

Project Name: Shelby Regional Access Improvement Line (R.A.I.L.) Phase 2

Applicant: City of Shelby, 300 South Washington Street, Shelby, North Carolina

Local Contact: Rick Howell, City Manager, 704-484-6801, Rick.howell@cityofshelby.com

Project Type: Rural (Urban Cluster)

Project Description: The Shelby Regional Access Improvement Line (Shelby R.A.I.L.) Phase 2 project envisions a safe off-street 9.3-mile bicycle and pedestrian corridor and 3.9 miles of connecting spurs for cyclists and pedestrians of all socio-economic backgrounds to utilize for equitable alternative rural transportation from Shelby to the North Carolina-South Carolina state line and return. The R.A.I.L. will complement ongoing and future community and economic development efforts throughout Cleveland County and will create much needed physical and economic connections between Shelby (regional central business district and county seat), Patterson Springs, and Earl (both bedroom communities with limited commerce), for low-and-moderate income (LMI) neighborhoods in **historically disadvantaged communities** whose residents may not own vehicles. The R.A.I.L. facilitates safe non-vehicular access to employment opportunities, parks, commercial and retail centers, cultural and educational resources, medical facilities, and residential districts near the corridor. The City is seeking funding in whole for all three sections in Phase 2, or in part for the Shelby Section Phase 2 with independent utility.

Corridor Total Length: 9.95 mi + 3.9 mi spurs (13.85 mi), Phase 1 = 0.65 mi, Phase 2 = 13.2 mi

Independent Utility: The Shelby Section Phase 2 (1.90 miles + 1.37 miles spurs) for \$11,390,125

Demonstrated Selection Criteria: Safety, Environmental Sustainability, Quality of Life, Economic Competitiveness & Opportunity, State of Good Repair, Mobility & Community Connectivity, Innovation, Partnership, Project Readiness, and Cost Effectiveness

Historically Disadvantaged: Project Census Tracts 9511, 9512, 9516.01

Areas of Persistent Poverty: Project Census Tracts 9511 and 9512

RAISE Funds Requested: \$24,998,438 for Phase 2 (Shelby/PattersonSprings/Earl)

Funds Invested by City to Date: \$6,005,950.52, and encumbrances of \$454,840. The City is also self-funding the northern-most section of the R.A.I.L. construction which is currently out to bid (due 4-28-22). This section, referred to as Phase 1 by the City, includes 0.65 miles in Shelby city limits and has been removed from the RAISE scope and budget since it is currently underway. Budget = \$3M

STIP for 2020-2029: [Project # EB-6037A](#) railway corridor acquisition and construction

Benefit Cost Analysis: The benefit cost ratio is 5.71 and the net present value is \$108.8M

SAM Unique Identifier: CAGE Code 5F3S8

DUNS Number: 079053468

Federal Tax ID Number: 56-6001333

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*The project is directly aligned with the goals of the RAISE program: expanding access to reliable, safe, and affordable transportation for communities, addressing public health and safety, promoting regional connectivity, and facilitating economic growth. This project also provides an alternative transportation network for underserved, **historically disadvantaged communities** and provides equitable access and connectivity to jobs, healthcare, and critical destinations throughout the community. The City has considered racial equity and climate change issues during the development of the project.*

All documents supporting this narrative are accessible through weblinks within the narrative text and include:

- Renderings
- Surface Transportation Board Trail Use Agreement
- Project Estimate
- Maps
 - LMI Neighborhoods Map
 - LMI Access to Jobs
 - Connectivity to Existing Infrastructure
 - R.A.I.L. Access to Healthcare Facilities
 - R.A.I.L. Access to All Community Amenities
 - KABCO Accident Data 2007-2019 1-Mile Buffer
 - Demographic Maps: Poverty, Unemployment, No Diploma, Zero-Vehicle Households, & Race
 - Historically Disadvantaged Communities
 - Connectivity to Opportunity Zone
- Planning Documents
 - Cleveland County Rail Trail Master Plan
 - City of Shelby Bicycle and Pedestrian Plan
 - City of Shelby Parks and Recreation Comprehensive Master Plan
 - Carolina Thread Trail Master Plan for Cleveland County Communities
 - Isothermal Regional Bicycle Plan
- Environmental Documentation: Phase 1 & Phase 2 ESAs
- Staff Bios
- Letters of Support
- Resolutions from Project Area Governing Bodies
- Benefit-Cost Analysis Tables & Calculations and Descriptions

Introduction

Located near the southern border of North Carolina, Shelby is a historic rural community and serves as the seat of Cleveland County. The City, incorporated in 1843, is now home to close to 20,000 residents. Shelby is conveniently located about an hour from the larger metro areas of Charlotte, Spartanburg, Asheville, Hickory, and Greenville. The City's position places it in the middle of a rapidly urbanizing region; however, Shelby has retained its historic charm and small-town character. Like many rural places, this community and its county have been shaken on multiple occasions by the loss of textile jobs that came with plant closings between 1998 and 2005.

The City of Shelby has prioritized developing and implementing strategies for strengthening and diversifying the economic landscape and to promote projects that are a good fit for the community. The City provides its citizens with municipal services that range from parks & recreation to public safety to infrastructure and economic development. Information from industry professionals and site selection firms supports the significance of greenspace and non-vehicular transportation corridors for business development and attraction. Communities with alternate transportation corridors create a strong draw to attract young, talented, skilled workers, and progressive companies choosing to reside in or relocate to areas that have invested in and prioritized the development of this infrastructure.

City Administration has taken a very proactive approach to furthering economic development and has spearheaded successful campaigns to attract private investment to its economy. In addition to industrial growth, the revitalized central business district, known as Uptown Shelby, is the location of most of the City's retail and commercial ventures. Institutions such as Atrium Health Cleveland, Shelby High, North Shelby High, Jefferson, Marion, Turning Point Academy, and Graham schools are within proximity of Uptown. Likewise, there are local libraries, parks, and many private businesses centrally located in Uptown Shelby. The Uptown Shelby district of the City is where this proposed Regional Access Improvement Line (R.A.I.L.) will commence, which ensures that all of these aforementioned amenities are accessible through this alternative transportation route.

While past improvements were more reflective of an automobile mindset, disconnecting neighborhoods, schools, and other services from pedestrian and bicycle traffic, the Shelby R.A.I.L. project will give the community an opportunity for a safe alternate means of transport to neighboring communities, schools, cultural assets, medical services, retail centers, and more. Much of the transportation infrastructure in this area needs revitalization to fit the demands of today's community. **According to U.S. Census data, 15.9% of the total population in Shelby does not have access to a vehicle, whereas nationwide it is only 8.6%.** This R.A.I.L. project addresses **transportation justice** in **historically disadvantaged communities**, and it will bridge the gap in transportation options available to residents in these adjoining areas to provide safe, affordable, active transportation options that connect people from all backgrounds. The project aims to encourage a reversal of the current tendency to drive short trips and provide more opportunities to safely expand transportation options beyond the personal automobile.

The City is seeking funding for the project as a whole (all three sections in Phase 2), or just for the Shelby Phase 2 Section which has independent utility.

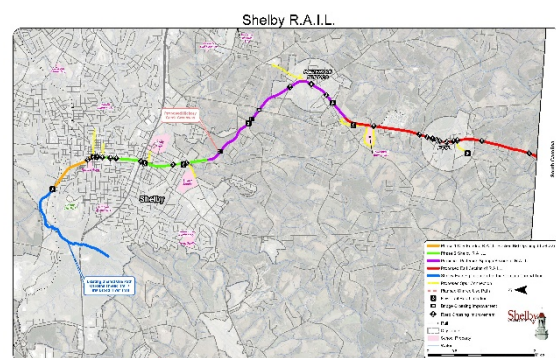
I. Project Description

A. Vision

The City of Shelby has undergone radical change since it was founded. The railroad is no longer the primary means of transporting people and goods into and out of town; trucks and automobiles now serve the purpose. Rising costs of living and a change in social norms create dual income households, which, in turn, position families' homes geographically between the employment areas. The pace of life has increased, free time has decreased, zoning laws and roadways have spaced land uses further part, nutritional and exercise habits are slipping, and the public more commonly perceives the pedestrian or cyclist as hazardous, or even dangerous. All of these factors make transportation by foot or bike very difficult for those who would prefer alternative modes of transportation, or do not have access to vehicular travel.

The Shelby Regional Access Improvement Line (Shelby R.A.I.L.) project envisions a safe off-street corridor for cyclists and pedestrians of all ages and abilities to utilize for rural transportation and enjoy for recreation. The R.A.I.L. will complement ongoing and future community and economic development efforts throughout Cleveland County, and will strengthen physical and economic connections between Shelby, Patterson Springs, and Earl, as well as employment opportunities, existing parks, commercial and retail centers, cultural and educational resources, medical facilities, and residential districts and neighborhoods near the corridor. The R.A.I.L. will encourage Cleveland County to become a healthier, more environmentally sustainable community, and will increase the quality of life of its residents. Additionally, the R.A.I.L. will connect to other multi-modal trail efforts including the First Broad River Trail (part of the Carolina Thread Trail's 1,600+ mile network) and a future trail along Hickory Creek. This project incorporates community-wide supported recommendations from the 2018 Cleveland County, NC Rail Trail Master Plan for alignments, street and bridge crossings, trailheads, amenities, and connector paths throughout the corridor.

The primary corridor alignment follows an abandoned rail line and includes three proposed sections: Shelby; Patterson Springs; and Earl. This entire alignment spans 9.3 miles from the northern boundary of Marion Street in Shelby to the North Carolina-South Carolina state line south of the Town of Earl, plus an additional 3.9 miles of spur connections. These spur connections will provide the linkages from the railway corridor to the following destinations: City Park; Uptown Shelby; Shelby High School; Shelby Middle School; Turning Point Academy; a future trail along Hickory Creek; grocery store, park, cultural assets, medical facilities, places of employment, and commercial areas in Patterson Springs; Township Three Elementary School; and Earl Town Hall. It should be noted that all schools in Cleveland County are Title 1 Schools which means that they serve many students from low-income families that qualify for government assistance programs, including free lunches. This project will provide an alternate route from many surrounding **low-income and high minority population**



Ctrl-click image to view an enlarged version of this map online.

neighborhoods as a safe alternative to get to and from local schools in **historically disadvantaged communities**.

B. Project Context

This project is part of a larger effort that was led by the City of Shelby and advocates from across Cleveland County to advance the conversion of the historic rail corridor into a multi-modal Regional Access Improvement Line. In December 2014, the City of Shelby received official notice from Norfolk Southern Railway Company regarding its planned abandonment of railway track between SB milepost 144.55 and milepost SB 154.5 and between milepost SB 158.10 and milepost SB 160.00 (not part of this project) in Cleveland County, North Carolina. Due to the City's commitment to continually improve and expand upon transportation facilities, the City entered into a lengthy process of negotiations with the railway to obtain an easement along the abandoned corridor to develop it into a corridor for public use. The City of Shelby applied to the Transportation Alternatives Program funding Rails to Trails projects and in August 2019, the NCDOT Board of Transportation awarded the City of Shelby \$4,160,000 from its Division of Bicycle and Pedestrian Transportation Program to cover the costs of right of way acquisition. The local contribution to this effort was \$1,040,000. The acquisition was complete in December 2019, as documented by the executed [Surface Transportation Board Trail Use Agreement](#). This RAISE project will provide funds to complete the actual construction of this alternative transportation corridor.

Ctrl-click to view this online image: [Abandoned Norfolk Southern Rail Corridor](#)

C. Facilities to Be Funded

This Shelby R.A.I.L. project focuses on the redevelopment of a former railroad corridor that stretches 9.95 miles from the north side of Sunset Cemetery in Uptown Shelby to the North Carolina-South Carolina state line south of the Town of Earl, as well as an additional 3.9 miles spur connections. The 2018 Cleveland County, NC Rail Trail Masterplan identifies specific recommendations for corridor alignments, street and bridge crossings, access points, amenities, and connector paths throughout the corridor. *Important to note is that the City has already designed and bid Phase 1 (due 4-28-22) 0.65 miles of the Shelby section from Sunset Cemetery to Marion Street which is anticipated to cost the City over \$3M. This scope of work is NOT part of this RAISE proposal and will be paid for with City funds.* **This RAISE request is for Phase 2: the remaining 1.90 miles and spurs in the Shelby Section which is currently under design, and the complete Patterson Springs and Earl Sections and spurs described below (13.2 mi total Phase 2).** Engineering and design for the Patterson Springs and Earl Sections is part of this project cost.

This project is being presented as one complete project that includes three separate components, the Shelby Section, the Patterson Springs Section, and the Earl Section. The City of Shelby would like to request that US DOT also evaluate the Shelby Section as a component with independent utility, as it represents a transportation improvement that is independently useable and represents a reasonable expenditure of DOT funds even if no other improvements are made in the area. The complete three-section-project would offer pedestrian and bicycle transportation in each of the three towns, providing access to schools, grocery stores, business districts, places of employment, medical facilities, cultural assets, etc.

1. Shelby Section: Independent Utility \$11,390,125, Historically Disadvantaged **Note: Please see Project Map in section II.B**

Shelby’s city limits comprise the remaining 1.90 miles of the R.A.I.L. corridor in Phase 2 and 1.37 miles of spurs, which extends to the heart of Uptown Shelby, the City’s Central Business District, and the home to many of the City’s cultural, economic, and healthcare assets. This section also provides access to the corridor for the area’s highest concentration of **low-and-moderate-income and minority neighborhoods** (see Project Location section page 12). Census Tracts 9511 and 9512 in this project area are historically disadvantaged communities.

The Shelby portion of the R.A.I.L. corridor specifically provides access to:

- Shelby City Hall and municipal buildings
- Atrium Health Cleveland – a regional hospital located on Grover Street will be connected by sidewalk from R.A.I.L.
- Over 18 [doctors’ offices and pharmacies](#) near the R.A.I.L.
- **Connectivity to existing infrastructure:**
 - First Broad River Trail, which is part of the Carolina Thread Trail. The Carolina Thread Trail is a regional network that connects 2.9 million people in 15 counties in North and South Carolina through its 1,610 miles of multi-modal trails
 - New multi-use path from First Broad River Trail to Uptown Shelby (along Grover and Morgan Streets)
 - [West End REACH](#) – small bus line operated by Transportation Administration of Cleveland County. Closest bus stop is within a block of the R.A.I.L. at the Foothills Farmers’ Market, and another bus stop is 2 blocks away from R.A.I.L. on Blanton Street
- City Pavilion- a covered, open-air structure built to house the bi-weekly [Foothills Farmers’ Market](#) (offers SNAP/EBT services for LMI persons), programs to ensure that all community members have access to the freshest food available, as well as free community events and concerts
- Lions Senior Village on N Morgan Street – 40-bedroom unit HUD Section 202 Supportive Housing for the Elderly facility. Tenants receive rental subsidies through HUD-Assisted Housing
- Uptown Shelby – central business district and economic engine of the City
 - An estimated 750 jobs
 - 185 businesses, organizations, and institutions
- New 312 unit \$32M high-density residential complex project, Palisades at Hickory Creek, whose owner/developer has agreed to tie its parcel into the R.A.I.L. network
- 120-unit LMI multi-family housing development Cambridge Commons slated for Textile and Ella Streets, adjacent to the R.A.I.L. corridor
- Cultural Amenities: Earl Scruggs Center, Don Gibson Theatre (both part of the [Blue Ridge Music Trails of North Carolina](#)), Cleveland County Arts Council, public art throughout Uptown Shelby, parks, library
- Spur connections to Shelby Middle, Shelby High, and Turning Point Academy (Title 1 schools)
- Safer access to Food Lion grocer on Melrose Drive and S. Lafayette



W Marion Street intersection at City Pavilion.

- Connectivity to a [high concentration of LMI neighborhoods](#), where many residents do not own vehicles. [This map shows the high percentage of zero-vehicle households](#) along the R.A.I.L. per U.S. Census Data. [Historically disadvantaged communities](#) are also included in the project area.
- Concurrent installation of broadband conduit for future rural broadband expansion
- Walker Woodworking, 211 Best Street recently established expanded manufacturing facility
- Tube Enterprises, 1029 Railroad Avenue- medical equipment manufacturer that employs 24 people is directly across from the R.A.I.L. and is expanding the facility and creating 12 more jobs.

Safety Improvements:

- Pedestrian bridge over US 74:
 - Residents utilize the bridge to access Food Lion grocer on S Lafayette Street, pharmacy, restaurants, neighborhoods, Walmart, Shelby Middle School and Shelby High School
 - Create a safe connection between the strong sidewalk network in Uptown Shelby (Central Business District) and the neighborhoods of southern Shelby, which are isolated in terms of pedestrian/bike access across highway 74
 - Current bridge railing does not meet AASHTO Guidelines
 - Fence off each end of the bridge to protect pedestrians from steep slopes adjacent to the bridge
- 9 intersection improvements with crosswalks or mast arms, pedestrian signals, high visibility pavement markings, curb and gutter, and storm drainage



Railroad bridge over US 74.



Dekalb Street crossing.



Proposed improvements at typical rail trail section.

2. Patterson Springs Section: \$7,803,438

Note: See complete Project Map in section II.B.

The Patterson Springs section of the Shelby R.A.I.L covers 3.75 miles of corridor, some of which is through unincorporated Cleveland County; it begins at the Dekalb Street intersection and continues south over the 444-footlong rail trestle bridge, which crosses over Hickory Creek. This bridge exhibits several structural issues that require remediation. This area of the project is much more rural and passes through some fields and residential areas. The corridor passes over two additional trestle bridges, both of which appear to be in good structural condition, although additional structural analysis will be required prior to project implementation. The corridor continues through the heart of Patterson Springs, which is a "bedroom community" for Shelby.



The Patterson Springs portion of the R.A.I.L. corridor specifically provides access to:

- Business/industry/healthcare/community resources in Shelby
- A spur connection to the future greenway along Hickory Creek
- Spur connections to Patterson Springs Town Hall and park
- Celanese property which is an industrial site that provides employment to 37 people with well-paying wages
- Church
- Volunteer fire station
- Spur connection to a commercial hub where there is an Ingles grocer, Dollar General and other "mom and pop" retail shops
- Concurrent installation of broadband conduit for future rural broadband expansion

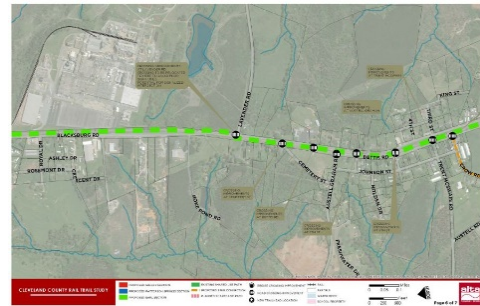
Safety Improvements:

- 444-foot bridge rehabilitation – The wood is rotten and worn thin at various ties and the surface of the bridge is very poor, with uneven spacing between the ties. Rehabilitation of this bridge will provide a uniform surface that is safe for pedestrian and bike access.
- Dekalb Street crossing – realignment of the R.A.I.L. corridor into adjacent properties in order to create a short, safe crosswalk and staggered refuge on Dekalb Street.

3. Earl Section: \$5,804,875, Historically Disadvantaged Community

Note: See complete Project Map in section II.B.

The southernmost section of the R.A.I.L. corridor runs south from the Celanese industrial site in a rural area towards the Town of Earl, which is another small bedroom community of Shelby. Earl's R.A.I.L. section is located in Census Tract 9516.01 which is a **historically disadvantaged community**. Finally, this section extends from Crow Road to the North Carolina-South Carolina state line. The total length of this section is 3.65 miles.



The Earl portion of the Rail Corridor specifically provides access to:

- Business/industry/healthcare/community resources in Shelby
- Spur along Crow Road to Earl Town Hall
- Spur access to Family Dollar
- Spur connection to Township Three Elementary School, (Title 1 school, at the top 1% of schools for highest number of students who are eligible to receive free lunch)
- Celanese Industrial Site – lies between Patterson Springs and Earl sections and employs 37 people with well-paying wages
- Concurrent installation of broadband conduit for future rural broadband expansion
- Potential future historic sites connections to 15,000 acres which is preserved in a continuous band of national and state parks, including Kings Mountain State Park (close proximity to Cleveland County) in York and Cherokee Counties, South Carolina and Crowders Mountain State Park in Gaston County, North Carolina. The Overmountain Victory National Historic Trail is still being fully developed, but visitors may access approximately 47 miles of the route at various points along the 330-mile corridor to the battle site at [Kings Mountain National Military Park in South Carolina](#).



Safety Improvements:

- Lavender Road crossing improvements- crossing to be relocated to avoid poor sight lines, potential for signalized intersection
- Blacksburg Road intersection improvement
- Bettis Road intersection improvement

Once complete, this R.A.I.L. network will connect these rural communities as never before, by foot and bicycle. This invaluable network will promote and encourage economic stimulation, increased health and fitness, improved quality of life and safety, increase transportation equity, in addition to providing positive environmental impacts through climate change mitigation, which will be discussed in the following sections of this proposal.

As a result of this project, citizens from low- and moderate-income neighborhoods in **historically disadvantaged communities** will have safe, reliable, cost-effective, and improved access to municipal services, educational facilities, goods and services, churches, healthcare facilities, and much more. Census data shows that these neighborhoods have high minority populations with higher levels of poverty, unemployment, educational attainment, and zero-vehicle households.

