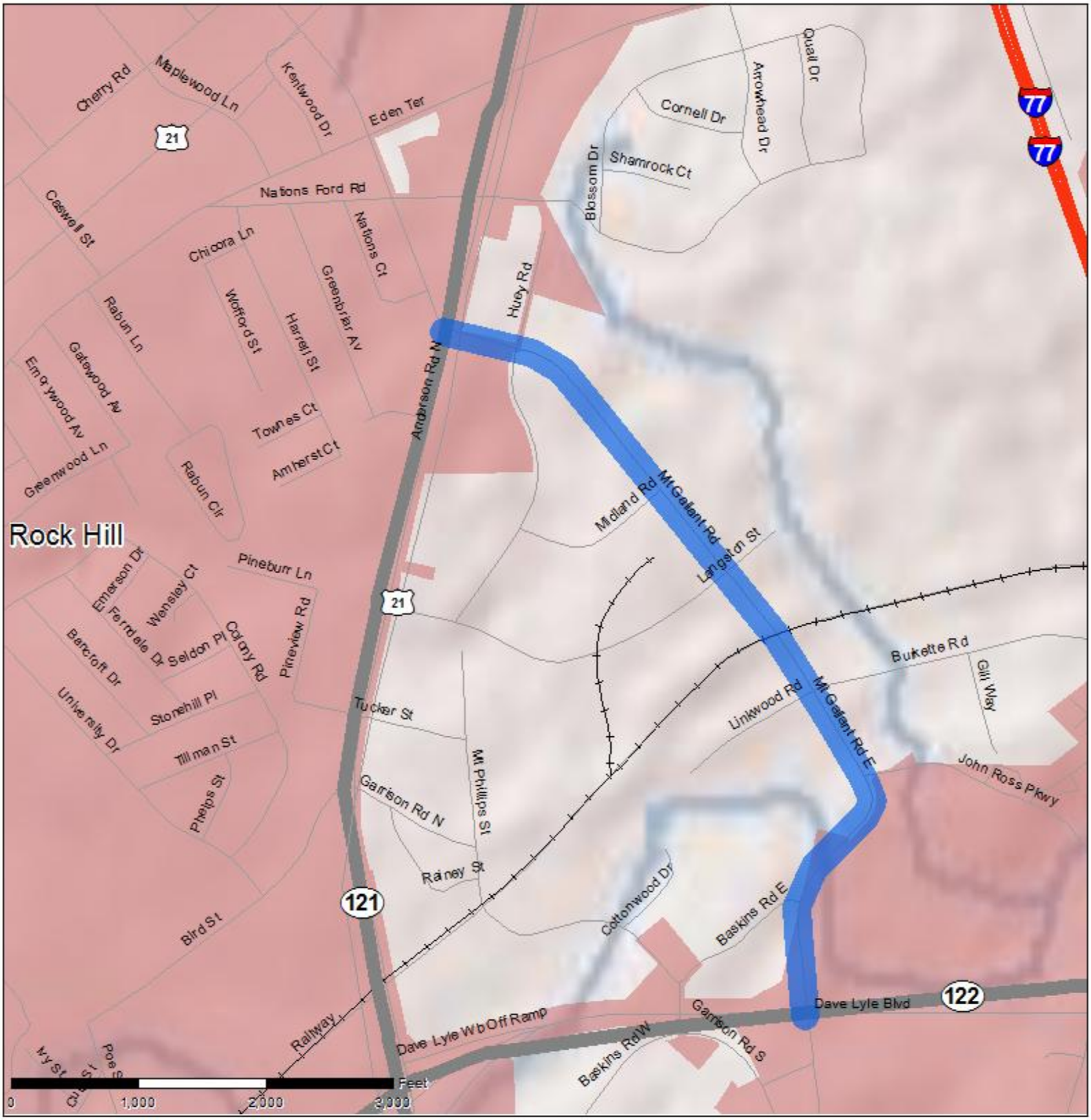
Funded One Cents Sales Tax Project (2003)

McConnells Highway

Heckle Boulevard to Highway 324 - 3 Lanes

1.5 Miles

- Project Limits
- Interstates
- State Highway
- Railroad
- Local Street
- Municipal Boundary



Funded One Cents Sales Tax Project (2003)

Mt. Gallant Road

Dave Lyle Boulevard to US 21 (Anderson Road) - 3 Lanes
1.5 Miles

Project Limits
Interstates
State Highway
Railroad
Local Street
Municipal Boundary

Funded One Cents Sales Tax Project (2003)

Ebinport Road

Cherry Road to India Hook Road - 3 Lanes
2.0 Miles

- Project Limits
- Interstates
- State Highway
- Railroad
- Local Street
- Municipal Boundary

Funded One Cents Sales Tax Project (2003)

