
Thermal Belt Rail Trail
EXTENSION
Feasibility Study
Forest City to Ellenboro
Fall 2025

Acknowledgements

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FOOTHILLS REGIONAL COMMISSION

McAdams

Table of Contents

Images

Tables

Maps

Figures

Executive Summary

Foothills Regional Commission led this feasibility study to explore extending the Thermal Belt Rail Trail (TBRT) eastward from Forest City to Ellenboro. The extension aims to expand safe walking and biking opportunities, strengthen community connections, and enhance quality of life. The project also complements the Town of Ellenboro's planned Colfax Cotton Gin Park — a future venue for events and tourism — and aligns with goals outlined in *Rutherford Bound*, the County's Tourism Development Plan.

Planning Process

The study was guided by a Steering Committee composed of representatives from local governments, regional agencies, and community organizations. Over the course of a year, the project team conducted field evaluations, reviewed relevant policies, and developed route alternatives for consideration. Community engagement was a central focus, with multiple ways to participate, including a property owner workshop, stakeholder interviews, a public survey, and Steering Committee meetings. This input ensured that the study's recommendations reflect both technical feasibility and local priorities.

Community Engagement

Feedback highlighted a strong interest in providing safe, accessible connections between Forest City, Ellenboro, and key destinations such as schools and parks. Residents emphasized the importance of trail safety, visibility, and maintenance, while stakeholders noted opportunities to support tourism, economic development, and community health. Property owner feedback revealed concerns about privacy, safety, and voluntary participation, underscoring the importance of careful alignment selection and ongoing collaboration in future phases. As a result of the property owner meeting, the consultant team re-directed the focus away from the former rail bed and instead focused on public rights-of-way.

Image 1. Colfax Cotton Gin Park Conceptual Rendering

Recommendations

- **Alternative A (Preferred):** Sidepath along Business 74
  - Direct, visible, and cost-effective
  - Lower elevation change
  - Consistent with NCDOT "Complete Streets" policy
- **Alternative B:** Longer, costlier, but avoids certain railroad conflicts and uses secondary roadways
- **Spur Trail:** Recommended connection to East Rutherford High School.

Key Actions

Following the identification of a preferred alignment, the project team coordinated with NCDOT on two key steps. First, the Alternative Delivery Unit requested input on the preferred treatment for a planned Business 74 bridge replacement. Second, on September 9, 2025, the Foothills RPO voted to include the Ellenboro TBRT extension in its SPOT 8.0 submittal—an important step toward possible inclusion in the State Transportation Improvement Program.

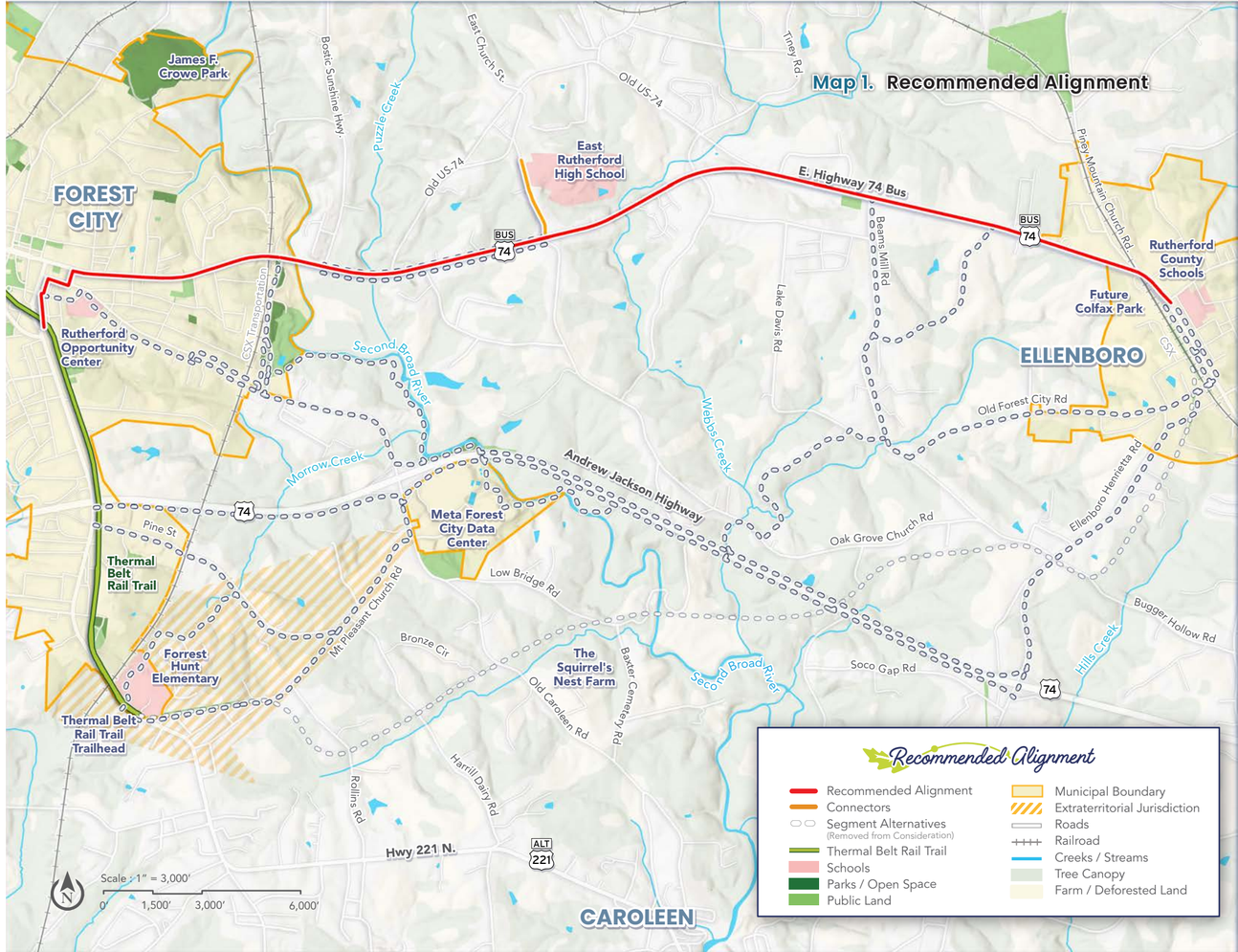
Next Steps

Implementing the TBRT extension to Ellenboro will require continued coordinated efforts among local governments, NCDOT, CSX, property owners, and regional partners.

Key next steps include:

- Inclusion on the State Transportation Improvement Program (STIP) as a complete streets project.
- Coordinate with CSX on rail crossings.
- Work with local governments to implement shared streets in town.
- Continue regional partnerships to guide design and construction.

With strong community support and clear implementation strategies, the proposed extension has the potential to strengthen regional mobility, improve health outcomes, and further the goals of quality of life for residents of Forest City and the Town of Ellenboro.




1
Introduction

Project Overview

The purpose of the Thermal Belt Rail Trail Extension Feasibility Study is to evaluate technical feasibility from a design, permitting, and constructability perspective. The study includes stakeholder and public engagement; existing conditions analysis; alternative routing scenarios; preferred route development; and the development of a final study document with implementation action steps and funding resources.

This study is being conducted to determine the feasibility of extending the Thermal Belt Rail Trail, an existing 13.5-mile-long paved greenway trail, from Forest City to the Town of Ellenboro in eastern Rutherford County. The study includes the approximately 6.5 miles of land between the two communities. A multi-use trail would continue the momentum of the Colfax Cotton Gin Park project to bring benefits of recreation safe pedestrian access between communities and schools, and support for the development of tourism and hospitality interests in the area.

PROCESS + SCHEDULE

What is a Feasibility Study?

Feasibility studies bridge the gap between conceptual planning, prioritization, and programming of projects. They build upon higher-level planning efforts and take a comprehensive look to identify opportunities and constraints, possible alignment alternatives, and implementation recommendations. The purpose of this type of study is to evaluate technical feasibility from a design, permitting, and constructability perspective. Input from Foothills Regional Commission (FRC) staff and other stakeholders helped guide the identification of a preferred route alternative. The study includes recommendations to inform further decision making, identify funding needs, and identify next steps for project implementation.

Feasibility Study Timeline

The Thermal Belt Rail Trail Extension Feasibility Study employs a comprehensive approach that considers the built, natural, social, and economic environments in four distinct phases: Study Conditions, Route Analysis, Study Recommendations, and Implementation + Final Study.

Throughout the process, the project team has actively engaged stakeholders through regular meetings with various groups including FRC, Rutherford County Tourism Development Authority (TDA), North Carolina Department of Transportation (NCDOT), NC State Parks, and other regional and county government staff. This collaborative approach integrates diverse community perspectives and ensures recommendations reflect the needs and priorities of the community.

STUDY GOALS

Initially, the project goal was to determine the feasibility of converting the abandoned Seaboard Coast rail line from Forest City to Ellenboro. The railbed still exists, but has reverted back to private ownership. Property owner outreach has shown a lack of support for a greenway through private property along the corridor. Therefore, the goal of the study has adapted to determine a feasible route along public rights-of-way.

Figure 1. Project Process + Schedule

BACKGROUND + SITE HISTORY

The Foothills Regional Commision, in partnership with Rutherford County, is leading this study to extend the Thermal Belt Rail Trail, beginning in Forest City and ending at the proposed Colfax Cotton Gin Park on Main Street in Ellenboro.

The Town of Ellenboro has taken action in preserving the textile history of Rutherford County by acquiring the Colfax Cotton Gin property with plans to reimagine the space as a public park and gathering space. Once a cornerstone of Ellenboro's agricultural and industrial heritage, the site of the Colfax Cotton Gin is being transformed into a vibrant community space. For generations, cotton ginning and textile production shaped the town's identity—supporting families, driving the local economy, and leaving a lasting legacy. Today, that legacy is being honored and reimagined as a welcoming park where residents and visitors can gather, relax, and enjoy the charm of small-town life.

At the heart of the proposed park is a farmers market pavilion, envisioned as a lively hub for local growers, artisans, and neighbors to connect. Plans also include an event stage for live performances and community celebrations, a picnic shelter, and a playground—creating a family-friendly environment for all ages.

Previous Planning Efforts

The Thermal Belt Rail Trail Extension Feasibility Study builds on previous local, regional, and statewide plans for paved trails and other transportation facilities. The following table summarizes relevant reccomendations from previous plans and studies that inform the study's approach and help the project team better understand community needs, identify local design principles and best practices, consider environmental factors, and develop effective funding and implementation stategies.

Table 1. Previous Plan Summary

Plan	Year	Description
FHWA Guidance on Bicycle and Pedestrian Accommodation	2011	*Under the US Department of Transportation (DOT) Policy Statement on Bicycle and Pedestrian Accommodation, "The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems…transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes." There are no Federal laws or regulations that prohibit shared use paths or bicycle use along or near Interstate highways or other freeways. Bicycle and pedestrian accommodations may be allowed on Interstate and other major highways and freeways. Bridges are essential in any transportation network, and many Interstate or other freeway bridges often are the only possible bridges across rivers, canyons, railroads, other highways, or other major barriers. Major highway bridges often are necessary links for nonmotorized transportation networks. Under 23 U.S.C. 217(g), transportation plans must consider bicycle and pedestrian accommodations.* *23 U.S.C. 217(g) Planning and Design:* *1. In General. --Bicyclists and pedestrians shall be given due consideration in the comprehensive transportation plans developed by each metropolitan planning organization and State in accordance with sections 134 and 135, respectively. Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities, except where bicycle and pedestrian use are not permitted.* *2. Safety considerations. --Transportation plans and projects shall provide due consideration for safety and contiguous routes for bicyclists and pedestrians. Safety considerations shall include the installation, where appropriate, and maintenance of audible traffic signals and audible signs at street crossings.*
WalkBike NC North Carolina Statewide Pedestrian and Bicycle Plan	2013	*WalkBikeNC is North Carolina's first statewide master plan to define a vision, goals and strategies for improving walking and bicycling for residents and visitors. North Carolina is ideally positioned to increase its walking and bicycling activity. This Plan identifies current conditions for walking and bicycling in North Carolina and serves as a guide for state agencies, local governments, and private sector interests to develop a transportation system that safely and efficiently accommodates walking and bicycling. The goals in the Plan included: (1) expanding walking and bicycling network by increasing investment, streamlining project planning and delivery, coordinating land use and transportation planning, and implementing a Complete Streets policy and (2) Improving safety for bicyclists and pedestrians by improving facilities, education, policies, and enforcement.*
Isothermal Regional Bicycle Plan	2018	*This plan covered McDowell, Rutherford, Polk, and Cleveland counties, representing a 30-year vision with stages of recommendations for how to implement and enhance the Isothermal Region's existing bicycle infrastructure in order to achieve improved mobility, safety, economy, and quality of life. This plan identified a strategic priority greenway originating in Ellenboro and connecting to the Broad River Greenway.*
Rutherford County Comprehensive Transportation Plan	2018	*The CTP for Rutherford County plans on a 30 year horizon. One of the goals in the CTP was to provide a transportation system that supports economic development opportunities by improving aesthetics along US 74 and the gateway entrance routes that connect off US 74 including Ellenboro Henrietta Rd. The CTP also identifies a recommended bicycle route that enters Ellenboro town limits.*
Rutherford Bound Tourism Master Plan	2018	*This plan developed a cooperative vision for enhancing and developing tourism infrastructure projects throughout the county. The plan's recommendations identified three regions: (1) Mountain Region; (2) Main streets Region; (3) Countywide Region. Ellenboro, as part of the Main Streets Region, offers a unique experience to Rutherford County visitors from its Train Depot Museum to the annual Ellenboro Fiddler's Convention. The Plan identified four pillars of financial support: Rutherford County Tourism Development Authority; Local Government; Federal, State, and Foundation Grants; and Individuals and Corporate Donors. The Recommendations also included hiring a staff trail planner for landowner outreach, grant writing, and construction project management.*

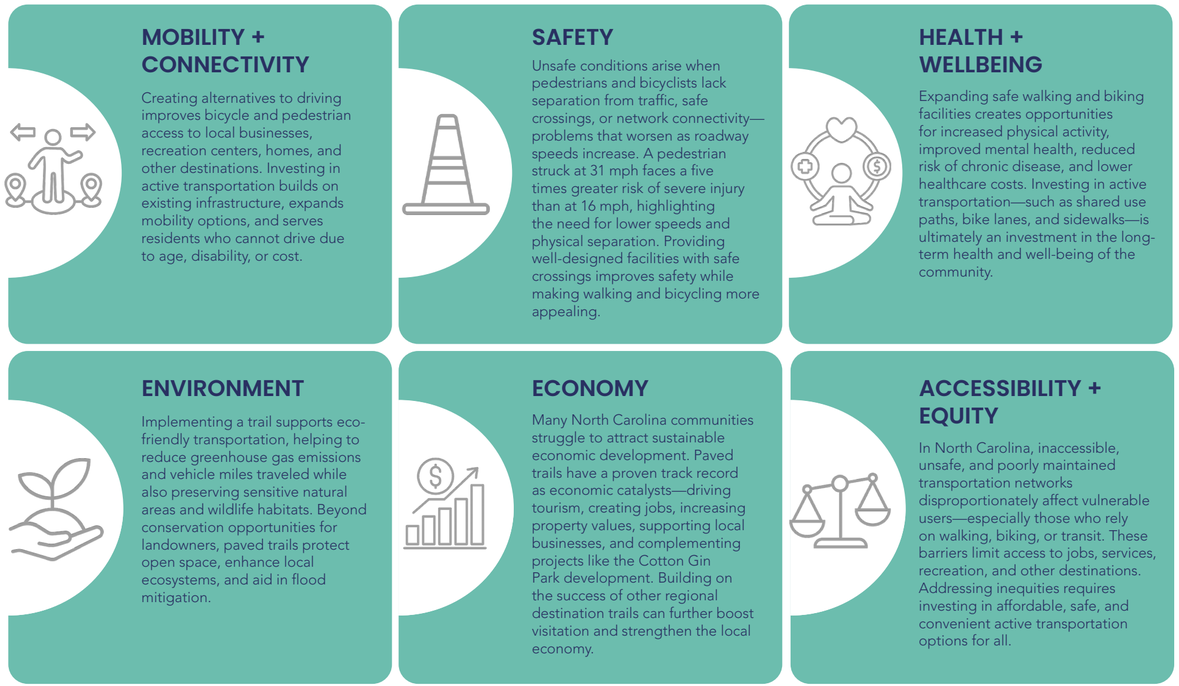
Table 1. Previous Plan Summary, Cont'd

Plan	Year	Description
NCDOT Complete Streets Policy and Guidance	*2019*	*The NCDOT Complete Streets Policy Update was adopted by the Board of Transportation in August 2019. This policy requires NCDOT to consider and incorporate multimodal facilities in the design and improvement of all transportation projects in North Carolina. The adopted Comprehensive Transportation Plan (CTP) is considered the controlling plan for the identification of nonmotorized facilities to be evaluated as part of a roadway project. The CTP may include and/or reference locally adopted plans for public transportation, bicycle and pedestrian facilities, and greenways. Bicycle, pedestrian, and public transportation facilities that appear in the CTP directly or by reference will be included as part of the proposed roadway project, and NCDOT is responsible for the full cost of the project. Bicycle, pedestrian, and transit facilities incidental to a roadway project where a need has been identified through the project scoping process but not identified in an adopted plan may be included in the project. Inclusion of these incidental facilities requires the local jurisdiction to share the incremental cost of constructing the improvements based on population thresholds. The policy also establishes maintenance responsibility for active transportation facilities. Bicycle, pedestrian, and transit improvements inside a municipal boundary are subject to local maintenance. Projects that have not completed environmental review prior to August 2019 are subject to the Complete Streets Policy.*
Rutherford County Parks and Recreation Master Plan	*2020*	*This plan outlines recreational infrastructure development and introduces strategic partnerships that will support a new vision in the County. One of the Focus Areas for this plan was (4) Greenways + Trails and (7) Regional Trail Systems. While the plan does not provide recommendations for Ellenboro, the recommended strategic partnerships can inform the approach Ellenboro takes with the Rail Trail.*
NCDOT Roadway Design Manual	*2021*	*The latest edition of the NCDOT Roadway Design Manual (RDM) was adopted in 2021 and recently updated in April 2022. This document outlines engineering design requirements for design of roadway facilities within the NCDOT right-of-way (ROW) and relies heavily on established engineering standards, such as the American Association of State Highway and Transportation Officials (AASHTO) Green Book, guidance documents from the Federal Highway Administration (FHWA), and other engineering design references. Section 4.14, Pedestrian Facilities, provides a detailed overview of the design requirements for sidewalks and multi-use paths built along NCDOT roadways. Guidance includes topics such as minimum width, minimum vertical clearance, minimum railing height, roadway crossings, grade separation, and Curb ramps. Together, these factors will influence future design and construction of any portion of the greenway within NCDOT ROW. Additionally, NCDOT has a clear zone requirement for its roadways. The clear zone is defined as "The unobstructed traversable area provided beyond the edge of the traveled way is termed the clear zone. This area is used for the recovery of errant vehicles and includes shoulders, bike lanes, and auxiliary lanes." The width of the clear zone requirement varies based on the traffic volume, design speed, and cross slope of shoulder for the roadway in question. This clear zone can have implications for multi-use path development as it may increase the amount of needed ROW.*
NCDOT Great Trails State Plan	*2022*	*The North Carolina Department of Transportation's (NCDOT) Great Trails State Plan, completed in 2022, helped to identify priorities of existing trail users. Among the top destinations for current users were local and regional parks (#1), small towns and rural communities (#3), and river, lake, and beach access points (#4). In Rutherford County, the Thermal Belt Rail Trail stands as the existing greenway that Great Trails State Plan proposed segments connect to. Section 13J Forest City to Cleveland County identifies an alternate route that goes through Ellenboro. This segment would connect the Thermal Belt Rail Trail to the planned Carolina Thread Trail Segment that extends to the Broad River Greenway. The plan also emphasizes key design features including the need for wayfinding and branding, roadway crossings with traffic calming features or median refuges, and the need to coordinate with developers.*
McDowell-Polk-Rutherford (Foothills) Regional CTP	*2023*	*The Foothills CTP identified 156 projects within McDowell-Polk-Rutherford counties. Among the projects that affect Ellenboro are:* **R14**: *Modernization project from Ellenboro Henrietta Rd to Melton St (1.05 miles)* **R020:** *Cliffside-Ellenboro Trail from Second Broad River Greenway to Henrietta St / Main St, multi-use path / rail trail following the old ROW railway from Cliffside to Ellenboro.* **R044**: *Add bike lanes from Old US 74 Hwy to Rutherford / Cleveland Line (7.01 miles)* **R045**: *Add bike lanes on Henrietta St from US 74 Business to Ellenboro Henrietta Rd. (0.41 miles)* **R066**: *Add bike lanes on Piney Mtn Church Rd from Old Hollis Rd to US 74 Business (0.93 miles)* **R064**: *Add bike lanes from NC 120 to US 74 Business (3.08 miles)* **R089**: *Add bike lanes on Hollis Rd from Short Rd to US 74 Business (1.34 miles)*
Rutherford County Farmland Plan	*2023*	*The Rutherford County Farmland Plan discusses the agricultural industry in Rutherford County, existing conditions and support structures for the industry, and recommended actions. The plan outlines several Farmland Protection Programs including a Present-Use Value Tax Program and Voluntary Agricultural District. Maps of these programs produced at the time of the plan creation identify several parcels within the study area enrolled in both. Parcels enrolled in the PUV in the Forest City / Ellenboro area are predominantly agricultural, with a few parcels of forestry and none that are horticultural or wildlife conservation in nature. Additionally, there are a handful of parcels enrolled in a Voluntary Agricultural District in proximity to the study area, largely centered around Ellenboro.*

Project Benefits

The Thermal Belt Rail Trail Extension Feasibility Study and its implementation will offer a range of benefits to its users, including improved mobility and connectivity, increased safety, enhanced health and well being, productive environmental and economic impacts, and equitably improving walking and rolling access to community destinations.

Figure 2. Trail Benefits

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Study Considerations
+ Alternatives Development

Study Considerations + Alternatives Development

This study considers both natural and human environmental constraints alongside planning-level factors. The recommended route alignments are informed by a thorough analysis of existing conditions, including local plans and policies, environmental and human context, demographics, and extensive community input, supplemented by site visits to build a comprehensive understanding of the corridor. The following sections are included within this chapter:

- *Planning Considerations*
- *Environmental Considerations*
- *Infrastructure Considerations*

Planning Considerations

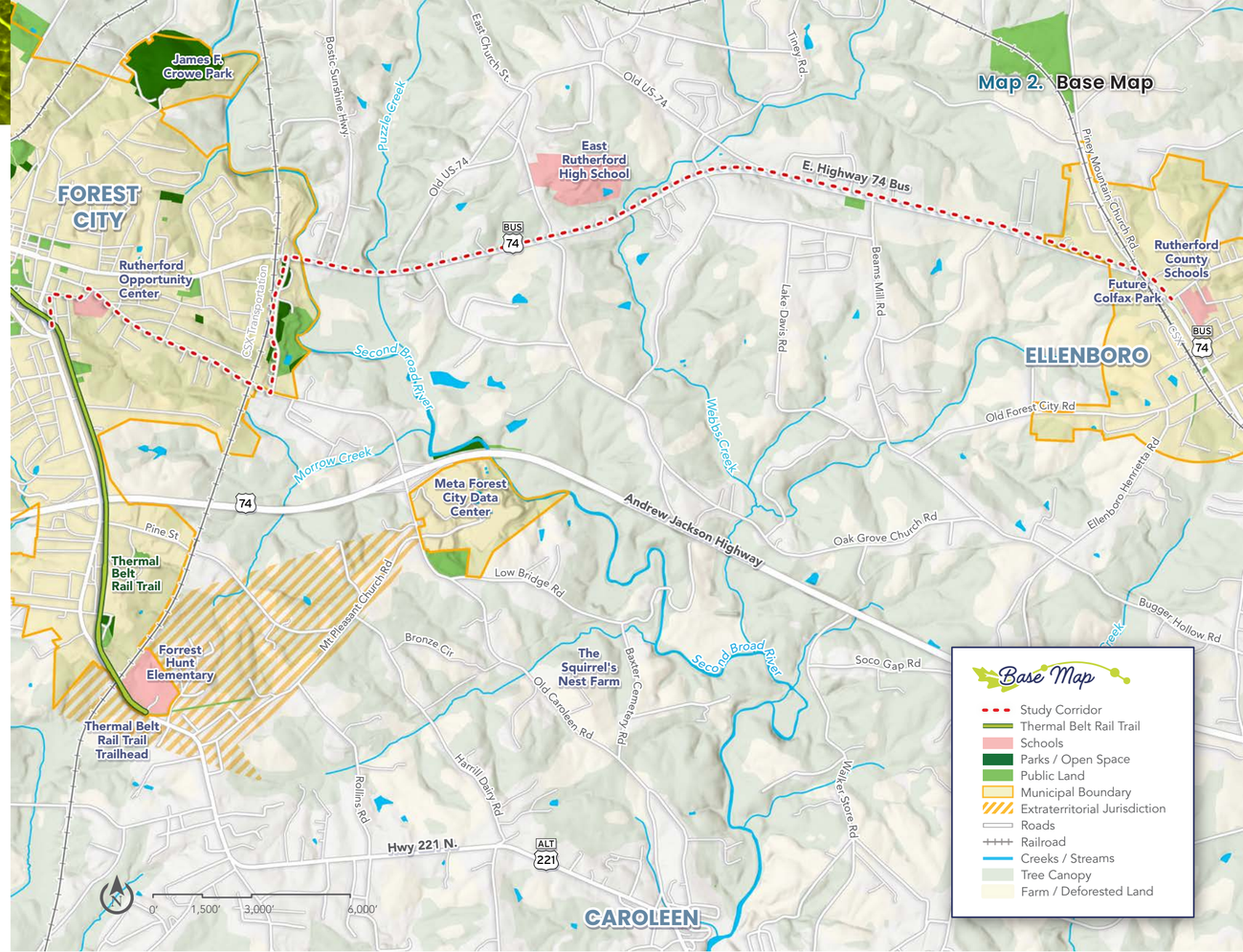
Planning-level considerations provide insight into the social and economic context of the study area and can influence proposed trail alignments. Findings from this analysis informed the public engagement strategy and helped ensure that the recommendations later in the study reflect the diverse needs of corridor residents.

The following planning level considerations were reviewed as part of this study, a brief synopsis is provided on the following pages:

- *Demographics*
- *Existing Land Use*
- *Employment Density*
- *National Register of Historic Places*
- *Farmland Preservation*

Figure 3. Planning Project Considerations

Map 2. Base Map



DEMOGRAPHICS

Analyzing demographic trends is essential for planning the study area's active transportation network. This analysis shaped the public engagement approach and ensured that recommendations reflect the diverse needs of local residents. Demographic data was drawn from the U.S. Census Bureau's 2022 American Community Survey (ACS) 5-year estimates (2018–2022) and accessed through the NCDOT Demographic Snapshot Tool. The Thermal Belt Rail Trail Extension Feasibility Study area includes 18 Census tract block groups with an estimated total population of 20,917.

Demographics analyzed in this section include:

- *Race + Ethnicity*
- *Income*
- *Poverty*
- *Vehicle Availability*
- *Commute*
- *Age*
- *Limited English Proficiency*

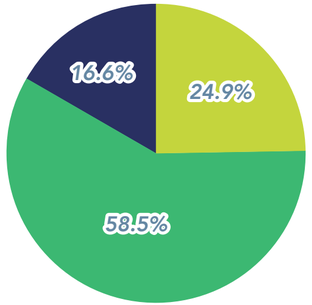
Table 2. Study Area Census Tracts

	Block Group	Population (2022)
CT 9607	1	722
	2	867
	3	1,150
CT 9608	1	847
	2	1,313
	3	589
	4	846
	5	1,069
CT 9609	1	1,523
	2	1,261
	3	1,391
CT 9610.01	1	1,630
	2	1,104
	3	900
CT 9610.02	2	885
	3	1,891
CT 9611.04	1	1,624
	2	1,305
Total Population		**20,917**

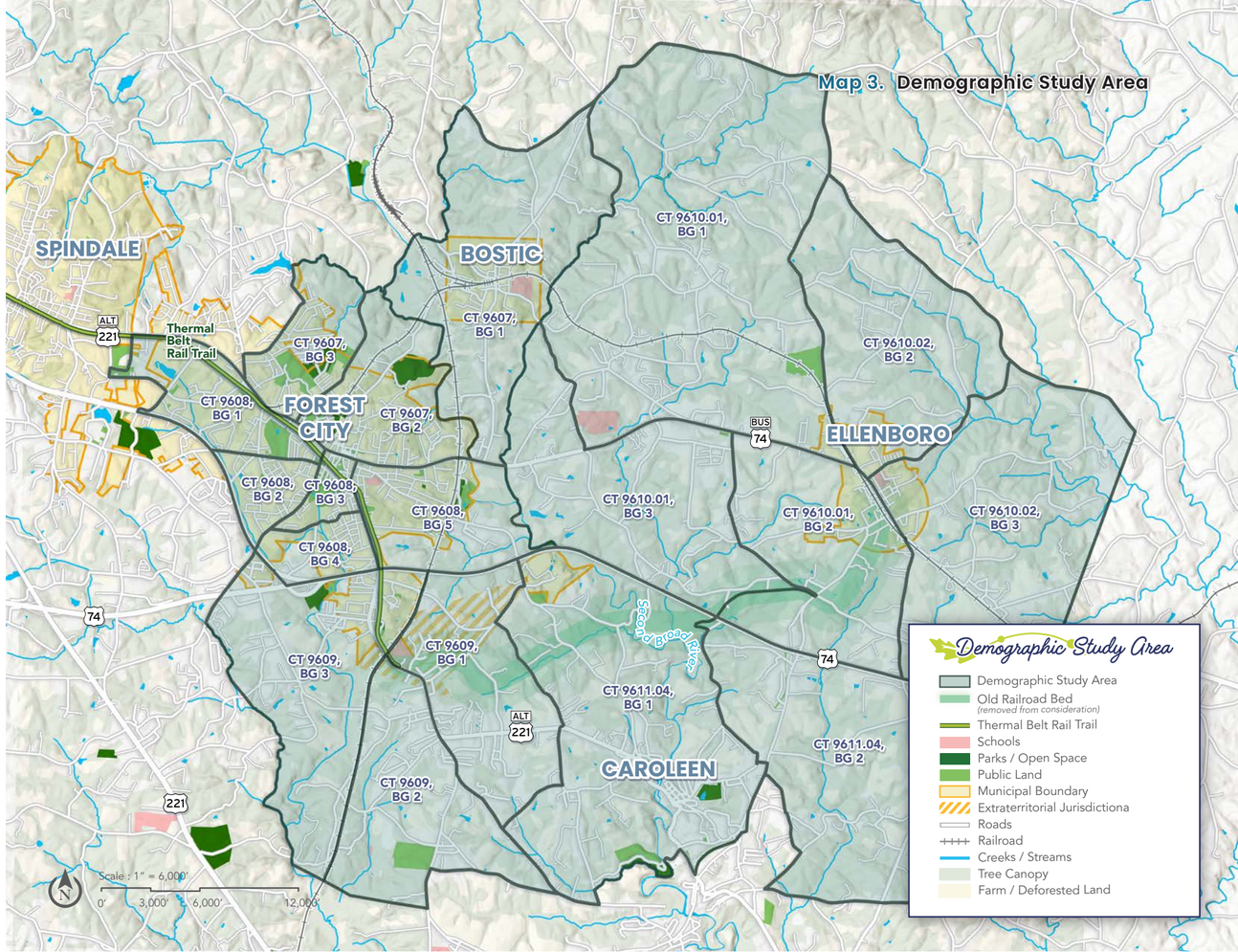
AGE

Nearly a quarter of the study area's population is under 18 years old (24.9%), higher than the state average of 21.8%. Adults aged 18 to 64 make up 58.5%, slightly below the state average of 61.5%, while residents 65 and older comprise 16.6%, closely aligning with the state average of 16.7%.

Figure 4. Study Area Age



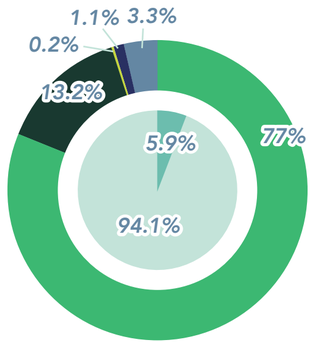
- *Under 18 years* ***24.9%***
- *Between 18 - 64 years* ***58.5%***
- *65 years or older* ***16.6%***



RACE + ETHNICITY

The majority of the study area's population identifies as White only (77.0%), well above the state average of 65.0%. Black or African American residents comprise 13.2 percent, compared with 20.9 percent statewide. All other racial groups fall below state averages: 0.2 percent identify as American Indian and Alaska Native (state: 1.0%), 1.1 percent as Asian (state: 3.1%), 0 percent as Native Hawaiian / Pacific Islander (state: 0.1%), 3.3 percent as some other race (state: 4.0%), and 5.2 percent as two or more races (state: 5.9%). Additionally, 5.9 percent of residents identify as Hispanic, lower than the state average of 10 percent.

Figure 5. Study Area Race + Ethnicity



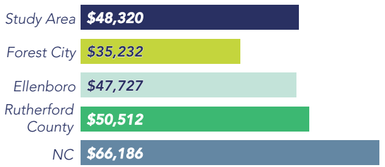
- *White* ***77.0%***
- *Black or African American* ***13.2%***
- *American Indian / Alaska Native* ***0.2%***
- *Asian* ***1.1%***
- *Some Other Race* ***3.3%***

- *Hispanic* ***5.9%***
- *Not Hispanic* ***94.1%***

INCOME

The median household income in the study area is $48,320, well below the state median of $66,186. This figure is comparable to Ellenboro and Rutherford County overall and notably higher than Forest City, where the median income is $35,232.

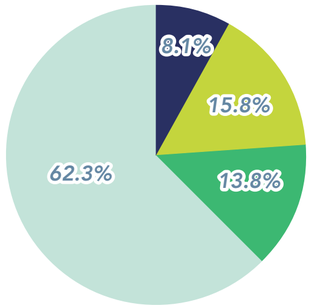
Figure 6. Study Area Income



POVERTY

Most residents in the study area (62.3%) live at or above 150% of the poverty level. However, nearly a quarter (23.9%) fall below the poverty threshold—almost double the state average of 13.1%. Just over 8% of residents live at less than 50% of the poverty level (statewide: 6.0%), while 13.8% are near the poverty line (100–150% of the threshold), compared with 9.1% statewide.

Figure 7. Study Area Poverty Rate

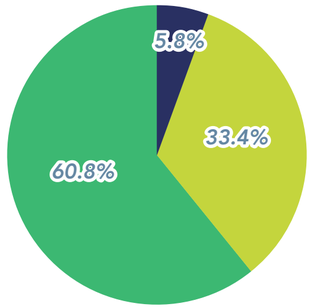


- *Under 50 percent of poverty level* ***8.1%***
- *Between 50 - 99 percent of poverty level* ***15.8%***
- *Between 100 - 149 percent of poverty level* ***13.8%***
- *At or above 150 percent of poverty level* ***62.3%***

VEHICLE AVAILABILITY

Over 60 percent (60.8%) of households in the study area have access to two or more vehicles. About one-third (33.4%) have access to only one vehicle, and 5.8% of households do not have access to a vehicle at all.

Figure 8. Study Area Vehicle Availability

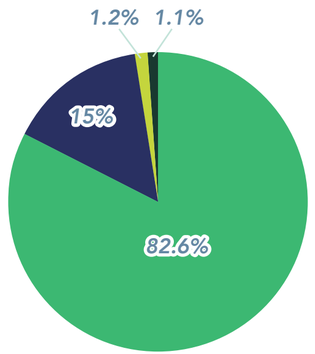


- *No vehicle available* ***5.8%***
- *One household vehicle available* ***33.4%***
- *Two or more household vehicles available* ***60.8%***

COMMUTE

The majority of residents in the study area commute by single-occupancy vehicle, with 82.6 percent driving alone to work, slightly below the state average of 85.9 percent. Among those who use alternative commuting modes, 15 percent carpool—higher than the state average of 9.8 percent—1.2 percent walk or bike, and 1.1 percent use another mode, both slightly below state averages. Notably, no residents in the study area use public transportation.