Click each link to view to demographic maps from the project area:

[Race](#) | [Poverty Rate](#) | [Unemployment Rate](#) | [Zero-Vehicle Households](#) | [No High School Diploma](#)

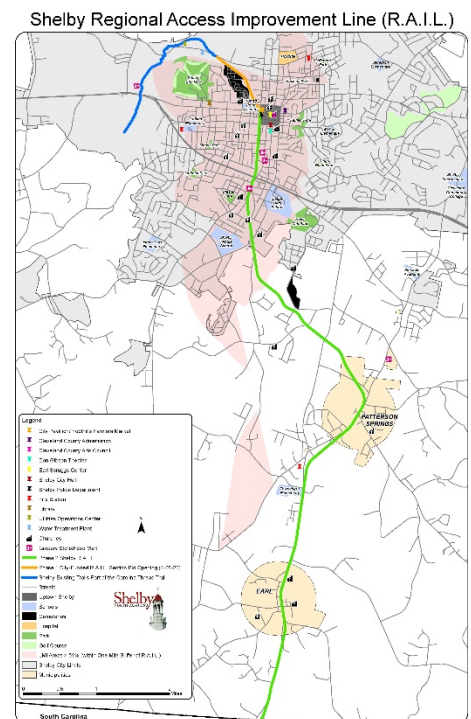
D. Challenges This Project Will Address

Since the inception of this project, the City has worked with Cleveland County and numerous partners, stakeholders, and citizens to gain insight into the current transportation challenges and how this R.A.I.L. would address those shortfalls. Alta Planning & Design was hired to work with the City of Shelby on developing a master plan for this project, which was delivered in February of 2018. The [Cleveland County, NC Rail Trail Master Plan](#) provides a compelling framework for how the City and its stakeholders can utilize this development opportunity to creatively meet these transportation needs:

1. Lack of infrastructure between low-and-moderate-income minority neighborhoods and key community resources

The City is growing, and recognizes that active transportation routes are critical for transportation equality and must be better integrated into the fabric of the community. Many developments in Shelby are becoming isolated, making non-vehicular transportation options more dangerous for historically underserved residents, thwarting ladders of opportunity. The robust build-out of active transportation routes for pedestrians and bicyclists, especially those from [LMI neighborhoods](#) who do not have vehicles, must be made to ensure safety and connectivity to key amenities, resources, and surrounding communities. Destinations throughout a community should be accessible to all citizens, regardless of their mode of transportation, or economic inability to own a car. This RAISE project creates a transportation network providing non-vehicular access to key locations, including:

- a. Jobs – connectivity to Central Business District, industrial jobs, healthcare jobs
- b. Healthcare facilities
- c. Schools – elementary, middle, high and community colleges
- d. Cultural amenities
- e. Grocery stores and farmers’ market
- f. Municipal buildings and services



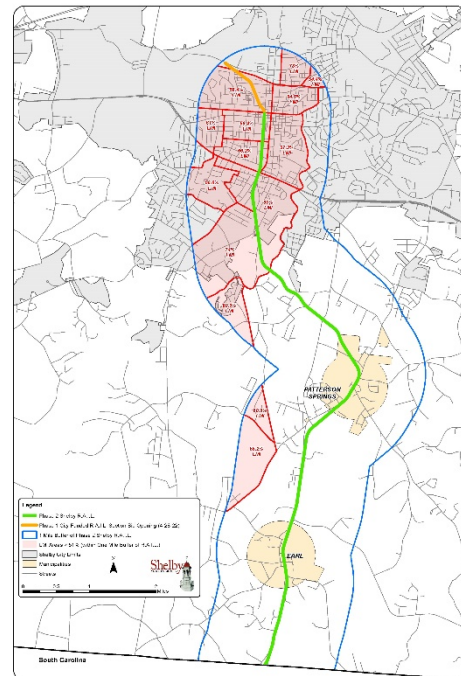
Ctrl-click image to view an enlarged version of this map online.

g. Neighboring communities

This project will promote equity and inclusivity for all neighborhoods in this historically disadvantaged community. While some people may choose bicycling or walking from a menu of options, **15.9% of the residents in Shelby do not have access to personal vehicles, which is almost double the national average**, according to Census.gov. [The linked map shows the zero-vehicle households by Census Tract in the project area, which is much higher than average](#), topping out at 21% in Census Tract 9511. In many parts of America, owning a car is considered essential to get to work; not owning a car can mean the difference between having a job and not having a job. Walking and bicycling are sustainable, affordable, and accessible transportation options for people who do not have personal vehicles. An accessible, well-connected bicycle and pedestrian network in Shelby could increase connectivity between several community destinations for some of Shelby’s most vulnerable populations.

As depicted on the inserted map, **the neighborhoods surrounding the R.A.I.L. corridor in the Shelby section have extremely high concentrations of LMI households**. U.S. Census Data also shows that households in the project area have higher poverty and unemployment rates, which is correlated to the lower educational attainment rates. Many federal programs are designed to benefit this **LMI population**, defined by HUD as those whose household total income does not exceed 80 percent of the median family income for the area. The City recently underwent a process to update its Bicycle & Pedestrian Plan. This plan, adopted in May 2020, includes a study of **equity analysis of areas within Shelby in which there are concentrations of underserved populations due to social, economic, and cultural disadvantages, and where people may benefit most from safer bicycling and walking connections based upon the lack of personal vehicle access**. The areas identified overlap almost entirely with the identified LMI and minority neighborhoods, which are concentrated around the Shelby Section of the R.A.I.L. corridor. Census Tracts in the project area have large minority populations; some as high as 89.2%. This is discussed in more detail in [Section IV. A. 3. Quality of Life](#).

Shelby Regional Access Improvement Line (R.A.I.L.)
Low & Moderate Income Households



Ctrl-click image to view an enlarged version of this map online.

2. Safety of pedestrians and bicyclists while accessing key community destinations.

Perhaps the most important objective that the Shelby R.A.I.L. project encompasses is the goal to increase the safety of pedestrians and bicyclists in the communities. “We will continue to prioritize safety as the foundation of everything we do,” Buttigieg said after being sworn in as Transportation Secretary.

The City of Shelby has struggled with this challenge for decades as the City has grown and become less centralized. A major cause of crashes is congestion on the roads where there are inadequate sidewalks

and/or where the road is uncomfortably narrow for bicycling. Additionally, drivers, cyclists, and pedestrians are often not well informed about the laws and practices necessary to safely share the public right-of-way.

A primary goal of this project is to develop a safe and efficient non-vehicular alternative transportation network that provides appropriate levels of service to key community areas. As evidenced by the analysis set forth in the benefit cost analysis (BCA) for this project, the area in question experiences a high number of injuries and deaths associated with vehicular incidents involving bicycle and pedestrian traffic, 139 accidents were reported between 2007-2019. Multi-modal corridors such as this one provide safe routes for pedestrians and bicyclists to travel. This separation from traffic can reduce the number of vehicle-pedestrian and vehicle-bicyclist related accidents.

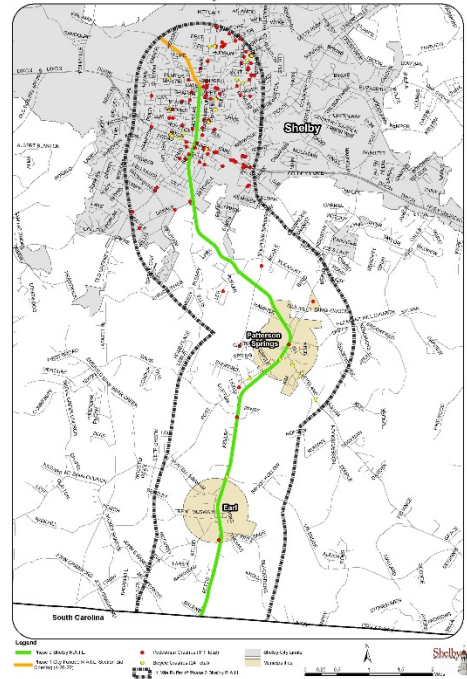
Bicycle and pedestrian crash locations provide the necessary data to assess crash density, which can assist in understanding priority areas. [Accident locations](#) were provided by the University of North Carolina Highway Safety Research Center to support the need for this project. Areas with a high concentration of crashes were analyzed further to specify facility types.

Understanding the locations and types of crashes that have occurred was an essential component of developing a plan that achieves safety for residents and visitors of Shelby. Local residents are becoming more actively involved in advocating for pedestrian and bicycle improvements, particularly with regard to limited access and safety concerns for walkers along busy streets, primarily in Uptown and residential areas. Residents of Shelby understand that the City must adapt and strive to protect the safety of non-vehicular travelers. The citizens who have participated in this planning process have reacted favorably to increasing multimodal improvements. More citizens are demanding safe alternatives to driving, and having the R.A.I.L. infrastructure in place will be of great value to this region in the form of crash prevention and saved lives, providing an annual benefit of \$1,041,542.67 and an estimated 10% reduction in accidents as calculated in Tables 1 and 2 of the [BCA in Section VIII](#).

3. Active transportation routes are necessary to reduce local climate change impact and promote sustainable transportation options in the region.

According to the EPA, transportation is a leading source of greenhouse gases, producing 29% of total carbon emissions in 2019. Individual car trips generate a majority of transportation emissions, most of which are within a 20-minute bike ride. Studies show that many people would opt to make short trips by bike or on foot if safe, separated and continuous infrastructure were available for use. Increasing widespread access to active transportation infrastructure is a key part to a multi-faceted solution to reducing climate emissions.

City of Shelby
Pedestrian and Bicycle Crashes, 2007-2019



Ctrl-click to access full version. Source: The University of North Carolina Highway Safety Research Center

Our communities need to engage in long-term planning and develop solutions to mitigate the worst effects of climate change. The Shelby R.A.I.L. project is a vital component to making non-vehicular travel in the community more widely adopted and will trigger a shift from automobile dependency to biking and walking where possible. The R.A.I.L. is a critical part of the local solution to reducing carbon emissions. The BCA shows an estimated usership of 1,080 pedestrians/day and 3,033 estimated bicyclists/day, and annual vehicle miles trips reduced by 125,542 by commuting and conducting utilitarian trips by foot or bike (shown in **section VIII Benefit Cost Analysis Table 4**). The benefit is the reduction of an estimated 652,821 annual vehicle miles traveled, assuming that the average distance per R.A.I.L. user is 5.2 miles (sources cited in narrative in Section VIII). The annual vehicle miles trips reduced is 125,542 yielding annual Vehicle Emissions Costs savings of \$3,366.

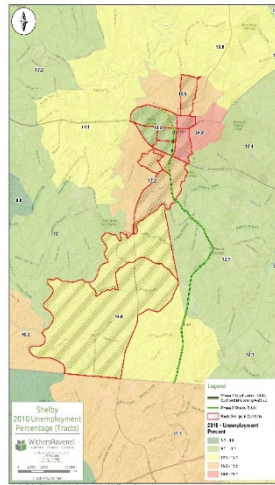
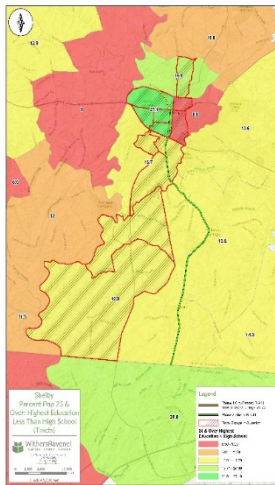
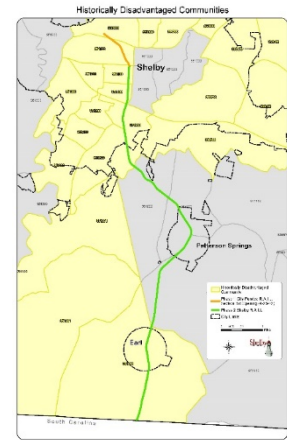
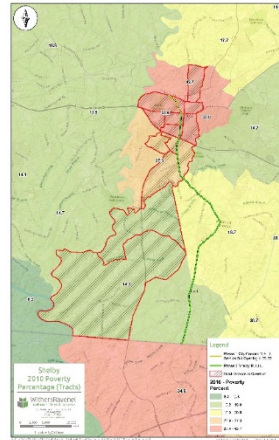
II. Project Location

A. Project Location Map

The City of Shelby is the county seat of rural Cleveland County. This proposed RAISE project takes place in an area labeled as an “urban cluster,” according to the RAISE website’s Census Data of urbanized areas and is considered “rural” for this program. Shelby is nestled in the southwestern area of North Carolina near the South Carolina border and is conveniently situated between the urban hubs of Asheville and Charlotte. The City, the largest in Cleveland County, has a total area of 21.4 square miles and a population of roughly 20,000. While the City is close to major interstates and metropolitan areas, it has retained its small-town atmosphere and relatively lower cost of living. It has a council-manager form of government that is both business-friendly and attuned to the needs of families. This community has been shaken by the exodus of the textile industry and other traditional manufacturing, which led to major job losses, fewer well-paying jobs, and significant lost tax revenue. The City of Shelby has worked to develop and implement strategies to strengthen and diversify the economic landscape, as well as attract and retain residents. Projects like the Shelby R.A.I.L. are imperative to ensure its long-term success.



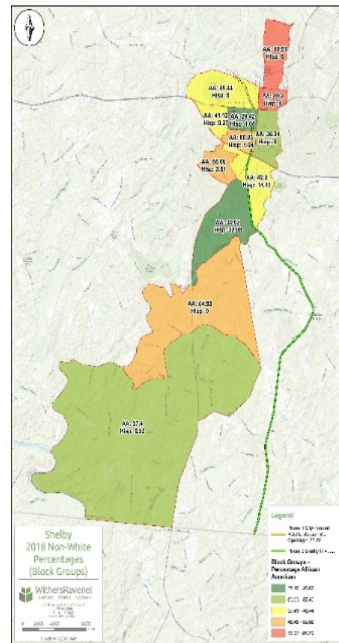
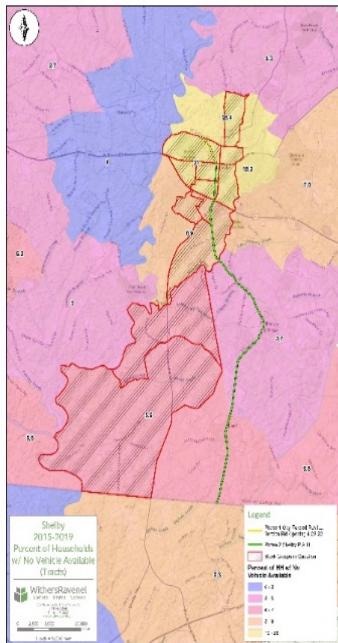
The following Census tracts associated with the project area qualify as an **Area of Persistent Poverty**, as defined by USDOT, due to poverty rates in the American Community Survey 5-year data: 9511 (33.6%), and 9512 (27.3%). The same Census tracts are also identified as **Historically Disadvantaged Communities** by USDOT, including Census Tract 9516.01 at the southern end of the R.A.I.L. near Earl.



Ctrl-click each image to view an enlarged version

The project area also experiences a substantial number of residents with **low levels of educational attainment (up to 27.1% in Census Tract 9511 have obtained no diploma)** much higher than the **national average of 10%**, which is likely linked to the area's **higher unemployment rate (up to in 24.2% in Census Tract 9512)** and lower income levels. Although not located within an Opportunity Zone, [the R.A.I.L. is connected to an Opportunity Zone by trail spurs.](#)

Ctrl-click each image to view an enlarged version of this map online.

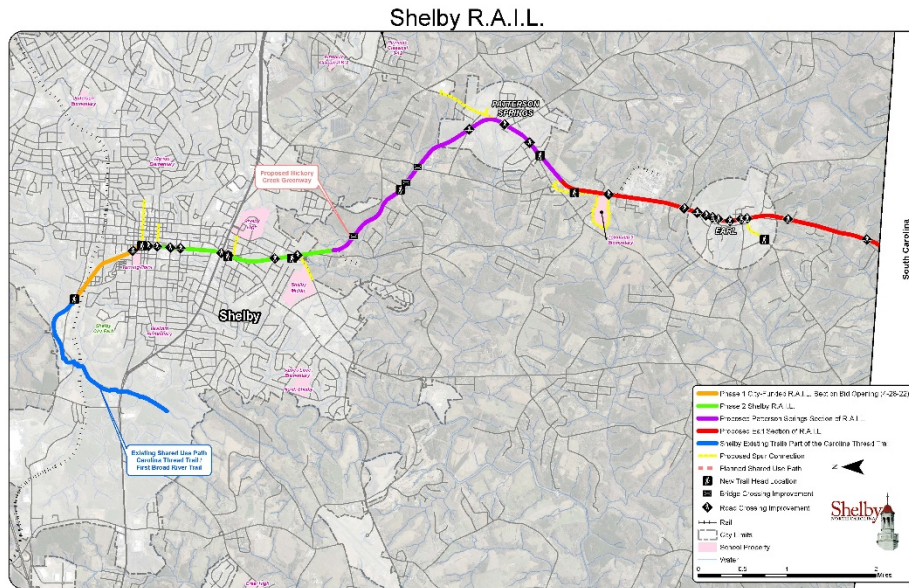


The R.A.I.L. project will also further **racial equity** by connecting a significant number of **high minority neighborhoods** to a multi-modal transportation network. The project area connects block groups with up to 89.2% African American residents, where the national average is 13.4%. Although data tying race to zero-vehicle households is not readily available, this map depicts the percentage of zero-vehicle households in the project area (21% in Census Tract 9511), which is significantly above the national average (8.6%), that will have access to the R.A.I.L. for non-vehicular travel.

This project clearly provides a pathway to transportation equity for racial minority populations who may not have access to personal vehicles.

Ctrl-click image to view an enlarged version of this map online.

B. Project Map



Ctrl-click image to view an enlarged version of this map online.

As depicted above, the R.A.I.L. corridor will commence in the City of Shelby and remain in city limit before traveling south to the South Carolina border. Along the way, the corridor will pass through the smaller towns of Patterson Springs and Earl, which are mostly small residential communities with few amenities, essentially no local retail economies, and few recreational assets.

Socioeconomic Data	Project Area			Cleveland County	Nation
	Shelby	Patterson Springs	Earl		
Median Household Income	\$38,559	\$29,605	\$46,250	\$42,247	\$62,843
% Living in Poverty	25.9%	36%	16.9%	21.3%	13.4%
Zero-Vehicle Households	1,273 (15.9%)	26 (8.2%)	10 (9.3%)	2,840 (8.0%)	10,395,713 (8.6%)
Population	20,007	934	269	97,282	324,697,795
% population BIPOC	40.6%	24.6%	6.3%	25.4%	27.5%
% population white	59.4%	75.4%	93.7%	74.6%	72.5%
Disability	18.8%	13.3%	27.9%	16.1%	12.6%

Source: Census.gov 2019 ACS 5-Year Estimates

C. Proposed Area and Geospatial Data

The smaller towns in this project area previously had a strong center of commerce before automobiles and paved roads (including Interstate I-85, four miles away from Earl) enabled residents to travel further to Shelby, Charlotte, and other larger cities for supplies. This pattern eventually resulted in the significant

growth of Shelby’s local economy and increased importance as the county seat, and the decline of commerce in the smaller outskirts of Shelby. Today these small towns are mainly bedroom communities for Shelby, Charlotte, Greenville, and other larger job markets.

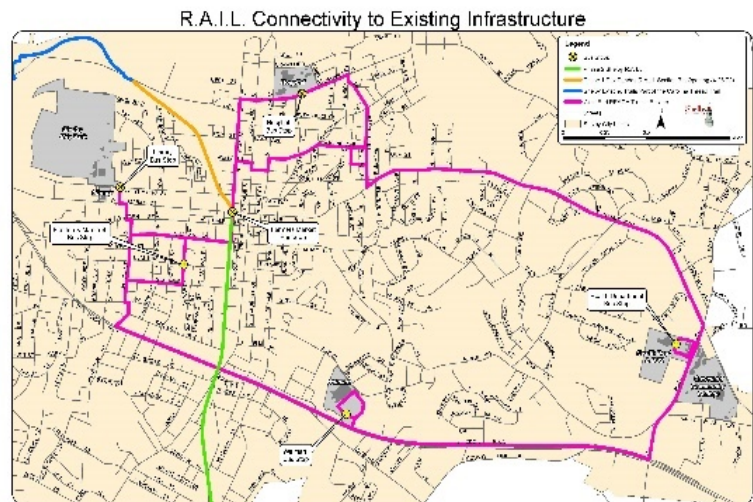
The area was also once rich in cotton farming and textile mills. Up until 1947, Cleveland County produced more cotton than any other county in North Carolina. The decline of these traditional industries has played a significant role in the stunted growth and poverty in this area.

A bypass is being built north of Shelby which is going to shift the economic and political center of this county further north. This R.A.I.L. corridor will be a pivotal element in ensuring that the southern part of the county remains connected, relevant, and intact in critical ways. As the center of gravity moves further north in Cleveland County as a result of the bypass, the R.A.I.L. is essential to ensure that the southern portion of the county does not atrophy further. Several community members who own property along the line envision that the R.A.I.L. will stimulate the local economy once again, providing opportunities to generate street-level retail businesses and food options to serve those who will be utilizing the corridor.

As several other communities in the region have accomplished, the R.A.I.L. can also provide renewed interest in the area’s past. For example, Earl is the only town in Cleveland County to have appeared in the first U.S. Census in 1790. Local community leaders have considered that a small history museum in an old caboose or rest stop of some sort would help preserve history and relevance, rather than just being a thoroughway for trucks to get to I-85. These communities harbor beautiful, accessible acreage which will enhance the R.A.I.L. and bring renewed attention to this southern portion of Cleveland County which has mainly remained remote and undeveloped.

D. Connections to Existing Infrastructure

The R.A.I.L. will connect to other multi-modal trail efforts including the City’s new multi-use path along Grover and Morgan Streets, the First Broad River Trail, and part of the Carolina Thread Trail. The Carolina Thread Trail is a regional network that connects 2.9 million people in 15 counties in North and South Carolina through its 1,610 miles of multi-modal trails. In addition to this connectivity, there are several future trails being proposed that will further interconnect the R.A.I.L. with the region, including potential future trails within South Carolina, and a local trail along Hickory Creek.



Ctrl-click on image to view an enlarged version of this map online.

