

FEASIBILITY STUDY

Johnston County East Coast Greenway

Linking Smithfield to Benson



**DECEMBER
2024**



ACKNOWLEDGMENTS

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<h1>01</h1> <h2>INTRODUCTION</h2> <p>p.06</p> <ul style="list-style-type: none"> Overview + Study Goals Process + Schedule Background + Site History Previous Plans + Existing Policies Review Project Benefits 	<h1>02</h1> <h2>STUDY CONSIDERATIONS + ALTERNATIVES DEVELOPMENT</h2> <p>p.30</p> <ul style="list-style-type: none"> Overview Planning Level Considerations Natural Environment Considerations Human Environment Considerations Alternatives Development 	<h1>03</h1> <h2>COMMUNITY + STAKEHOLDER INVOLVEMENT</h2> <p>p.100</p> <ul style="list-style-type: none"> Overview Community Engagement Plan Meeting Summaries Community Survey Summary 	<h1>04</h1> <h2>EVALUATION + RECOMMENDATIONS</h2> <p>p.124</p> <ul style="list-style-type: none"> Overview Evaluation Criteria Alternatives Development Decision Matrix + Scoring Preferred Alternative Design Guidance 	<h1>05</h1> <h2>IMPLEMENTATION</h2> <p>p.164</p> <ul style="list-style-type: none"> Overview Summary of Strategies Preferred Phase Cutsheets Funding Resources Partner Roles Action Plan Maintenance Recommendations 	<h1>A</h1> <h2>APPENDICES</h2> <p>p.214</p> <ul style="list-style-type: none"> A: Funding Resources B: Design Resources C: Community Engagement D: Cost Estimates
 <h1>06</h1>	 <h1>30</h1>	 <h1>100</h1>	 <h1>124</h1>	 <h1>164</h1>	 <h1>214</h1>

EXECUTIVE SUMMARY

The Johnston County East Coast Greenway Feasibility Study assesses existing conditions, evaluates potential routes for opportunities and constraints, develops detailed cost estimates, and provides strategies for implementation of a multi-use path as part of the East Coast Greenway network between Smithfield and Benson, in Johnston County. The project team assessed routes on and off roadway beginning in Smithfield to the north, passing through Four Oaks, and culminating just south of Benson at the Harnett County line. The study proposes a preferred alignment with potential connector routes to reach additional destinations. The preferred alignment was identified through community input, coordination with local landowners, a project working group, and jurisdictions and major stakeholders along the proposed corridor. An implementation plan, along with action steps and funding resources are provided at the end of the document.

The initial vision for the Smithfield to Benson East Coast Greenway (ECG) is to create a safe, connected, and community-supported linear green space while prioritizing safety by enhancing critical intersections and access points and seamlessly integrating the greenway into the county's network to provide enhanced transportation and recreational access. The Working Group set out goals to overcome challenges, ensure community needs are met, and gain public support for implementation and maintenance. Through thoughtful placemaking, the Greenway can be a vibrant space with public art, wayfinding signage, and shaded areas, fostering a sense of community. Importantly, the project will actively engage and enlist local support, making the Smithfield to Benson ECG a collective achievement that enhances the well-being of the community for years to come.

Challenges to the desired outcomes did arise during the planning process, but nothing detrimental to the project's success and ultimate implementation. Most of the challenges related to private

property rights and the ability to access certain properties along with coordinating roadway, rail, and easement crossings with the North Carolina Department of Transportation and public utility providers. Extensive outreach was conducted with property owners and individual stakeholder meetings were held with NCDOT and utility providers throughout the planning process.

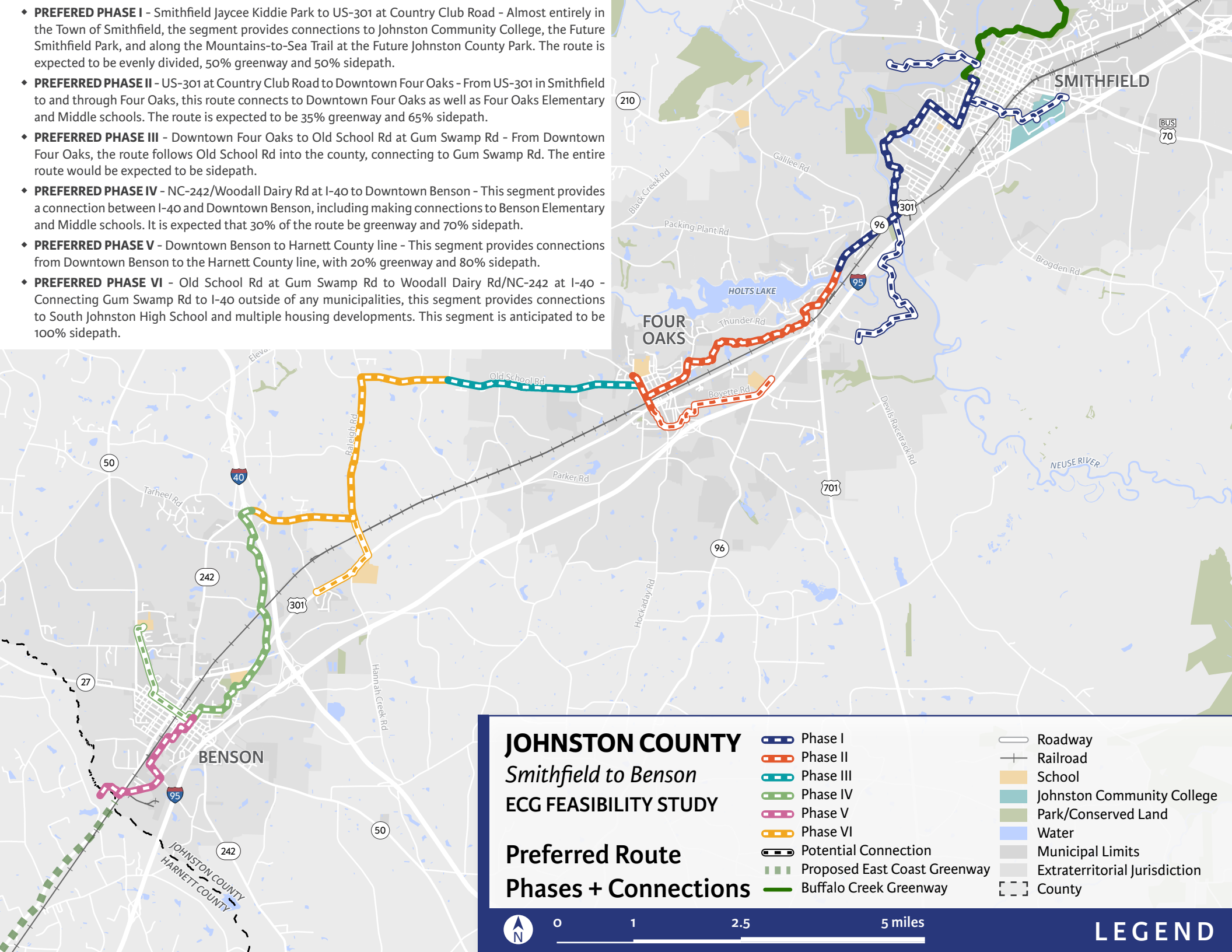
The following report provides analysis of all routes that were considered. The final recommendation involves a certain level of compromise on user experience, citing the need to avoid certain properties as well as maintaining fiscal responsibility using the most feasible routes. However, it still offers a safe multimodal corridor across the county, connections to key destinations and transportation facilities, as well as the potential for funding through state or other grants, making implementation and prioritization an easier task.

PREFERRED ROUTE

The preferred route has an approximate length of 23 miles with 24% of that mileage being on greenways and 76% on sidepaths. A preliminary construction cost estimate was completed including a 30% cost contingency, and the expected construction estimate came to \$44,921,000 in 2024 dollars. Additionally, the preferred route:

- ◆ Uses the Maximum Greenways route from Smithfield to Four Oaks
- ◆ Uses Old School Rd, Raleigh Rd, and Woodall Dairy Rd to reach I-40 at the outskirts of Benson from Four Oaks.
- ◆ Uses I-40 ROW to access Tarhell Rd, continuing into Benson along a segment of Honeycutt Rd with a greenway connection into downtown.
- ◆ Uses the preferred route from Benson's Community Transportation Plan to continue south of the railroad, crossing near US-301 before reaching the Harnett County line.

- ◆ **PREFERRED PHASE I** - Smithfield Jaycee Kiddie Park to US-301 at Country Club Road - Almost entirely in the Town of Smithfield, the segment provides connections to Johnston Community College, the Future Smithfield Park, and along the Mountains-to-Sea Trail at the Future Johnston County Park. The route is expected to be evenly divided, 50% greenway and 50% sidepath.
- ◆ **PREFERRED PHASE II** - US-301 at Country Club Road to Downtown Four Oaks - From US-301 in Smithfield to and through Four Oaks, this route connects to Downtown Four Oaks as well as Four Oaks Elementary and Middle schools. The route is expected to be 35% greenway and 65% sidepath.
- ◆ **PREFERRED PHASE III** - Downtown Four Oaks to Old School Rd at Gum Swamp Rd - From Downtown Four Oaks, the route follows Old School Rd into the county, connecting to Gum Swamp Rd. The entire route would be expected to be sidepath.
- ◆ **PREFERRED PHASE IV** - NC-242/Woodall Dairy Rd at I-40 to Downtown Benson - This segment provides a connection between I-40 and Downtown Benson, including making connections to Benson Elementary and Middle schools. It is expected that 30% of the route be greenway and 70% sidepath.
- ◆ **PREFERRED PHASE V** - Downtown Benson to Harnett County line - This segment provides connections from Downtown Benson to the Harnett County line, with 20% greenway and 80% sidepath.
- ◆ **PREFERRED PHASE VI** - Old School Rd at Gum Swamp Rd to Woodall Dairy Rd/NC-242 at I-40 - Connecting Gum Swamp Rd to I-40 outside of any municipalities, this segment provides connections to South Johnston High School and multiple housing developments. This segment is anticipated to be 100% sidepath.



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Preferred Route
Phases + Connections

- Phase I
- Phase II
- Phase III
- Phase IV
- Phase V
- Phase VI
- Potential Connection
- Proposed East Coast Greenway
- Buffalo Creek Greenway

- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND



INTRODUCTION

01

OVERVIEW

A comprehensive examination of the Smithfield to Benson East Coast Greenway (ECG) corridor is required to advance the proposed trail into the next phase of project development. To achieve this, the *Johnston County ECG Feasibility Study* will evaluate potential route scenarios along the Neuse River and within the US-301 corridor to determine a feasible and preferred route for the greenway that connects the Towns of Benson, Four Oaks, and Smithfield. This study will thoroughly evaluate and recommend suitable routes comprised of varying bicycle and pedestrian facility types that support connections to regional trail systems in the study area, such as the ECG and the Mountains-to-Sea Trail (MST).

The following sections are included within Chapter 1:

- ◆ Study Goals
- ◆ Process + Schedule
- ◆ Background + Site History
- ◆ Previous Planning Efforts
- ◆ Policy Review
- ◆ Project Benefits

STUDY VISION + GOALS

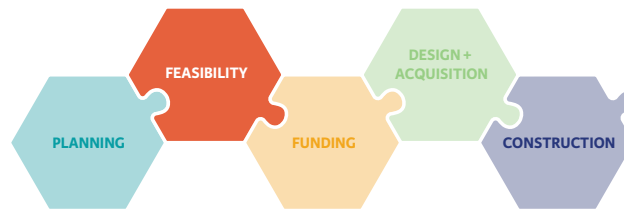
The project Steering Committee developed a set of comprehensive goals to guide the *Johnston County ECG Feasibility Study*. These goals serve as a driving force for the study and will ensure a focused and effective approach to determining the preferred alignment for the future greenway. The identified goals are detailed below:

- ◆ **Safety:** Address community safety needs in the development of the ECG and propose safety improvements at critical intersections, access points, and destinations such as schools.
- ◆ **Connectivity:** Ensure that Johnston County's greenway network expands transportation and recreational access for residents and visitors and connects to key destinations and regional trail system within adjoining communities and neighboring jurisdictions.
- ◆ **Project Feasibility:** Prioritize the development of a greenway that is permissible, solves right-of-way challenges, meets community needs, and generate public support to be implemented and maintained with local, regional, and state resources.
- ◆ **Local Support:** Develop a plan for the greenway that actively engages and enlists local support, fostering a sense of ownership and involvement in the developmental phases of the project.
- ◆ **Placemaking:** Develop a route into a vibrant, community-centered space that fosters a strong sense of place and enjoyment by integrating public art installations, wayfinding signage, and providing shaded areas for relaxation and gatherings, enhancing the overall experience for all users.

During the Kick-off Meeting, the project team asked the Steering Committee to define success for the greenway. The Steering Committee envisions a greenway that forms a safe, connected, and community-supported linear green space. The future ECG will prioritize safety by enhancing critical intersections and access points, aiming to seamlessly integrate the greenway into the county's network to provide enhanced transportation and recreational access. Through the feasibility study, the project will ensure community needs are met and gain public support for future implementation and maintenance needs associated with the greenway. Through thoughtful placemaking, the greenway will serve as a vibrant space with public art, wayfinding signage, and shaded areas that foster a sense of community. Importantly, the project will actively engage and enlist local support, making the Smithfield to Benson ECG a collective achievement that enhances the well-being of the community for years to come.

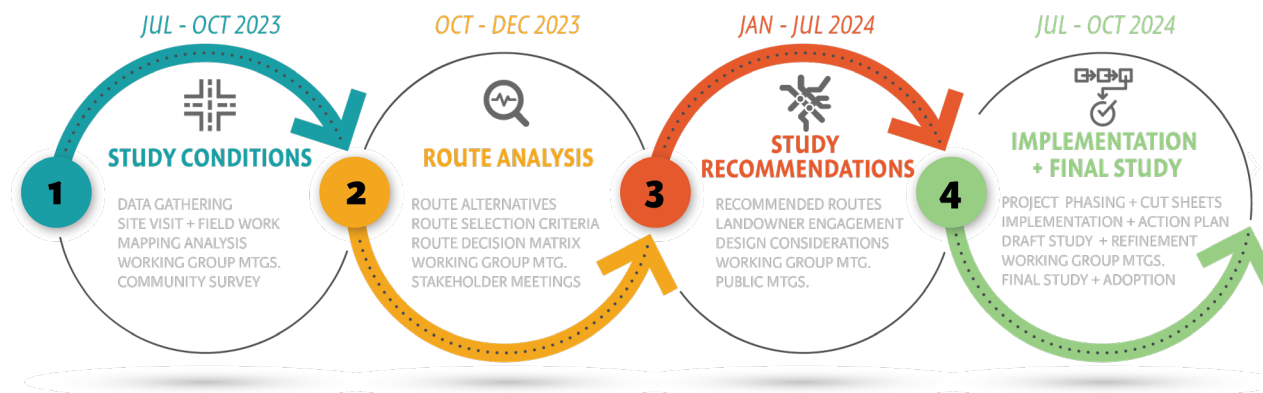
WHAT IS A FEASIBILITY STUDY?

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 possible alignment alternatives. The purpose of this type of study is to evaluate technical feasibility from a design, permitting, and constructability perspective. Input solicited from the local community and stakeholders help guide the recommended alignments. Quantity-based preliminary cost estimates are generated for the alignments to help inform further decision making, identify funding needs, and identify next steps for project implementation. It is important to note that a feasibility study does not present a final design for construction. Willing property owners and available funding will help determine the final alignment for a project.



PROCESS + SCHEDULE

The *Johnston County ECG Feasibility Study* explored and assessed potential routes by employing a comprehensive approach that took into account the built, natural, social, and economic environments. The study commenced in July 2023 and wrapped up in June 2024, progressing through four distinct phases: Study Conditions, Route Analysis, Study Recommendations, and Implementation & Final Study. Each phase entailed essential components, as depicted in the study process graphic below. Throughout the study, active engagement efforts were integrated, fostering regular meetings with various groups, including a Working Group, stakeholders, landowners, and the general public. This collaborative approach ensured that diverse perspectives and insights were considered in shaping the study's outcomes.



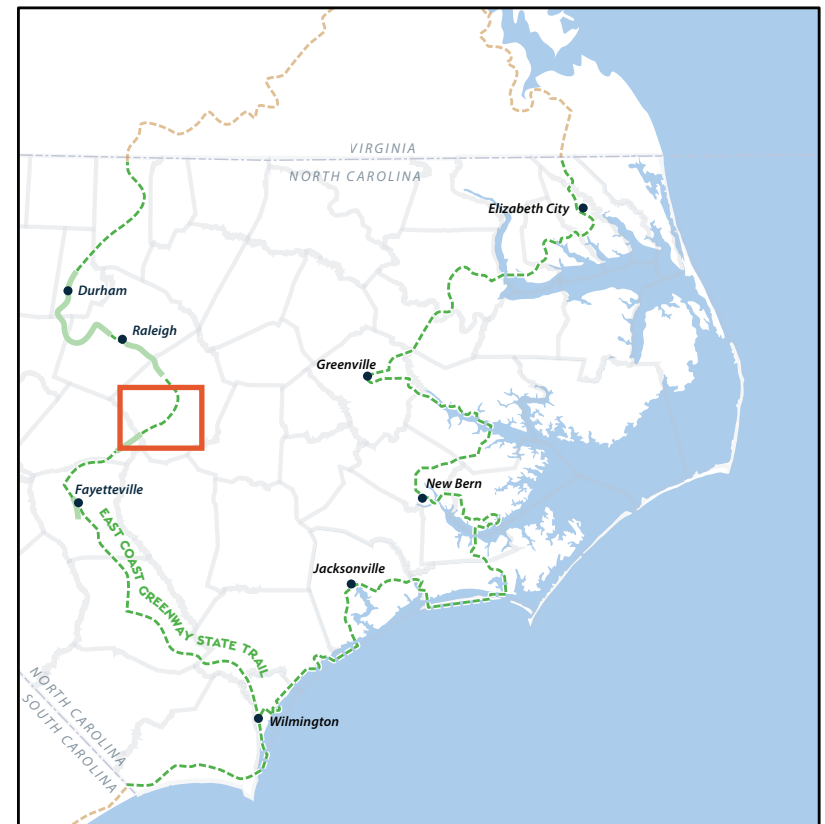
BACKGROUND + SITE HISTORY

The proposed Smithfield to Benson ECG corridor spans approximately 15-17 miles in Johnston County, establishing a crucial connection between the towns of Smithfield and Benson. The corridor primarily aligns with US-301, and follows the Neuse River in Downtown Smithfield at the Buffalo Creek Greenway's terminus and continues west towards the Johnston/Harnett County line, just outside of Benson town limits. This proposed greenway is a vital missing link in the County's greenway network and is intended to bridge the gap segments of both the ECG and the Mountains-to-Sea Trail (MST).

REGIONAL CONNECTIONS

The ECG is an ambitious 3,000-mile pedestrian and biking route that stretches from Maine to Florida, interconnecting major cities, small towns, and scenic parklands along the Eastern Seaboard. In North Carolina, the ECG mainline passes through Durham, Raleigh, Fayetteville, and Wilmington, largely following the Neuse River and Cape Fear River corridors across the state. Currently, the ECG is 28 percent complete, and North Carolina boasts the longest continuous stretch of completed trails, totaling 72 miles, traversing through Durham, Wake, and Johnston Counties. By incorporating the proposed Smithfield to Benson ECG corridor (see red rectangle), the connected greenway network is expected to expand to over 100 miles in the region, effectively completing the ECG corridor within Johnston County.

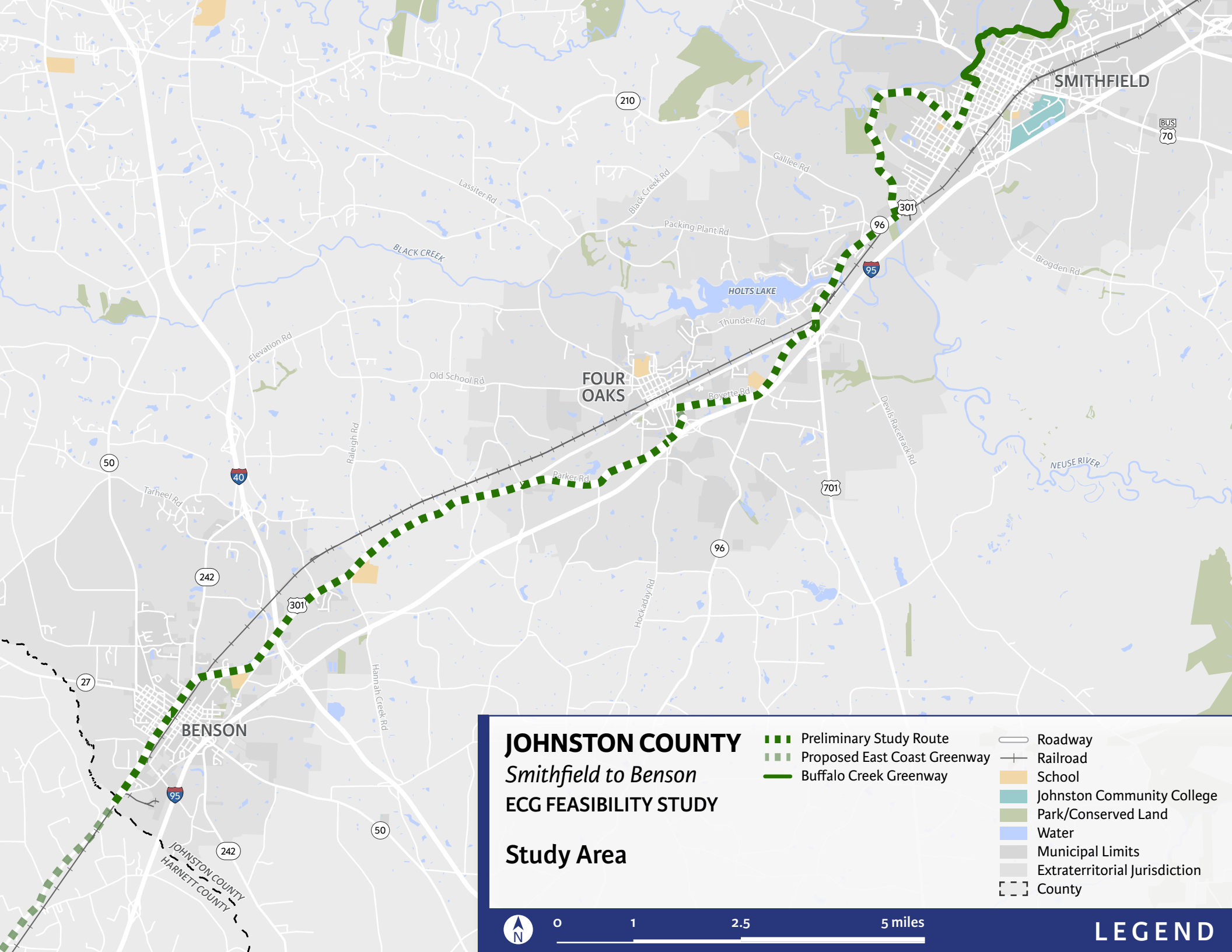
Moreover, this corridor shares its path with the MST, serving as North Carolina's flagship state trail. Stretching from Clingmans Dome at Tennessee's border to Jockeys Ridge State Park on the coast, the MST is over 57 percent complete based on its original route, which roughly follows the Neuse River from Wake County east to New Bern.



LEGEND

- Planned Trail
- Existing Trail
- County Line
- State Line
- Water
- City





JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Study Area

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

PREVIOUS PLANNING EFFORTS

Previous plans were reviewed to better understand the region's vision and priorities for active transportation facilities. The following table provides a review of key recommendations included in plans from the Town of Smithfield, Town of Four Oaks, Town of Benson, Johnston County, Capital Area Metropolitan Planning Organization (CAMPO), and NCDOT that may guide or influence the development of the Smithfield to Benson ECG corridor.

EXISTING PLAN / STUDY	KEY RECOMMENDATIONS RELATED TO THE JOHNSTON COUNTY ECG FEASIBILITY STUDY
Johnston County Mountains-to-Sea Trail Master Plan (2006)	The Johnston County Mountains-to-Sea Trail (MTS) Master Plan examines segments of the Neuse River corridor being considered in this feasibility study. From Wallace Park in Smithfield the recommended alignment runs on-road using bikeways and sidewalks along S 2nd St. At W Sanders St it turns west and passes South Smithfield Elementary School before connecting to the Neuse River. The trail is proposed on the east side, remaining close to the river, past a wastewater plan to Interstate 95.
Johnston Community College Facilities Master Plan (2008)	The facilities master plan for Johnston Community College (JCC) calls for modifications to the transportation network serving the college. Recommendations in the plan include closing College Rd to through traffic and installing traffic calming features to facilitate campus development on the other side of the roadway, realigning the intersection of College Rd and US-70 BUS to the northwest of the arboretum, and disconnecting College Rd from MLK Jr. Dr at its current location. The plan calls for a more pedestrian friendly campus with walkways and trails throughout campus.
Johnston County 2030 Comprehensive Plan (2009)	Several themes within the Johnston County Comprehensive Plan reflect the local interest in developing a greenway network to support local transportation choices: <ul style="list-style-type: none"> • Theme 5, Protecting the Environment and Cultural Sites, highlights the need for environmental stewardship, especially for fragile areas such as floodplains or steep slope areas where development can aggravate flooding. • Theme 6, Enhancing Mobility, supports the need to develop a coordinated transportation network in an environmentally sensitive manner with a multimodal emphasis that includes transit, bicycle, and pedestrian travel. Action recommendations 32i (require bicycle and pedestrian improvements as part of new developments) and 32k (work with NCDOT to incorporate bicycle facilities on roadway projects) call attention to the need to identify additional methods for building bicycle and pedestrian improvements in Johnston County.

EXISTING PLAN / STUDY	KEY RECOMMENDATIONS RELATED TO THE JOHNSTON COUNTY ECG FEASIBILITY STUDY
Johnston County Comprehensive Transportation Plan (CTP) (2014)	The Johnston County CTP is a non-fiscally constrained plan that identifies transportation needs of the County through 2035. In addition to roadway improvements, this plan identifies several multi-use path and sidewalk alignments. These include multi-use path on the shared ECG/MTS segment in Smithfield, which includes S 2nd St, W Sanders St, and the Neuse River. In addition, greenway connections are proposed in Four Oaks and in Benson, with sidewalks recommended for S Brightleaf Blvd, S Main St in Four Oaks, and N Johnson St in Benson.
CAMPO Southeast Area Study (2017)	CAMPO developed the Southeast Area Study (SEAS) to develop and define a strategy to accommodate existing and future travel needs within southeast Wake and northwest Johnston County, including parts of the municipalities of Archer Lodge, Benson, Clayton, Four Oaks, Garner, Kenly, Micro, Raleigh, Selma, Smithfield, and Wilson’s Mills. The study includes the proposed ECG trail alignment along the Neuse River and US-301. It also identified locations for connecting bicycle and pedestrian facilities including Galilee Rd, Country Club Rd, US-701, S Main St in Four Oaks, N Johnson St, N Honeycutt St, Church St, and Main St in Benson.
Mountains-to-Sea Trail Coastal Crescent Trail Strategic Plan (2018)	The Coastal Crescent Trail includes portions of the land route for the MST between Johnston County and Carteret County, a distance of approximately 270 miles. This plan identifies a vision for the continued development of the trail and identifies opportunities to shift existing roadway segments of the MST onto trail corridors. The plan focuses on portions of the MST south of Howell Woods Environmental Education Center, and a priority segment included in the plan is the Bentonville Battlefield Trail. Implementation action items include continuing to sign the existing route, installing kiosks, and seeking funding to hire a project coordinator for this segment of the MST.
Town of Benson Parking Study (2018)	The Town of Benson developed a parking study for a 15-block area surrounding the downtown core, which includes recommendations to promote multimodal transportation to reduce parking needs. Among the action items listed are developing a comprehensive bicycle and pedestrian plan, adding bicycle racks to downtown, creating wayfinding signage, and improving pedestrian safety through the addition of curb bulb-outs, trees, lighting, and crosswalks.
Town of Benson Community Transportation Plan (2019)	The Town of Benson Community Transportation Plan identifies multimodal transportation needs for the town through the year 2045. A road widening project for NC-242 between US-301 and Interstate 40 would add a multi-use path on the western side of the roadway. Multi-use paths are also proposed on US-301 north of N Johnson St, on the western side of US-301 south of Chicopee Rd, on Chicopee Rd between US-301 and a future roadway bypassing Benson, on the future bypass, and through the heart of Benson using S Market St, E Brocklyn St, S Elm St, E Parrish St, and Johnson St. Two greenways are proposed between N Johnson St and N Honeycutt St near Benson Middle School.

EXISTING PLAN / STUDY	KEY RECOMMENDATIONS RELATED TO THE JOHNSTON COUNTY ECG FEASIBILITY STUDY
Town of Smithfield Town Plan (2020)	The 2020 Smithfield Town Plan serves as an update to both the 2003 Comprehensive Plan and the Town’s Transportation Plan. The plan notes the existing Smithfield Neuse Riverwalk Greenway serves as a key bicycle and pedestrian connection from downtown Smithfield to the Smithfield Community Park. This segment can also tie into the proposed ECG alignment, and the plan recommends several pedestrian intersection improvements and bicycle boulevard routes, the latter of which can serve as on-street routes connecting to future planned recreation facilities. A neighborhood greenway connector is recommended between the existing Bob Wallace Jaycee Kiddie Park and Smith-Collins Park along the Spring Branch corridor. A long-term roadway project on US-301 between Brogden Rd and Country Club Rd is recommended, which would widen the roadway from three to four lanes with a median, sidewalks, and on-street bicycle facilities. The plan also recommends further discussion with NCDOT on reclassifying the current US-70 BUS to a different road, which may provide opportunities to develop additional active transportation connectivity to the existing greenway. Finally, the appendix estimates that the existing Buffalo Creek Greenway saw almost 27,000 unique trips in 2016, resulting in \$236,000 in trail-related purchases annually.
Town of Four Oaks Downtown Streetscape Master Plan (2020)	The Downtown Streetscape Master Plan creates a vision and framework for implementing streetscape improvements in the Four Oaks Commercial Historic District. Pedestrian infrastructure is key to the plan, proposing projects to close sidewalk gaps and improve accessibility. The plan proposes to pave Woodall St and install sidewalks with curb and gutter, provide a sidewalk connection to a future park from the intersection with S Church St, and install wide sidewalks on Main St and Wellons St. While the plan ultimately was based on Concept Alternative #2, consideration was given to greenways in Concept Alternative #1 with a potential greenway connection at Woodall St and S Church St and a multi-use trail along S Railroad St.
Johnston County Parks and Recreation Master Plan (2021)	This 2021 plan update focuses on recreational needs and includes recommendations related to greenway and trail connectivity. One of the plan’s on-going recommendations is to complete the MST from Clayton to Smithfield and to improve coordination with regional municipalities to expand it, along with and other regional trails such as the East Coast Greenway. The plan identifies a Smithfield to Benson greenway connection as one of the five most requested connections. A lack of bicycle parking at and bicycle and pedestrian access to parks is identified as a challenge which should be addressed.
Town of Benson Comprehensive Plan (2021)	The Town of Benson Comprehensive Plan establishes a vision for future growth in the town. Included in the plan is a recommendation to create master plans for parks and greenways to connect to regional trails and be more competitive when applying for grant funding. The creation of a bicycle and pedestrian plan is also recommended to improve connectivity between neighborhoods and the downtown area. Conservation areas suitable for park and greenway development are proposed in the future land use map along stream corridors on the edge of town.