Figure 9. Study Area Commute Mode

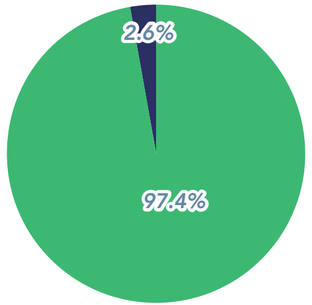


- *Drive alone* ***82.6%***
- *Carpool* ***15.0%***
- *Walk or bike* ***1.2%***
- *Other mode* ***1.1%***

LIMITED ENGLISH PROFICIENCY

Within the study area, 2.6 percent of residents speak English "less than very well." Of this group, 1.9 percent speak Spanish as their primary language, and 0.7 percent speak an Asian or Pacific Island language. Interpretive services should be provided for those with limited English proficiency to ensure they can fully participate in and contribute to discussions about the project.

Figure 10. Study Area English Proficiency



- *Speak English very well* ***97.4%***
- *Speak English less than very well* ***2.6%***

Image 2. Rural Roadway in Rutherford County

Source: McAdams

The land use of the corridor is primarily rural and agricultural, with limited residential and commercial development in the towns at its endpoints.

EXISTING LAND USE

Land use planning and paved trails are closely connected in shaping the built environment. Effective land use planning helps designate, protect, and integrate trails into communities, while paved trails themselves enhance quality of life, promote environmental sustainability, and support overall resident wellbeing. Thoughtful consideration of adjacent or supportive land uses can enrich the user experience along a future paved trail.

Where feasible, supporting land uses should be connected to and woven into the trail alignment. Schools, churches, parks, conservation lands, natural features, urban centers, employment areas, and businesses all provide destinations that give trail users a purpose to enjoy the corridor.

Programming the study corridor will be challenging, as land uses that typically support trail development are sparse. Existing pastureland and single-family residences make up much of the study area. The future trail alignment will rely heavily on natural features, existing rights-of-way, and property owner willingness, and will primarily serve long-distance transportation and recreational users.

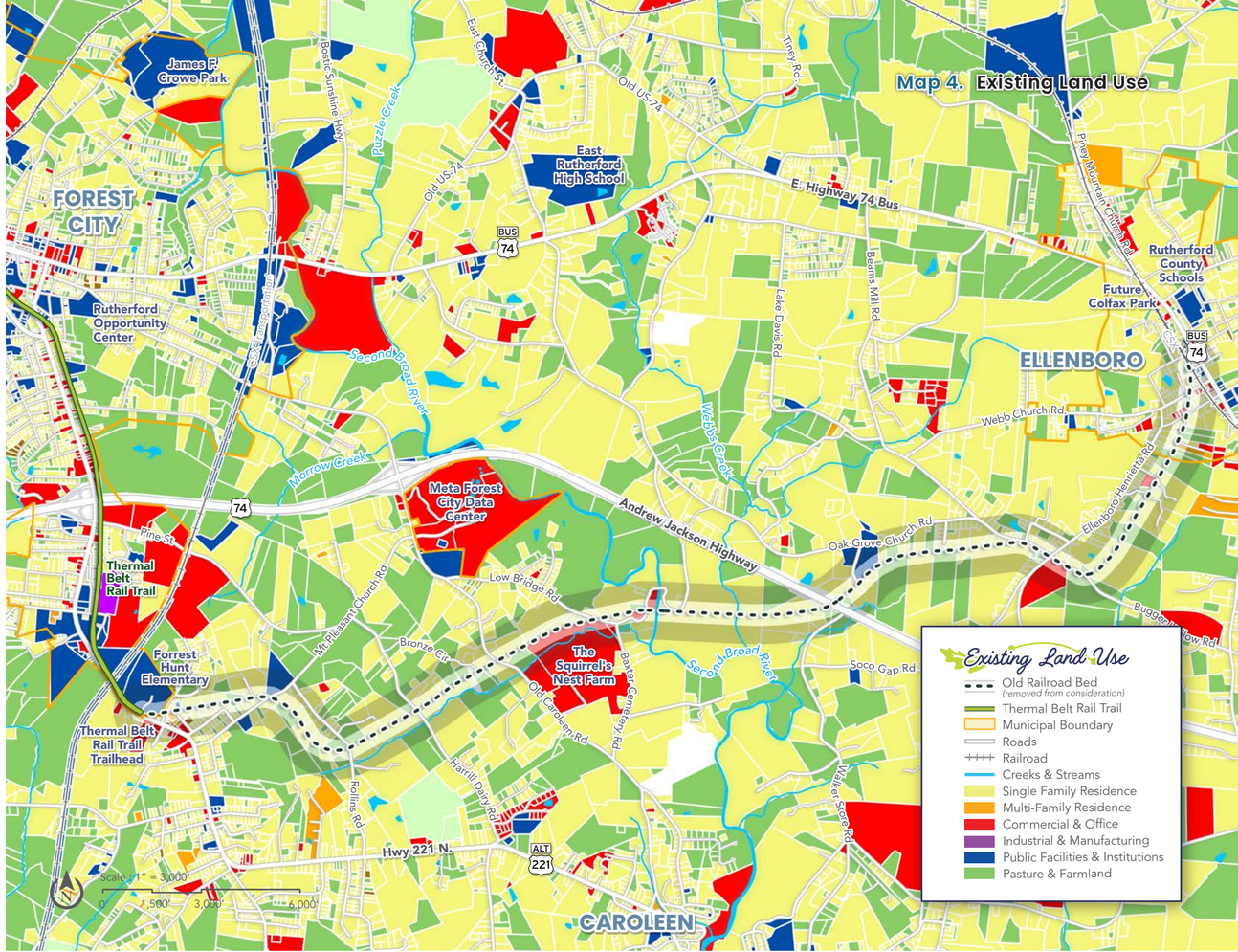


Image 3. Downtown Forest City (East Main Street)

Source: McAdams

Connecting trails to employment centers, such as Downtown Forest City, may help support active mobility trips to jobs and retailers.

EMPLOYMENT DENSITY

Employment density refers to the number of jobs per unit of land and can vary widely depending on a locality's economic activity, industrial base, and population. Understanding employment density is critical for assessing regional economic health and is often analyzed alongside other demographic and economic indicators to inform planning and policy decisions. The data shown in the accompanying map are sourced from the U.S. Census Bureau's OnTheMap application, and the summary below highlights key trends.

As expected, the majority of employment opportunities in the region are concentrated within the urban cores of Forest City and Ellenboro. Notable exceptions include employment centers such as the Meta Forest City Data Center, Forrest Hunt Elementary, and East Rutherford High School. The map also indicates low employment density in Caroleen.

According to the U.S. Census Bureau, the region has approximately 6,158 jobs, with the largest sectors being retail trade, educational services, and health care facilities.

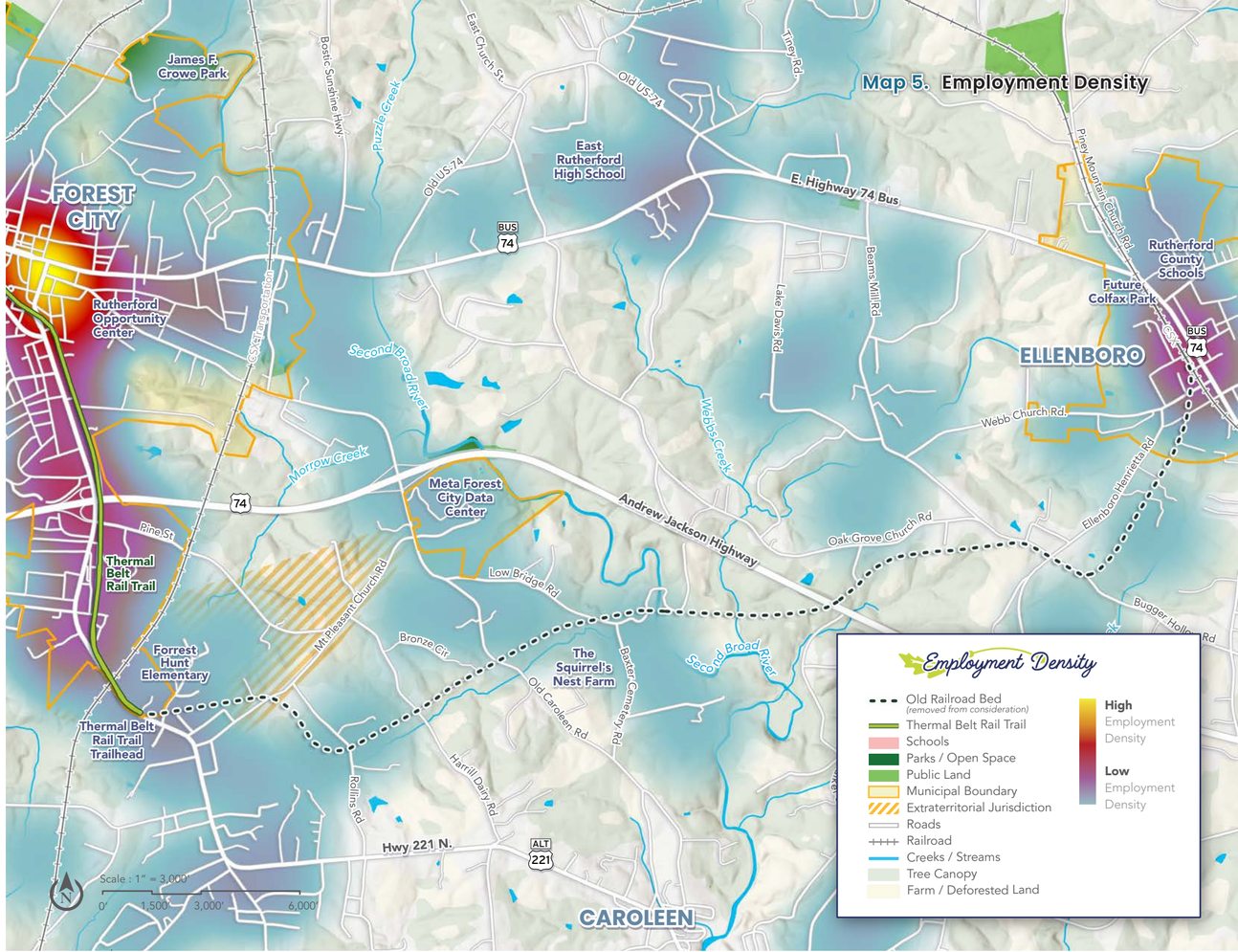


Image 4. Historic Hemphill House

Source: McAdams

Historic properties, such as the 1927 Hemphill House, may constrain the design of the trail, but offer an opportunity to enrich its experience and character.

NATIONAL REGISTER OF HISTORIC PLACES

The study area contains numerous buildings and sites listed as cultural resources on the National Register of Historic Places. Where feasible, these sites should be considered as opportunities to enrich and enhance the paved trail corridor.

Most of the historically registered sites are located within Forest City. A future paved trail alignment through this area can draw inspiration from these sites, sharing their stories through interpretive signage, artistic elements, or plaques.

These cultural resources also offer a chance to highlight Forest City's history and character, adding depth and interest to a future bicycle and pedestrian trail.

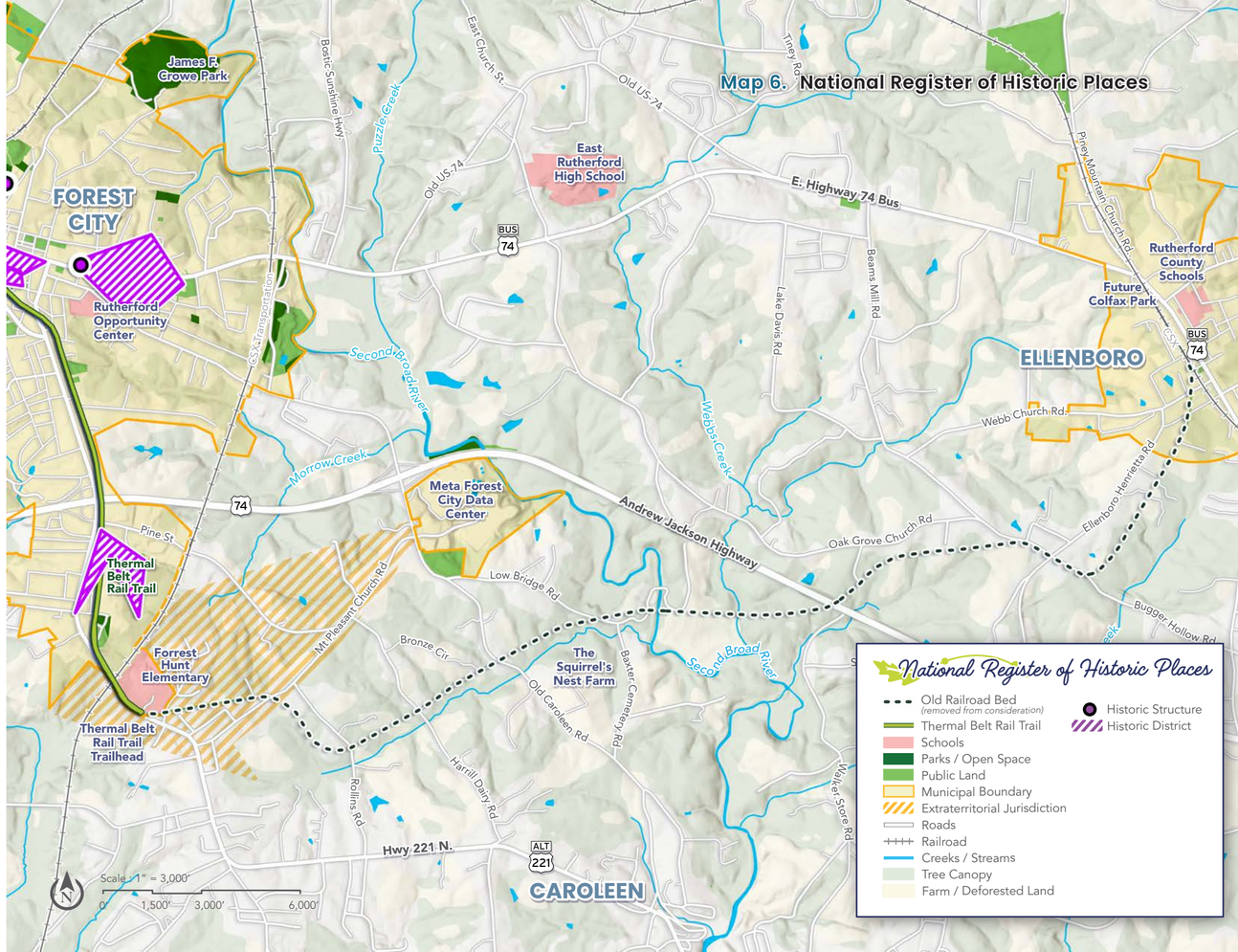


Image 5. Agricultural Land in Rutherford County

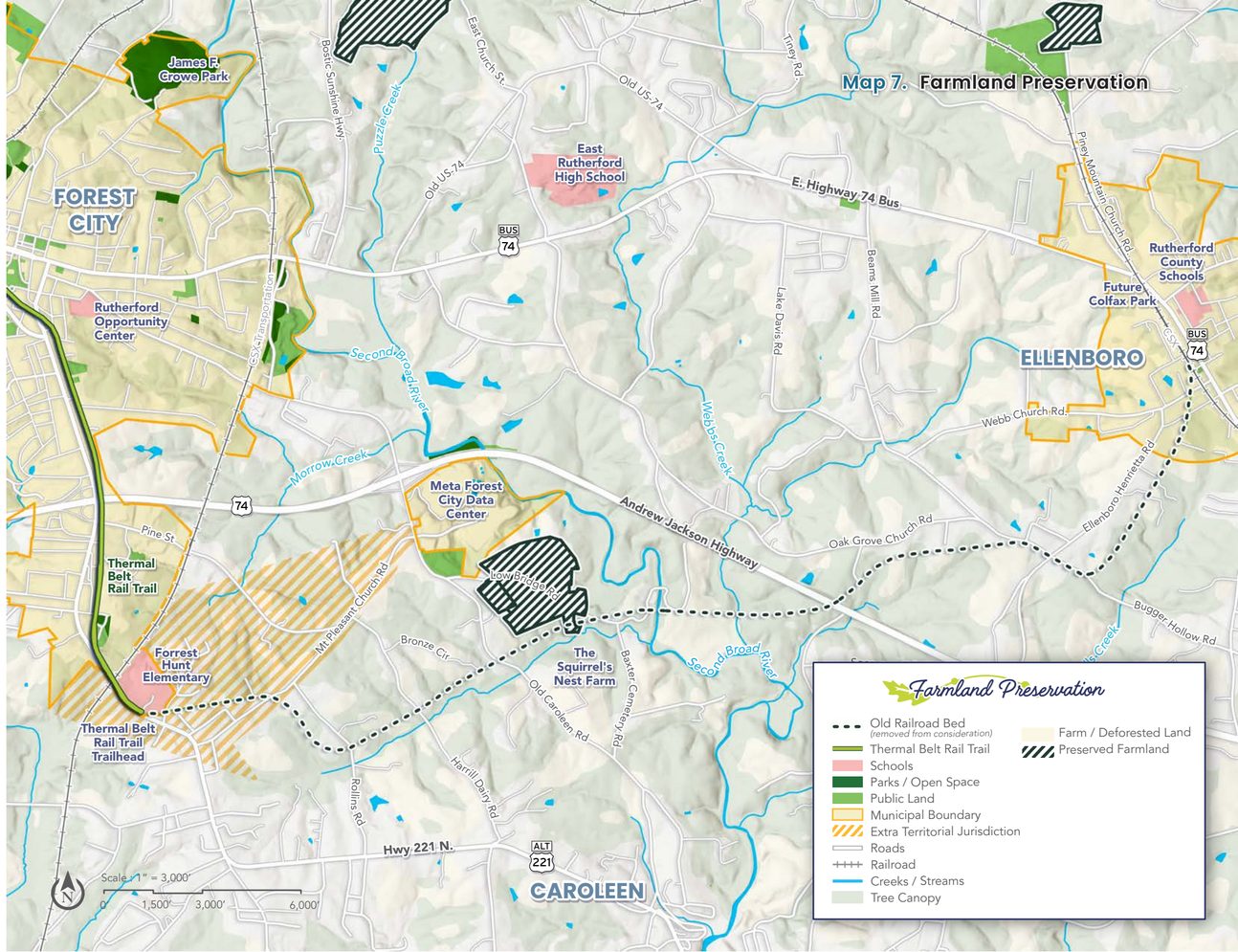
Source: McAdams

The enrollment of a parcel in a VAD can restrict the development of trails, but provide a scenic and natural environment for users.

FARMLAND PRESERVATION

Several parcels in the study area are enrolled in a voluntary agricultural district (VAD) to preserve farmland. This designation is established through a Conservation Agreement with Rutherford County, which restricts non-farm use or development for at least ten years. While these areas can enhance the paved trail experience, they may also limit development options along the corridor.

Preserved farmland exists throughout Rutherford County, including one large VAD that bisects the former railroad corridor under study, with additional districts north of Forest City and Ellenboro. These areas may offer scenic vistas for trail users and should be considered during the alignment evaluation phase.



Environmental Considerations

Nature plays a key role in shaping our connection to the environment and how we interact with it. This region's scenery, diverse wildlife, rich history, and gently sloping terrain attract recreational users seeking to immerse themselves in its beauty.

To support this, the study evaluates aspects of the natural environment, including topography, floodplains, wetlands, tree canopies, and conservation or managed areas. Considering these factors ensures that recommended trail alignments are thoughtfully planned to protect and enhance the natural resources they traverse.

For more details, please refer to the annotated maps on the following pages, which illustrate how the project integrates the natural environment into the design.

- *Floodway + Floodplain*
- *Elevation*
- *Forest Cover*

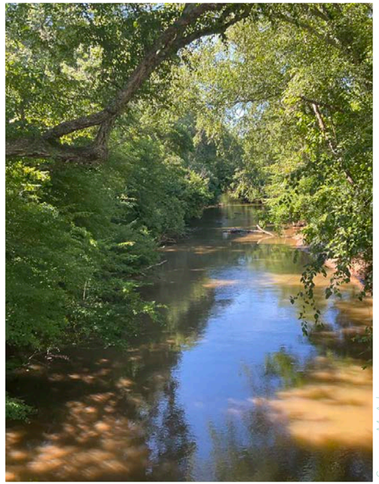
FLOODWAY + FLOODPLAIN

The study corridor for this project is located near the Second Broad River, Morrow Creek, and Webbs Creek, all of which contain substantial floodplains that could impact the development of a rail trail extension.

Some areas within the corridor are classified as wetlands, and both floodplain and wetland zones present permitting and cost considerations that were addressed as part of this study. The alignment design accounts for these factors and may require bridges, boardwalks, or other structures at strategic points to accommodate safe crossings.

Streamside trails offer a distinctive experience for trail users and provide opportunities to enhance both educational and recreational amenities in the region.

Image 6. Second Broad River



Source: McAdams

The trail will include a crossing of the Second Broad River and its associated floodplain.

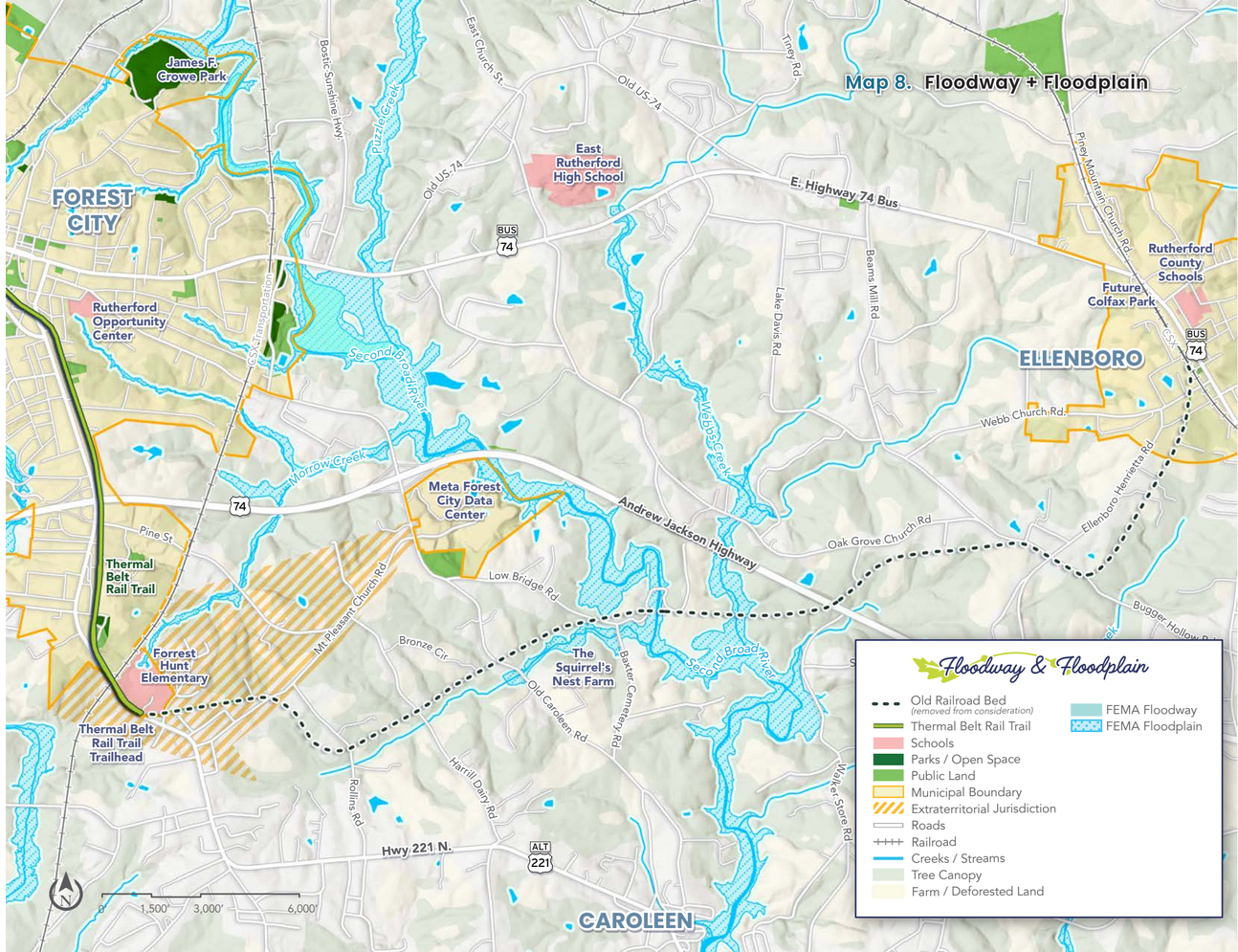


Image 7. Rolling Topography in Rutherford County

Source: McAdams

Elevation change in the study area is mild, and may require some design treatments to climb hills where not following the old railbed.

ELEVATION

The study area's topography varies modestly, with the highest points located in Forest City and Ellenboro. Overall, the grade change along the approximately six-mile corridor is mild, with an elevation gain of about 650 feet—typical of former rail corridors, which generally feature gradual slopes.

Different elevations and soil types support distinct ecosystems and habitats. Aquatic and semi-aquatic plant species, for example, thrive in low-lying areas with dense shade and frequent water accumulation. Preserving these natural features is important for maintaining biodiversity and ecological balance, while also offering enhanced educational and recreational opportunities along the trail.

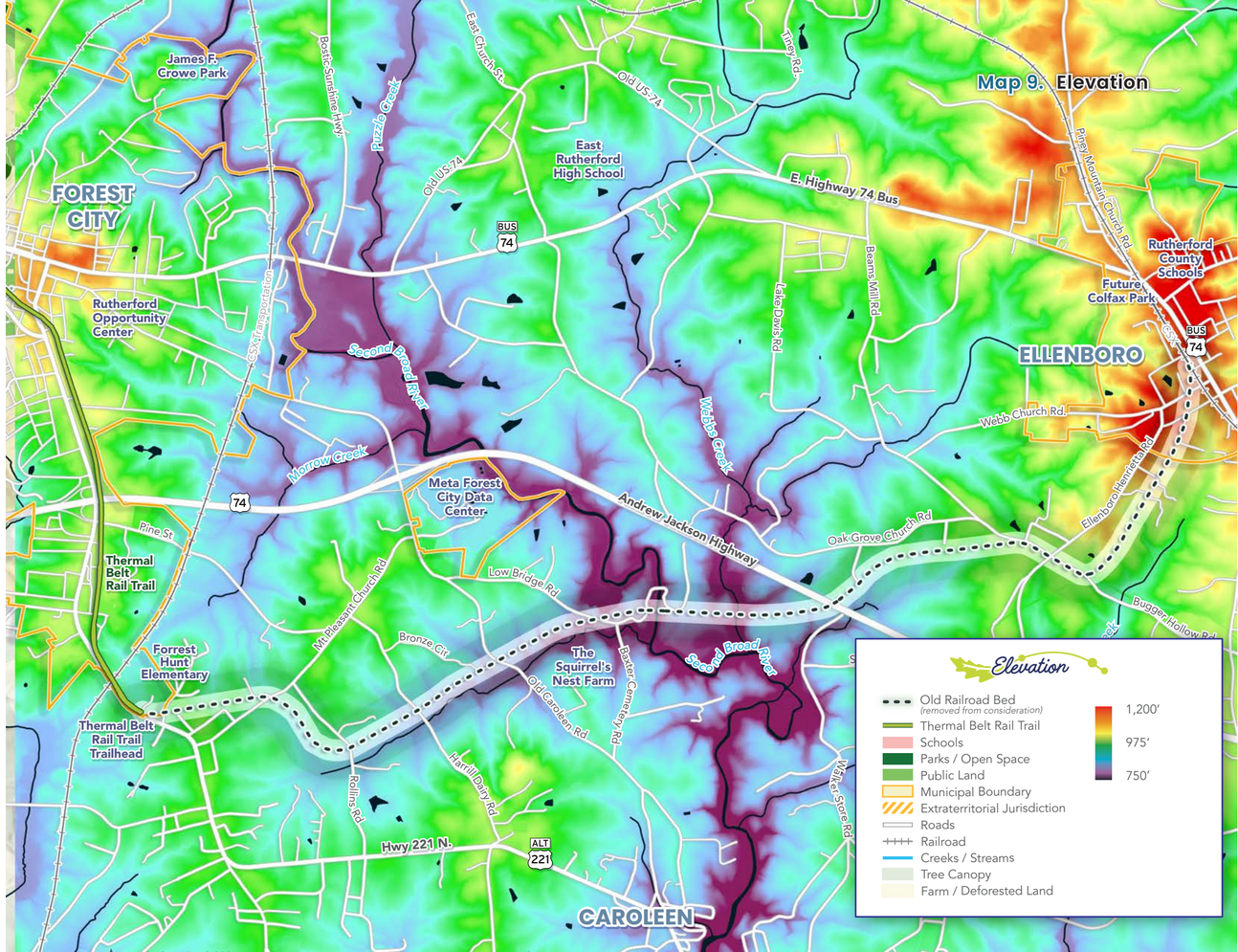


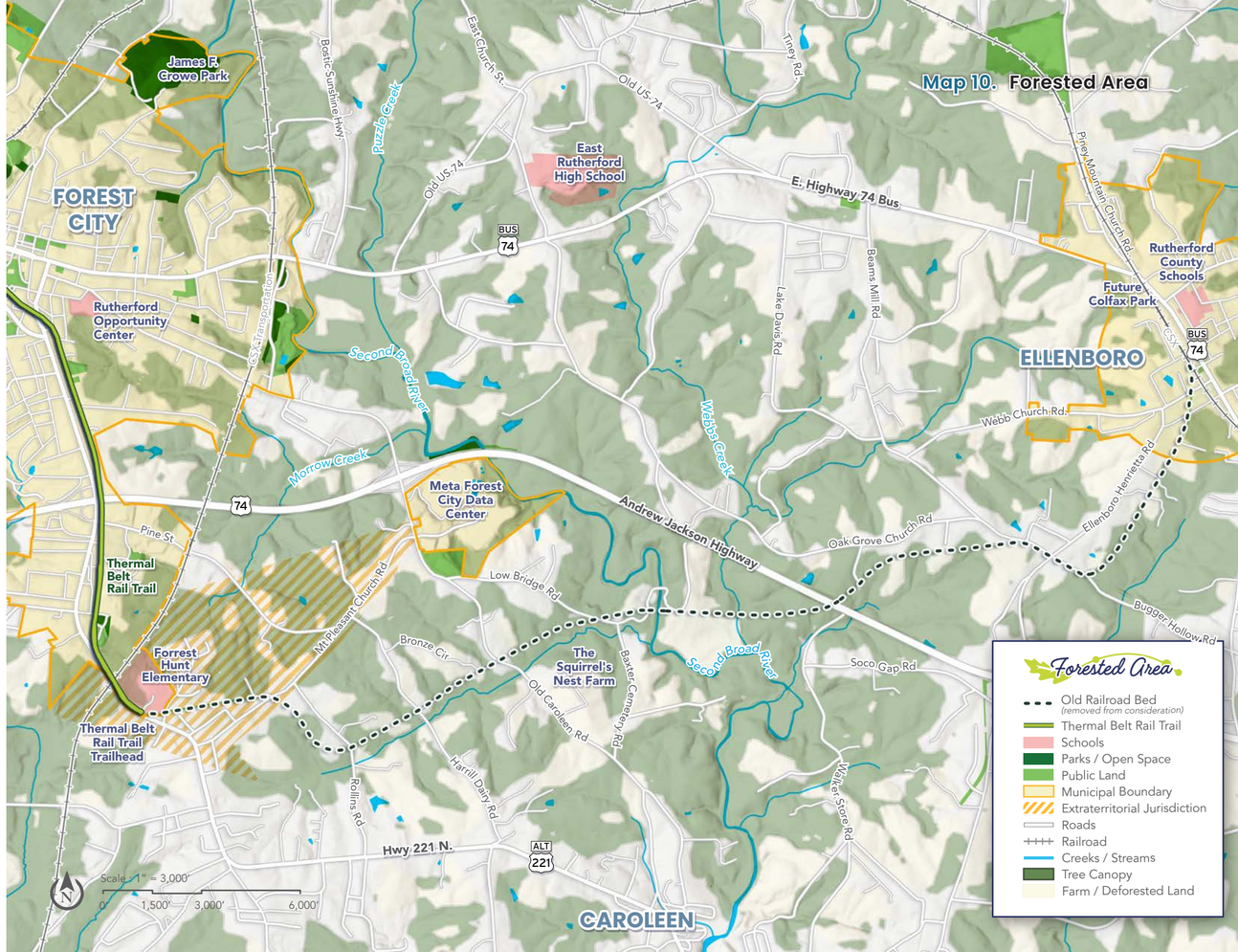
Image 8. Wooded Driveway in Rutherford County

Source: McAdams

Much of the study corridor includes forest cover providing shade and natural biodiversity.

FOREST COVER

Tree canopy coverage plays a key role in shaping the comfort and character of a paved trail corridor. Extensive canopy provides shade and relief from summer heat, enriches the visual experience, and encourages a stronger connection with nature. Large, continuous stands of trees support native biodiversity and may include centuries-old specimens. In these areas, trail development should be carefully planned to minimize tree removal and preserve the corridor's ecological integrity.



Infrastructure Considerations

INTRODUCTION

Existing infrastructure and planned uses play a major role in determining the feasibility of incorporating a paved trail into the study corridor. Factors such as the roadway network, traffic volumes, crash history, and planned bicycle and pedestrian facilities present both opportunities and challenges that the trail alignment will need to address. In particular, the following specific considerations were studied for this corridor:

- *Bicycle + Pedestrian Network*
- *Posted Roadway Speed*
- *Roadway Right-of-Way (ROW) Widths*
- *Annual Average Daily Traffic (AADT)*
- *Existing Bridges*
- *NCDOT State Transportation Improvement Program (STIP) Projects*
- *Vehicular Crashes*
- *Vehicular Crashes at Intersections*
- *Pedestrian Crashes*
- *Bicycle Crashes*

BICYCLE + PEDESTRIAN NETWORK

The existing network includes shared-use trails and sidewalks, while planned facilities—such as additional bicycle routes, sidewalks, and shared-use trails—are shown on the adjacent map.

Existing bicycle routes and sidewalks may already provide comfortable connections to key destinations for walkers and bikers. These routes, with space dedicated to active transportation, present opportunities for this study to evaluate the feasibility of enhancing them into future shared-use paths.

Because most planned facilities are long-range, this paved trail facility could benefit from linking as many existing facilities as possible. Of particular note is the presence of East Rutherford High School in the study area.

Additionally, previously studied routes connecting major employment centers—such as the Meta Forest City Data Center—to the corridor represent opportunities for enhanced connectivity. Recommendations from this study may focus on linking these destinations, providing critical connections for the broader active transportation network.

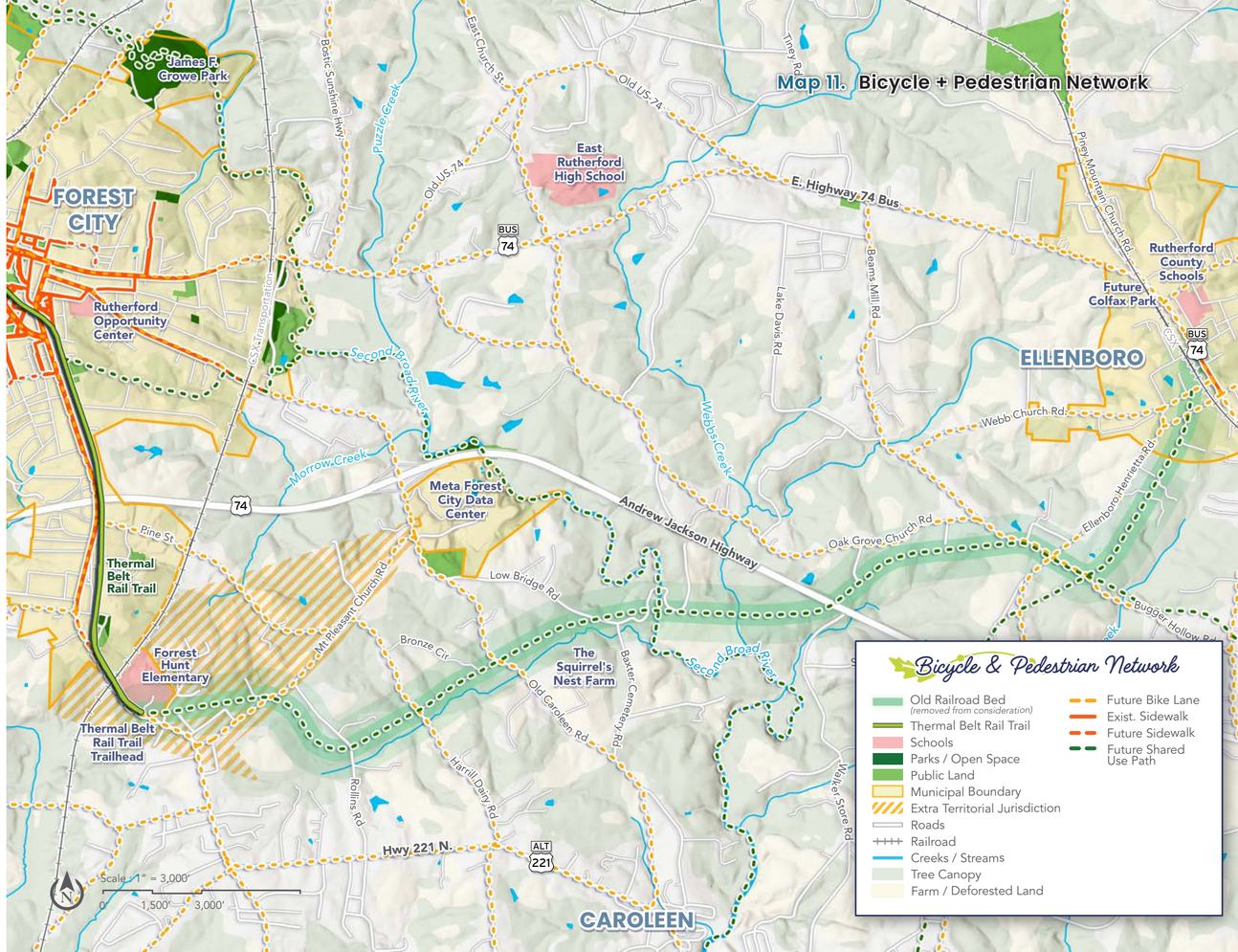


Image 9. Speed Limit Sign

Source: McAdams

Outside of downtown Forest City, many roads in the study area have a posted speed limit greater than 35mph, making travel less safe and comfortable for bicyclists and pedestrians.