The West End REACH bus line depicted on the map is a small bus line operated by the Transportation Administration of Cleveland County and was established to provide free transportation for the LMI neighborhoods to critical services. The nearest bus stop is less than a block away from the R.A.I.L. at the Foothills Farmers Market. There is also a stop 2

blocks away on Blanton Street, which will be an important connection for R.A.I.L. users who may utilize the bus system for transportation to Cleveland County Community College, the Health Department & DSS, the hospital, grocers, the library, and residential destinations in eastern sections of Shelby.

Improving the connections between active transportation facilities and public transportation induces more transit trips, accelerating mode shift away from cars.

III. Grant Funds and Sources

A. Cost Estimates

The City of Shelby is included in an urban cluster and is identified as a rural project according to RAISE guidance. As such, the project does not require any matching funds. However, to date, the City has contributed funds to pay for the R.A.I.L. corridor land acquisition, appraisal fees, title and legal fees, development of the [Master Plan](#), Environmental ESAs [Phase I](#) and [Phase II](#), land survey, design of the Shelby section with independent utility, and environmental and planning for the entire corridor. In addition, the City is **currently moving forward with bid and construction of 0.65 miles of the northern end of the Shelby section (Phase 1 – not part of this scope and budget)**. Although ineligible to be part of the grant budget due to being pre-award expenses, **Shelby has already expended funds totaling \$6,005,950 and encumbrances of \$454,840 towards the project, and has another \$3M in construction costs out to bid for Phase 1, which demonstrates a significant local investment and commitment to this R.A.I.L. transportation project. This application is to fund 9.3 miles of trails + 3.9 miles of spurs in Phase 2:**

SHELBY R.A.I.L. PHASE 2 PRELIMINARY ESTIMATES							
Activity	Quantity	Project Costs	Shelby Phase 2 1.90 miles	P.S. Section Phase 2 3.75 miles	Earl Section Phase 2 3.65 miles	RAISE Funds (100%)	Description
10-12' Paved Trail Construction	9.3 Miles	\$7,750,000	\$2,400,000	\$2,750,000	\$2,600,000	\$7,750,000	Includes grading, paving, drainage, and erosion control
10-12' Paved Trail Spur Connections	3.9 Miles	\$1,375,000	\$975,000	\$400,000	\$600,000	\$1,375,000	Includes grading, paving, drainage, and erosion control
Roadway Reconstruction	1 Mile	\$3,300,000	\$3,000,000	\$150,000	\$150,000	\$3,300,000	signals
Lighting	9.3 Miles	\$1,000,000	\$600,000	\$200,000	\$200,000	\$1,000,000	improves safety and security
2-4' Conduit for Future Broadband Expansion	9.3 Miles	\$95,000	\$150,000	\$40,000	\$45,000	\$95,000	Use wireless signal
Trailheads	1 LS	\$1,350,000	\$600,000	\$300,000	\$450,000	\$1,350,000	Budget set at \$1.65 million for 8 Trailheads
Landscape/Streetcape/Wayfinding	1 LS	\$800,000	\$500,000	\$150,000	\$150,000	\$800,000	Includes furnishings, signage, aesthetic improvement, etc.
Utility Relocations (Electric, Water, Sewer, Gas, Communications)	1 LS	\$850,000	\$700,000	\$75,000	\$75,000	\$850,000	Minimal impacts outside of City of Shelby
Wells and Structures							
Retaining Walls	1 LS	\$500,000	\$500,000			\$500,000	Required for slope stabilization
Bridge over US 74	170'x30'	\$350,000	\$350,000			\$350,000	Assumes deck and rail replacement
Bridge over Hickory Creek	450'x15'	\$900,000		\$900,000		\$900,000	Assumes replacement of existing bridge. A substructure analysis will be performed to hopefully only have to add new superstructure for walkway.
Bridge over Tributary South of Christopher Road	150'x15'	\$450,000		\$450,000		\$450,000	Assumes replacement of existing bridge. A substructure analysis will be performed to hopefully only have to add new superstructure for walkway.
Bridge over Sulphur Springs Road	100'x15'	\$450,000		\$450,000		\$450,000	Assumes replacement of existing bridge. A substructure analysis will be performed to hopefully only have to add new superstructure for walkway.
Construction Cost Subtotal		\$20,610,000	\$9,775,000	\$6,215,000	\$4,610,000	\$20,610,000	
Contingency (10%)		\$2,061,000	\$977,500	\$621,500	\$461,000	\$2,061,000	
Construction Total		\$22,671,000	\$10,752,500	\$6,847,500	\$5,071,000	\$22,671,000	
Right of Way Acquisition		\$300,000	\$100,000	\$100,000	\$100,000	\$300,000	Minimal impacts as purpose is to stay within existing rail corridor
Engineering and Design (7.5%)		\$893,888	\$383,888	\$213,563	\$296,437	\$893,888	7.5% of Construction Costs
CEI (10%)		\$1,133,550	\$537,625	\$342,375	\$253,550	\$1,133,550	5% of Construction Costs
Combined Total		\$24,998,438	\$11,390,125	\$7,803,438	\$5,804,875	\$24,998,438	

Ctrl-click image to view an enlarged version of this budget table online.

The budget is presented in total and broken down into the three separate sections; however the Shelby section is the only one with independent utility.

The cost for the Shelby section is estimated at \$11,390,125. This section includes an upfit of the old rail bridge over US 74 as well as nine road crossing improvements and four trailheads/access points.

The cost for the Patterson Springs Section is estimated at \$7,803,438. This section includes three bridges as well as five road crossing improvements and two trailheads/access points.

The cost for the Earl section is estimated at an amount of \$5,804,875. This section includes eleven road crossing improvements and two trailheads/access points.

The total estimated project cost for the entire Shelby R.A.I.L. Phase 2 project is \$24,998,438, for which the City is requesting 100% of the funds from RAISE. Costs are in 2022 dollars and reflect typical design and construction costs from other similar projects. Construction costs are based on designs that are 25% complete for Shelby Section Phase 2 and based on the schematic design for the Patterson Springs and Earl sections (also Phase 2).

IV. Primary Selection Criteria

A. Primary Selection Criteria

1. Safety

According to WalkBikeNC.com, “In North Carolina, almost 200 bicyclists and pedestrians are killed each year being struck by an automobile. In its 2014 Benchmarking Report, the Alliance for Biking and Walking ranked North Carolina 42nd and 46th worst for pedestrian and bicyclist fatality rates per capita, respectively.”

A primary goal of this project is to develop a safe and efficient multi-modal transportation network that provides appropriate levels of service to key community areas without the use of vehicles. The most readily identifiable benefit of the recommended project is its use as a safe connection between activity centers and areas of persistent poverty and historically disadvantaged communities.

As outlined in **section I.D Challenges This Project Will Address** the area in question experiences a high number of injuries and deaths associated with vehicular incidents involving bicycle and pedestrian traffic in the planned project area. A major source of crashes is congestion on the roads and unsafe road crossing infrastructure. The execution of this project will improve twenty-five (25) road crossings with design features that will make them safer for all users. The purpose of this project is to move bicycle and pedestrian traffic from main roadways as much as possible, and provide an alternate non-motorized corridor for transportation purposes. **The Benefit Cost Analysis in section VIII calculates that the project will decrease crash/injury/death incidents by 10% and save an estimated \$1,041,542.67 annually in associated [KABCO values](#) of injuries and fatalities, and an estimated \$4,992.18 from damaged vehicle costs saved.** The BCA narrative provides details and background on all data sources used for the estimates.

2. Environmental Sustainability

The Shelby R.A.I.L. project will incorporate environmental best practices wherever possible. Since the project is located on a former railway bed, the environmental impact of establishing the R.A.I.L. corridor will be very minimal. Project design will consider surfacing, drainage, and erosion control that accounts for site topography. In addition, the portion of the corridor that may require bridge infrastructure rehabilitation over Hickory Creek will be designed to limit impact on the stream so as to avoid becoming a conduit for delivering sediments, nutrients, and pathogens to the watershed.

The project itself encourages a shift from vehicular to pedestrian and bicycle trips which will reduce energy use and pollution in the project area, therefore reducing greenhouse gas emissions and have a positive impact on mitigating climate change. The BCA narrative documents an estimated usership of 1,080 pedestrians/day and 3,033 estimated bicyclists/day, and annual vehicle miles trips reduced by 125,542 by commuting and conducting utilitarian trips by foot or bike (shown in **section VIII Benefit Cost Analysis Table 4**). The estimated benefit to the region is the **reduction of an estimated 652,821 annual vehicle**

miles traveled, assuming that the average distance per R.A.I.L. user is [5.2 miles](#) (all sources cited in BCA).

A significant portion of students live within walking or biking distance of the schools connected by this R.A.I.L. corridor, and this project will stimulate an increase in active travel to school since travel will be safer and more efficient. This may potentially lead to a decrease in demand for school bus transportation which can be expensive, inefficient, and a source of significant air and noise pollution. Similarly, residents who live along the R.A.I.L. corridor may opt to choose non-vehicular transportation options to safely and quickly run errands, or to access their places of employment, which will lead to fewer emissions by utilizing this extensive infrastructure network. Surveys of the Federal Highway Administration indicate that Americans are willing to travel distances up to 5 miles by bicycle, as an alternative to automobile travel. If the City were to provide an appealing alternative to automobile travel, there is a good opportunity to accommodate short trips under 5 miles via the R.A.I.L. and in the process, assist citizens in alleviating traffic congestion and greenhouse emissions while improving personal health. **The annual vehicle miles trips reduced is 125,542 yielding annual Vehicle Emissions Costs savings of \$3,366 (see BCA Table 6 for details and data sources).**

3. Quality of Life

Racial Equity: Shelby is growing and recognizes that active transportation routes are critical for transportation equality and must be better integrated into the fabric of the community. Many developments in the City are becoming isolated, making non-vehicular transportation options more dangerous for historically underserved residents, thwarting ladders of opportunity. The robust build-out of active transportation routes for pedestrians and bicyclists, especially those from LMI and minority neighborhoods whose residents do not have vehicles, must be made to ensure safety and connectivity to key amenities, resources, and surrounding communities.

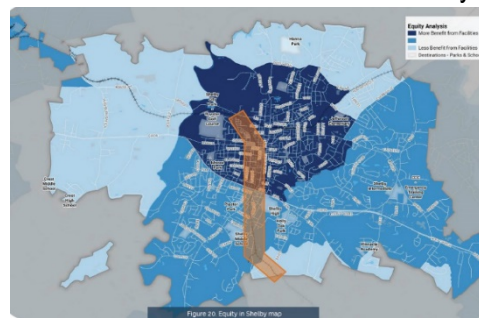
In order to accomplish this, Shelby recently underwent a process to update its Bicycle & Pedestrian Plan. This new plan, adopted in May 2020, includes a study of **equity analysis of areas within Shelby in which there are concentrations of underserved populations due to social, economic, and cultural disadvantages, and where people may benefit most from safer bicycling and walking connections based upon the lack of personal vehicle access.** Data from the US Census Bureau allowed for the inclusion of several factors known to influence both mobility and access. The factors have been weighted based on importance of who would benefit more from walking and biking facilities (Table 1). The areas identified overlap almost entirely with the identified LMI and minority neighborhoods (areas of persistent poverty and historically disadvantaged communities) which are concentrated around the Shelby Section of the R.A.I.L. corridor.

Table 1. Equity Analysis Methodology

Input	Rationale	Scoring
Poverty	Population below poverty line People with limited financial means often benefit from safe, connected infrastructure because bicycling and walking are non-expensive modes of transport	Highest Poverty Rates = 3 Medium Poverty Rates = 2 Lowest Poverty Rates = 1
Disability	Population of people with disability People with disabilities rely on high quality pedestrian infrastructure for trips. While all infrastructure in Shelby should meet these needs, areas with higher levels of people with disabilities need good infrastructure and connections to places	Highest Rates of Disability = 3 Medium Rates of Disability = 2 Lowest Rates of Disability = 1
Zero Car Households	Households that do not report vehicle ownership Households without access to a personal vehicle would benefit from infrastructure that supports walking and biking	Highest ZCH Rates = 3 Medium ZCH Rates = 2 Lowest ZCH Rates = 1
Transit Use	Proportion of the commuting population who use transit to commute to work Transit users often walk or bicycle to and from transit stops. Areas with relatively high proportions of people using transit trips must have safe connections between neighborhoods and transit stops	Percentage greater than 0 that commutes by transit = 1 0% commuting by transit = 0

(g) US Census Bureau (2018) "Tenure By Vehicles Available," "Disability Characteristics," "Poverty Status in the Past 12 Months," and "Means of Transportation to Work by Vehicles Available"

Ctrl-click to access full version. Source: 2020 Shelby Bicycle and Pedestrian Plan



Orange represents the overlaid R.A.I.L. corridor. Source: 2020 Shelby Bicycle and Pedestrian Plan

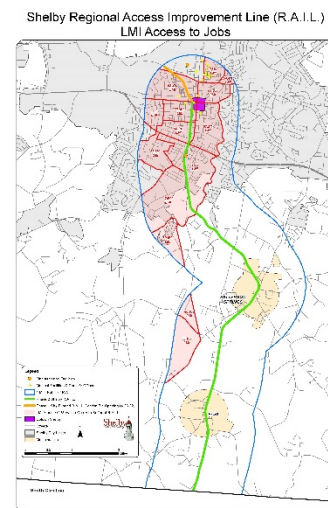
The R.A.I.L. project furthers **racial equity** by connecting a significant number of **high minority neighborhoods** to a multi-modal transportation network. [U.S. Census Data shows that households in the project area includes block groups with up to 89.2% African American residents who will benefit from this infrastructure.](#) Although data tying race to zero-vehicle households is not readily available, [this map depicts the percentage of zero-vehicle households in the project area \(21% in Census Tract 9511\)](#), which is significantly above the national average (8.6%). **This project clearly provides a pathway to transportation equity for racial minority populations who may not have access to personal vehicles.**

Health: The implementation of a well-designed, connected R.A.I.L. system in Cleveland County, North Carolina would encourage a shift from energy-intensive modes of transportation such as cars and trucks to active modes of transportation such as bicycling and walking. The social health and physical well-being of residents are evident benefits of the project in this application. The R.A.I.L. will provide opportunity for more residents to incorporate walking and bicycling into everyday travel, whether to visit a doctor’s office, commute to a job in the central business district or centers of employment, shop at the Foothills Farmers’ Market, or to travel to school on a safer route.

The benefit cost analysis evaluated for the master plan and this application quantifies the estimated increase in bicycling and walking trips, the estimated increase in hours of physical activity, and the annual savings resulting from reduced healthcare costs when we design our communities in a way where residents can utilize transportation networks as a means to get at least 30 minutes of moderate physical activity per day. **The proposed R.A.I.L. would provide health benefits in the form of walking and biking benefits which contribute to a mortality reduction benefit yielding \$2,791,711 for walking and \$6,985,799 for biking. Section VIII Benefit Cost Analysis Table 6 shows how these estimates are derived using valuations from USDOT 2022 BCA Guidance.** According to Walk Bike NC, fewer than half of North Carolinians get the recommended amount of aerobic activity recommended for significant health benefits. Physical activity is the paramount factor that can combat and prevent heart disease, stroke, cancer, and diabetes (those that are most at risk for COVID-19 complications). These diseases are preventable, as well as the over 53,000 deaths in North Carolina caused by inactivity, by creating an alternate transportation system, such as this R.A.I.L. project, which connects neighborhoods with destinations such as parks, farmers’ market, stores, and worksites which will help North Carolinians be more physically active and help decrease rates of chronic disease in our state. [Cleveland County ranks 81st](#) out of 100 NC counties for health outcomes, with minority populations many times faring the worst.

4. Economic Competitiveness and Opportunity

The Shelby R.A.I.L. project will improve economic competitiveness through the creation of additional transportation infrastructure, which will provide increased accessibility for nearby economically distressed areas with current and future jobs created in and around Shelby. Research shows that regions with alternative transportation modes are the most economically productive and competitive, while regions that rely primarily on vehicular transportation tend to have reduced economic development. This project will improve access for LMI residents with transportation disadvantages to employment centers, education, medical facilities, and other basic needs.



Ctrl-click image to view an enlarged version of this map

Constructing a transportation network that benefits bicyclists and pedestrians will provide options for all residents to increase productivity and boost economic opportunity, even if they do not have vehicular transportation.

See **section I.D Challenges This Project Will Address** for more information on transportation challenges. This project will not only connect [historically disadvantaged communities](#) with access to industrial and commercial centers, but it will also offer a safe route to Uptown Shelby, the central business district, which is host to hundreds of job opportunities.

a. Utilize the R.A.I.L. as a platform for economic development, with a special focus in Uptown Shelby and the core areas of Patterson Springs and Earl

Bicyclists and pedestrians can add real value to local economies. The Shelby R.A.I.L. will be utilized as a platform for economic development with a special focus in Uptown Shelby and the core areas of Patterson Springs and Earl. R.A.I.L. users' easy access to business centers in Shelby, Patterson Springs, and Earl will increase local spending at existing businesses, stimulate growth of new businesses, and support the continued regrowth of the Central Business District. Trails and greenways have significant record across the nation and in North Carolina for attracting visitors and outside dollars to be spent in communities with similar transportation corridors. According to a neighboring county, (Greenville County, SC), the Greenville Health System Swamp Rabbit Trail's Year 3 Findings by Furman University (Clemson International Institute for Tourism & Research & Development), has demonstrated that the 20-mile Swamp Rabbit Trail's economic impact in the county is approximately \$6.7 million per year per [NCDOT studies](#). The economic benefits of active transportation come in many forms. Increased revenue from local sales tax, restaurants, bicycle rentals, hotels, etc. have potential to significantly impact local economies. Although this projected spending is not included in the BCA because it is a transfer and not generally appropriate to include in a BCA, it is important to mention that the **Shelby R.A.I.L. is estimated to yield a total annual spending from non-local users of \$14,014,524**, based on actual spending calculated by NCDOT studies from similar projects mentioned above. Finally, property values and private investment increase as a direct result of proximity to a trail or other active transportation facility. Several high-density developments are in the works in the Shelby section of the RAIL corridor, and it is anticipated that the RAIL will help boost property values, yet it is difficult to estimate exact values at this time. The [Uptown Shelby Association letter of support](#) details investment (both completed and underway) that has happened because of the RAIL proposal. Active transportation contributes to not only the livability of communities, but also their economic well-being.

5. State of Good Repair

This project will transform an abandoned railway corridor into a regional asset that will not only provide connectivity and access to community assets for LMI and high minority population neighborhoods, but it will also provide alternative transportation options for pedestrians and bicyclists, and opportunities for increased health and wellness, and recreational tourism in this rural area. If this project is not completed, the abandoned railway corridor will potentially become a safety threat for the public, as trestles, bridges and crossings will continue to deteriorate and remain dangerous obstacles for the general public to navigate. **If the infrastructure is not updated and improved, the community will continue to have many neighborhoods where underserved residents without automobile transportation are disconnected**

from the central business district, healthcare and human services, educational facilities, and will continue to be isolated with limited job and transportation options.

The Shelby R.A.I.L. is appropriately capitalized up-front to construct the corridor surface and appurtenances, and the RAISE funds will augment the significant investment that the City has already made in acquiring the right of way easement along the entire corridor and moving forward with bid and construction of the north end of the Shelby Section. This RAISE project will ensure that the upfront costs of constructing the R.A.I.L. will be available, and the City is committed to continue using asset management approaches to ensure that funding is available to operate and maintain the facility appropriately for the duration of its useful life. The City of Shelby has a strong Parks and Recreation Department with 35 FTE employees who are responsible for the upkeep and maintenance of its numerous facilities. This project is part of the April 2020 updated Comprehensive Parks & Recreation Plan. When a new project is onboarded, the staff simultaneously creates an annual operating budget for the project which is submitted to City Council and included as part of the City's annual operating budget. This document includes such items as tools and equipment, additional staffing needs, and supplies that are necessary for the proper upkeep of the facility. Although needs will increase as the corridor eventually ages, the City estimates that it will require approximately \$181,500 to sufficiently operate and maintain the R.A.I.L. starting the first year after it is constructed. The BCA includes calculations for the operation and maintenance expenses over the life of the project. These funds will be approved by City Council on an annual basis and made available as soon as construction is complete. **The BCA data concludes that Shelby will save \$91,395 in annual road maintenance costs, and \$21,543 in congestion cost savings as a result of providing an alternative transportation network through this project.** Details and data sources are provided in the BCA Table 5.

6. Improves Mobility and Community Connectivity

Destinations throughout a community should be accessible to all citizens, regardless of their mode of transportation, abilities, or economic inability to own a car. Walking and bicycling are sustainable, affordable, and accessible transportation options for people who do not have personal vehicles. This RAISE project creates a transportation network providing non-vehicular access to key locations, including: jobs – connectivity to Central Business District, industrial jobs, healthcare jobs, healthcare facilities, schools – elementary, middle, high and community colleges, cultural amenities, grocery stores and farmers' market, municipal buildings and services, and neighboring communities. The project section that has been designed is compliant with the 2010 ADA Standards for Accessible Design. The remaining portions of the R.A.I.L. will be designed following this guidance as well. The extent of the project to tie in surrounding districts to the center of the city will anchor transformative, beneficial, and long-term enhancements to residents' ability to access critical community facilities. Improvements will also aid in decreasing household transportation costs, enabling transit for the economically disadvantaged, minority populations, non-drivers, senior citizens, and persons with disabilities by connecting education, medical, retail, housing, and employment areas of town.

B. Secondary Criteria

1. Innovative Technologies

A parallel benefit to this construction process will be the simultaneous installation of 2 – 4" conduit for future broadband expansion. The City of Shelby is proactively installing concurrent conduit in utility construction projects to help facilitate future opportunities for expanding broadband capabilities in rural Cleveland County. The City is eager to partner with providers to expand the network in this region to benefit broadband users in countless ways.

During the design phase, the City will support the inclusion of technologies that demonstrate improved efficiency and safety such as push-button timers at signalized intersections to avoid crash incidents. The project will also incorporate the latest crossing design components such as a center turn lane and refuge island on South Dekalb Street where it may be possible to include flashing beacons, should NCDOT approve this device for this crossing. The City is committed to innovative design elements that make this project area as safe as possible.