SC 160

Gold Hill Road to NC State Line - 5 Lanes

1.1 Miles

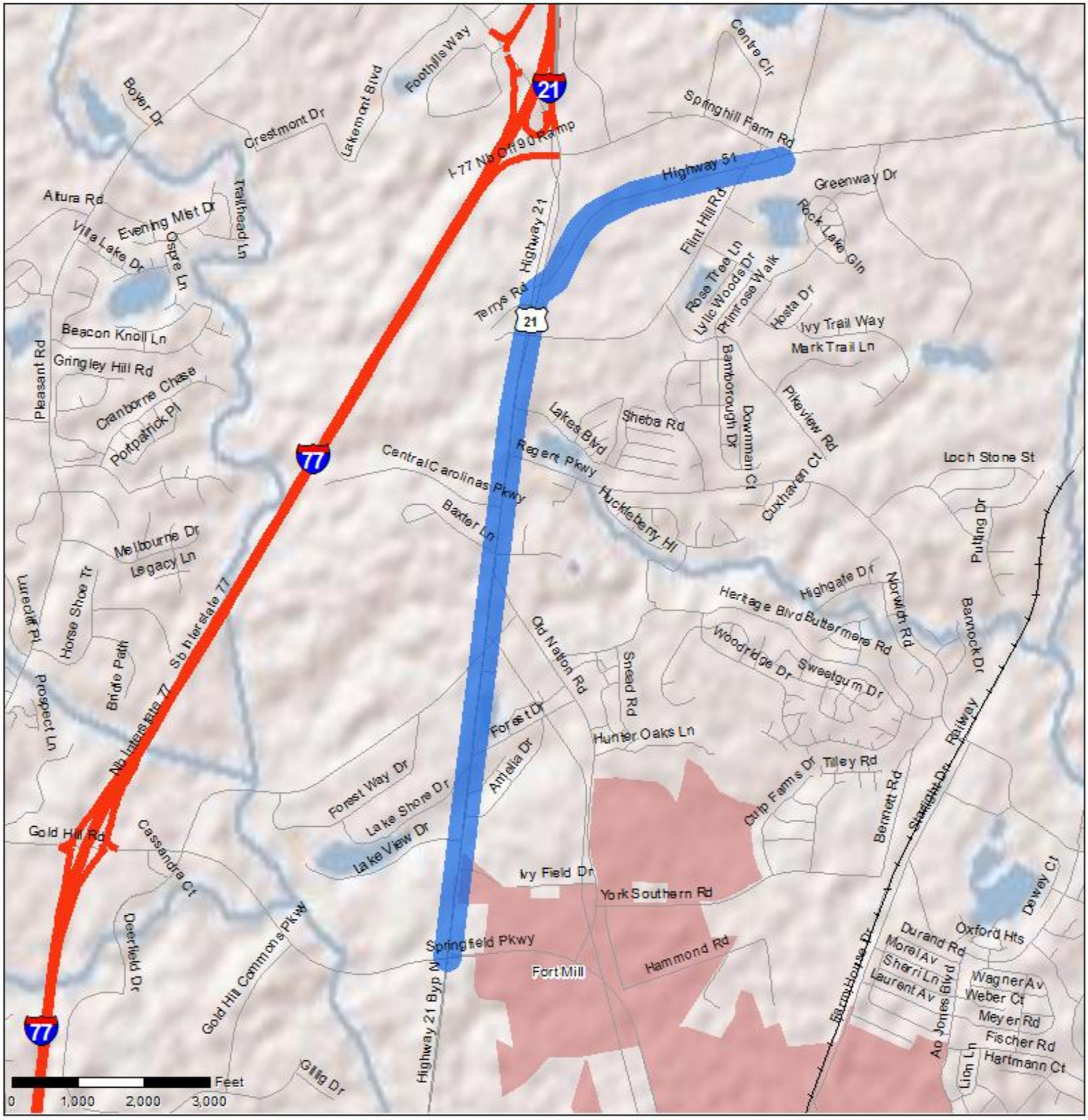
- Project Limits
- Interstates
- State Highway
- Railroad
- Local Street
- Municipal Boundary

Funded One Cents Sales Tax Project (2011)

SC 274/279 Pole Branch Road

3 Lanes
2.4 Miles

- Project Limits
- Interstates
- State Highway
- Railroad
- Local Street
- Municipal Boundary



Funded One Cents Sales Tax Project (2011)