POSTED ROADWAY SPEED

Vehicular speeds are a key factor in determining comfort for future trail users. Roads with higher speeds generally feel less safe and comfortable for alternative transportation users—such as walkers, bikers, and those using other forms of micro-mobility—compared with roads with lower posted speeds. Future trail recommendations may include increased separation from vehicular traffic on higher-speed roadways to enhance comfort and safety for vulnerable users.

It should be noted that the existing roadway network data is incomplete and does not provide a comprehensive representation of all roads within the study corridor.

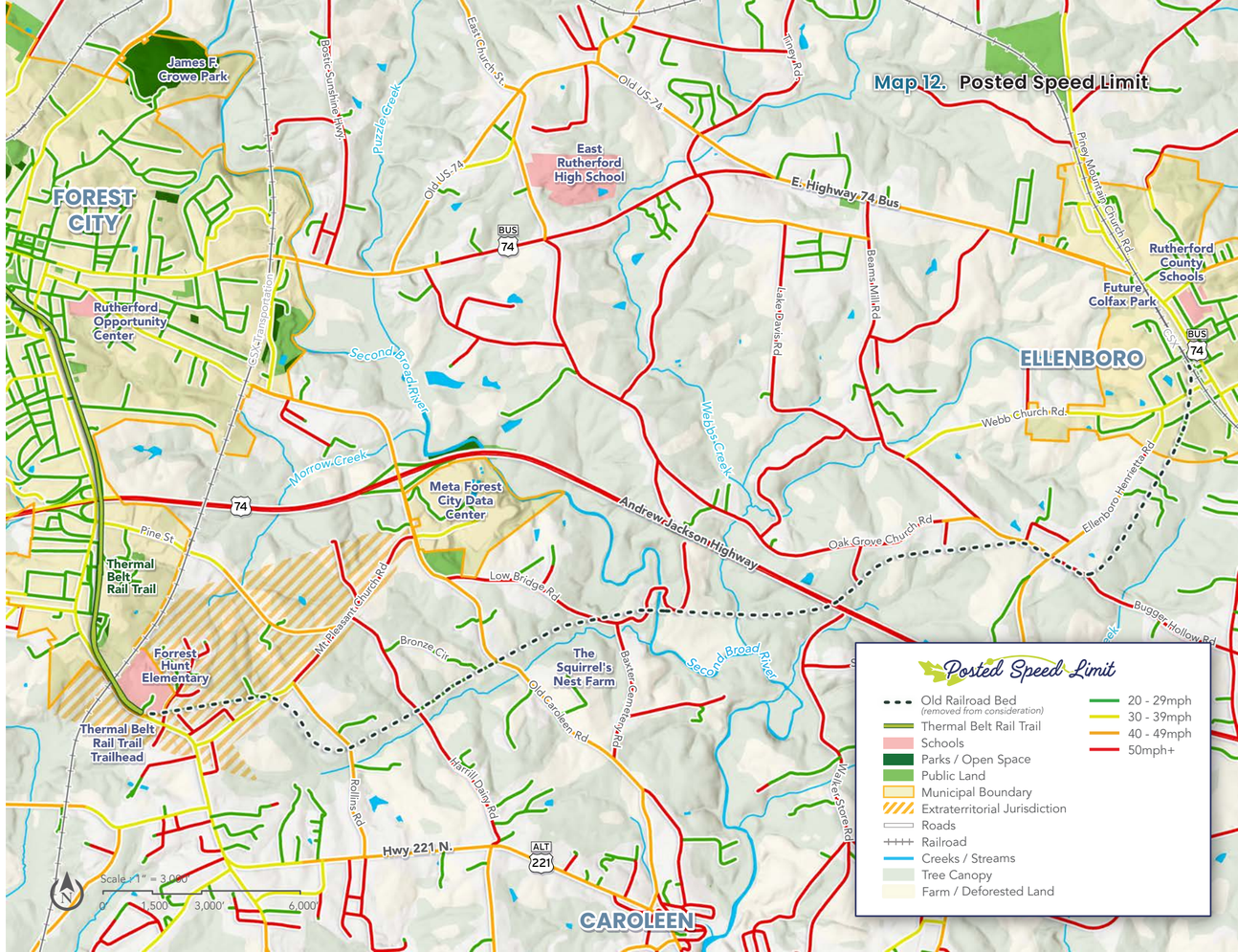


Image 10. Main Street in Ellenboro

Source: McAdams

The availability of right-of-way along study corridors may permit trail development without additional land or easement acquisition, but existing development, utilities, and topography on the edge of the roadway may make trail construction challenging.

ROADWAY RIGHT-OF-WAY WIDTHS

Right-of-way widths often indicate the amount of available space that could potentially accommodate a paved trail alignment within a publicly controlled corridor.

The adjacent map highlights areas of increased right-of-way width in green and narrower areas in red. Right-of-way widths can vary along the same roadway and may present opportunities for connections at desirable locations. For example, Highway 74 has a wider right-of-way near Forest City, while Business 74's right-of-way narrows as it approaches the town centers.

While rights-of-way are primarily managed for roadway or intersection improvements, that area can also be considered for micro-mobility users and other alternative transportation modes. Note that right-of-way data is not available for all roadways within the study corridor.

In this study area, wider rights-of-way are typically associated with roadways that have additional travel lanes. Therefore, right-of-way width alone is not a definitive indicator of paved trail feasibility, but it can help identify locations where accommodating this user group may be more practical.

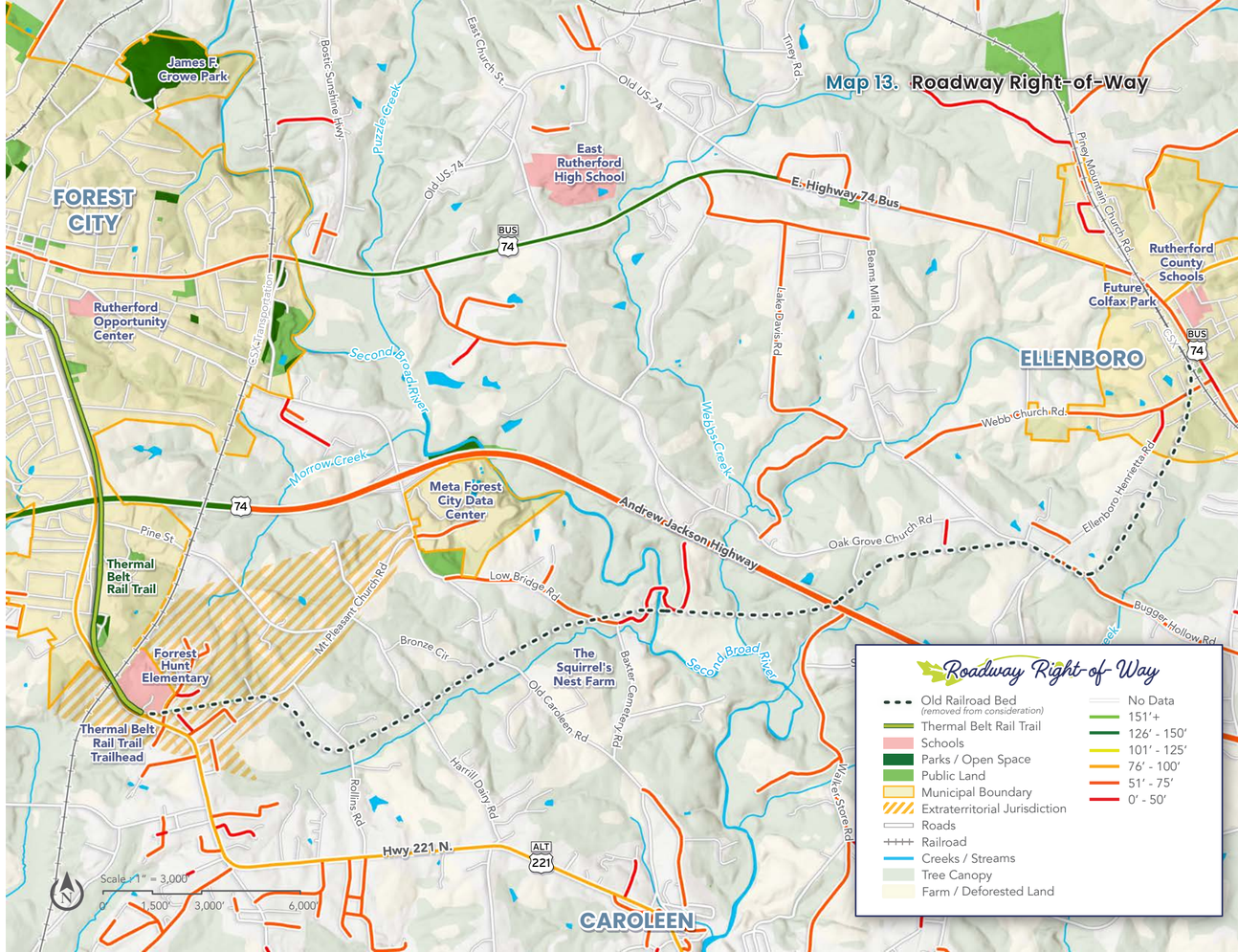


Image 11. US-74 (Looking East)

Source: McAdams

High-traffic roadways, such as US-74, create barriers for trail connectivity.

ANNUAL AVERAGE DAILY TRAFFIC (AADT)

Annual Average Daily Traffic (AADT) is a key indicator of roadway use and can help predict the comfort and feasibility of accommodating a future paved trail. Roads with high traffic volumes can be uncomfortable for cyclists and pedestrians unless natural or built buffers separate trail users from moving vehicles.

Within the study corridor, Business 74 (E Main Street) experiences higher traffic volumes between Forest City and East Rutherford High School, likely reflecting school-related trips. Highway 74 (Andrew Jackson Highway) carries the largest volume of vehicles per day, meaning any shared-use path along this corridor would require significant supplemental buffers to ensure user comfort.

AADT also informs crossing design: higher-volume roads may warrant pedestrian crossing facilities such as rectangular rapid flashing beacons (RRFBs) or high-intensity activated crosswalk (HAWK) signals. Lower-traffic roads may provide a more comfortable experience for all ages and abilities, though they may have more limited right-of-way widths. Not all roadways within the study corridor have available traffic data.

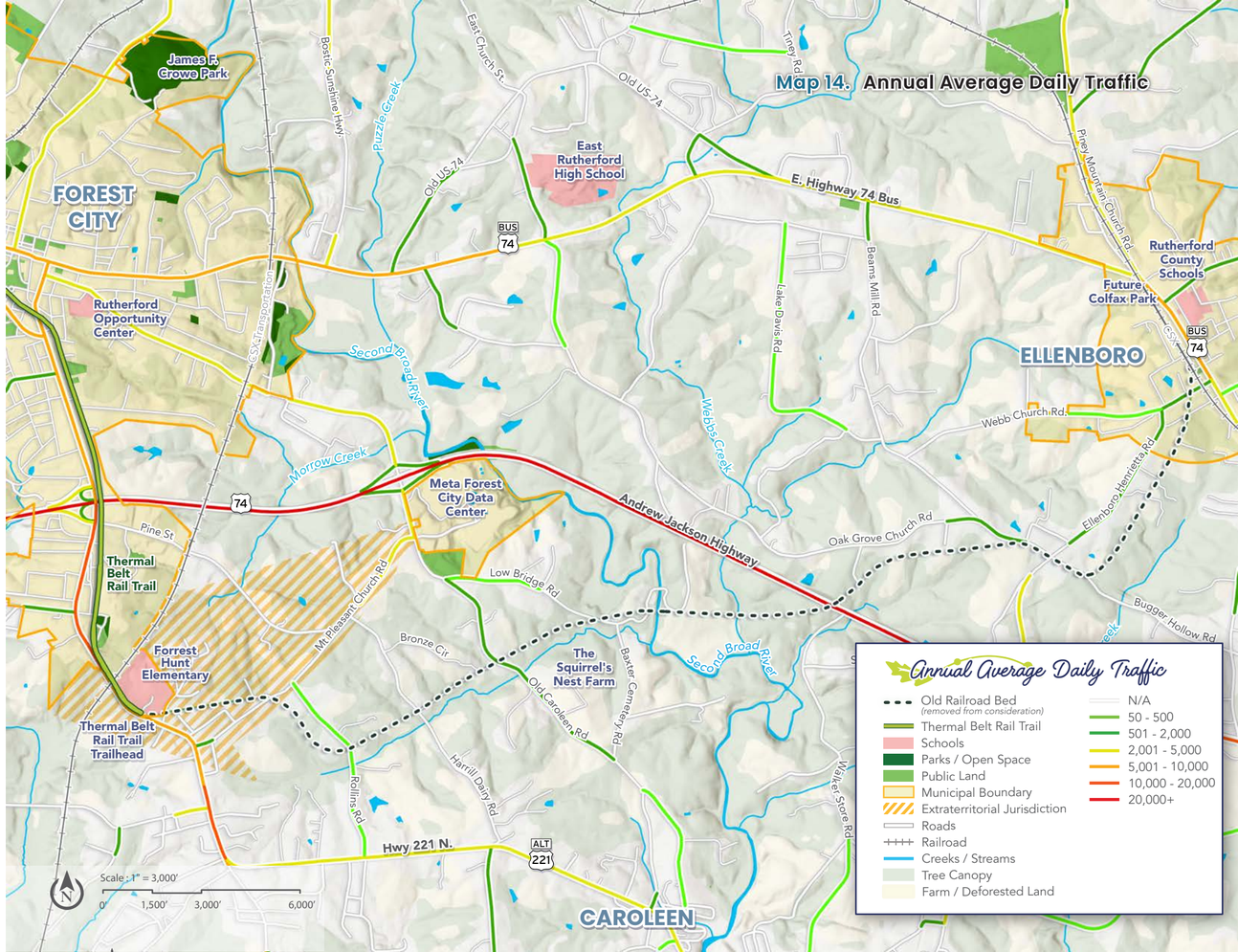


Image 12. Railway Bridge over Business 74

Source: McAdams

Several old railway bridges remain along the study corridor, and may offer excellent reuse potential where the trail must cross US-74 or a stream corridor.

Image 13. Business 74 Bridge over Second Broad River

Source: Google

Bridges over water bodies, like this Business 74 bridge over the Second Broad River, can be rebuilt to accommodate a multi-use path.

EXISTING BRIDGES

Existing bridges are potential barriers to a future rail trail extension: if a bridge is not wide enough to accommodate a separated multi-use path, then users are at greater risk of being struck by a passing vehicle. The feasibility study team analyzed 15 bridges in the study area to determine whether existing structures could safely accommodate a multi-use sidepath or whether they posed constraints. The initial site visit included an in-depth assessment of former rail bridges, followed by a review of NCDOT bridge inspection reports for both roadway and rail bridges. Results of this analysis are included in the Appendix.

Of particular significance are the old railroad bridges within the study corridor, which present opportunities to create exceptionally unique bicycle and pedestrian facilities. A detailed summary of these structures and remnants is provided in the Appendix.

ONGOING NCDOT BRIDGE PROJECT

NCDOT is advancing reconstruction of a key bridge in the study area, and the project will incorporate a multi-use path as part of the design. This investment represents a major opportunity for paved trail connectivity, reducing costs and permitting hurdles for the project while ensuring safe, dedicated space for bicyclists and pedestrians. A callout on the adjacent map highlights the location of this bridge project.

Opportunities and barriers are summarized at the end of this chapter.

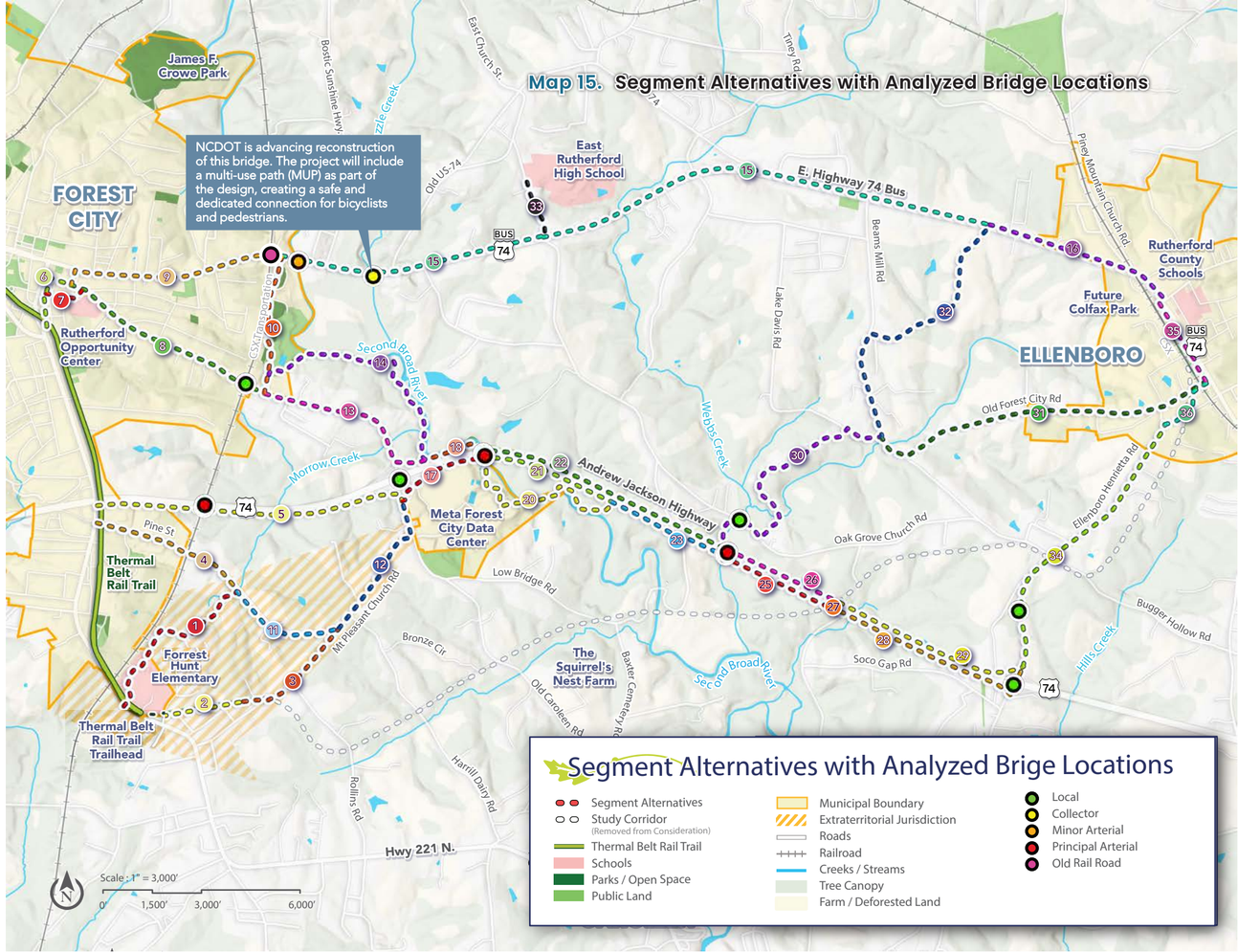


Image 14. Thermal Belt Rail Trail Bridge over US 74

Source: McAdams

Trail infrastructure can be constructed as part of, or impacted by, projects funded through the STIP. Sections of the Thermal Belt Rail Trail have been included in the STIP.

NCDOT STATE TRANSPORTATION IMPROVEMENT PROGRAM (STIP) PROJECTS

The North Carolina Department of Transportation's (NCDOT) State Transportation Improvement Program (STIP) is a 10-year plan that outlines funding and scheduling for transportation projects statewide. Required by both state and federal law, the STIP is updated every two years. The current plan covers 2024–2033, and applicable projects within the study corridor are shown on the adjacent map.

While no current STIP projects directly address the study corridor, future recommendations from this study may include roadway improvements that could be incorporated into a later STIP cycle.

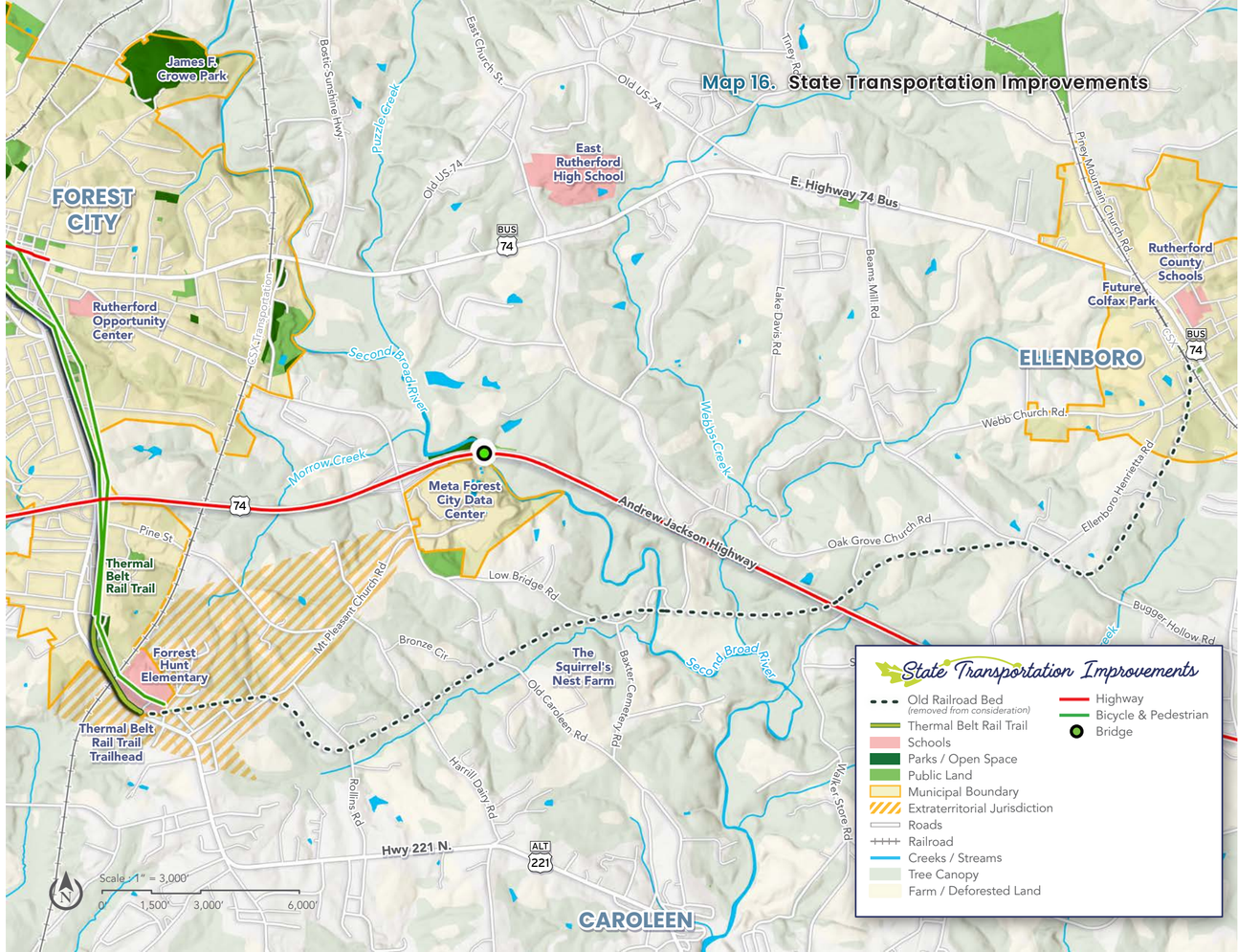


Image 15. US 74 (Looking East)

Source: McAdams

Locations of vehicle crashes, including those away from intersections, indicate areas where safety concerns may be present that require additional design measures to protect vulnerable users such as bicyclists and pedestrians.

VEHICULAR CRASHES

Vehicular crashes resulting in injuries or fatalities were reviewed as part of this paved trail feasibility study, since crash history can highlight areas of the roadway network that may require enhanced safety measures.

Within the study area, there have been a number of crashes. Most occurred along the higher speed arterials, including a notable cluster of crashes on Business 74 at its bridge over Puzzle Creek, near the intersection of Old US-74 State Road.

Recommended alignment alternatives from this study will prioritize safety and comfort for all shared-use path users. In areas with higher crash frequencies or severities, additional separation and buffering from vehicular traffic will be essential design considerations.

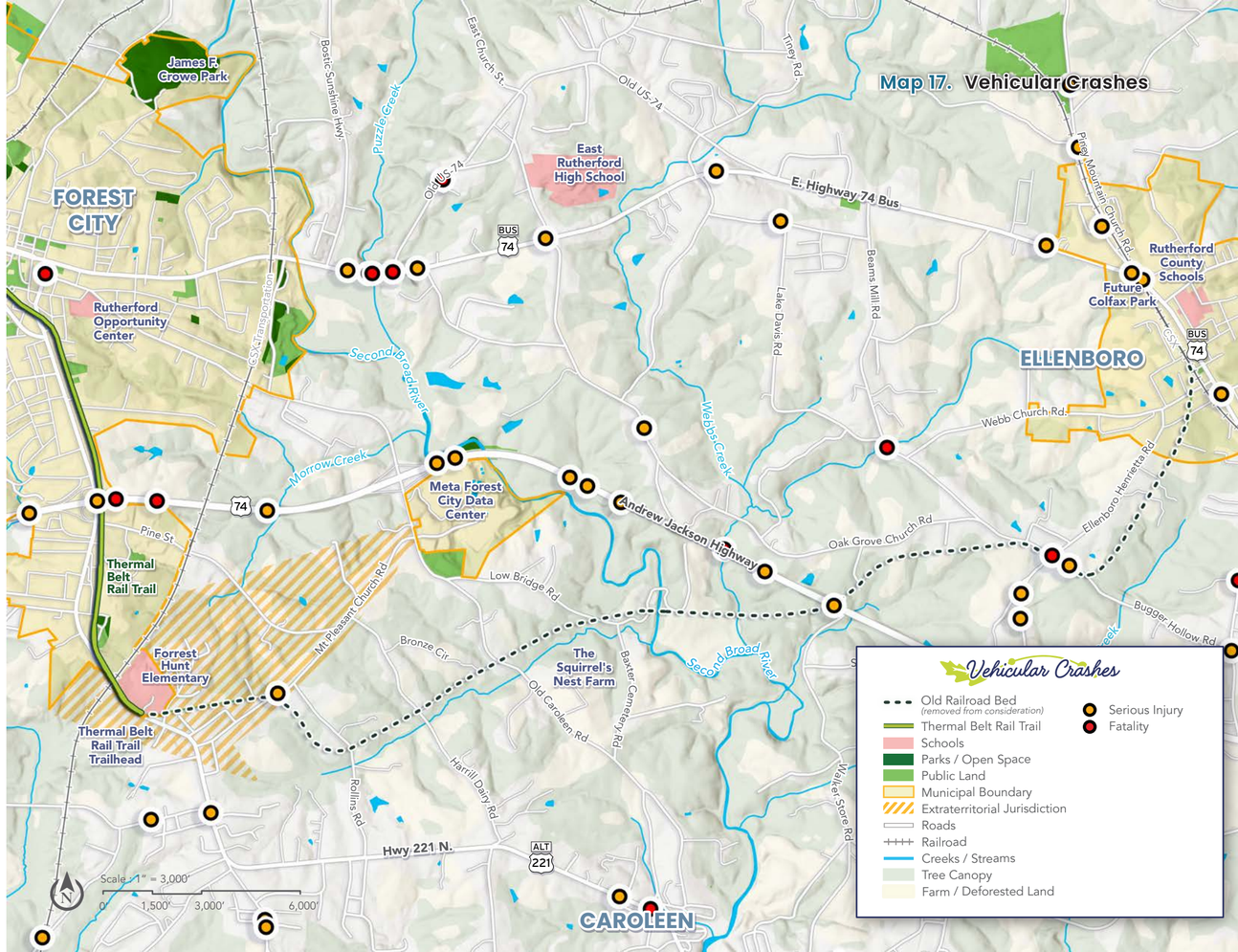


Image 16. Intersection of Bugger Hollow Road + Ellenboro Henrietta Road

Source: McAdams

Intersections, such as this junction of Bugger Hollow Rd and Ellenboro Henrietta Rd, are often hotspots for vehicle crashes.

VEHICULAR CRASHES AT INTERSECTIONS

Vehicular crashes at intersections are often linked to poor sight distances, roadway geometry, or other physical conditions that contribute to unsafe driving behaviors. To illustrate crash history in the study area, the adjacent map groups crashes by frequency and displays them as circles of varying size and color. In this way, intersections with higher crash totals are easy to identify at a glance.

One intersection of concern is Bostic Sunshine Highway and Business 74 intersection, which shows a relatively high concentration of crashes, including one involving a fatality. Any future paved trail alignment crossing here will need to incorporate additional safety measures to protect all modes of travel.

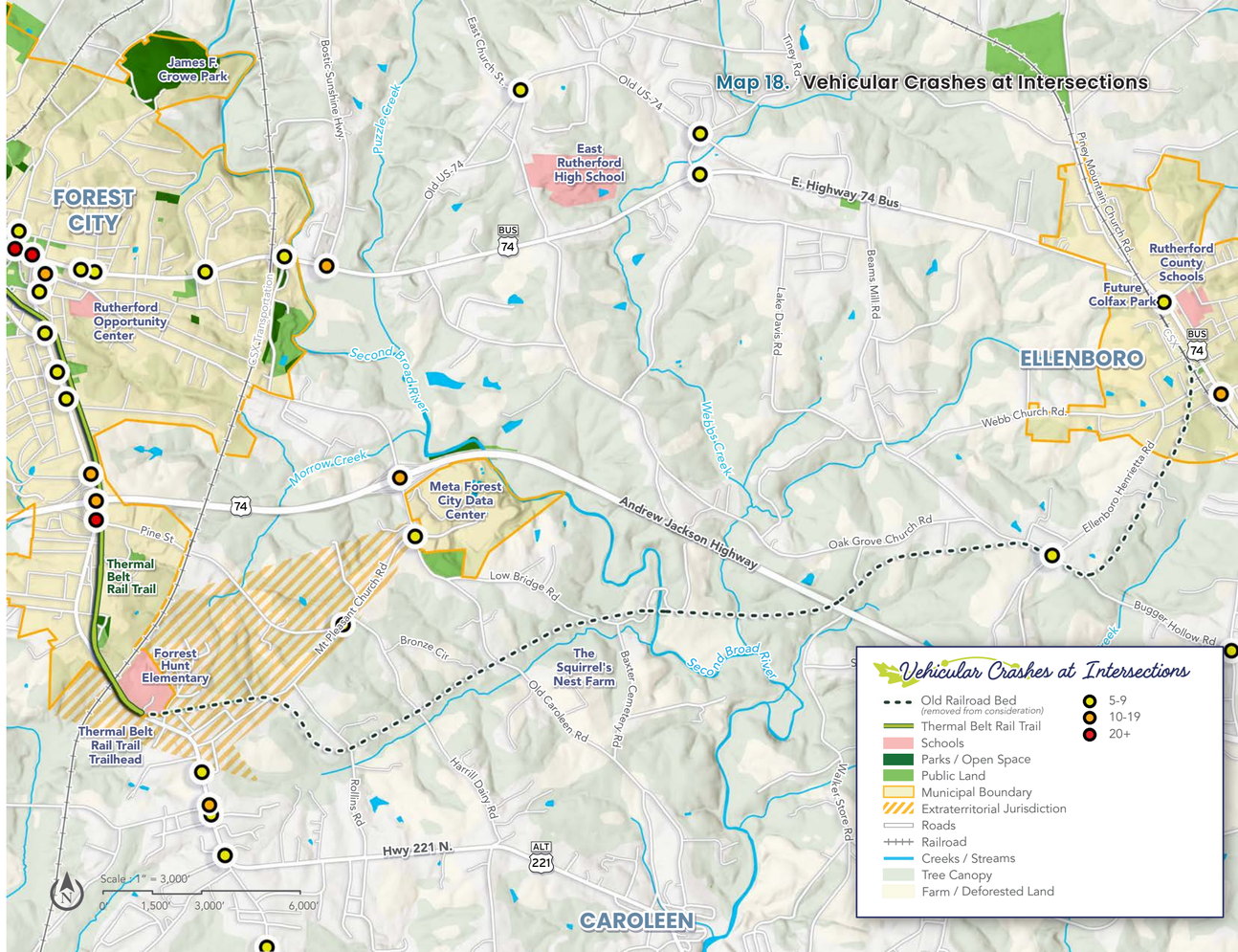


Image 17. Main Street (Business 74) in Ellenboro

Source: McAdams

Where pedestrian infrastructure is missing or poorly maintained, pedestrians are forced to walk in the roadway or on its shoulder, exposing them to a higher crash risk.

PEDESTRIAN CRASHES

Pedestrian crashes and fatalities in the study corridor underscore the urgent need for safe walking and biking infrastructure. Many non-fatal crashes have occurred within the town centers and a few on rural roads.

Along Business 74, two pedestrians were killed in 2018 and 2020, as well as other non-fatal pedestrian crashes. These incidents happened on a roadway with no dedicated pedestrian facilities or even shoulder space, leaving vulnerable users exposed to high-speed traffic. These crashes highlight that the current roadway design does not provide for the safety of people walking or biking. Future recommendations for Business 74 should prioritize a safe, separated facility—such as a multi-use sidepath—to protect the most vulnerable users.