2. Innovative Project Delivery

The Shelby R.A.I.L. project exhibits an innovative planning approach that has involved a multi-year effort involving local, regional, and state planning organizations, as well as significant public outreach. The project team is committed to achieving timely and consistent environmental review and permit decisions. A proactive approach will be implemented to make the environmental review process most efficient. The City is already under contract with a firm well-versed in the NEPA process to commence the environmental review and planning documents. By commencing this process pre-award, the City will be in a good position to identify and resolve any issues early on. Once the project is funded, the City plans to conduct pre-submittal meetings, and implementing bi-weekly conference calls to ensure progress and accountability of all project partners.

V. Partnerships and Collaboration

A. Public Engagement & Support

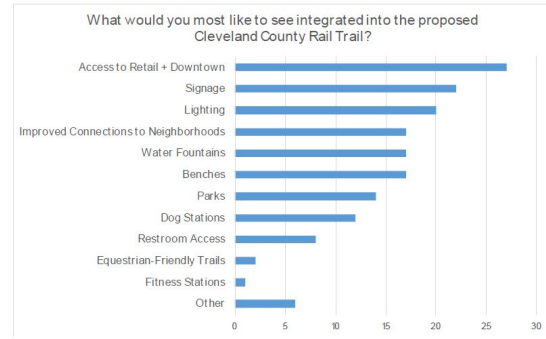
The Shelby R.A.I.L. project has involved public engagement and input since its inception. The project itself is a partnership between the Towns of [Earl](#) and [Patterson Springs](#), the City of Shelby, and [Cleveland County Government](#), and resolutions of support are linked. Alta Planning + Design was engaged to create a master plan for the project back in 2018. This plan was funded by Cleveland County and the City of Shelby. A Project Advisory Committee was set up for the master planning process to obtain perspective from a variety of stakeholder groups and included representatives from the Towns of Earl, Patterson Springs, Cleveland County, City of Shelby, NC DOT, numerous area small business owners, residents, and the Cleveland County Planning Board. In addition to this group who provided direction and input for the overall project and process, the Alta team conducted a planning workshop on September 19-21, 2017, to gather input from the public and develop a framework for the R.A.I.L. plan. **Because equity and accessibility serve as guideposts for the project, engagement events were designed to be as inclusive and inviting as possible.** Meetings were advertised in a variety of ways to capture as much local participation as possible in underserved neighborhoods. The team met with dozens of local citizens in an open house format in two county locations and developed project recommendations on-site.

As a result of the public engagement efforts, the following input was received to be incorporated into the project planning and design: The Alta team used an input board to ask the public to describe the potential R.A.I.L corridor in three words. The most common words include “Healthy,” “Community,” “Family,” “Growth,” “Fitness,” and “Tourism.” Each of these words are directly connected to the project vision statement, which focuses on public health, quality of life, and economic development.

During the planning workshop, the Alta team provided multiple opportunities for the public to provide input regarding preferred amenities for the proposed R.A.I.L corridor. Aggregated responses to this question, “What would you most like to see integrated into the proposed Cleveland County Rail Trail?” are displayed in the chart below.

At right, the most popular responses indicated on the poster include connections to retail, residential, and downtown districts.

During the planning workshop, the public was asked to complete a questionnaire. Over sixty individuals provided responses to the five questions posed in the instrument. Only one respondent indicated opposition to a potential R.A.I.L. corridor.



Public input board responses

Similarly, the updated [Shelby Bicycle and Pedestrian Plan](#), of which this project is a main component, was developed with extensive public input. Throughout the planning process, people who live in Shelby shared their experiences bicycling and walking. Public outreach was carried out through open houses, pop-up events, online surveys, and a Steering Committee. Feedback from the public via a Wikimap exercise, survey, and meetings were condensed into number/location of comments. Density of these comments was factored into prioritization so that the community’s voice is reflected in final plans and project recommendations. Through these planning exercises, it has been determined that highest priority bicycle and pedestrian projects will be those that facilitate connectivity to the future Shelby R.A.I.L. project. Feedback from the community and the Steering Committee indicated that there is great community support and enthusiasm for the Shelby R.A.I.L.

B. Letters of Support

The City of Shelby has a long track record of collaborative planning, development, and project management which is evidenced by the diverse group of local, regional, and state stakeholders that have supplied letters of support for the Shelby Regional Access Improvement Line project.

The stakeholders can be identified as public, private, non-profit, and political support. Letters of support are linked below:

1. Public
 - [Metropolitan Planning Organization](#)
 - [Alliance for Health in Cleveland County](#)
 - [Cleveland County Public Health Center](#)
 - [Cleveland County](#)
 - [Cleveland County Schools](#)
 - [Township Three Elementary School](#)
 - [Visit Cleveland County](#)
 - [Patterson Springs](#)
 - [Earl](#)
 - [NC Cooperative Extension](#)
2. Private
 - [Ivars](#)
 - [Tube Enterprises](#)
3. Non-Profit
 - [Earl Scruggs Center](#)
 - [Destination Cleveland County](#)
 - [Don Gibson Theatre](#)
 - [Healthcare Foundation of Cleveland County](#)
 - [Hospice Cleveland County Foundation](#)
 - [Uptown Shelby Association](#)
 - [Carolina Thread Trail](#)
 - [Foothills Farmers Market](#)
4. Political Support
 - Senator Tillis – positive discussions with the City; official letter of support will be sent directly to USDOT
 - Representative Foxx – positive discussions with the City; official letter of support will be sent directly to USDOT
 - Senator Burr – positive discussions with the City; letter of support is being sent directly to USDOT

C. State & Local Planning

Since 2014, the City has been working diligently to bring this project to fruition, in coordination with many regional transportation and economic development plans. Early planning efforts and relationships were focused on evaluating the need for this alternative transportation corridor and how it would potentially dovetail with other transportation initiatives in the region. In working alongside the Gaston-Cleveland-Lincoln Metropolitan Planning Organization (MPO) from the beginning, it quickly became apparent that the Shelby R.A.I.L. would serve a great purpose as a transportation solution that provides for the safe, efficient, cost-effective, and environmentally sensitive use of the transportation system, while addressing current and future travel needs in this region. The Shelby R.A.I.L. is included in the Comprehensive Transportation Plan (CTP), adopted in June 2018, that has been prepared for Gaston, Cleveland, and Lincoln counties. The CTP is a long-range planning document that assists local government and its representatives in making transportation decisions over the next 30+ years. This is a joint effort between the Gaston-Cleveland-Lincoln Metropolitan Planning Organization (GCLMPO), local counties, towns, and the NCDOT – Transportation Planning Branch (TPB). The CTP involves both government officials and the public in an effort to determine the area's future transportation needs based on the best information available. This information includes, but is not limited to, population, economic conditions, traffic trends, and patterns of land development in and around the area.

The MPO's Senior Transportation Planner, Randi Gates, has been engaged in the development of the project since its inception. Projects in the region under consideration are evaluated and scored by NCDOT divisions, local planning organizations, and public feedback. The Shelby R.A.I.L. scored extremely high in each category such as cost benefit analysis, safety, reduced congestion, connection to destinations. This project is included on the [STIP for 2020-2029 plan as project # EB-6037A](#).

The Shelby R.A.I.L. is widely supported and is also included as a project component in all relevant plans governing pedestrian and bicycle usage linked below, and developed with extensive public input:

- [City of Shelby Bicycle and Pedestrian Plan](#) (May, 2020 adoption)
- [City of Shelby Parks and Recreation Comprehensive Master Plan](#) (April, 2020)
- [Carolina Thread Trail Master Plan for Cleveland County Communities](#) (January, 2010)
- [Isothermal Regional Bicycle Plan](#) (2018)

VI. Environmental Risk Review

A. Project Schedule

Project planners have outlined the following schedule where all necessary activities will be complete to allow BUILD funds to be totally obligated in advance of the statutory deadline of 9/30/2026. The project is positioned to begin construction quickly upon obligation of funds and will be spent expeditiously once construction starts with all funds expended by the summer of 2028, well ahead of the statutory deadline of 9/30/2031. The schedule is conservative and has imbedded allowances for any unexpected delays so that funds will not be put at risk of expiring before they are obligated. The R.A.I.L. corridor acquisition was completed by the City in 2019, and any minimal spur connection ROW will be completed by March 1, 2024, in accordance with 49 CFR part 24, 23 CFR part 710, and other applicable legal requirements.

Activity	Date
Procurement of Design (Shelby Section)/Engineering Firm (Entire RAIL Environmental Review)	Competitive RFQ Award October 2019
Begin Preliminary Design (Shelby Section-Independent Utility)	August 1, 2020
Complete Preliminary Design – 25% & Public Workshop	April 1, 2023
Begin Environmental Reviews and Permits	6/8/2021 and a DRAFT CE to be completed by June 1, 2022
Procurement of Design/Engineering Firm (Remaining Portion of City Section and County Sections)	Competitive RFQ Award December 2022
Complete Environmental Reviews and Permits	April 1, 2023
R/W Acquisition	July 1, 2023 - December 1, 2023
Complete Final Design	September 1, 2023
Approval of Plans and Specifications	January 1, 2024
Receipt of Regulatory Permits	December 1, 2022
Complete Final Cost Estimates	November 1, 2023
Advertise Project for Bidding	February 15, 2024
Award Construction Contract	May 2024
Begin Construction	August 2024
Complete Construction	August 2028

B. NEPA Review

In discussion with project planners, it is anticipated that the Shelby R.A.I.L. project will likely be a type 1.B. Categorical Exclusion, the simplest and fastest approval. The project area is a former railroad bed and the City has already conducted [Phase I](#) and [Phase II Environmental Site Assessments](#) on the entire inactive railway easement with no findings of concern, or unusual circumstances. The City and its consultants will work diligently to ensure that a pro-active approach is taken and any unforeseen issues are resolved early on in the process, for which the schedule makes allowances. It is expected that the Categorical Exclusion document will be complete by April 1, 2023.

Review steps to be taken:

- Prepare environmental document
- Natural Resources Technical Report-MEMO
- T&E Species Survey

Review steps completed to date:

- Environmental document completed for Shelby Section Phase I
- Cultural Resources Approval from SHPO
- Wetland and Stream Delineation
- Start of Study Letters (Fed, State and Local Agencies, and NCDOT Units)
- Geo-Environmental Phase I and Phase II have been completed by the City. No additional work is anticipated.

Items Not Included:

- City has already satisfied public outreach with their Master Plan and updated Bicycle and Pedestrian Plan
- Air Quality Analysis is not required
- Noise Study is not required

Easements:

The 9.95-mile (Phase 1 & Phase 2) railway easement is complete and has been purchased by the City of Shelby. Once the project is designed, it will be determined exactly which small portions along the connectors would need to be acquired, if any. This is not anticipated to be significant, and the schedule allows until December 1, 2023 for completing ROW acquisition.

Potential Permits: will be received by April 1, 2023. Permits that may be required for this project after preliminary plans are approved are:

- Nationwide Permit #14
- Standard 401/404 Standard Permits
- Erosion Control Permit- NCDENR
- Army Corps of Engineers* – if after further evaluation, it is determined that any of the three train trestles need to be rehabilitated
- Utilities permits
- Local DOT permit where project crosses NCDOT-owned roads

C. Project Risks & Mitigation Strategies

The City of Shelby has been very proactive in conducting due diligence tasks to get this project ready to construct. Not only have a [Phase I](#) and [Phase II](#) Environmental Site Assessments already been conducted on the entire inactive railway easement, but the railway easement has been obtained and it is likely that no permitting will be required. However if, after engineering design investigation, it is determined that the first railroad trestle will need to be replaced and not simply repaired, this effort will require a Corps of Engineers permit. For this reason, the evaluation of the integrity of the railroad trestle will be one of the first engineering tasks- post- award so that in the case that a permit would be required, the City can have sufficient time to apply for and obtain this well within the pre-construction activity window.

Risks associated with this project are minimal, as it has been developed with extensive public input and in conjunction with numerous partners, including NCDOT. The City of Shelby is confident that the project schedule is conservative and allows time for unforeseen delays so that the funds will be obligated by September 30, 2026.

Permitting: The evaluation of the integrity of the three railroad trestles will be one of the first engineering tasks post- award so that in the case that a permit would be required, the City can have sufficient time to apply for and obtain this well within the pre-construction activity window. An updated railroad crossing permit will also be required in the project area and will be applied for as soon as design is complete.

STIP: This project is included on the [STIP for 2020-2029 plan as project # EB-6037A](#).

NEPA Review: delay risks are accounted for in the schedule. This project takes place in a former railway bed, already acquired by the applicant, where [Phase I](#) and [Phase II](#) environmental assessments have already been completed which do not indicate that any unusual circumstances exist. A Categorical Exclusion is expected, which will be completed by April 1, 2023.

VII. Demonstrated Project Readiness

A. Environmental Risk

As outlined above in Section VI, a categorical exclusion is expected for this project and the City is under contract with a design-engineering firm that is well-versed in the NEPA process and has already commenced with the environmental review for the entire corridor, under the same contract as the Shelby section design (independent utility). The Categorical Exclusion is expected to be drafted by June 1, 2022, and completed by April 1, 2023. The City has been very proactive in carrying out due diligence for this project, which also included [Phase I](#) and [Phase II](#) site assessments of the abandoned railway corridor. No unusual circumstances were documented.

B. Technical Capacity of City Staff

The City is well-managed, has received numerous grant funds in the past (over \$20 million over the past 10 years), and has a solid history of successful projects and compliance with funding agency rules and regulations, including a successful track record with several Federal agencies. In April 2020, the City successfully completed a 4-year long \$10 million economic development infrastructure project with the U.S. Economic Development Agency (#04-01-07220) that resulted in the creation of 247 jobs and private investment of over \$424 million. In recent years the City has obtained national accreditations and recognition for its police and fire departments, making it a leader in the delivery of public safety services in North Carolina. The City of Shelby is committed to continuous improvements in the community and supports projects critical to growing the local and regional economy. As a Main Street America™ Accredited program, the Uptown Shelby Association (Shelby's Central Business District) is a recognized leading program among the national network of more than 1,200 neighborhoods and communities who are both a commitment to creating high-quality places and to building stronger communities through preservation-based economic development. All Main Street America™ Accredited programs meet a set of National Accreditation Standards of Performance as outlined by the National Main Street Center. Over the past decade, the City has engaged in successful partnerships with local, regional, state and federal agencies to help build the strength of the community and region.

[The staff bios for the local team](#) that would be responsible for the successful execution of this RAISE project has over 130+ cumulative years of experience in finance, community development, planning and management which will ensure the City's in-house capacity to successfully deliver the project in compliance with applicable Federal requirements.

VIII. Benefit–Cost Analysis

The City of Shelby compared the costs of its R.A.I.L. project with the projected benefits resulting from avoided pedestrian injuries and car crashes plus transportation, economic, healthcare and environmental enhancements. The City concludes that the value of the projects' future benefits exceeds the initial and maintenance costs thereby making it a valuable investment in the community.



The benefit cost data is presented in 2 separate ways to accurately reflect project components and future benefits:

1. The Shelby section – independent utility is presented with its own BCA. [Please click here to download Tables 1-9 that accompany the descriptions and assumptions below.](#)
2. Entire project (all 3 sections) – separate BCA shows cumulative future benefits. [Please click here to download Tables 1-9 that accompany the descriptions and assumptions below.](#)

Table 1: The City’s comparison reviews [13 years of pedestrian events and 12 years of cyclist injuries and deaths due to collisions with vehicles within a 1-mile buffer of the project area](#). Data was compiled by the City planning and police departments and accident locations were provided by the University of North Carolina Highway Safety Research Center. Each occurrence was categorized according to the [KABCO Injury Classification Scale and Definitions](#) of the USDOT Federal Highway Administration. To ascertain the average annual number of occurrences, the count for each KABCO rating was divided by 13 years and 12 years respectively, as shown in Table 1. The analysis assumes that the projects will provide a 10% reduction in incidents therefore the count was multiplied by 0.1 to yield the annual benefit per KABCO category.

Table 2: The distribution of average annual KABCO occurrences was converted to USDOT injury values using the statistical distribution tables provided by the National Highway Traffic Safety Administration.¹ Furthermore, each converted event was multiplied by the USDOT Economic Value of a Statistical Life ¹ to ascertain a dollar value per reduced occurrence, as shown in Table 2.

The sum of the benefits is:

Shelby Section: \$1,041,542.67

Entire Project: \$1,041,542.67

Table 3: The project is also expected to reduce the number of vehicular crashes. As shown in Table 3, there were 114 pedestrian crashes and 12 cyclist crashes during the 13- and 12-year data periods. Annualizing this count yields an average of 10.85 crashes per year. Applying the 10% projected reduction to a crash value of \$4,600 ² yields an annual benefit of 1.085 crashes per year or \$4,992.18.

Shelby Section: \$4,992.18

Entire Project: \$4,992.18

¹ <https://www.transportation.gov/office-policy/transportation-policy/revised-departmental-guidance-on-valuation-of-a-statistical-life-in-economic-analysis>

² The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (revised May 2015), Page 12, Table 1-2, Summary of Unit Costs, 2000



Table 4: The R.A.I.L. will yield Transportation and Healthcare benefits based on the R.A.I.L. length per section. NCDOT studies estimate there will be approximately [78 pedestrians per mile per day](#)³, based on average count data one year after construction for similar trails in NC and SC (Swamp Rabbit, Brevard Greenway, and American Tobacco Trail).

Shelby Section: The estimated number of pedestrians per day is 308 on a R.A.I.L. length of 3.95 miles. The website Bestplaces.net states the annual days with sunshine in the Charlotte, NC area is 218⁴ and consequently, the annual pedestrians on the section of trail are projected to be 67,166. [NCDOT estimates the number of bicyclists per mile per day will be 219](#)³ based on the average count data one year after construction for the similar trails. Applying the trail length of 3.95 miles, the estimated bicyclist per day is 865. Assuming the annual sunshine days of 218 per year the annual number of bicyclists is projected to be 188,581. The annual combined pedestrians and bicyclists total 255,747. [NCDOT estimates that the percent commute and utilitarian trips is 14%](#)³, based on primary trip purpose for users of similar trails in NC and SC, yielding an annual vehicle miles trips reduced of 35,805. [NCDOT also assumes the average trip distance per trail user is 5.2 miles](#)³, based on average trip distance of trail users on similar trails in NC and SC, thus the annual vehicle miles traveled reduced is 186,184.

Entire Project: The estimated number of pedestrians per day is 1,080 on a R.A.I.L. length of 13.85 miles. The website Bestplaces.net states the annual days with sunshine in the Charlotte, NC area is 218⁴. Consequently, the annual pedestrians on the section of trail are projected to be 235,505. [NCDOT estimates the number of bicyclists per mile per day will be 219](#)³ based on the average count data one year after construction for the similar trails. Applying the trail length of 13.85 miles, the estimated bicyclist per day is 3,033. Assuming the annual sunshine days of 218 per year the annual number of bicyclists is projected to be 661,227. The annual combined pedestrians and bicyclists total 896,732. [NCDOT estimates that the percent commute and utilitarian trips is 14%](#)³, based on primary trip purpose for users of similar trails in NC and SC, yielding an annual vehicle miles trips reduced of 125,542. [NCDOT also assumes the average trip distance per trail user is 5.2 miles](#)³, based on average trip distance of trail users on similar trails in NC and SC, thus the annual vehicle miles traveled reduced is 652,821.

Table 5: Transportation benefits are assumed to consist of road maintenance, motor vehicle operating costs, and congestion costs. The savings per mile for each is summarized below:

Road Maintenance Cost/Mile ⁴	\$0.14
Motor Vehicle Operating Cost/Mile ⁵	\$0.77
Congestion Cost/Mile ⁶	\$0.03

³ Evaluating the Economic Impact of Shared Use Paths in North Carolina, Technical Memorandum: Brevard Greenway Year One. North Carolina Department of Transportation (2016) Evaluating the Economic Impact of Shared Use Paths in North Carolina, Technical Memorandum: Brevard Greenway Year One. North Carolina Department of Transportation (2016) https://itre.ncsu.edu/wp-content/uploads/2018/03/NCDOT-2015-44_SUP-Project_Final-Report_optimized.pdf

⁴ <https://trid.trb.org/view.aspx?id=261768>

⁵ http://nhts.ornl.gov/tables09/fatcat/2009/aptl_TRPTRANS_WHYTRP1S.html, <http://atri-online.org/wp-content/uploads/2016/10/ATRI-Operational-Costs-of-Trucking-2016-09-2016.pdf>, <http://exchange.aaa.com/automobiles-travel/automobiles/driving-costs/#.WVZdF02oupp>

⁶ <https://www.fhwa.dot.gov/policy/otps/costallocation.cfm> <https://www.fhwa.dot.gov/policy/otps/costallocation.cfm>



Shelby Section: Since the annual vehicle miles traveled reduced is 186,184 (Table 4), the road maintenance, motor vehicle operating costs saved, and congestion costs saved are \$26,066, \$143,361, and \$6,144 respectively. Furthermore, Transportation benefits are assumed to consist of pedestrian improvements. Two marked crosswalks are planned on [S. Lafayette Street](#) and [S. Dekalb Street](#) where the R.A.I.L. intersects have volumes $\geq 10,000$ vehicles per day⁷. Considering 308 walkers per day (Table 4) and a value of \$0.18 per walking trip ⁸based on recommended monetized value by improvement type 2022 USDOT BCA Guidance, the benefit totals \$40,484.

Entire Project: Since the annual vehicle miles traveled reduced is 652,821, the road maintenance, motor vehicle operating costs saved, and congestion costs saved are \$91,395, \$502,672, and \$21,543 respectively. Furthermore, Transportation benefits are assumed to consist of pedestrian improvements. Two marked crosswalks are planned on [S. Lafayette Street](#) and [Dekalb Street](#) where the R.A.I.L. intersects have volumes $\geq 10,000$ vehicles per day⁷. Considering 1080 walkers per day (Table 4) and a value of \$0.18 per walking trip ⁸ based on recommended monetized value by improvement type 2022 USDOT BCA Guidance, the benefit totals \$141,951.