US 21 North Phase & SC 51

Springfield Parkway to NC State Line - 5 Lanes

2.9 Miles

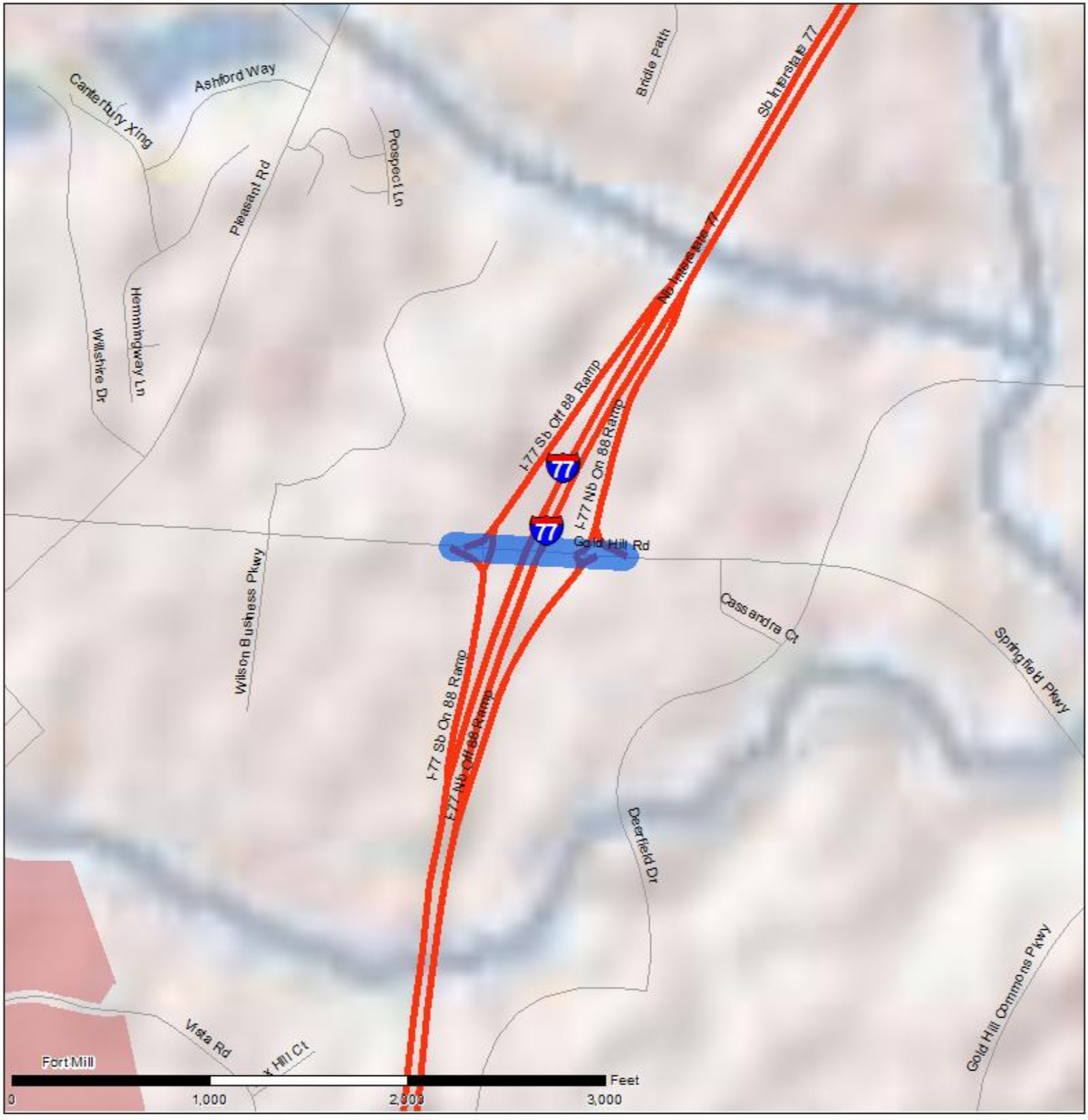
- Project Limits
- Interstates
- State Highway
- Railroad
- Local Street
- Municipal Boundary

Funded One Cents Sales Tax Project (2011)

Cel-River/Red River Road

Cherry Rod to Eden Terrace Extension - 5 Lanes
0.63 Miles

- Project Limits
- Interstates
- State Highway
- Railroad
- Local Street
- Municipal Boundary



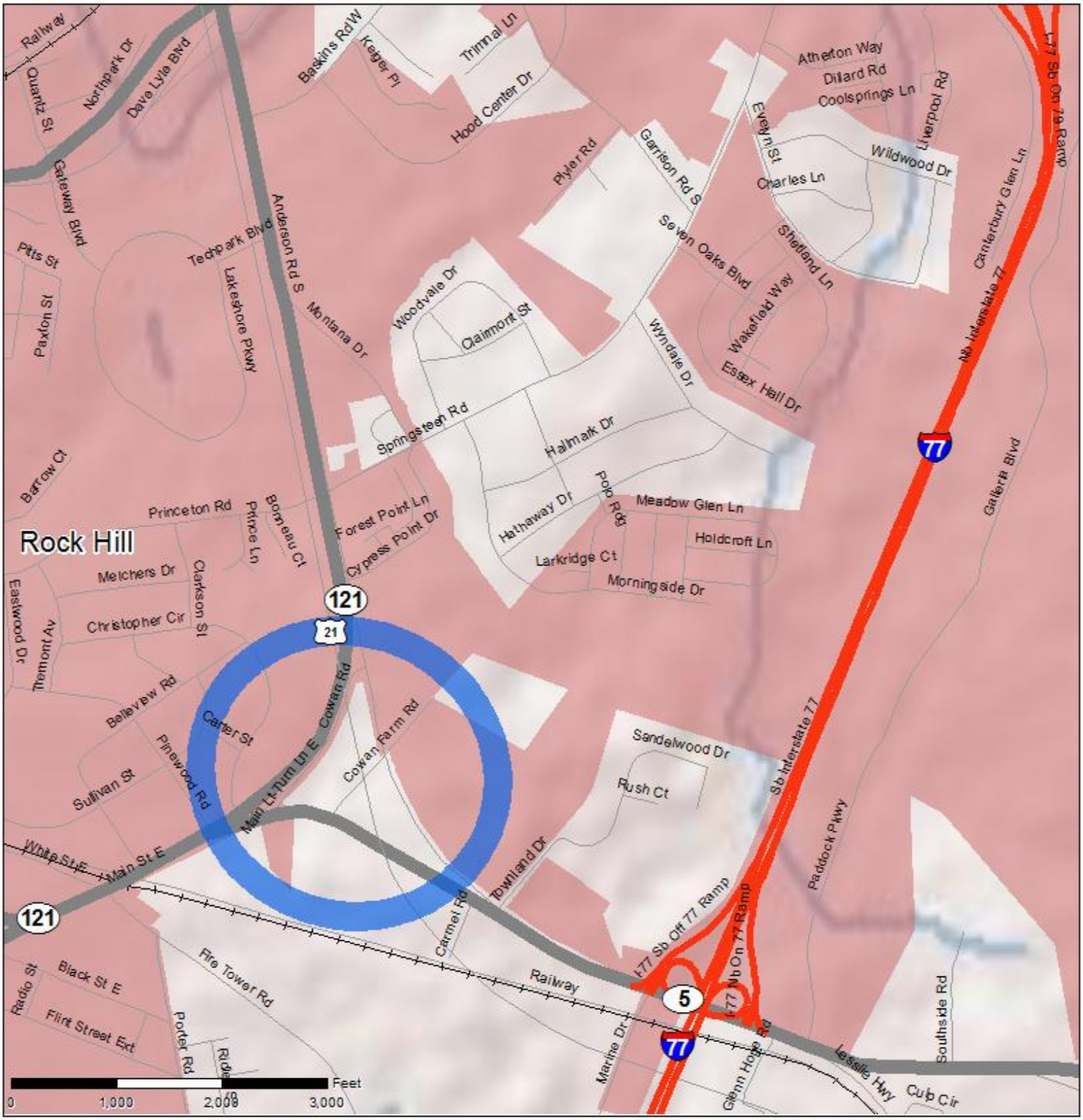
Funded One Cents Sales Tax Project (2011)