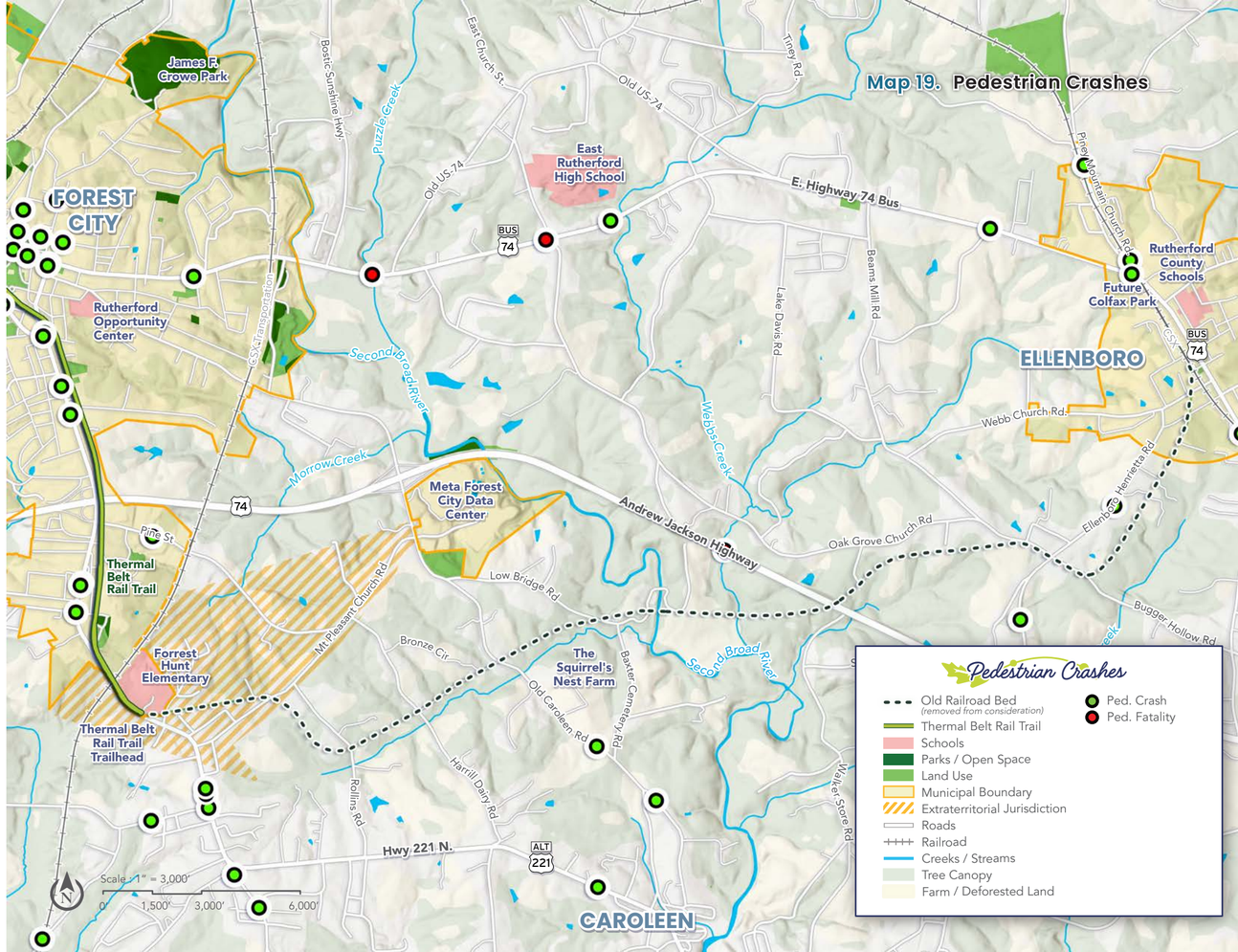


Image 18. Main Street (Business 74) in Ellenboro

Source: McAdams

A bicyclist on Main St in Ellenboro rides against traffic along the narrow shoulder of the roadway.

BICYCLE CRASHES

Bicycle crashes in the study area are relatively infrequent, but they have occurred exclusively on roadways without dedicated bicycle facilities. Most of these incidents took place on roads with posted speed limits above 30 mph, underscoring the risks faced by cyclists sharing space with fast-moving vehicles. Currently, there are no safe or comfortable bicycle connections between Forest City and Ellenboro.

Extending the Thermal Belt Rail Trail between these two towns would directly address this gap. By providing a separated, dedicated facility for cyclists and pedestrians, the extension would not only encourage more active transportation but also reduce the likelihood of crashes caused by conflicts with motor vehicles. In this way, the paved trail provides a recreational amenity and a proven safety intervention that protects vulnerable road users.

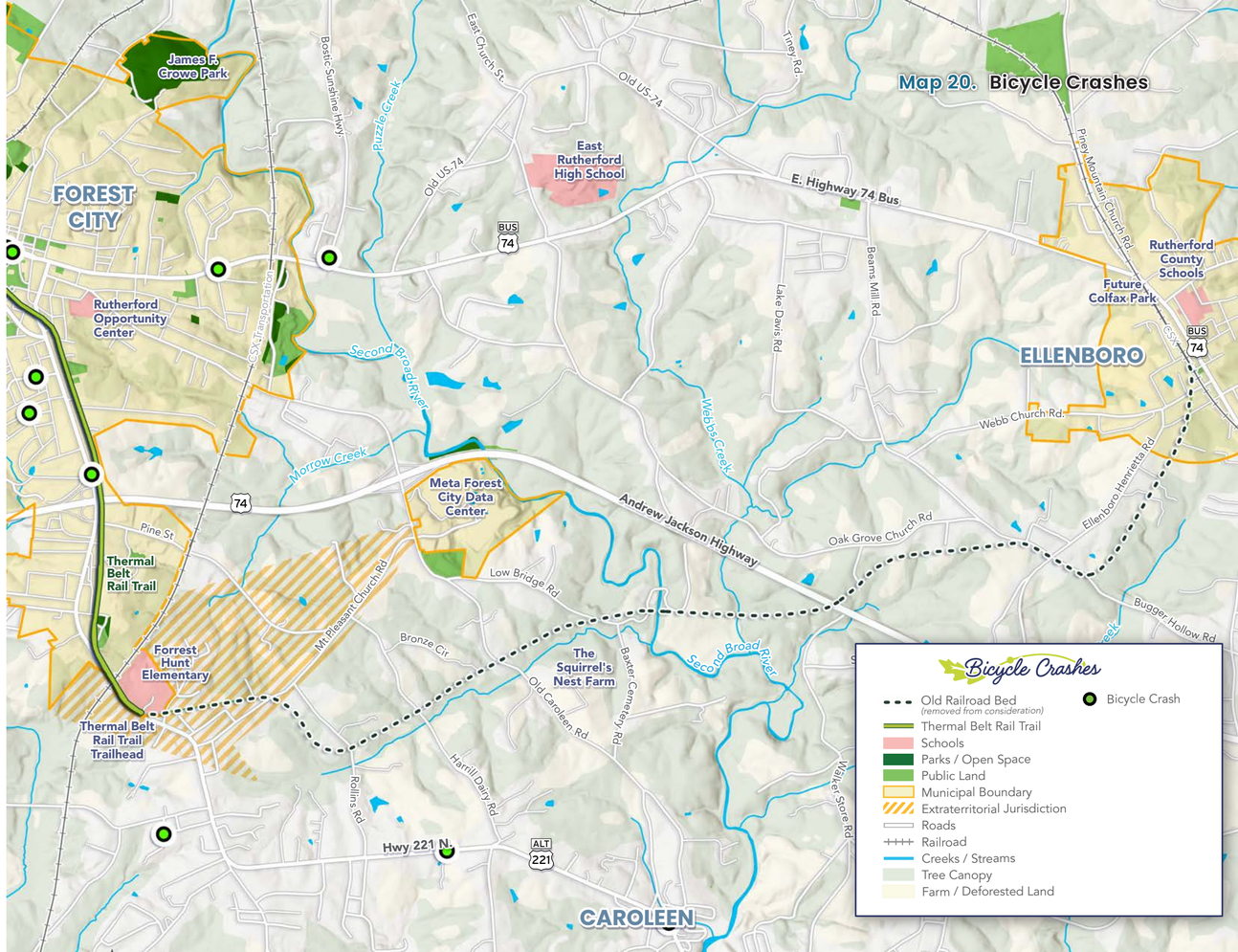


Image 19. Main Street (Business 74) in Ellenboro

Source: Google

Business 74 rail crossing in Ellenboro: a key safety concern today and a critical factor in planning a future sidepath alignment.

RAILROAD CROSSINGS

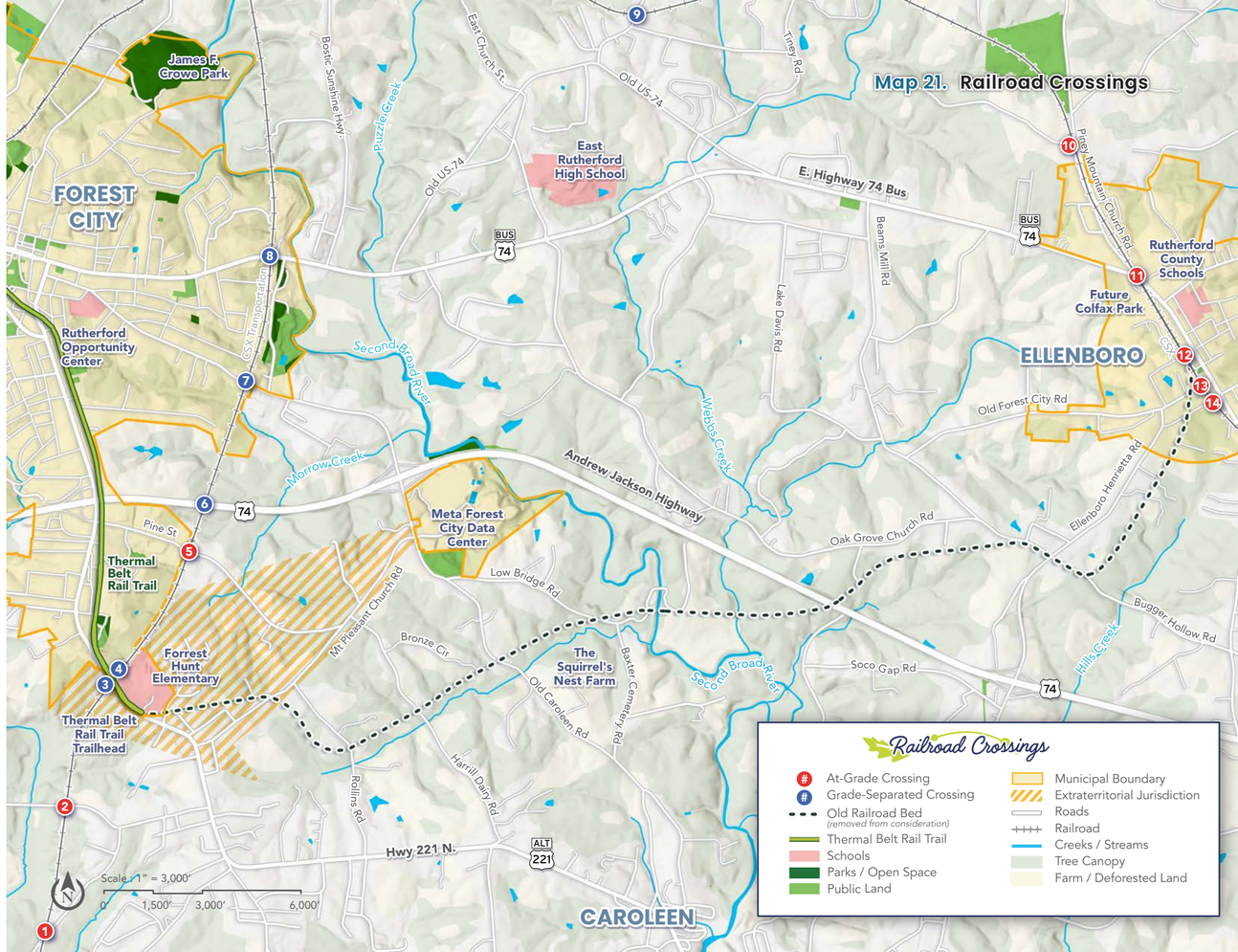
Active railroad crossings between Forest City and Ellenboro present both safety concerns and design challenges for a future paved trail corridor. In Ellenboro, crossings occur at Business 74 and Henrietta Street, with the angled crossing at Business 74 posing greater risk for pedestrians and cyclists. Railroads generally discourage pedestrian activity near tracks, and the limited roadway right-of-way must still allow space for a sidepath set back from rail equipment.

These crossings will be critical decision points for alignment planning. Depending on location and available space, the paved path may require separation, grade changes, or added safety treatments such as signals or gates. Coordination with NCDOT and the rail operator will be essential, as approvals will require additional design, time, and expense. Ensuring safe integration at these crossings is key for both connectivity and user protection.

Table 3. Study Area Railroad Crossings

Crossing	Location	Type
Doggett Grove Rd	*1*	*At-Grade*
Doggett Rd	*2*	*At-Grade*
US 221 Alt	*3*	*Railroad Under*
Thermal Belt Rail Trail	*4*	*Railroad Under*
Pine St	*5*	*At-Grade*
US 74	*6*	*Railroad Under*
Old Caroleen Rd	*7*	*Railroad Under*
Main St	*8*	*Railroad Over*
Tiney Rd	*9*	*Railroad Under*
Burns Rd	*10*	*At-Grade*
US 74 Business	*11*	*At-Grade*
Glenn St	*12*	*At-Grade*
Henrietta St	*13*	*At-Grade*
Church St	*14*	*At-Grade*

Map 21. Railroad Crossings



Segment Alternatives

OVERVIEW

The map on this spread summarizes potential segments in the study area that could affect the development of the Thermal Belt Rail Trail extension. Each segment alternative was evaluated for feasibility, with some removed from consideration due to high costs, potential maintenance challenges, property owner concerns, FEMA or NCDOT permitting requirements, and input from the working group. Public engagement feedback played an important role in shaping the strategy for evaluating segments. In response to community concerns, most alternatives on privately held property have been avoided, and proposed segments are primarily located within existing state, town, or county right-of-way. In some cases, temporary or permanent trail easements may still be required; these will be further assessed as part of the recommended alignment.

The following pages present the segment alternatives, identified by number and color. Each segment description outlines opportunities and constraints, overall length, and potential parcel impacts.

Table 4. Route Segment Alternatives

Segment	Description	Opportunity / Constraint	Length	Parcels Impacted
1	*Connection to Thermal Belt Rail Trail at Forrest Hunt Elementary*	*Desirable since it picks up at the terminus of the Thermal Belt Rail Trail and connects to the school. This segment will however require easement acquisition from private property as well as the school.*	*0.94 mi*	*4*
2	*Rail Corridor*	*Connects to the Thermal Belt Rail Trail and uses mostly publicly held property by following the old rail corridor. This segment does require a minor take from a handful of private property owners.*	*1.18 mi*	*2*
3	*Pine St*	*Connects to the Thermal Belt Rail Trail at Pine Street but must navigate crossing the railroad. A downside for this segment is that is does not pick up at Forrest Hunt Elementary.*	*0.82 mi*	*Possible*
4	*Andrew Jackson Hwy*	*Connects to Thermal Belt Rail Trail at existing highway overpass. Corridor will need to navigate existing railroad, as well as Morrow Creek. Trail experience will be near and along the highway.*	*1.57 mi*	*Possible*
5	*Beaver St*	*Connects to the Thermal Belt Rail Trail at Beaver Street. Urban sidepath will have numerous driveway crossings and utility conflicts which will require in-depth study.*	*0.36 mi*	*Possible*
6a	*South Side of Florence St to Old Caroleen Rd*	*Arlington Street has numerous businesses, this urban sidepath will have numerous driveway replacements and utility conflicts. The trail could utilize the existing sidewalk in the interim until the full multi-use sidepath could be implemented.*	*0.31 mi*	*4*
6b	*South Side of Old Caroleen Rd between Rolling Oaks St + Coventry Ln*	*Sidewalk access exists up to the Rutherford Opportunity Center, a key destination, though utilities like power and water are present along the route.*	*0.58 mi*	*22*

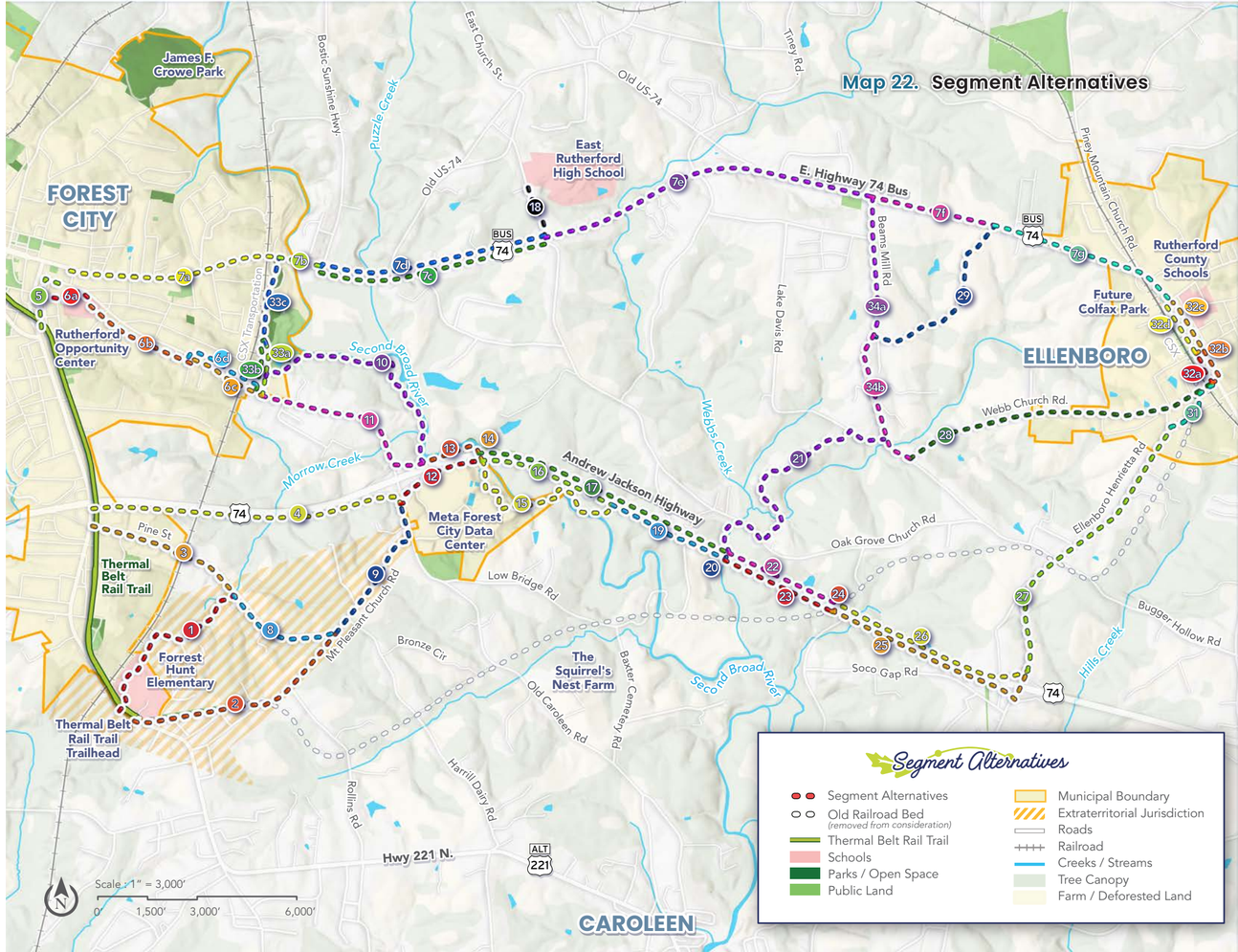


Table 4. Route Segment Alternatives, Cont'd

Segment	Description	Opportunity / Constraint	Length	Parcels Impacted
6c	South Side of Old Caroleen Rd from Coventry Ln to Riverside Dr	Route uses an existing sidewalk and connects directly into the neighborhood via an existing bridge.	0.39 mi	5
6d	North Side of Old Caroleen Rd from Conventry Ln to Riverside Dr	A potential pedestrian crossing is identified at a non-intersection location using an existing bridge.	0.37 mi	6
7a	South Side of E Main St to Riverside Dr	Sidewalk leads to a key destination in Forest City, but a tight bridge and utility conflicts may present challenges.	1.05 mi	36
7b	South Side of Business 74 from Riverside Dr to Bostic Sunshine Hwy	The route utilizes an existing traffic signal but faces bridge and parcel impact issues.	0.22 mi	3
7c	South Side of Business 74 from Bostic Sunshine Hwy to E High Rd	Provides connectivity to nearby businesses, though it involves a bridge, wetland, utility conflicts, and several impacted parcels and structures.	1.14 mi	13
7d	North Side of Business 74 from Bostic Sunshine Hwy to E High Rd	Connects to East High Road via a bridge, with parcel and utility impacts likely.	1.15 mi	15
7e	South Side of Business 74 from Beams Mill Rd to Sunshine Lake Rd	Terrain remains level, but roadway speed and utilities may still present obstacles.	1.71 mi	3
7f	South Side of Business 74 from Beams Mill Rd to Sunshine Lake Rd	Leads to Ellenboro as a key destination but faces issues with high speed traffic, complex railroad crossings, utilities, and parcel impacts.	0.63 mi	Possible
7g	South Side of Business 74 from Sunshine Lake Rd to Hollis Rd	Follows Hwy 74 westbound lanes. Possible grade issues. Trail experience will be loud due to proximity of vehicular traffic. Temporary or permanent easement acquisition may be required.	0.99 mi	Possible
8	Pine St	Continuation will have numerous driveway crossings, utility crossings, and possible utility relocations. Segment navigates underneath existing transmission lines, may require easement from private property owners.	0.61 mi	Possible
9	Mt. Pleasant Church Rd / Old Caroleen Rd	Utilizes publicly held right-of-way but has to cross Coffey Road (dead-end street). Possible easement needed from privately held property. Turns left on Old Caroleen Road and navigates past Meta frontage.	0.79 mi	Possible

Table 4. Route Segment Alternatives, Cont'd

Segment	Description	Opportunity / Constraint	Length	Parcels Impacted
10	Second Broad River	Follows the Second Broad River on numerous privately held parcels. Boardwalk may be needed to navigate possible wetlands, floodway and floodplain study will be required.	1.26 mi	9
11	Old Caroleen Rd	Stays within public right-of-way, may need to cross Mayse Street and over Morrow Creek before turning alongside Hwy 74.	0.97 mi	Possible
12	Meta Data Center	Utilizes Meta Data Center frontage but may need to jump into Hwy 74 right-of-way. Coordination with Meta's interests will be crucial towards implementation.	0.49 mi	1
13	Andrew Jackson Hwy	North side of Hwy 74 along the Second Broad River. May need boardwalk or encounter poor soils in this area.	0.3 mi	3
14	Andrew Jackson Hwy Underpass	Will need to be studied to evaluate appropriate clearance. Possible need for walls or other structures within NCDOT right-of-way.	0.04 mi	Possible
15	South Side of Business 74 from Beams Mill Rd to Sunshine Lake Rd	Utilizes Meta frontage along the Second Broad River. Flood impacts will need to be studied, possible boardwalk and poor soils area. Property owner coordination and willingness to be accounted for, pedestrian bridge will be required.	0.97 mi	3
16	South Side of Business 74 from Sunshine Lake Rd to Hollis Rd	Follows Hwy 74 eastbound lanes. Possible grade issues. Trail experience will be loud due to proximity of vehicular traffic. Temporary or permanent easement acquisition may be required.	0.70 mi	Possible
17	Pine St	Continuation will have numerous driveway crossings, utility crossings, and possible relocations. Segment navigates underneath existing transmission lines, may require easement from private property owners.	1.35 mi	Possible
18	East Side of E High Rd from Business 74 to East Rutherford High School	Possible connection to the high school will require driveway replacements, but will allow for pedestrian and bicycle access. Reliant on implementing Business 74 shared use path section. Connects to the high school over generally flat terrain, though utility impacts are present.	0.3 mi	Possible
19	Andrew Jackson Hwy	Follows Hwy 74 eastbound lanes. Possible grade issues. Trail experience will be loud due to proximity of vehicular traffic. Temporary or permanent easement acquisition may be required.	0.63 mi	Possible
20	Andrew Jackson Hwy Underpass	Will need to be studied to evaluate appropriate clearance. Possible need for walls or other structures within NCDOT right-of-way.	0.04 mi	Possible

Table 4. Route Segment Alternatives, Cont'd

Segment	Description	Opportunity / Constraint	Length	Parcels Impacted
21	*Webbs Creek / Wallace to Lake David Rd*	*Utilizes Webbs Creek along the back of a few privately held parcels before jumping into Oak Grove Church Road and Wallace Road. Possible utility relocations, driveway relocations, and possible mid-block or pedestrian signalized crossings.*	*1.44 mi*	*3*
22	*Andrew Jackson Hwy*	*Follows Hwy 74 westbound lanes. Possible grade issues. Trail experience will be loud due to proximity of vehicular traffic. Temporary or permanent easement acquisition may be required.*	*0.62 mi*	*Possible*
23	*Andrew Jackson Hwy*	*Follows Hwy 74 eastbound lanes. Possible grade issues. Trail experience will be loud due to proximity of vehicular traffic. Temporary or permanent easement acquisition may be required.*	*0.59 mi*	*Possible*
24	*Andrew Jackson Hwy Old Railroad Bridge*	*Utilizes the old railroad bridge, but may require extensive NCDOT permitting and possible private property acquisition to achieve.*	*0.06 mi*	*Possible*
25	*Andrew Jackson Hwy*	*Follows Hwy 74 eastbound lanes. Possible grade issues. Trail experience will be loud due to proximity of vehicular traffic. Temporary or permanent easement acquisition may be required. Need to study Ellenboro-Henrietta Rd bridge over 74 to accommodate trail.*	*1.17 mi*	*Possible*
26	*Andrew Jackson Hwy*	*Follows Hwy 74 westbound lanes. Possible grade issues. Trail experience will be loud due to proximity of vehicular traffic. Temporary or permanent easement acquisition may be required. Hwy 74 on-ramp and driveway crossings will need to be studied in detail.*	*1.01 mi*	*Possible*
27	*Ellenboro Henrietta Rd*	*Will require numerous driveway and utility relocations. Street and signalized pedestrian mid-block crossings will be required. Bridge over existing rail line will need to be studied to reallocate space to shared use path.*	*1.5 mi*	*Possible*
28	*North Side of Old Forest City Rd frm Beams Mill Rd to Depot St*	*Signalized pedestrian crossing of Beams Mill Road will most likely be required, other minor street crossings may be required. Detailed grading study to evaluate driveway replacements and utility relocations is recommended. Will need to coordinate with CSX rail to cross into Ellenboro.*	*1.59 mi*	*39*
29	*South Side of Sunshine Lake Rd from Beams Mill Rd to Business 74*	*Utilizes Beams Mill Road public right-of-way and Sunshine Lake right-of-way, will require extensive number of driveway replacements and possible minor roadway crossings. Pedestrian flashing beacons may be required.*	*.95 mi*	*10*
31	*Church St / Henrietta St and County-owned parcels from Ellenboro Henrietta Rd to Depot St*	*Will have to navigate within right-of-way, and cross over CSX rail line into Ellenboro at an unconventional angle. Driveway and utility relocations may be needed. Grading limits will need to be studied in detail.*	*0.34 mi*	*Possible*

Table 4. Route Segment Alternatives, Cont'd

Segment	Description	Opportunity / Constraint	Length	Parcels Impacted
32a	*South Side of Main St from Henrietta St to S Glenn St*	*Supports business connectivity along the main corridor, with impacts primarily related to power utilities*	*0.18 mi*	*10*
32b	*North Side of Main St from Henrietta St to S Glenn St*	*Connects to future Colfax Park using existing sidewalk infrastructure, with minimal utility (power) impacts.*	*0.22 mi*	*10*
32c	*North Side of Main St from S Glenn St to Hollis Rd*	*Offers direct access to future Colfax Park but runs through backyards, affecting parcels and railroad right-of-way.*	*0.32 mi*	*8*
32d	*Along Railroad right-of-way from Depot St to Future Colfax Park*	*Avoids most of the railroad right-of-way, but faces parcel conflicts and topography that exceeds a 5% grade.*	*0.29 mi*	*4*
33a	*East Side of Riverside Dr from Ole Caroleen Rd to Forest City Waste Water Treatment Plant*	*Avoids the wastewater plant, though it still intersects with railroad right-of-way and utilities.*	*0.26 mi*	*3*
33b	*West Side of Riverside Dr from Old Caroleen Rd to Forest City Waste Water Treatment Plant*	*Avoids railroad right-of-way, though some power utilities are present along the path.*	*0.25 mi*	*5*
33c	*East Side of Riverside Dr from Forest City Waste Water Treatment Plant to Business 74*	*Provides connectivity to houses, but must address fast traffic, utility conflicts, and roadside ditch topography.*	*0.44 mi*	*15*
34a	*East Side of Beams Mill Rd from Business 74 to Sunshine Lake Rd*	*Another housing connection with similar concerns: roadway speed, power utilities, and limited roadside space.*	*0.69 mi*	*13*
34b	*East Side of Beams Mill Rd from Sunshine Lake Rd to Old Forest City Rd*	*Another housing connection with similar concerns: roadway speed, power utilities, and limited roadside space.*	*0.71 mi*	*13*


3
Community +
Stakeholder Involvement

Community + Stakeholder Involvement

Informing, engaging, and gathering input from residents, local officials, and stakeholders was a central focus of this study and will remain critical to the project's long-term success. Meaningful engagement ensures that trail planning is not just a technical exercise, but a collaborative process shaped by the people who live, work, and travel through the study corridor. By creating space for open dialogue, the study team was able to better understand local priorities, uncover opportunities, and identify concerns that might otherwise go unrecognized.

The engagement process was designed to reflect the values of inclusivity and transparency. A tailored strategy combined structured forums, like Steering Committee meetings and stakeholder interviews, with broader opportunities for public participation through workshops, surveys, and online tools. This mix of approaches made it possible to reach different audiences, from property owners directly affected by the proposed alignment to regional partners with experience in trail development.

Equally important, engagement helped foster a sense of shared ownership and momentum. As participants contributed their knowledge and perspectives, they also became partners in shaping the vision for the Thermal Belt Rail Trail extension. By ensuring that the recommendations in this report reflect community voices alongside technical analysis, the study lays the groundwork for a project that will be both feasible and embraced by those it is intended to serve.

Image 20. Participant Notes at the Property Owner Workshop

Source: McAdams

PURPOSE

To inform community on the project, the planning process and understand public priorities for using and connecting to the Thermal Belt Rail Trail and the two communities of Forest City and Ellenboro.

COMPONENTS

Steering Committee Meetings:

1. Project Kick-off + Study Purpose + Goals (September 2024)
2. Study Considerations + Alternatives Development (February 2025)
3. Structure Analysis + Recommended Routes
4. Review Final Feasibility Study

Key Stakeholder Group Meetings:

- Foothills Conservancy
- Town of Forest City
- Rutherford County Schools
- Town of Ellenboro
- NCDOT Division 13 and Rail Division

Property Owner Workshop:

March 11th, 2025 (5:30-7:00 PM) at The Forest City Club House

Community Survey:

The purpose of the public survey was to build on insights gathered during the property owners' workshop. The survey was also open to community members in the surrounding area. By reaching a broader audience, the study gained a more accurate understanding of local conditions and public concerns related to the trail.

Webpage Materials:

Webpage materials are provided to allow easy access to information related to the project. The information was updated as the study progressed.

Steering Committee

The Steering Committee, composed of representatives from local agencies and businesses, met four times throughout the Feasibility Study to provide support, guidance, and oversight of the project's progress. Committee members reviewed the existing conditions analysis, offered input on the landowner workshop, and provided feedback on potential trail alignments and final recommendations.

STEERING COMMITTEE

Don Cason, *Rutherford County TDA Executive Director*

Danny Searcy, *Rutherford County Planning Director*

Jerry Stensland, *Foothills Regional Commission President*

Hannah Smith, *NCDOT Senior Planning Engineer*

Shelly Johnston, *Forest City Planning Director*

Shane Prisby, *Foothills Conservancy Trails Program Director*

Magnolia Long, *Foothills Regional Commission Senior Planner + RPO Director*

Alan Toney, *Foothills Regional Commission Community and Economic Development Director*

Dave Sutton, *Rutherford County Schools Chief Operating Officer*

Stephen Sparks, *NCDOT Division 13 Corridor Development Engineer*

STEERING COMMITTEE MEETING #1

The first Steering Committee meeting introduced the project, outlined the schedule, and initiated discussion about what would define a successful study outcome. The committee reviewed the alternatives development process, implementation and funding considerations, community and stakeholder engagement activities, and an initial alignment concept.

Successes: Members expressed that a successful expansion of the Thermal Belt Rail Trail would provide a feasible, community-supported route that improves local tourism, enhances quality of life, and expands safe transportation options for pedestrians. The trail was also seen as a complement to the Colfax Cotton Gin Park.

Challenges: Concerns were raised about safety and potential misuse of the trail (e.g., drug activity, squatting). Some committee members also noted mixed reactions from private property owners whose land may be needed for the alignment.

STEERING COMMITTEE MEETING #2

The second meeting focused on public engagement progress. The project team also provided updates on webpage materials, meetings with key stakeholders (such as Foothills Conservancy), and preliminary field and structure evaluations. In addition, the team introduced route evaluation methods, cut sheet examples, and an action plan framework that outlined tasks, leads, partners, timeframes, and performance measures.

Successes: The committee valued updates on engagement efforts and appreciated seeing how stakeholder and property owner feedback was shaping the study. The introduction of the action plan framework was received as a practical step toward future implementation.

Challenges: Members emphasized the need for continued outreach to ensure broad participation and raised questions about how property concerns would be balanced against route feasibility.

STEERING COMMITTEE MEETING #3

The third Steering Committee meeting focused on recapping the study schedule and sharing outcomes from the Property Owner Workshop and Stakeholder Meetings, which helped the committee understand specific community and stakeholder perspectives. The project team presented a segment analysis and two potential route alternatives, along with a bridge feasibility assessment. Committee members also reviewed the goals and structure of the upcoming public survey, and the project team encouraged members to take the survey and share it through their networks.

Successes: The committee reviewed tangible route options and bridge analyses, allowing for more informed discussions about feasibility. Engagement summaries provided valuable insights into how the broader community viewed the trail.

Challenges: Members acknowledged the difficulty of balancing technical feasibility with property owner concerns. Some routes remained contentious, and bridge limitations posed significant cost and design challenges.

STEERING COMMITTEE MEETING #4

The fourth Steering Committee meeting focused on reviewing the draft Feasibility Study. The project team presented recommended alignments, final analysis of opportunities and constraints, and draft implementation strategies. Members provided final feedback before the study was finalized and shared with the public.

Successes: Committee review of the draft plan will ensure that recommendations are clear, technically sound, and responsive to community priorities.

Challenges: The primary challenge at this stage will be reconciling any remaining differences between preferred alignments, landowner concerns, and budget realities while ensuring the final recommendations remain actionable and broadly supported.

Stakeholder Meetings

Key stakeholders, identified by the Steering Committee and project team, provided insight, support, and feedback throughout the feasibility study and on the potential trail connection. They included representatives from the two municipalities, Rutherford County, the school system, NCDOT, and local trail-focused nonprofits. These groups will continue to be essential partners as the project moves toward implementation.

FOOTHILLS CONSERVANCY

Michael Gaffney, Land Protection; Shane Prisby, Trails Coordinator; Jerry Stensland, FRC

On January 22, 2025, the project team met with representatives from the Foothills Conservancy to discuss the feasibility study. Conservancy staff expressed interest in learning more about the project's near-term and long-term goals. The project team emphasized that, as this is a feasibility study, not all questions can yet be answered but that future collaboration is anticipated. Foothills Conservancy indicated that they would be interested in partnering on projects that advance both land conservation and trail development.

FOREST CITY

Shelly Johnston, Planning Director; Ben Roach, Planning Intern; Police Chief LeRoy

Representatives from Forest City's planning department and police department shared perspectives on trail usage, maintenance, and enforcement. Both the Planning Director and Police Chief noted that while the Thermal Belt Rail Trail is a community asset, public perception concerns remain, particularly related to security. Suggestions included forming a citizen patrol to increase visibility and reassure trail users. Overall, Forest City expressed support for an extension and interest in participating in the design process for future trail segments.

Image 21. East Rutherford High School

Source: Homes.com

East Rutherford High School is located in the study area and Rutherford County Schools is a key stakeholder for the project.

RUTHERFORD COUNTY SCHOOLS

Kevin Bradley, Chief Operating Officer

The project team interviewed the Chief Operating Officer for Rutherford County Schools to understand the district's perspective. While acknowledging the value of a safe connection, the district raised concerns about trail access to an elementary school. Conversely, a spur connection to East Rutherford High School and the Rutherford Opportunity Center was viewed positively. The district emphasized that formal school board involvement would be necessary before project implementation.

ELLENBORO

Grace Bland, Water and Utility Billing Manager

A representative from Ellenboro indicated mixed perspectives within the community. Safety and trail usage were recurring concerns, similar to those raised about the existing Thermal Belt Rail Trail. Some downtown business owners were uncertain about potential economic benefits, and parking impacts were also raised should a trailhead be located downtown.

NCDOT

Hannah Smith and Doug Phillips, Division 13; Stephen Sparks, Corridor Development Engineer, Division 13; Joe Furstenburg, Integrated Mobility Division; Jahmal Pullen, Rail Division

NCDOT staff provided valuable technical feedback from multiple divisions. The team highlighted challenges related to a multi-use path at a railroad crossing near Ellenboro, specifically between a switchstand and the existing road surface. To advance this analysis, the project team was advised to convene a meeting with CSX, NCDOT, and the regional planning organization. NCDOT also recommended that any path be located outside of vehicular gates and maintain a minimum five-foot offset from the backside of the existing signal support, measured from its centerline.

Property Owner Workshop

The Property Owner Workshop was designed to understand the perspectives of landowners adjacent to the former rail bed regarding the potential conversion of the corridor into a multi-use trail. Because the line was abandoned and not railbanked, ownership reverted to private property owners.

Approximately 205 letters were mailed two weeks in advance to property owners within a half-mile buffer of the corridor. Each invitation included a flyer with frequently asked questions about the study and its purpose.