Table 6: Health care savings is estimated using several calculations. Walking benefits are determined by applying the number of pedestrians per day (Table 4) by a mortality reduction benefit of \$7.08 per trip⁹ to yield benefits. Biking benefits are determined by applying the number of bicyclists per day (Table 4) by a mortality reduction benefit of \$6.31 per trip⁹ to yield benefits. Furthermore, the path has at grade crossings for cyclists that are valued at \$1.42 per cycling trip¹⁰. The project is also projected to mitigate climate change. Vehicle emissions are projected to lower nitrous oxide, particulate matter, and carbon dioxide. The EPA and Bureau of Transportation Statistics state one-mile driven yields the following amounts:

NOx	0.0000328 metric tons ¹¹
PM2.5	0.0000002 metric tons ¹⁴
CO2	0.0004005 metric tons ¹²

Shelby Section: Walking benefits are determined by applying 308 pedestrians per day (Table 4) by a mortality reduction benefit of \$7.08 per trip⁹ to yield a benefit of \$796,192. Biking benefits are determined by applying 865 bicyclists per day (Table 4) by a mortality reduction benefit of \$6.31 per trip⁹ to yield a benefit of \$1,992,340. Furthermore, the path has at grade crossings for cyclists that are valued at \$1.42 per cycling trip¹⁰, or \$448,355. The benefits of reducing one metric ton of NOx, PM2.5, and CO2 are

⁷ <https://ncdot.maps.arcgis.com/apps/webappviewer/index.html?id=964881960f0549de8c3583bf46ef5ed4>

⁸ Pedestrian Route Choice Model Estimated from Revealed Preference GPS Data (2014)

<https://trid.trb.org/view/133822>

⁹ Health Economic Assessment Tool (HEAT) for Walking and For Cycling (2017)

¹⁰ A GPS-based Bicycle Route Choice Model for San Francisco, California (2011)

<https://www.sfcta.org/sites/default/files/2019-03/BikeRouteChoiceModel.pdf>

¹¹ <https://www.bts.gov/content/estimated-national-average-vehicle-emissions-rates-vehicle-vehicle-type-using-gasoline-and>

¹² <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results>

¹³ A GPS-based Bicycle Route Choice Model for San Francisco, California (2011)

<https://www.sfcta.org/sites/default/files/2019-03/BikeRouteChoiceModel.pdf>

\$15,600, \$748,600, and \$52 each respectively¹⁴. The annual vehicle miles trips reduced is 35,805 (Table 4) yielding Vehicle Emissions Costs savings of \$960.

Entire Project: Walking benefits are determined by applying 1080 pedestrians per day (Table 4) by a mortality reduction benefit of \$7.08 per trip⁹ to yield a benefit of \$2,791,711. Biking benefits are determined by applying 3,033 bicyclists per day (Table 4) by a mortality reduction benefit of \$6.31 per trip⁹ to yield a benefit of \$6,985,799. Furthermore, the path has at grade crossings for cyclists that are valued at \$1.42 per cycling trip¹⁰, or \$1,572,082. The benefits of reducing one metric ton of NOx, PM2.5, and CO2 are \$15,600, \$748,600, and \$52 each respectively.¹⁴ The annual vehicle miles trips reduced is 125,542 (Table 4) yielding Vehicle Emissions Costs savings of \$3,366.

Table 7: The timing of the benefits is compared to the project costs in Table 7 using discount rates of 7% for all benefits and costs except 3% for carbon dioxide reduction benefit (CO2).

Shelby Section: Each comparison assumes the total project costs of \$17,631,370 (including pre-award expenses paid by the City) are incurred between 2019 and 2028 and benefits and maintenance costs will begin approximately 2029. A 3% growth factor consisting of 2% inflation and 1% population growth is applied to benefit values to convert them to their respective years. **The present value of each annual benefit less the cost of the project results in a net present value of \$31.2 million using 7% discount rate and 3% discount rate for CO2. The benefit cost ratio is 3.26.**

Entire Project: Each comparison assumes the total project costs of \$31,239,685 (including pre-award expenses paid by the City) are incurred between 2019 and 2028 and benefits and maintenance costs will begin approximately 2029. A 3% growth factor consisting of 2% inflation and 1% population growth is applied to benefit values to convert them to their respective years. **The present value of each annual benefit less the cost of the project results in a net present value of \$108.8 million using 7% discount rate and 3% discount rate for CO2. The benefit cost ratio is 5.71.**

No-Build Baseline:

Shelby Section: The Do-Nothing alternative results in the elimination of benefits and the avoidance of project costs. The benefits of \$45 million will be lost and expenditures totaling \$13.8 million (sum of net discounted costs in Table 7 Column O6 to O15) will be saved. The net present value of this alternative is negative and therefore not a reasonable option for the City to pursue.

Entire Project: The Do-Nothing alternative results in the elimination of benefits and the avoidance of project costs. The benefits of \$131.9 million will be lost and expenditures totaling \$23.1 million (sum of net discounted costs in Table 7 Column O6 to O15) will be saved. The net present value of this alternative is negative and therefore not a reasonable option for the City to pursue.

Summary: The City concludes that the value of the projects' future benefits exceeds the initial and maintenance costs thereby making it a valuable investment in the community.

¹⁴ https://www.epa.gov/sites/default/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf

CITY OF SHELBY
BENEFIT COST ANALYSIS DESCRIPTION AND ASSUMPTIONS
(ENTIRE TRAIL)

The City of Shelby compared the costs of its trail project with the projected benefits resulting from avoided pedestrian injuries and car crashes plus transportation, and healthcare enhancements. The City concludes that the value of the projects' future benefits exceeds the initial and maintenance costs thereby making it a valuable investment in the community.

Table 1

The City's comparison reviews 13 years of pedestrian events and 12 years of cyclist injuries and deaths due to collisions with vehicles within a 1-mile buffer of the project area. Data was compiled by the City planning and police departments and accident locations were provided by the University of North Carolina Highway Safety Research Center. Each occurrence was categorized according to the [KABCO Injury Classification Scale and Definitions](#) of the USDOT Federal Highway Administration. To ascertain the average annual number of occurrences, the count for each KABCO rating was divided by 13 years and 12 years respectively, as shown in Table 1. The analysis assumes that the projects will provide a 10% reduction in incidents therefore the count was multiplied by 0.1 to yield the annual benefit per KABCO category.

Table 2

The distribution of average annual KABCO occurrences was converted to USDOT injury values using the statistical distribution tables provided by the National Highway Traffic Safety Administration.¹ Furthermore, each converted event was multiplied by the USDOT Economic Value of a Statistical Life¹ to ascertain a dollar value per reduced occurrence, as shown in Table 2. The sum of the benefits is \$1,041,542.67.

Table 3

The project is also expected to reduce the number of vehicular crashes. As shown in Table 3, there were 114 pedestrian crashes and 12 cyclist crashes during the 13- and 12-year data periods. Annualizing this count yields an average of 10.85 crashes per year. Applying the 10% projected reduction to a crash value of \$4,600² yields an annual benefit of 1.085 crashes per year or \$4,992.18.

¹ <https://www.transportation.gov/office-policy/transportation-policy/revised-departmental-guidance-on-valuation-of-a-statistical-life-in-economic-analysis>

² The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (revised May 2015), Page 12, Table 1-2, Summary of Unit Costs, 2000

Table 4

The trail will also yield Transportation and Healthcare benefits. The proposed trail length is 13.85 miles. Since the NCDOT estimates there will be approximately [78 pedestrians per mile per day](#)³, based on average count data one year after construction for similar trails in NC and SC (Swamp Rabbit, Brevard Greenway, and American Tobacco Trail), the estimated number of pedestrians per day is 1080. The website Bestplaces.net states the annual days with sunshine in the Charlotte, NC area is 218⁴. Consequently, the annual pedestrians on the section of trail are projected to be 235,505.

[NCDOT estimates the number of bicyclists per mile per day will be 219](#)³ based on the average count data one year after construction for the similar trails. Applying the trail length of 13.85 miles, the estimated bicyclist per day is 3,033. Assuming the annual sunshine days of 218 per year the annual number of bicyclists is projected to be 661,227. The annual combined pedestrians and bicyclists total 896,732. [NCDOT estimates that the percent commute and utilitarian trips is 14%](#)³, based on primary trip purpose for users of similar trails in NC and SC, yielding an annual vehicle miles trips reduced of 125,542. [NCDOT also assumes the average trip distance per trail user is 5.2 miles](#)³, based on average trip distance of trail users on similar trails in NC and SC, thus the annual vehicle miles traveled reduced is 652,821. These assumptions are summarized in Table 4.

Table 5

Transportation benefits are assumed to consist of road maintenance, motor vehicle operating costs, and congestion costs. The savings per mile for each is summarized below:

Road Maintenance Cost/Mile ⁵	\$0.14
Motor Vehicle Operating Cost/Mile ⁶	\$0.77
Congestion Cost/Mile ⁷	\$0.03

³ Evaluating the Economic Impact of Shared Use Paths in North Carolina, Technical Memorandum: Brevard Greenway Year One. North Carolina Department of Transportation (2016) Evaluating the Economic Impact of Shared Use Paths in North Carolina, Technical Memorandum: Brevard Greenway Year One. North Carolina Department of Transportation (2016) https://itre.ncsu.edu/wp-content/uploads/2018/03/NCDOT-2015-44_SUP-Project_Final-Report_optimized.pdf

⁴ https://www.bestplaces.net/climate/city/north_carolina/charlotte#:~:text=On%20average%2C%20there%20are%20218%20sunny%20days%20per%20year%20in%20Charlotte.&text=Charlotte%20gets%20some%20kind%20of,that%20falls%20to%20the%20ground

⁵ <https://trid.trb.org/view.aspx?id=261768>

⁶ http://nhts.ornl.gov/tables09/fatcat/2009/aptl_TRPTRANS_WHYTRP1S.html, <http://atri-online.org/wp-content/uploads/2016/10/ATRI-Operational-Costs-of-Trucking-2016-09-2016.pdf>, <http://exchange.aaa.com/automobiles-travel/automobiles/driving-costs/#.WVZdF02oupp>

⁷ <https://www.fhwa.dot.gov/policy/otps/costallocation.cfm> <https://www.fhwa.dot.gov/policy/otps/costallocation.cfm>

Since the annual vehicle miles traveled reduced is 652,821 (Table 4), the road maintenance, motor vehicle operating costs saved, and congestion costs saved are \$91,395, \$502,672, and \$21,543 respectively.

Furthermore, Transportation benefits are assumed to consist of pedestrian improvements. Two marked crosswalks are planned on [S. Lafayette Street](#) and [Dekalb Street](#) where the R.A.I.L. intersects have volumes $\geq 10,000$ vehicles per day⁸. Considering 1080 walkers per day (Table 4) and a value of \$0.18 per walking trip⁹ based on recommended monetized value by improvement type 2022 USDOT BCA Guidance, the benefit totals \$141,951. See linked screen captures for these traffic counts in the project area.¹⁰¹¹

These Transportation savings are summarized in Table 5.

Table 6

Health care savings is estimated using several calculations. Walking benefits are determined by applying 1080 pedestrians per day (Table 4) by a mortality reduction benefit of \$7.08 per trip¹² to yield a benefit of \$2,791,711. Biking benefits are determined by applying 3,033 bicyclists per day (Table 4) by a mortality reduction benefit of \$6.31 per trip¹² to yield a benefit of \$6,985,799. Furthermore, the path has at grade crossings for cyclists that are valued at \$1.42 per cycling trip¹³, or \$1,572,082. The project is also projected to mitigate climate change. Vehicle emissions are projected to lower nitrous oxide, particulate matter, and carbon dioxide. The EPA and Bureau of Transportation Statistics state one-mile driven yields the following amounts:

NOx	0.0000328 metric tons ¹⁴
PM2.5	0.0000002 metric tons ¹⁴
CO2	0.0004005 metric tons ¹⁵

The benefits of reducing one metric ton of NOx, PM2.5, and CO2 are \$15,600, \$748,600, and \$52 each respectively.¹⁶ The annual vehicle miles trips reduced is 125,542 (Table 4) yielding Vehicle

⁸ <https://ncdot.maps.arcgis.com/apps/webappviewer/index.html?id=964881960f0549de8c3583bf46ef5ed4>

⁹ Pedestrian Route Choice Model Estimated from Revealed Preference GPS Data (2014)

<https://trid.trb.org/view/133822>

¹⁰ https://withersravenel.com/wp-content/uploads/2022/04/Lafayette_TrafficCount_10500.jpg

¹¹ https://withersravenel.com/wp-content/uploads/2022/04/Dekalb_TrafficCount_12000.jpg

¹² Health Economic Assessment Tool (HEAT) for Walking and For Cycling (2017)

¹³ A GPS-based Bicycle Route Choice Model for San Francisco, California (2011)

<https://www.sfcta.org/sites/default/files/2019-03/BikeRouteChoiceModel.pdf>

¹⁴ <https://www.bts.gov/content/estimated-national-average-vehicle-emissions-rates-vehicle-vehicle-type-using-gasoline-and>

¹⁵ <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results>

¹⁶ https://www.epa.gov/sites/default/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf

Emissions Costs savings of \$3,366. A summary of assumptions related to healthcare savings is shown in Table 6.

Table 7

The timing of the benefits is compared to the project costs in Table 7 using discount rates of 7% for all benefits and costs except 3% for carbon dioxide reduction benefit (CO2). Each comparison assumes the total project costs of \$31,239,685 (including pre-award expenses paid by the City) are incurred between 2019 and 2028 and benefits and maintenance costs will begin approximately 2029. A 3% growth factor consisting of 2% inflation and 1% population growth is applied to benefit values to convert them to their respective years. **The present value of each annual benefit less the cost of the project results in a net present value of \$108.8 million using 7% discount rate and 3% discount rate for CO2. The benefit cost ratio is 5.71.**

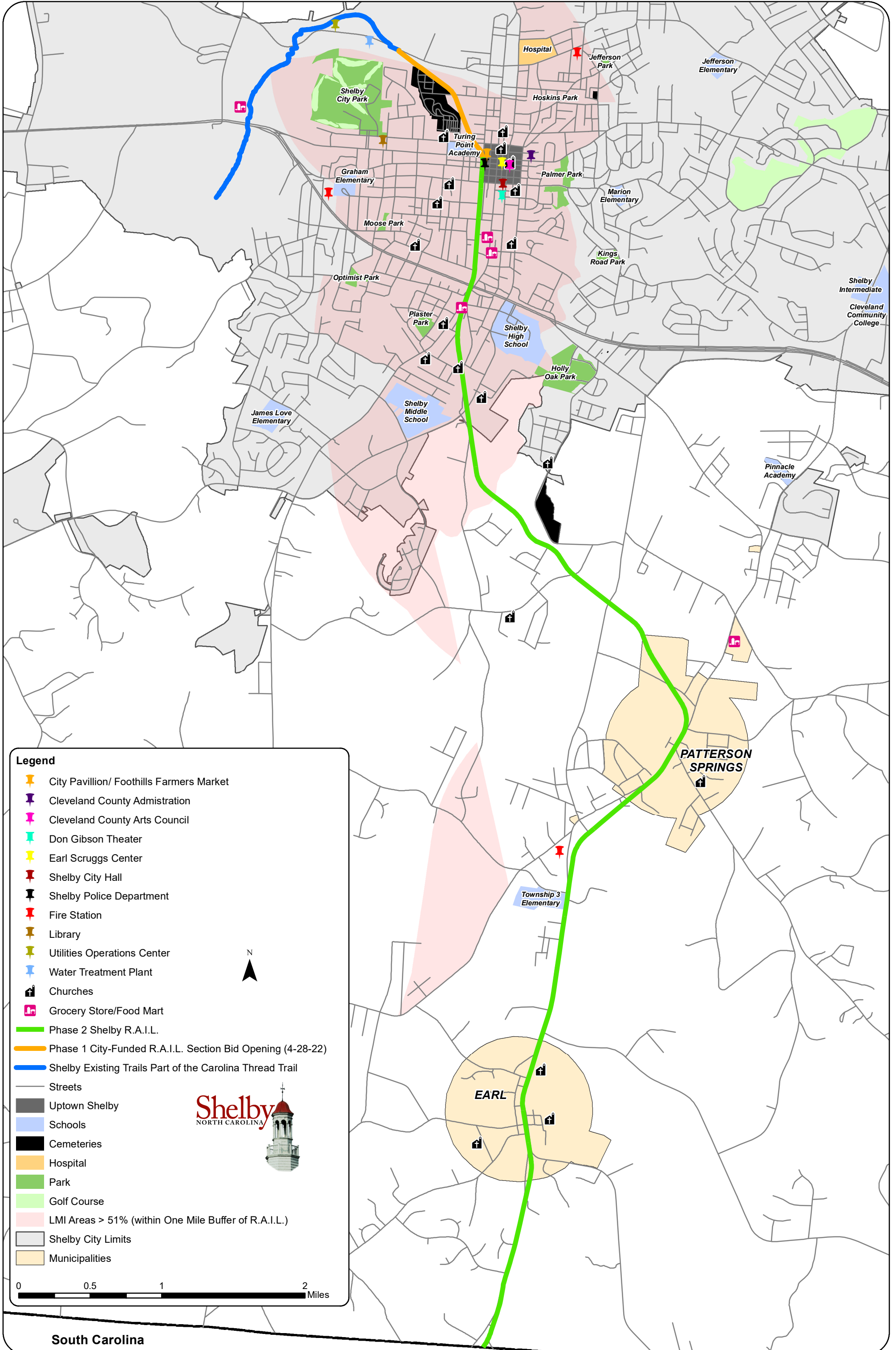
No-Build Baseline

The Do-Nothing alternative results in the elimination of benefits and the avoidance of project costs. The benefits of \$131.9 million will be lost and expenditures totaling \$23.1 million (sum of net discounted costs in Table 7 Column O6 to O15) will be saved. The net present value of this alternative is negative and therefore not a reasonable option for the City to pursue.

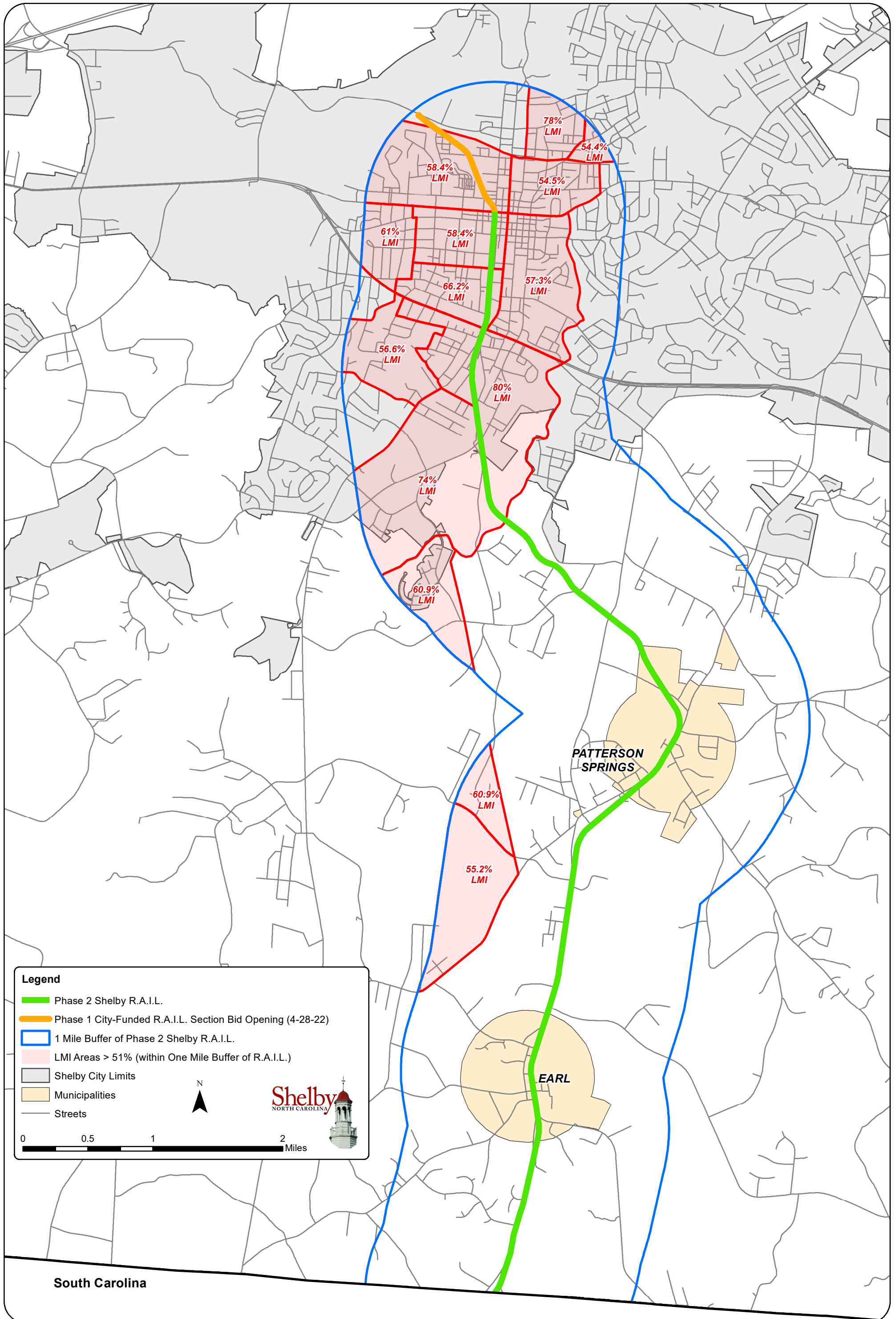
Maps

- Shelby R.A.I.L. Overview
- LMI Neighborhoods
- LMI Access to Jobs
- Medical Facilities and Doctors
- R.A.I.L. Connectivity to Existing Infrastructure
- Race Demographics in the Project Area
- Poverty Rate in the Project Area
- Unemployment Rate in the Project Area
- No Highschool Diploma in the Project Area
- Zero-Vehicle Households in the Project Area
- Bike and Pedestrian Crashes in the Project Area
- Historically Disadvantaged Communities
- Connections to Opportunity Zone