EXISTING PLAN / STUDY	KEY RECOMMENDATIONS RELATED TO THE JOHNSTON COUNTY ECG FEASIBILITY STUDY
Johnston County Public Utilities 2022 Capital Improvements Plan (2022)	The Capital Improvements Plan notes that the Central Johnston County Regional Wastewater Treatment Facility was impacted by flooding associated with Hurricane Matthew in 2016, and investigation found the floodplain is expanding. A facility expansion at this location was reprogrammed for a new facility on County Home Rd, and the existing facility is proposed to be phased out and converted to an equalization and pumping facility. The plan proposes partnering with NCDOT on a bridge replacement project over the Neuse River that would relocate and upgrade associated wastewater infrastructure.
NCDOT Great Trails State Plan (2022)	The North Carolina Department of Transportation’s (NCDOT) Great Trails State Plan, completed in 2022, identified 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). The plan identifies a preferred route along the East Coast Greenway corridor that will connect the existing Smithfield Neuse Riverwalk in Smithfield with Four Oaks and Benson, using the Neuse River within Smithfield where possible. An alternative route would follow roadways between the Neuse River and the Smithfield Neuse Riverwalk. 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.
CAMPO Metropolitan Transportation Plan: Connect 2050 (2022)	CAMPO is the organization which coordinates distribution of federal transportation funds. MPOs are required by federal law to develop a Metropolitan Transportation Plan (MTP) every 4 years. The MTP is a fiscally constrained plan which identifies roadway, transit, bicycle, and pedestrian transportation projects which can be considered for federal funding. The 2050 MTP includes active transportation connectivity between Smithfield and Benson showing a multi-use path route along S 2nd St, E Wilson St, S Brightleaf Blvd, Boyette Rd, Keen Rd, Allendale Rd, Parker Rd, and US-301.
Neuse River Trail Feasibility Study (2022)	The Neuse River Trail Feasibility Study examines a 16-mile gap in the regional trail network between Clayton to Smithfield that is identified as a segment of both the ECG and MST. The trail is recommended to connect to the existing Buffalo Creek Greenway at Smithfield Community Park and will provide a safe walking and bicycling connection into Selma, Wilson’s Mills, Clayton, and Wake County. The study also recommends policies and guidelines for communities along the corridor, including the adoption of greenway design guidelines and a Complete Streets ordinance in both Smithfield and Johnston County.

EXISTING PLAN / STUDY	KEY RECOMMENDATIONS RELATED TO THE JOHNSTON COUNTY ECG FEASIBILITY STUDY
Four Oaks Land Use Plan Analysis and Update (2022)	The Four Oaks Land Use Plan Analysis and Update provides a vision for growth and development in the Town of Four Oaks. The plan updates the 2001 Land Use Plan and identifies three growth scenarios including a focused, “Smart Growth” option. Recommendations in the 2001 plan include amending the Subdivision Ordinance to require open space dedication, sidewalk construction, and street connectivity with limited cul-de-sacs; however, these have not yet been completed. Other outstanding recommendations include developing a Sidewalk Plan in collaboration with NCDOT and a Parks and Recreation Master Plan.
Town of Smithfield Comprehensive Pedestrian Plan (2022)	The Town of Smithfield’s Comprehensive Pedestrian Plan establishes a vision for a safe pedestrian network accommodating users of all ages and abilities. Key challenges identified by the plan include a lack of pedestrian connections in West Smithfield, barriers presented by the railroad tracks, and the difficulty of crossing Brightleaf Blvd on foot. The plan focuses on creating multimodal corridors with a sidewalk on one side and a multi-use path on the other. The top priority project recommended by the plan is the East Coast Greenway corridor between W Wellons St and Holts Lake, followed by sidewalks on the north side of S 2nd St between W Wilson St and E Parker St, and improvements to the existing Smithfield Neuse Riverwalk. The plan recommends crosswalks of US-301/Brightleaf Blvd at multiple locations along the study corridor, including Wellons St, Wilson St, Huntley St, Packing Plant Rd, Galilee Rd, and Country Club Rd. Finally, policy recommendations included in the plan suggest the Town strengthen requirements for pedestrian facilities in new development, reduce minimum building setbacks in urban contexts to create more pedestrian-friendly streetscapes, and establish new requirements for wayfinding signage on active transportation facilities.
Envision Johnston 2040: Comprehensive Land Use Plan (2023)	Envision Johnston is the comprehensive plan for Johnston County and identifies the goal of connecting recreation opportunities across the county by greenways. The plan encourages the creation of a more walkable and bikeable community through increasing open space requirements, preparing and adopting a greenways plan, requiring developers to reserve alignments for greenway corridors including the Mountains-to-Sea Trail and East Coast Greenway, and update development regulations to require sidewalk installation in new development near existing or planned activity centers. Parks and recreational space were selected by the community as its top preferred land use, and opportunities for recreational facilities were identified near Benson and along water features.
Town of Four Oaks Parks & Recreation Comprehensive Plan (2023)	The Town of Four Oaks Parks & Recreation Comprehensive Plan analyzes current recreation facilities and identifies future needs to better serve the population growth Four Oaks expects to receive in the coming years. The East Coast Greenway corridor is identified as an adjacent facility and stakeholders expressed a desire to prioritize greenway development connecting to it. A community survey ranked greenways with wayfinding signage as the top preferred recreation facility in Four Oaks. The plan recommends a new alignment for the East Coast Greenway that serves the downtown area and connects to Robert L. Holt Park before utilizing a 20-foot sanitary sewer easement parallel to S Main St.



Signage at the Buffalo Creek Greenway trailhead in Smithfield

POLICY REVIEW

Existing local and state policies were reviewed to better understand how they influence trail design and development for active transportation facilities. The following table provides a summary of key policies from the Town of Smithfield, Town of Four Oaks, Town of Benson, Johnston County, NCDOT, and the Federal Highway Administration (FHWA) that may guide or influence the development of the Smithfield to Benson ECG corridor.

EXISTING POLICY	KEY ORDINANCES AND STANDARDS RELATED TO THE JOHNSTON COUNTY ECG FEASIBILITY STUDY
<p>Johnston County Land Development Code</p>	<p>The Johnston County Land Development Code (LDC) is Chapter 14 of the County’s Code of Ordinances and establishes multiple provisions related to the provision of transportation infrastructure by developers.</p> <ul style="list-style-type: none"> ◆ Sec. 14-226(h): For subdivision roads, sidewalks shall be provided where necessary to provide efficient pedestrian access to school sites and commercial centers. ◆ Sec. 14-257(k)(8)(c) & 14-257(l)(7)(b): For Planned Development-house and Planned Development-mixed use, the minimum requirements for sidewalks are: provide on both sides of the street, 5 feet wide, meeting the Americans with Disabilities Act (ADA) standards for accessible design, with 6 feet separation from the edge of pavement or 2 feet if curb and gutter is utilized, with crosswalks included. ◆ Sec. 14-366(5)(b): For a development which meets the Johnston County Traffic Impact Analysis (TIA) threshold, if said development is located “along a road projected to be widened by NCDOT or an adopted county plan, additional right-of-way (ROW) along the development’s road frontage shall be dedicated as deemed acceptable by NCDOT.” <p>Other relevant sections include:</p> <ul style="list-style-type: none"> ◆ 14-393 – Riparian buffer protection for lands within the Neuse River Basin. Greenways are a permitted use of riparian buffer land ◆ 14-428 – Establishment of Floodplain Development Permit <p>It is worth noting that section 14-366(5)(b) may provide an avenue by which ROW can be acquired for an on-road portion of the trail for an adopted alignment along a future development as it progresses through permitting. However, it may not be broad enough to cover trail development, as it only mentions road widening.</p>

EXISTING POLICY KEY ORDINANCES AND STANDARDS RELATED TO THE JOHNSTON COUNTY ECG FEASIBILITY STUDY**Town of Smithfield
Unified Development
Ordinance**

The Smithfield Unified Development Ordinance (UDO) was adopted in 2017 and amended in 2018 and 2022. The document contains several relevant provisions for greenway development.

- ◆ 7.35.1.2: For multifamily housing developments, internal sidewalks shall be constructed to link buildings with other destinations such as adjoining sidewalks or greenways.
- ◆ 10.114.2.3: If a site abuts existing or planned greenways, the Town may, in lieu of public open spaced dedication, require dedication of a connecting path to the existing or future greenway.
- ◆ 10.36 to 10.41: This section outlines the Town's Traffic Impact Study requirements for proposed developments of varying uses and the trip generation threshold. Section 10.41 may provide an avenue for requiring on-road trails or other-bike ped improvements be constructed by developers, as it states that for Special Use Permits (SUP) the Town Council or Board of Adjustment may decide that certain improvements on or adjacent to the site, or on roadways or intersections for which improvements are needed to safely accommodate site traffic be mandatory for SUP approval, make these conditions of approval, require modifications in the use, or deny the permit.
- ◆ 10.112: Sidewalks are required on one side of new subdivision streets and must be 5 feet wide, or 4 feet if provided on both sides of the street. Subdivisions fronting major thoroughfares are required to construct 4 foot sidewalks in the right-of-way regardless of whether or not a sidewalk exists on the opposite side of the street.

Additionally, at the site plan approval phase, the administrator may also recommend similar improvements be made mandatory to site plan approval.

Other relevant sections include: 10.42 to 10.55: Stormwater Management, 10.56 to 10.69: Flood Damage Prevention, and 10.110: Street Standards.

**Town of Benson
Unified Development
Ordinance**

The Town of Benson UDO establishes provisions related to the development of bicycle and pedestrian infrastructure.

- ◆ 156.203(F): Open space is required in residential subdivisions and may include greenways.
- ◆ 156.602(D): Sidewalks shall be constructed in apartment developments to link residential buildings with destinations including greenways and other adjoining sidewalks.
- ◆ 156.602(H): The construction of sidewalks is required on both sides of all streets, and one side of frontage roads. Sidewalks are not required in residential developments with minimum lot sizes one acre or greater that are 1/4 mile or farther from an existing school, park, or greenway, residential streets serving ten or fewer units, and commercial street cul-de-sacs less than 150 feet in length.

EXISTING POLICY**KEY ORDINANCES AND STANDARDS RELATED TO THE JOHNSTON COUNTY ECG FEASIBILITY STUDY****Town of Four Oaks
Code of Ordinances**

The Town of Four Oaks Code of Ordinances includes provisions related to the development of bicycle and pedestrian infrastructure.

- ◆ 73, Schedule I: Right turns are permitted on a red stop light at three intersections: Baker St at US-301, Keen Rd at US-301, and US-301 at Main St.
- ◆ 153.29: Pedestrian and bicycle paths must be included on preliminary plats and final plats for a subdivision.
- ◆ 152.48(A): Blocks should be between 300 feet and 600 feet. A pedestrian crosswalk at least 15 feet wide may be required where deemed necessary by the Board of Commissioners to connect to a public facility such as a school or park, to a water area, to shopping centers, or to religious or transportation facilities.
- ◆ 152.49(H): The Board of Commissioners may require sidewalks on both sides of streets in all subdivisions, multi-family developments, mixed use developments, and other areas where heavy pedestrian traffic may occur such as near shopping areas or schools. Sidewalks must be at least five feet wide.

**NCDOT Complete
Streets Policy (2023)**

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.

EXISTING POLICY**KEY ORDINANCES AND STANDARDS RELATED TO THE JOHNSTON COUNTY ECG FEASIBILITY STUDY****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.

EXISTING POLICY

KEY ORDINANCES AND STANDARDS RELATED TO THE JOHNSTON COUNTY ECG FEASIBILITY STUDY

FHWA Guidance on Bicycle and Pedestrian Accommodation (2011)

According to 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.



Walking trail signage at the Four Oaks Grove park

PROJECT BENEFITS



MOBILITY + CONNECTIVITY

Improved mobility and connectivity within Johnston County with active transportation networks that support modal shifts from single-occupancy vehicle use to walking and biking.



SAFETY

Designing active transportation or recreational facilities like greenways with enhanced safety measures in mind contributes to a reduction in bicycle and pedestrian crashes and can lead to an increase in biking and walking in Johnston County as a result of safety enhancements.



HEALTH + WELL-BEING

Greenways provide additional access to facilities where community members can bike and walk. This supports increased physical activity, improved mental well-being, and decreased risks of chronic disease. Together, these health and well-being benefits may contribute to an overall reduction in healthcare costs for Johnston County residents.





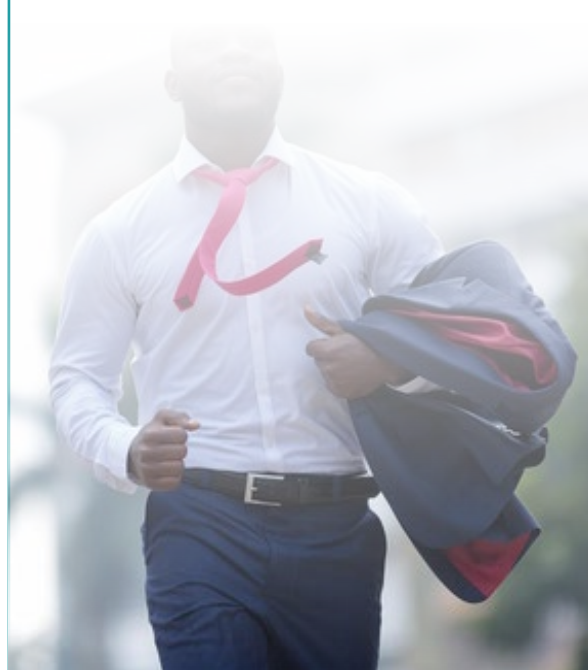
ENVIRONMENT

Bicycling and walking facilities like greenways may contribute to a reduction in greenhouse gas emissions and vehicle miles traveled. In addition, these facilities may also benefit the environment by preserving wildlife habitats and natural areas and improving local water quality within Johnston County.



ECONOMY

Greenways are known to contribute to increased rates of tourism, increased sales revenue, and increased property values, all of which support job creation and business growth in Johnston County.



ACCESSIBILITY + EQUITY

When carefully and thoughtfully designed, greenways can promote accessibility for users of all ages and abilities, as well as equitable access within communities in Johnston County.



MOBILITY + CONNECTIVITY

More than 45 percent of all driving trips in the United States are a distance under 3 miles, and 60 percent of trips are 5 miles or fewer.¹ These trips, which could be taken by foot or bicycle in a short time, represent prime opportunities for mode shifts to biking and walking in communities across the United States; however, a lack of safe and accessible multimodal transportation facilities in many locations prevents residents from walking and biking.

Transportation networks designed to accommodate all modes of travel enable greater mobility and provide safe connections for bicyclists and pedestrians. Complete Streets policies such as those adopted by the North Carolina Department of Transportation (NCDOT) require consideration of active transportation facilities in future roadway projects across the state.² Providing active transportation facilities within close proximity to multiple points of interest can reduce the number of short motor vehicle trips and allow non-vehicular mobility for the nearly 100 million Americans who are unable to drive due to age, disability, or cost.³



SAFETY

The lack of safe bicycle and pedestrian infrastructure in communities across North Carolina endangers those who commute by active transportation modes. In 2022, North Carolina saw 265 pedestrian fatalities and 21 bicyclist fatalities.⁴ Since 2015, NCDOT crash data reported over 185 crashes involving pedestrians in Johnston County, including 31 fatalities. Over 54 total crashes involving bicyclists have been reported as well, including one fatality.⁵

Factors that contribute to unsafe conditions for bicyclists and pedestrians include lack of separation from vehicular traffic, unprotected intersections, and poor connectivity between bicycle and pedestrian facilities. When bicyclists and pedestrians prepare to cross or mix with vehicular traffic, the risk of conflict and potential injury is considerably greater with higher roadway speeds. A pedestrian hit by a vehicle traveling at 31 miles per hour is 5 times as likely to be severely injured than if hit by a vehicle traveling at 16 miles per hour.⁶ These figures highlight the need for safe roadways that limit vehicular traffic speeds in areas where pedestrians may be present and create physical separation between vehicles and active transportation users.

When transportation networks are designed for all modes, bicyclists and pedestrians become less vulnerable to collisions with motorists and rates of bicycling and walking increase. In a National Association of City Transportation Officials (NACTO) study of 7 cities that expanded their bikeway networks by 50 percent between 2007–2014, usage more than doubled while risk of death and serious injury to people biking was halved.⁷ Design enhancements to active transportation infrastructure including paint, custom paving treatments, and lighting can help make users more visible to drivers. The implementation of bicycle and pedestrian programming can also educate both drivers and active transportation users on applicable laws and regulations associated with their respective facilities.

HEALTH + WELL-BEING

Insufficient physical activity is a chronic issue for millions of Americans and contributes to many negative health outcomes including heart disease, high blood pressure, stroke, cancer, and premature death. The United States Department of Health and Human Services (HHS) estimates that inactivity contributes to \$117 billion in annual healthcare costs nationwide and about 10 percent of premature mortality. To help support physical and mental health, HHS recommends adults get at least 150 minutes of moderate-intensity exercise, like brisk walking or bicycling, per week. Bicycle and pedestrian facilities provide a safe and sustainable way for members of a community to engage in these healthy activities.⁸ As many residents in North Carolina lack access to safe and convenient places to be active, bicycle and pedestrian facilities can significantly improve the ability of residents to live more healthy lifestyles.

In the 2018 report *Evaluating the Economic Impact of Shared Use Paths in NC*, researchers at North Carolina State University's Institute for Transportation Research and Education (ITRE) found that trails generated an estimated 21.2 million miles of bicycling and 9.8 million miles of walking, spurring 5.4 million hours of physical activity per year. This activity is estimated to save approximately \$300,000 in healthcare related costs annually in the communities studied.⁹ In addition to helping adults stay mentally and physically fit, HHS states that increased physical activity reduces the risk of coronary heart disease, stroke, diabetes, cancer, and high blood pressure.⁸



ENVIRONMENT

Between 1990 and 2020, greenhouse gas emissions due to transportation increased more than any other sector and accounted for 27 percent of all emissions in 2020. Light-duty vehicles, such as passenger cars and trucks, account for 57 percent of those emissions.¹⁰ Active transportation infrastructure encourages stewardship of our natural resources by providing communities with safe, fossil fuel-free modes of transportation.

In addition, investments in active transportation expand access to these environmentally-friendly transportation facilities, lead to reductions in vehicle miles traveled (VMT) and CO₂ emissions. According to ITRE's 2018 report *Evaluating the Economic Impact of Shared Use Paths in North Carolina*, walking and biking trips along the Duck Trail, Brevard Greenway, and Little Sugar Creek Greenway resulted in an annual reduction of 53.7 million pounds of CO₂ emissions and 686,000 pounds of motor vehicle emissions. This translates to \$707,000 in annual environmental cost savings.¹¹

Providing safe and accessible facilities for walking and biking can help shift travel away from driving and reduce VMT. This is especially critical for short trips, as 45 percent of travel nationwide is under 3 miles in distance.¹² Reducing VMT results in fewer negative environmental impacts since traveling by foot or bicycle are less polluting than vehicle trips.



ECONOMY

Many North Carolina communities, especially those in rural areas, face challenges in attracting sustainable economic development. Bicycle and pedestrian facilities, like greenways, are proven economic generators and create unique opportunities for communities to expand their tourism industry, create jobs, and support local businesses. In 2023, recreation accounted for \$40.18 million in visitor spending in Johnston County. Researchers found in a 2018 study that greenways provide significant economic benefits to communities. For example, trail users along the American Tobacco Trail, Brevard Greenway, Little Sugar Creek Greenway, and Duck Trail made purchases at businesses along these trails, which increased sales revenue and contributed to job creation in their respective communities. The sale revenue generated from these purchases is \$19.5 million annually and helps support 261 jobs each year. Additionally, the study found for every \$1 spent on trail construction, the return of investment from those benefits is \$1.72 annually.¹³

Another example of the economic impact of trails is the Great Allegheny Passage (GAP), a 150-mile rail-trail connecting cities and towns between Pittsburgh, Pennsylvania, and Cumberland, Maryland. The 2021 Economic Impact Report on trail usage and business growth along the GAP found the direct economic impact in 2019 was \$74.7 million, with a total economic impact estimated at \$121 million. With an estimated 1 million visitors per year, the GAP supports nearly 1,400 jobs in the regional economy, and residents who once had limited access to jobs and economic opportunities are now able to invest in local businesses along the trail. Tourist spending yielded approximately \$19 million in tax revenue, of which \$8.7 million went to local, county, and state governments.¹⁴ Over 100 continuous miles of the GAP were completed in 2007, which resulted in a net gain of 65 new businesses and 25 business expansions between 2007 to 2014. Overall, this resulted in the creation of over 270 new jobs in the region.¹⁵

ACCESSIBILITY + EQUITY

Facility gaps or poorly maintained transportation networks may disproportionately impact vulnerable residents throughout North Carolina. Households that rely on transit, biking, and walking often live in areas that lack access to safe and convenient multi-modal infrastructure, which makes access to employment, services, and recreation difficult. According to the United States Census Bureau (ACS 2021 5-year estimates), 19.6 percent of households in the study area live below the poverty line, placing them at a significant disadvantage for accessing local jobs and services. The study area's poverty rate is higher than that of the state which is 14.0 percent.¹⁶

To reduce inequality, communities must ensure that residents have equal access to transportation that is both affordable and convenient. Newly established bicycle and pedestrian connections within Johnston County will expand access to locations including but not limited to employment centers, medical facilities, schools, and parks. In the 2018 report, *Evaluating the Economic Impact of Shared Use Paths in North Carolina*, researchers at ITRE found that trail users in the communities studied reduced their annual transportation costs by \$1.83 million by having access to multimodal facilities enabling them to travel more frequently and safely by foot or by bike.¹⁷



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STUDY CONSIDERATIONS + ALTERNATIVES DEVELOPMENT

02

OVERVIEW

The project team assessed several potential alignments before developing the preferred alignment for the *Johnston County ECG Feasibility Study*. In addition to relying on discussions held with project stakeholders, the project team evaluated both the natural and built environments through a desktop analysis using Geographic Information Systems (GIS). Site visits supplemented this analysis to help the project team gain a better understanding of the existing conditions associated with the study area corridor.

The following sections are included within Chapter 2:

- ◆ Planning Level Considerations
- ◆ Natural Environment Considerations
- ◆ Human Environment Considerations
- ◆ Alternatives Development

PLANNING LEVEL CONSIDERATIONS

The following planning level considerations were reviewed as part of this study:

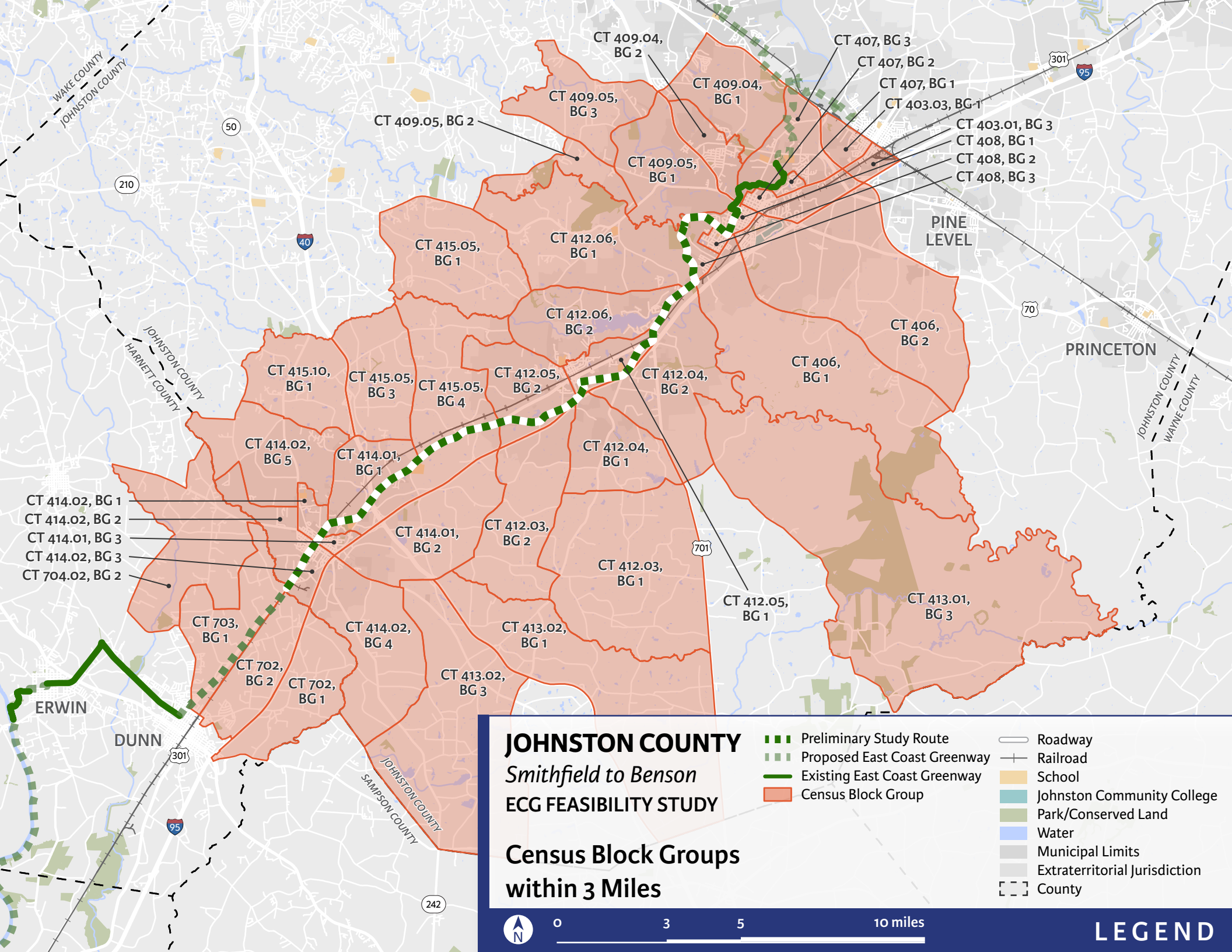
- ◆ Demographics
- ◆ Transportation Disadvantage Index
- ◆ Employment density

COMMUNITY DEMOGRAPHICS

Analyzing demographic trends are essential to planning the study area's active transportation network. This analysis helps inform the public engagement approach and ensures the proposed recommendations meet the diverse needs of people residing in the study area. Demographic data was extracted from the American Community Survey (ACS) 5-year estimates (2016–2020) and was accessed through the United States Census Bureau. When combined, 42 Block Groups formed the Demographic Study Area (DSA) for the project. These Block Groups are within 3 miles of the initial alignments studied and they include an estimated total population of 51,114 people.

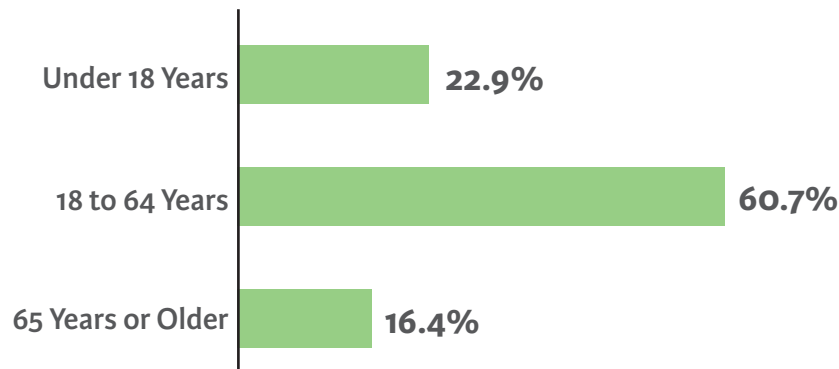
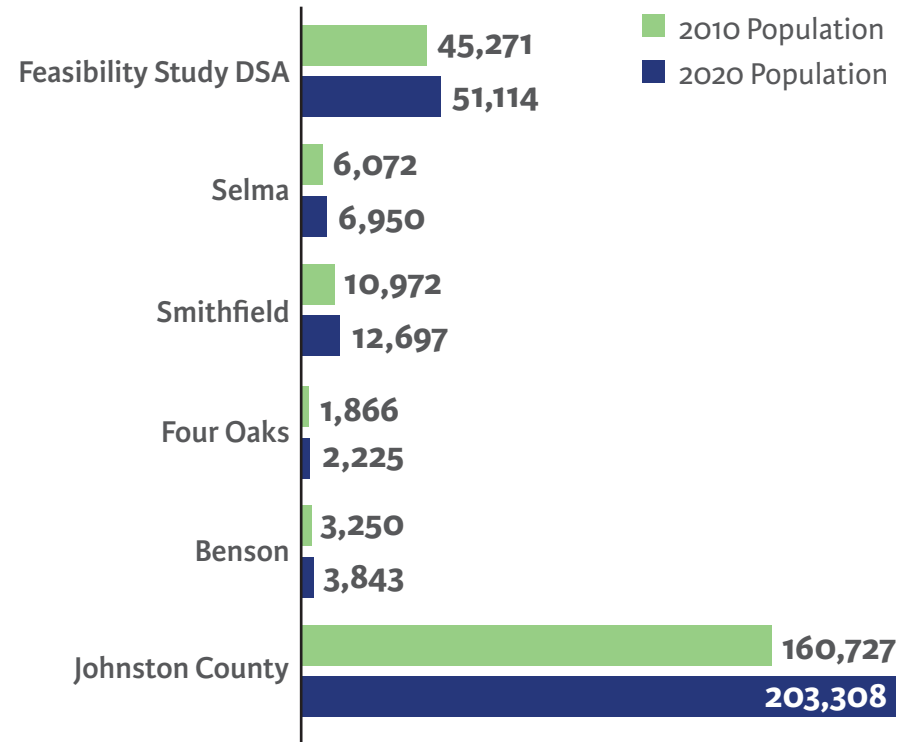
This section includes an analysis of the following:

- ◆ Population
- ◆ Age
- ◆ Race, ethnicity, + minority
- ◆ Households below the poverty level
- ◆ Income
- ◆ Language
- ◆ Commute
- ◆ Vehicle availability



POPULATION

According to census data, the population of the DSA in 2010 stood at 45,271 and experienced notable growth, reaching 51,114 in 2020. This marked an increase of 12.9 percent, which translates to an annualized growth rate of 1.2 percent. For context, during the same decade, North Carolina as a whole saw a growth rate of 12.0 percent, with an annualized rate of 1.1 percent. Within the DSA, the individual communities also witnessed population growth during this period. Specifically, Selma and Smithfield saw their populations rise by 14.5 percent and 15.7 percent, respectively, coming close to the growth rates observed in Benson (18.2%) and Four Oaks (19.2%). Johnston County, experienced growth, with a 26.5 percent increase in population. These statistics underscore the potential benefits of enhancing the region's active transportation infrastructure, including the development of greenways. Such improvements not only facilitate better mobility but also have the potential to attract both individuals and business investments to the area, further fostering its growth and development.