Gold Hill Road / I-77 Interchange

Double Crossover Diamond

1.00 Miles

Project Limits
Interstates
State Highway
Railroad
Local Street
Municipal Boundary



Funded One Cents Sales Tax Project (2011)

US 21/Anderson Road/Cowan Farm Road

Intersection realignment

1.75 Miles

Project Limits
Interstates
State Highway
Railroad
Local Street
Municipal Boundary

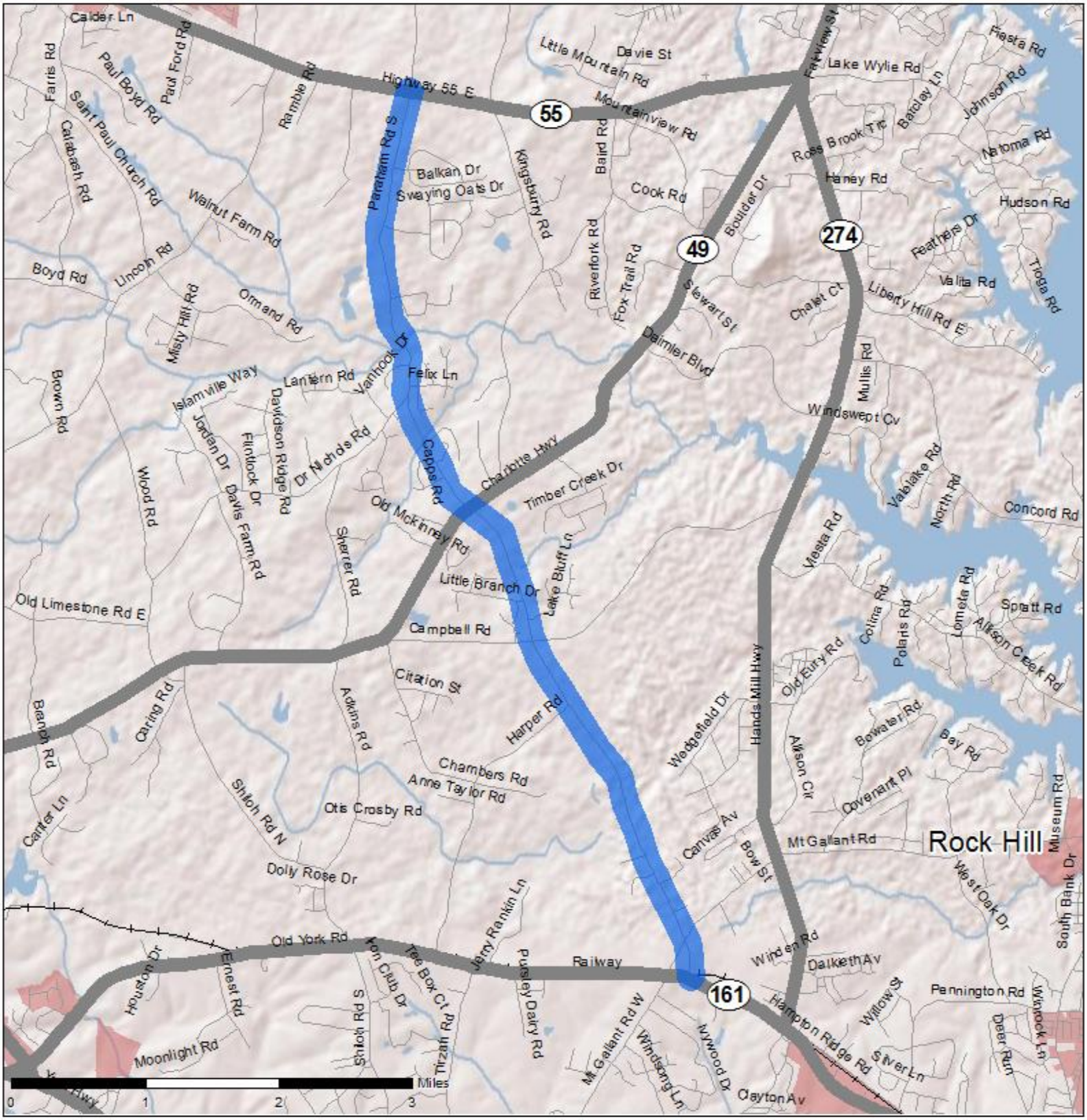
Funded One Cents Sales Tax Project (2011)