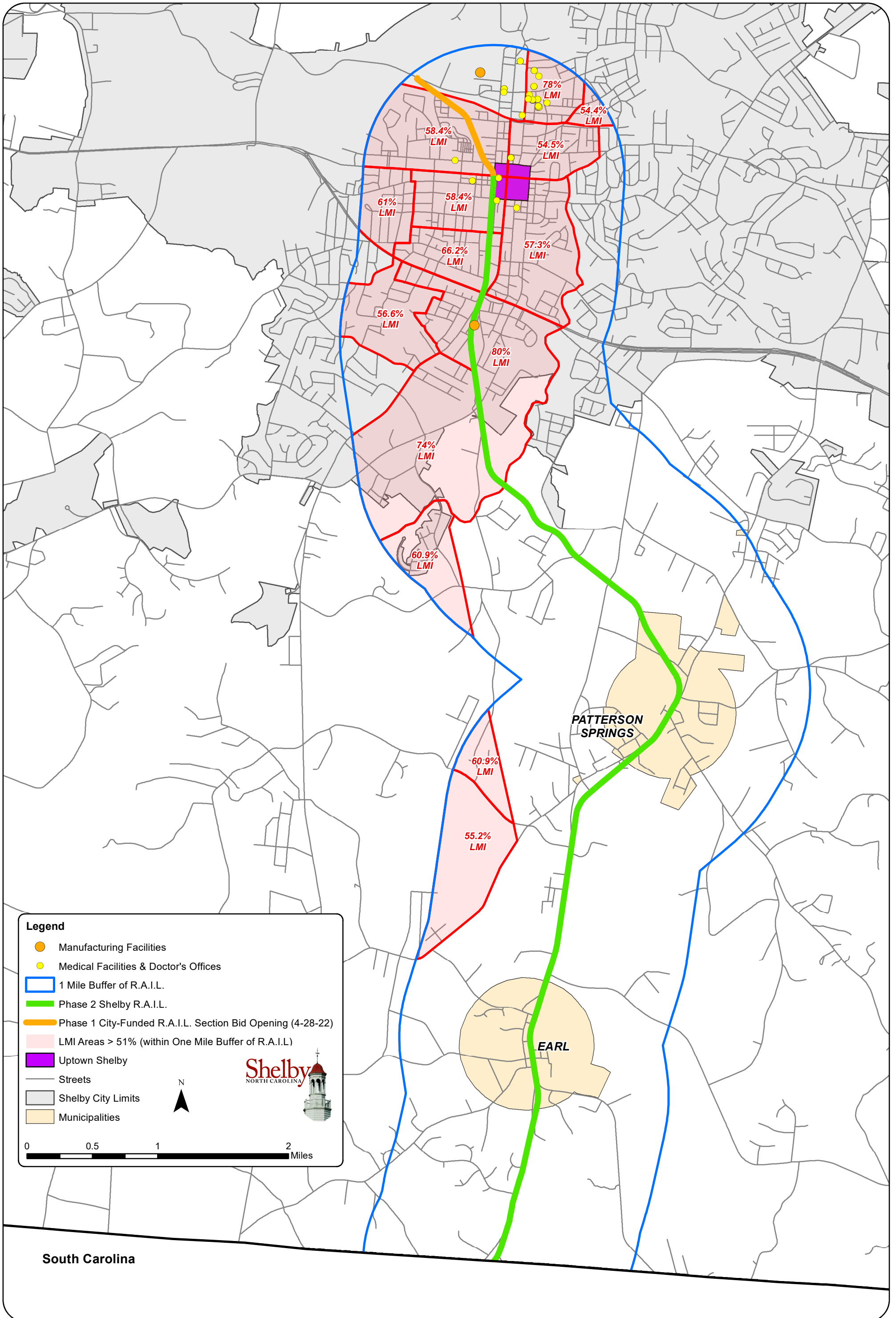
Shelby Regional Access Improvement Line (R.A.I.L.)



Shelby Regional Access Improvement Line (R.A.I.L.) Low & Moderate Income Households



Shelby Regional Access Improvement Line (R.A.I.L.) LMI Access to Jobs

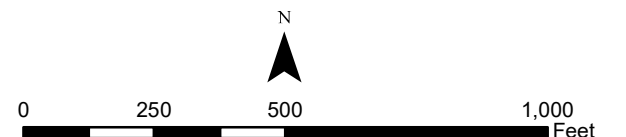


Shelby Regional Access Improvement Line (R.A.I.L.) Medical Facilities & Doctor's Offices

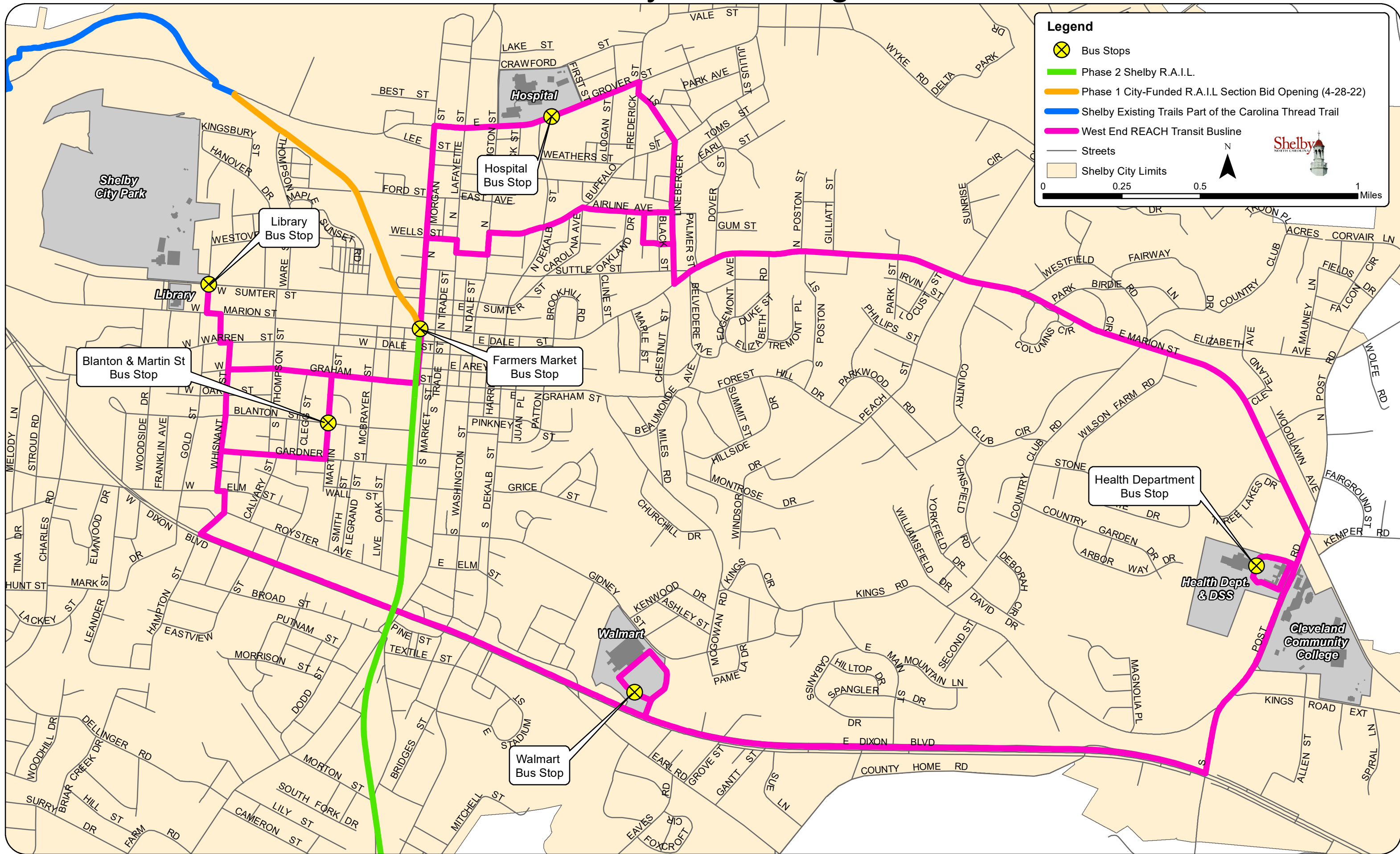


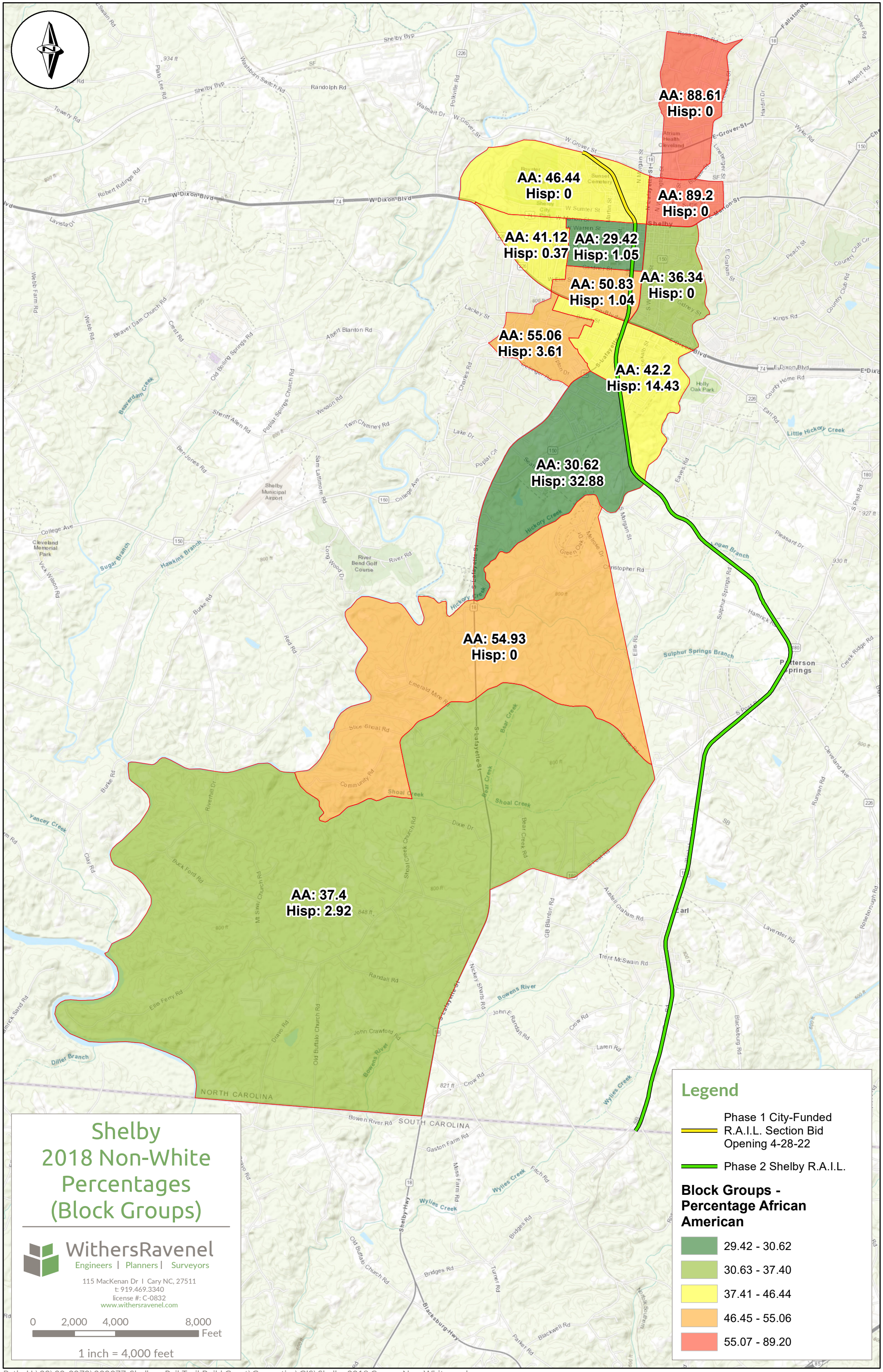
Legend

- █ Shelby R.A.I.L.
- Medical Facilities & Doctor's Offices
- Hospital
- Streets



R.A.I.L. Connectivity to Existing Infrastructure





AA: 88.61
Hisp: 0

AA: 46.44
Hisp: 0

AA: 89.2
Hisp: 0

AA: 41.12
Hisp: 0.37

AA: 29.42
Hisp: 1.05

AA: 50.83
Hisp: 1.04

AA: 36.34
Hisp: 0

AA: 55.06
Hisp: 3.61

AA: 42.2
Hisp: 14.43

AA: 30.62
Hisp: 32.88

AA: 54.93
Hisp: 0

AA: 37.4
Hisp: 2.92

Legend

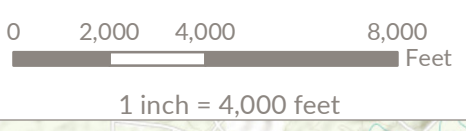
- Phase 1 City-Funded R.A.I.L. Section Bid Opening 4-28-22
- Phase 2 Shelby R.A.I.L.

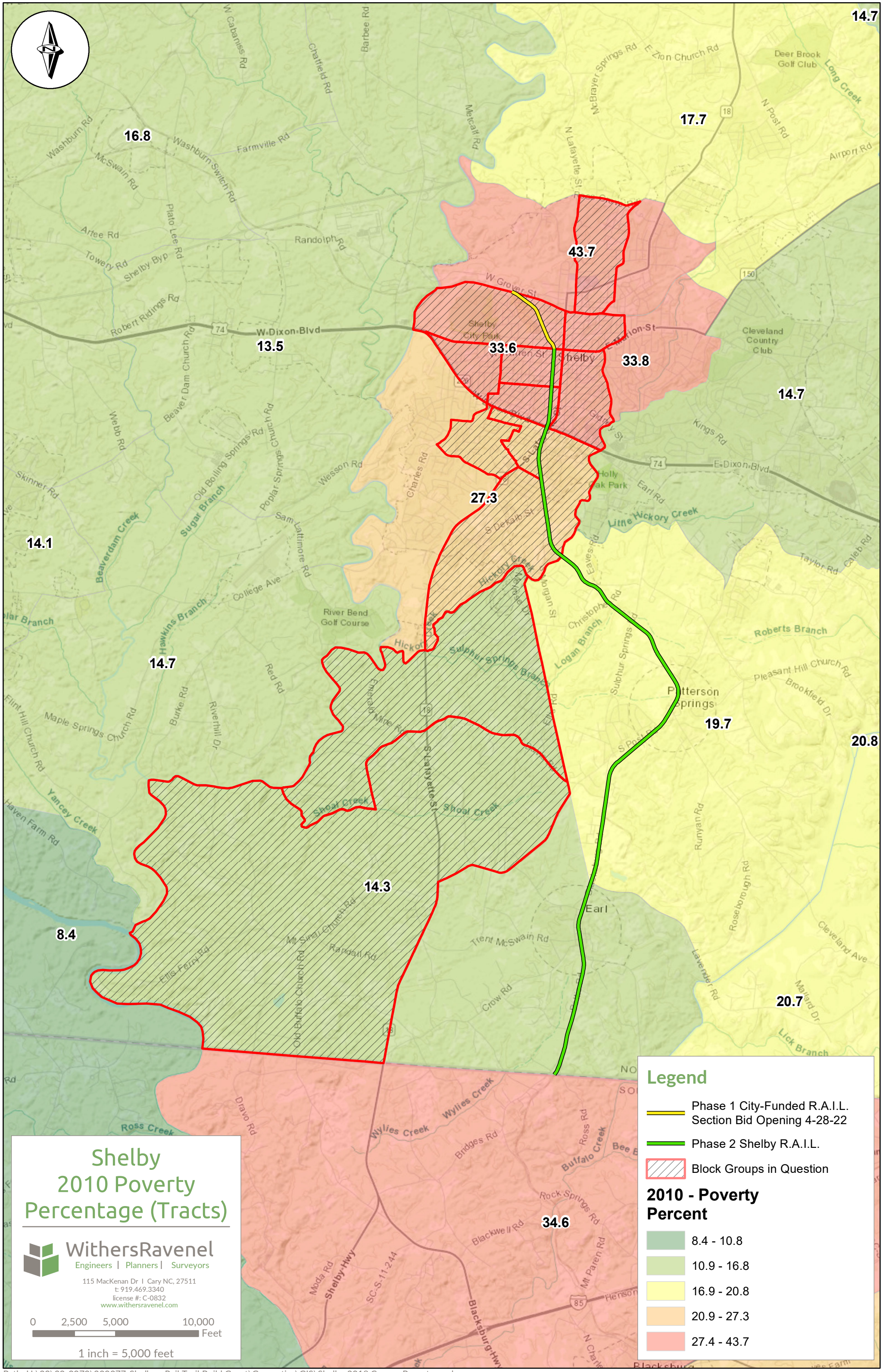
Block Groups - Percentage African American

- 29.42 - 30.62
- 30.63 - 37.40
- 37.41 - 46.44
- 46.45 - 55.06
- 55.07 - 89.20

Shelby 2018 Non-White Percentages (Block Groups)

WithersRavenel
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t: 919.469.3340
license #: C-0832
www.withersravenel.com





Shelby
2010 Poverty
Percentage (Tracts)

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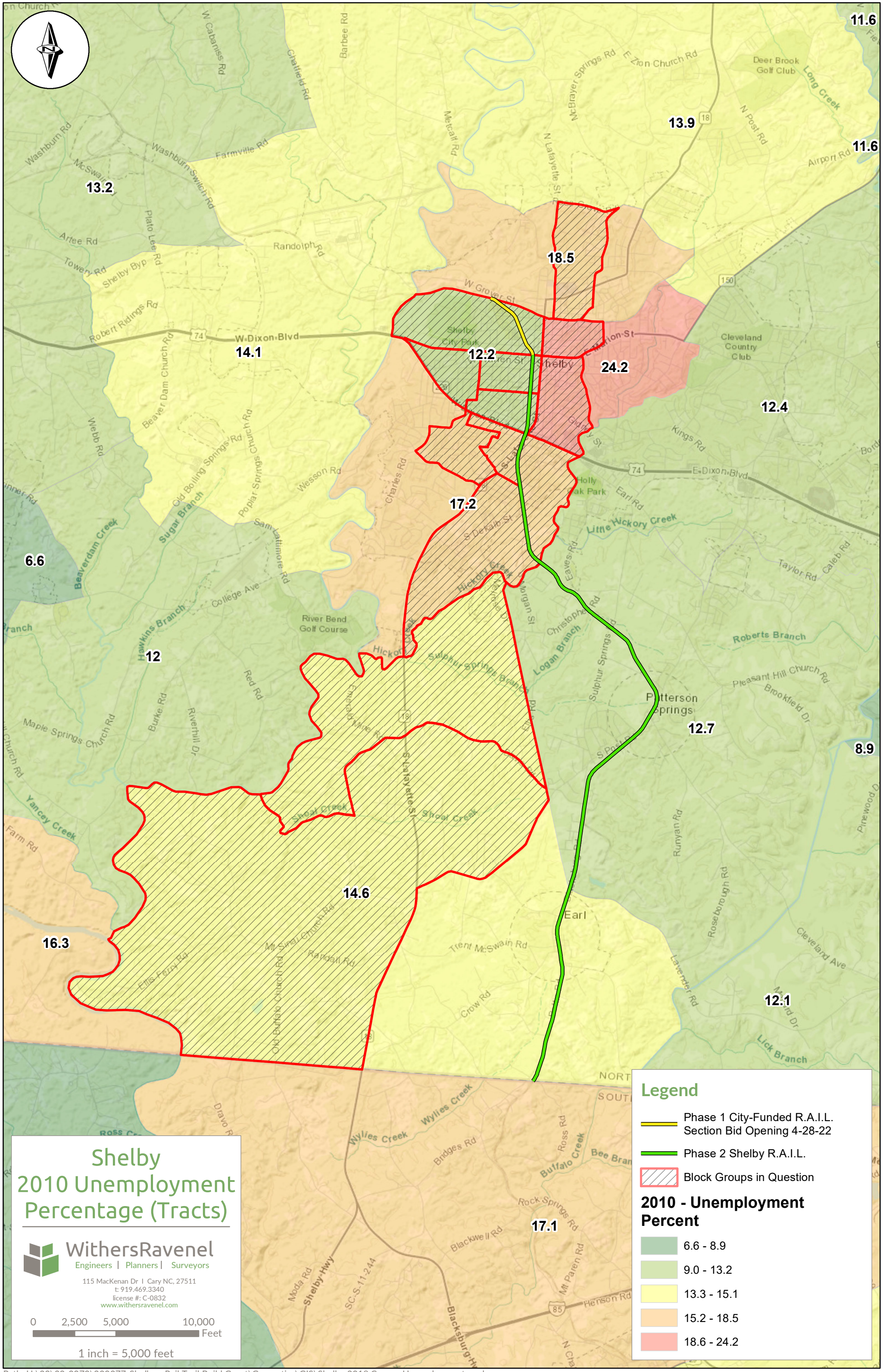
0 2,500 5,000 10,000 Feet
 1 inch = 5,000 feet

Legend

- Phase 1 City-Funded R.A.I.L. Section Bid Opening 4-28-22
- Phase 2 Shelby R.A.I.L.
- Block Groups in Question

2010 - Poverty Percent

- 8.4 - 10.8
- 10.9 - 16.8
- 16.9 - 20.8
- 20.9 - 27.3
- 27.4 - 43.7



Shelby
2010 Unemployment Percentage (Tracts)