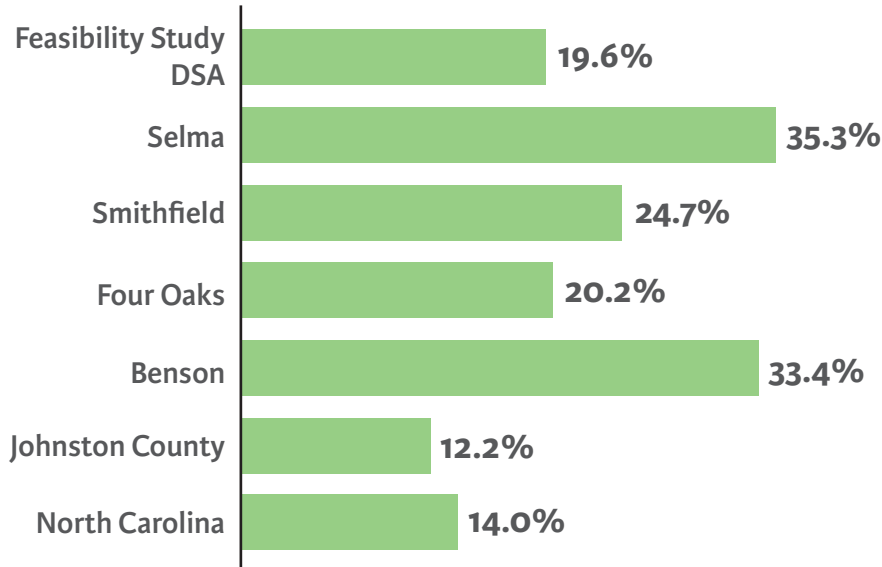
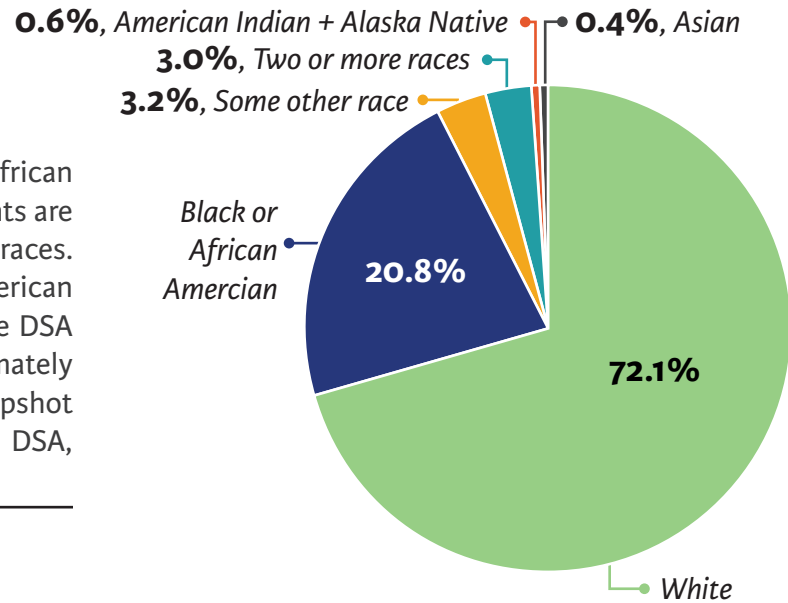


AGE

The median age of residents in the DSA is 42.1. Just over 60 percent (60.7%) of the DSA's population falls between 18 and 64 years of age. This data suggests that the DSA has a large proportion of working-age individuals. The percentage of residents who are under 18 years old and older than 65 years old are similar (22.9% and 16.4%, respectively). This demographic breakdown underscores the importance of designing future greenway infrastructure with inclusivity in mind, catering to users of all ages and abilities. Such a balanced approach ensures that the active transportation network can accommodate the diverse needs and preferences of the entire community.

RACE, ETHNICITY, + MINORITY

The DSA is predominately White (72.1%), followed by Black or African American at 20.8 percent. A little over 3 percent (3.2%) of residents are of some other race and 3 percent of residents are of two or more races. Less than one percent of the population is Asian (0.4%) or American Indian and Alaska Native (0.6%). The minority population of the DSA is approximately 37.6 percent of the total population, approximately the same as the state's rate of 37.4 percent. This demographic snapshot highlights the diverse makeup of the community within the DSA, reflecting a broad range of backgrounds and cultures.

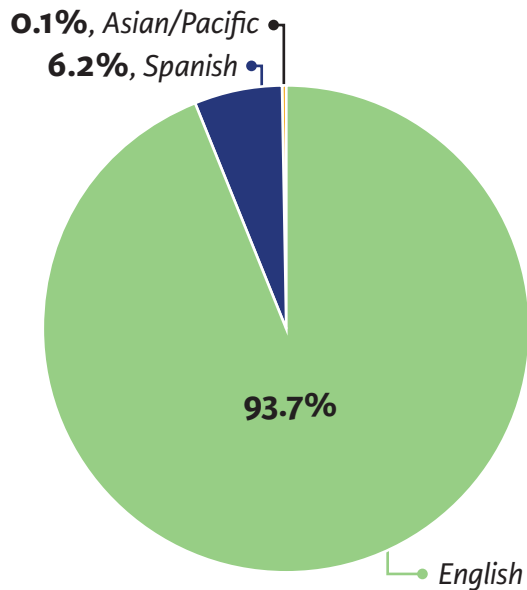
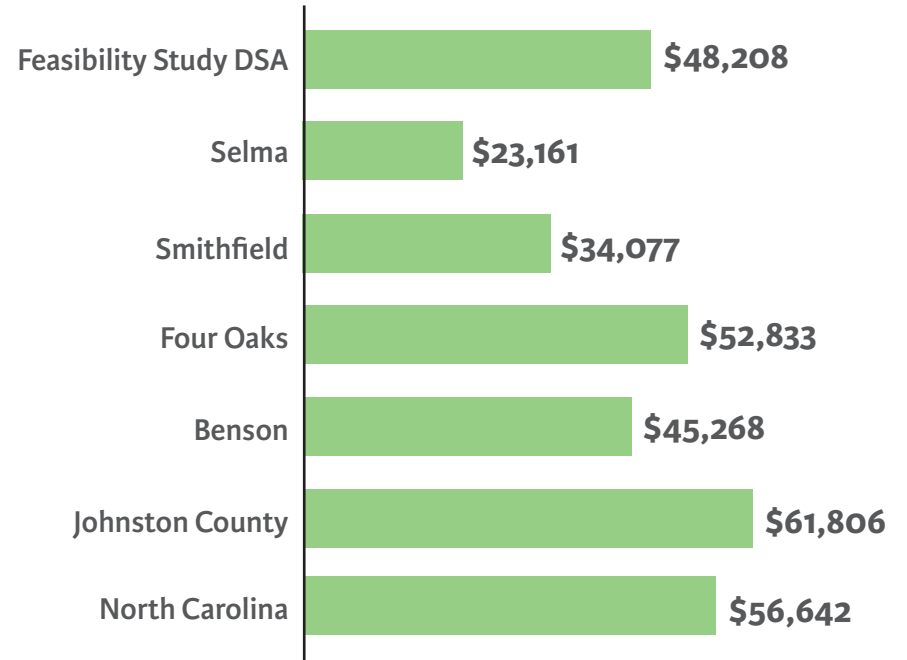


HOUSEHOLDS LIVING BELOW THE POVERTY LEVEL

Approximately 20 percent (19.6%) of the DSA's population is living below the poverty level. This rate is higher than that of the state (14.0%) and lower than that of Johnston County (12.2%). Individual communities along the study route have larger populations below the poverty level, with Four Oaks (20.2%), Smithfield (24.7%), Benson (33.4%), and Selma (35.3%) each recording higher rates than the DSA. This data underscores the nuanced economic landscape across the region and emphasizes the need for targeted strategies to address poverty-related challenges.

INCOME

According to recent 5-year estimates for the ACS, the median household income for residents residing within the DSA is \$48,208. The median household income for residents of Four Oaks is higher than the DSA at \$52,833, while median household income is lower in Benson (\$45,268), Smithfield (\$34,077), and Selma (\$23,161). These are lower than the median household income rates for both Johnston County and the state at \$61,806 and \$56,642, respectively. These variations in income levels highlight the economic diversity within the region and emphasize the importance of tailored approaches when addressing income-related disparities.

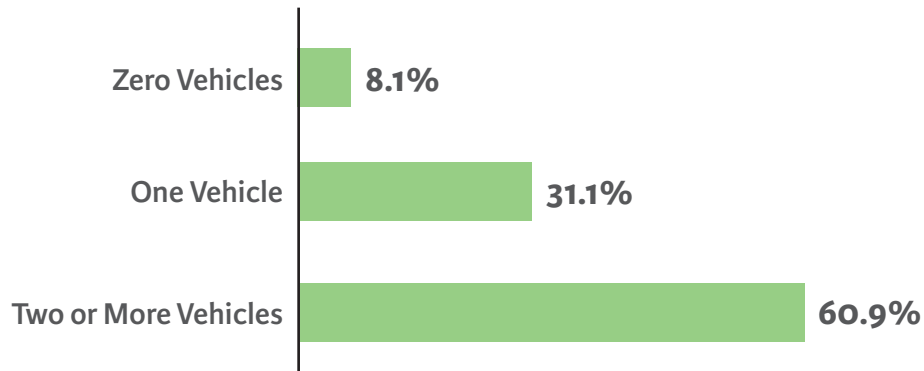
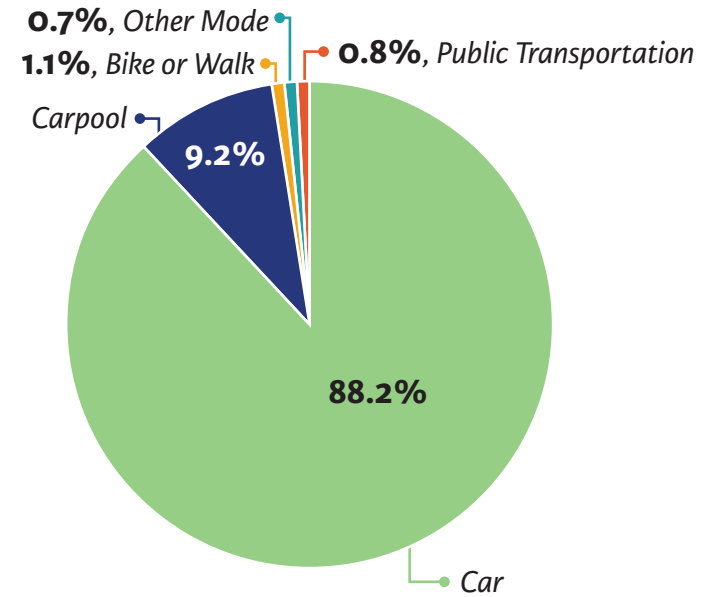


LANGUAGE

The DSA's population that speak English “less than very well” comprise approximately 6.3 percent of adult individuals aged 18 and older. Of those in this age group, the predominant language spoken is English at 93.7 percent. Spanish is the second most popular language spoken at 6.2%, followed by "Asian/Pacific" (0.1%). The DSA has a higher share of individuals who speak Spanish as a primary language than Johnston County (4.9%) and the state of North Carolina (3.2%). This linguistic diversity highlights the need for targeted language-access initiatives within the DSA to ensure effective communication and community engagement.

COMMUTE

Approximately 88 percent (88.2%) of residents in the DSA commute to work by car. Just over 9 percent (9.2%) of residents carpool and 1.1 percent bike or walk to work. Fewer residents commute via another mode (0.7%) or use public transportation (0.8%). These mode shares are similar to the state of North Carolina where 85.9 percent commute alone by auto, 9.7 percent carpool, 2.1 percent bike or walk, 1.3 percent commute via another mode, and 1 percent use public transportation. These statistics highlight the alignment of commuting preferences within the DSA with the state's overall commuting landscape.



ACCESS TO VEHICLES

Out of 18,663 total occupied housing units in the DSA, the majority (60.9%) have access to two or more vehicles. Approximately 31 percent (31.1%) have access to one vehicle and over 8 percent (8.1%) do not have access to a vehicle. These rates are very similar to the state's, in which 5.6 percent do not have access to a vehicle, 31.4 percent have access to one vehicle, and 63.0 percent have access to two or more vehicles. Future construction of the Smithfield to Benson ECG corridor may benefit residents that do not have access to vehicles or share vehicles within a household.

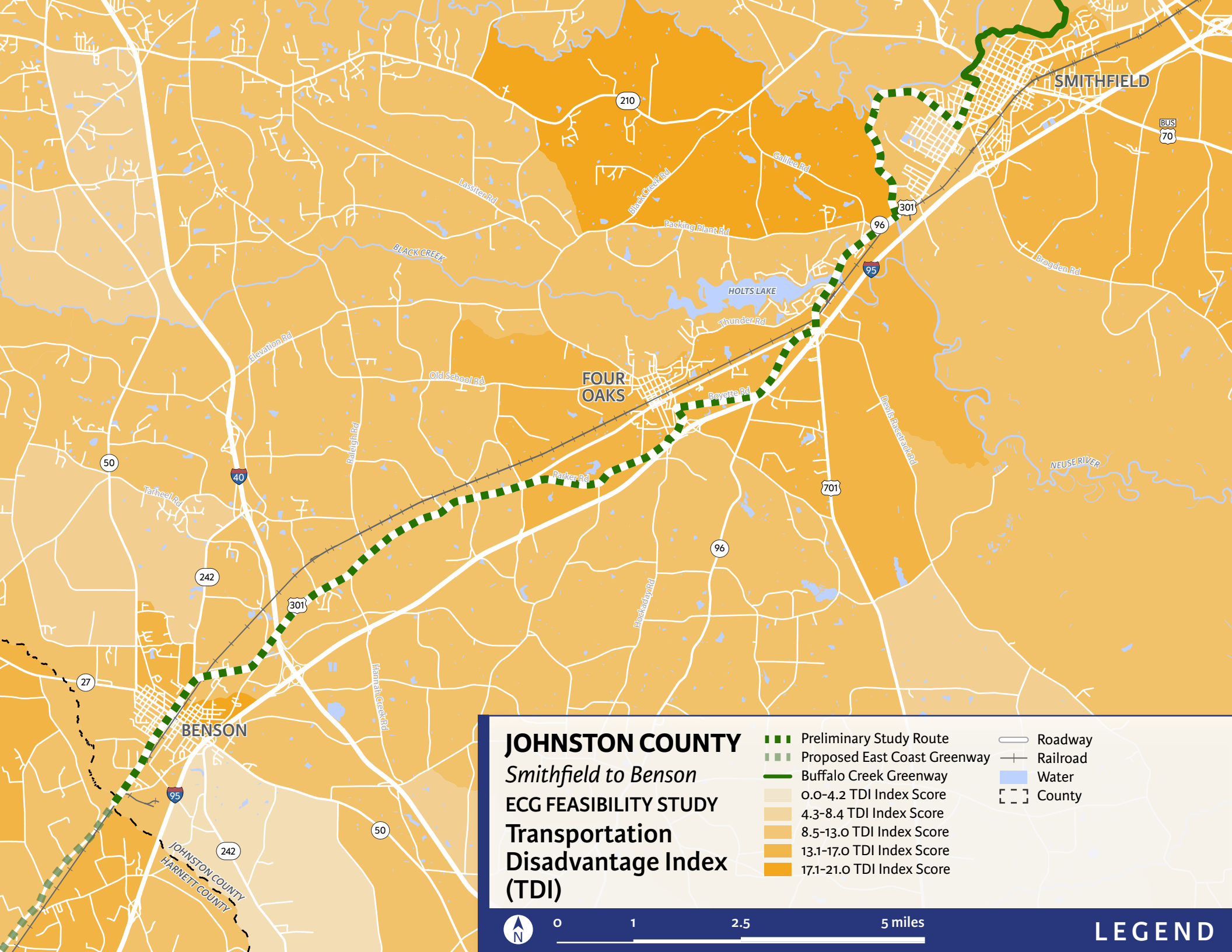
TRANSPORTATION DISADVANTAGE INDEX

Transportation Disadvantage Index (TDI) is a score developed by NCDOT to understand and identify concentrations of populations that face barriers to accessing transportation. TDI is calculated using data from seven socioeconomic indicators:

- ◆ Households with no vehicle available
- ◆ Low-income population
- ◆ Disabled population
- ◆ Population aged 15 and under (non-drivers)
- ◆ Population aged 65 and older (seniors)
- ◆ BIPOC (Black, Indigenous, Persons of Color) population
- ◆ Population with Limited English Proficiency (LEP)

The TDI is a composite score based on the seven indicators of potential transportation disadvantage. Each U.S. Census block group receives a score between 1-3 for each TDI indicator based on the U.S. Census Bureau American Community Survey data (2020, 5-year estimate) relative to the State, County, Division, and MPO. The scores are then weighted to reduce double counting and are summarized to provide a score between 0-21. Higher scores identify populations that are statistically more likely to face barriers in accessing transportation infrastructure and destinations compared to other areas of the state. In the map on the following page, TDI scores in Johnston County Census block groups are shown relative to Johnston County as a whole.





JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY
Transportation
Disadvantage Index
(TDI)

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- 0.0-4.2 TDI Index Score
- 4.3-8.4 TDI Index Score
- 8.5-13.0 TDI Index Score
- 13.1-17.0 TDI Index Score
- 17.1-21.0 TDI Index Score
- Roadway
- Railroad
- Water
- County



LEGEND

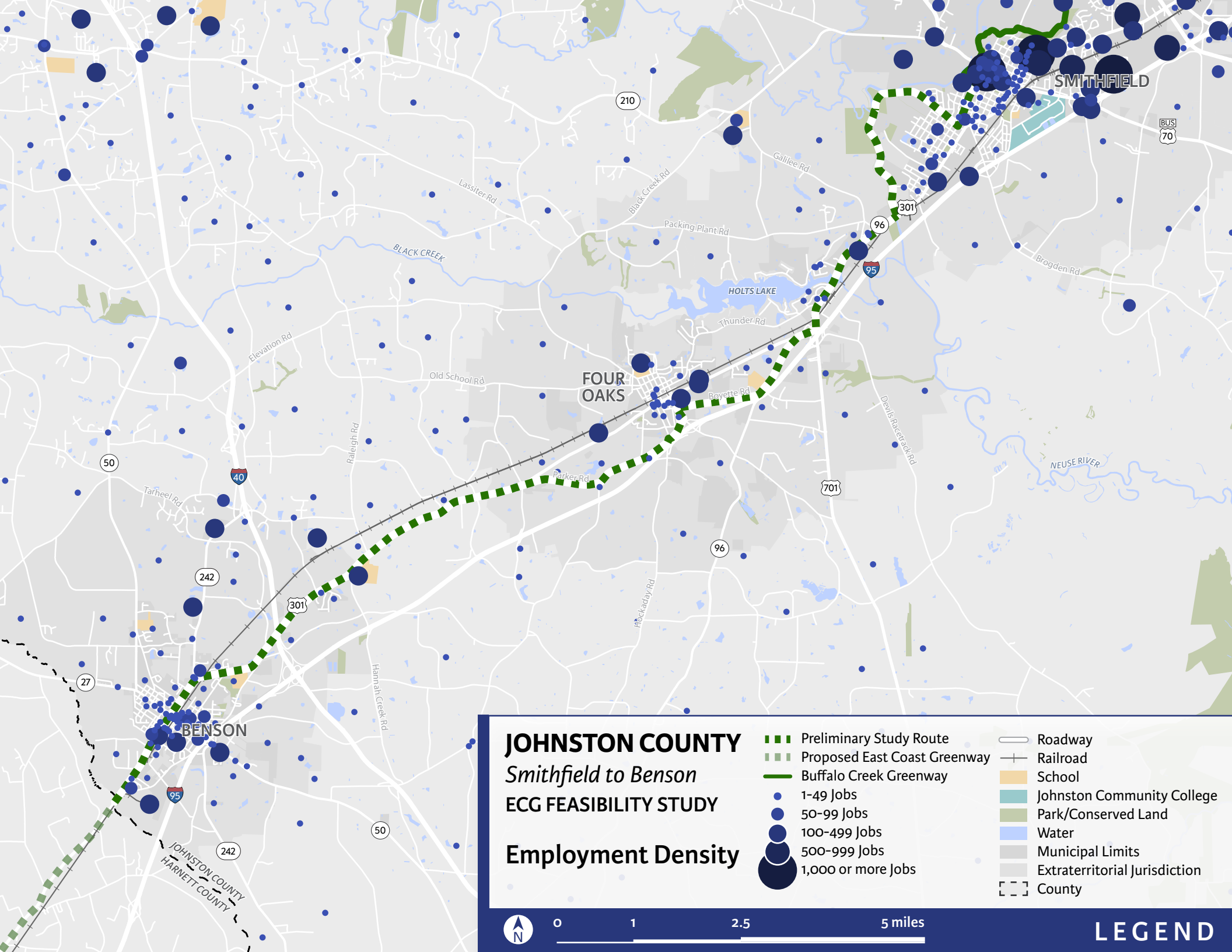
EMPLOYMENT DENSITY

The Smithfield to Benson ECG Greenway plays a crucial role in connecting two major employment hubs located in Benson and Smithfield, fostering accessibility through biking and walking. As of 2020, the top three job industries in Smithfield, where the greenway will begin, were healthcare and social assistance (comprising 18.8% of the 14,464 total jobs), retail and trade (18.2%), and educational services (13.1%). These sectors showcase the diverse employment landscape accessible to future greenway users in Smithfield, encompassing healthcare facilities, retail stores, and educational institutions, all easily reachable by biking and walking.

In Benson, where the greenway will lead to, the primary job sector in 2020 was healthcare and social assistance, representing 25.8 percent of employment opportunities, followed by manufacturing (17.5%), and retail trade at 14.3 percent. This data underscores the valuable connection the future greenway will provide to healthcare, manufacturing, and retail sectors in Benson, allowing them to commute sustainably by bike or on foot.

In summary, the Smithfield to Benson ECG Greenway will not only link these two prominent employment centers but will also facilitate eco-friendly commuting options, aligning with the job sectors prevalent in each town and offering a healthier, more sustainable way for residents to access their workplaces.





JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Employment Density

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- 1-49 Jobs
- 50-99 Jobs
- 100-499 Jobs
- 500-999 Jobs
- 1,000 or more Jobs
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

NATURAL ENVIRONMENT CONSIDERATIONS

Nature plays a large role in the way humans connect with or shape the environment. While the greenway studied in this plan would benefit from traversing through natural landscapes and next to water, other natural constraints may be identified that will affect the final alignment proposed in this study.

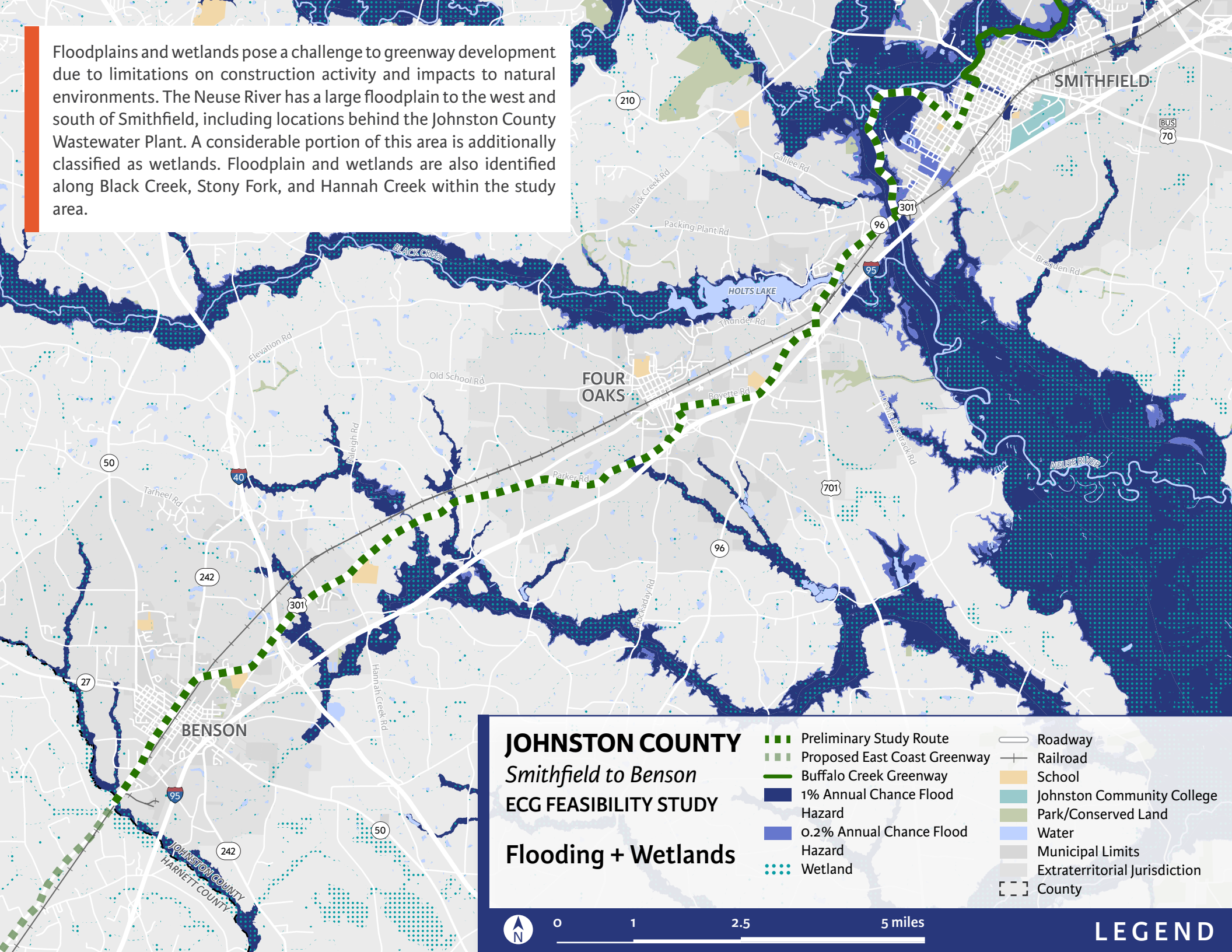
The following natural environment considerations were assessed as part of this study:

- ◆ Conservation + managed areas
- ◆ Stream corridors + hydrology
- ◆ Floodways + wetlands
- ◆ Topography

For specific findings related to this study, please refer to the annotated maps on the following pages.



Floodplains and wetlands pose a challenge to greenway development due to limitations on construction activity and impacts to natural environments. The Neuse River has a large floodplain to the west and south of Smithfield, including locations behind the Johnston County Wastewater Plant. A considerable portion of this area is additionally classified as wetlands. Floodplain and wetlands are also identified along Black Creek, Stony Fork, and Hannah Creek within the study area.



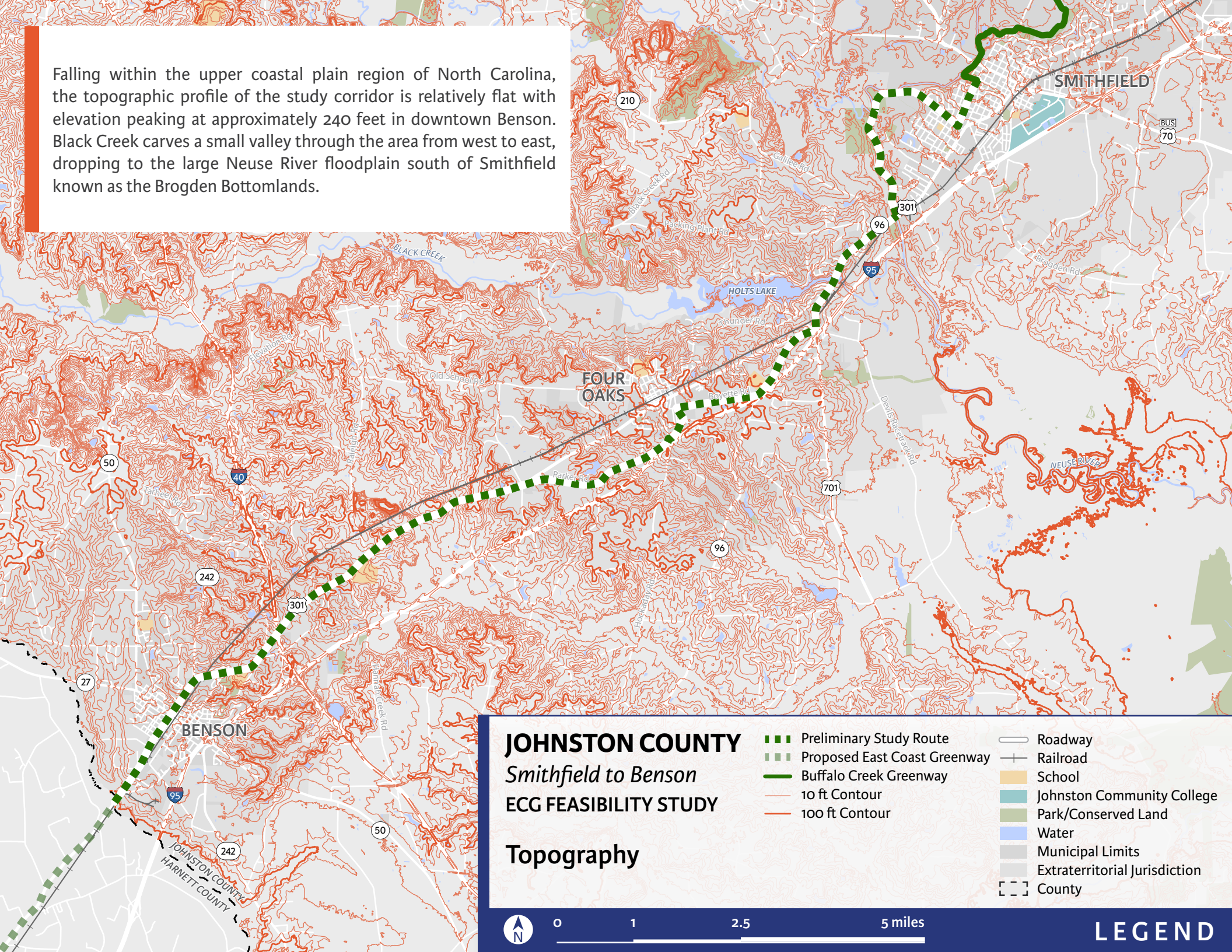
JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY
Flooding + Wetlands

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Wetland
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Falling within the upper coastal plain region of North Carolina, the topographic profile of the study corridor is relatively flat with elevation peaking at approximately 240 feet in downtown Benson. Black Creek carves a small valley through the area from west to east, dropping to the large Neuse River floodplain south of Smithfield known as the Brogden Bottomlands.