At the workshop, participants were welcomed with a brief presentation outlining the study's goals, timeline, and examples of trail facility types. Afterwards, property owners were invited to review parcel maps at breakout tables, where staff from McAdams and the Foothills Regional Commission helped locate their property and answer questions. Owners could provide feedback directly to staff or through written comment cards.

The majority of feedback expressed opposition or skepticism toward converting the corridor into a public trail. Concerns centered on potential crime, drug use, and the possibility of unhoused individuals establishing encampments along the trail. Some participants voiced strong opposition to any use of private land for trail purposes. A smaller number of property owners expressed conditional interest, requesting more information about options and emphasizing the need for voluntary participation in any future trail development.

Property Owner Workshop
Key Takeaways

205 invitations sent to property owners within ½-mile of the rail corridor.

Workshop featured a presentation, parcel maps, and small-group discussions.

Most feedback opposed trail conversion, citing crime, safety, and encampment concerns.

A few owners showed interest but stressed that participation must remain voluntary.

Image 22. Property Owner Workshop

Source: McAdams

Community members reviewing maps at the Property Owner Workshop.

Image 23. Property Owner Workshop Presentation

Source: McAdams

The opening presentation at the Property Owner Workshop.

Community Survey

From July 17 to August 18, 2025, an online survey invited community members to share feedback on the potential extension of the Thermal Belt Rail Trail from Forest City to Ellenboro. The survey gathered input on community needs, priorities, and concerns, with a focus on evaluating a sidepath option along public rights-of-way (the former rail bed south of Highway 74 was no longer under consideration, in response to feedback from the in-person community meeting). Responses provided additional insights about community priorities and helped to guide next steps for the project.

Figure 11. Survey Question: *Have you used the Thermal Belt Rail Trail before?*

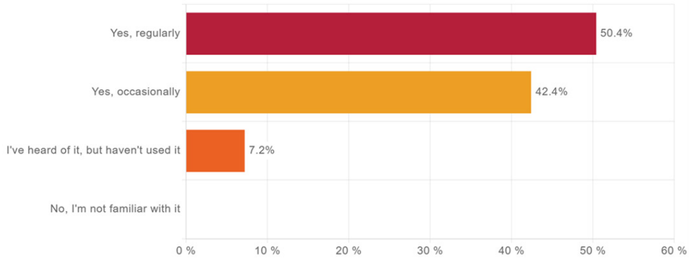
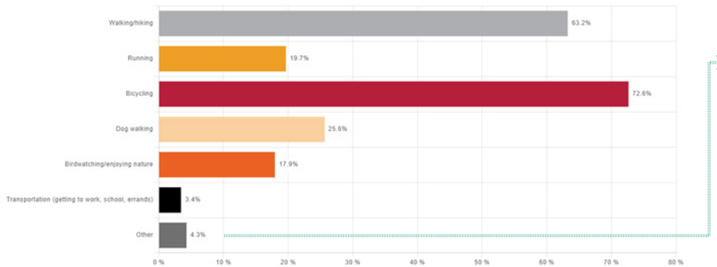


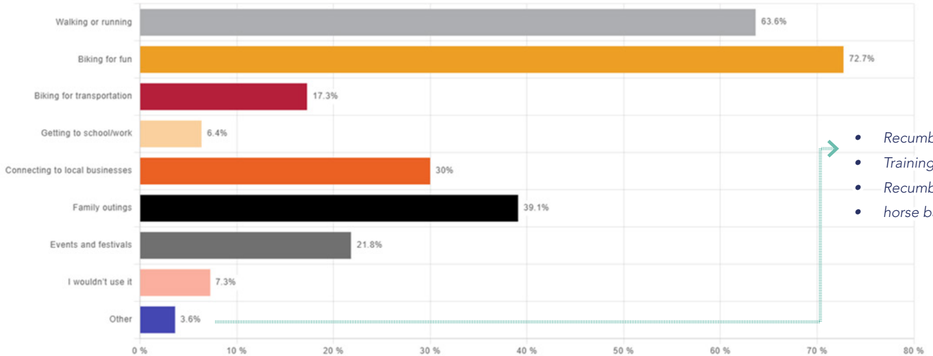
Figure 12. Survey Question: *What do you typically do on the Thermal Belt Rail Trail?*



- *Recumbent trike*
- *Skateboarding*
- *Family Picnics*
- *Meeting with friends to walk*
- *Recumbent triking. A frequent favorite of the Carolina Creepers (a Facebook Group). Grumpy's Bikes in Spindale is our favorite trike maintenance destination*

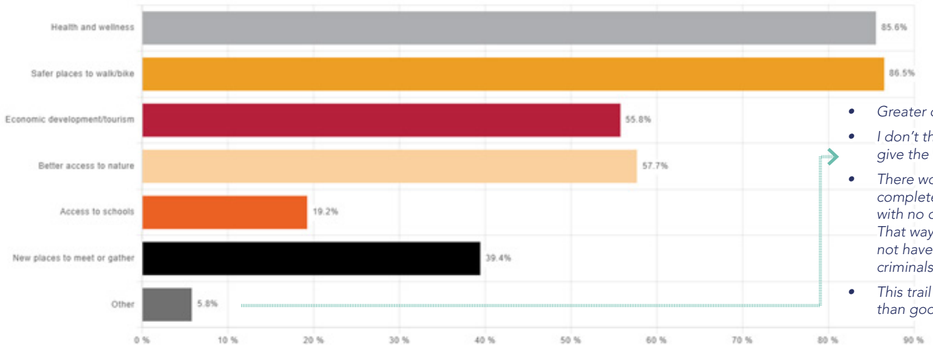
Image 24. Community Survey Flyer

Figure 13. Survey Question: *If extended, what would you hope to use the trail for?*



- *Recumbent trike*
- *Training for bike competitions*
- *Recumbent eTriking*
- *horse back riding*

Figure 14. Survey Question: *What benefits do you think a new trail section could bring to Ellenboro and the surrounding area?*



- *Greater opportunities for victimization*
- *I don't think it would bring any benefits. Just give the homeless a better place to walk*
- *There would be no benefits unless it was completely open and along the roadway with no obstructions and plenty of lighting. That way people might actually feel safe and not have to worry about the homeless and criminals taking it over*
- *This trail has proven to bring more trouble than good*

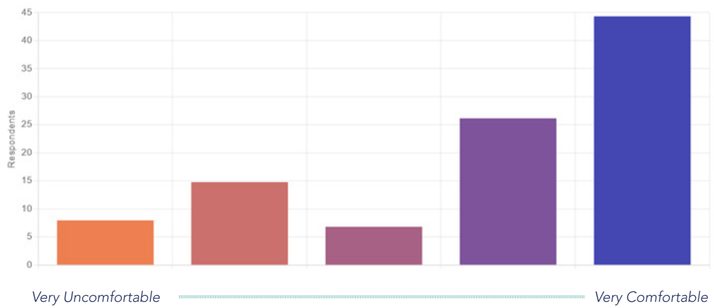
Image 25. Conceptual Rendering of a Multi-Use Sidepath along Business 74

Source: McAdams

Image 26. Example of a Multi-Use Sidepath in Creedmoor, NC

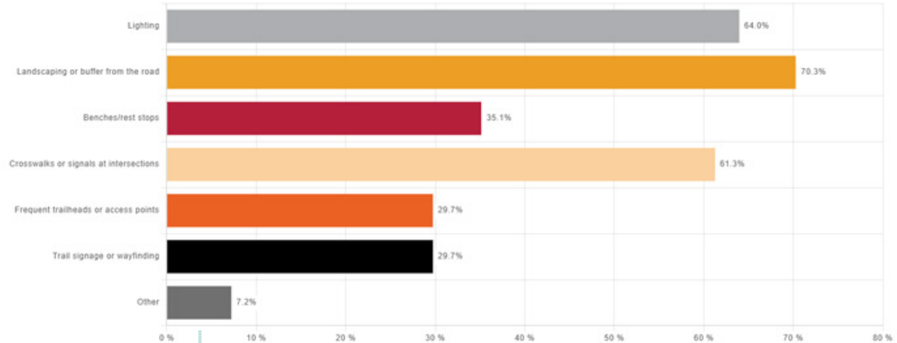
Source: Google

Figure 15. Survey Question: ***How comfortable would you feel using this type of facility (a multi-use sidepath)?***



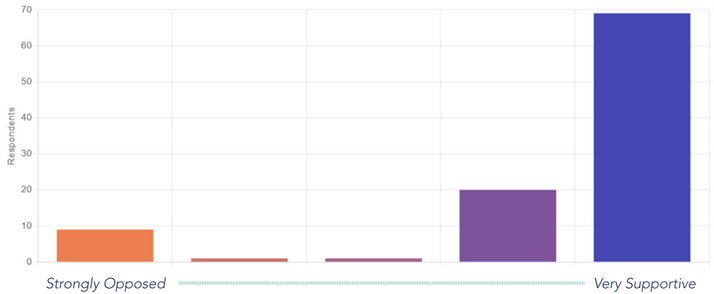
45%
of survey respondents say they would be very comfortable

Figure 16. Survey Question: ***What features would help make you feel safer and more comfortable using a sidepath trail?***



- *This is a 45 to 55 mile per hour posted road rife with inexperienced, young drivers, distracted drivers and the rest are on a steady diet of opiates and nicotine. Nothing about this would make me feel safer*
- *Hard sectional barrier to prevent errant driver or drunk from crossing to trail intentionally*
- *Police the trail. Homeless, druggies all over the trail. They litter, stand and or lay blocking the trail*
- *Keep the homeless off the trails*
- *I don't think any amount of items would keep you safe*
- *Native plants and fruit trees. Local information about species of historical features*
- *Guard rail feature for kids learning to ride bikes or even older folks who do not ride well*
- *Police security presence*

Figure 17. Survey Question: *How supportive are you of extending the Thermal Belt Rail Trail from Forest City to Ellenboro?*



70% of survey respondents are very supportive

Figure 18. Community Survey Quotes

Figure 20. Community Survey Quotes, Cont'd


4
Evaluation
+ Recommendations

Evaluation + Recommendations

EVALUATION CONSIDERATIONS

The recommendations outlined in this feasibility study represent a substantial investment in multimodal recreation and transportation, with the potential to improve how residents and visitors travel, connect, and experience the Ellenboro–Forest City corridor. If advanced, the greenway and sidepath will strengthen local quality of life by expanding safe, accessible mobility choices.

Two key study outputs—the project cut sheets and cost estimates—provide the foundation for developing realistic implementation scenarios. These tools give decision-makers the detail needed to weigh options, set priorities, and plan for phased construction. Achieving success, however, will require consistent coordination among many partners, including the Town of Ellenboro, the City of Forest City, NCDOT, CSX, private landowners, advocacy organizations, and the broader community.

To identify the most appropriate alignment, the project team applied a set of evaluation criteria and developed a qualitative assessment matrix. This process guided the comparison of alternatives and informed the selection of a recommended alignment to carry forward into future design.

Table 5. Evaluation Criteria *Evaluation criteria were applied to guide decision-making and identify the most feasible alignments. A qualitative assessment matrix was used to compare alternatives and recommend a preferred alignment to advance into design.*

Cost Effectiveness	*The total life-cycle cost of each alternative—including design, construction, and long-term maintenance—is a key factor in determining feasibility.*
Property Impacts	*Real estate acquisition significantly affects project cost and schedule. Preference is given to alternatives that use publicly owned property, existing easements, and public ROW while minimizing impacts to private landowners.*
Potential Funding Opportunities	*The availability and likelihood of funding is an important consideration, including the diversity of potential sources and the total amount that could be secured.*
Environmental Impacts	*Each alternative is evaluated on its ability to minimize impacts to natural resources, including streams, wetlands, buffers, floodplains, and other jurisdictional features during both construction and operation.*
Physical Feasibility	*The ease of engineering and permitting is a critical factor in determining whether a route alternative is realistic to advance.*

Table 5. Evaluation Criteria, Cont'd

Community Priorities	*To ensure alignment with community values, alternatives are evaluated for consistency with public input and adopted plans, drawing from past planning efforts and stakeholder engagement.*
Directness of Connection	*The degree to which alternatives connect users more directly to community and commercial destinations—as identified by the public and stakeholders—is considered essential to maximizing use.*
Traffic Impacts	*The extent of disruption to vehicular traffic, both during construction and in long-term design, is a factor in evaluating feasibility.*
Implementation Timeframe	*The timeframe required to plan, fund, design, and construct each alternative, as well as the community's tolerance for project duration, influences prioritization.*
Accessibility	*The convenience and accessibility of the facility for users of all ages and abilities is a significant consideration, ensuring the route functions as an inclusive community amenity.*
Placemaking + User Experience	*Finally, each alternative is assessed for its potential to support economic development, neighborhood revitalization, and public health through active lifestyles.*

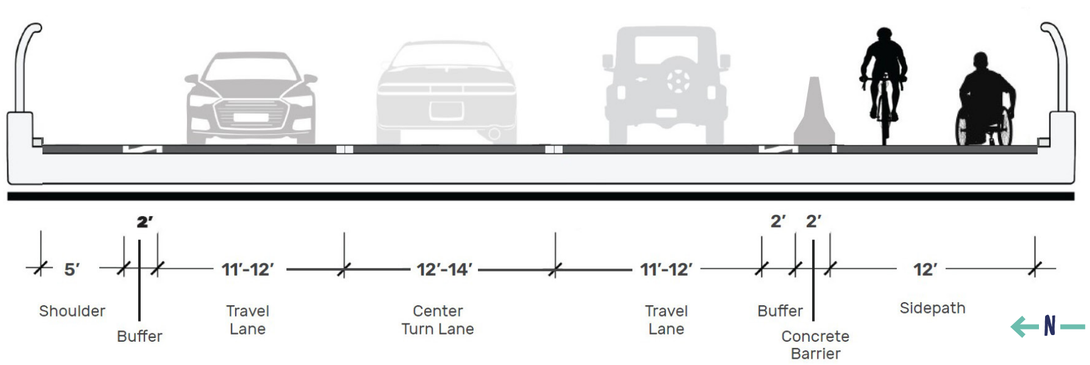
ALIGNMENT ALTERNATIVE A

This alternative begins at the Thermal Belt Rail Trail in Forest City at Liberty Street and Beaver Street. The route follows Beaver Street north as a shared street to Arlington Street, continues as a shared street, and then heads north on Alexander Street to East Main Street (Business 74). From there, the route extends as a sidepath along the south side of Business 74 from Alexander Street in Forest City to the Colfax Cotton Gin Park in Ellenboro.

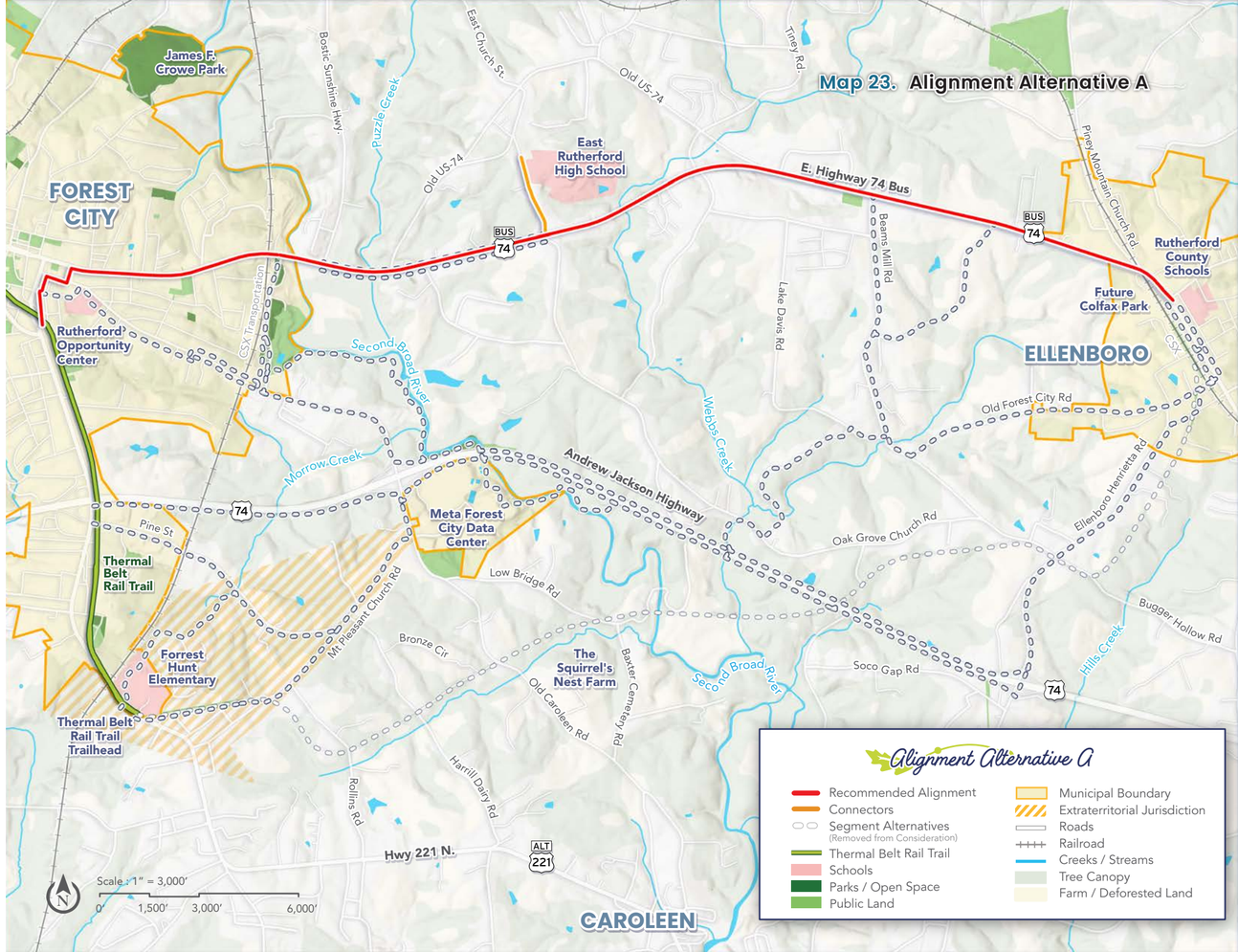
An optional spur to East Rutherford High School would provide a valuable connection between the school and the Thermal Belt Rail Trail. The spur is recommended as a multi-use sidepath along the east side of East High Road, approximately 1/3-mile in length. The total distance of the recommended alternative is 6.4 miles, including the spur trail to the high school.

This alternative assumes the sidepath project advances as an NCDOT project through the State Transportation Improvement Program (STIP), consistent with NCDOT's Complete Streets policy. It also assumes replacement of the Business 74 rail underpass in Forest City to accommodate a separated sidepath.

Figure 19. Conceptual Rendering of a Multi-use Sidepath along Business 74 Bridge



NCDOT plans to replace the vehicular bridge over the Second Broad River on Business 74. Coordination through this study helped identify the preferred treatment for the new bridge.



ALIGNMENT ALTERNATIVE B

This alternative is recommended if Alternative A cannot be implemented due to conflicts with active rail lines: one at the East Main Street underpass beneath the CSX rail line and another at the at-grade crossing on Business 74 in Ellenboro. Instead, this route uses a series of secondary roads to connect Forest City and Ellenboro.

The alignment begins at the Thermal Belt Rail Trail in Forest City at Liberty Street and Beaver Street, continuing north on Beaver Street as a shared street. It then follows Florence Street east as a sidepath on the south side to the former Rutherford Opportunity Center on Old Caroleen Road. From there, the route continues along Old Caroleen Road as a sidepath to Riverside Drive, where it turns north and follows the east side as a sidepath. The route then proceeds east as a sidepath along the south side of Business 74 for about 3 miles to Beams Mill Road. It turns south along Beams Mill Road as a sidepath to Webb Church Road, then east along Webb Church Road into Ellenboro, where the road transitions into Henrietta Street.

At Henrietta Street, the alignment crosses the rail line at-grade. Unlike the Business 74 crossing, this location crosses at a 90-degree angle with a wider shoulder that could accommodate a sidepath. After crossing, the route continues northwest as a shared street on Depot Street to the Colfax Cotton Gin Park. An optional 1/3-mile spur trail to East Rutherford High School is also recommended.

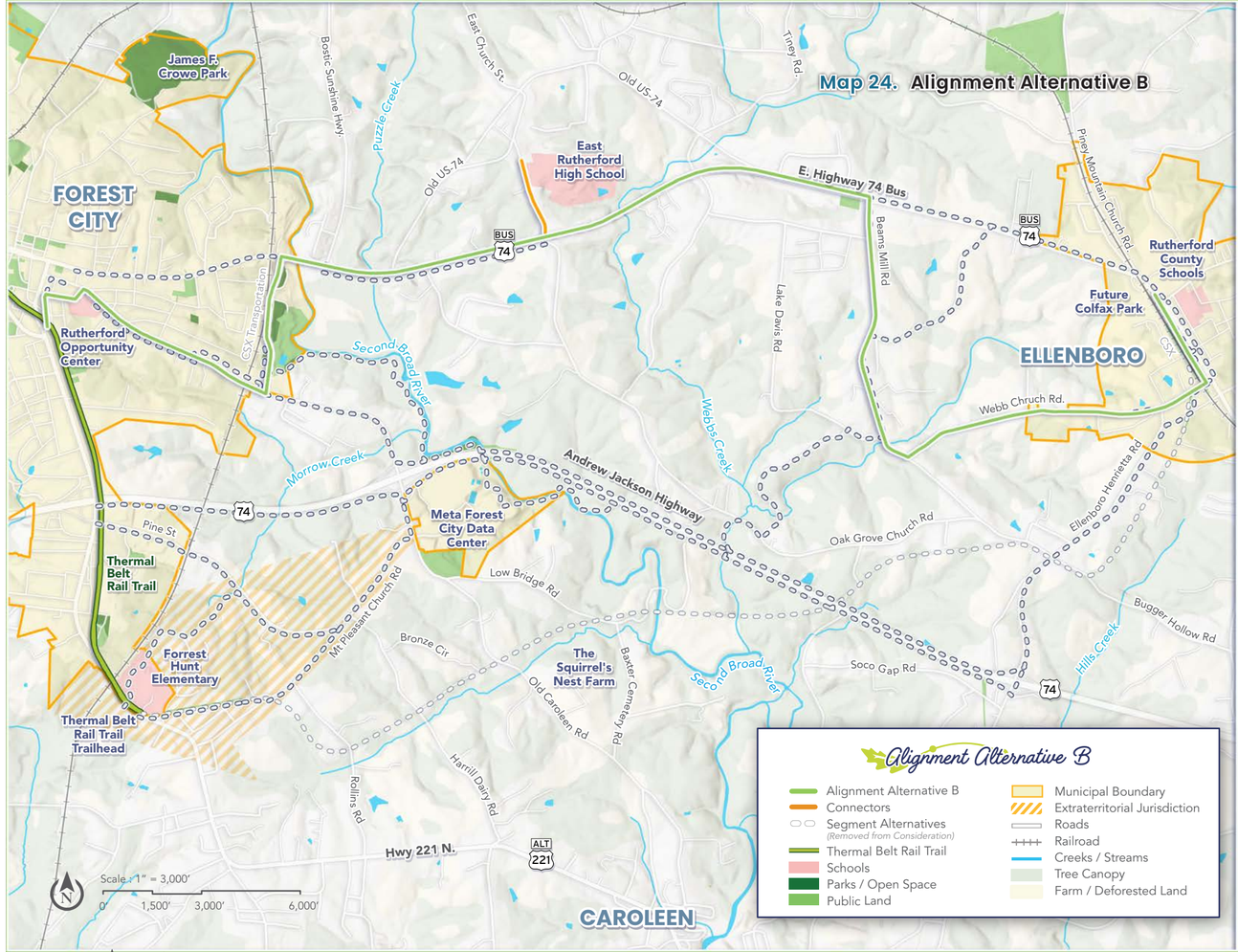
This alternative is longer than Alternative A, with a total distance of approximately 8.7 miles, excluding the spur.

Image 27. Depot Street in Ellenboro

Source: McAdams

If Alternative B is selected, the alignment would use Depot Street as a shared street to the Colfax Cotton Gin Park.

Map 24. Alignment Alternative B



MATRIX-BASED ASSESSMENT

The following matrix-based assessment applies the previously described evaluation criteria to each alignment alternative. Alternatives with a "High" score are considered the most desirable, while those with a "Low" score are least desirable. This scoring system provides a clear basis for comparing alternatives and informed the recommendation of a preferred greenway alignment.

Table 6. Alternative Alignment Evaluation Criteria Assessment

Route Evaluation Criteria	Alt. A	Alt. B
Cost-Effectiveness	Medium	Low
Property Impacts	Medium	Medium
Potential Funding Opportunities	Medium	Medium
Environmental Impacts	Medium	Medium
Physical Feasibility	High	Medium
Community Priorities	High	Medium
Directness of Connection	High	Low
Traffic Impacts	High	Low
Implementation Timeframe	Low	Low
Accessibility	High	Medium
Placemaking + User Experience	Medium	Medium

(Score: High=Most desirable, Low=Least desirable)

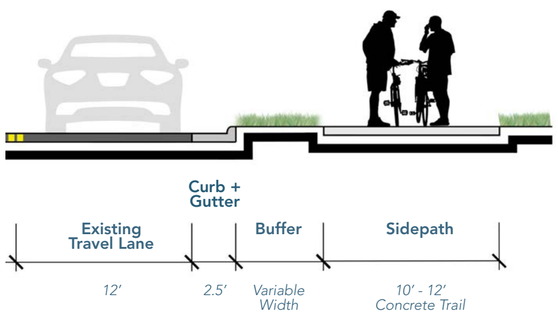
EVALUATION

Alternative A is identified as the preferred route due to its directness between Forest City and Ellenboro and its strong potential to serve both local residents and regional visitors. Because much of the alignment follows Business 74 as a sidepath, the route minimizes elevation changes and reduces overall construction costs compared to Alternative B. The alignment also provides a more visible, linear connection along a primary corridor, which can enhance wayfinding and user comfort.

The feasibility of Alternative A is based on a design that separates the multi-use path from vehicle traffic with a curb and grassed buffer, as illustrated below. This treatment improves safety, encourages use by people of all ages and abilities, and aligns with NCDOT's "Complete Streets" policy.

However, the route is not without challenges. Active rail crossings in both Forest City and Ellenboro will require careful coordination with CSX and NCDOT to address safety, liability, and design requirements. Right-of-way constraints in some locations may also increase design complexity and extend the project timeline. Despite these considerations, Alternative A represents the most cost-effective and implementable option for advancing the Thermal Belt Rail Trail extension connection.

Figure 20. Multi-Use Sidepath Typical Cross-Section



Multi-Use Sidepaths

A SAFE + CONNECTED OPTION

Multi-use sidepaths are paved facilities designed for walking, biking, and rolling, located immediately adjacent to a roadway but physically separated from vehicle traffic. They typically include a curb or landscaped buffer to enhance safety and comfort for users. Sidepaths are often the most feasible solution in communities where disused rail corridors are unavailable or where right-of-way is limited.

In the Forest City–Ellenboro corridor, sidepaths provide a cost-effective and direct way to connect people to schools, parks, downtown areas, and the Thermal Belt Rail Trail. Unlike traditional sidewalks, sidepaths are wider—generally 10–12 feet—allowing space for multiple users and modes to share comfortably.

For smaller towns and rural areas, sidepaths also offer important advantages: they improve pedestrian and cyclist safety on higher-speed roadways, reduce crash risks, and provide highly visible facilities that encourage more residents to walk and bike. When integrated into local road networks, sidepaths become a critical piece of "Complete Streets" infrastructure that supports both daily travel and recreation.

Design Snapshot

Width: *10–12 feet recommended*

Buffer: *Minimum 5-foot landscaped strip where possible*

Surface: *Paved, ADA-accessible*

Amenities: *Lighting, signage, benches, and trash receptacles as appropriate*

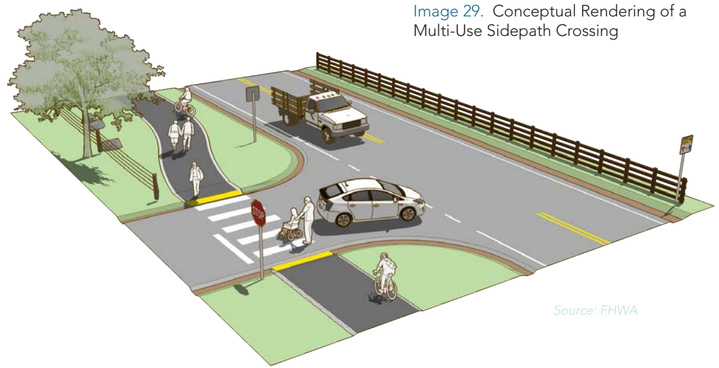
Image 28. Multi-Use Sidepath along a Two-Lane Road

Source: Google

Why Sidepaths Work

- Safe separation from vehicle traffic
- Comfortable for all ages and abilities
- Cost-effective compared to off-road greenways
- Highly visible, encouraging community use
- Flexible design—can include landscaping, lighting, and amenities

Image 29. Conceptual Rendering of a Multi-Use Sidepath Crossing



Source: FHWA

Neighborhood Shared Streets

LOW-STRESS: CALM, CONNECTED, AND COMFORTABLE

Many residential streets already function as shared spaces due to their low traffic volumes and speeds. While bike lanes or sidewalks are not always feasible, strategic design can improve comfort and safety for people walking and biking. Extending the Thermal Belt Rail Trail along quiet side streets offers an early, cost-effective option to expand the greenway network. In other communities, these routes are often referred to as bike boulevards, neighborhood greenways, or neighborhood bikeways.

Shared streets combine elements of greenways and "slow streets." Treatments may include traffic calming, signage, pavement markings, and intersection upgrades to create low-stress routes while discouraging cut-through traffic. Emergency and delivery access is always maintained.

To be most effective, neighborhood shared streets must also include safe, high-quality crossings at busier roadways. These crossings ensure the low-stress experience continues, even when users encounter higher-volume streets.

Pilot projects using temporary measures—such as flexible delineators, paint, and curbing—can help test designs before making permanent investments. Community input is vital: local residents and businesses can help identify routes, suggest improvements, and build consensus for long-term success. Each shared street requires further evaluation to determine the right mix of treatments for safe, comfortable use.

The Benefits of Shared Streets

- Cost-effective way to expand greenway networks
- Builds on existing low-traffic streets
- Encourages walking and biking without major construction
- Flexible: can be implemented quickly with pilot treatments

Key Design Tools

Pavement markings (shared lane symbols)

Traffic calming (speed humps, mini traffic circles, chicanes)

Wayfinding signage to key destinations

Intersection upgrades for safe crossings

Image 30. Conceptual Rendering of a Shared Street on Beaver Street in Forest City

Source: McAdams

A shared street design enhances safety and comfort for all users—bicyclists, pedestrians, and drivers—on narrow, low-speed neighborhood streets.

CROSSINGS

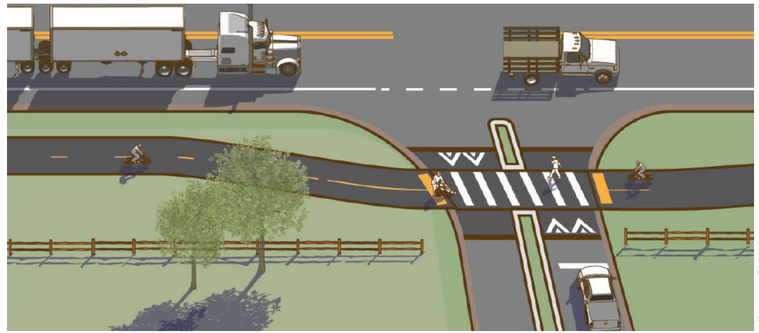
The proposed spur trail to East Rutherford High School will require a safe crossing of Business 74 at the intersection with E. High Road and Oak Grove Church Road. Currently, there is no dedicated pedestrian or bicycle treatment at this location, creating a potential safety concern for students, staff, and other trail users.

To ensure safe passage at crossings to key destinations, the final design should incorporate high-visibility crosswalks, pedestrian-activated rectangular rapid flashing beacons (RRFBs), or a high-intensity activated crosswalk (HAWK) signal. These treatments can alert drivers and provide protected crossing opportunities.

Where possible along the trail, the alignment may incorporate curb extensions, signage, and pavement markings to increase visibility and encourage slower vehicular speeds near the crossing.

Lessons from existing Thermal Belt Rail Trail crossings demonstrate that well-designed crossings not only improve safety but also enhance trail usability, making connections to schools, parks, and other destinations more attractive for all ages and abilities. Images of current trail crossings highlight treatments that can serve as models for the East Rutherford spur, including clearly marked crosswalks, refuge islands, and signalized approaches.

Image 31. Conceptual Rendering of a Multi-Use Sidepath Crossing



Source: FHWA

Safe sidepath crossings can include features such as refuge islands, roadway offsets, centerline striping, truncated domes, and raised crosswalks to improve visibility and protect pedestrians and cyclists.

Image 32. Intersection of Business 74 with East High Road and Oak Grove Church Road

Source: Google

This intersection will need numerous crossing treatments as the paved path crosses Oak Grove Church Road, then also crosses Business 74 to follow East High Road to reach the high school.

WAYFINDING

A clear and cohesive wayfinding system makes the trail easier and more enjoyable to navigate, particularly for new users, visitors, and families. Effective signage not only improves safety at crossings and intersections but also reinforces the trail's identity and supports accessibility for all users. The Thermal Belt Rail Trail already has a distinctive brand and signage system, which contributes to a strong sense of recognition and community ownership. For the proposed extension along shared streets and multi-use sidepaths, consistent signage will be critical to signal that this is an official continuation of the Thermal Belt Rail Trail. Recommended wayfinding elements include directional signs, distance markers, educational kiosks, and gateway signage to guide users and enhance the trail experience.

Wayfinding Best Practices

Keep signage consistent with Thermal Belt Rail Trail branding

Place directional signs at all intersections and decision points

Use distance markers to track progress and encourage use

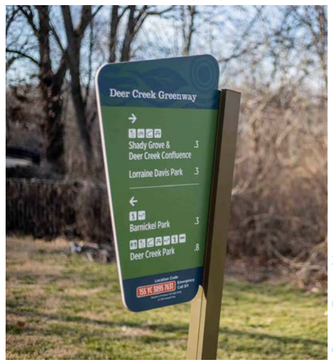
Incorporate accessible features (clear fonts, tactile surfaces, contrasting colors)

Provide educational kiosks with trail maps, rules, and cultural/ historical context

Image 33. Thermal Belt Rail Trail Trailhead Map Kiosk

Source: McAdams

Image 34. Trail Wayfinding Sign



Source: Engraphix

Image 35. Thermal Belt Rail Trail Mile Marker Sign

Source: McAdams

PLACEMAKING

In addition to providing safe and connected mobility, the Thermal Belt Rail Trail extension presents an opportunity for placemaking. Connecting Forest City and Ellenboro along Business 74, this route can serve as a visible gateway into each community. Trails paired with placemaking elements—such as public art, interpretive signage, and community-designed gateway features—enhance the sense of place, foster community pride, and create destinations that invite both residents and visitors to explore and engage with the corridor.

Placemaking Opportunities

Gateway features at trail entrances (archways, signage, landscaping)

Public art that reflects local history and culture

Community-led design projects to build ownership and pride

Interpretive elements (signage, murals, or installations) celebrating the textile and rail heritage of Forest City and Ellenboro

Rest areas with benches, shade, and landscaping to encourage gathering

Image 36. Trail Monument, Parking, and Swings (Huntersville)

Source: McAdams

Image 37. Trail Public Art Installation (Denver)

Source: Livable Cities Studio

Image 38. East Falls Gateway Sign

Source: East Falls Development Corporation


5
Implementation

Implementation

OVERVIEW

This report provides an implementation plan for multimodal investments to extend the Thermal Belt Rail Trail (TBRT) from Forest City to the Town of Ellenboro. The extension will create a desired connection linking Forest City, Ellenboro, East Rutherford High School, and the planned Colfax Cotton Gin Park.

This chapter includes project cutsheets, which present concise, standalone snapshots of each project element. The cutsheets detail route alternatives, phasing options, cross-sections, maps, visual renderings, and planning-level cost estimates to help Foothills Regional Commission and its partners move the project forward.