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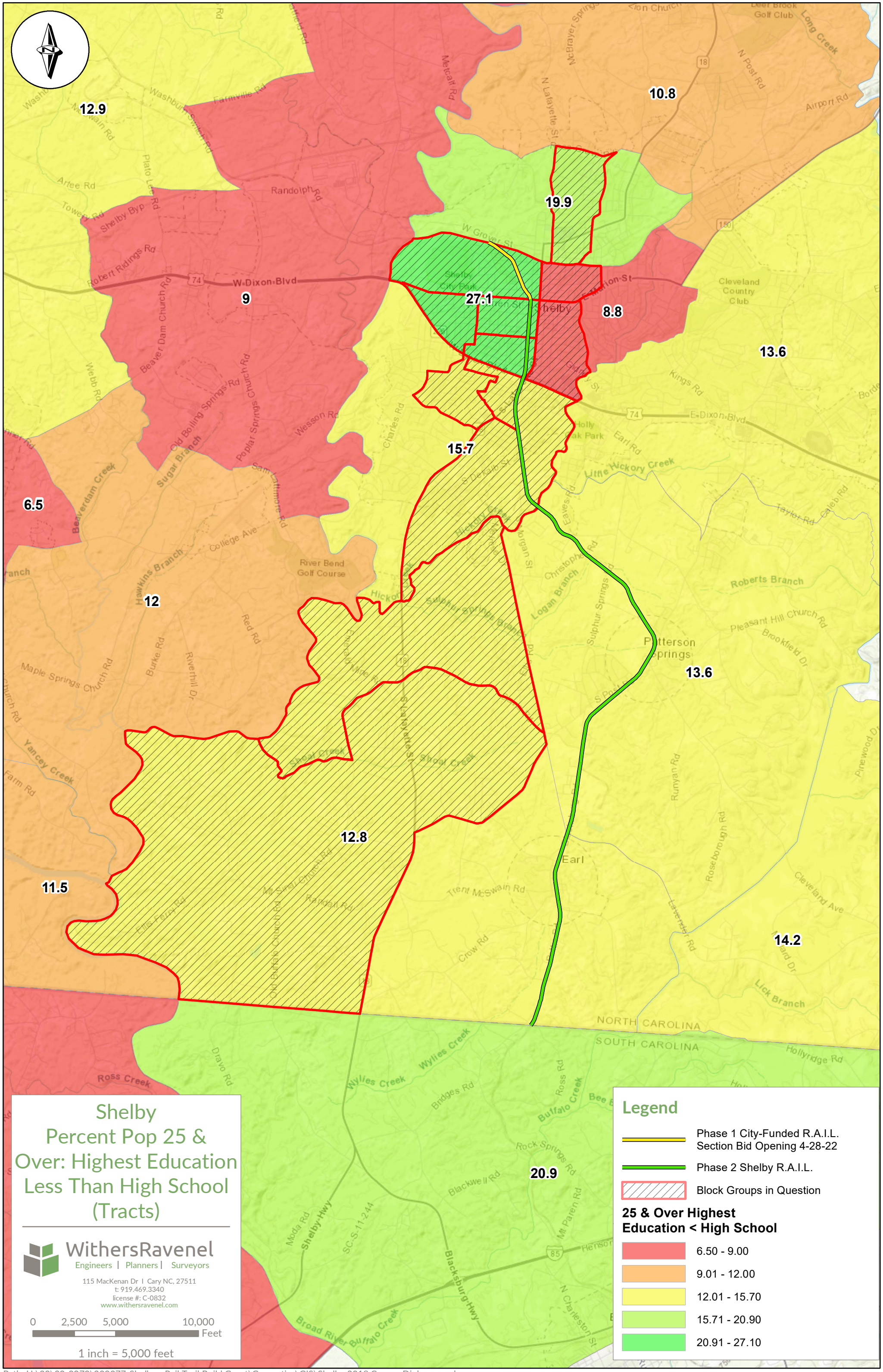
0 2,500 5,000 10,000 Feet
 1 inch = 5,000 feet

Legend

- Phase 1 City-Funded R.A.I.L. Section Bid Opening 4-28-22
- Phase 2 Shelby R.A.I.L.
- Block Groups in Question

2010 - Unemployment Percent

- 6.6 - 8.9
- 9.0 - 13.2
- 13.3 - 15.1
- 15.2 - 18.5
- 18.6 - 24.2



Shelby
Percent Pop 25 & Over: Highest Education Less Than High School (Tracts)

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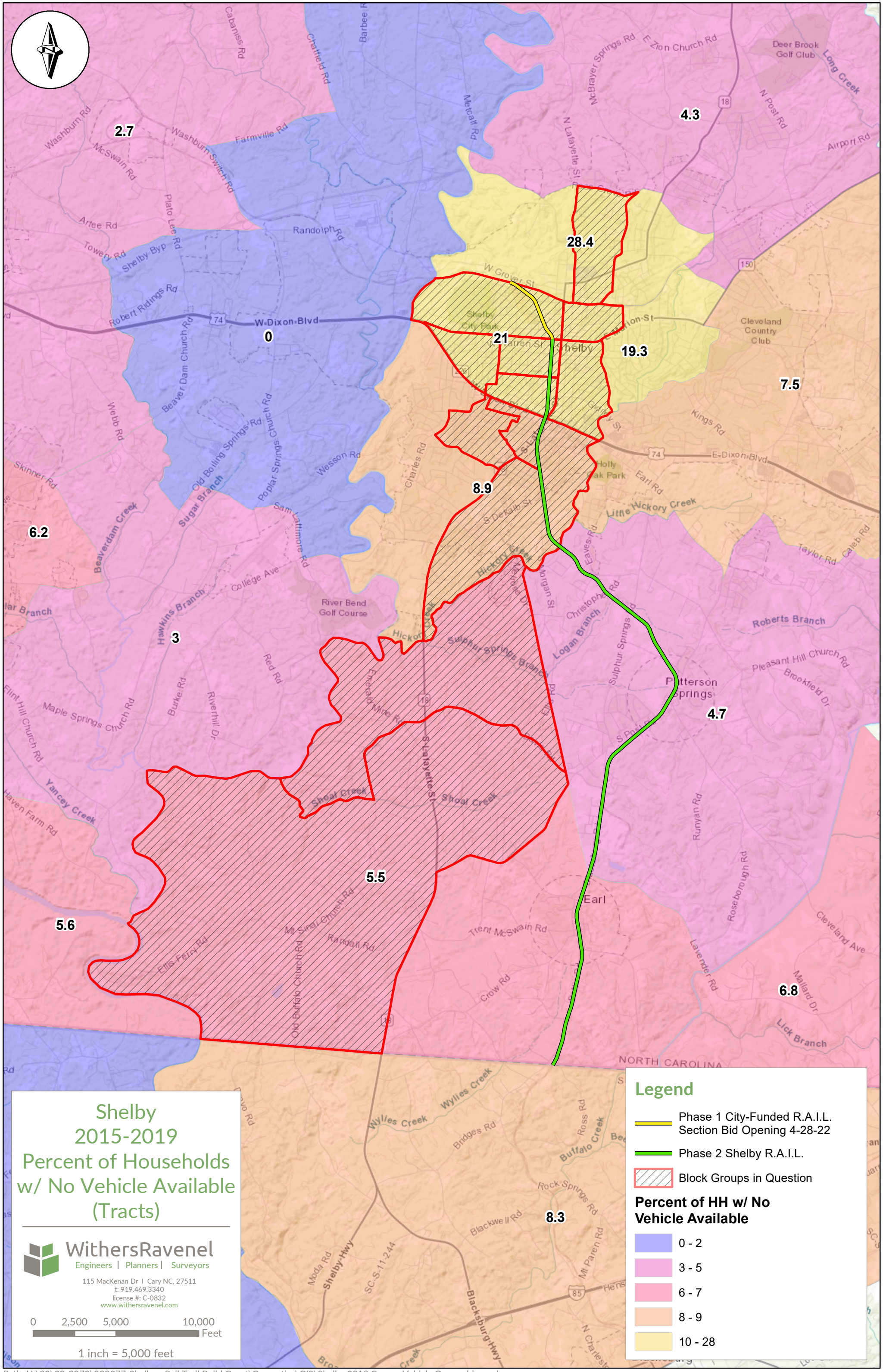
0 2,500 5,000 10,000 Feet
 1 inch = 5,000 feet

Legend

- Phase 1 City-Funded R.A.I.L. Section Bid Opening 4-28-22
- Phase 2 Shelby R.A.I.L.
- Block Groups in Question

25 & Over Highest Education < High School

- 6.50 - 9.00
- 9.01 - 12.00
- 12.01 - 15.70
- 15.71 - 20.90
- 20.91 - 27.10



**Shelby
2015-2019
Percent of Households
w/ No Vehicle Available
(Tracts)**

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0 2,500 5,000 10,000 Feet
1 inch = 5,000 feet

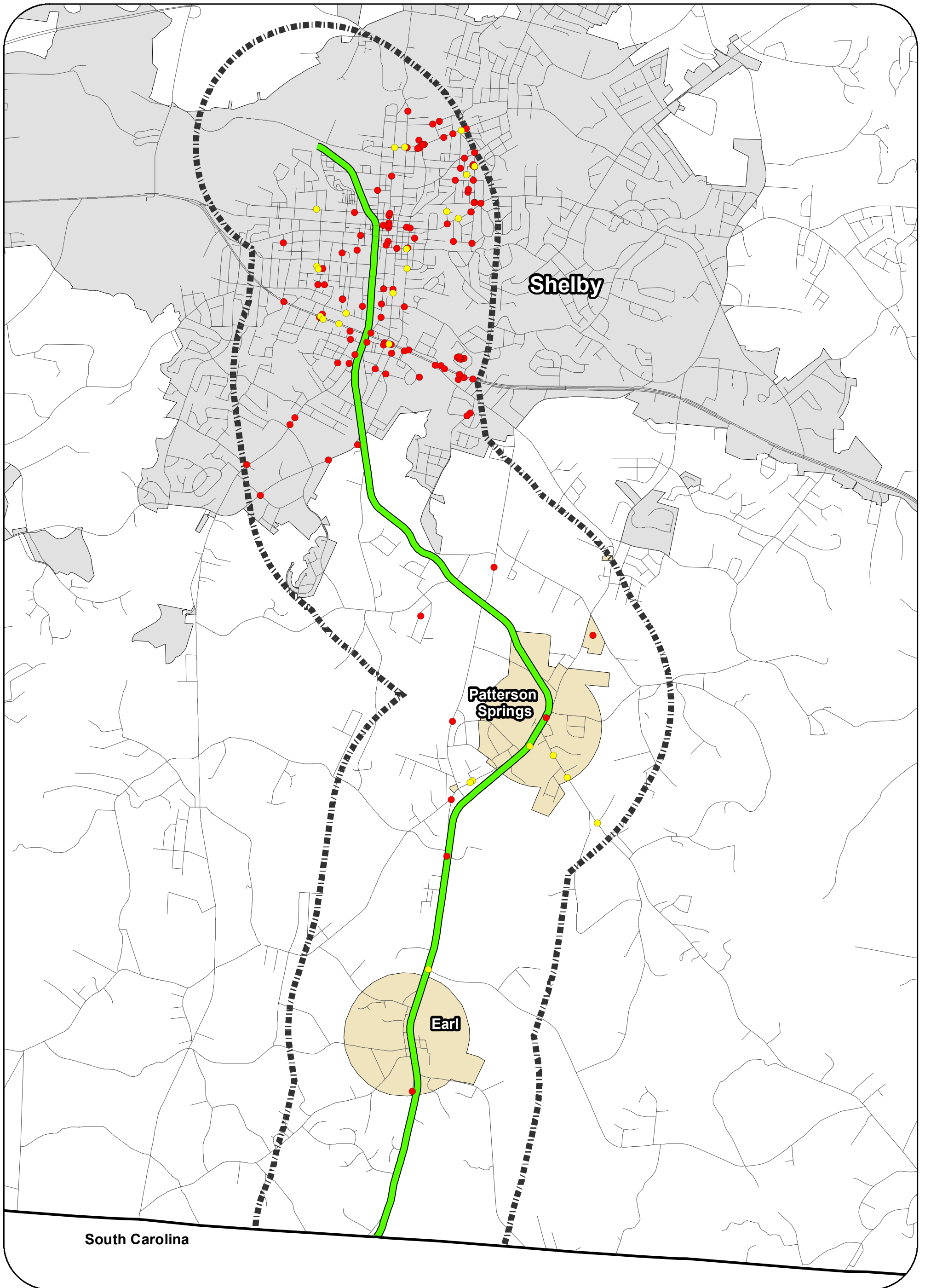
Legend

- Phase 1 City-Funded R.A.I.L. Section Bid Opening 4-28-22
- Phase 2 Shelby R.A.I.L.
- Block Groups in Question

Percent of HH w/ No Vehicle Available

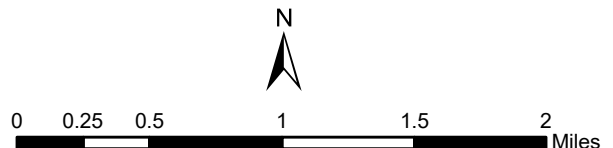
- 0 - 2
- 3 - 5
- 6 - 7
- 8 - 9
- 10 - 28

Pedestrian and Bicycle Crashes, 2007-2019

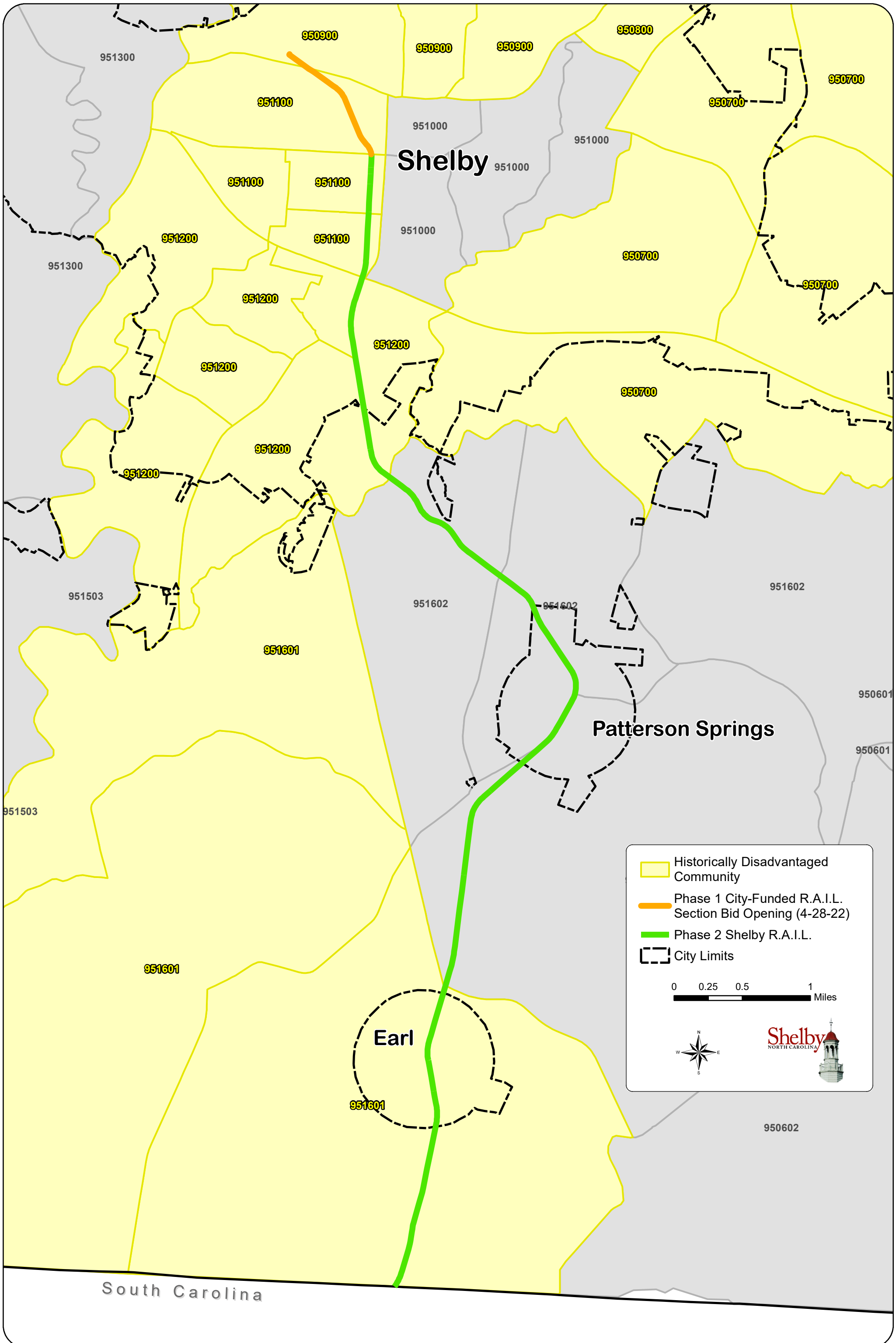


Legend

- Pedestrian Crashes (114 Total)
- Bicycle Crashes (25 Total)
- Rail Trail Corridor
- 1 Mile Buffer from Rail Trail Corridor
- Shelby City Limits
- Municipalities



Historically Disadvantaged Communities



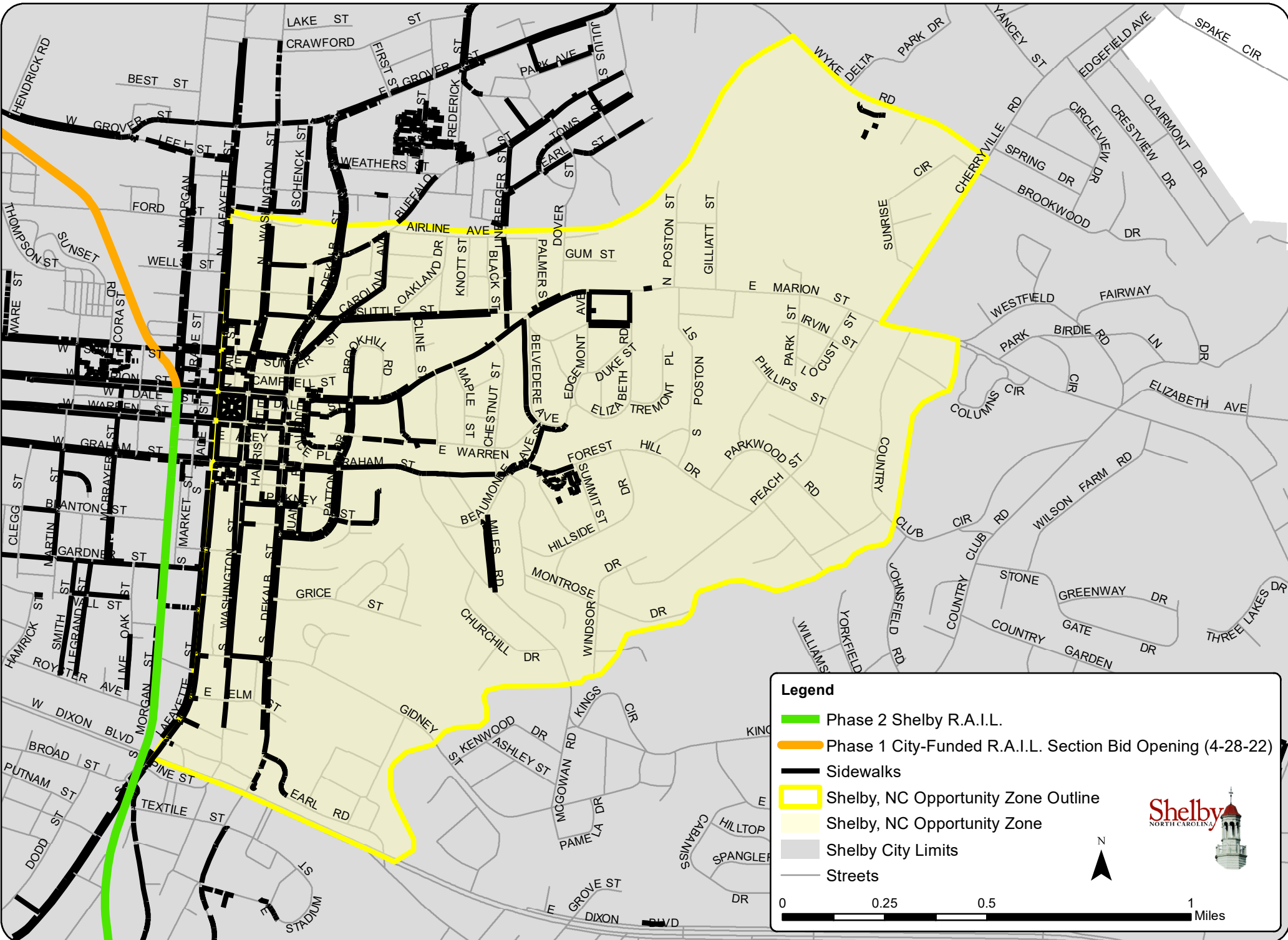
Legend

- Historically Disadvantaged Community
- Phase 1 City-Funded R.A.I.L. Section Bid Opening (4-28-22)
- Phase 2 Shelby R.A.I.L.
- City Limits

0 0.25 0.5 1 Miles

Shelby NORTH CAROLINA


R.A.I.L. Connectivity - Shelby, NC Opportunity Zone



Legend

- Phase 2 Shelby R.A.I.L.
- Phase 1 City-Funded R.A.I.L. Section Bid Opening (4-28-22)
- Sidewalks
- Shelby, NC Opportunity Zone Outline
- Shelby, NC Opportunity Zone
- Shelby City Limits
- Streets