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Topography

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- 10 ft Contour
- 100 ft Contour
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND



HUMAN ENVIRONMENT CONSIDERATIONS

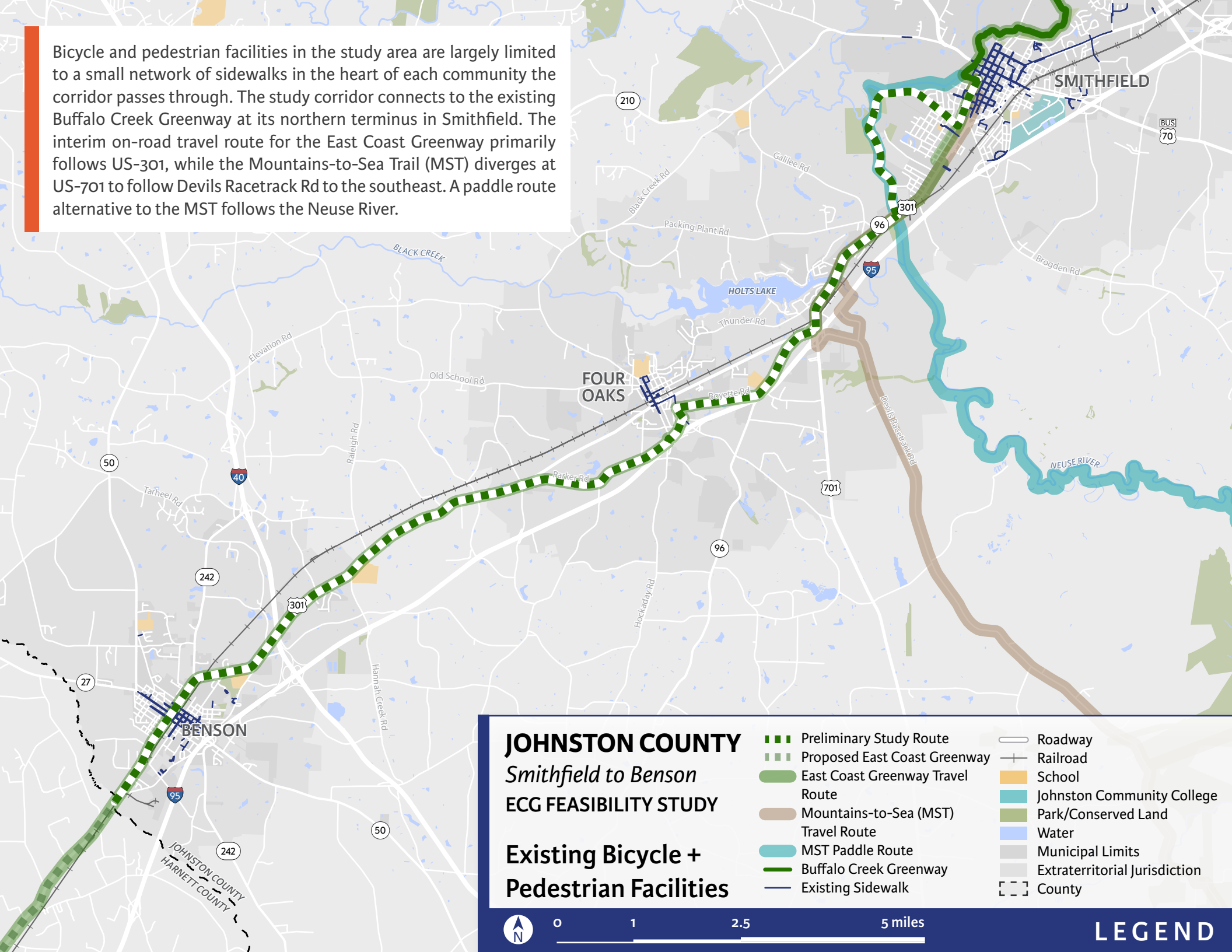
The following human environment considerations were assessed as part of this study:

- ◆ Existing and Planned Bicycle + Pedestrian Facilities
- ◆ State Trails
- ◆ Annual Average Daily Traffic (AADT)
- ◆ Speed Limits
- ◆ Right-of-Way (ROW)
- ◆ NCDOT 2024-2033 State Transportation Improvement Program (STIP) Projects
- ◆ NCDOT 2023-2027 Highway Maintenance Improvement Program (HMIP) Projects
- ◆ Bicycle Crashes
- ◆ Pedestrian Crashes
- ◆ Fatal + Serious Injury Crashes
- ◆ Total Crash Frequency by Intersection
- ◆ Utilities + Easements
- ◆ Planned Developments
- ◆ Zoning

For specific findings related to this feasibility study, please refer to the annotated maps on the following pages.



Bicycle and pedestrian facilities in the study area are largely limited to a small network of sidewalks in the heart of each community the corridor passes through. The study corridor connects to the existing Buffalo Creek Greenway at its northern terminus in Smithfield. The interim on-road travel route for the East Coast Greenway primarily follows US-301, while the Mountains-to-Sea Trail (MST) diverges at US-701 to follow Devils Racetrack Rd to the southeast. A paddle route alternative to the MST follows the Neuse River.



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

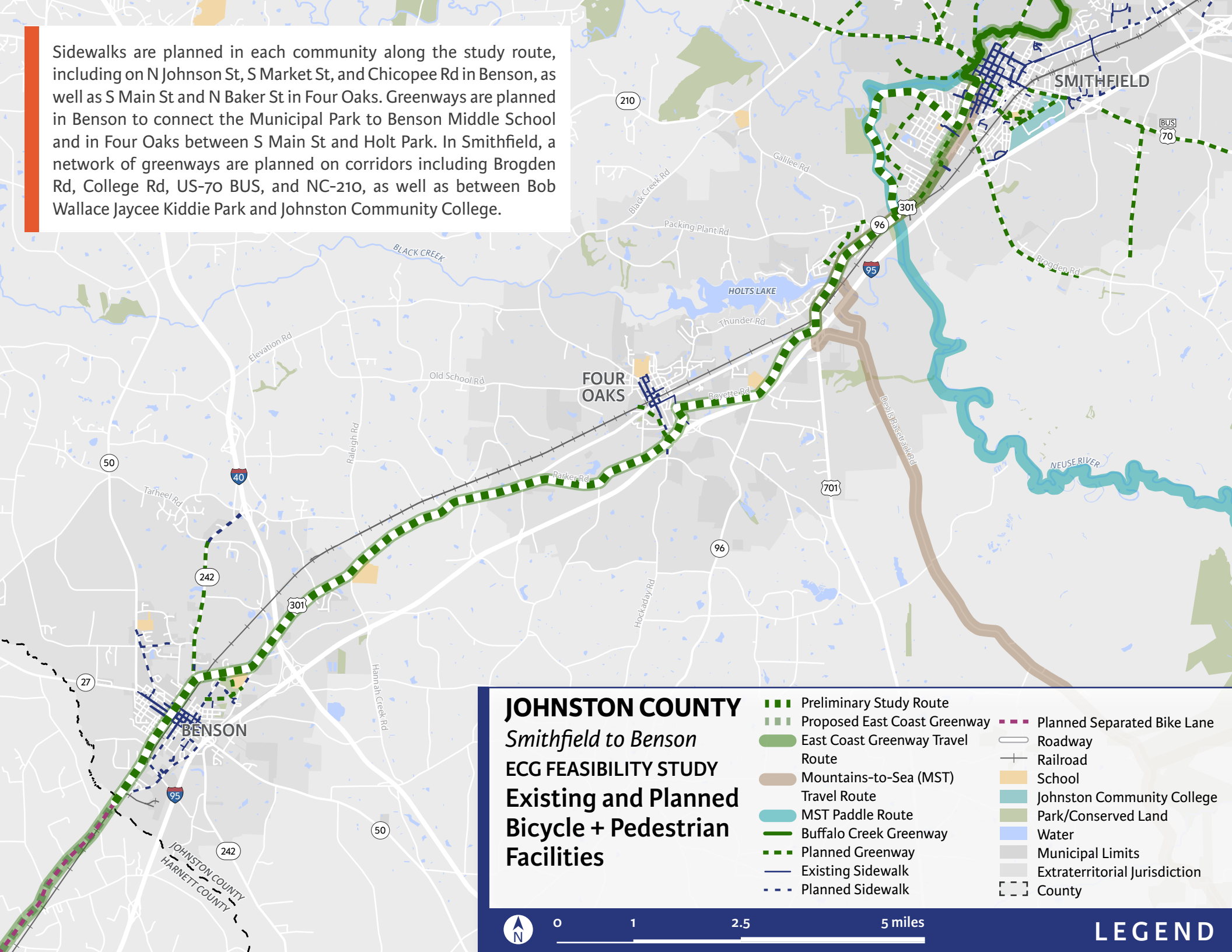
**Existing Bicycle +
 Pedestrian Facilities**

- Preliminary Study Route
- Proposed East Coast Greenway
- East Coast Greenway Travel Route
- Mountains-to-Sea (MST) Travel Route
- MST Paddle Route
- Buffalo Creek Greenway
- Existing Sidewalk
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Sidewalks are planned in each community along the study route, including on N Johnson St, S Market St, and Chicopee Rd in Benson, as well as S Main St and N Baker St in Four Oaks. Greenways are planned in Benson to connect the Municipal Park to Benson Middle School and in Four Oaks between S Main St and Holt Park. In Smithfield, a network of greenways are planned on corridors including Brogden Rd, College Rd, US-70 BUS, and NC-210, as well as between Bob Wallace Jaycee Kiddie Park and Johnston Community College.



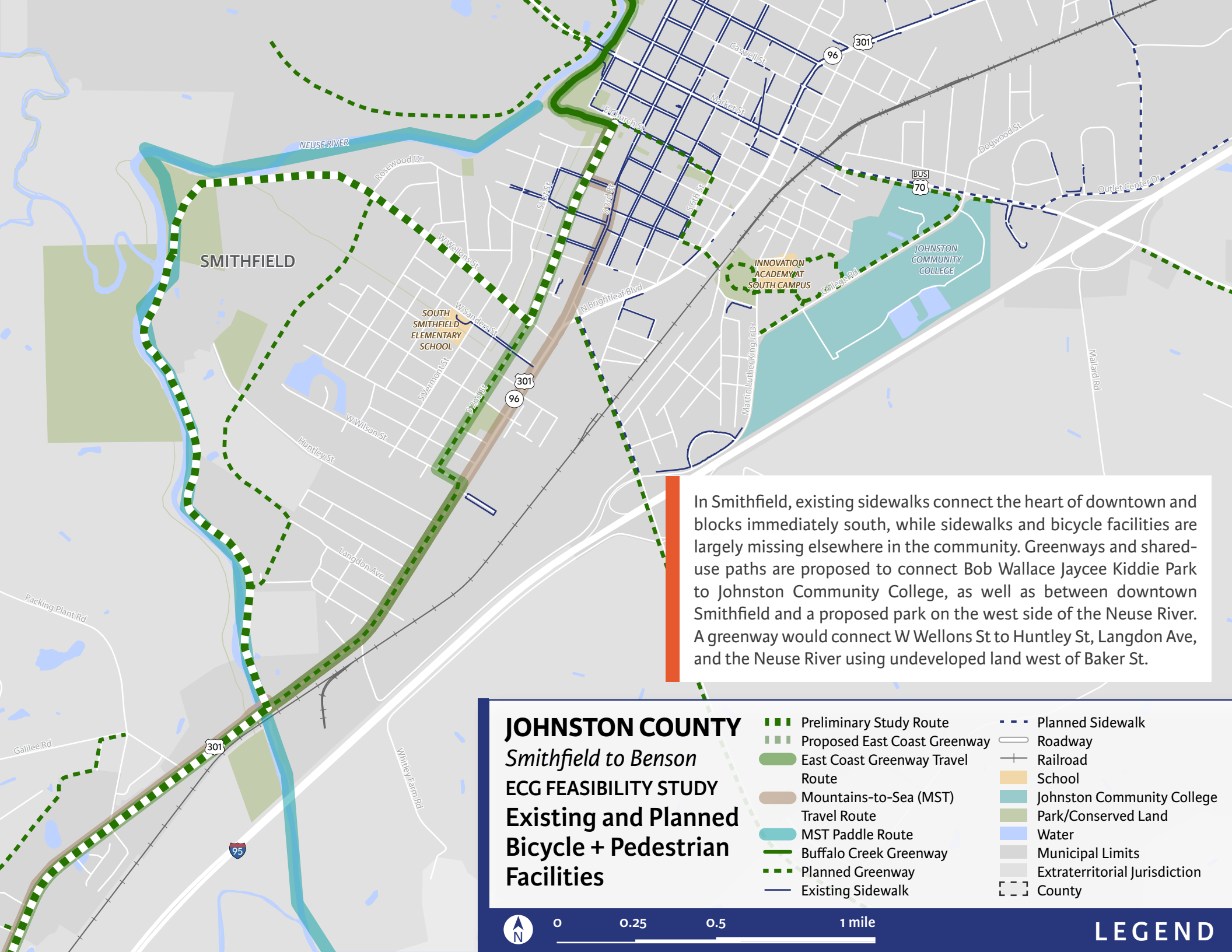
JOHNSTON COUNTY Smithfield to Benson ECG FEASIBILITY STUDY Existing and Planned Bicycle + Pedestrian Facilities

- Preliminary Study Route
- Proposed East Coast Greenway
- East Coast Greenway Travel Route
- Mountains-to-Sea (MST) Travel Route
- MST Paddle Route
- Buffalo Creek Greenway
- Planned Greenway
- Existing Sidewalk
- Planned Sidewalk
- Planned Separated Bike Lane
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



0 1 2.5 5 miles

LEGEND



SMITHFIELD

SOUTH SMITHFIELD ELEMENTARY SCHOOL

INNOVATION ACADEMY AT SOUTH CAMPUS

JOHNSTON COMMUNITY COLLEGE

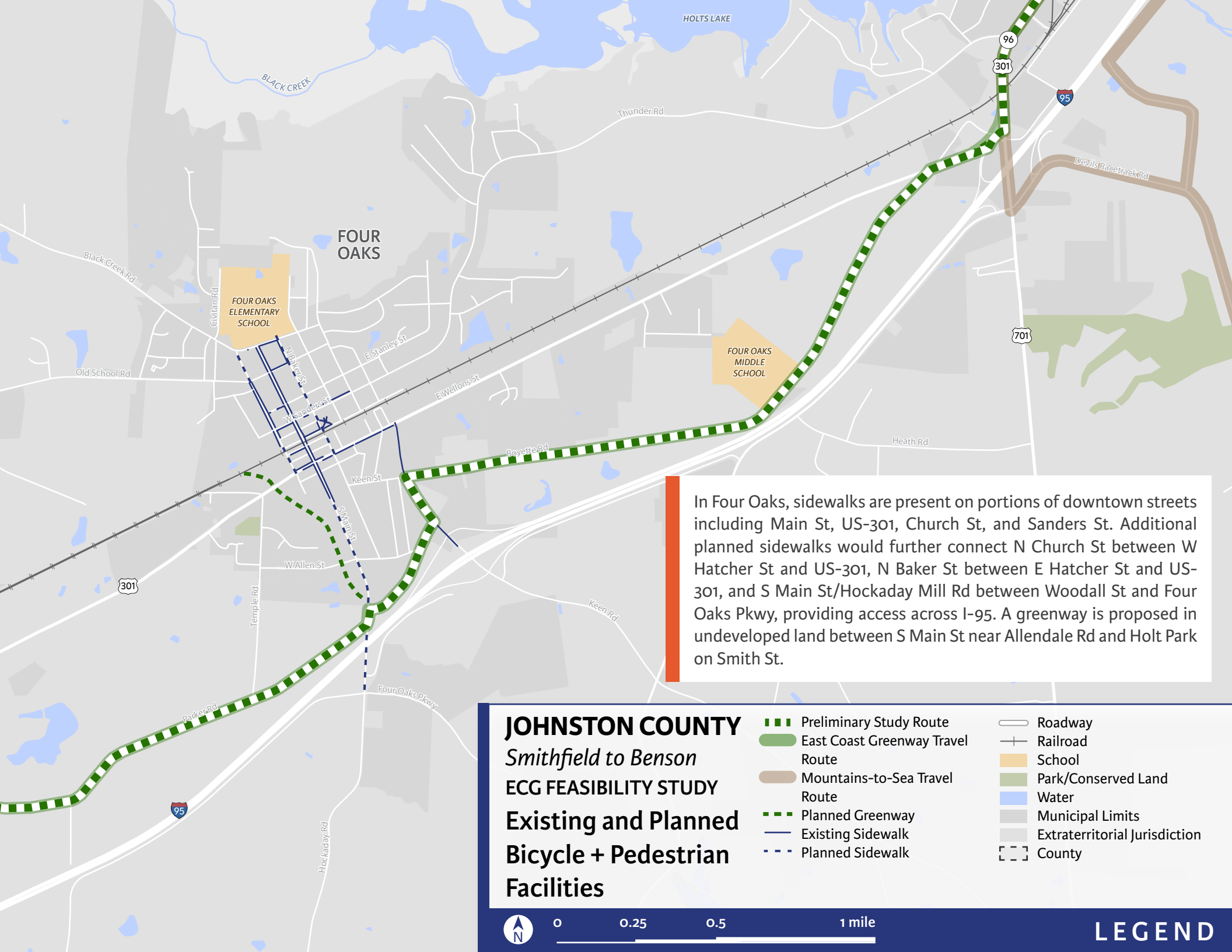
In Smithfield, existing sidewalks connect the heart of downtown and blocks immediately south, while sidewalks and bicycle facilities are largely missing elsewhere in the community. Greenways and shared-use paths are proposed to connect Bob Wallace Jaycee Kiddie Park to Johnston Community College, as well as between downtown Smithfield and a proposed park on the west side of the Neuse River. A greenway would connect W Wellons St to Huntley St, Langdon Ave, and the Neuse River using undeveloped land west of Baker St.

JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY
Existing and Planned
Bicycle + Pedestrian
Facilities

- Preliminary Study Route
- Proposed East Coast Greenway
- East Coast Greenway Travel Route
- Mountains-to-Sea (MST) Travel Route
- MST Paddle Route
- Buffalo Creek Greenway
- Planned Greenway
- Existing Sidewalk
- Planned Sidewalk
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND



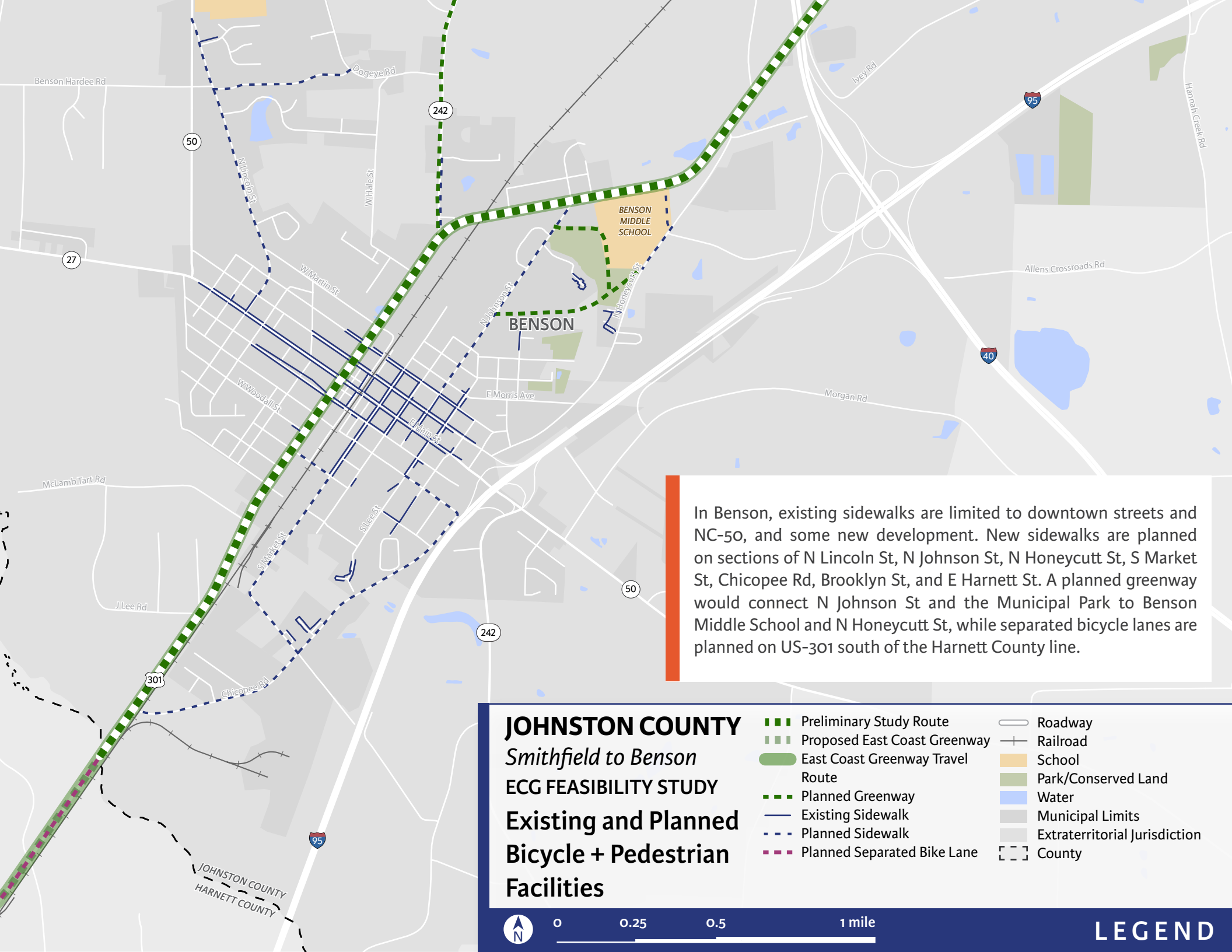
In Four Oaks, sidewalks are present on portions of downtown streets including Main St, US-301, Church St, and Sanders St. Additional planned sidewalks would further connect N Church St between W Hatcher St and US-301, N Baker St between E Hatcher St and US-301, and S Main St/Hockaday Mill Rd between Woodall St and Four Oaks Pkwy, providing access across I-95. A greenway is proposed in undeveloped land between S Main St near Allendale Rd and Holt Park on Smith St.

JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY
Existing and Planned
Bicycle + Pedestrian
Facilities

- Preliminary Study Route
- East Coast Greenway Travel Route
- Mountains-to-Sea Travel Route
- Planned Greenway
- Existing Sidewalk
- Planned Sidewalk
- Roadway
- Railroad
- School
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND



In Benson, existing sidewalks are limited to downtown streets and NC-50, and some new development. New sidewalks are planned on sections of N Lincoln St, N Johnson St, N Honeycutt St, S Market St, Chicopee Rd, Brooklyn St, and E Harnett St. A planned greenway would connect N Johnson St and the Municipal Park to Benson Middle School and N Honeycutt St, while separated bicycle lanes are planned on US-301 south of the Harnett County line.

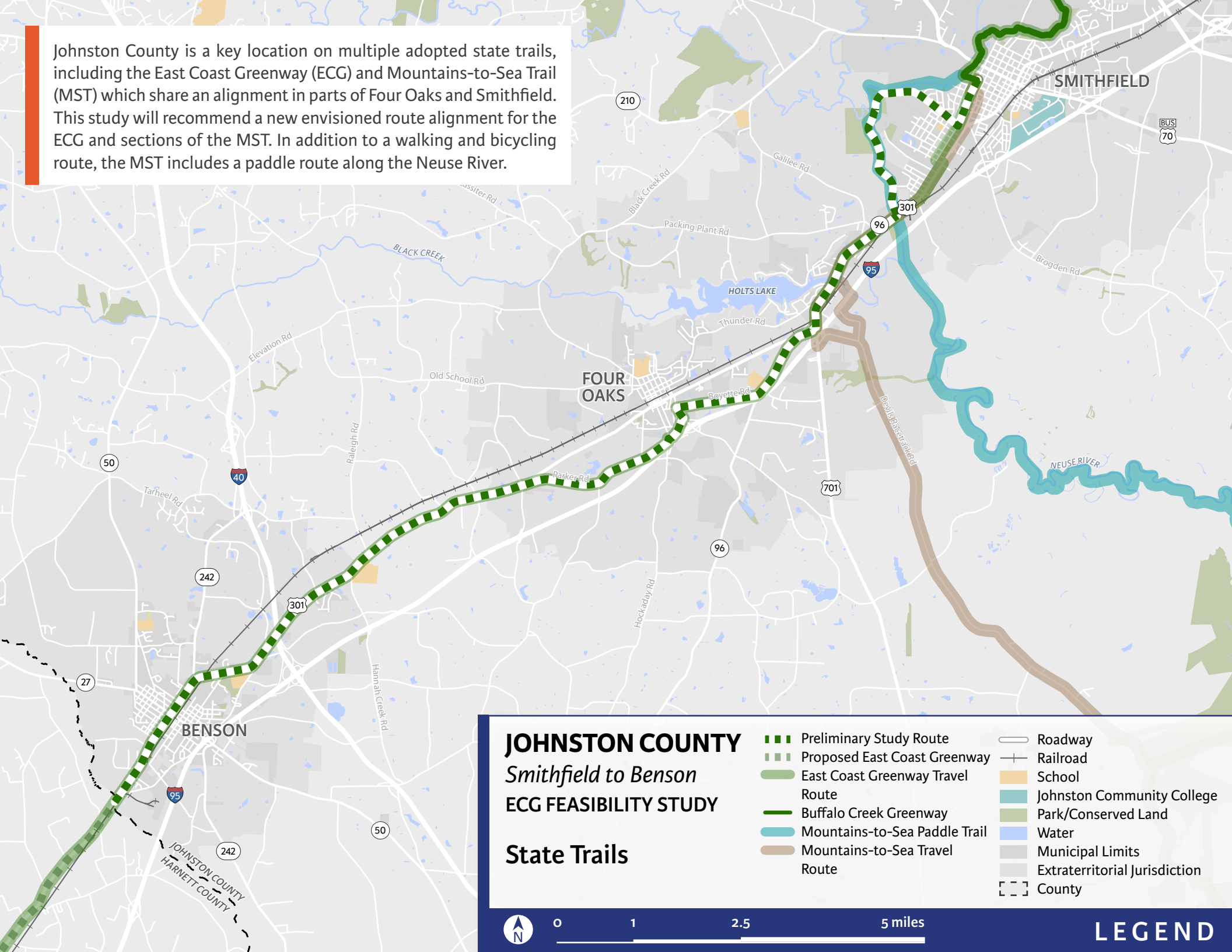
JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY
Existing and Planned
Bicycle + Pedestrian
Facilities

- | | |
|----------------------------------|-------------------------------|
| Preliminary Study Route | Roadway |
| Proposed East Coast Greenway | Railroad |
| East Coast Greenway Travel Route | School |
| Planned Greenway | Park/Conserved Land |
| Existing Sidewalk | Water |
| Planned Sidewalk | Municipal Limits |
| Planned Separated Bike Lane | Extraterritorial Jurisdiction |
| | County |



LEGEND

Johnston County is a key location on multiple adopted state trails, including the East Coast Greenway (ECG) and Mountains-to-Sea Trail (MST) which share an alignment in parts of Four Oaks and Smithfield. This study will recommend a new envisioned route alignment for the ECG and sections of the MST. In addition to a walking and bicycling route, the MST includes a paddle route along the Neuse River.



JOHNSTON COUNTY

Smithfield to Benson

ECG FEASIBILITY STUDY

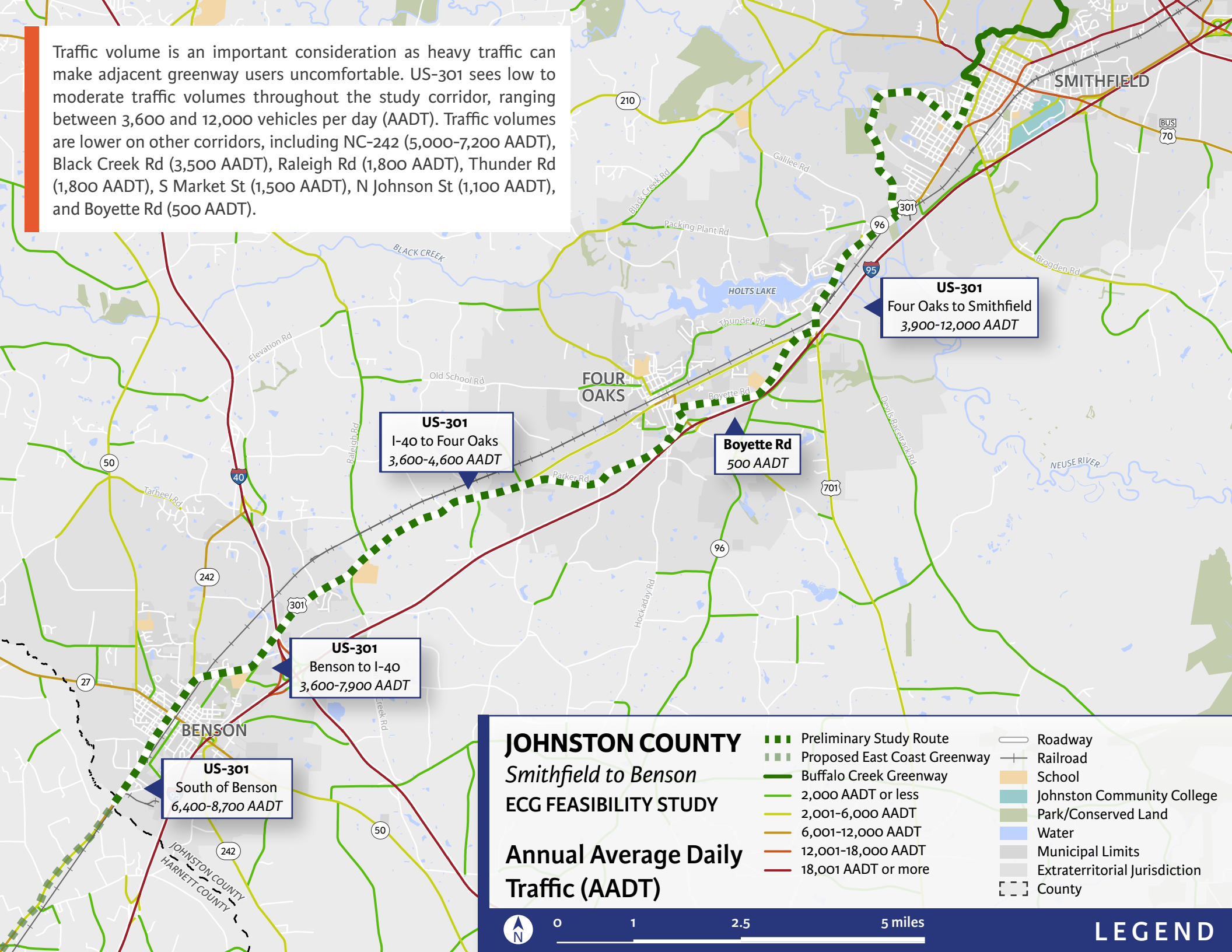
State Trails

- Preliminary Study Route
- Proposed East Coast Greenway
- East Coast Greenway Travel Route
- Buffalo Creek Greenway
- Mountains-to-Sea Paddle Trail
- Mountains-to-Sea Travel Route
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Traffic volume is an important consideration as heavy traffic can make adjacent greenway users uncomfortable. US-301 sees low to moderate traffic volumes throughout the study corridor, ranging between 3,600 and 12,000 vehicles per day (AADT). Traffic volumes are lower on other corridors, including NC-242 (5,000-7,200 AADT), Black Creek Rd (3,500 AADT), Raleigh Rd (1,800 AADT), Thunder Rd (1,800 AADT), S Market St (1,500 AADT), N Johnson St (1,100 AADT), and Boyette Rd (500 AADT).