Equally important to implementation are local and regional partnerships, which are outlined in this chapter. The chapter also presents an action plan that defines next steps, assigns lead agencies and partners, establishes a timeline for implementation, and identifies metrics to track progress and measure success.
The following sections are included within Chapter 5:

- *Phasing + Prioritization*
- *Partner Roles*
- *Funding Considerations*
- *Action Plan*
- *Maintenance Recommendations*

PHASING STRATEGIES

In developing an implementation and phasing plan, certain factors are reviewed that may impact the timing of project implementation. During this analysis, the engineering team often splits a long project into shorter phases based on the following factors:

- *Availability of right-of-way and property ownership.*
- *Permitting challenges including NCDOT coordination, flood impacts, environmental impacts etc.*
- *Project need. For example, segments with known safety and crash history or key network gaps may be prioritized.*
- *Project cost.*
- *Potential funding and matching funds.*
- *Project partnerships.*

In order to implement the extension of the Thermal Belt Rail Trail, a flexible phasing strategy is needed. A logical place to begin is Forest City where the existing Thermal Belt Rail Trail meets Beaver Street. From there, two main phases are proposed as follows:

Phase 1 - Thermal Belt Rail Trail in Forest City to the proposed spur trail to East Rutherford High School.

Phase 2 - Colfax Cotton Gin Park in Ellenboro

to the proposed spur trail to East Rutherford High School.
In Ellenboro, the railroad presents a critical decision for the preferred alignment. Two potential at-grade crossing options exist: one at Business 74 north of downtown and another at Henrietta Street. The question is whether the sidepath along Business 74 can continue directly into Colfax Cotton Gin Park or must instead shift to Alternative B.

The Henrietta Street crossing offers advantages: it has a wider pavement area and crosses the tracks at a 90-degree angle, providing a safer design opportunity. However, reaching this location would require diverting from Business 74 onto Beams Mill Road, then Webb Church Road, and reconnecting at Henrietta Street—adding nearly two miles to the alignment.

In contrast, securing approval and design for an at-grade crossing at Business 74 would allow the alignment to remain more direct, connecting seamlessly to both Colfax Cotton Gin Park and downtown Ellenboro.

The Appendix includes NCDOT's Rail Division explanation and recommended next steps regarding the Business 74 at grade crossing conversion.

EARLY ACTION IMPLEMENTATION RECOMMENDATIONS

Early coordination between multiple agencies and partners will be needed to bring this project to fruition. Foothills Regional Commission, Rutherford County, Forest City, and Ellenboro will need to coordinate efforts and continue to partner with NCDOT Division 13 and the Rail Division. Partner agencies and their respective roles are described in the Action Plan. Early action items are described below.

1. Determine if an at-grade crossing of the rail line in Ellenboro at the US 74 Business crossing can be re-designed to accommodate bicycle and pedestrian infrastructure. CSX is the owner of the rail line that traverses Ellenboro. NCDOT Rail Division can facilitate an approach with CSX. During this project, representatives from Rail Division were consulted and recommend a diagnostic team meeting be held with CSX, NCDOT representatives, and an RPO representative. The diagnostic team will determine CSX's requirements to accommodate an at-grade crossing of the track on US 74 Businesses in Ellenboro. Continued coordination with Rail Division will need to occur as a portion of Riverside Drive, recommended for a sidepath, falls within the railroad right-of-way on the eastern part of Forest City.

2. Furthermore, NCDOT will need to become a partner in the proposed extension, both in the short term and in the long term. In the short term, NCDOT has plans to replace a vehicle bridge along the recommended alignment on US 74 Business: Bridge #36 over the Second Broad River. The design is still in the preliminary stage and presents an opportunity to coordinate efforts to establish the needed width for a sidepath on the new vehicle bridge. This proactive approach may prevent redundancies and potentially save costs during the design and construction phases.

3. Continue coordination with the Forest City staff and officials to establish a "shared street" along the recommended alignment. Shared streets are recommended along Beaver Street, Arlington Street, and Alexander Street from the intersection of the Thermal Belt Rail Trail to East Main Street (Business 74 and Alexander Street). Shared streets are a low-cost intervention that is aimed at changing driver behavior to accommodate all modes of transportation on a shared street. These are only recommended on streets with low speeds and traffic volume. Signage that indicates this is a shared street is key to communicating with all users.

PREFERRED ALTERNATIVE CUTSHEETS

To evaluate phasing strategies, project cutsheets were developed for the preferred alignment, Alternative A. The cutsheet, presented on the following pages, include implementation details such as:

- *Project map and description of improvements.*
- *Right-of-way availability and property acquisition needs.*
- *Permitting needs.*
- *Cost estimates for survey, design, and construction.*

EXPLANATION OF COST ESTIMATE ITEMS

The cost estimates presented on the cutsheet pages are planning-level estimates intended to provide a general order-of-magnitude for budgeting and funding discussions. They are not based on detailed survey or engineering design. As the project advances, these estimates should be refined through preliminary design, environmental review, and right-of-way investigation.

Baseline Construction

Represents the probable cost for a contractor to build the improvements in the current calendar year. Estimates are based on recent bid prices from similar projects. Detailed cost breakdowns for individual project elements are included in the Appendix.

Survey and Design Services

Covers consultant services to obtain survey data, prepare design plans, secure permits and approvals, and produce construction documents. Final design costs vary depending on the funding source, permitting requirements, and environmental conditions discovered during preliminary investigations. To manage uncertainty, design should be advanced in stages, with costs and permitting needs revisited after the preliminary design phase.

Right-of-Way (ROW) Acquisition

Some portions of the project may impact private property beyond existing right-of-way. ROW tasks may include purchasing land, obtaining easements, and preparing legal and survey documentation. Costs depend on property values, acquisition type, and legal requirements. If federal transportation funds are used, the process must comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act). Given the variability and need for appraisals and negotiations, ROW costs are not included in this study's estimates and should be calculated as individual segments advance into design and implementation.

Escalated Construction

Because construction is unlikely to occur in the current year, costs must be escalated to account for inflation during the period required to secure funding, complete design, acquire ROW, and obtain permits.

Construction Engineering + Inspection Services

CEI services are required during construction to ensure compliance with design and funding requirements. Typical CEI costs range from 9%–12% of the construction estimate, depending on project size and complexity. For this study, 7.5% is assumed for preliminary engineering and 7.5% for final engineering.

Total Budget Estimates

To account for unforeseen conditions and design refinements, a 25% contingency has been applied. This higher contingency is appropriate at the planning stage, before survey and detailed design work. The final planning-level budget reflects the sum of construction, design, escalation, CEI services, and contingency, rounded to the nearest dollar.

Image 39. Colfax Cotton Gin on Main Street in Ellenboro

RECOMMENDED ALIGNMENT

Alternative A begins at the Thermal Belt Rail Trail (TBRT) in Forest City at Liberty Street and Beaver Street. From this point, the alignment follows Beaver Street north as a shared street to Arlington Street, then continues as a shared street on Alexander Street to East Main Street (Business 74). The corridor transitions to a multi-use sidepath along the south side of Business 74, extending east toward Ellenboro. The first phase of implementation is recommended from the TBRT to East Rutherford High School, utilizing a 0.3-mile spur sidepath along the east side of East High Road to provide a direct school connection. Phase two would extend the facility from the high school spur east along Business 74 to Colfax Cotton Gin Park in Ellenboro. The total length of the corridor is approximately 6.4 miles, including the spur trail to the high school.

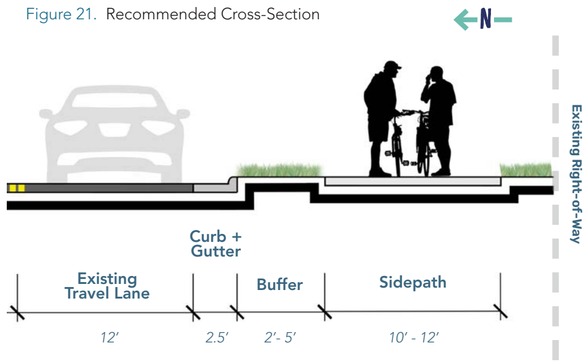
This alignment is predicated on the sidepath being advanced as an NCDOT project through the State Transportation Improvement Program (STIP) and is consistent with NCDOT's Complete Streets policy. It also assumes replacement of the Business 74 rail underpass in Forest City to accommodate a separated sidepath facility.

Snapshot	
Location	*Sidepath along Business 74 east of Forest City to the town of Ellenboro.*
Facility Type(s)	*Shared Street on local roads in Forest City; Multi-use sidepath along NCDOT maintained Business 74.*
Total Length	*6.4 miles*
Real Estate Acquisition Needs	*Some construction easements may be needed along properties that abut Business 74.*
Permitting Needs	*NCDOT Encroachment Agreement; Erosion and Sediment Control Permit; Possible National Environmental Permitting Agency categorical exclusion.*

Cost Summary		
	2025 Baseline	**2030 Build Year**
Construction Cost	$25,445,000	$32,480,000
CEI Services		$3,898,000
Survey / Design Services		$2,750,000
Project Contingency		$1,624,000
Total Budget Estimate:		**$40,752,000**

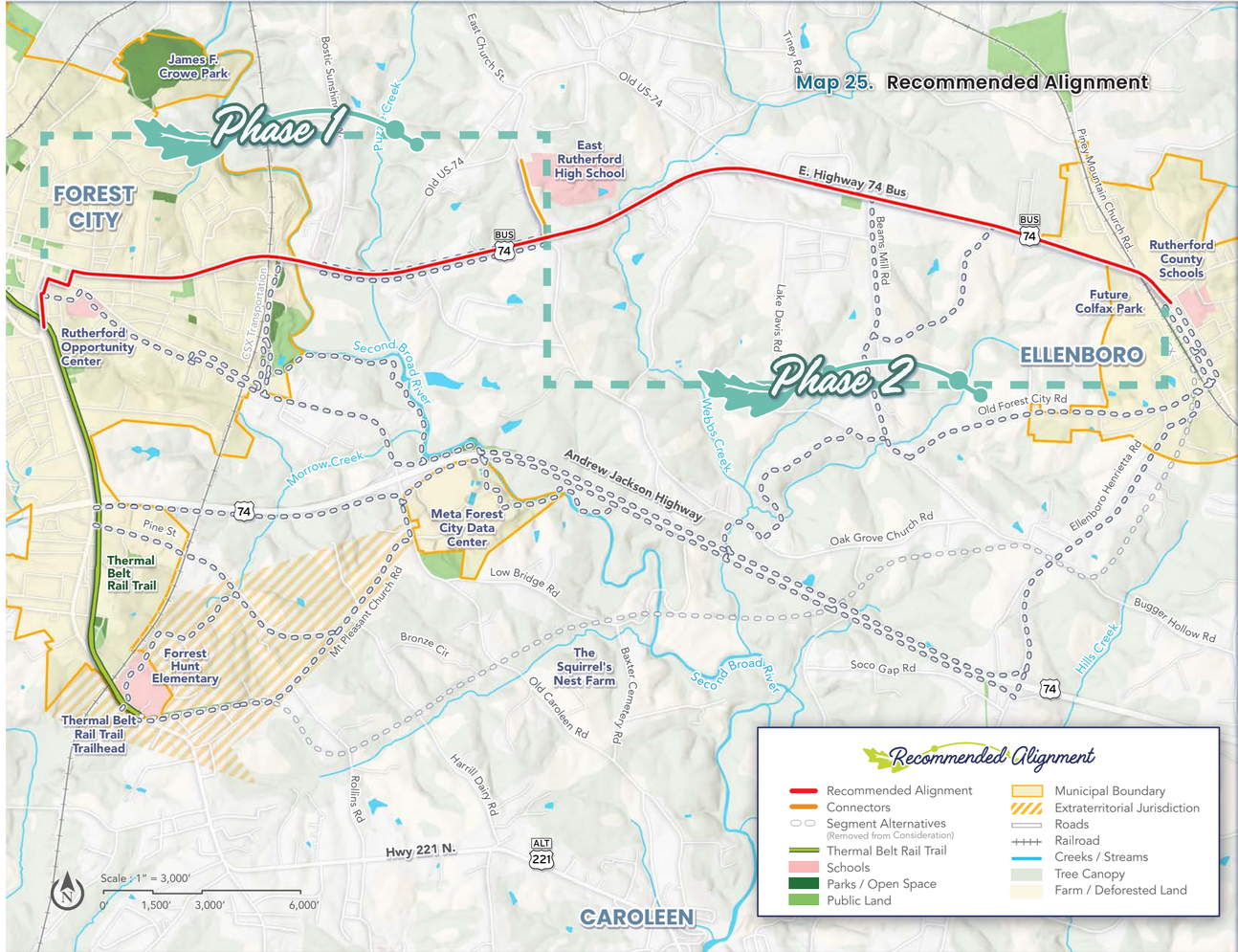
**See the Appendix for detailed cost information*

Figure 21. Recommended Cross-Section



Sidepath

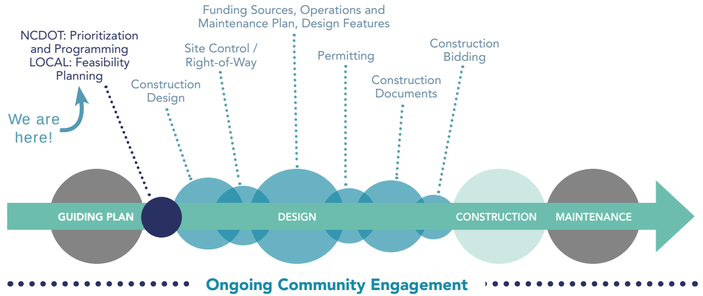
The recommended alignment for Alternative A is primarily a multi-use sidepath located within the existing NCDOT right-of-way along the south side of Business 74. This configuration minimizes the need for property acquisition and provides a direct, visible connection between Forest City and Ellenboro. The preferred cross-section features a 10–12 foot paved sidepath separated from the roadway by a grassed buffer and curb, enhancing comfort and safety for people walking and biking. This treatment aligns with NCDOT's Complete Streets policy and represents the agency's current standard for high-quality, multi-use sidepath facilities within state-maintained corridors.



LIFECYCLE OF A PROJECT

One of the most asked questions in the work of building pedestrian and bicycle networks is "when will the project be finished so I can take a walk or bike?" While seemingly straightforward, the answer is complex. The graphic below illustrates the typical lifecycle of an active transportation project. The time it takes to implement a project depends on the project's complexity, managerial oversight (whether by local authorities or NCDOT), the type of funding involved, how much ROW is needed, and the scale (size) of the project. This project represents the 'Feasibility Planning' stage of projects, and from there it will move into the subsequent stages of funding (programming), design, construction, and then maintenance. The cutsheets will enable these projects to be well-presented for funding opportunities, facilitating their advancement through the subsequent lifecycle stages.

Figure 22. Lifecycle of a Transportation Project



KEY PARTNERS FOR IMPLEMENTATION

Future success for the Thermal Belt Rail Trail extension will involve collaboration with regional and state agencies, local partners, the private sector, and non-profit organizations.

Foothills Regional Commission (FRC)

Through their leadership and decision-making, Foothills Regional Commission and Rural Planning Organization (RPO) assumes a role in facilitating funding opportunities and coordinating collaboration between entities such as the Tourism Development Authority, NCDOT, Forest City, Ellenboro, and Rutherford County. Their responsibilities encompass the coordination of funding for various projects through programs like the State Transportation Improvement Program (STIP) and other available avenues, such as discretionary funding.

Rutherford County Commissioners

Rutherford County Staff and Commissioners contribute to the successful realization of Thermal Belt Rail Trail's goals and objectives. As the governing body, the County Commission has the authority to guide implementation, including making budget decisions related to the rail trail's progress and affirming their support of walking and bicycling. Additionally, they play a role in collaborating with entities such as NCDOT and the Foothills Regional Commission to ensure effective coordination and alignment of efforts.

Rutherford County Tourism Development Authority

The Tourism Development Authority (TDA) collects funds from overnight stays in the county and then invests in projects that promote tourism. One of the areas that the TDA has focused on is local trails – greenways, blueways, and hiking trails. By funding the construction and improvement of area trails, Rutherford Bound is improving the quality of life for residents and actively attracting more visitors to the area. By funding acquisition and organizational support, the TDA can be a key partner in the extension of the Thermal Belt Rail Trail.

Rutherford County Schools

Rutherford County Schools can be a partner in continuing to reach out to students and parents about the need for more bicycle facilities to schools. In addition, the recommended route includes the Rutherford Opportunity Center (ROC) and therefore, coordination with the School Board for any facility on this property will need to be sought.

Forest City Staff + Town Council

Forest City staff and council will be a key partner in extending the Thermal Belt Rail Trail, especially considering that roughly one third (1/3) of the recommended extension of the Thermal Belt Rail Trail is within Forest City boundary. In addition, the route would require cooperation from the city on city-owned property outside of town. Furthermore, there is potential for growth and connectivity opportunities in areas located just beyond the city limits. City staff can guide projects through design, construction, and maintenance in coordination with other partners. The city and county need to work in tandem to establish connections, develop maintenance agreements, and coordinate policy decisions.

Town of Ellenboro Staff + Aldermen

The Town of Ellenboro will be instrumental in assisting in the development of a connection into town and on town property. Some of the route recommendations use town-maintained streets and parcels. Town officials will need to provide guidance and coordination with other projects the town has in development.

NCDOT Division 13

There are ample opportunities to foster close coordination with Division 13 of NCDOT. These opportunities encompass a range of initiatives, such as projects outlined in the State Transportation Improvement Program (STIP), as well as resurfacing, roadway, and bridge reconstruction projects. Additionally, Division 13 offers other funding opportunities that can be explored to support and enhance transportation endeavors in the region. By actively engaging with Division 13 of NCDOT, the city can tap into their expertise, resources, and funding mechanisms to implement transportation initiatives.

NCDOT Rail Division

The NCDOT Rail Division can assist with an approach to reach out to the owner of the rail lines in Ellenboro and Forest City. Representatives were part of the stakeholder interviews for this project. As the project moves forward into the planning phase, a diagnostic team meeting will need to be held with CSX, NCDOT representatives, and an RPO representative.

NCDOT Integrated Mobility Division

Based out of Raleigh, this division of NCDOT develops guidance on bicycle and pedestrian policy and complete streets, which is critical to project development.

Private Sector (developers and other funders such as non-profit organizations)

By engaging with developers, the city can explore additional avenues for incorporating infrastructure improvements, such as greenways and paved trails, into new development projects. This proactive approach ensures that new developments contribute to overall walkability and accessibility.

Foothills Conservancy

Located in Morganton, Foothills Conservancy works with private landowners to conserve land in the foothills. In addition to land conservation, the group has a strong trails program, promoting the development of and public access to trails including the Wilderness State Trail. Foothills Conservancy can continue to be a partner in promoting the extension of the Thermal Belt Rail Trail.

Rutherford Outdoor Coalition

Rutherford Outdoor Coalition promotes outdoor recreation across Rutherford County by building and developing new trails, and protecting existing ones. ROC advocates for expanding trail opportunities and mobilizes volunteers to do trail work. By organizing local recreation groups, holding monthly meetings, and circulating information, ROC is an instrumental trail partner in Rutherford County.

Image 40. Rutherford Outdoor Coalition Office on the Thermal Belt Rail Trail in Spindale

Source: Rutherford Outdoor Coalition

Community + Business Members

Forest City and Ellenboro benefit greatly from a dedicated group of community and business volunteers who generously contribute their time and energy to enhancing the area. Their efforts have played a meaningful role in driving progress and accomplishments over the past decade, as seen in initiatives led by partners like the Thermal Belt Rail Trail. Community members also actively promote walking by engaging in conversations with neighbors, friends, colleagues, and others in their networks. These interactions help build public support and enthusiasm for pedestrian initiatives. Additionally, they advocate for improved projects by communicating the community's needs and aspirations to elected officials and other key stakeholders.

ACTION PLAN

For this Feasibility Study to be effective, it needs a clear action plan that identifies the next steps to achieving its vision. The following action plan indicates a timeframe to implementation, lead agency, key partners, and performance measures to evaluate success. This approach will allow the partners to be strategic yet flexible as opportunities arise.

Table 7. Action Plan

TASK	ACTION	LEAD	PARTNERS	TIMEFRAME	MEASURING SUCCESS
1	Coordinate with community partners such as Rutherford Bound and Rutherford Outdoor Coalition to advocate for project prioritization and funding.	Rutherford County TDA	Community partners	Fall 2025	Coordination notes / meeting minutes
2	Coordinate with Forest City on use of Town-owned streets as shared streets.	FRC; Forest City staff	Forest City Council	Fall 2025	Coordination notes / meeting minutes
3	Diagnostic team meeting with Rail Division, CSX, Division 13; RPO to determine next steps in identifying at grade crossing approval.	FRC	Rail Division; Division 13	Fall 2025	Coordination notes / meeting minutes
4	Coordinate with NCDOT Division 13 on bridge replacement on Business 74 over Second Broad River.	FRC; NCDOT Div 13	Rutherford County	Fall 2025	Coordination notes / meeting minutes
5	Forest City and Ellenboro adopt this plan, which allows the study to become the official planning document and shows intention to support implementation over time.	Forest City; Ellenboro	FRC	Fall 2025	Adopted Plan
6	Ensure that the preferred alignments from this study are incorporated into regional plans, such as the CTP / MTP.	FRC	Town Staff, NCDOT IMD and Div 13	Winter 2025	Amendment to Plan Documents
7	Continue to advance the project through the SPOT 8.0 process.	FRC; NCDOT Div 13	Town and County Governments	Winter 2025 / 2026	Added to STIP

Table 7. Action Plan, Cont'd

TASK	ACTION	LEAD	PARTNERS	TIMEFRAME	MEASURING SUCCESS
8	Coordinate with Ellenboro on connection to Colfax Park and use of town-owned streets as shared streets.	FRC; Forest City staff	Forest City Council	Spring 2026	Coordination notes / meeting minutes
9	Develop a landowner outreach approach to coordinate with landowners along the project corridor. Develop strategies to acquire easements from willing property owners.	FRC; Forest City staff	Forest City Council	Spring 2026	Coordination notes / meeting minutes
10	Coordinate with Rutherford County Schoolboard on Connection to East Rutherford High School.	FRC; Forest City staff	Forest City Council	Spring 2026	Coordination notes / meeting minutes
11	Coordinate with key project partners to evaluate and advance phasing options based on the scenarios presented in Chapter 5.	FRC	NCDOT Div 13	Ongoing, Winter 2026	Coordination notes / meeting minutes
12	Seek future funding opportunities for construction.	FRC; TDA	NCDOT Div 13 and IMD; Rutherford Co.	Summer 2026	Funding strategy meeting
13	Consider the creation of an annual work plan to guide the development of the project. The work plan may include key milestones, timelines, and roles.	FRC	Forest City; Ellenboro Div 13	Ongoing	Annual work plan document
14	Coordinate with regional partners to ensure system-wide branding, design consistency, and wayfinding.	Forest City; Rutherford County	FRC; NCDOT; Community partners; Ellenboro	Fall 2027	Signage concepts for TBRT extension
15	Develop a maintenance plan for the project.	Forest City; Rutherford County	FRC; NCDOT; Community partners; Ellenboro	Summer 2027	Maintenance plan document

Funding Opportunities

FUNDING SOURCES

Several Federal, state, and private funding programs have been instrumental in supporting bicycle and pedestrian networks across North Carolina and can be leveraged to design and construct the Thermal Belt Rail Trail extension and associated Complete Streets improvements.

This section summarizes available funding sources in light of recent changes and uncertainty in Federal infrastructure funding. While the Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA) authorized significant investments, both programs are set to expire in September 2026, and federal agencies are reviewing programs to align with current administration priorities. Consequently, funding availability for this project is subject to change. This summary reflects information available at the time of publication; amounts, cycles, and programs may change over time. Expired programs are excluded, while programs under review without current appropriations are included for reference. Unless otherwise noted, all discretionary grants are reimbursement-based. The Appendix contains a detailed list of funding programs.

FEDERAL FUNDING

At the Federal level, active transportation projects are funded through both formula allocations and competitive grants, often administered through state Departments of Transportation (DOTs), MPOs, or other agencies, such as Departments of Cultural and Natural Resources. The Thermal Belt Rail Trail extension project sponsor can pursue funding for design and construction by coordinating with NCDOT and regional MPOs, submitting the project through the Statewide Transportation Improvement Program (STIP) prioritization process for potential formula funding, and competing for discretionary grants. Federal programs relevant to bicycle and pedestrian facilities in Rutherford County include Transportation Alternatives (TA), Surface Transportation Block Grant-Direct Attributable (STBG-DA), Carbon Reduction Program (CRP), Highway Safety Improvement Program (HSIP), Federal Land and Water Conservation Fund, Community Development Block Grant (CDBG), BUILD, National Endowment for the Arts Grants for Arts, Active Transportation Infrastructure Investment Program (ATIIP), and PROTECT.

Federal Funding Priorities

To compete for discretionary funding, it is important to align the project with agency priorities. Current federal priorities include safety, economic competitiveness and opportunity, and innovation. The Thermal Belt Rail Trail extension aligns with these priorities by providing a safe multimodal connection between Forest City and Ellenboro, supporting access to key destinations, and promoting active transportation in a rural community.

STATE FUNDING

State funding is available through NCDOT and the North Carolina Department of Natural and Cultural Resources (NCDNCR), as well as other agencies administering discretionary grants focused on public health, community development, and parks and recreation.

Programs that may support the project include the Great Trails State Program, Parks and Recreation Trust Fund (PARTF), NC Land and Water Fund, Accessible Parks Grant, Small Business Infrastructure Grant, Rural Downtown Economic Development Grant, and NCDOT's Statewide Transportation Investment prioritization process.

LOCAL FUNDING

Local funding can provide additional support for project components or serve as a match for Federal and state funds. Potential sources include municipal budgets, capital improvement plans, developer agreements, and impact fees.

Private and non-profit organizations can supplement public funding, typically for discrete improvements, programming, amenities, or maintenance. Relevant sources for the Thermal Belt Rail Trail include public / private partnerships, corporate sponsorships, the Rural Health Initiative (RHI) Legacy Foundation, AARP Community Challenge, Golden LEAF, People for Bikes Community Grant Program, National Association of Realtors Placemaking Grants, and Two for the Trails (Athletic Brewing Company).

WORKING IN PARTNERSHIP

Finally, building strong partnerships is critical to securing funding. Broad support can strengthen grant applications, provide matching resources, and facilitate technical assistance. Potential partners include:

- State agencies (NCDOT, NC Department of Natural and Cultural Resources, NC Department of Commerce, NC Wildlife Resources Commission, NC Department of Environmental Quality, and NC Department of Health and Human Services)
- Foothills Regional Commission
- French Broad River MPO
- Gaston-Cleveland-Lincoln MPO
- Rutherford Tourism Development Authority
- Rutherford County Schools
- Meta Forest City Data Center
- Rutherfordton Spindale Chamber of Commerce
- Rutherford Outdoor Coalition (ROC)
- Puzzle Creek Outdoor Company
- Rural Health Initiative (RHI) Legacy Foundation
- Community Health Council of Rutherford County
- Dogwood Health Trust
- Rails to Trails Conservancy
- BikeWalk NC

Image 41. Thermal Belt Rail Trail Bridge

MAINTENANCE

The long-term success of the Thermal Belt Rail Trail extension will depend on consistent, well-planned maintenance. A clean, safe, and well-kept trail not only improves user experience and safety, but also reduces long-term costs by preventing major repairs, extending the life of infrastructure, and building public trust. Regular maintenance also fosters positive relationships with adjacent landowners and encourages community stewardship. To achieve these benefits, Rutherford County, Forest City, Ellenboro, and NCDOT should coordinate on a comprehensive maintenance plan prior to opening each phase of the project. This plan should define roles and responsibilities, funding strategies, inspection schedules, and performance standards, with annual updates to reflect lessons learned and evolving needs.

Material-Specific Needs

Trail surfaces and materials require tailored maintenance approaches. Asphalt and concrete trails typically withstand rainfall and runoff, but are vulnerable to freeze/thaw cycles that can cause cracking or buckling, leading to potholes and uneven surfaces. Crushed gravel trails, while resilient against freeze/thaw damage, are more susceptible to rutting, erosion, and surface softening during heavy rain, requiring more frequent grading and upkeep. Understanding these differences is key to budgeting and scheduling routine maintenance activities.

Routine Maintenance Practices

Ongoing care should focus on keeping facilities in safe, usable condition rather than major reconstruction. Typical activities include:

- Clearing litter, debris, and vegetation encroachment
- Annual facility evaluations and condition inspections
- Pavement and surface patching, sealcoating, and repaving
- Signage and map updates
- Culvert cleanouts and drainage management
- Bridge and structure inspections and minor repairs
- ADA compliance checks for sidewalks, curb ramps, and crossings

Roles and Funding

Local governments will serve as the primary maintenance leads, with Rutherford County, Forest City, Ellenboro, and NCDOT coordinating responsibilities. Design decisions should prioritize durable materials, native landscaping, and vandal-resistant fixtures to reduce life-cycle costs while maintaining accessibility and aesthetics. Funding may come from municipal budgets, state or federal grants, and regional partnerships, supplemented where possible by public–private collaborations.

Community Involvement

Volunteer groups, schools, and civic organizations can supplement official efforts through light tasks such as litter clean-ups, invasive plant removal, or planting days. While community participation builds ownership and capacity, major repairs and safety-sensitive tasks should remain the responsibility of trained staff or contractors.

With use expected to grow, a proactive and adaptable maintenance plan will ensure that the Thermal Belt Rail Trail extension remains safe, accessible, and well-maintained for years to come.

Annual Per-Mile Cost of Trail Maintenance

Annual per-mile maintenance costs for greenways can vary widely, as indicated by this range from a 2022 Rails to Trails Conservancy Study.

$679 — — — — — $7,819

Suburban / rural area	High volume trail
Basic paved trail	Restrooms / amenities
No amenities	Dedicated, paid maintenance staff
Volunteer maintenance	

Maintenance Plan Considerations

Trail Conditions + Use: Factor in weather exposure, surface durability, and visitor volumes.

Amenities + Structures: Account for restrooms, benches, landscaping, bridges, and boardwalks.

Baseline Costs: Estimate annual costs for mowing, cleaning, drainage, and repairs; adjust as needs change.

Technology Tools: Use GPS, Esri systems, or inspection apps to track conditions and schedule work.

Prioritization: Keep detailed records of assets (pavement, culverts, signage, lighting) to guide priorities and rank needs by safety, facility condition, and funding availability.

Emergency Preparedness: Ensure responder access, mile-marker signage, and communication protocols.

Community Support: Leverage volunteers and civic groups for light tasks to supplement staff resources.

Table 8. Trail Maintenance Tasks

SAMPLE MAINTENANCE TASK	TASK TYPE	RECOMMENDED FREQUENCY	NOTES
Tree and brush trimming	Routine	2-4 times per year	Town crews or contracted landscaping; more frequent in high-growth seasons
Mowing	Routine	1-2 times per month (seasonal)	Town or contracted crews; maintain sight lines and clear shoulders
Trail sweeping / debris clearing	Routine	Monthly or after Storms	Includes leaves, branches, and sediment removal
Signage and map updates / replacement	Routine	Ongoing / annually	Includes safety signs, wayfinding, and interpretive panels
Trash removal / litter clean-up	Routine	Weekly / as needed	Town staff; can partner with volunteer groups
Planting, pruning, and landscaping	Routine	Seasonal	Use native species to reduce maintenance needs
Flooding repairs and drainage clearing	Routine	As needed	Inspect after major rain events
Repainting / restriping	Routine	Every 2-3 years	For pavement markings, crosswalks, and symbols
Minor patching of pavement	Minor Repairs	As needed	Address cracks and potholes promptly
Minor bridge repairs	Minor Repairs	As needed	Includes railing fixes, decking replacement, etc.
Lighting replacement	Minor Repairs	As needed / annually	Prioritize safety-critical lighting
Shared use path sealcoating	Minor Repairs	Every 5 years	Asphalt surfaces only
Boardwalk cleaning and sealing	Minor Repairs	Every 2-3 years	Helps prevent rot and extend life
Shared use path resurfacing - asphalt	Major Reconstruction	Every 10-15 years	Dependent on condition and use
Shared use path resurfacing - concrete	Major Reconstruction	Every 20 years	Dependent on condition and use
Boardwalk replacement	Major Reconstruction	Every 10 years	Dependent on wear and weather exposure
Complete trail replacement, regrading, and resurfacing	Major Reconstruction	Every 20 years	Includes drainage, upgrades, and structural repairs

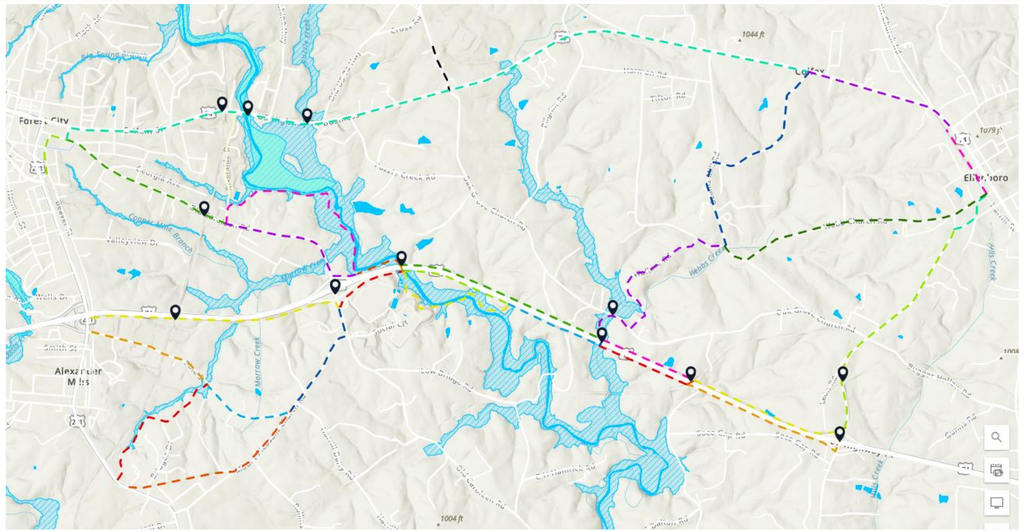
Appendices

NCDOT Structure Analysis

FOOTHILLS REGIONAL PLANNING ORG

Thermal Belt Rail Trail Extension (Forest City to Ellenboro)
FEASIBILITY STUDY

STRUCTURES



McADAMS

US-74 BUS looking East

US-74 BUS Under Railroad

Road Information:

- Road width = 34.00 ft
- Shoulder width = 1.00 ft
- ROW width = ~ 60 ft
- Speed limit = 45 mph
- West approach has steep slopes on the sides of road
- Turn lane on the East approach

US-74 BUS Over Second Broad River

US-74 BUS looking East

US-74 BUS looking West

Bridge Information:

- Bridge length = 256.00 ft
- Bridge width = 32.00 ft (curb to curb); 38’ total
- Shoulder width = 8.00 ft
- ROW width = ~ 60 ft
- Utility lines on the North side of the bridge
- Existing delineators on the North side of the bridge.

US-74 BUS Over Puzzle Creek

US-74 BUS looking East

US-74 BUS looking West

Bridge Information:

- Bridge length = 143.00 ft
- Bridge width = 37.00 ft (curb to curb)
- Shoulder width = 6.50 ft
- ROW width = ~ 60 ft
- Utility lines on the North side of the bridge
- Existing utilities attached to the sides of the bridge

Caroleen Road over Clinchfield Railroad

Old Caroleen Rd. looking East

Left Rail

Bridge Information:

- Bridge length = 51.0 ft
- Bridge width = 42.5 ft
  Shoulder width = 7 ft
- ROW width = ~ 60 ft

US-74 BYP EBL Over Clinchfield Railroad

US-74 looking East

US-74 from Clinchfield RR looking North

Bridge Information:

- Bridge length = 145.00 ft
- Bridge width = 37.70 ft (curb to curb)
- Shoulder width = 6.00 ft (South side)
- ROW width = ~ 250 ft
- Utility Easement runs across US 74
- Minimum vertical clearance over railroad is 23 ft

US-74 BYP WBL Over Clinchfield Railroad

US-74 looking East

US-74 from Clinchfield RR looking North

Bridge Information:

- Bridge length = 145.00 ft
- Bridge width = 37.70 ft (curb to curb)
- Shoulder width = 6.00 ft (North side)
- ROW width = ~ 250 ft
- Utility Easement runs across US 74
- Minimum vertical clearance over railroad is 23 ft

Old Caroleen Rd Over US-74 BYP

Old Caroleen Rd looking North

US-74 from Clinchfield RR looking North

Bridge Information:

- Bridge length = 227.00 ft
- Bridge width = 28.00 ft (curb to curb)
- Shoulder width = 3.00 ft (North side)
- Utilities lines attached to the west side of the bridge.