White Street/West Main Street/Constitution/West Black Street

Realignment and Roundabout

2.00 Miles

- Project Limits
- Interstates
- State Highway
- Railroad
- Local Street
- Municipal Boundary

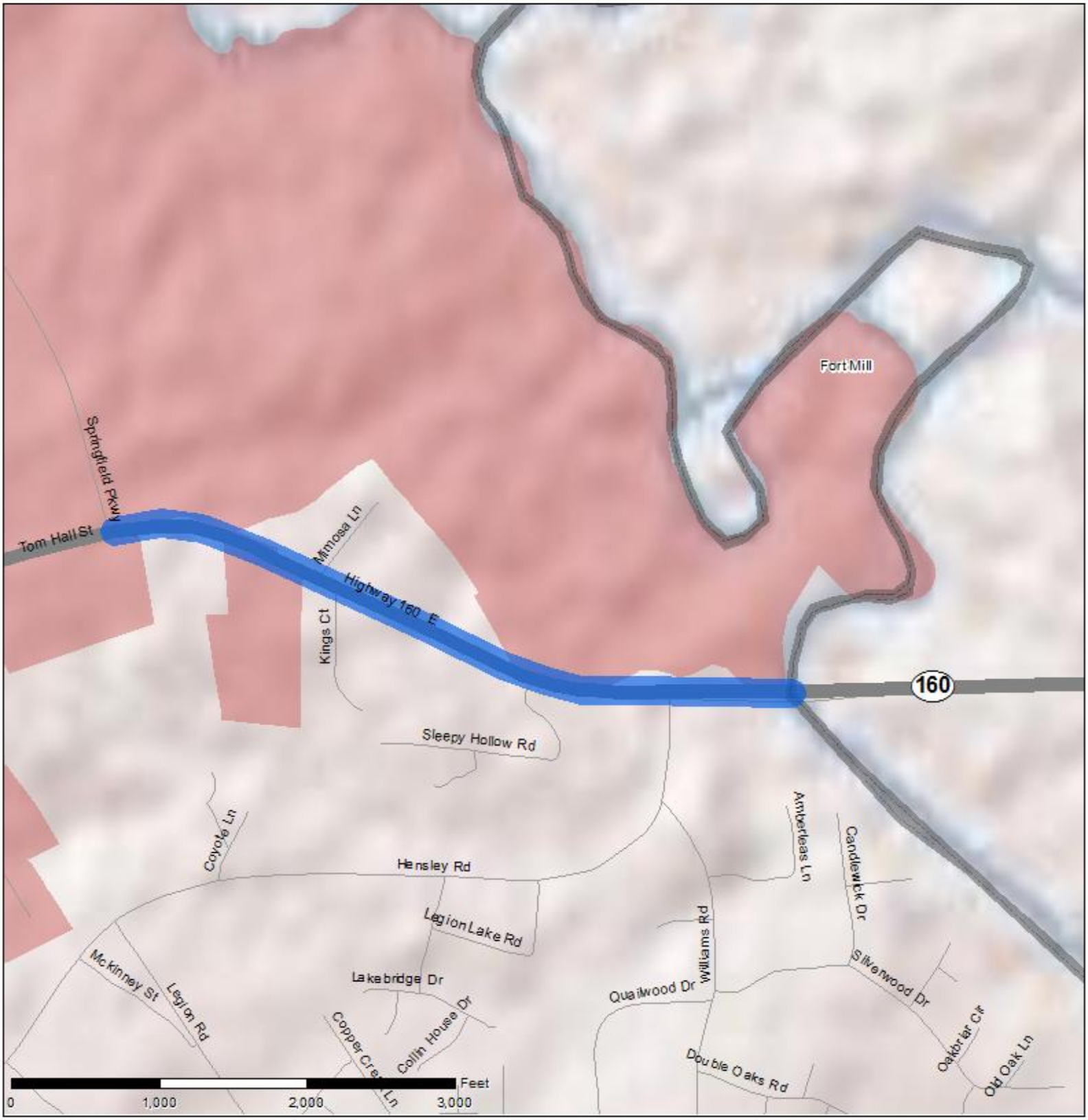


Funded One Cents Sales Tax Project (2011)

Paraham Road

SC 55 to Celanese Road (SC 161)
7.20 Miles

Project Limits
Interstates
State Highway
Railroad
Local Street
Municipal Boundary