US-301
Four Oaks to Smithfield
3,900-12,000 AADT

US-301
I-40 to Four Oaks
3,600-4,600 AADT

Boyette Rd
500 AADT

US-301
Benson to I-40
3,600-7,900 AADT

US-301
South of Benson
6,400-8,700 AADT

JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

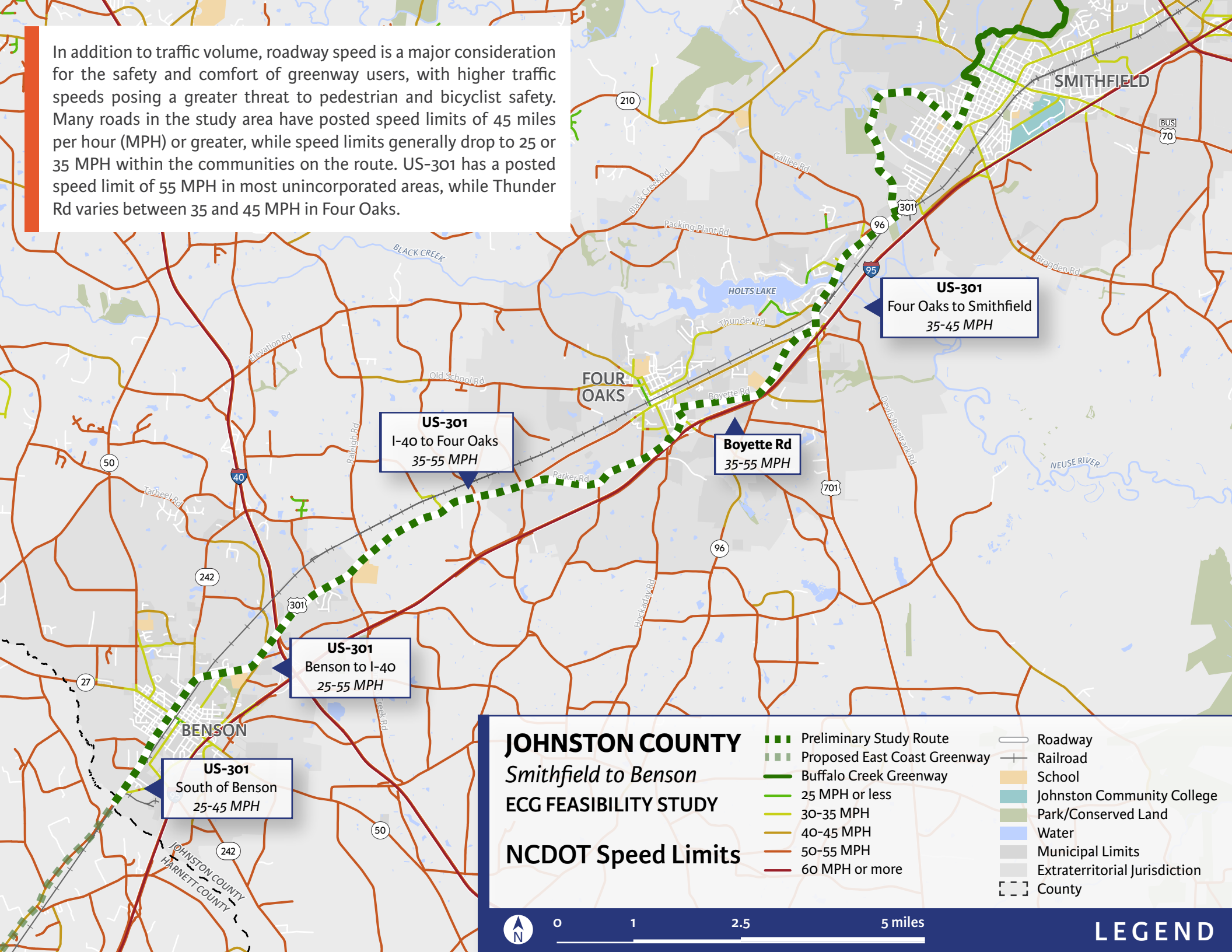
**Annual Average Daily
Traffic (AADT)**

- █ Preliminary Study Route
- █ Proposed East Coast Greenway
- █ Buffalo Creek Greenway
- █ 2,000 AADT or less
- █ 2,001-6,000 AADT
- █ 6,001-12,000 AADT
- █ 12,001-18,000 AADT
- █ 18,001 AADT or more
- Roadway
- ⊕ Railroad
- School
- ▭ Johnston Community College
- ▭ Park/Conserved Land
- ▭ Water
- ▭ Municipal Limits
- ▭ Extraterritorial Jurisdiction
- ▭ County



LEGEND

In addition to traffic volume, roadway speed is a major consideration for the safety and comfort of greenway users, with higher traffic speeds posing a greater threat to pedestrian and bicyclist safety. Many roads in the study area have posted speed limits of 45 miles per hour (MPH) or greater, while speed limits generally drop to 25 or 35 MPH within the communities on the route. US-301 has a posted speed limit of 55 MPH in most unincorporated areas, while Thunder Rd varies between 35 and 45 MPH in Four Oaks.



US-301
Four Oaks to Smithfield
35-45 MPH

US-301
I-40 to Four Oaks
35-55 MPH

Boyette Rd
35-55 MPH

US-301
Benson to I-40
25-55 MPH

US-301
South of Benson
25-45 MPH

JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY
NCDOT Speed Limits

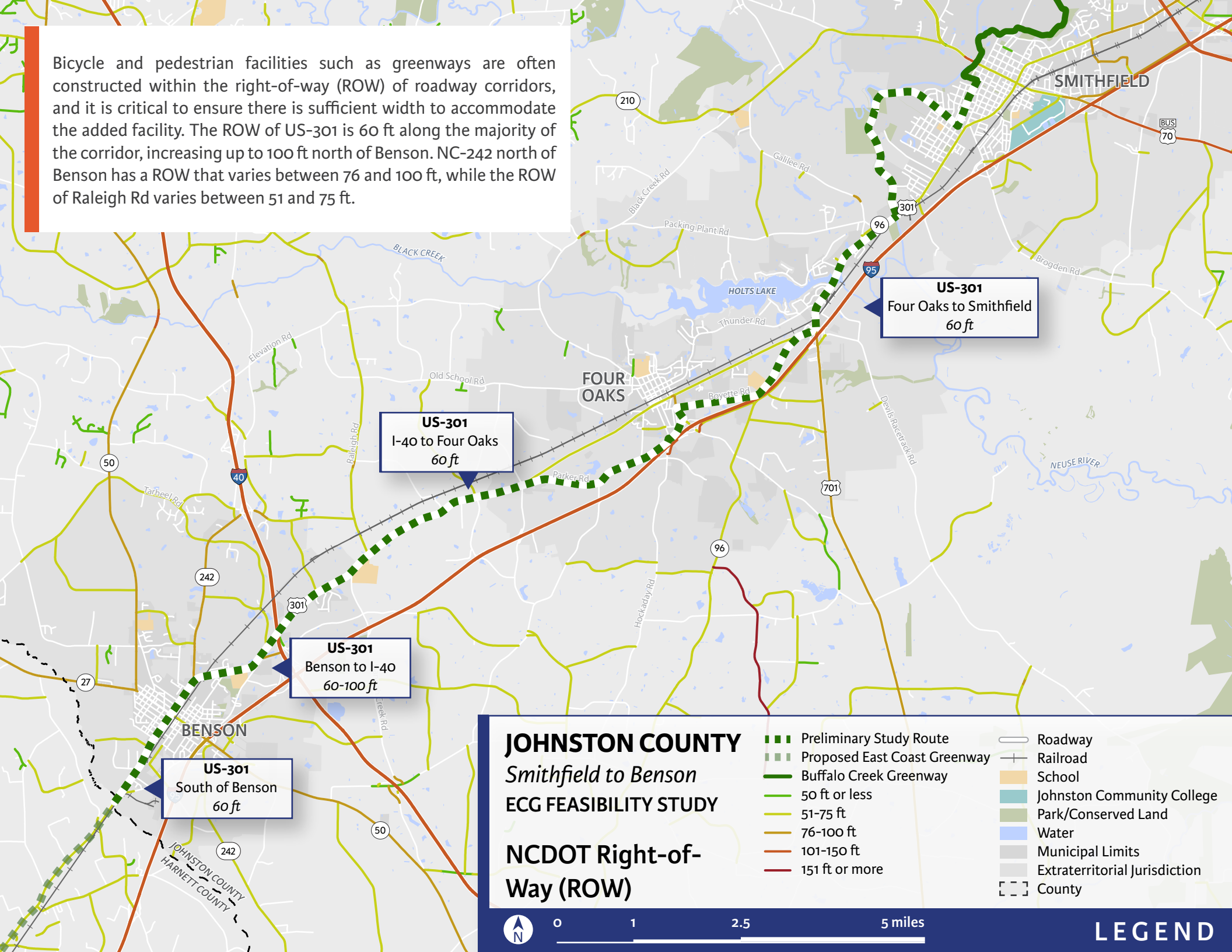
- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- 25 MPH or less
- 30-35 MPH
- 40-45 MPH
- 50-55 MPH
- 60 MPH or more

- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Bicycle and pedestrian facilities such as greenways are often constructed within the right-of-way (ROW) of roadway corridors, and it is critical to ensure there is sufficient width to accommodate the added facility. The ROW of US-301 is 60 ft along the majority of the corridor, increasing up to 100 ft north of Benson. NC-242 north of Benson has a ROW that varies between 76 and 100 ft, while the ROW of Raleigh Rd varies between 51 and 75 ft.



US-301
Four Oaks to Smithfield
60 ft

US-301
I-40 to Four Oaks
60 ft

US-301
Benson to I-40
60-100 ft

US-301
South of Benson
60 ft

JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

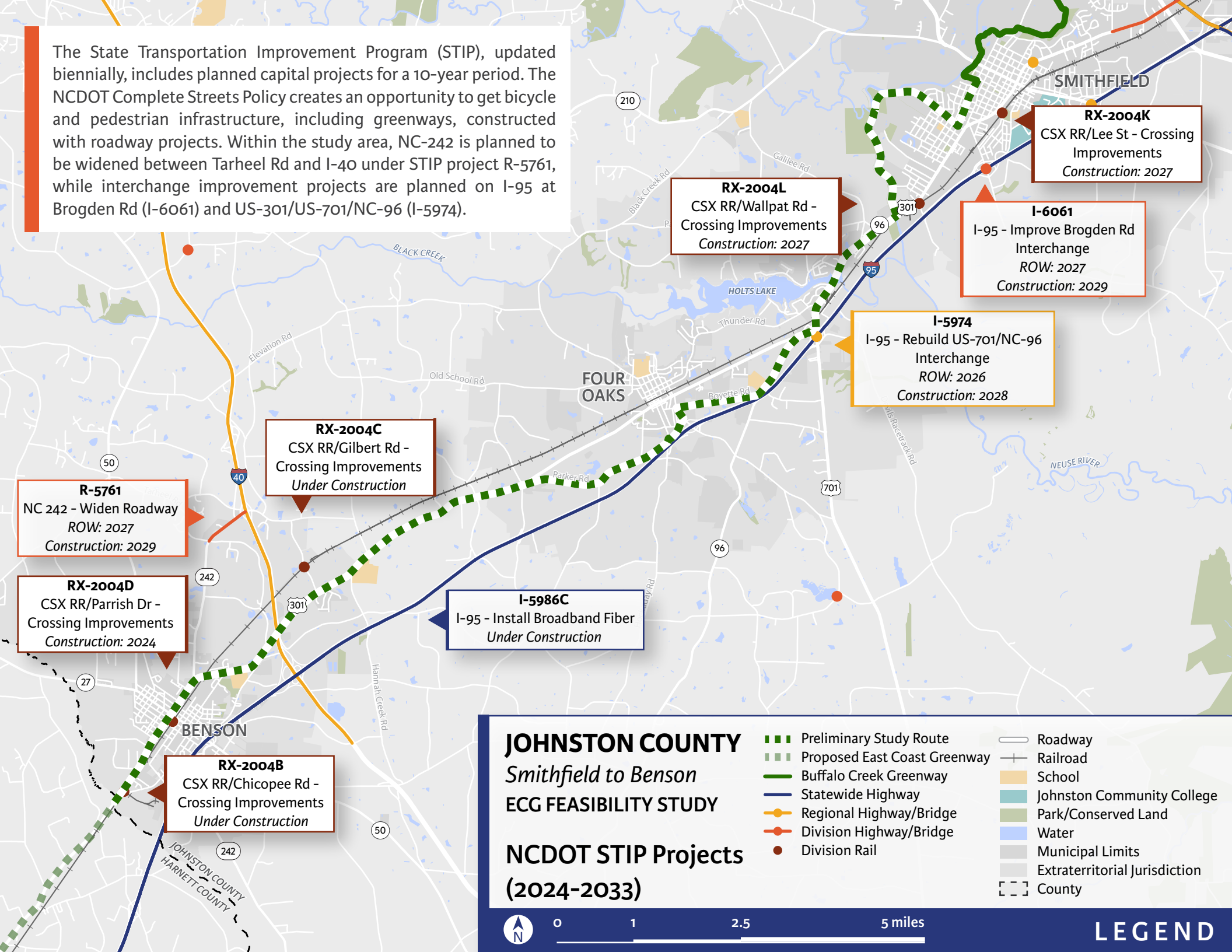
NCDOT Right-of-Way (ROW)

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- 50 ft or less
- 51-75 ft
- 76-100 ft
- 101-150 ft
- 151 ft or more
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

The State Transportation Improvement Program (STIP), updated biennially, includes planned capital projects for a 10-year period. The NCDOT Complete Streets Policy creates an opportunity to get bicycle and pedestrian infrastructure, including greenways, constructed with roadway projects. Within the study area, NC-242 is planned to be widened between Tarheel Rd and I-40 under STIP project R-5761, while interchange improvement projects are planned on I-95 at Brogden Rd (I-6061) and US-301/US-701/NC-96 (I-5974).



R-5761
NC 242 - Widen Roadway
ROW: 2027
Construction: 2029

RX-2004D
CSX RR/Parrish Dr - Crossing Improvements
Construction: 2024

RX-2004C
CSX RR/Gilbert Rd - Crossing Improvements
Under Construction

RX-2004B
CSX RR/Chicopee Rd - Crossing Improvements
Under Construction

RX-2004L
CSX RR/Wallpat Rd - Crossing Improvements
Construction: 2027

RX-2004K
CSX RR/Lee St - Crossing Improvements
Construction: 2027

I-6061
I-95 - Improve Brogden Rd Interchange
ROW: 2027
Construction: 2029

I-5974
I-95 - Rebuild US-701/NC-96 Interchange
ROW: 2026
Construction: 2028

I-5986C
I-95 - Install Broadband Fiber
Under Construction

JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

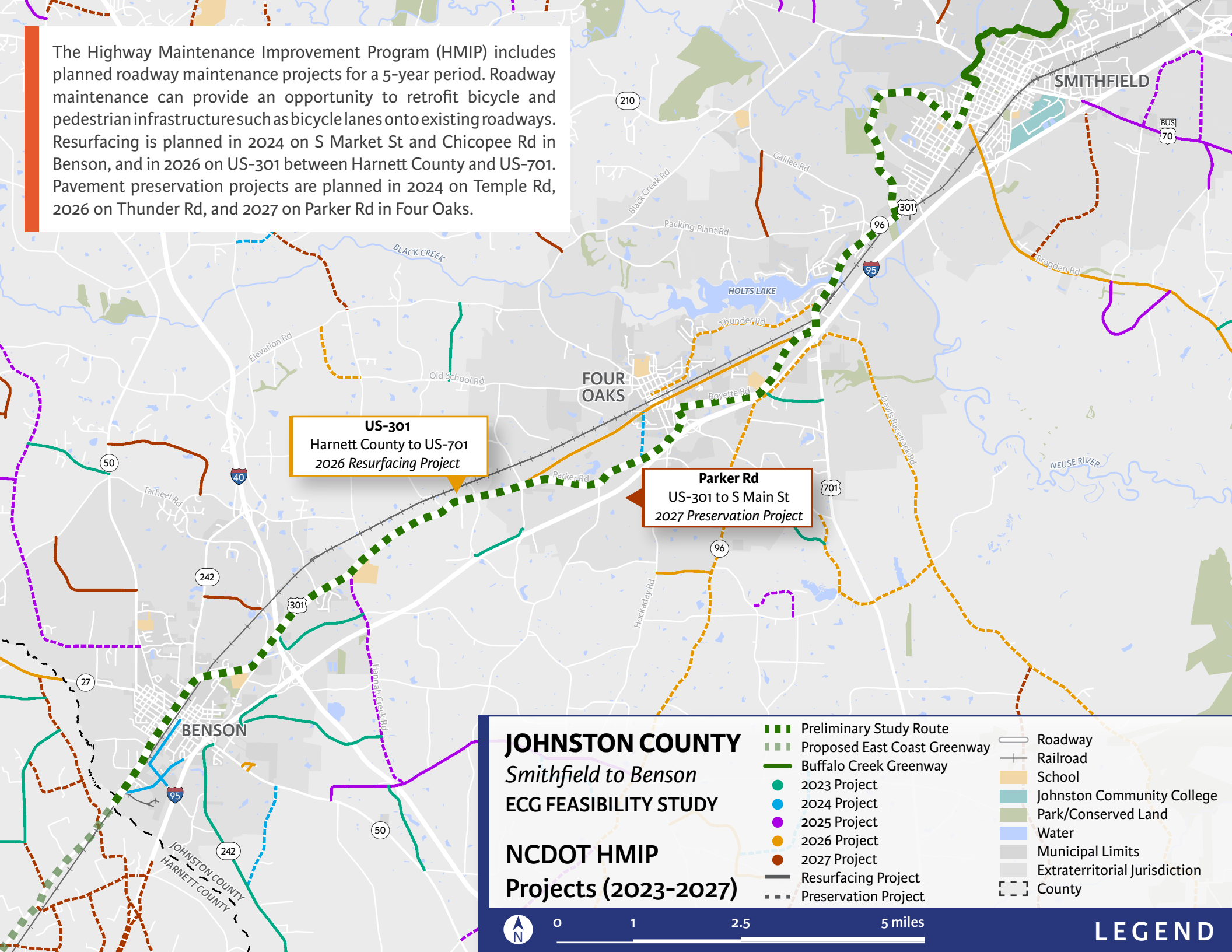
NCDOT STIP Projects
(2024-2033)

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- Statewide Highway
- Regional Highway/Bridge
- Division Highway/Bridge
- Division Rail
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

The Highway Maintenance Improvement Program (HMIP) includes planned roadway maintenance projects for a 5-year period. Roadway maintenance can provide an opportunity to retrofit bicycle and pedestrian infrastructure such as bicycle lanes onto existing roadways. Resurfacing is planned in 2024 on S Market St and Chicopee Rd in Benson, and in 2026 on US-301 between Harnett County and US-701. Pavement preservation projects are planned in 2024 on Temple Rd, 2026 on Thunder Rd, and 2027 on Parker Rd in Four Oaks.



US-301
Harnett County to US-701
2026 Resurfacing Project

Parker Rd
US-301 to S Main St
2027 Preservation Project

JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

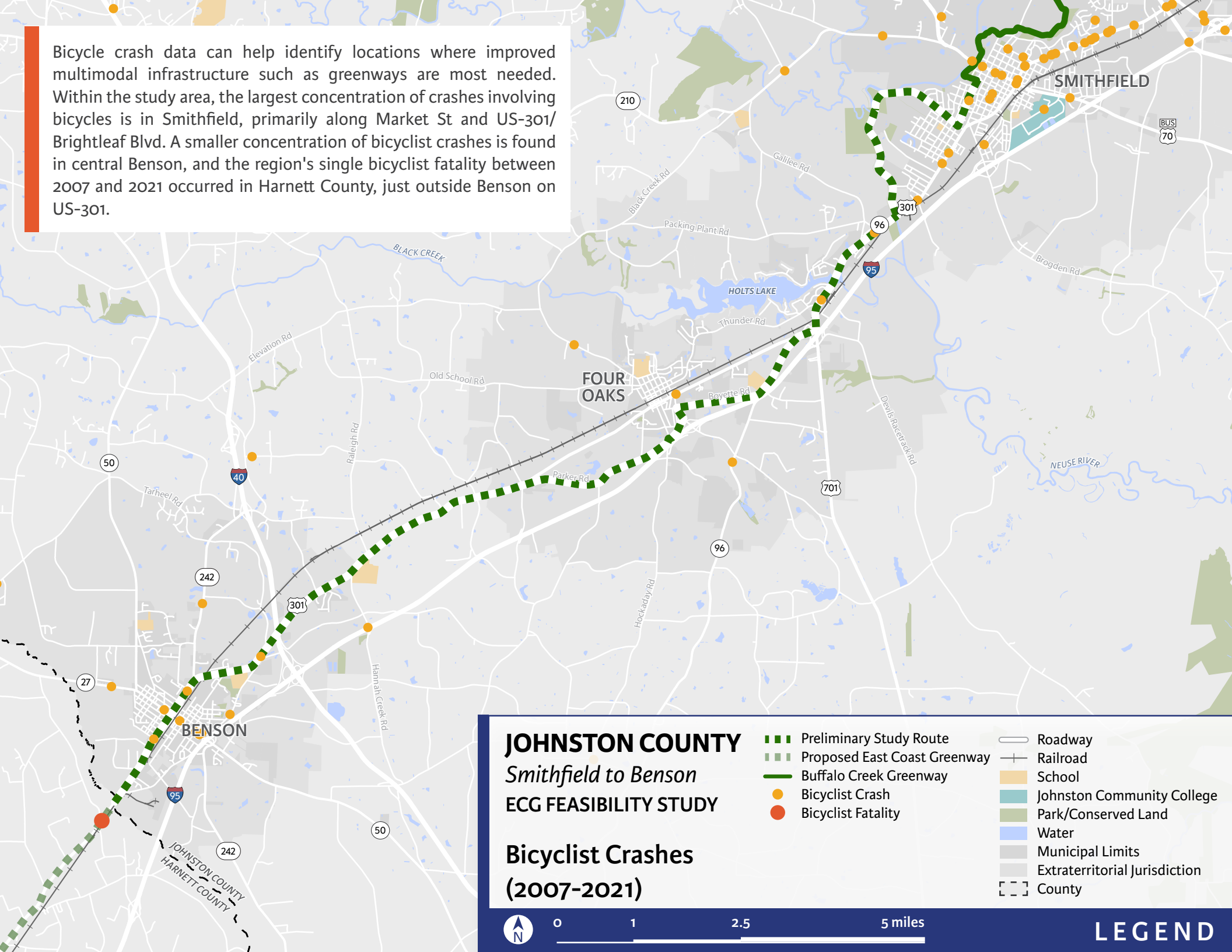
NCDOT HMIP
Projects (2023-2027)

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- 2023 Project
- 2024 Project
- 2025 Project
- 2026 Project
- 2027 Project
- Resurfacing Project
- - - Preservation Project
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Bicycle crash data can help identify locations where improved multimodal infrastructure such as greenways are most needed. Within the study area, the largest concentration of crashes involving bicycles is in Smithfield, primarily along Market St and US-301/Brightleaf Blvd. A smaller concentration of bicyclist crashes is found in central Benson, and the region's single bicyclist fatality between 2007 and 2021 occurred in Harnett County, just outside Benson on US-301.



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

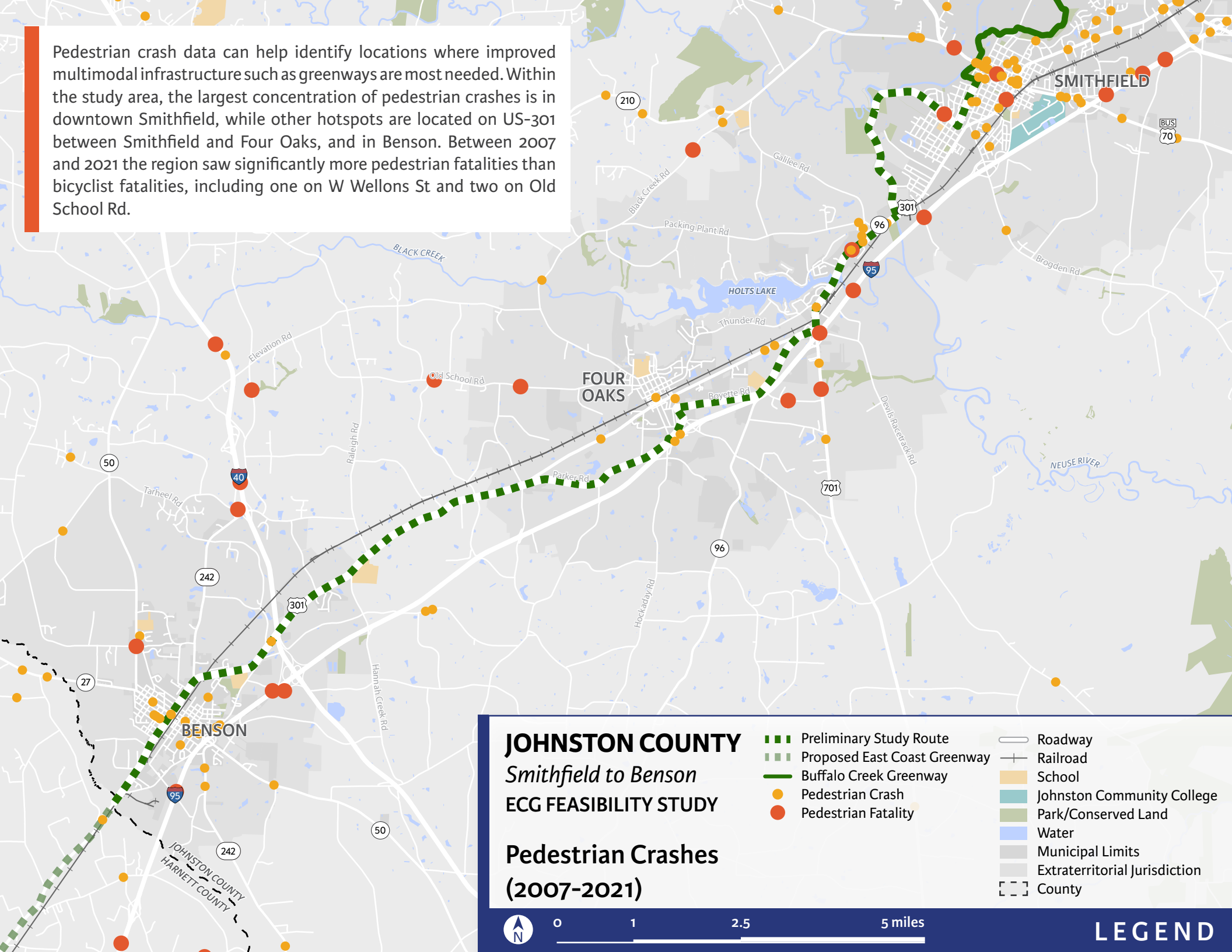
Bicyclist Crashes
(2007-2021)

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- Bicyclist Crash
- Bicyclist Fatality
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Pedestrian crash data can help identify locations where improved multimodal infrastructure such as greenways are most needed. Within the study area, the largest concentration of pedestrian crashes is in downtown Smithfield, while other hotspots are located on US-301 between Smithfield and Four Oaks, and in Benson. Between 2007 and 2021 the region saw significantly more pedestrian fatalities than bicyclist fatalities, including one on W Wellons St and two on Old School Rd.



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

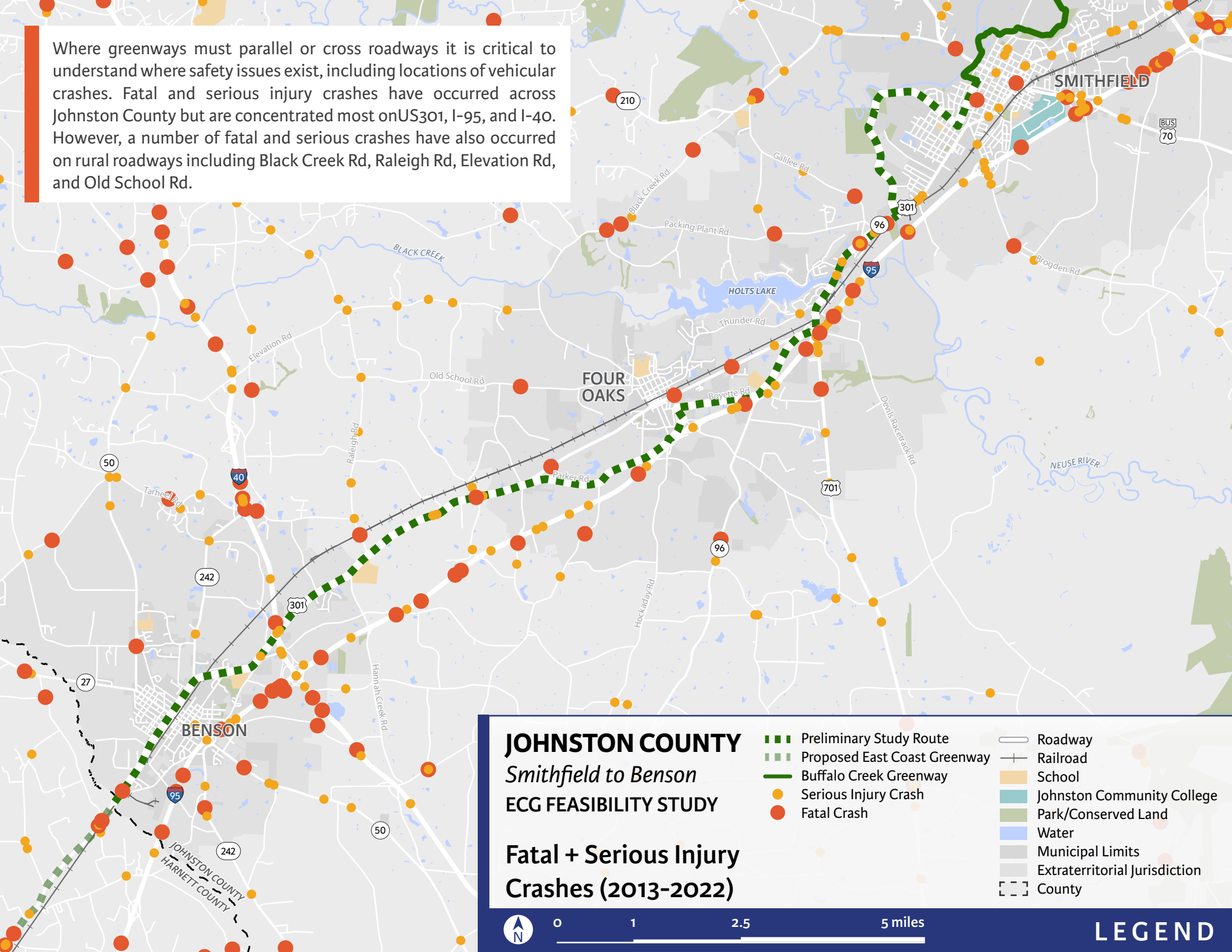
Pedestrian Crashes
(2007-2021)

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- Pedestrian Crash
- Pedestrian Fatality
- Roadway
- + Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Where greenways must parallel or cross roadways it is critical to understand where safety issues exist, including locations of vehicular crashes. Fatal and serious injury crashes have occurred across Johnston County but are concentrated most on US301, I-95, and I-40. However, a number of fatal and serious crashes have also occurred on rural roadways including Black Creek Rd, Raleigh Rd, Elevation Rd, and Old School Rd.