US-74 looking East

US-74 Downstream looking North

US-74 BYP EBL Over Second Broad River

Bridge Information:

- Bridge length = 276.00 ft
- Bridge width = 28.00 ft (curb to curb)
- Shoulder width = 2.00 ft
- ROW width = ~ 250 ft
- Vertical clearance = ~ 47.5 ft
- Bench on the West side of the bridge could fit a trail

US-74 looking West

US-74 Downstream looking North

US-74 BYP WBL Over Second Broad River

Bridge Information:

- Bridge length = 274.00 ft
- Bridge width = 28.00 ft (curb to curb)
- Shoulder width = 1.50 ft
- ROW width = ~ 250 ft
- Vertical clearance = ~ 47 ft
- Bench on the West side of the bridge could fit a trail

US-74 BYP EBL Over Webbs Creek

US-74 looking East

US-74 Downstream looking North

Bridge Information:

- Bridge length = 181.00 ft
- Bridge width = 37.30 ft (curb to curb)
- Shoulder width = 6.00 ft (South Side)
- ROW width = ~ 250 ft
- Vertical clearance = ~ 42 ft
- No bench under bridge

US-74 BYP WBL Over Webbs Creek

US-74 looking East

US-74 Downstream looking North

Bridge Information:

- Bridge length = 181.00 ft
- Bridge width = 37.50 ft (curb to curb)
- Shoulder width = 6.00 ft (North Side)
- ROW width = ~ 250 ft
- Vertical clearance = ~ 40 ft
- No bench under bridge

Oak Grove Church Road Over Webbs Creek

Oak Grove Church Rd looking West

Downstream Profile

Bridge Information:

- Bridge length = 48 ft
- Bridge width = 300 ft (curb to curb)
- Shoulder width = 5ft
- ROW width = ?
- Vertical clearance = ~ 25 ft

Ellenboro Henrietta Rd Over US-74 BYP

Ellenboro Henrietta Rd looking South

West Profile looking East

Bridge Information:

- Bridge length = 219.00 ft
- Bridge width = 28.00 ft (curb to curb)
- Shoulder width = 2.00 ft

McAdams

Ellenboro Henrietta Rd Over Abandoned Railroad

Ellenboro Henrietta Rd looking South

East Profile looking West

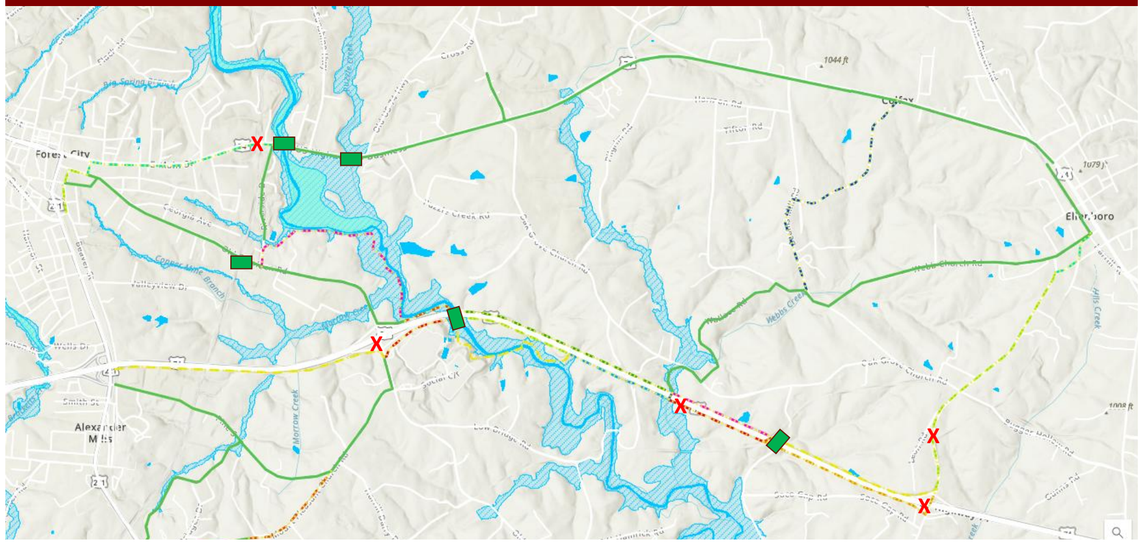
Bridge Information:

- Bridge length = 158.00 ft
- Bridge width = 28.00 ft (curb to curb)
- Shoulder width = 3.00 ft
- Bridge is curved

FOOTHILLS REGIONAL PLANNING ORG

Thermal Belt Rail Trail Extension (Forest City to Ellenboro)
FEASIBILITY STUDY

STRUCTURES



Structure Report

Rutherford County
Various Municipalities
Greenway Feasibility Study to Connect
Thermal Belt Rail Trail to
The Town of Ellenboro

Prepared for:

FOOTHILLS REGIONAL COMMISSION

Prepared by:

TPD
80 Charlotte Street, Suite 40
Asheville, NC 28801

TPD PROJECT NO. FHRC.00004

December 2024

Table of Contents

APPENDICES

I. INTRODUCTION

The purpose of this report is to provide an assessment of the ability to rehabilitate and reuse the bridges along the old Thermal Belt Rail corridor as part of the project to extend the Thermal Belt Rail Trail to Ellenboro. There are a total of 4 bridges remaining along the corridor. For the purposes of this report, the bridges are numbered sequentially along the corridor starting at the existing end of the Thermal Belt Rail Trail in Forest City. The old railroad corridor is overgrown with decades-old vegetation and is therefore hard to distinguish in most areas. It is unknown when the old railroad ceased to operate and was demolished.

II. BRIDGE #1

Bridge #1 is located in Forest City, NC. It is approximately 1100 feet east from the intersection of Low Bridge Rd and Baxter Cemetery Rd and is roughly 250 feet away from Low Bridge Rd at the closest point. This bridge crosses Second Broad River. This bridge is not visible from any nearby road or aerial imagery and is located on inaccessible private property, therefore, no additional information can be provide about this structure.

III. BRIDGE #2

Bridge #2 is located in Forest City, NC. It is approximately 3200 feet east from the intersection of Low Bridge Rd and Baxter Cemetery Rd and is roughly 2100 feet east of Low Bridge Rd. This bridge crosses Webbs Creek. This bridge is not visible from any nearby road or aerial imagery and is located on inaccessible private property, therefore, no additional information can be provide about this structure.

IV. BRIDGE #3

1. Bridge Location

Bridge #3 is located in Ellenboro, NC. This bridge crosses over Highway 74. It is very close to mile marker 186 on Highway 74.

2. Existing Conditions

Bridge #3 is a 4-span steel girder bridge. All spans are simply supported. Each span consists of 8x steel girders at close spacing (roughly 31" spacing center-to-center). There is minor corrosion on all the steel beams and in many places the paint coating is substantially degraded. However, there are no major deficiencies in the steel beams that would affect their load carrying capacity. There are also full depth concrete diaphragms between the beams of all spans. The diaphragms are in excellent condition with no signs of significant degradation. The bridge deck is an unknown thickness concrete deck with an unknown thickness asphalt overlay. The total width of the bridge deck is 21'-9" and it has a 12" wide concrete parapet on each side. There are also exposed stainless steel anchor bolts sticking up out of the parapet which indicates the former presence of baseplates for a bridge rail or fence. The approximate span lengths in order (from south to north) are 57'-0", 70'-2", 68'-8", and 58'-0". Span 2 crosses over the eastbound lanes of Highway 74. Span 3 crosses over the westbound lanes of Highway 74. The bridge has a heavy skew that is roughly 39 degrees. There is also a large amount of railroad ballast and aggregate that has been left on the bridge. The asphalt overlay is heaved upwards at all the deck joints in the bridge.

The substructure of Bridge #3 is made up of 2 concrete abutments and 3 concrete piers. Each abutment has 2 short wingwalls that range from 55" to 64" in length. The wingwalls run parallel to the corridor. The backwall on the abutments extend past the ends of the bridge seat by between 5'-10" and 7'-4". There is a spall on the west end of the north abutment backwall. Also, both extended ends of the backwall on the north abutment show evidence of minor delamination of the rebar in the top 2-3 feet of the backwall. Both abutments have a concrete apron that begins 2 feet below the bridge seat and slopes down steeply to roughly the level of Highway 74. Other than the minor deficiencies previously noted, the concrete abutments and wingwalls are sound concrete in good condition.

All three piers are made up of 3x 3'-6" diameter concrete columns with a 4'-6" high concrete cap that is rounded at the ends. Pier #1 (closest to the south abutment) has a spall at the bottom of the east column. However, the concrete in the spall and all around is still sound. Pier #1 has a small incipient spall on the east end of concrete cap. Pier #1 also has a small spall on the west end of the concrete cap with exposed rebar. Other than the minor deficiencies previously noted, all concrete in the piers is sound.

3. Proposed Repairs and Modifications

Due to the good condition of all structural members, Bridge #3 does not need extensive repairs to be reused for the Thermal Belt Rail Trail extension. The only immediate repairs that should be implemented to prevent future deterioration of the bridge are repairing the small spalls in the substructure. Repairs that will need to be completed before the trail can utilize the bridge include removing the stone and debris on the bridge deck, removing the asphalt overlay on the bridge deck, repairing all the deck joints, provide a new overlay on top of the deck, and install a new bridge rail that is appropriate for pedestrians and bicycles. The long-term repairs and maintenance that this bridge needs include cleaning and recoating the steel beams.

V. BRIDGE #4

1. Bridge Location

Bridge #4 is located in Ellenboro, NC. This bridge crosses over Bugger Hollow Rd (State Road 1982). It is roughly 1000 feet southeast of the intersection of Ellenboro Henrietta Rd, Oak Grove Church Rd, and Bugger Hollow Rd.

2. Existing Conditions

Bridge #4 was mostly demolished many years ago based on the overall conditions of the site. The only structural components of the bridge that remain are 2 concrete piers on either side of the road. This indicates the bridge most likely used to have 3 spans with the center span being over Bugger Hollow Rd. It is unclear if the abutments on either side remain or if they have been demolished due to the dense vegetation at the time of inspection.

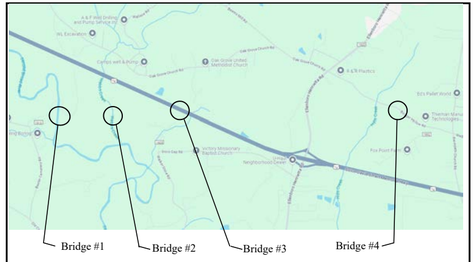
Each pier consists of 1 large concrete cap and 8 square concrete piles. The dimensions of the cap are 16'-0" wide by 6'-6" long by 4'-6" high. The concrete piles are oriented in 2 rows of 4 piles. The outer 2 piles in each row of

4 are battered and the inner 2 piles are vertical. Each pile is 20" x 20". The piles are likely prestressed precast driven concrete piles. All concrete in the piers is sound with only very small spalls in some places.

3. Proposed Repairs and Modifications

The existing substructure of this bridge could reasonably be reused for a new bridge. The only immediate repair that this bridge requires is repairing the small spalls in the concrete piers. The existing piers can reasonably support many types of superstructures that might be chosen for this bridge. If there are abutments remaining, they may be reused or they may need to be replaced depending on their condition and the new superstructure that is chosen for this bridge.

Project Location



SOURCE: GOOGLE MAPS – FOREST CITY/ELLENBORO, NORTH CAROLINA

Bridge #1: Latitude - 35°18'31"N, Longitude - 81°48'23"W
Bridge #2: Latitude - 35°18'31"N, Longitude - 81°47'57"W
Bridge #3: Latitude - 35°18'34"N, Longitude - 81°47'26"W
Bridge #4: Latitude - 35°18'44"N, Longitude - 81°46'05"W

Greenway Feasibility Study to Connect Thermal Belt Rail Trail to the Town of Ellenboro Rutherford County North Carolina

80 Charlotte Street, Suite 40 Asheville, NC 28801

LOCATION MAP
SCALE: NOT TO SCALE

Thermal Belt Rail Trail
Rutherford County, NC

IMMEDIATE REPAIRS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST
	CONCRETE SPALL REPAIR	LS	1	$4,000.00	$4,000.00

Subtotal	$4,000.00
Contingency (25%)	$1,000.00
TOTAL	**$5,000.00**

REPAIRS FOR TRAIL OPENING

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST
	SITE CLEAN UP	LS	1	$4,000.00	$4,000.00
	MILL ASPHALT PAVEMENT	SY	559	$10.00	$5,590.00
	DECK JOINT REPAIR	LF	135	$500.00	$67,500.00
	BRIDGE DECK ASPHALT OVERLAY	T	102	$200.00	$20,400.00
	BRIDGE RAIL	LF	509	$300.00	$152,700.00

Subtotal	$250,190.00
Contingency (25%)	$62,547.50
TOTAL	**$312,737.50**

LONG-TERM REPAIRS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST
	RECOATING STEEL BEAMS	LS	1	$80,000.00	$80,000.00

Subtotal	$80,000.00
Contingency (25%)	$20,000.00
TOTAL	**$100,000.00**

GRAND TOTAL	**$417,737.50**

Engineer's Opinion of Probable Cost

McAdams

Project Location: Rutherford County, NC
Project Description: Paved Trail Mainline
Client: Foothills Regional Commission
Client Project No.

Prepared By: RWT Date: 9/22/2025
Checked By: JAP Date: 9/22/2025
McAdams Project No: FRC23002

ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

ROUTE SUMMARY

ALTERNATIVE A

Segment	Segment Length (mi.)	Cost
5	0.36	$204,000
7A	1.05	$3,882,000
7B	0.22	$1,143,000
7C	1.14	$7,044,000
7E	1.71	$5,645,000
7F	0.63	$2,332,000
7G	0.99	$3,389,000
18	0.30	$1,806,000
Total	6.39	$25,445,000

PHASE BREAKDOWN

Phase	Length (mi.)	Cost
1 (Segments 5,7A,7B,7C,18)	3.06	$14,079,000
2 (Segments 7E,7F,7G)	3.33	$11,366,000

NOTES:
1. Cost opinion does not include costs for easement or ROW acquisition.
2. Cost opinion does not include engineering, geotech, design survey, or construction administration.
3. Cost opinion does not include cost for private utility relocations.
4. Unit costs used in this cost opinion are representative of typical market costs as best known to the Consultant as of the date of this estimate, and do not account for inflationary cost escalation.
5. Quantities used in this cost opinion are approximations based on feasibility study alignments by McAdams dated June 2025 and are subject to revision prior to bid.
6. The Engineer has no control over the cost of labor, materials, or equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs, as provided here, are made on the basis of the Engineer's experience and qualifications and represent the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from opinions of probable cost prepared for the Owner.

McAdams

Prepared By: RWT Date: 9/22/2025
Checked By: JAP Date: 9/22/2025
McAdams Project No: FRC23002

Thermal Belt Rail Trail Extension: Forest City to Ellenboro

Project Location: Rutherford County, NC
Project Description: Paved Trail Mainline
Client: Foothills Regional Commission
Client Project No.

ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

SEGMENT 5

Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	$ 9,500.00	$ 9,500.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	$ 12,000.00	$ 12,000.00
SP		PAVEMENT MARKINGS	1	LS	$ 30,000.00	$ 30,000.00
SP	4457000000-N	TEMPORARY TRAFFIC CONTROL	1	LS	$ 75,000.00	$ 75,000.00
SP		WAYFINDING SIGNAGE	1	EA	$ 30,000.00	$ 30,000.00

SUBTOTAL		$156,500.00
CONTINGENCY @	30%	$46,950.00
CONSTRUCTION COST	SAY	$204,000

MCADAMS

Prepared By: RWT Date: 9/22/2025
Checked By: JAP Date: 9/22/2025
McAdams Project No: FRC23002

Thermal Belt Rail Trail Extension: Forest City to Ellenboro

Project Location: Rutherford County, NC
Project Description: Paved Trail Mainline
Client: Foothills Regional Commission
Client Project No.

ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

SEGMENT 7A

Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	$ 193,200.00	$ 193,200.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	$ 34,000.00	$ 34,000.00
520	1121000000-E	AGGREGATE BASE COURSE	2980	TON	$ 55.00	$ 163,900.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	5590	LF	$ 45.00	$ 251,550.00
848	2591000000-E	6" REINFORCED CONCRETE TRAIL	7460	SY	$ 100.00	$ 746,000.00
848	2760000000-N	6" CONCRETE DRIVEWAY	23	EA	$ 7,500.00	$ 172,500.00
SP	2474000000-N	DRAINAGE	1	LS	$ 280,000.00	$ 280,000.00
SP	6133000000-N	EROSION CONTROL	1	LS	$ 260,000.00	$ 260,000.00
SP	4457000000-N	TEMPORARY TRAFFIC CONTROL	1	LS	$ 300,000.00	$ 300,000.00
SP		INTERSECTION IMPROVEMENTS (MAIN/BUSINESS 74 & MAGNOLIA)	1	LS	$ 20,000.00	$ 20,000.00
SP		INTERSECTION IMPROVEMENTS (MAIN/BUSINESS 74 & WILKIE)	1	LS	$ 20,000.00	$ 20,000.00
SP		INTERSECTION IMPROVEMENTS (MAIN/BUSINESS 74 & WEBB)	1	LS	$ 20,000.00	$ 20,000.00
SP		INTERSECTION IMPROVEMENTS (BUSINESS 74 & RIVERSIDE)	1	LS	$ 25,000.00	$ 25,000.00
SP		COMPREHENSIVE GRADING, SEGMENT 7A	1	LS	$ 500,000.00	$ 500,000.00

SUBTOTAL $2,986,150.00

CONTINGENCY @ 30% $895,845.00

CONSTRUCTION COST SAY $3,882,000

MCADAMS

Prepared By: RWT Date: 9/22/2025
Checked By: JAP Date: 9/22/2025
McAdams Project No: FRC23002

Thermal Belt Rail Trail Extension: Forest City to Ellenboro

Project Location: Rutherford County, NC
Project Description: Paved Trail Mainline
Client: Foothills Regional Commission
Client Project No.

ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

SEGMENT 7B

Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	$ 57,100.00	$ 57,100.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	$ 7,000.00	$ 7,000.00
520	1121000000-E	AGGREGATE BASE COURSE	640	TON	$ 55.00	$ 35,200.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1145	LF	$ 45.00	$ 51,525.00
848	2591000000-E	6" REINFORCED CONCRETE TRAIL	1530	SY	$ 100.00	$ 153,000.00
848	2760000000-N	6" CONCRETE DRIVEWAY	2	EA	$ 7,500.00	$ 15,000.00
SP	2474000000-N	DRAINAGE	1	LS	$ 60,000.00	$ 60,000.00
SP	6133000000-N	EROSION CONTROL	1	LS	$ 60,000.00	$ 60,000.00
SP	4457000000-N	TEMPORARY TRAFFIC CONTROL	1	LS	$ 300,000.00	$ 300,000.00
SP		INTERSECTION IMPROVEMENTS (BUSINESS 74 & BOSTIC SUNSHINE)	1	LS	$ 40,000.00	$ 40,000.00
SP		COMPREHENSIVE GRADING, SEGMENT 7B	1	LS	$ 100,000.00	$ 100,000.00

SUBTOTAL $878,825.00

CONTINGENCY @ 30% $263,647.50

CONSTRUCTION COST SAY $1,143,000

McAdams

Prepared By: RWT Date: 9/22/2025
Checked By: JAP Date: 9/22/2025
McAdams Project No: FRC23002

Thermal Belt Rail Trail Extension: Forest City to Ellenboro

Project Location: Rutherford County, NC
Project Description: Paved Trail Mainline
Client: Foothills Regional Commission
Client Project No.

ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

SEGMENT 7C						
Section	**Item Code**	**Item Description**	**Quantity**	**Unit**	**Unit Price**	**Cost**
800	0000100000-N	MOBILIZATION	1	LS	$ 352,100.00	$ 352,100.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	$ 37,000.00	$ 37,000.00
520	1121000000-E	AGGREGATE BASE COURSE	2670	TON	$ 55.00	$ 146,850.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	5015	LF	$ 45.00	$ 225,675.00
848	2591000000-E	6" REINFORCED CONCRETE TRAIL	6690	SY	$ 100.00	$ 669,000.00
848	2760000000-N	6" CONCRETE DRIVEWAY	9	EA	$ 7,500.00	$ 67,500.00
SP	2474000000-N	DRAINAGE	1	LS	$ 260,000.00	$ 260,000.00
SP	6133000000-N	EROSION CONTROL	1	LS	$ 230,000.00	$ 230,000.00
SP	4457000000-N	TEMPORARY TRAFFIC CONTROL	1	LS	$ 400,000.00	$ 400,000.00
SP		PREFABRICATED PEDESTRIAN BRIDGE (12' WIDE)	180	LF	$ 4,750.00	$ 855,000.00
SP		BOARDWALK (12' WIDE, TIMBER PILES, CONCRETE DECKING)	1000	LF	$ 1,750.00	$ 1,750,000.00
SP		INTERSECTION IMPROVEMENTS (BUSINESS 74 & PUZZLE CREEK)	1	LS	$ 25,000.00	$ 25,000.00
SP		COMPREHENSIVE GRADING, SEGMENT 7C	1	LS	$ 400,000.00	$ 400,000.00

SUBTOTAL $5,418,125.00

CONTINGENCY @ 30% $1,625,437.50

CONSTRUCTION COST SAY $7,044,000

Notes:
1. Cost opinion does not include costs for easement or ROW acquisition.

McAdams

Prepared By: RWT Date: 9/22/2025
Checked By: JAP Date: 9/22/2025
McAdams Project No: FRC23002

Thermal Belt Rail Trail Extension: Forest City to Ellenboro

Project Location: Rutherford County, NC
Project Description: Paved Trail Mainline
Client: Foothills Regional Commission
Client Project No.

ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

SEGMENT 7E						
Section	**Item Code**	**Item Description**	**Quantity**	**Unit**	**Unit Price**	**Cost**
800	0000100000-N	MOBILIZATION	1	LS	$ 280,500.00	$ 280,500.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	$ 55,000.00	$ 55,000.00
520	1121000000-E	AGGREGATE BASE COURSE	4810	TON	$ 55.00	$ 264,550.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	9035	LF	$ 45.00	$ 406,575.00
848	2591000000-E	6" REINFORCED CONCRETE TRAIL	12050	SY	$ 100.00	$ 1,205,000.00
848	2760000000-N	6" CONCRETE DRIVEWAY	18	EA	$ 7,500.00	$ 135,000.00
SP	2474000000-N	DRAINAGE	1	LS	$ 460,000.00	$ 460,000.00
SP	6133000000-N	EROSION CONTROL	1	LS	$ 410,000.00	$ 410,000.00
SP	4457000000-N	TEMPORARY TRAFFIC CONTROL	1	LS	$ 400,000.00	$ 400,000.00
SP		INTERSECTION IMPROVEMENTS (BUSINESS 74 & PILGRIM)	1	LS	$ 25,000.00	$ 25,000.00
SP		COMPREHENSIVE GRADING, SEGMENT 7E	1	LS	$ 700,000.00	$ 700,000.00

SUBTOTAL $4,341,625.00

CONTINGENCY @ 30% $1,302,487.50

CONSTRUCTION COST SAY $5,645,000

McAdams

Prepared By: RWT Date: 9/22/2025
Checked By: JAP Date: 9/22/2025
McAdams Project No: FRC23002

Thermal Belt Rail Trail Extension: Forest City to Ellenboro

Project Location: Rutherford County, NC
Project Description: Paved Trail Mainline
Client: Foothills Regional Commission
Client Project No.

ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

SEGMENT 7F						
Section	**Item Code**	**Item Description**	**Quantity**	**Unit**	**Unit Price**	**Cost**
800	0000100000-N	MOBILIZATION	1	LS	$ 116,000.00	$ 116,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	$ 21,000.00	$ 21,000.00
520	1121000000-E	AGGREGATE BASE COURSE	1780	TON	$ 55.00	$ 97,900.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	3340	LF	$ 45.00	$ 150,300.00
848	2591000000-E	6" REINFORCED CONCRETE TRAIL	4460	SY	$ 100.00	$ 446,000.00
848	2760000000-N	6" CONCRETE DRIVEWAY	11	EA	$ 7,500.00	$ 82,500.00
SP	2474000000-N	DRAINAGE	1	LS	$ 170,000.00	$ 170,000.00
SP	6133000000-N	EROSION CONTROL	1	LS	$ 160,000.00	$ 160,000.00
SP	4457000000-N	TEMPORARY TRAFFIC CONTROL	1	LS	$ 200,000.00	$ 200,000.00
SP		INTERSECTION IMPROVEMENTS (BUSINESS 74 & BEAMS MILL)	1	LS	$ 25,000.00	$ 25,000.00
SP		INTERSECTION IMPROVEMENTS (BUSINESS 74 & SUNSHINE LAKE)	1	LS	$ 25,000.00	$ 25,000.00
SP		COMPREHENSIVE GRADING, SEGMENT 7F	1	LS	$ 300,000.00	$ 300,000.00

SUBTOTAL $1,793,700.00

CONTINGENCY @ 30% $538,110.00

CONSTRUCTION COST SAY $2,332,000

McAdams

Prepared By: RWT Date: 9/22/2025
Checked By: JAP Date: 9/22/2025
McAdams Project No: FRC23002

Thermal Belt Rail Trail Extension: Forest City to Ellenboro

Project Location: Rutherford County, NC
Project Description: Paved Trail Mainline
Client: Foothills Regional Commission
Client Project No.

ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

SEGMENT 7G						
Section	**Item Code**	**Item Description**	**Quantity**	**Unit**	**Unit Price**	**Cost**
800	0000100000-N	MOBILIZATION	1	LS	$ 168,500.00	$ 168,500.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	$ 32,000.00	$ 32,000.00
520	1121000000-E	AGGREGATE BASE COURSE	2780	TON	$ 55.00	$ 152,900.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	5215	LF	$ 45.00	$ 234,675.00
848	2591000000-E	6" REINFORCED CONCRETE TRAIL	6960	SY	$ 100.00	$ 696,000.00
848	2760000000-N	6" CONCRETE DRIVEWAY	15	EA	$ 7,500.00	$ 112,500.00
SP	2474000000-N	DRAINAGE	1	LS	$ 270,000.00	$ 270,000.00
SP	6133000000-N	EROSION CONTROL	1	LS	$ 240,000.00	$ 240,000.00
SP	4457000000-N	TEMPORARY TRAFFIC CONTROL	1	LS	$ 300,000.00	$ 300,000.00
SP		COMPREHENSIVE GRADING, SEGMENT 7G	1	LS	$ 400,000.00	$ 400,000.00

SUBTOTAL $2,606,575.00

CONTINGENCY @ 30% $781,972.50

CONSTRUCTION COST SAY $3,389,000

McAdams

Prepared By: RWT Date: 9/22/2025
Checked By: JAP Date: 9/22/2025
McAdams Project No: FRC23002

Thermal Belt Rail Trail Extension: Forest City to Ellenboro

Project Location: Rutherford County, NC
Project Description: Paved Trail Mainline
Client: Foothills Regional Commission
Client Project No.

ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

SEGMENT 18						
Section	**Item Code**	**Item Description**	**Quantity**	**Unit**	**Unit Price**	**Cost**
800	0000100000-N	MOBILIZATION	1	LS	$ 90,200.00	$ 90,200.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	$ 10,000.00	$ 10,000.00
520	1121000000-E	AGGREGATE BASE COURSE	870	TON	$ 55.00	$ 47,850.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1560	LF	$ 45.00	$ 70,200.00
848	2591000000-E	6" REINFORCED CONCRETE TRAIL	2080	SY	$ 100.00	$ 208,000.00
848	2760000000-N	6" CONCRETE DRIVEWAY	7	EA	$ 7,500.00	$ 52,500.00
SP	2474000000-N	DRAINAGE	1	LS	$ 80,000.00	$ 80,000.00
SP	6133000000-N	EROSION CONTROL	1	LS	$ 80,000.00	$ 80,000.00
SP	4457000000-N	TEMPORARY TRAFFIC CONTROL	1	LS	$ 100,000.00	$ 100,000.00
SP		INTERSECTION IMPROVEMENTS (BUSINESS 74 & HIGH)	1	LS	$ 450,000.00	$ 450,000.00
SP		COMPREHENSIVE GRADING, SEGMENT 18	1	LS	$ 200,000.00	$ 200,000.00

SUBTOTAL		**$1,388,750.00**
CONTINGENCY @	**30%**	**$416,625.00**
CONSTRUCTION COST	**SAY**	**$1,806,000**

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Funding Opportunities

The Bipartisan Infrastructure Law (BIL) authorized $1.2 trillion for transportation and infrastructure spending, with $550 billion of that figure going toward new investments and programs. Additionally, the Inflation Reduction Act (IRA) provides $700 billion in incentives, grants, and loans to support new infrastructure investments in the areas of clean energy, transportation, and the environment. The following Federal, state, local and private funding programs have been instrumental in the successful development of bicycle and pedestrian networks in North Carolina communities. This section includes information on funding programs known at the time of publication; funding amounts, cycles, and programs may change over time. All discretionary grant programs are reimbursement-based unless otherwise stated.

FEDERAL FUNDING OPPORTUNITIES

North Carolina communities have partnered with Federal agencies to obtain funding for the design and construction of multi-use paths, greenways, sidewalks, bike lanes, and improved crossings. The Federal government provides significant funding for active transportation which it distributes through Metropolitan Planning Organizations (MPOs) as well as through discretionary grant programs. The Town of Ellenboro is not within an MPO planning boundary, but falls within the Foothills Regional Commission boundary, a Rural Planning Organization (RPO) that coordinates transportation improvements with neighboring MPOs—the French Broad River MPO (FBRMPO) and the Gaston-Cleveland-Lincoln MPO (GCLMPO).

The BIL authorizes transportation funding for highway, transit, rail, bicycle and pedestrian, and safety programs and infrastructure through fiscal year (FY) 2026. Federal Highways Administration (FHWA) administers BIL funding for surface transportation projects, which it distributes to the North Carolina Department of Transportation (NCDOT) and directly to Local Government Agencies (LGAs) through the Locally Administered Projects Program (LAPP). Communities wishing to access Federal funding must submit their candidate projects to their MPO, which then enter them into the NCDOT's Strategic Transportation Investment (STI) Mobility Formula. This formula ranks projects and identifies those for funding in the State Transportation Improvement Program (STIP). These funds require a 20% match from the LGA. Federal transportation funds for bicycle and pedestrian projects are primarily distributed through four programs: Transportation Alternatives (TA), Surface Transportation Block Grant (STBG) Direct Attributable (DA), Recreational Trails Program (RTP), and Highway Safety Improvement Program (HSIP).

Additional federal funding sources for bicycle and pedestrian projects are administered by the Department of Housing and Urban Development (HUD) with the Community Development Block Grant (CDBG) Program, and several discretionary grant programs administered by the US Department of Transportation (USDOT), National Park Service (NPS), and the National Endowment for the Arts (NEA).

State + Regionally Administered Federal Funding

Transportation funding, apportioned by Congress, using enabling legislation such as the former FAST Act and current BIL, goes from USDOT and its departments to State DOTs and both rural and metropolitan planning organizations. Federal funding often follows a formula, which provides USDOT with a blueprint for distribution of funding amongst the states. States and MPOs must distribute allocated funds.

Transportation Alternatives (TA)

Transportation Alternatives (TA) provides Federal funds for community-based projects that expand travel choices and enhance the transportation experience by integrating modes and improving the cultural, historic, and environmental aspects of our transportation infrastructure. In North Carolina, NCDOT administers TA funds and allocates funding to Program-eligible projects through STI. NCDOT has created a bicycle and pedestrian scoping guidance document for local governments that have received TA funding. The Bike / Ped Project Scoping Guidance for Local Governments (link below) provides an overview of the four scoping tools used for locally managed, Federally-funded transportation projects in North Carolina. The document provides guidance on the project delivery process, scoping, identifying project risks, and project cost estimation.

- **Total Funding:** $7.2 billion (FY22-26)
- **Application Deadline / Cycle:** Varies based on MPO / RPO administering funding
- **Project Awards:** minimum $100,000
- **Match Requirements:** 20%
- **Eligible Applicants:** MPOs, RPOs, local governments, nonprofits, tribal governments, regional transportation authorities, transit agencies.
- **Eligible Projects:** Construction / planning / design of on-road or off-road trails for bicyclists and pedestrians; infrastructure projects for improving non-driver access to public transportation and enhanced mobility; community improvement activities; refurbishment of historic transportation facilities such as the conversion and use of abandoned railroad corridors for trails; recreational trails program; environmental mitigation; streetscape improvements; safe routes to school projects.

https://www.fhwa.dot.gov/environment/transportation_alternatives/

https://connect.ncdot.gov/projects/BikePed/Documents/BikePed%20Project%20Scoping%20Guidance%20for%20Local%20Governments.pdf

Surface Transportation Block Grant – Direct Attributable (STBG-DA)

The Surface Transportation Block Grant program (STBG) provides flexible funding that may be used by States and localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals. STBG-Direct Attributable (DA) funds are dedicated to MPOs based on urbanized area population and are one of the most flexible funding sources for highway programs, providing immense financial support to local agencies.

- **Total Funding:** $30 million (FY 2025)
- **Application Deadline / Cycle:** February – Biennial
- **Project Awards:** minimum $100,000
- **Match Requirements:** 20% non-Federal
- **Eligible Applicants:** MPOs, RPOs, local governments, nonprofits, and tribal governments

https://www.fhwa.dot.gov/bipartisan-infrastructure-law/stbg.cfm

Carbon Reduction Program

The BIL establishes the Carbon Reduction Program (CRP), which provides funds for projects designed to reduce transportation emissions, defined as carbon dioxide (CO_2) emissions from on-road highway sources. Federal funds for the Carbon Reduction Program flow to NCDOT, then through the MPOs / RPOs through a competitive call for projects. A state may transfer up to 50% of CRP funds to any other apportionment of the state including National Highway Performance, Program, Surface Transportation Block Grant (STBG) Program, Highway Safety Improvement Program (HSIP), Congestion Mitigation and Air Quality Improvement (CMAQ) Program, National Highway Freight Program, and Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) Formula Program. Title 23 of US code requires each state to apportion 65% of CRP funds based on population and can choose how to obligate the remaining 35%.

- **Total Funding:** $6.4 billion (FY22-26)
- **Application Deadline/Cycle:** March – Annual
- **Project Awards:** minimum $100,000
- **Match Requirements:** 20%
- **Eligible Applicants:** Municipalities, county governments, and public transit agencies.
- **Eligible Projects:** Projects that reduce transportation emissions, including transportation alternatives such as the planning, design, and construction of on-road and off-road trail facilities.

In the FRC region, the top 12 applicants for CRP funds are submitted to NCDOT for consideration.

https://frcnc.gov/regional-development/isothermal-rural-planning-organization-rpo/carbon-reduction-program/

https://frcnc.gov/wp-content/uploads/2022/12/Carbon-Reduction-Program_PROJECT_Application_11_2022_Final.pdf

Recreational Trails Program (RTP)

The BIL reauthorized the RTP through FY22-26 as a set aside from the Transportation-Alternatives Set-Aside under the Surface Transportation Block Grant. The program provides $1.49 million annually and funds state agencies to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. The allocation of the total RTP budget to each state is based on a formula, mandated by law, which apportions half of the total funds equally among all states with the other half distributed in proportion to the estimated amount of non-highway recreational fuel use in each state. In North Carolina, NCDCNR's Division of Parks and Recreation and State Trails Program manages these funds with a goal of helping citizens, organizations, and agencies plan, develop, and manage all types of trails ranging from greenways and trails for hiking, biking, and horseback riding to river trails and off-highway vehicle trails.

- **Application Deadline/Cycle:** February – Annual
- **Project Awards:** $10,000-$100,000
- **Match Requirement:** 25% match of RTP funds received
- **Eligible Applicants:** Local Governments, government agencies, nonprofit agencies.
- **Eligible Activities:** New trail / greenway construction or renovation; trailhead or trail markers; purchase of tools to construct / renovate greenway; land acquisition for trails; planning, legal, environmental, and permitting costs (up to 10% of grant amount).

https://trails.nc.gov/documents/files/rtp-general-information/open

Highway Safety Improvement Program

The purpose of the North Carolina Highway Safety Improvement Program (HSIP) is to provide a continuous and systematic procedure that identifies and reviews specific traffic safety concerns throughout the state. The goal of the HSIP process is to reduce the number of traffic crashes, injuries, and fatalities by reducing the potential for these incidents on public roadways. USDOT provides this core Federal aid program through annual allocations, which vary from year to year. States must spend at least 15% pf HSIP funds on biking and walking safety when bicyclist and pedestrian fatalities are 15% or more of traffic fatalities. NCDOT uses a set of criteria called safety warrants to identify locations that need improvements. NCDOT then evaluates these locations, designated as potentially hazardous locations, using crash analyses, field investigations, and other tools to develop safety recommendations and implement countermeasures.

https://safety.fhwa.dot.gov/hsip/reports/pdf/2020/nc.pdf

https://connect.ncdot.gov/resources/safety/Pages/NC-Highway-Safety-Program-and-Projects.aspx

https://www.nhtsa.gov/sites/nhtsa.gov/files/2023-10/NC_FY24HSP-tag.pdf

Federal Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) was established by Congress in 1964 to fulfill a bipartisan commitment to safeguard our natural areas, water resources and cultural heritage, and to provide recreation opportunities to all Americans. Using zero taxpayer dollars, the LWCF invests earnings from offshore oil and gas leasing to help strengthen communities, preserve our history, and protect our national endowment of lands and waters. Local communities can access LWCF funds through its "State Side" program which provides grants to State and local governments. The Land and Water Conservation Fund was permanently reauthorized in the Dingell Act of March 2019 and in August 2020 the Great American Outdoors Act fully and permanently funded the program.