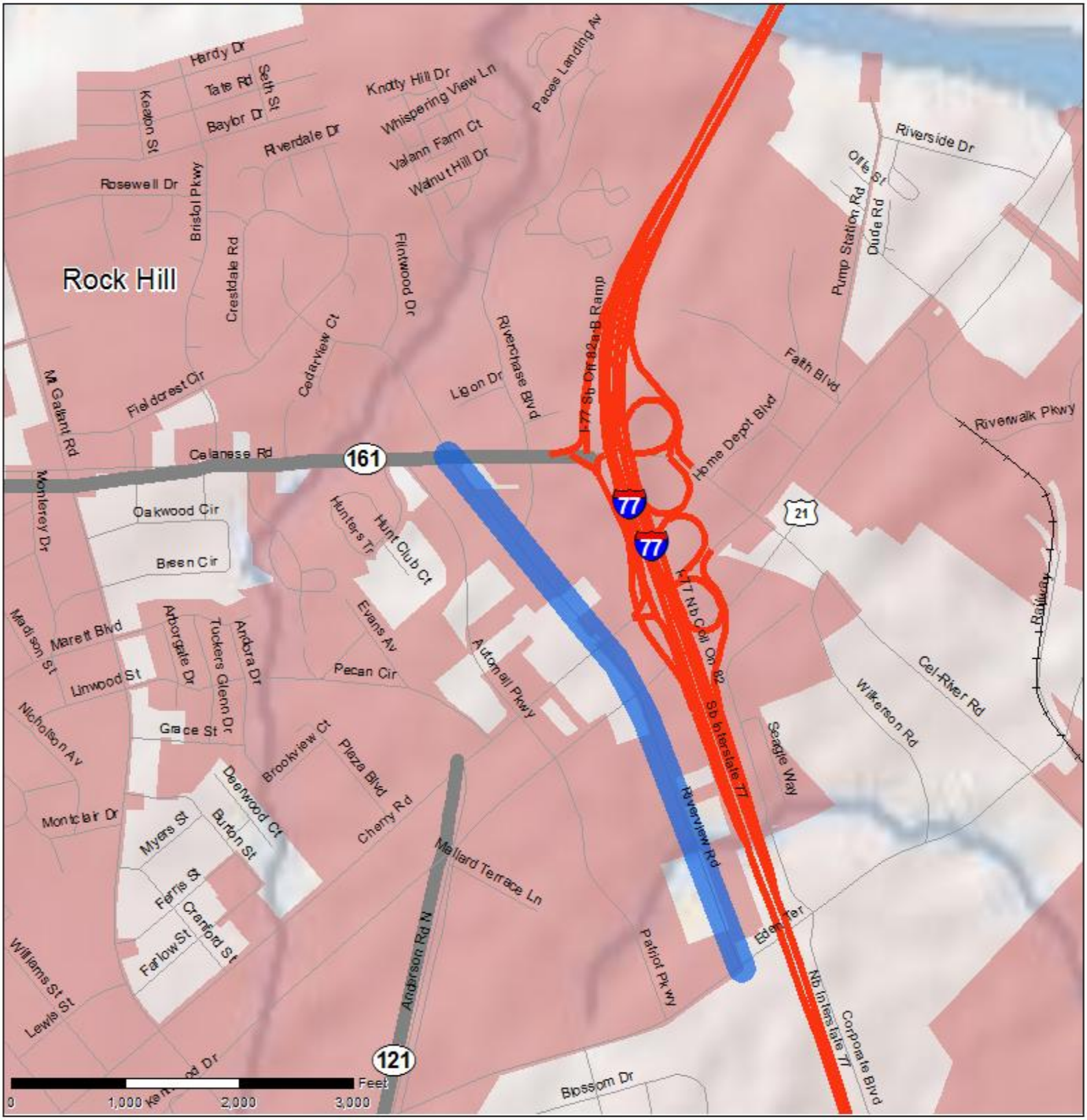


Funded One Cents Sales Tax Project (2011)

SC 160 East

Springfield Parkway to Lancaster County Line - 3 Lanes
0.75 Miles

Project Limits
County Line
Interstates
State Highway
Railroad
Local Street
Municipal Boundary