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

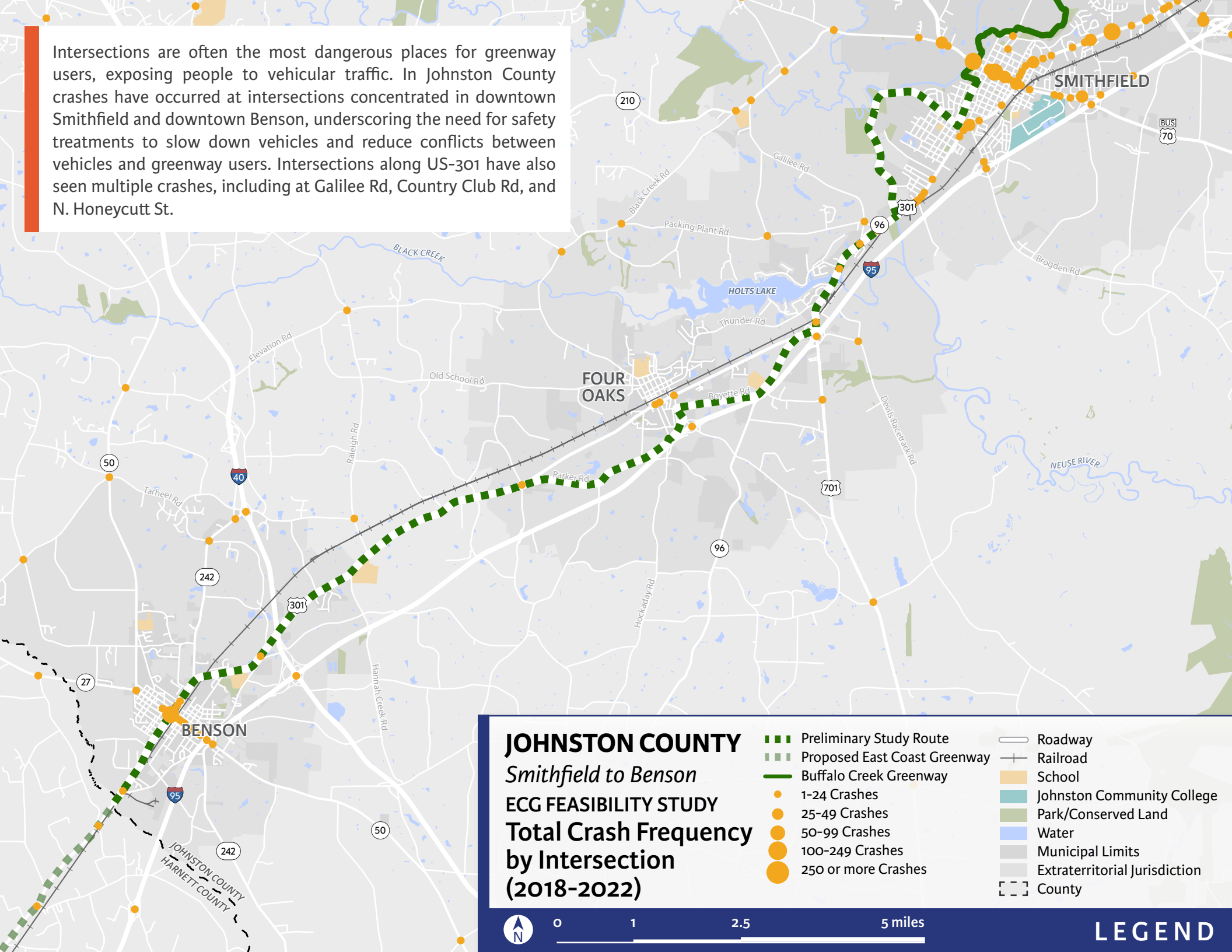
Fatal + Serious Injury
Crashes (2013-2022)

- Preliminary Study Route
- ▨ Proposed East Coast Greenway
- Buffalo Creek Greenway
- Serious Injury Crash
- Fatal Crash
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Intersections are often the most dangerous places for greenway users, exposing people to vehicular traffic. In Johnston County crashes have occurred at intersections concentrated in downtown Smithfield and downtown Benson, underscoring the need for safety treatments to slow down vehicles and reduce conflicts between vehicles and greenway users. Intersections along US-301 have also seen multiple crashes, including at Galilee Rd, Country Club Rd, and N. Honeycutt St.



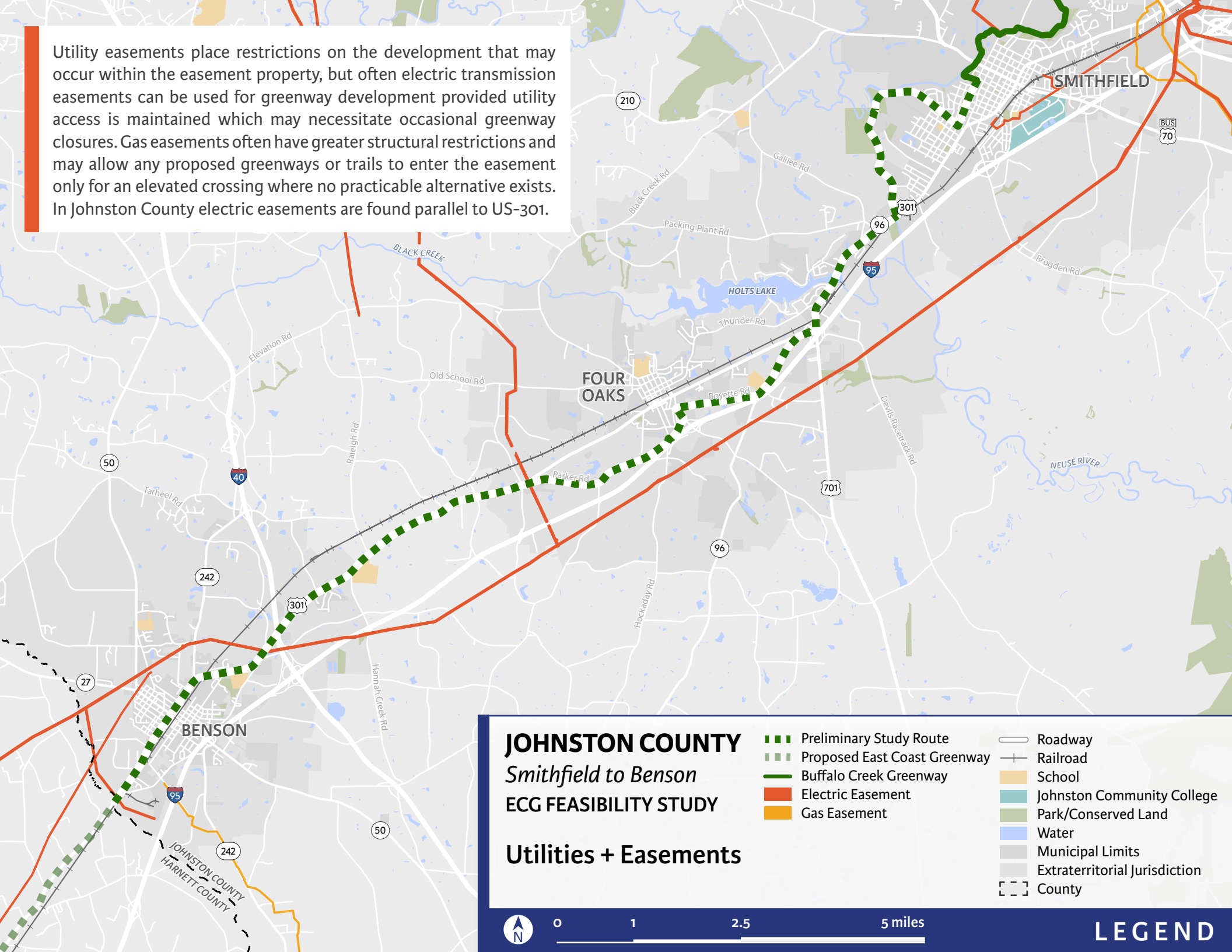
JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY
Total Crash Frequency
by Intersection
(2018-2022)

- - - Preliminary Study Route
- . . . Proposed East Coast Greenway
- Buffalo Creek Greenway
- 1-24 Crashes
- 25-49 Crashes
- 50-99 Crashes
- 100-249 Crashes
- 250 or more Crashes
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Utility easements place restrictions on the development that may occur within the easement property, but often electric transmission easements can be used for greenway development provided utility access is maintained which may necessitate occasional greenway closures. Gas easements often have greater structural restrictions and may allow any proposed greenways or trails to enter the easement only for an elevated crossing where no practicable alternative exists. In Johnston County electric easements are found parallel to US-301.



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

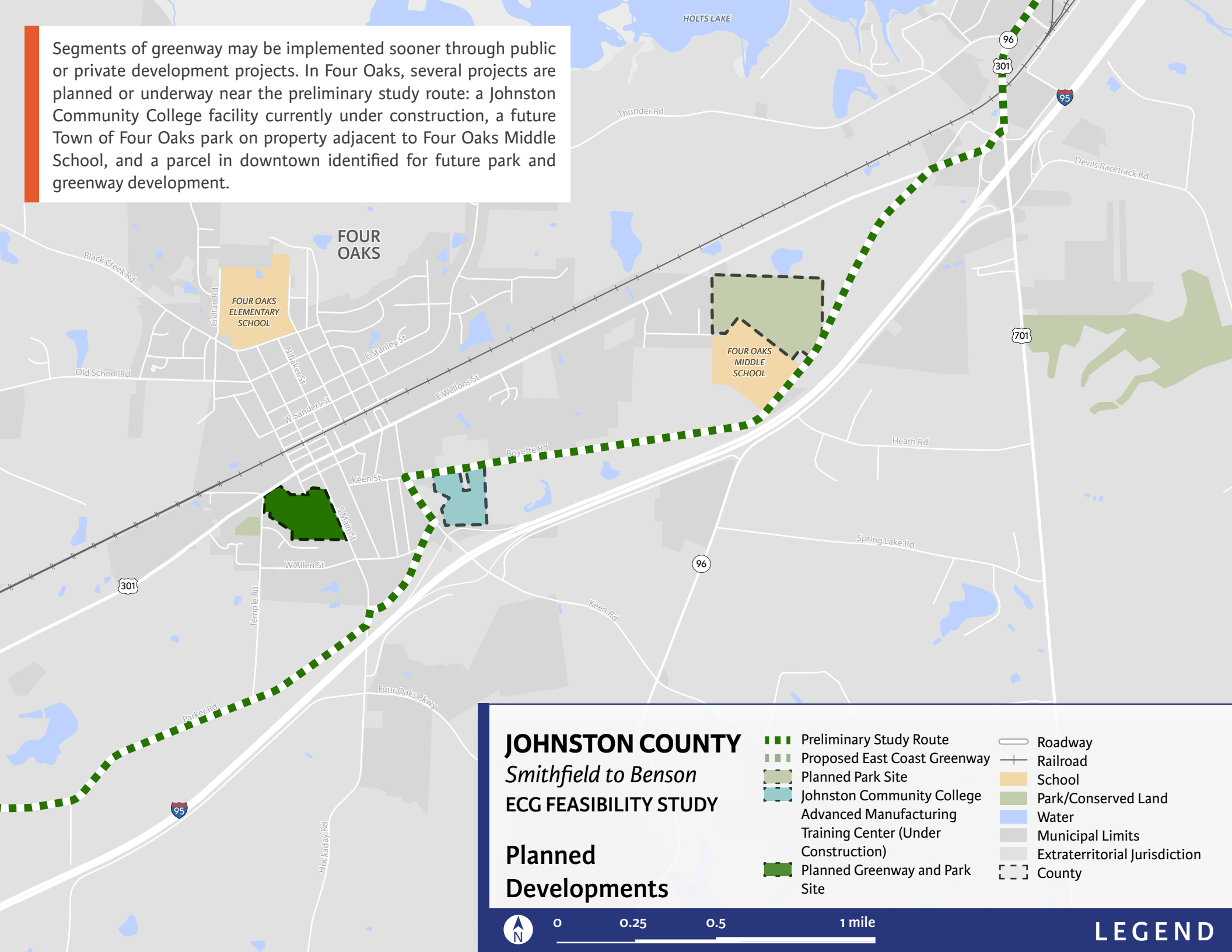
Utilities + Easements

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- Electric Easement
- Gas Easement
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Segments of greenway may be implemented sooner through public or private development projects. In Four Oaks, several projects are planned or underway near the preliminary study route: a Johnston Community College facility currently under construction, a future Town of Four Oaks park on property adjacent to Four Oaks Middle School, and a parcel in downtown identified for future park and greenway development.



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

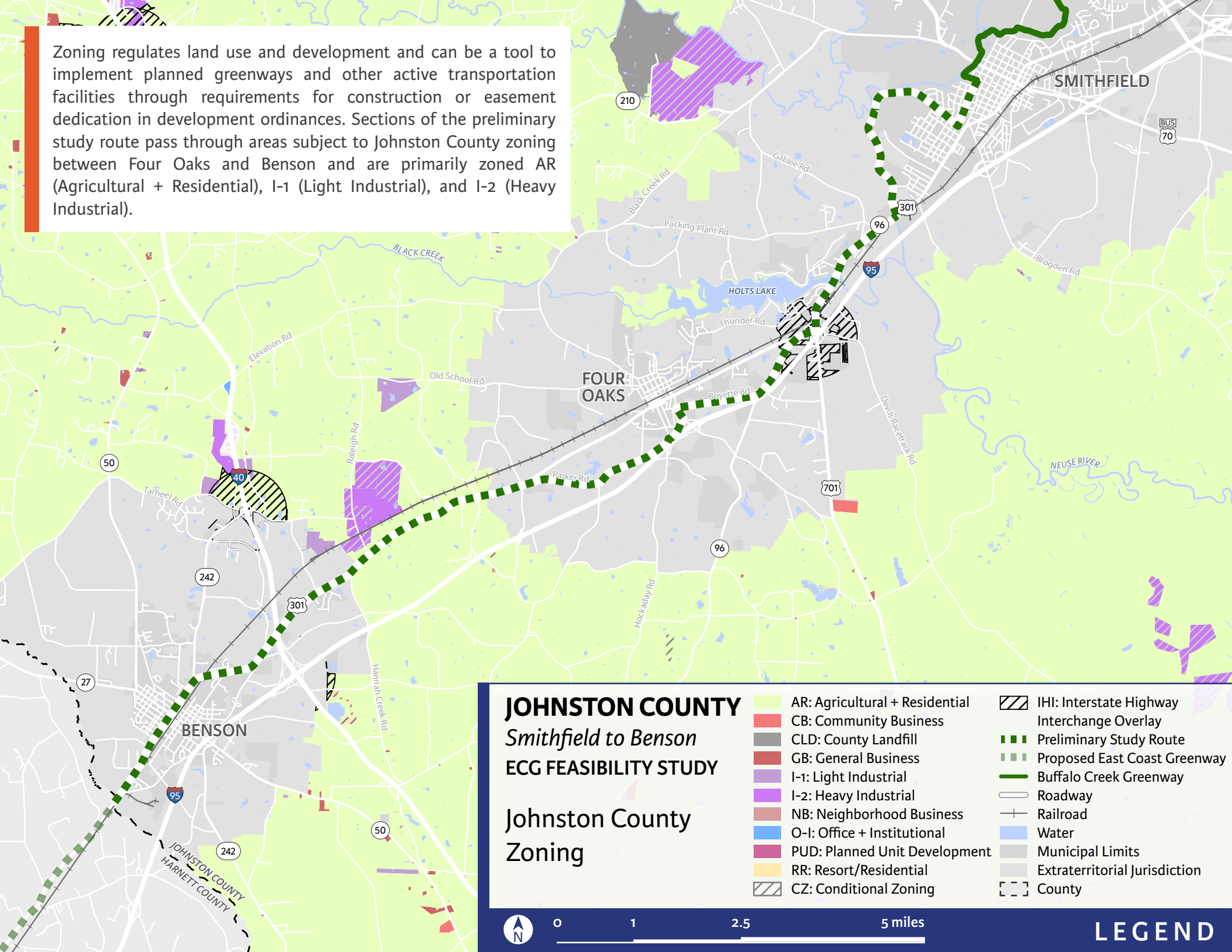
**Planned
 Developments**

- Preliminary Study Route
- Proposed East Coast Greenway
- Planned Park Site
- Johnston Community College Advanced Manufacturing Training Center (Under Construction)
- Planned Greenway and Park Site
- Roadway
- Railroad
- School
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Zoning regulates land use and development and can be a tool to implement planned greenways and other active transportation facilities through requirements for construction or easement dedication in development ordinances. Sections of the preliminary study route pass through areas subject to Johnston County zoning between Four Oaks and Benson and are primarily zoned AR (Agricultural + Residential), I-1 (Light Industrial), and I-2 (Heavy Industrial).



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

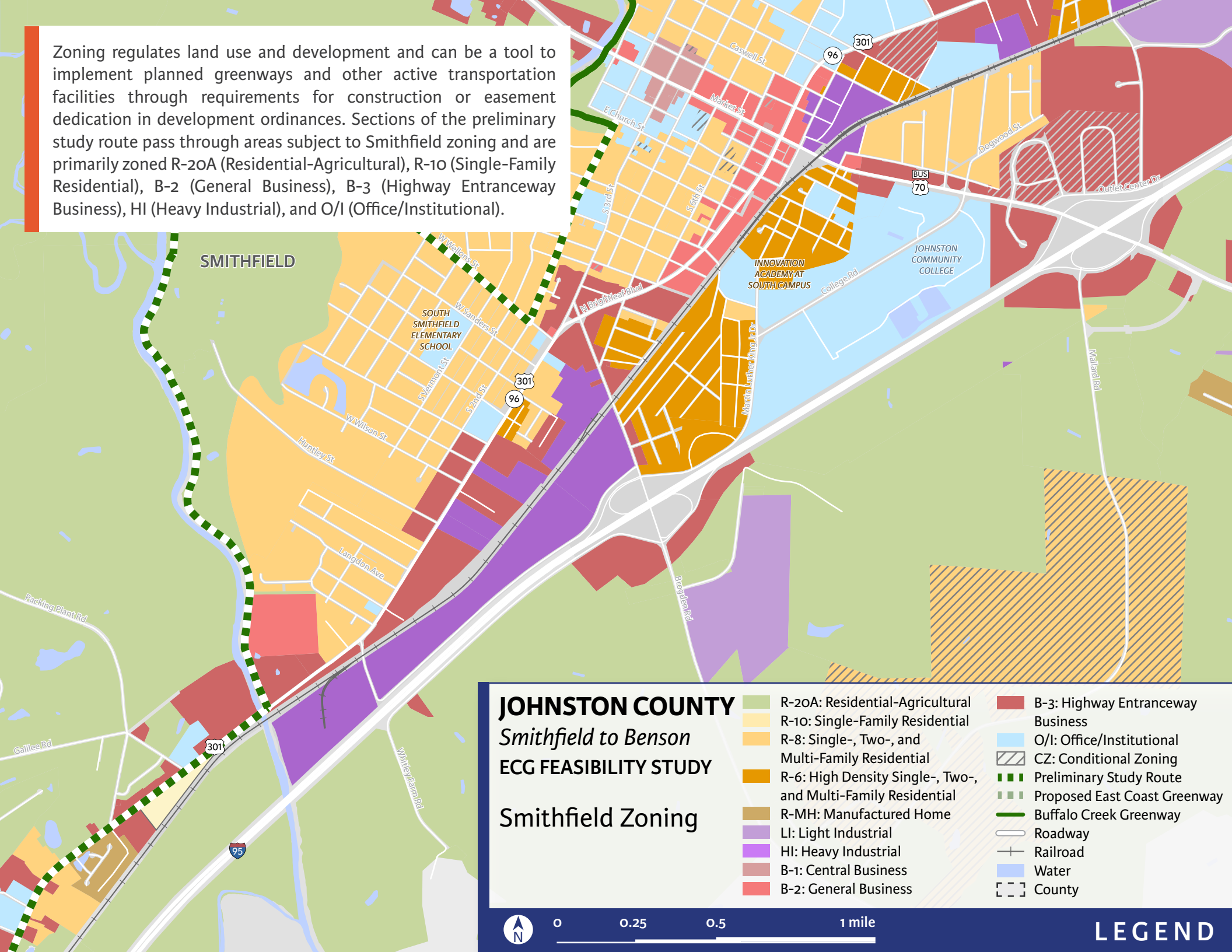
Johnston County
Zoning

- | | |
|--------------------------------|---|
| AR: Agricultural + Residential | IHI: Interstate Highway Interchange Overlay |
| CB: Community Business | Preliminary Study Route |
| CLD: County Landfill | Proposed East Coast Greenway |
| GB: General Business | Buffalo Creek Greenway |
| I-1: Light Industrial | Roadway |
| I-2: Heavy Industrial | Railroad |
| NB: Neighborhood Business | Water |
| O-I: Office + Institutional | Municipal Limits |
| PUD: Planned Unit Development | Extraterritorial Jurisdiction |
| RR: Resort/Residential | County |
| CZ: Conditional Zoning | |



LEGEND

Zoning regulates land use and development and can be a tool to implement planned greenways and other active transportation facilities through requirements for construction or easement dedication in development ordinances. Sections of the preliminary study route pass through areas subject to Smithfield zoning and are primarily zoned R-20A (Residential-Agricultural), R-10 (Single-Family Residential), B-2 (General Business), B-3 (Highway Entranceway Business), HI (Heavy Industrial), and O/I (Office/Institutional).



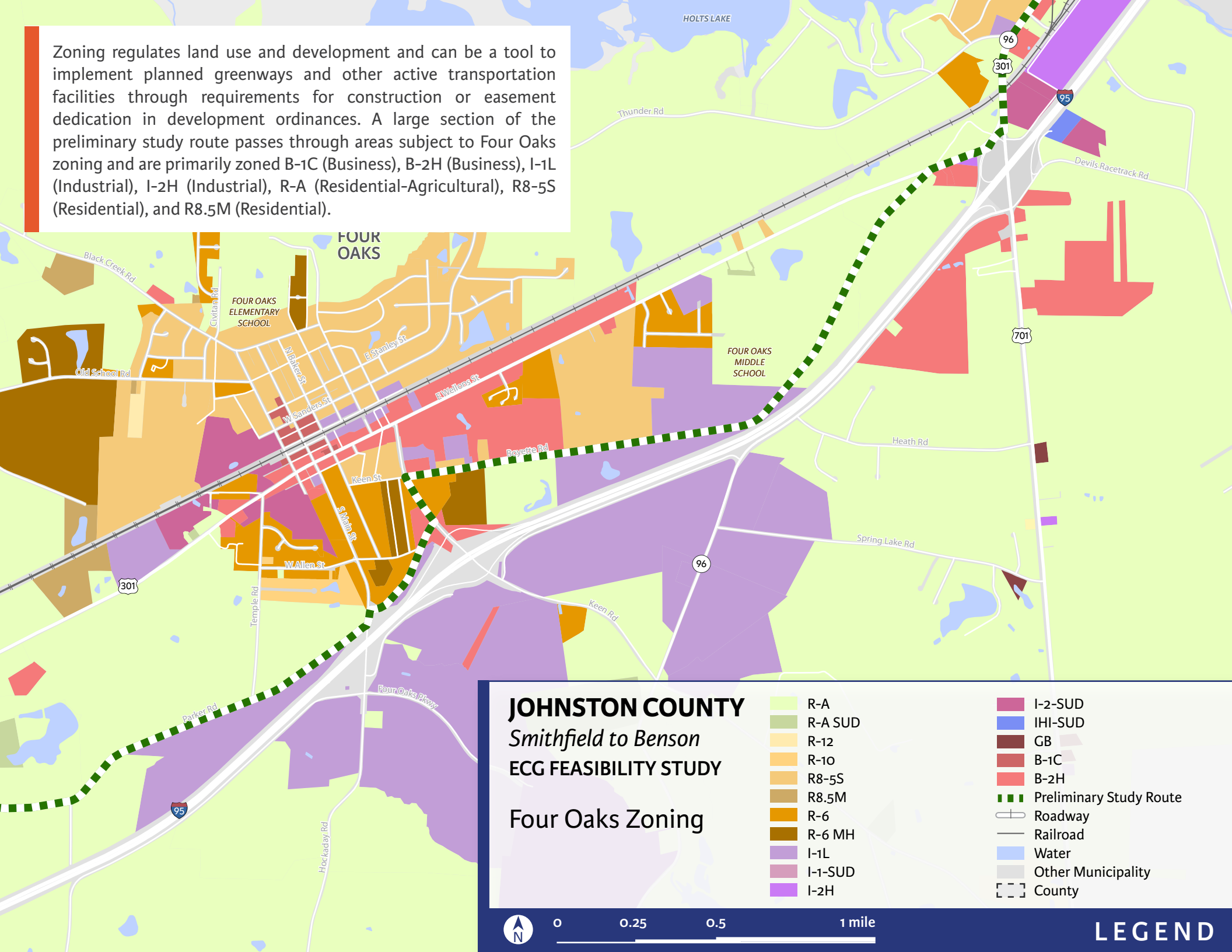
JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY
Smithfield Zoning

- | | |
|--|---|
| R-20A: Residential-Agricultural | B-3: Highway Entranceway Business |
| R-10: Single-Family Residential | O/I: Office/Institutional |
| R-8: Single-, Two-, and Multi-Family Residential | CZ: Conditional Zoning |
| R-6: High Density Single-, Two-, and Multi-Family Residential | Preliminary Study Route |
| R-MH: Manufactured Home | Proposed East Coast Greenway |
| LI: Light Industrial | Buffalo Creek Greenway |
| HI: Heavy Industrial | Roadway |
| B-1: Central Business | Railroad |
| B-2: General Business | Water |
| | County |



LEGEND

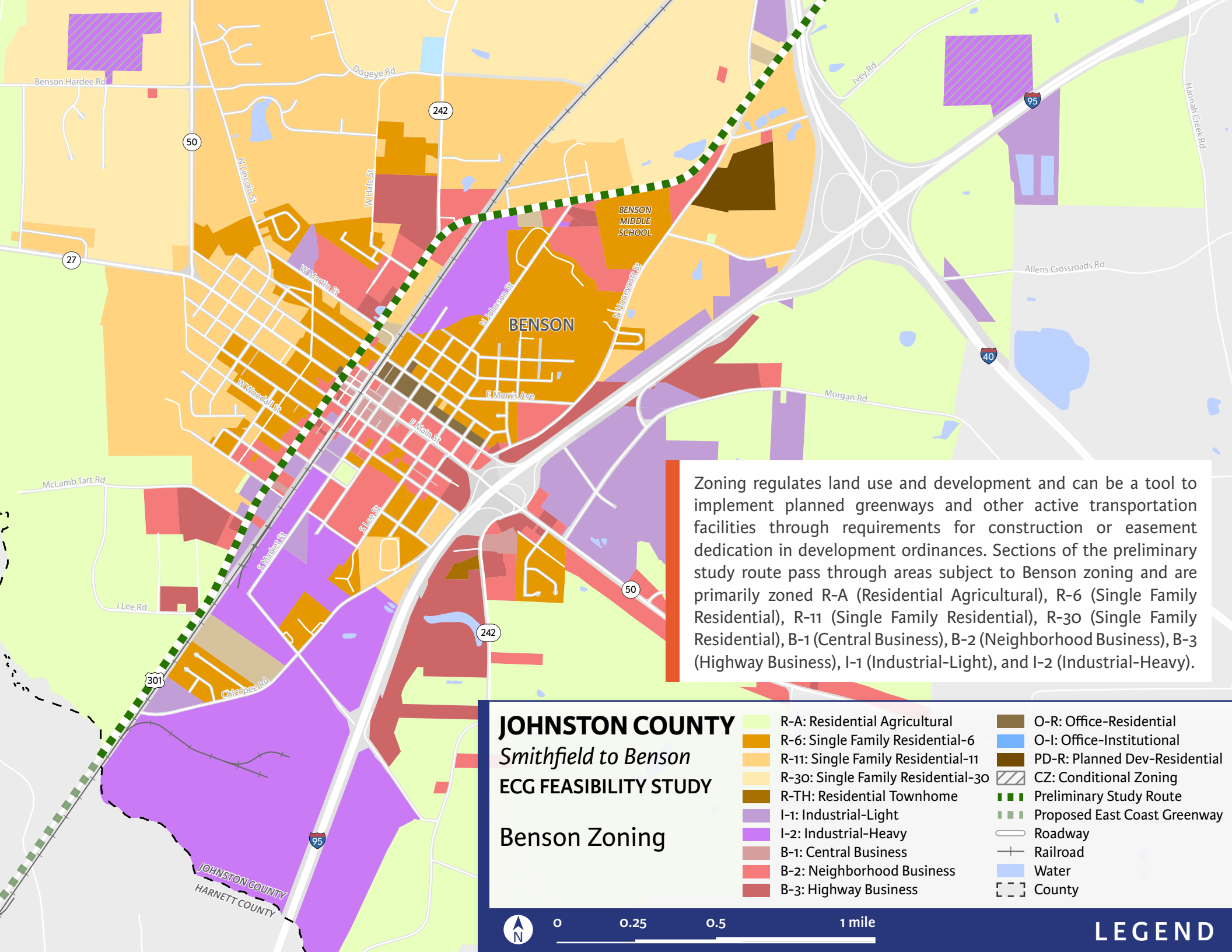
Zoning regulates land use and development and can be a tool to implement planned greenways and other active transportation facilities through requirements for construction or easement dedication in development ordinances. A large section of the preliminary study route passes through areas subject to Four Oaks zoning and are primarily zoned B-1C (Business), B-2H (Business), I-1L (Industrial), I-2H (Industrial), R-A (Residential-Agricultural), R8-5S (Residential), and R8.5M (Residential).



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY
Four Oaks Zoning

- | | |
|--|---|
| R-A | I-2-SUD |
| R-A SUD | IHI-SUD |
| R-12 | GB |
| R-10 | B-1C |
| R8-5S | B-2H |
| R8.5M | Preliminary Study Route |
| R-6 | Roadway |
| R-6 MH | Railroad |
| I-1L | Water |
| I-1-SUD | Other Municipality |
| I-2H | County |





Zoning regulates land use and development and can be a tool to implement planned greenways and other active transportation facilities through requirements for construction or easement dedication in development ordinances. Sections of the preliminary study route pass through areas subject to Benson zoning and are primarily zoned R-A (Residential Agricultural), R-6 (Single Family Residential), R-11 (Single Family Residential), R-30 (Single Family Residential), B-1 (Central Business), B-2 (Neighborhood Business), B-3 (Highway Business), I-1 (Industrial-Light), and I-2 (Industrial-Heavy).

JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY
Benson Zoning

- | | |
|------------------------------------|-------------------------------|
| R-A: Residential Agricultural | O-R: Office-Residential |
| R-6: Single Family Residential-6 | O-I: Office-Institutional |
| R-11: Single Family Residential-11 | PD-R: Planned Dev-Residential |
| R-30: Single Family Residential-30 | CZ: Conditional Zoning |
| R-TH: Residential Townhome | Preliminary Study Route |
| I-1: Industrial-Light | Proposed East Coast Greenway |
| I-2: Industrial-Heavy | Roadway |
| B-1: Central Business | Railroad |
| B-2: Neighborhood Business | Water |
| B-3: Highway Business | County |



LEGEND

SUMMARY OF FIELD OBSERVATIONS

Fieldwork is an important part of the planning process that helps the study team understand the local culture and existing conditions associated with a site. It also helps the study team evaluate design solutions that respond to the specific needs and characteristics of the site.