- **Application Deadline/Cycle:** August - Annual
- **Project Awards:** up to $500,000
- **Match Requirements:** 50% non-federal match

- **Eligible Applicants:** Local governments participate as subrecipients of the state.
- **Eligible Projects:** Acquisition of land or water for outdoor recreation; development of new park and recreation facilities; planning assistance; redevelopment of park infrastructure.

https://www.doi.gov/lwcf

https://lwcfcoalition.org/state-and-local-assistance

https://www.nps.gov/subjects/lwcf/index.htm

https://www.ncparks.gov/about-us/grants/land-and-water-conservation-fund

Community Development Block Grant (CDBG)

The Community Development Block Grant Program provides annual grants on a formula basis to states, cities, and counties to develop viable urban communities by providing decent housing, living environments, and expanding economic opportunities for low- and moderate-income persons. The program is authorized under Title 1 of the Housing and Community Development Act of 1974. CDBG funds are allocated at the federal level by HUD and at the state level by the NC Department of Commerce. All municipalities are eligible to receive State CDBG funds except for entitlement communities, which receive funds directly from HUD. Ellenboro is not an entitlement community and can receive State CDBG Public Infrastructure and/or Disaster Recovery funding to support the development of the Town's bicycle and pedestrian network.

- **Total Funding:** $46,272,979 (FY24)
- **Application Deadline / Cycle:** Public infrastructure applications are generally accepted year-round, but reviewed quarterly
- **Project Awards:** Minimum $100,000
- **Match Requirements:** 20%
- **Eligible Applicants:** Municipalities, county governments, and public transit agencies
- **Eligible Projects:** Acquisition of real property; relocation and demolition; rehabilitation of residential and non-residential structures; construction of public facilities and improvements (including but not limited to streets, sidewalks, parks); public services within certain limits; activities relating to energy conservation and renewable energy resources.

https://www.commerce.nc.gov/about-us/divisions-programs/rural-economic-development-division/community-development-block-grants-cdbg

https://www.hudexchange.info/programs/cdbg/cdbg-ta-products/#all-products

https://www.hud.gov/program_offices/comm_planning/communitydevelopment

Discretionary Grants

The competitive, discretionary grant programs outlined in this section can provide millions of dollars toward the implementation of the Thermal Belt Rail Trail extension. These programs are competitive and occasionally require applicants to submit forms, project narratives, and benefit-cost analyses (BCAs) for construction projects and encourage the submittal of supplemental materials and letters of support. The completion of a BCA involves the quantification and comparison of a project's expected costs and benefits according to USDOT-determined method. The result is a Benefit-Cost Ratio (BCR). A project is considered cost-effective when the BCR is 1.0 or greater. Transparency in the assumptions and data used to complete the analysis, and documentation of a data sources in the BCA is essential to receiving construction funding from discretionary programs. Federal discretionary grant applications should emphasize how the project aligns with a program's merit criteria as well as following USDOT priorities and strategic goals.

Safety

One of USDOT's strategic goals for FY 22 to FY 26 is to make the transportation system safer for all people and advance a future without transportation-related serious injuries and fatalities. The National Roadway Safety Strategy (NRSS) outlines a comprehensive approach that communities can take to significantly reduce injuries and deaths on roadways, using a Safe System Approach that supports safer roads, safer speeds, safer people, safer vehicles, and post-crash care. The Thermal Belt Rail Trial extension connects Rutherford Opportunity Center, East Rutherford High School, future Colfax Park and downtown Ellenboro and Forest City, which highlights the importance of safety along the corridor.

Economic Competitiveness and Opportunity

In the 2025 BUILD notice of funding opportunity (NOFO), communities that aligned with Areas of Persistent Poverty per the 2014-2018 ACS received priority consideration. The Thermal Belt Rail Trail extension connects Ellenboro to Forest City. Forest City's population, per the 2014-2018 ACS data, included 31.8% below the poverty line, thereby qualifying it as a priority area under current guidance. USDOT seeks to encourage a profitable economy by investing in transportation systems to provide American workers and businesses with reliable and efficient access to resources, markets, and good-paying jobs.

Innovation and Transformation

USDOT is investing in purpose-driven research and innovation to meet the challenges of the present and modernize a transportation system of the future that serves everyone today and in the decades to come.

Rural Opportunities to Use Transportation for Economic Success (ROUTES)

This initiative prioritizes the needs of rural America by advancing rural transportation policy and supporting rural and Tribal communities that face challenges relating to transportation safety, mobility, and economic development. The ROUTES Initiative addresses the transportation infrastructure needs of rural communities by developing user-friendly tools and information, aggregating DOT resources, and providing direct technical assistance to better connect rural communities with the funding, financing, and outreach resources available.

Better Utilizing Investments to Leverage Development (BUILD)

This program, formerly known as TIGER and RAISE, and now under the current administration as BUILD, awards funding to invest in road, rail, transit, and port projects that promise to achieve national objectives and have a significant local or regional impact. Since. The eligibility requirements of BUILD allow project sponsors at the State and local levels to obtain funding for multi-modal, multi-jurisdictional projects that are more difficult to support through traditional DOT programs. Historically, annual appropriations largely funded this program, however the BIL included $7.5 billion in supplemental funding between FY 22 and 26. Since the program's inception, USDOT has awarded over $14 billion to projects in all 50 states and several US territories. In FY25, $150 million was made available through BUILD. It is important to note that this is a transportation grant that can fund stormwater elements of eligible projects.

- **Application Deadline:** January / February – Annual
- **Project Awards:** $1 million (Rural)
- **Match Requirements:** Up to 100% federal funding (Rural)
- **Eligible Applicants:** States, units of local government, public agencies, special purpose districts with transportation function, Federally recognized tribes, transit agency, multi-state or multi-jurisdictional group of entities that are separately eligible.
- **Eligible Projects:** Highway or bridge projects, public transportation projects, passenger and freight rail transportation projects, intermodal projects, surface transportation facilities.

https://www.transportation.gov/sites/dot.gov/files/2025-01/BUILD%202025%20NOFO%20Amendment_0.pdf

National Endowment for the Arts – Grants for Arts Projects (GAP) – Our Town

GAP is the National Endowment for the Arts' broad program for various funding streams, including Our Town, which is a creative placemaking grants program. Through project-based funding, the NEA supports projects that integrate arts, culture, and design activities into efforts that strengthen communities by advancing local economic, physical, and/or social outcomes. These projects require a partnership between a local government entity and nonprofit organization, one of which must be a cultural organization; and should engage in partnership with other sectors (such as agriculture and food, economic development, education and youth, environment and energy, health, housing, public safety, transportation, and workforce development). Cost share / matching grants range from $10,000 to $150,000, with a minimum cost share / match equal to the grant amount. FY27 funding deadlines are anticipated around July 2026.

https://www.arts.gov/grants/grants-for-arts-projects

https://www.arts.gov/sites/default/files/fy26-gap-our-town-instructions-july.pdf

Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation Program (PROTECT)

The BIL established the Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) Grant program to plan for and strengthen surface transportation to be more resilient to natural hazards, including climate change, sea level rise, flooding, extreme weather events, and other natural disasters to address the climate crisis through both formula and discretionary grant programs. USDOT seeks to fund projects through the discretionary program that are grounded in the best available scientific understanding of climate change risks, impacts, and vulnerabilities; support the continued operation or rapid recovery of crucial local, regional, or national surface transportation facilities; utilize innovative and collaborative approaches to risk reduction, including nature-based solutions such as conservation, restoration, or construction of riparian and streambed treatments, marshes, wetlands, native vegetation, stormwater bioswales, parks, urban forests, and shade trees. Elements of the Thermal Belt Rail Trail extension that can be shown as resilience related may receive funding through this Program.

- **Total Funding:** $876 million (FY 2024-2026)
- **Application Deadline / Cycle:** February 2025 – Annual
- **Project Awards (Capital Projects):** Minimum $500,000, no maximum
- **Match Requirement:** 20 percent, however per 23 U.S.C. § 176(d)(5)(E)(iii), an eligible entity may use Federal funds other than a grant under the PROTECT Discretionary Grant Program to meet the non-Federal cost share.
- **Eligible Applicants:** State / local governments; Federally recognized tribes and affiliated groups; Planning and project organizations; US territories.
- **Merit Criteria:** Safety; Environmental Sustainability; Quality of Life; Mobility and Community Connectivity; Economic Competitiveness and Opportunity; State of Good Repair; Partnership and Collaboration; Innovation.

https://www.transportation.gov/rural/grant-toolkit/promoting-resilient-operations-transformative-efficient-and-cost-saving

Active Transportation Infrastructure Investment Program (ATIIP)

Among the new discretionary grants created through the BIL is the Active Transportation Infrastructure Investment Program (ATIIP), which was authorized for $200 million annually. This program will award $45 million, as allocated by the FY 2023 Omnibus Appropriations Act, to communities for projects that plan, design, or construct safe, affordable, and accessible active transportation networks (facilities that connect destinations within a community) and transportation spines (facilities that connect communities). ATIIP takes a holistic, network-level approach to walking, biking, and rolling by addressing gaps in active transportation routes that push people to other modes of travel.

- **Total Funding:** $45 million (FY 2023)

  Construction Grants: up to $41,550,000 – of that, at least 30 percent ($12,465,000) will be set aside for construction of active transportation networks and at least 30 percent ($12,465,000) will be set aside for construction of active transportation spines.
- **Application Deadline / Cycle:** June 2024 – Contingent on future year allocations
- **Project Awards:**

  Construction Grants: Recommended minimum of $7.5 million and recommended maximum of $12 million (general applicants) and $15 million (qualified disadvantaged communities).
- **Match Requirements:** 20 percent or more (qualified disadvantaged census tracts are those with 40 percent or higher of the population falling below poverty level and do not require any match).
- **Eligible Applicants:** Local / regional governments; MPOs and regional planning councils; Multicounty special districts; States; Tribes; Multistate group of governments.

- **Merit Criteria:** Mobility and Community Connectivity; Community Support; Commitment to Increasing Walking and Biking; Financial Completeness; Equitable Development; Other DOT Goals and Priorities (safety, accessibility to jobs, economic competitiveness, environmental protection, quality of life)

https://www.fhwa.dot.gov/environment/bicycle_pedestrian/atiip/index.cfm

STATE FUNDING OPPORTUNITIES

North Carolina communities have partnered with state agencies to build multi-use paths, greenways, sidewalks, bike lanes and improve crossings. NCDOT, North Carolina Department of Natural and Cultural Resources (NCDNCR), and North Carolina Department of Commerce (NCDOC) are the primary state agencies that fund bicycle and pedestrian planning, infrastructure, and programs. the North Carolina Department of Health and Human Services (DHHS), North Carolina Department of Environmental Quality (NCDEQ), and the North Carolina Department of Agriculture administer discretionary grant programs focusing on public health and community development, when funding is available.

Discretionary state grants promote alignment with both statewide goals and initiatives. While these are similar to Federal priorities and strategies, they are distinct to North Carolina and include the following:

- North Carolina Executive Order 80: *North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy*: https://governor.nc.gov/documents/files/executive-order-no-80-north-carolinas-commitment-address-climate-change-and-transition-clean-energy/open
- North Carolina Executive Order 246: *North Carolina's Transformation to a Clean, Equitable Economy*: https://governor.nc.gov/executive-order-no-246/open
- NC Moves 2050 Plan: https://www.ncdot.gov/initiatives-policies/Transportation/nc-2050-plan/ncmoves2050/Pages/default.aspx
- Great Trails State Plan: https://www.ncdot.gov/divisions/integrated-mobility/multimodal-planning/great-trails-state/Pages/default.aspx
- Statewide Transportation Improvements Program (STIP): https://connect.ncdot.gov/projects/planning/pages/state-transportation-improvement-program.aspx
- Strategic Highway Safety Plan (FY 24-FY 26): https://www.nhtsa.gov/document/north-carolina-fy2024-2026-highway-safety-plan
- NC Clean Transportation Plan: https://www.ncdot.gov/initiatives-policies/environmental/climate-change/Pages/ncctp-executive-summary-final-report.aspx

Great Trails State Program Fund

The North Carolina General Assembly's 2023-2025 budget passed in October 2023 invests $54.9 million to advance trail and greenway infrastructure in North Carolina. This funding investment comes during the 2023's North Carolina Year of the Trail celebration, the largest celebration of outdoor recreation in North Carolina history. The budget creates a new, non-recurring $25 million trail and greenway funding program over two fiscal years called the Great Trails State Program. The program provides funding for the new trail development and extension of existing trails with the goal of accelerating the completion of significant trails statewide. This includes paved trails or greenways, natural surface trails, biking trails, equestrian trails, and any other type of trail recognized by the Department of Natural and Cultural Resources. While all $25 million for FY23-25 is expended, this program may be renewed in future fiscal years.

- **Total Funding:** TBD
- **Application Deadline / Cycle:** Fall 2025 – Annual Project Awards: $100,000 (minimum for planning / design / acquisition minimum), $250,000 (minimum for maintenance of paved trails, and $300,000 (minimum for construction) and up to $500,000.
- **Match Requirements:**
  Tier 1: one non-State dollar ($1.00) for every four dollars ($4.00) of State funds.
  Tier 2: one non-State dollar ($1.00) for every two dollars ($2.00) of State funds.
  Tier 3: one non-State ($1.00) for every one dollar ($1.00) of State funds.
- **Eligible Applicants:** Municipalities / counties, regional governments, public authorities, nonprofit organizations.
- **Eligible Projects:** Planning; design; environmental assessment or permitting and review; land or easement acquisition; trail construction; trail structures (bridges); trail amenities like trailhead parking, and signage; maintenance; matching funds for other Federal or non-state grants

https://www.ncparks.gov/about-us/grants/great-trails-state-program

https://greattrailsstatecoalition.org/latest

Parks and Recreation Trust Fund (PARTF)

Since 1994, the North Carolina parks and Recreation Trust Fund (PARTF) awards matching grants to local governments for parks, public beach access, and improvements to state parks. The program helps local governments reach their park and public access goals and improve the quality of life in their communities. Funding for PARTF is allocated annually, and the Parks and Recreation Authority, a citizen board appointed by the Governor, President Pro Tempore of NC Senate, and Speaker of the NC House of Representatives select grant recipients and allocate the funding. The projects must be located on a single site, and the applicant must own or have at least a 25-year signed lease or easement for the property where the PARTF facility will be located.

- **Total Funding:** $8.5 million (FY24)
- **Application Deadline:** Annual – May
- **Project Awards:** Up to $500,000
- **Match Requirements:** 50%
- **Eligible Applicants:** North Carolina counties and incorporated municipalities. Public authorities, as defined by GS 159-7, are also eligible if they are authorized by N.C. general statutes to acquire land and develop recreation facilities for public use.
- **Eligible Projects:** Land acquisition; construction or renovation of facilities for a linear or non-linear public park; must be located on a single site and applicant must own or have at least a 25-year signed lease / easement for the property.

https://www.ncparks.gov/about-us/grants/parks-and-recreation-trust-fund

North Carolina Land + Water Fund (NCLWF)

Created by the General Assembly in 1996, the NCLWF, formerly known as Clean Water Management Trust Fund, aims to conserve North Carolina's streams, rivers, and open space. This funding, distributed through the North Carolina Department of Natural and Cultural Resources (NCDCNR), improves water quality, sustains ecological diversity, and protects open space and cultural resources by funding projects to acquire lands, construct trails, preserve open space, restore the habitat for fish, wildlife, and other species, and enhance the filtering of stormwater runoff to reduce pollutants from entering water supplies. The NCLWF also funds mini grants of up to $50,000 for transaction, property management, and stewardship costs associated with the donation of property or a permanent conservation agreement; applications for mini-grants are reviewed three times a year. All NCLWF funded projects must sign a permanent conservation agreement.

- **Application Deadline / Cycle:** April, August, January - Annual
- **Project Awards:** Up to $500,000
- **Match Requirements:** Not required, but encouraged for scoring.
- **Eligible Applicants:** North Carolina counties and incorporated municipalities.
- **Eligible Projects:** restoration of degraded lands and waterbodies, land acquisition, innovative stormwater, and planning projects.

https://nclwf.nc.gov/apply

Accessible Parks Grant

The Accessible Parks Grant Program is administered through the Division of Parks and Recreation and the North Carolina PARTF. It provides $12.5 million in matching grants for parks and recreation to benefit people living with disabilities in North Carolina. Grants can be used for the construction of special facilities, or adaptation of existing facilities that meet the unique needs of persons living with disabilities or enable them to participate in recreational and sporting activities, regardless of their abilities. Facilities built or renovated with an Accessible Parks grant must be available for public recreational use for at least 25 years.

- **Total Annual Funding:** $12.5 million (FY25)
- **Application Deadline / Cycle:** March 3, 2025
- **Project Awards:** Up to $500,000
- **Match Requirements:** 20% match (The value of in-kind services, such as volunteer work, cannot be used as part of the match).
- **Eligible Applicants:** North Carolina counties and incorporated municipalities, including public authorities authorized to develop recreational facilities for the general public.
- **Eligible Projects:** Construction of special facilities and adaptation of existing facilities. Applicants cannot request Accessible Parks Grant funding for and active PARTF site or land acquisition.

https://www.ncparks.gov/about-us/grants/accessible-parks-grant

Small Business Infrastructure Grant Program (SmBIZ)

The NC Department of Commerce's Economic Development Division administers the SmBIZ funding, established through HB47 / Session Law 2025-2, which creates funding for local governments in North Carolina areas impacted by Hurricane Helene to rebuild damaged infrastructure that impacts small businesses.

- **Total Annual Funding:** $55 million
- **Application Deadline / Cycle:** Rolling Application
- **Project Awards:** $1 million
- **Match Requirements:** N/A
- **Eligible Applicants:** Local governments located affected by Hurricane Helene. Special consideration given to Tier 1 and Tier 2 counties.
- **Eligible Projects:** Related infrastructure projects (sidewalk and curb infrastructure) that target and support small businesses that employ 150 or fewer employees.

https://www.commerce.nc.gov/grants-incentives/public-infrastructure-funds/small-business-infrastructure-grant-program

Rural Downtown Economic Development Grant Program

The Rural Downtown Economic Development Grant Program (RDEDG) is managed by the NC Department of Commerce. This program administers grants in support of downtown revitalization and economic development initiatives that are intended to help local governments grow and leverage downtown districts as assets for economic growth, development, and prosperity by providing public improvements to help retain businesses and leverage Main Street assets for community-wide use.

- **Total Annual Funding:** $25 million (FY24-25)
- **Application Deadline / Cycle:** January 9, 2025
- **Project Awards:** Up to $850,000 and may not exceed $12,500 per projected job created / maintained.
- **Match Requirements:** At least 5% local match
- **Eligible Applicants:** Local governments located in Tier 1 or Tier 2 counties and rural census tracts in Tier 3 counties.
- **Eligible Projects:** Improvements to publicly owned infrastructure in a downtown district that serves a community-wide use. Project must be in the downtown or central business district of Tier 1 and Tier 2 counties and in rural census tracts (defined as population density of less than 500 people per square mile in accordance with the most recent decennial federal census) in Tier 3 counties.
- **Merit Criteria:** Anticipated Outcomes (must include projected job creation and/or retention and can include linear feet of improvements); Project Timeline (must be completed within 36 months of award); Sustainability (describe commitment of stakeholders to sustaining activities beyond this investment).

The RDEDG maintains a heavy emphasis on job creation. This may require including the Rutherford County Tourism Development Authority office in the development of a grant application.

https://www.commerce.nc.gov/grants-incentives/downtown-development-funds/application-rural-downtown-economic-development/download?attachment

Strategic Transportation Investments (STI)

The Strategic Transportation Investments law, passed in 2013, establishes the Strategic Mobility Formula, which allocates available funding based on data-driven scoring and local input. NCDOT, working collaboratively with MPOs and RPOs, uses the Strategic Mobility Formula to develop the State Transportation Improvement Program (STIP), which identifies projects that will receive funding during a 10-year period. The STIP is state and federally mandated and updated by NCDOT every two years. The Strategic Mobility Formula groups projects in three categories: Division Needs, Regional Impact, and Statewide Mobility.

Table 9. STI Funding Distribution

Funding Category	Funding Distribution	Overview
Division Needs	*30%*	*NCDOT's 14 transportation divisions share funding in this category equally. Project scores are based 50% on data and 50% on rankings by MPOs and RPOs and the NCDOT Divisions.*
Regional Impact	*30%*	*Projects on this level compete within regions made up of two NCDOT Divisions with funding based on population. Project scores are based 70% on data and 30% on rankings by MPOs and RPOs and the NCDOT Divisions.*
Statewide Mobility	*40%*	*Projects in this category are of statewide significance and are based 100% on data.*

NCDOT programs independent bicycle and pedestrian projects in the Division Needs category. Eligible bicycle and pedestrian projects submitted for prioritization must be included in a locally adopted plan and have a minimum project cost of $100,000. Eligible activities include right-of-way acquisition, design, and construction. Additionally, the STI law prohibits the use of state funding for bicycle and pedestrian projects, requiring municipalities to provide the 20% match for Federally-funded projects.

Bicycle and Pedestrian STI Prioritization: Qualitative Scoring: Local input points represent 50% of the scoring for bicycle and pedestrian projects. MPOs and RPOs assign 25% of local input points, which are determined by municipal and county project priorities and public comment. NCDOT Division Engineers assign the remaining 50% of the local input points.

Table 10. Bicycle and Pedestrian STI Prioritization - Quantitative Scoring

Criteria	Measure	Division Needs (50%)
Safety	*(Number of crashes x 40%) + (Crash severity x 20%) + (Safety risk x 20%) + (Safety benefit x 20%)*	*20%*
Accessibility / Connectivity	*Points of Interest pts + Connection pts + Route pts*	*15%*
Demand / Density	*# of households and employees per square mile near project*	*10%*
Cost Effectiveness	*(Safety + Accessibility / Connectivity + Demand / Density) / Cost to NCDOT*	*5%*

It is highly recommended that Rutherford County submit the Thermal Belt Rail Trail extension project to NCDOT's Prioritization 8.0 (P8.0) through the Foothills Regional Commission. Depending on how the project scores, this could open the door to State funding. Securing funding through the State Transportation Improvement Program (STIP) may make this project more competitive.

Project Bundling: Project sponsors can bundle multiple bicycle and pedestrian projects to better compete with other projects submitted in the Division Needs category. NCDOT allows bundled projects across various geographies and project types. Projects do not have to be contiguous or related, and projects can fall within a single municipality or across multiple jurisdictions. Bundled projects must have one project manager, a TA eligible entity. It will be important to consider projects to bundle together in a P8.0 submission.

Statewide Projects Funds

Small Construction Funds: These funds were established in 1985 to fund small projects in and around cities and towns that could not be funded in the Statewide Transportation Improvement Program (STIP). Funds are allocated equally to each of 14 Transportation Divisions. Funds can be used on a variety of transportation projects for municipalities, counties, businesses, schools, and industries throughout the State, up to $250,000 per fiscal year, unless otherwise approved by the Secretary of Transportation. Right-of-way and utility relocations should be provided and accomplished at no cost to NCDOT. Funding requests should be submitted to the Division Engineer providing technical information such as location, improvements being requested, and project timeline.

Statewide Contingency Funds: These funds were created for statewide rural or small urban highway improvements and related transportation enhancements to public roads / public facilities, industrial access roads, and spot safety projects. The President Pro Tempore of the Senate, the Speaker of the House, and the Secretary of Transportation sponsor project requests from this fund. $12 million in funds are administered by the Secretary of Transportation. Requests can be submitted from municipalities, counties, businesses, schools, citizens, legislative members, and NCDOT staff. Request should include a clear description and justification of the project.

Economic Development Funds: These funds were created to expedite transportation projects that promote commercial growth as well as either job creation or job retention. $2500 per job (new + retained) allowed unless waived by the Secretary of Transportation. Funds projects up to $400,000 per fiscal year, unless otherwise approved by the Secretary of Transportation. New access roads must be approved by NCDOT and serve multiple property owners or government owned property; roads will become part of the State Highway System or serve as public roads maintained by a government agency.

High Impact / Low-Cost Funds: This program provides funds to complete low-cost projects with high impacts to the transportation system including intersection improvement projects, minor widening projects, and operational improvement projects. Funds are allocated equally to each of 14 Transportation Divisions. Each Division is responsible for selecting their own scoring criteria for determining projects funded in this program. At a minimum, Divisions must consider all of the following in developing scoring formulas: (1) The AADT of a roadway and whether the proposed project will generate additional traffic. (2) Any restrictions on a roadway. (3) Any safety issues with a roadway. (4) The condition of the lanes, shoulders, and pavement on a roadway. (5) The site distance and radius of any intersection on a roadway. Funds projects up to $1.5 million per fiscal year, unless otherwise approved by the Secretary. Projects are expected to be under contract within 12 months of funding approval by the BOT.

https://connect.ncdot.gov/projects/planning/Economic%20Development/Small%20Project%20Fund%20Request.docx

LOCAL FUNDING OPPORTUNITIES

While Federal funding can support high-cost projects, local funding is often ideal for supporting the delivery of specific components of greenway projects or as a match for Federal funding programs. Municipalities often plan for funding of bicycle and pedestrian facilities through their Capital Improvement Program (CIP). Local funding is often necessary to supplement Federal and state funding and can come in various forms.

Levies and Taxes

County governments in North Carolina are granted authority to adopt Local Options Sales Taxes (LOSTs), subject to public referendum, in addition to normal state sales tax to generate revenue, a fraction of which may go to a county's general fund and be distributed to municipalities within them. Local governments may also propose raising occupancy or sales tax which can generate revenue to go towards infrastructure improvements.

Developer Constructed / Development Agreements

Development agreements are legislative land use tools that allow local governments to negotiate binding contractual agreements with private property owners that vest developers' rights while allowing for a jurisdiction to obtain community benefits. Development agreements can secure enhanced public amenities in exchange for expanded land use entitlements beyond those that could otherwise be secured through conditional rezoning or regulatory tools like site plans and subdivision approvals. In 2005, the North Carolina General Assembly enacted Part 3D of North Carolina General Statute (NCGS) 160A, Article 9 that authorized municipalities and counties to enter into these agreements to facilitate larger scale development projects that include the implementation of public infrastructure projects. NCGS 16D Article 10, enacted in 2019, expanded options for development agreements to allow them to be used for smaller projects, and allowing provisions to be incorporated into zoning conditions.

Capital Improvement Plan

A Capital Improvement Program (CIP) is one element in a municipality's long-term planning process. It is a bridge between the municipality's Comprehensive Plan and short-term planning for infrastructure and operations. A Capital Improvement Program analyzes major facility and equipment needs, establishes priorities, estimates fiscal resources, and schedules the development of funded projects. For example, the City of Raleigh funds parks, greenways, and active transportation facilities through the city's Capital Improvement Program. The Parks, Recreation and Cultural Resources Department's CIP primary sources of funding come from Parks and Recreation Bonds, Facility Fees, General Fund (Tax Base), grants, and donations.

Impact Fees

Impact fees represent financial payments made to a local government by a developer to fund certain off-site capital improvements needed to accommodate future growth. In North Carolina, local governments can impose impact fees on developers to offset the budgetary impact a new development places on public roads, schools, parks, recreational facilities, and water and sewerage. Many North Carolina communities impose impact fees for transportation, parks and recreation, and open space facility needs. For example, the City of Durham imposes transportation impact fees to fund for a portion of the costs for new streets and sidewalks, paving, grading, resurfacing, and widening of existing streets, traffic control signals and markings, lighting, and crosswalks. Durham also uses development fees for open space and parks and recreation for the acquisition of park land and the provision of facilities, including athletic fields, parks, playgrounds, courts, recreation centers, shelters, stadiums, arenas, swimming pools, lighting, trail construction, and bike paths.

PRIVATE FUNDING OPPORTUNITIES

Private grant opportunities offer more limited information on the number of applications received per cycle, so determining the competitiveness of the funding sources listed in this section is nebulous. With few exceptions, private grant awards are often smaller.

RHI Legacy Foundation

The RHI Legacy Foundation is committed to impact health and wellness in Rutherford County by making grants to support organizations and initiatives aligned with the Foundation's focus areas—Health, Human Services, and Public / Society Benefit. RHI Legacy Foundation, Inc. is the former Rutherford Hospital Foundation. When a new joint venture was formed in June 2014 between Duke LifePoint Healthcare and the former Rutherford Hospital, Inc., assets became available to address health and wellness needs in Rutherford County. RHI Legacy Foundation now facilitates a grant funding process that identifies and selects those programs, projects and/or initiatives which, when funded from the assets, will have a positive impact on the overall health and wellness of those living in Rutherford County.

- **Total Funding:** $3.8 million
- **Grant Deadline / Cycle:** July – Annual
- **Project Awards:** Up to $200,000
- **Match Requirements:** N/A
- **Eligible Applicants:** Governments and nonprofit organizations.
- **Eligible Projects:** Projects that have measurable benefits for residents of Rutherford County, exemplify the Foundation's Mission and Values, and include a plan to sustain the program beyond RHI Legacy Foundation grant funding.

https://rhilegacyfoundation.com/grants

https://www.wellsfargo.com/private-foundations/rhi-legacy-foundation/

Public / Private Partnerships

Public private partnerships (P3s) are long-term contractual agreements between a public agency and a private entity to design, build, finance, operate and/or maintain infrastructure projects. This allows for greater private participation in the delivery of projects and allows private partners to share in the risks for design, construction, finance, and long-term operation of facilities. P3s give public entities access to private capital, technology and expertise; and can accelerate project delivery, encourage innovation, and allow partners to manage projects more efficiently. However, they require substantial up-front administrative costs and procurement may involve complicated financial and legal issues. P3s may not deliver the best value as compared to traditional or other alternative delivery methods.

Partnerships engender a spirit of cooperation, civic pride, and community participation. The key to the involvement of private partners is to make a compelling argument for their participation. For example, specific segments of a greenway may make critical connections to employment centers or potential partners' place of business, which would incentivize private participation in its design and construction. Furthermore, signage at trail heads or interpretive signage along greenway systems can incentivize private participation through name recognition for corporate partners. Ellenboro could employ a P3 strategy to leverage private funds by working with foundations and private donors, thus furthering implementation of the recommendations in the Thermal Belt Rail Trail Extension Feasibility Study.

Corporate Sponsorships

Corporate sponsorships create a pathway for corporations or nonprofits to develop long term partnerships fitting with their priorities. By offering opportunities for corporations to sponsor construction or signage, they can market their company while also contributing to the development of a trail. Furthermore, a trail or greenway can offer various levels of corporate sponsorship to accelerate the development of projects. For example, Buncombe County established a corporate sponsorship program for their Connect Buncombe effort.

https://connectbuncombe.org/wp-content/uploads/2022/05/Corp-Sponsor-flyer-electronic-5822.pdf

AARP Community Challenge

The AARP Community Challenge provides small grants to fund quick-action projects that can help communities become more livable for people of all ages. AARP accepts applications for projects that improve public spaces, housing, transportation, civic engagement, diversity and inclusion, and more. Project types include those that provide permanent physical improvements in the community, temporary demonstrations that lead to long-term change, and innovative programming or services. The program is open to 501(C)(3), 501(C)(4) and 501(c)(6) nonprofits and government entities. Grants can range from several hundred dollars for smaller, short-term activities to several thousand or tens of thousands of dollars for larger projects.

- **Total Funding:** $3.8 million
- **Grant Deadline / Cycle:** March – Annual
- **Project Awards:** $500 to $50,000
- **Match Requirements:** N/A
- **Eligible Applicants:** Governments and nonprofit organizations
- **Eligible Projects:** Projects that improve public spaces, transportation, and inclusion that provide permanent physical improvements in the community and innovative programming or services.

https://www.aarp.org/livable-communities/community-challenge/

Golden LEAF Foundation

The Golden LEAF Foundation is a nonprofit organization established in 1999 to receive a portion of North Carolina's funding received from the 1998 Master Settlement Agreement with cigarette manufacturers. Golden LEAF works to increase economic opportunity in North Carolina's rural and tobacco-dependent communities through leadership in grantmaking, collaboration, innovation, and stewardship as an independent and perpetual foundation. Golden LEAF's grantmaking focuses on the following priorities: Job creation and economic investment; workforce preparedness; agriculture; and community competitiveness, capacity, and vitality. Golden LEAF considers applicants who make a strong case for economic distress. Rutherford County is a Tier 1 economically distressed county, among the 40 most distressed counties in the state of North Carolina per the 2025 county tier designations.

Open Grants Program: The Open Grants Program process is open to all governmental entities and 501(c)(3) organizations that propose projects in Golden LEAF's priority areas. This program is for economic development projects aligned with the Golden LEAF priority areas. Most awards in the Open Grants Program will be for $200,000 or less, but applicants can request up to $500,000. There is $8 million available in FY25-26 for the Open Grants Program.

https://goldenleaf.org/funding-opportunities/open-grants/

People for Bikes Community Grant Program

The People For Bikes Community Grant Program supports bicycle infrastructure projects and targeted advocacy initiatives that make it easier and safer for people of all ages and abilities to ride. People For Bikes accepts grant applications from non-profit organizations with a focus on bicycling, active transportation, or community development; city or county agencies or departments, and state or Federal agencies working locally. People For Bikes focuses most grant funds on bicycle infrastructure projects, such as bike paths, lanes, trails and bridges, mountain bike facilities, bike parks and pump tracks, BMX facilities, and end-of-trip facilities such as bike racks, bike parking, bike repair stations and bike storage. Advocacy projects funded through the program include open street events and campaigns to increase investment in bicycle infrastructure. People For Bikes accepts requests for funding up to $10,000. People For Bikes does not require a specific percentage match, but they will not consider requests in which the grant funding would amount to 50% or more of the project budget.

https://www.peopleforbikes.org/grant-guidelines

National Association of Realtors Placemaking Grants

The National Association of Realtors (NAR) funds placemaking and smart growth grants to make communities better places to live by transforming unused or underutilized sites into welcoming destinations accessible to everyone in a community.

Smart Growth Grants: Smart Growth grants can fund visioning sessions, community workshops, and placemaking visioning for meaningful transportation projects and issues. These community planning activities would align with the intent of the Thermal Belt Rail Trail Extension Feasibility Study and contribute to intentional and thoughtful collection of public input over the course of the development of the facility.

Placemaking Grants: Placemaking Grants fund the creation of new, outdoor public spaces and destinations in a community. This program funds amenities such as street furniture, paint, signage, materials, landscaping, murals, site preparation, and artist fees. A state or local REALTOR® association must submit applications and grants provide up to $5,000 per award.

https://realtorparty.realtor/community-outreach/

Two for the Trails (Athletic Brewing Company)

Athletic Brewing Company provides funding to protect and restore trails, waterways, beaches, parks, and urban areas in need of maintenance.

- **Total Funding:** $2 million annually
- **Grant Deadline/Cycle:** Summer – Annual
- **Project Awards:** Up to $50,000
- **Match Requirements:** 20%
- **Eligible Applicants:** Any registered LLC with an environmental cleanup project.
- **Eligible Projects:** Projects that restore trails and outdoor recreation facilities.

https://athleticbrewing.com/pages/two-for-the-trails-application

TECHNICAL ASSISTANCE PROGRAMS

The following Technical Assistance Programs can be leveraged to provide additional design and technical expertise to assist with obtaining funding and providing additional resources during the design and construction process.

Rivers, Trails, and Conservation Assistance Program (RTCA)

The National Parks Service (NPS) Rivers, Trails, and Conservation Assistance (RCTA) Program supports community-led natural resource conservation and outdoor recreation projects across the nation. Although RTCA is not a traditional funding program, NPS staff provide planning, design and technical expertise for trails and outdoor recreation projects. Depending on the scale of the project, RTCA can invest up to four years of planning and project development assistance. Eligible entities include community groups, nonprofit organizations, tribes, and government agencies. Technical assistance services include:

- Define project vision and goals.
- Set priorities and build consensus.
- Inventory and map community resources.
- Identify funding strategies.
- Identify and analyze key issues and opportunities.
- Design community outreach, participation, and partnerships plans.
- Create project management and strategic action plans.
- Develop concept plans for trails, parks, and natural areas.

https://www.nps.gov/orgs/rtca/index.htm