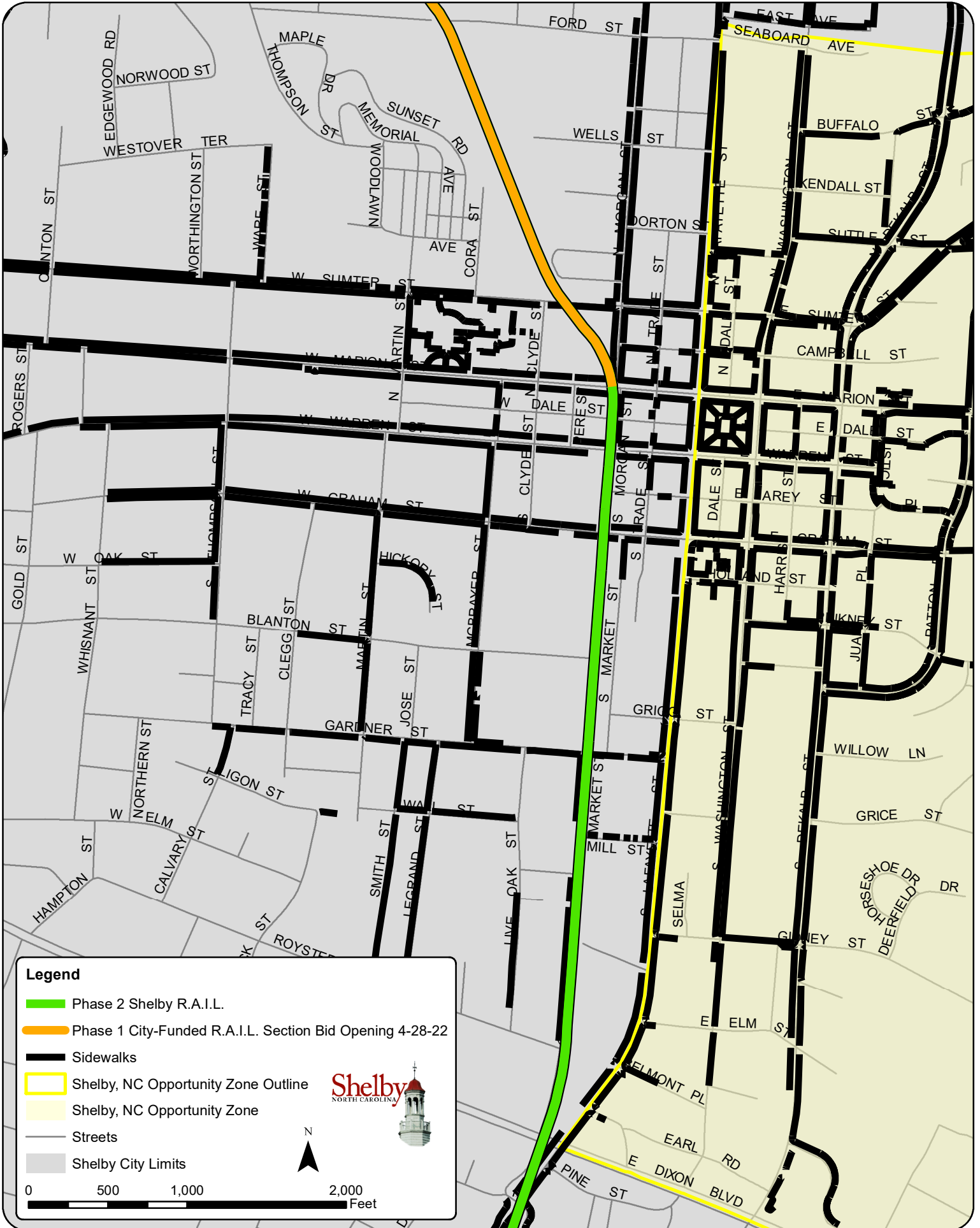
Shelby
NORTH CAROLINA



N


0 0.25 0.5 1 Miles


R.A.I.L. Connectivity - Shelby, NC Opportunity Zone



Legend

- █ Phase 2 Shelby R.A.I.L.
- █ Phase 1 City-Funded R.A.I.L. Section Bid Opening 4-28-22
- Sidewalks
- Shelby, NC Opportunity Zone Outline
- Shelby, NC Opportunity Zone
- Streets
- Shelby City Limits


 Shelby
 NORTH CAROLINA

N

 0 500 1,000 2,000
 Feet

Shelby R.A.I.L. KABCO Classified Crash Data 2007-2019 (1-Mile Radius of Project Area)

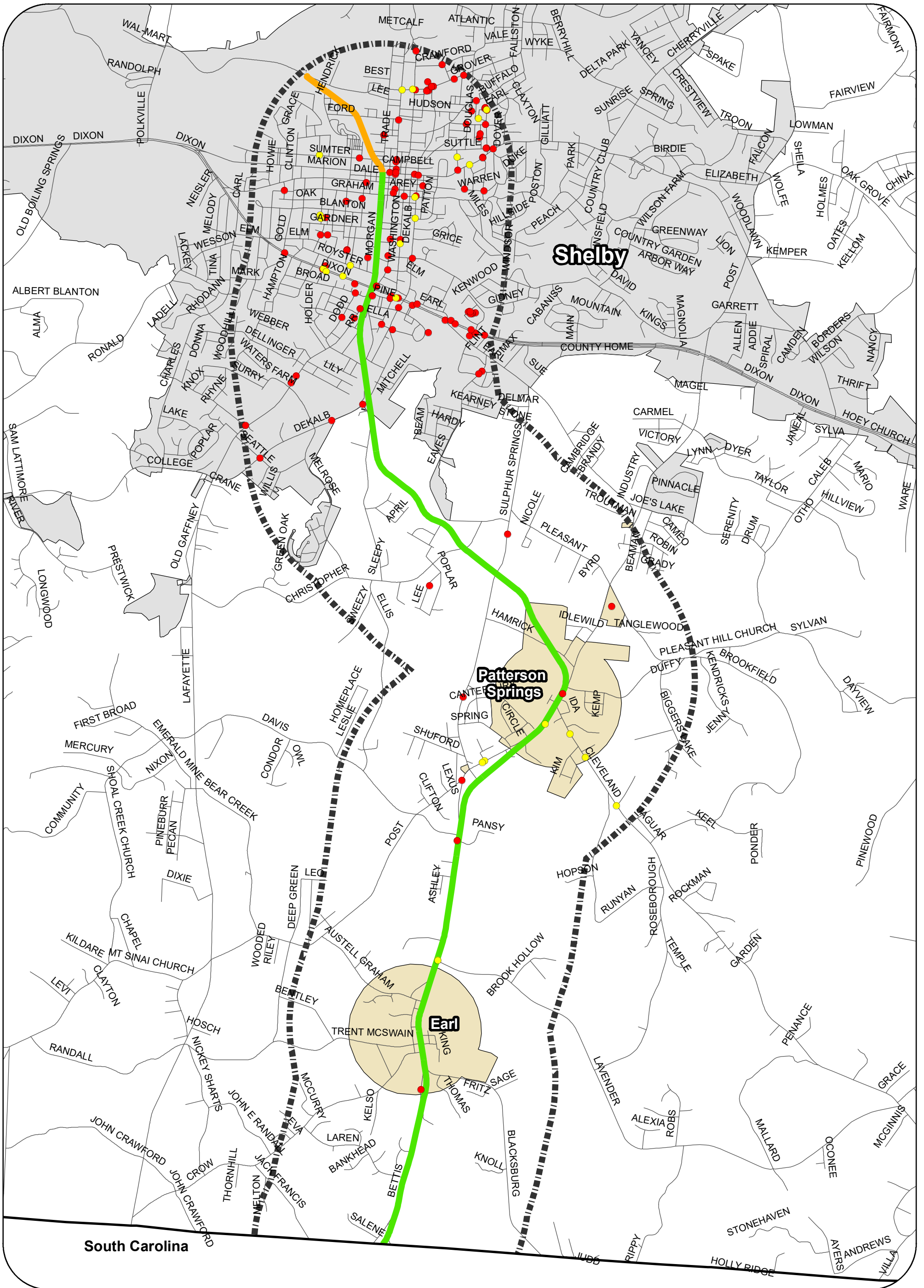
Crash Severity	CrashYear	Latitude	Longitude	Type
K: Killed	2007	35.30271	-81.5325	Pedestrian
C: Possible Injury	2007	35.29355	-81.5452	Pedestrian
C: Possible Injury	2007	35.29324	-81.5402	Pedestrian
C: Possible Injury	2007	35.29397	-81.5283	Pedestrian
C: Possible Injury	2007	35.29347	-81.5401	Pedestrian
C: Possible Injury	2007	35.29623	-81.5288	Pedestrian
O: No Injury	2007	35.28244	-81.5376	Pedestrian
C: Possible Injury	2007	35.27937	-81.5454	Pedestrian
B: Suspected Minor Injury	2007	35.22387	-81.529	Pedestrian
B: Suspected Minor Injury	2008	35.26586	-81.5439	Pedestrian
C: Possible Injury	2008	35.29497	-81.5269	Pedestrian
C: Possible Injury	2008	35.27663	-81.5296	Pedestrian
C: Possible Injury	2008	35.28451	-81.5407	Pedestrian
K: Killed	2008	35.27836	-81.5453	Pedestrian
B: Suspected Minor Injury	2008	35.27795	-81.5396	Pedestrian
B: Suspected Minor Injury	2008	35.28901	-81.5447	Pedestrian
C: Possible Injury	2008	35.29931	-81.5279	Pedestrian
B: Suspected Minor Injury	2008	35.23323	-81.5291	Pedestrian
B: Suspected Minor Injury	2008	35.30032	-81.5294	Pedestrian
B: Suspected Minor Injury	2008	35.29035	-81.5307	Pedestrian
C: Possible Injury	2008	35.24565	-81.5341	Pedestrian
C: Possible Injury	2009	35.27389	-81.5295	Pedestrian
C: Possible Injury	2008	35.3043	-81.5342	Pedestrian
C: Possible Injury	2009	35.29504	-81.5278	Pedestrian
C: Possible Injury	2009	35.30103	-81.528	Pedestrian
B: Suspected Minor Injury	2009	35.27493	-81.5416	Pedestrian
C: Possible Injury	2009	35.25167	-81.5236	Pedestrian
B: Suspected Minor Injury	2009	35.28674	-81.5496	Pedestrian
C: Possible Injury	2009	35.26318	-81.5599	Pedestrian
B: Suspected Minor Injury	2009	35.26396	-81.5481	Pedestrian
C: Possible Injury	2009	35.2908	-81.5442	Pedestrian
C: Possible Injury	2009	35.27556	-81.5329	Pedestrian
C: Possible Injury	2010	35.28866	-81.5469	Pedestrian
C: Possible Injury	2010	35.27556	-81.5471	Pedestrian
B: Suspected Minor Injury	2010	35.29021	-81.528	Pedestrian
C: Possible Injury	2010	35.27792	-81.5394	Pedestrian
C: Possible Injury	2010	35.27436	-81.5401	Pedestrian
B: Suspected Minor Injury	2010	35.27553	-81.5454	Pedestrian
C: Possible Injury	2011	35.24385	-81.509	Pedestrian
O: No Injury	2011	35.29914	-81.53	Pedestrian
C: Possible Injury	2011	35.29017	-81.5402	Pedestrian
C: Possible Injury	2011	35.27648	-81.5287	Pedestrian
C: Possible Injury	2011	35.27637	-81.5292	Pedestrian
B: Suspected Minor Injury	2011	35.30464	-81.5332	Pedestrian
C: Possible Injury	2011	35.28973	-81.5405	Pedestrian
B: Suspected Minor Injury	2011	35.27812	-81.5404	Pedestrian
O: No Injury	2011	35.30231	-81.5361	Pedestrian
C: Possible Injury	2011	35.30183	-81.5353	Pedestrian
C: Possible Injury	2011	35.29768	-81.5307	Pedestrian
A: Suspected Serious Injury	2012	35.27419	-81.5287	Pedestrian
C: Possible Injury	2012	35.30382	-81.5293	Pedestrian
K: Killed	2012	35.30318	-81.5312	Pedestrian
C: Possible Injury	2012	35.28453	-81.5393	Pedestrian
C: Possible Injury	2012	35.2832	-81.5466	Pedestrian

Category		13-Year Pedestrian	12-Year Bicycle
K	Killed	7	3
A	Disabling Injury	3	1
B	Evident	31	5
C	Possible	64	15
O	No Injury	8	1
U	Unknown	1	0
TOTAL		114	25

B: Suspected Minor Injury	2012	35.27687	-81.5393	Pedestrian
B: Suspected Minor Injury	2012	35.28972	-81.5554	Pedestrian
C: Possible Injury	2013	35.2827	-81.5551	Pedestrian
C: Possible Injury	2013	35.29246	-81.5317	Pedestrian
B: Suspected Minor Injury	2013	35.21712	-81.5294	Pedestrian
C: Possible Injury	2013	35.29239	-81.5401	Pedestrian
A: Suspected Serious Injury	2013	35.28267	-81.541	Pedestrian
B: Suspected Minor Injury	2014	35.26887	-81.5531	Pedestrian
B: Suspected Minor Injury	2014	35.27413	-81.5352	Pedestrian
B: Suspected Minor Injury	2014	35.27921	-81.5424	Pedestrian
C: Possible Injury	2014	35.29188	-81.5376	Pedestrian
K: Killed	2014	35.27785	-81.5405	Pedestrian
C: Possible Injury	2014	35.30183	-81.5356	Pedestrian
C: Possible Injury	2014	35.27645	-81.5293	Pedestrian
C: Possible Injury	2014	35.28938	-81.5389	Pedestrian
O: No Injury	2014	35.3014	-81.5361	Pedestrian
C: Possible Injury	2014	35.30135	-81.536	Pedestrian
B: Suspected Minor Injury	2014	35.29622	-81.5419	Pedestrian
A: Suspected Serious Injury	2015	35.18899	-81.5335	Pedestrian
B: Suspected Minor Injury	2015	35.30139	-81.5378	Pedestrian
C: Possible Injury	2015	35.27656	-81.5297	Pedestrian
B: Suspected Minor Injury	2015	35.28312	-81.5466	Pedestrian
K: Killed	2015	35.26806	-81.5538	Pedestrian
B: Suspected Minor Injury	2015	35.29664	-81.5287	Pedestrian
C: Possible Injury	2015	35.29949	-81.5282	Pedestrian
C: Possible Injury	2015	35.29207	-81.5402	Pedestrian
C: Possible Injury	2015	35.28945	-81.5373	Pedestrian
B: Suspected Minor Injury	2015	35.26994	-81.5277	Pedestrian
C: Possible Injury	2015	35.29183	-81.5402	Pedestrian
C: Possible Injury	2015	35.26963	-81.5281	Pedestrian
B: Suspected Minor Injury	2016	35.29203	-81.541	Pedestrian
C: Possible Injury	2016	35.29396	-81.5283	Pedestrian
C: Possible Injury	2016	35.30576	-81.5378	Pedestrian
Unknown Injury	2016	35.28483	-81.5493	Pedestrian
C: Possible Injury	2017	35.30182	-81.5356	Pedestrian
C: Possible Injury	2017	35.27715	-81.5374	Pedestrian
O: No Injury	2017	35.29794	-81.54	Pedestrian
C: Possible Injury	2017	35.27557	-81.5321	Pedestrian
C: Possible Injury	2017	35.29062	-81.5364	Pedestrian
B: Suspected Minor Injury	2017	35.2766	-81.5446	Pedestrian
C: Possible Injury	2017	35.29769	-81.5281	Pedestrian
O: No Injury	2017	35.25955	-81.5578	Pedestrian
B: Suspected Minor Injury	2017	35.27812	-81.543	Pedestrian
C: Possible Injury	2018	35.28481	-81.5503	Pedestrian
C: Possible Injury	2018	35.27732	-81.5368	Pedestrian
O: No Injury	2018	35.28093	-81.5499	Pedestrian
C: Possible Injury	2018	35.28235	-81.5437	Pedestrian
O: No Injury	2018	35.27457	-81.5293	Pedestrian
C: Possible Injury	2018	35.29959	-81.5281	Pedestrian
C: Possible Injury	2018	35.29179	-81.5371	Pedestrian
B: Suspected Minor Injury	2018	35.29206	-81.5402	Pedestrian
B: Suspected Minor Injury	2018	35.30129	-81.5363	Pedestrian
K: Killed	2018	35.23391	-81.5155	Pedestrian
C: Possible Injury	2019	35.27638	-81.5295	Pedestrian
K: Killed	2019	35.274	-81.5274	Pedestrian
C: Possible Injury	2019	35.28108	-81.541	Pedestrian
C: Possible Injury	2019	35.29502	-81.5279	Pedestrian

B: Suspected Minor Injury	2019	35.27516	-81.5315	Pedestrian
C: Possible Injury	2019	35.27662	-81.5295	Pedestrian
C: Possible Injury	2019	35.28131	-81.5495	Pedestrian
C: Possible Injury	2007	35.29393	-81.5318	Bike
K: Killed	2007	35.28102	-81.5498	Bike
C: Possible Injury	2008	35.28145	-81.5461	Bike
K: Killed	2009	35.28074	-81.5494	Bike
A: Suspected Serious Injury	2009	35.22942	-81.5143	Bike
C: Possible Injury	2009	35.29311	-81.5301	Bike
C: Possible Injury	2010	35.28703	-81.5504	Bike
C: Possible Injury	2011	35.30142	-81.5381	Bike
B: Suspected Minor Injury	2012	35.22617	-81.526	Bike
C: Possible Injury	2012	35.22684	-81.5122	Bike
C: Possible Injury	2012	35.30134	-81.5396	Bike
C: Possible Injury	2013	35.28933	-81.5375	Bike
C: Possible Injury	2013	35.28404	-81.5393	Bike
B: Suspected Minor Injury	2014	35.20357	-81.5317	Bike
B: Suspected Minor Injury	2015	35.28665	-81.5503	Bike
B: Suspected Minor Injury	2016	35.27796	-81.5397	Bike
B: Suspected Minor Injury	2016	35.2215	-81.5077	Bike
C: Possible Injury	2014	35.23047	-81.5178	Bike
C: Possible Injury	2015	35.28695	-81.5374	Bike
K: Killed	2015	35.22596	-81.5263	Bike
Unknown Injury	2016	35.30359	-81.53	Bike
C: Possible Injury	2016	35.29834	-81.529	Bike
C: Possible Injury	2017	35.29935	-81.5279	Bike
C: Possible Injury	2018	35.29378	-81.5507	Bike
O: No Injury	2018	35.28023	-81.5471	Bike

Pedestrian and Bicycle Crashes, 2007-2019



Legend

- Phase 2 Shelby R.A.I.L.
- Pedestrian Crashes (111 Total)
- Shelby City Limits
- Phase 1 City-Funded R.A.I.L. Section Bid Opening (4-28-22)
- Bicycle Crashes (24 Total)
- Municipalities
- 1 Mile Buffer of Phase 2 Shelby R.A.I.L.

0 0.25 0.5 1 1.5 2 Miles

N

City of Shelby RAISE Grant

Shelby Regional Access Improvement Line (R.A.I.L.) Phase 2

SF-424 #14 Affected Areas

Located near the southern border of North Carolina, Shelby is an historic community and the seat of Cleveland County. It is located in Congressional District 5. The city was incorporated in 1843 and is now home to close to 20,000 residents. Shelby is about an hour from Charlotte, Spartanburg, Asheville, Hickory, and Greenville. According to the FY2022 RAISE criteria, Shelby is listed as an Urban Cluster which falls under “rural” for the purpose of required 0% cost-sharing in this program. The project area also includes Census Tracts 9511 and 9512 which are areas of persistent poverty and Census Tracts 9511, 9512, and 9516.01 which are historically disadvantaged communities.

This project is a partnership between three historic towns in Cleveland County: Shelby, Patterson Springs and Earl. The proposed R.A.I.L. project will construct a pedestrian and bicycle corridor along an abandoned railway line from Uptown Shelby (Central Business District) through Patterson Springs and Earl to the South Carolina border. This is a rural area that has suffered from economic decline and this project is critical to move economic development efforts forward.

Socioeconomic Data	Project Area			Cleveland County	Nation
	Shelby	Patterson Springs	Earl		
Median Household Income	\$38,559	\$29,605	\$46,250	\$42,247	\$62,843
% Living in Poverty	25.9%	36%	16.9%	21.3%	13.4%
0-Vehicle Households	1,273 (15.9%)	26 (8.2%)	10 (9.3%)	2,840 (8.0%)	10,395,713 (8.6%)
Population	20,007	934	269	97,282	324,697,795
% population BIPOC	40.6%	24.6%	6.3%	25.4%	27.5%
% population white	59.4%	75.4%	93.7%	74.6%	72.5%
Disability	18.8%	13.3%	27.9%	16.1%	12.6%

Source: Census.gov 2019 ACS 5-Year Estimates

The following Census tracts associated with the project area qualify as an [Area of Persistent Poverty, as defined by USDOT, due to poverty rates in the American Community Survey 5-year data: 9511 \(33.6%\), and 9512 \(27.3%\).](#) The following Census Tracts associated with the project are qualify as [historically disadvantaged communities](#) by USDOT: 9511, 9512, and 9516.01.

The project area also experiences a substantial number of residents with [low levels of educational attainment \(up to 27.1% in Census Tract 9511 have obtained no diploma\) much higher than the national average of 10%,](#) which is likely linked to the area’s [higher unemployment rate \(up to in 24.2% in Census Tract 9512\)](#) and lower income levels.

The RAIL project will also further **racial equity** by connecting a significant number of **high minority neighborhoods** to a multi-modal transportation network. The [project area includes block groups with up to 89.2% African American residents,](#) where the national average is 13.4%. Although data tying race to 0-vehicle households is not readily available, [this linked map depicts the percentage of 0-vehicle households in the project area \(21% in Census Tract 9511\),](#) which is significantly above the national average (8.6%), that will have access to the RAIL for non-vehicular travel. **This project clearly provides a pathway to transportation equity for racial minority populations who may not have access to personal vehicles.**