The project team conducted field work by visiting key destinations such as existing parks, existing bicycle and pedestrian facilities, roadways, neighborhoods, environmentally sensitive and constrained areas, and priority corridors. Many of the sites visited along the corridor feature specific challenges to greenway design, such as bridges, railroads, or high-speed traffic. Selected site photos with accompanying captions are located on the following pages.



S 2nd St – Constrained ROW



S 2nd St at JCPS West Campus – Wide sidewalk



US-301 at S 3rd St – constrained ROW and high traffic environment



US-301 at Harnett County Line – constrained bridge



S Vermont St – utility right-of-way (ROW) between Wilson St and Huntley St



Rosewood Dr – Excessive roadway width



US-301 at US-701 – highway interchange environment



US-301 at Neuse River – constrained bridge



E North Railroad St – constrained ROW, slope and drainage concerns



Benson Parks & Recreation Department – existing walking trail in the Park



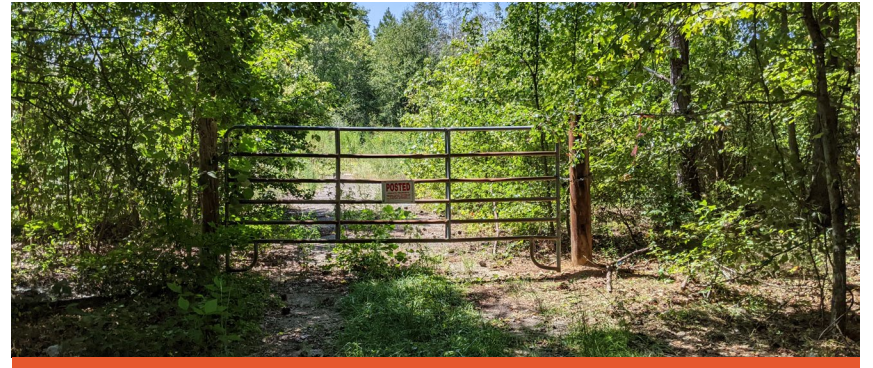
NC-242 bridge over I-40 – wide shoulder, approximately 10ft



Boyette Rd – constrained ROW, school connection



E North Railroad St – Walking Trail signage



US-301 at Harnett County line – abandoned road bridge over Mingo Swamp



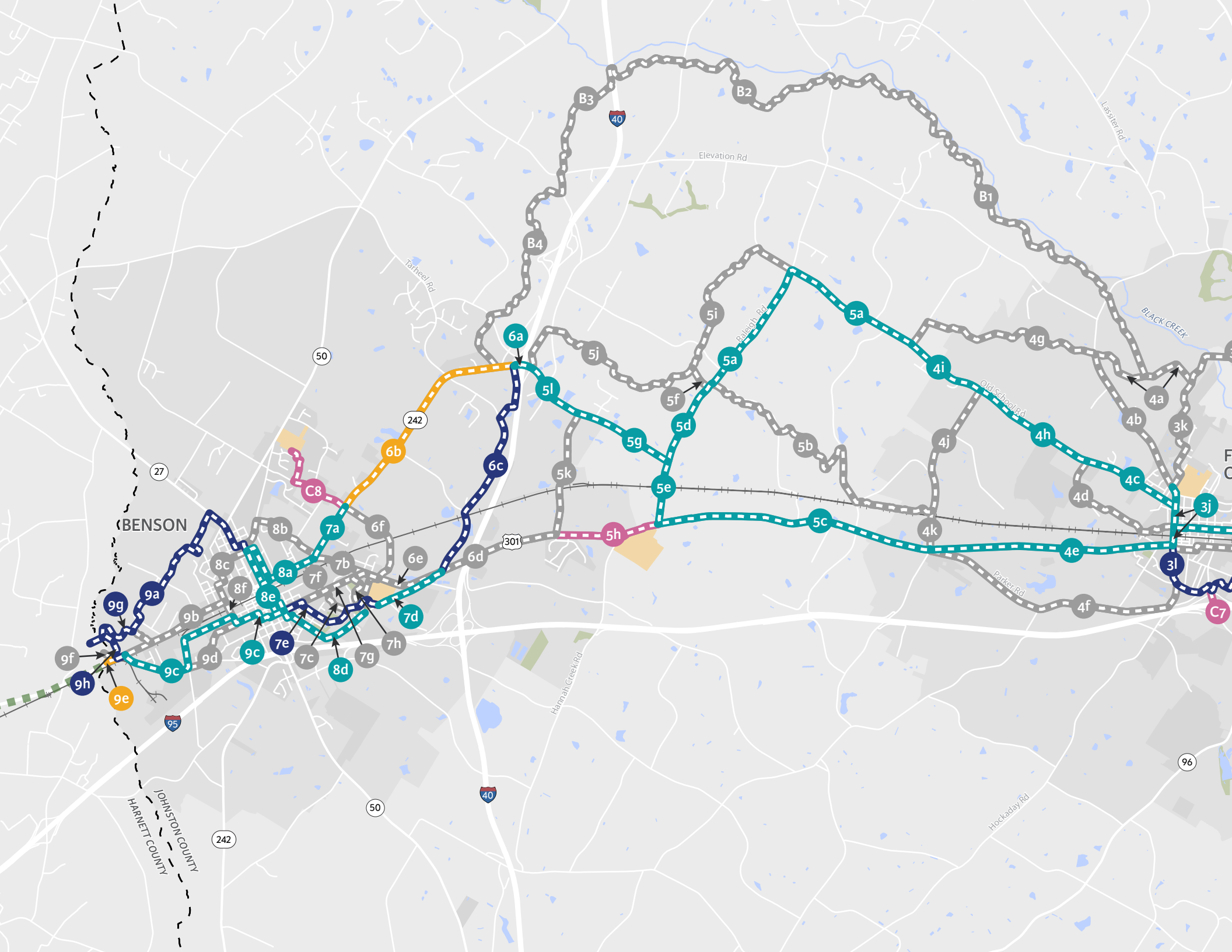
N Baker St – angled street parking, brick retaining wall

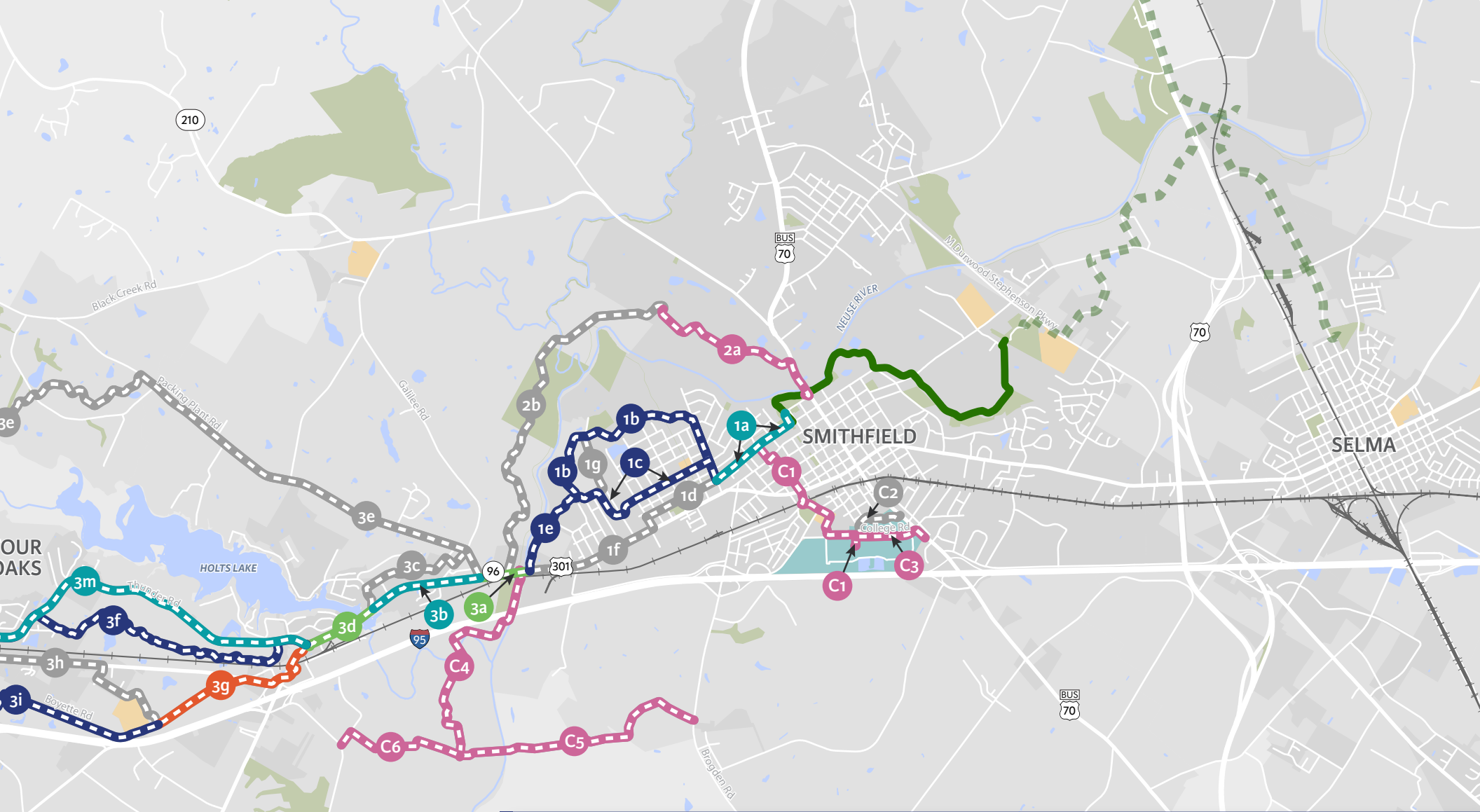


Black Creek Rd – constrained creek crossing, flooding and wetlands concerns



US-301 at Benson Middle School – utilities, open space



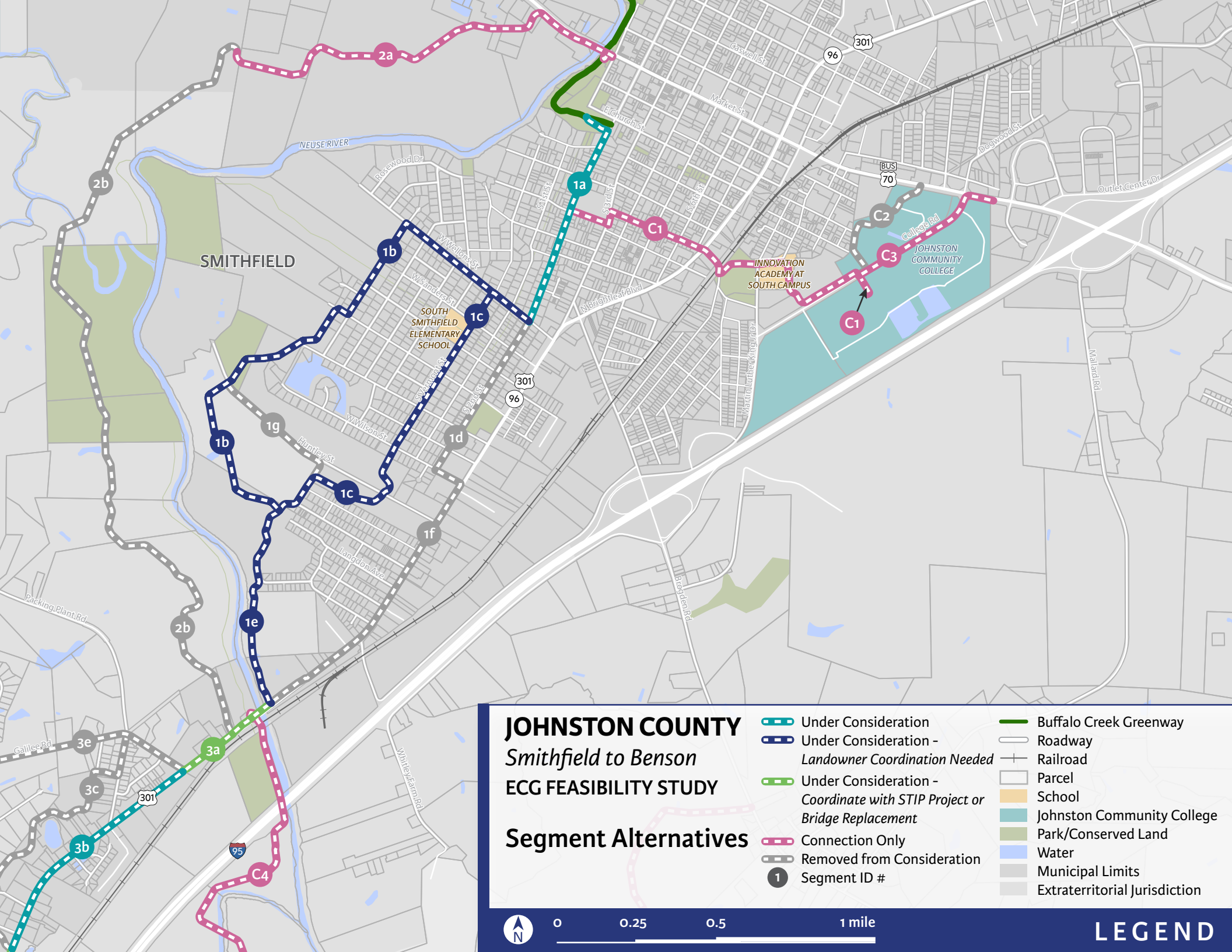


JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Segment Alternatives

- Under Consideration
- Under Consideration - *Landowner Coordination Needed*
- Under Consideration - *Coordinate with STIP Project or Bridge Replacement*
- Under Consideration - *Construction/Maintenance Concerns or Utility Conflicts*
- Under Consideration - *Complete Streets*
- Connection Only
- Removed from Consideration
- Segment ID #
- Buffalo Creek Greenway
- Proposed East Coast Greenway
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County





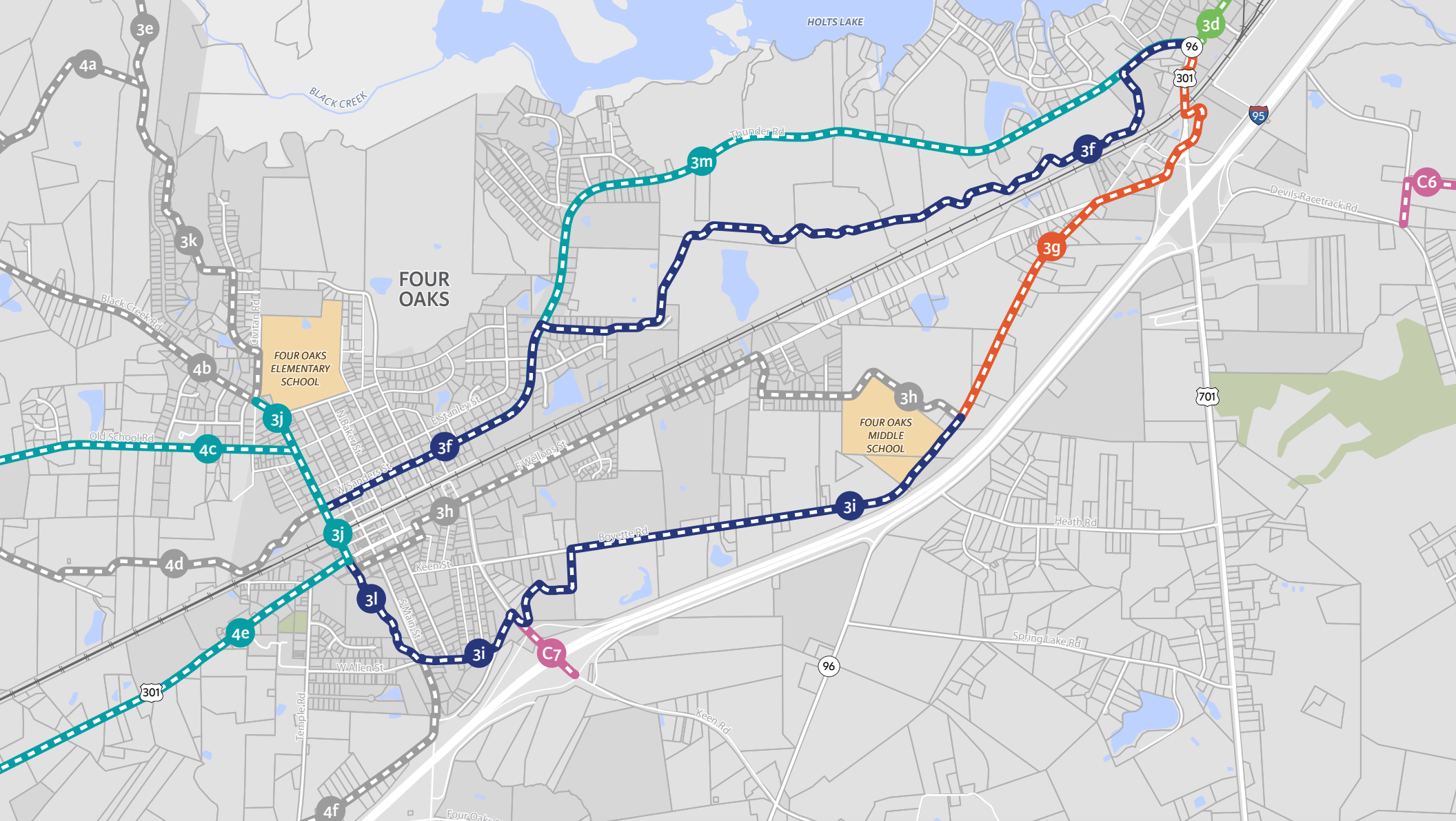
JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Segment Alternatives

- Under Consideration
- Under Consideration - Landowner Coordination Needed
- Under Consideration - Coordinate with STIP Project or Bridge Replacement
- Connection Only
- Removed from Consideration
- 1 Segment ID #
- Buffalo Creek Greenway
- Roadway
- Railroad
- Parcel
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction



LEGEND

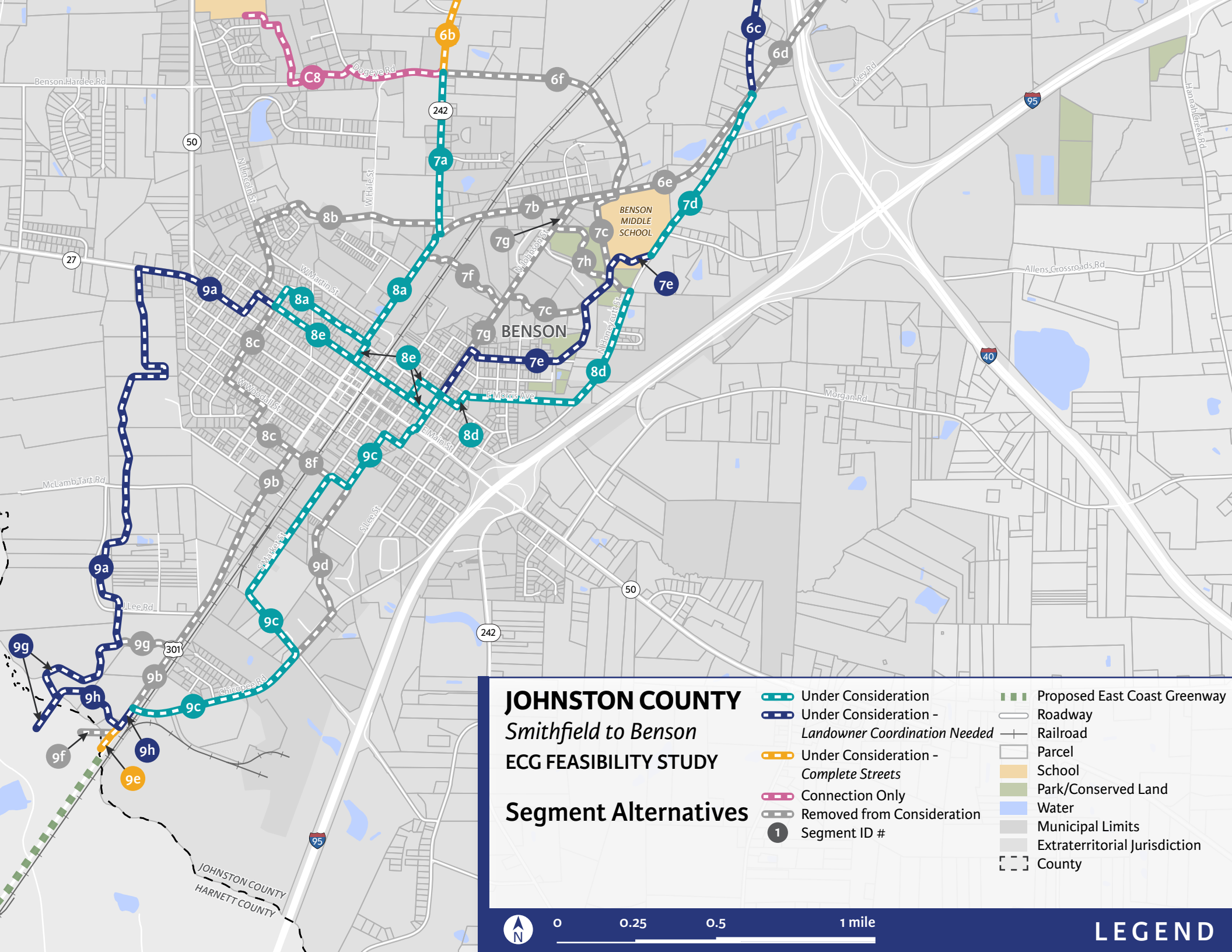


JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Segment Alternatives

- Under Consideration
- Under Consideration - Landowner Coordination Needed
- Under Consideration - Coordinate with STIP Project or Bridge Replacement
- Under Consideration - Construction/Maintenance Concerns or Utility Conflicts
- Connection Only
- Removed from Consideration
- Segment ID #
- Roadway
- Railroad
- Parcel
- School
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction





JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Segment Alternatives

- Under Consideration
- Under Consideration - Landowner Coordination Needed
- Under Consideration - Complete Streets
- Connection Only
- Removed from Consideration
- Segment ID #

- Proposed East Coast Greenway
- Roadway
- Railroad
- Parcel
- School
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

OPPORTUNITIES + CONSTRAINTS ANALYSIS

The project team conducted an Opportunities and Constraints Analysis on the studied route segments featured in the maps preceding this section. The following tables provide the detailed analysis, including information on the segment limits, opportunities, constraints, notes, and key stakeholders who will likely be involved if the segment is implemented in the future. This analysis, paired with Working Group and community input informed the segments that were removed from consideration.

Key to Segment Alternatives Evaluation (see table on following pages):

Under Consideration	Under Consideration - Coordination with STIP Project or Bridge Replacement
Under Consideration - Landowner Coordination Needed	
Under Consideration - Complete Streets	Under Consideration - Construction/Maintenance Concerns or Utility Conflicts
Connection Only	Removed from Consideration

SEGMENT ID	DESCRIPTION	LENGTH (MI)	OPPORTUNITIES + CONSTRAINTS
1a	2nd St from Jaycee Park to Wellons St at Vermont St.	0.75	Significant existing streetscape and limited pavement width constrain ability to create sidepath within existing ROW without major impact. Recommend bicycle boulevard with traffic calming. Potential coordination with Town of Smithfield's Spring Branch Stream study.
1b	Wellons St from Vermont St north to natural areas along wastewater treatment plant (WWTP), routing along back of development	1.92	Similar streetscape constraints to Seg 1a. On-street facility may be needed along Wellons St. Greenway opportunity uses existing floodplain, flood model required. Additional land owner coordination will be needed once the Wellons Subdivision is approved and lots are platted.
1c	Wellons St from S 2nd St to Vermont St to sewer easement to west of Huntley St	1.34	Sidepath along roadway can provide connectivity to South Smithfield Elementary. Greenway segment utilizes existing Sanitary Sewer easement (SSE).
1d	2nd St from Wellons St to Wilson St	0.57	Similar streetscape constraints to 1a . Recommend sidewalk for pedestrian route and bicycle boulevard with traffic calming.
1e	West from Huntley St to Neuse River to US-301	0.67	Exclusive greenway segment. Flood model and environmental impacts anticipated. Potential coordination with Flea Market property to integrate greenway with future uses.
1f	Wilson St from S 2nd St to US-301 to Neuse River	1.05	US-301 was previously identified in Smithfield Ped Plan, but route is less desirable compared to a greenway. Minimizes environmental impacts.

PARCEL IMPACTS	STIP/SPOT/NCDOT PROJECT IMPACTS	CURRENT STATUS	REASON FOR REMOVAL	KEY STAKEHOLDERS
On-road facility, no property impacts		Under Consideration		Town of Smithfield (ToS), Adjacent Property Owners
3 parcels, 1 Town-owned; Some impacts anticipated for sidepath through development.		Under Consideration, Landowner Coordination Needed		ToS, Smithfield WWTP, Adjacent Property Owners, Developers
Some impacts anticipated for sidepath, 2 parcels for greenway		Under Consideration, Landowner Coordination Needed		ToS, Johnston County Public Schools (JCPS) Smithfield WWTP, Adjacent Property Owners, Developers
On-road facility, no impacts		Removed from Consideration	Dependent on infeasible segment	ToS, Adjacent Property Owners
4 parcels, 1 Town-owned		Under Consideration, Landowner Coordination Needed		ToS, Adjacent Property Owners, North Carolina Department of Transportation (NCDOT), United States Army Corps of Engineers (USACE), Brightleaf Flea Market, Developers
Some impacts anticipated for sidepath		Removed from Consideration	Undesired routing choice	ToS, Adjacent Property Owners, NCDOT, Brightleaf Flea Market

SEGMENT ID	DESCRIPTION	LENGTH (MI)	OPPORTUNITIES + CONSTRAINTS
1g	Sidepath along Huntley St from WWTP around southeast side of future development	0.62	Developer open to potential greenway routing. Avoids route parallel to WWTP access road.
2a	Neuse River from US-70 BUS at Front St to Future Smithfield Park	1.46	Uses existing 10 ft MUP on US-70 BUS bridge over Neuse River. Flood model required. Wetland impacts anticipated for greenway segment.
2b	Neuse River from Future Smithfield Park to US-301	2.86	Significant wetland presence expected. Flood model required. Constructability and future maintenance concerns may arise. Does not directly access Flea Market.
3a	US-301 from Flea Market to Packing Plant Rd	0.36	Speed and volume along US-301 may provide undesirable user experience. Coordinates with proposed NCDOT bridge replacement.
3b	US-301 from Packing Plant Rd to County Club Rd	0.82	Speed and volume along US-301 may provide undesirable user experience. Significant utility presence noted along roadway corridor.
3c	Packing Plant Rd from US-301 to Natural Areas behind homes to Country Club Rd at US-301	1.29	Greenway is preferred user experience. Significant property owner coordination needed. Potential wetland/stream impacts through natural areas.
3d	US-301 from Country Club Rd to Thunder Rd	0.57	Limited ROW on north side of road and industrial uses on south side. Significant utility presence noted along roadway corridor. May need to cross to south side of road to minimize property impacts and cross back to north at Thunder Rd. Future Holt Lake bridge replacement to include 10 ft sidepath.
3e	Packing Plant Rd from US-301 to west of Old Olive Rd to natural areas to crossing of Black Creek west of Holt Lake	4.79	Potential agri-tourism connectivity, minimal residential connectivity. Avoids higher speed/volume roads. Significant environmental impacts anticipated for crossing of Black Creek. Flood model required.

PARCEL IMPACTS	STIP/SPOT/NCDOT PROJECT IMPACTS	CURRENT STATUS	REASON FOR REMOVAL	KEY STAKEHOLDERS
1 parcel		Removed from Consideration	Huntley St is not public right-of-way	ToS, Smithfield WWTP, Developers
Minor impacts anticipated for sidepath, 6 parcels for greenway.		Connection Only		ToS, Adjacent Property Owners, NCDOT, USACE
8 parcels, 2 County-owned		Removed from Consideration	Cost prohibitive, uninterested landowners	ToS, Adjacent Property Owners, NCDOT, USACE
Some impacts anticipated for sidepath.	BR-0086 to construct 14 ft sidepath on bridge across Neuse.	Under Consideration, Coordinate w/STIP Project or Bridge Replacement		ToS, Adjacent Property Owners, NCDOT
Some impacts anticipated for sidepath.		Under Consideration		ToS, Adjacent Property Owners, NCDOT
Some impacts anticipated for sidepath; 9 parcels, 1 County-owned for greenway		Removed from Consideration	Undesired routing choice	ToS, Adjacent Property Owners, NCDOT, USACE, JCPS
Some impacts anticipated for sidepath.	Holt Lake Bridge Replacement I-5974 - I-95/US-301/ US-701/ NC-96 interchange rebuild	Under Consideration, Coordinate w/STIP Project or Bridge Replacement		ToS, Town of Four Oaks (ToFO) Adjacent Property Owners, NCDOT
Some impacts anticipated for sidepath. 7 parcels for greenway.		Removed from Consideration	Undesired routing choice	ToFO, Adjacent Property Owners, NCDOT, USACE

SEGMENT ID	DESCRIPTION	LENGTH (MI)	OPPORTUNITIES + CONSTRAINTS
3f	Thunder Rd from US-301 to Downtown Four Oaks (W Sanders St at N Church St)	3.18	Avoids higher traffic speed/volume on US-301. Provides greenway opportunity with some neighborhood connectivity. Avoids railroad crossing. Property owner coordination needed.
3g	US-301 from Thunder Rd to Boyette Rd to Four Oaks Middle School/Future Park	1.39	Key connectivity to Middle School and future park. Avoid higher speed and volume along US-301. Coordination with NCDOT STIP project needed. Potential to reuse existing railroad bridge for bike-ped only, provided maintenance of structure can be coordinated.
3h	Four Oaks Middle School to US-301 to Downtown Four Oaks (US-301 at Church St)	2.05	Significant utility constraints along US-301, curb and gutter likely needed. Future town plan indicates paving and street scape improvements of Woodall St, trail implementation could be coordinated with this project. Provides direct route into heart of Four Oaks. Town planned park under consideration for greenway segment.
3i	Boyette Rd from Four Oaks Middle to future JCC site to Allen St at S Main St	1.87	Avoids higher traffic speed/volume on US-301. Provides connectivity for future JCC site. Provides greenway route through existing sewer easement. Proximity to I-95 ramps can create undesirable user experience. Coordination with JCC needed.
3j	Church St from US-301 to Civitan Rd	0.52	Provides connectivity to Four Oaks Elementary and local neighborhoods. May require curb and gutter. Railroad crossing coordination required.
3k	Black Creek to W Hatcher St at Civitan Rd via current developments.	1.05	Provides connectivity to Four Oaks Elementary and new developments. Some environmental impacts anticipated. Flood model required.