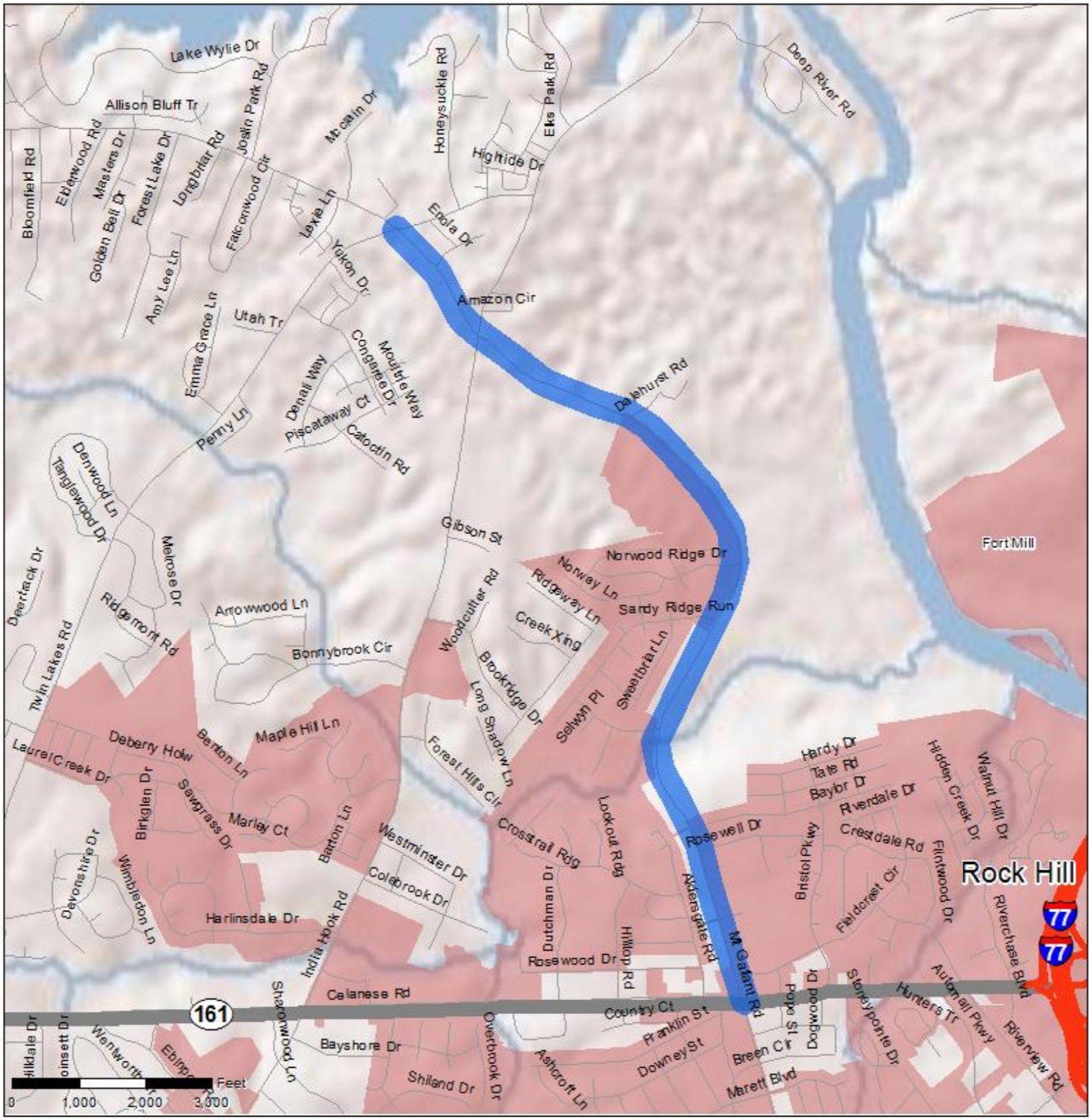


Funded One Cents Sales Tax Project (2011)

Riverview Road

Eden Terrace Road to Celanese Road (SC 161) - 3 Lanes
1.0 Miles

Project Limits
Interstates
State Highway
Railroad
Local Street
Municipal Boundary

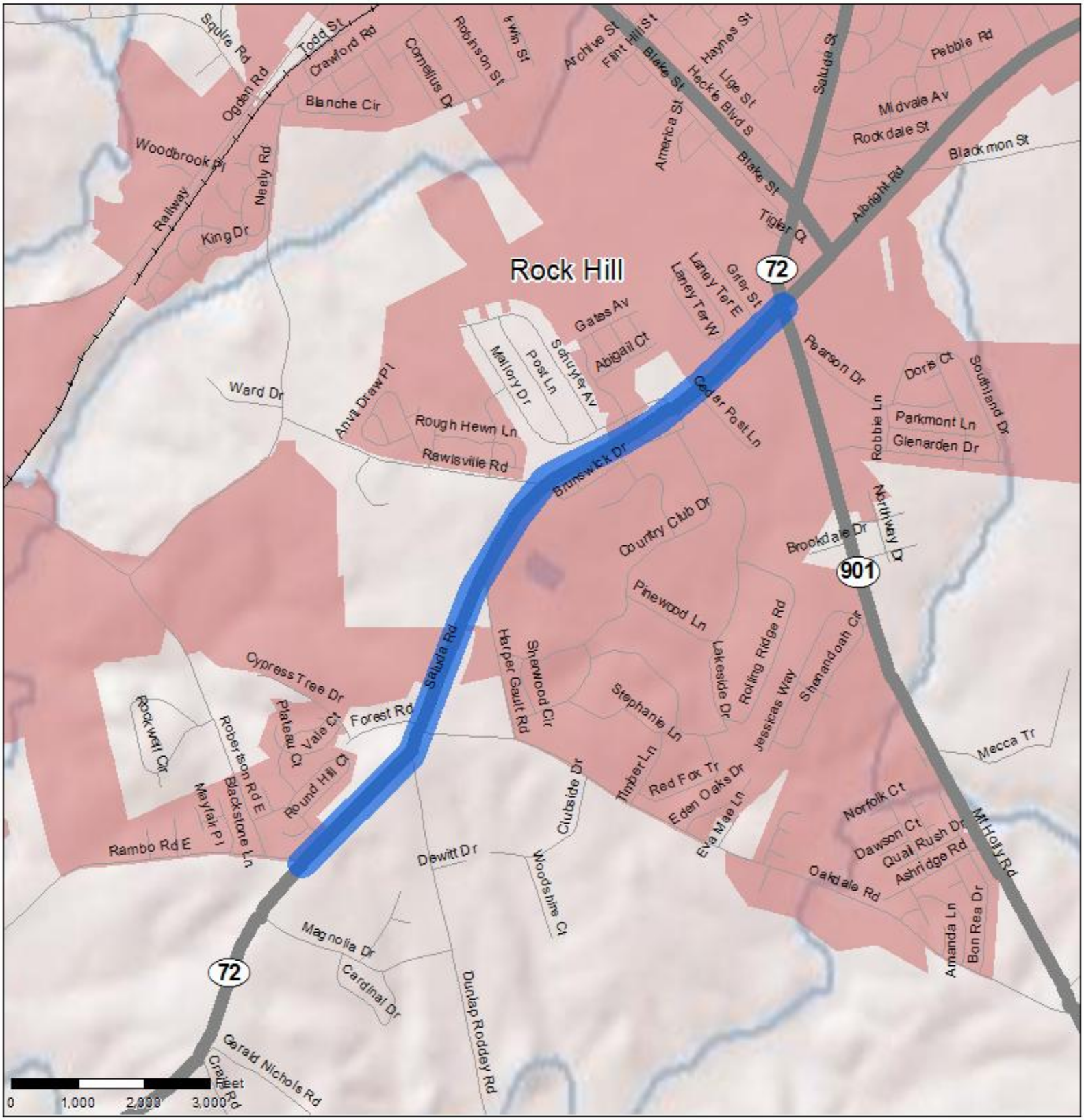


Funded One Cents Sales Tax Project (2011)

Mt. Gallant Road

Twin Lakes Road to Celanese Road (SC 161) - 3 Lanes
3.0 Miles

Project Limits
Interstates
State Highway
Railroad
Local Street
Municipal Boundary

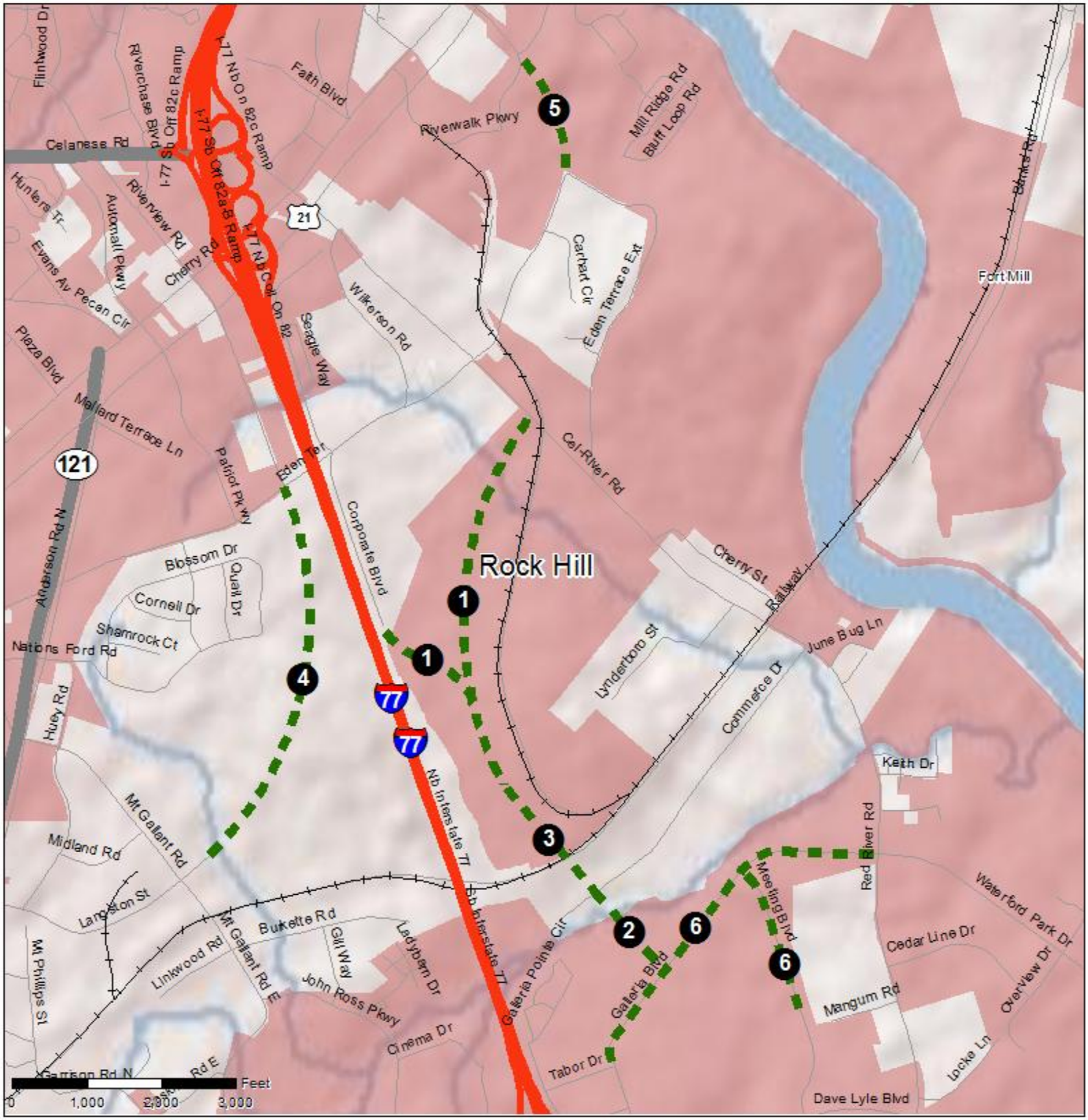


Funded One Cents Sales Tax Project (2011)

SC 72

Saluda Street to Rambo Road (SC 161) - 3 Lanes
2.0 Miles

- Project Limits
- Interstates
- State Highway
- Railroad
- Local Street
- Municipal Boundary



Privately-Funded Projects from I-77 Corridor Traffic Study

- I-77 Corridor Study Projects
- Interstates
- State Highway
- Railroad
- Local Street
- Municipal Boundary

Stakeholder Input

A number of stakeholders provided input in developing the highway element of the 2035 LRTP. These included SCDOT, York County, Lancaster County, the City of Tega Cay, the Town of Fort Mill, City of Rock Hill 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.

Summary and Recommendations

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.
- The challenges facing the future of the transportation network in the RFATS Study Area are the collective result of sustained growth, continued reliance on the automobile for even short trips, and competing demands for scarce transportation resources. With these challenges in mind, a more targeted approach to reducing congestion levels and managing area growth pressures was utilized in this LRTP update.
- 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.
- 'Pennies for Progress' is an important funding source that has allowed many projects to be funded and will continue to do so moving forward.
- However, there are many other needs that are unmet due to lack of funding.

Recommendations

- RFATS should continue supporting the '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, as the region's MPO, to lead this development on behalf of the constituent communities.