PARCEL IMPACTS	STIP/SPOT/NCDOT PROJECT IMPACTS	CURRENT STATUS	REASON FOR REMOVAL	KEY STAKEHOLDERS
Some impacts anticipated for sidepath. 6 parcels for greenway.	I-5974 - I-95/US-301/US-701/NC-96 interchange rebuild	Under Consideration, Landowner Coordination Needed		ToFO, Adjacent Property Owners, NCDOT, CSX Railroad (CSX RR)
Some impacts anticipated for sidepath.	I-5974 - I-95/US-301/US-701/NC-96 interchange rebuild	Under Consideration but Construction/Maintenance Concerns or Utility Conflicts		ToFO, Adjacent Property Owners, NCDOT, JCPS
Some impacts anticipated for sidepath. 1 parcel for greenway.		Removed from Consideration	Property owners not interested	ToFO, Adjacent Property Owners, NCDOT, JCPS
Some impacts anticipated for sidepath. Greenway on future JCC site and Four Oaks sewer easement.		Under Consideration, Landowner Coordination Needed		ToFO, Adjacent Property Owners, NCDOT, JCPS, Johnston Community College (JCC)
Minor impacts anticipated for sidepath.		Under Consideration		ToFO, Adjacent Property Owners, NCDOT, JCPS, CSX RR
Minor impacts anticipated for sidepath. 3 parcels for greenway.		Removed from Consideration	Approved development prevents routing	ToFO, Adjacent Property Owners, NCDOT, USACE, JCPS, Developers, Four Oaks Civitan Club (FOCC)

SEGMENT ID	DESCRIPTION	LENGTH (MI)	OPPORTUNITIES + CONSTRAINTS
3l	Allen St at S Main St to downtown Four Oaks via sewer easement/stream corridor	0.36	Avoids ROW constraints along S Main St. Greenway provides desired user experience. Sewer easement and landowner coordination required.
3m	Thunder Rd from US-301 to Downtown Four Oaks (W Sanders St at N Church St)	3.01	Avoids extensive property owner coordination along Thunder Rd, Connects communities along Thunder Rd to downtown Four Oaks, minimal driveway conflicts, ROW dedication might be needed.
4a	From Black Creek west of Holt Lake to Black Creek Rd	1.04	Some environmental impacts anticipated. Flood model required. Lack of connectivity to downtown Four Oaks (if continuing from north)
4b	Black Creek Rd from Civitan Rd to south of Elevation Rd	1.32	Provides connectivity to Four Oaks Elementary. Minimizes environmental impacts.
4c	Old School Rd from Church St to Hollingsworth Rd	0.87	Sidepath route avoids higher traffic speed/volume along US-301. Curb and gutter may be required in some locations. Minimizes property impacts.
4d	From W Sander St at Church St to Hollingsworth Rd to Old School Rd	1.25	Uses existing sewer easement for greenway connection to low speed/volume street. Property owner coordination needed.
4e	US-301 from Church St to Parker Rd	2.09	Proposed sidepath. Traffic speed/volume on US-301 may make for undesirable user experience. Minimizes environmental impacts
4f	Main St from Allen St to Parker Rd to US-301	2.43	Proposed sidepath. Avoids higher traffic speed/volume on US-301. Minimizes environmental impacts. Provides connectivity to Candlestick park.
4g	Natural Areas from Black Creek Rd west to Duke Easement	1.84	Greenway. Potential wetland impacts. Coordination with landowners and Duke Energy needed.

PARCEL IMPACTS	STIP/SPOT/NCDOT PROJECT IMPACTS	CURRENT STATUS	REASON FOR REMOVAL	KEY STAKEHOLDERS
Two parcels for greenway.		Under Consideration, Landowner Coordination Needed		ToFO, Adjacent Property Owners, NCDOT, Sewer Utility.
Some impact anticipated for sidepath		Under Consideration		ToFO, Adjacent Property Owners, NCDOT
2 parcels		Removed from Consideration	Undesired routing choice	ToFO, Adjacent Property Owners, NCDOT, USACE
Minor impacts anticipated for sidepath.		Removed from Consideration	Dependent on infeasible segment	ToFO, Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath.		Under Consideration		ToFO, Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath. 4 parcels for greenway.		Removed from Consideration	Property owners not interested	ToFO, Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath.		Under Consideration		ToFO, Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath.		Removed from Consideration	Undesired routing choice	ToFO, Adjacent Property Owners, NCDOT
2 parcels		Removed from Consideration	Property owners not interested	ToFO, Adjacent Property Owners, NCDOT, Duke Energy, USACE

SEGMENT ID	DESCRIPTION	LENGTH (MI)	OPPORTUNITIES + CONSTRAINTS
4h	Old School Rd from Hollingsworth Rd to Gum Swamp Rd	1.11	Proposed sidepath. Avoids higher traffic speed/volume on US-301. Minimizes environmental impacts.
4i	Old School Rd from Parkertown Rd to Gum Swamp Rd	0.73	Sidepath section on low volume rural road. Coordination with landowners and Duke Energy needed.
4j	Parkertown Rd from RR Crossing to Old School Rd	1.18	Sidepath section on low volume rural road. Minimizes environmental impacts.
4k	Parkertown Rd from US-301 to north of RR Crossing	0.33	Sidepath section on low volume rural road. Minimizes environmental impacts. Railroad coordination needed.
5a	Old School Rd from Gum Swamp Rd to Raleigh Rd at Stoney Creek	2.42	Sidepath section on low volume rural road. Minimizes environmental impacts. Connects to incoming developments.
5b	North of Railroad from Parkertown Rd at RR Crossing to Olivers Grover Rd to Camelia Rd to Stoney Creek	2.85	Majority greenway, some small sections of sidepath. Avoids higher traffic speed/volume roads. Coordination with landowners and quarry required. Some wetland impacts anticipated.
5c	US-301 from Parkertown Road to Raleigh Rd	2.39	Proposed sidepath. Traffic speed/volume on US-301 may make for undesirable user experience. Minimizes environmental impacts
5d	Raleigh Rd from Camelia Rd to Woodall Dairy Rd	0.79	Sidepath section on low volume rural road. Flood model required for crossing of Stoney Creek. Potential wetland impacts. Quarry activity along this segment of corridor.
5e	Raleigh Rd from Woodall Dairy Rd to US-301	0.54	Sidepath section on low volume rural road. Quarry activity along this segment of corridor. Railroad coordination needed.

PARCEL IMPACTS	STIP/SPOT/NCDOT PROJECT IMPACTS	CURRENT STATUS	REASON FOR REMOVAL	KEY STAKEHOLDERS
Minor impacts anticipated for sidepath.		Under Consideration		ToFO, Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath.		Under Consideration		ToFO, Adjacent Property Owners, NCDOT, Duke Energy
Minor impacts anticipated for sidepath.		Removed from Consideration	Property owners not interested	Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath.		Removed from Consideration	Dependent on infeasible segments	Adjacent Property Owners, NCDOT, CSX RR
Minor impacts anticipated for sidepath.		Under Consideration		Adjacent Property Owners, NCDOT, USACE
Minor impacts anticipated for sidepath. 5 parcels for greenway.		Removed from Consideration	Property owners not interested	Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath.		Under Consideration		Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath.		Under Consideration		Adjacent Property Owners, NCDOT, USACE
Minor impacts anticipated for sidepath.		Under Consideration		Adjacent Property Owners, NCDOT, CSX RR

SEGMENT ID	DESCRIPTION	LENGTH (MI)	OPPORTUNITIES + CONSTRAINTS
5f	Stoney Creek from Raleigh Rd to west side of creek	0.27	Greenway corridor along Stoney Creek. Significant potential environmental impacts. Flood model required. Landowner coordination needed.
5g	Woodall Dairy Rd from Raleigh Rd to Gilbert Rd	0.89	Sidepath section. Minimizes environmental impacts. Provides connection to existing developments, avoids additional railroad crossing.
5h	US-301 from Raleigh Rd to Gilbert Rd	0.92	Sidepath section. Minimizes environmental impacts. Provides connection to existing developments and South Johnston HS.
5i	Natural Areas from Old School Rd at Raleigh Rd to Stoney Creek west of Raleigh Rd.	1.70	Sidepath along rural road corridor and greenway along natural areas. Significant potential environmental impacts. Flood model required. Landowner coordination needed.
5j	Stoney Creek from west of Raleigh Rd to Woodall Dairy Rd at I-40	1.97	Greenway corridor along creek. Significant potential environmental impacts. Flood model required, multiple creek crossings needed to minimize property impacts. Landowner coordination needed.
5k	Gilbert Rd from US-301 to Woodall Dairy Rd	1.08	Sidepath section. Minimizes environmental impacts. Railroad coordination required.
5l	Woodall Dairy Rd from Gilbert Rd to east of I-40	0.56	Sidepath section. Minimizes environmental impacts.
6a	Crossing of I-40 using existing NC-242 Bridge	0.16	Existing 10 ft shoulder on bridge can be repurposed as a sidepath. Future bridge improvement or STIP project could upgrade width and protection. Short term maintenance issues may arise due to debris accumulation in shoulder.

PARCEL IMPACTS	STIP/SPOT/NCDOT PROJECT IMPACTS	CURRENT STATUS	REASON FOR REMOVAL	KEY STAKEHOLDERS
1 parcel		Removed from Consideration	Property owners not interested	Adjacent Property Owners, NCDOT, USACE
Minor impacts anticipated for sidepath.		Under Consideration		Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath.		Connection Only		Adjacent Property Owners, NCDOT, JCPS
Minor impacts anticipated for sidepath. 9 Parcels for greenway.		Removed from Consideration	Property owners not interested	Adjacent Property Owners, NCDOT, USACE
Minor impacts anticipated for sidepath. 6 parcels		Removed from Consideration	Property owners not interested	Adjacent Property Owners, NCDOT, USACE
Minor impacts anticipated for sidepath.		Removed from Consideration	Undesired routing choice	Adjacent Property Owners, NCDOT, CSX RR
Minor impacts anticipated for sidepath.		Under Consideration		Adjacent Property Owners, NCDOT
No impacts		Under Consideration		Town of Benson (ToB), NCDOT

SEGMENT ID	DESCRIPTION	LENGTH (MI)	OPPORTUNITIES + CONSTRAINTS
6b	NC-242 from west of I-40 to Dogeye Rd	2.02	Potential to coordinate with STIP project, provides bike/ped facility along route with a ped fatality. Traffic speed and volume higher than other roads. Minimizes environmental impacts.
6c	From NC-242 at I-40 along I-40 ROW to Tarheel Rd to US-301	2.00	Avoids higher speed/volume along NC-242. Railroad crossing coordination required. Provides routing towards Benson MS and Honeycutt St from NC-242.
6d	US-301 from Gilbert Rd to Tarheel Rd	1.05	Sidepath along US-301. Separate pedestrian bridge required to cross I-40. Provides connectivity to Benson Middle School. Significant constructability challenge may preclude this segment.
6e	US-301 from Tarheel Rd to Benson Middle School.	0.57	Sidepath route minimizes environmental impacts. Provides connectivity to Benson Middle School. Routing along US-301 may not provide best user experience.
6f	US-301 at Benson Middle School to NC-242 at Dogeye Rd	0.84	Greenway grade-separated railroad crossing. Potential stream/wetland impacts. Grade separation can meet ADA (max 5%) without switchbacks or landings. Benson FULM indicates commercial development along Dogeye Rd. Railroad coordination needed.
7a	NC-242 from Dogeye Rd to US-301	0.52	Sidepath segment. Some curb and gutter may be needed. Minimizes environmental impacts.
7b	US-301 from Benson Middle School to NC-242	0.59	Separate pedestrian bridge needed for RR grade separation. Some property impacts anticipated. Curb and gutter may be needed. Railroad coordination needed. Minimizes environmental impacts.

PARCEL IMPACTS	STIP/SPOT/NCDOT PROJECT IMPACTS	CURRENT STATUS	REASON FOR REMOVAL	KEY STAKEHOLDERS
Minor impacts anticipated for sidepath.	R-5761 to widen roadway, provides opportunity for Complete Streets.	Under Consideration, Complete Streets		ToB, NCDOT, Adjacent Property Owners
Minor impacts anticipated for sidepath. 1 parcel for greenway.		Under Consideration, Landowner Coordination Needed		ToB, Adjacent Property Owners, NCDOT, CA Committee, CSX RR
Minor impacts anticipated for sidepath.		Removed from Consideration	Constructability issues, cost prohibitive	ToB, NCDOT, Adjacent Property Owners
Minor impacts anticipated for sidepath.		Removed from Consideration	Dependent on infeasible segments	ToB, NCDOT, Adjacent Property Owners
Minor impacts anticipated for sidepath. 5 parcels for greenway.		Removed from Consideration	Cost prohibitive.	ToB, Adjacent Property Owners, NCDOT, USACE, CSX RR
Minor impacts anticipated for sidepath.		Under Consideration		ToB, NCDOT, Adjacent Property Owners
Minor impacts anticipated for sidepath. 1 parcel impacted for RR grade separation.		Removed from Consideration	Constructability issues, cost prohibitive.	ToB, NCDOT, Adjacent Property Owners, CSX RR

SEGMENT ID	DESCRIPTION	LENGTH (MI)	OPPORTUNITIES + CONSTRAINTS
7c	Natural Areas from Benson MS to N Johnson St to Hill St to Church St	1.10	Greenway segment avoids higher speeds outside of downtown. Provides connectivity between school and parks. Stream and wetland impacts anticipated. Approved development (Senior Housing) open space and parcel dedicated to Town enable greenway routing
7d	Honeycutt St from US-301 to Benson Middle School.	0.62	Provides connectivity to park and middle school and avoids higher traffic speed/volume along US-301. Provides connectivity to underserved community.
7e	Benson Middle School to Branch St to N Johnson St to Hill St	1.00	Provides connectitiy Honeycutt St into Downtown Benson. Enhances connectivty of underserved community. Utilizes Town-owned land.
7f	Greenway from N Johnson St across Railroad to US-301	0.35	Greenway and grade separated (tunnel) railroad crossing. Alternative to at-grade crossings within downtown Benson. Potential wetland impacts.
7g	N Johnson St south of US-301	0.90	Minimizes environmental impacts. Some curb and gutter may be needed. Avoids grade-separated railroad crossing of US-301.
7h	US-301 from Benson Middle School to Johnson St through Benson Parks and Rec to Honeycutt Rd.	0.63	Provides connectivity to park and middle school and avoids higher traffic speed/volume along US-301. Greenway segment utilizes publicly owned land. Provides connectivity to underserved community.
8a	US-301 from NC-242 to Church St	0.78	Constrained ROW. Existing 4-lane roadway section could be considered for road diet as part of NCDOT resurfacing project. Sidepath routes along cemetary. Existing wall prevents sidepath option on north side of road near Church St.

PARCEL IMPACTS	STIP/SPOT/NCDOT PROJECT IMPACTS	CURRENT STATUS	REASON FOR REMOVAL	KEY STAKEHOLDERS
Minor impacts anticipated for sidepath. 6 parcels for greenway, 1 Town-owned, 1 County-owned.		Removed from Consideration	Safety concerns from JCPS	ToB, Adjacent Property Owners, NCDOT, USACE, JCPS, Developers
Minor impacts anticipated for sidepath.		Under Consideration		ToB, Adjacent Property Owners, NCDOT, JCPS
3 parcels (2 Town-owned) for greenway. Minor impacts anticipated for sidepath.		Under Consideration, Landowner Coordination Needed		ToB, Benson Parks and Rec, NCDOT, JCPS
2 parcels for greenway.		Removed from Consideration	Significant constructability challenges	ToB, Adjacent Property Owners, NCDOT, USACE, CSX RR
Minor impacts anticipated for sidepath.		Removed from Consideration	Undesired routing choice	ToB, Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath. Greenway on Town-owned land.		Removed from Consideration	Undesired routing choice	ToB, Adjacent Property Owners, NCDOT, JCPS
ROW acquisition anticipated for sidepath.		Under Consideration		ToB, Adjacent Property Owners, NCDOT

SEGMENT ID	DESCRIPTION	LENGTH (MI)	OPPORTUNITIES + CONSTRAINTS
8b	NC-242 to N Lincoln St to W Church St at S McLamb St	0.99	Alternate route to constrained areas in Downtown Benson. Some potential stream and wetland impacts. Coordination with local HOA needed. Curb and gutter may be needed.
8c	Church St from US-301 to McLamb St to Woodall St to Ryals St to Brocklyn St at US-301	0.65	Alternate route to constrained areas in Downtown Benson. Avoids environmental impacts. Sidepath largely within existing ROW. Connects to and expands downtown sidewalk network.
8d	Honeycutt St from Benson Middle to Morris Ave to Hill St to Johnson St	0.87	Provides connectivity to underserved community. Minimizes environmental impacts. Existing sidewalks can be widened to multi-use path width.
8e	Church St from N Johnson St to US-301	0.66	Provides improved RR crossing for sidewalk network within downtown. Utilizes available ROW. Some streetscape or lighting adjustments/relocations may be needed. Railroad coordination needed.
8f	Brocklyn St from Market St to US-301	0.14	Sidepath with curb and gutter to minimize ROW impacts. Railroad coordination needed. Roadway crossing of US-301 required.
9a	NC-27 (W Main St) from N Lincoln St to proposed development to north of Mingo Swamp	2.00	Avoids higher speed/volumes along US-301. Provides connectivity to Rodeo Arena. Wetland and stream impacts anticipated. Flood model required. Approved development provides opportunity for sidepath within public street ROW. Route bypasses downtown Benson.
9b	US-301 from Brocklyn St to Chicopee Rd	0.74	Railroad constrains south side of RR. Some curb and gutter sections may be required. Utility and driveway constraints east of McLamb Tart Rd may necessitate mid-block crossing. Minimizes environmental impacts.

PARCEL IMPACTS	STIP/SPOT/NCDOT PROJECT IMPACTS	CURRENT STATUS	REASON FOR REMOVAL	KEY STAKEHOLDERS
Minor impacts anticipated for sidepath. 3 parcels for greenway.		Removed from Consideration	Undesired routing choice	
Minor impacts anticipated for sidepath.		Removed from Consideration	Undesired routing choice	ToB, Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath.		Under Consideration		ToB, Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath.		Under Consideration		ToB, Adjacent Property Owners, NCDOT, CSX RR
Minor impacts anticipated for sidepath.		Removed from Consideration	Undesired routing choice	ToB, Adjacent Property Owners, NCDOT, CSX RR
Minor impacts anticipated for sidepath. 11 parcels for greenway.		Under Consideration, Landowner Coordination Needed		ToB, Adjacent Property Owners, NCDOT, USACE
Minor impacts anticipated for sidepath.		Removed from Consideration	Dependent on infeasible segments	ToB, Adjacent Property Owners, NCDOT

SEGMENT ID	DESCRIPTION	LENGTH (MI)	OPPORTUNITIES + CONSTRAINTS
9c	Benson CTP Sidepath	1.85	Route previously identified in Benson CTP. Provides connectivity to existing Town Park. Avoids higher speed/volumes along US-301. Avoids environmental impacts. Railroad coordination needed.
9d	Elm St at Mann St to Chicopee Rd at Market St	0.65	Provides connectivity to Benson Public Housing and Benson park. Potential future redeveloped identified in Benson Comp Plan can be coordinated with Greenway.
9e	Mingo Swamp crossing at US-301	0.09	Flood model required. Duke transmission easement may prevent structure for this crossing.
9f	Mingo Swamp crossing at old bridge deck	0.10	Potential to utilize old bridge deck. Structural stability of deck unknown. Duke transmission easement may prevent structure for this crossing. Flood model required.
9g	Mingo Swamp crossing from US-301 at Chicopee Rd to County Line	0.74	Flood model required. Avoids conflict with Duke Easement by crossing on fill before wetlands.
9h	Mingo Swamp crossing from US-301 north of Chicopee Rd to County Line	0.46	Flood model required. Avoids conflict with Duke Easement by crossing on fill before wetlands.
B1	Black Creek from west of Holt Lake to Raleigh Rd	4.58	Flood model required. Significant environmental impacts. Significant property impacts. No key/major destinations along corridor.
B2	Black Creek from Raleigh Rd to Federal Rd	1.73	Flood model required. Significant environmental impacts. Significant property impacts. No key/major destinations along corridor.

PARCEL IMPACTS	STIP/SPOT/NCDOT PROJECT IMPACTS	CURRENT STATUS	REASON FOR REMOVAL	KEY STAKEHOLDERS
Minor impacts anticipated for sidepath.		Under Consideration		ToB, Adjacent Property Owners, NCDOT, CSX RR
Minor impacts anticipated for sidepath.		Removed from Consideration	Undesired routing choice	ToB, Adjacent Property Owners, NCDOT
Minor impacts anticipated for sidepath.		Under Consideration, Complete Streets		ToB, Adjacent Property Owners, NCDOT, USACE, Duke Energy, Harnett County
1 parcel		Removed from Consideration	Utility conflict across Mingo Swamp	ToB, Adjacent Property Owners, NCDOT, USACE, Duke Energy, Harnett County
2 parcels for greenway.		Under Consideration, Landowner Coordination Needed		ToB, Adjacent Property Owners, NCDOT, USACE, Duke Energy, Harnett County
2 parcels for greenway.		Under Consideration, Landowner Coordination Needed		ToB, Adjacent Property Owners, NCDOT, USACE, Duke Energy, Harnett County
		Removed from Consideration	Undesired routing choice	ToFO, Adjacent Property Owners, NCDOT, USACE, Duke Energy
		Removed from Consideration	Undesired routing choice	Adjacent Property Owners, NCDOT, USACE

SEGMENT ID	DESCRIPTION	LENGTH (MI)	OPPORTUNITIES + CONSTRAINTS
B3	Black Creek from Federal Rd to I-40 underpass to Elevation Rd	1.98	Flood model required. Significant environmental impacts. Significant property impacts. No key/major destinations along corridor. Grade separated underpass of I-40.
B4	Natural Areas from Elevation Rd to NC-242 west of I-40	2.31	Flood model required. Significant environmental impacts. Significant property impacts. No key/major destinations along corridor.
C1	Lee St to US-301 to Smithfield Park to JCC	1.26	Streetscape and ROW constraints north of US 301. Signal or other ped crossing of US-301 needed. Railroad coordination needed. Potential coordination with Town's Spring Branch Stream study.
C2	JCC to Market St via Duke easement	0.45	Greenway provides better user experience. Opportunity to integrate greenway with Arboretum. Coordination with JCC and Duke Energy needed.
C3	JCC to Market St via College Rd	0.53	Minimizes environmental and property impacts. Some curb and gutter may be required.
C4	Neuse River from US-301 to Duke easement	1.88	Flood model required. Potential stream and wetland impacts. Bridge replacement projects will enable grade separation beneath US-301 and I-95. Railroad coordination needed.
C5	From Neuse River at Duke easement to Brogden Rd	1.90	Flood model required. Potential stream and wetland impacts. Crossing of Neuse River required. Landowner coordination needed.
C6	From Neuse River at Duke easement to Devils Racetrack Rd	0.99	Flood model required. Potential stream and wetland impacts. Landowner coordination needed.

PARCEL IMPACTS	STIP/SPOT/NCDOT PROJECT IMPACTS	CURRENT STATUS	REASON FOR REMOVAL	KEY STAKEHOLDERS
		Removed from Consideration	Undesired routing choice	Adjacent Property Owners, NCDOT, USACE
		Removed from Consideration	Undesired routing choice	ToB, Adjacent Property Owners, NCDOT, USACE
ROW impacts for sidepath anticipated. All public parcels for greenway.	RX-2004K to add safety improvements to at-grade rail crossing.	Connection Only		ToS, NCDOT, CSX RR, Duke Energy, Adjacent Property Owners, JCC
Greenway on JCC parcel.		Removed from Consideration	Undesired routing choice	ToS, NCDOT, JCC
Minor impacts anticipated for sidepath.		Connection Only		ToS, NCDOT, JCC
5 parcels, 1 TLC owned.	BR-0086 and B-6044 will replace bridges over Neuse and are expected to leave sufficient vertical clearance to allow greenway passing underneath.	Connection Only		ToS, NCDOT, USACE, CSX RR, Duke Energy, Adjacent Property Owners
5 parcels for greenway.		Removed from Consideration	Cost prohibitive	ToS, NCDOT, USACE, Duke Energy, Adjacent Property Owners, Twin States Farming
3 parcels for greenway.		Connection Only		ToS, NCDOT, USACE, Duke Energy, Adjacent Property Owners

SEGMENT ID	DESCRIPTION	LENGTH (MI)	OPPORTUNITIES + CONSTRAINTS
C7	Keen Rd crossing of I-95	0.21	Available width on existing roadway bridge could be repurposed for MUP. No land owner coordination needed.
C8	From NC-242 at Dogeye Rd to Park Pl to Benson Elementary	0.84	Potential connectivity to future development phase east of Boardwalk Ave. Proposed sidewalk and on-street bike route within proposed development due to ROW constraints. Provides connectivity to Benson Elementary from existing neighborhoods.
C9	From W Church St at N Lincoln St to Benson Elementary School	1.06	Alternate route to Benson Elementary School. Provides connectivity to existing neighborhoods.

PARCEL IMPACTS	STIP/SPOT/NCDOT PROJECT IMPACTS	CURRENT STATUS	REASON FOR REMOVAL	KEY STAKEHOLDERS
Sidepath on structure and in ROW		Removed from Consideration	Undesired routing choice	ToFO, NCDOT
Minor impacts anticipated for sidepath. 3 parcels for greenway, 1 county-owned.		Connection Only		ToB, NCDOT, JCPS, USACE
Minor impacts anticipated for sidepath.		Connection Only		ToB, NCDOT, JCPS

accounting for areas suitable for dry camping

Multiple route choices that allow for quick portions to be laid out that may later become secondary routes

finding touchpoints for the trail to connect w/ local businesses

bringing the trail fully off the road

Safe

OFF-ROAD - w/ FEW DRIVEWAY INTERUPTIONS

CONNECTED TO TOWN PARKS & AMENITIES

SHADE & LANDSCAPE IN AREAS

Plan that creates a road map to completion with accomplishable milestones that can ensure success.

Increase in Daily-use for Business - Personal Trips

More Fast Traffic in commercial areas

FUNDING

Abroad Re. P. ilities

Connectivity

Multiple Feasible Routes
Cost Estimates
Funding Sources (Breakdowns - Federal, State, County)
Cost local governments be responsible for maintenance

Responsive to Community and Context:
Different priorities for different segments of the corridor based on surrounding community preferences

I would like the trail to include as much of the town as possible

Readily Implementable
Project segments sized according to "right-sized" construction schedule

Grant Funding

Safe

COMMUNITY + STAKEHOLDER INVOLVEMENT

03

OVERVIEW

Community engagement is a critical element of any planning effort to ensure recommendations follow the vision of the people they most impact. For the Johnston County Smithfield to Benson ECG Feasibility Study, a Working Group was developed to guide the planning process, and multiple opportunities for members of the public to provide feedback and be involved with planning the greenway were provided through a public survey and multiple public meetings. Coordination with key area stakeholders, including NCDOT, Upper Coastal Plan Rural Planning Organization, Friends of the Mountains-to-Sea Trail, and each municipality along the corridor, was conducted. The recommendations of this study incorporate the findings from these engagement efforts and seek to provide a feasible greenway route that best meets the needs of Johnston County.

The following sections are included within Chapter 3:

- ◆ Community Engagement Plan
- ◆ Meeting Summaries
- ◆ Community Survey Summary

COMMUNITY ENGAGEMENT PLAN

At the beginning of the study, the project team developed a strategic community engagement plan to coordinate with landowners, host steering committee meetings, stakeholder meetings, and public meetings at regular intervals throughout the planning process. This plan was also used to effectively coordinate with project partners. In addition to outlining future outreach events, this document ensured an equitable public involvement throughout the duration of the project.

Working Group

A Working Group of individuals representing the East Coast Greenway Alliance, North Carolina Department of Transportation (NCDOT), North Carolina Division of Parks & Recreation, Johnston County, Town of Smithfield, Town of Four Oaks, Town of Benson, Johnston Community College, as well as interested citizens, business owners, and local bicycle and pedestrian advocates led the *Johnston County ECG Feasibility Study*. The Working Group provided oversight and guidance throughout the duration of the study.



WORKING GROUP MEMBERS

Ashby Brame, *Johnston County Visitors Bureau / Friends of Johnston County Parks*

Betsy Brown, *Friends of the Mountains-to-Sea Trail*

Austin Cross, *Johnston County Parks, Greenways, and Open Space*

Kat Deutsch, *North Carolina State Parks*

Joseph Furstenberg, *NCDOT Integrated Mobility Division*

Jason & Susan Jennette, *All Out Bikes*

Gary Johnson, *Town of Smithfield Parks & Recreation Department*

Ben Jones, *Friends of the Mountains-to-Sea Trail*

Rashawn King, *Triangle Trails Initiative*

Andrew Meeker, *East Coast Greenway Alliance*

Nick Morrison, *NCDOT Integrated Mobility Division*

Kimberly Pickett, *Town of Benson Town Manager*

Kim Robertson, *Town of Four Oaks Board of Commissioners / Johnston Community College*

Jennifer Roman, *Upper Coastal Plan Rural Planning Organization*

James Salmons, *NCDOT Division 4*

Matt Smith, *Town of Benson Parks and Recreation*

Stephen Wensman, *Town of Smithfield Planning Department*

MEETING SUMMARIES

Throughout the planning process a series of meetings were conducted with a broad range of residents, business owners, stakeholders, and trail users in Johnston County to gain an understanding of the needs of trail users for a greenway facility between Smithfield and Benson. The following pages include a summary of the meetings and engagement activities listed below:

- ◆ Working Group meetings
- ◆ Stakeholder meetings
- ◆ Public meetings
- ◆ Pop-up events
- ◆ Landowner engagement



**SEPT
26
2023**

Working Group Meeting #1

During the first Working Group meeting, held at Four Oaks Town Hall, the project team provided members with an overview of the *Johnston County ECG Feasibility Study* and an analysis of existing conditions along the project corridor. In addition, the team facilitated discussions regarding definitions of success for the project, as well as opportunities and constraints within the study area.

Among the highest priorities of the Working Group members was safety, with a greenway separated from roadway traffic wherever possible. The Working Group also expressed a desire for the greenway to connect to parks, neighborhoods, and community destinations, and to coordinate with the Mountains-to-Sea Trail. Due to the length of the corridor, the project may need to be developed in phases as funding becomes available. Planning for this project may help advance bicycle and pedestrian elements of other planned projects along the corridor.

**NOV
28**

Working Group Meeting #2

The second Working Group meeting was held at the Johnston County Land Use Center on November 28, 2023. During the meeting, the project team presented the refined project goals, community survey findings, and facilitated in-depth discussions surrounding preliminary routes. Additionally, the team presented the findings from the stakeholder meetings held to-date.

At the meeting, attendees provided feedback on maps that displayed the route segment alternatives. From this feedback, the project team found that several proposed developments and annexations, including parcels near the intersection of NC 27 and NC 50, may provide the opportunity for an additional segment alternative. During the mapping exercise, Town of Benson staff recommended the project team remove segment 7e due to challenges related to construction feasibility and potential landowner coordination. Finally, staff from the Town of Benson provided feedback that work was recently conducted on the CSX railroad. Improvements associated with the railroad construction may benefit the development of a greenway segment south of Downtown Benson.

**FEB
16
2024**

Working Group Meeting #3

Working Group members met for the third meeting at the Johnston County Land Use Center on February 16, 2024. At the meeting, the project team reviewed findings from most recent stakeholder engagement, shared the opportunities and constraints analysis for route segments, and presented route alternatives.

Meeting attendees expressed a desire for a route alternative that limits greenway segments alongside busy roadways such as US-301 to provide the greatest amount of separation between greenway users and vehicles. Railroad crossings were also highlighted as locations which add complexity to the project and create safety hazards for greenway users that should be avoided where possible. The meeting additionally found that future development in Smithfield may provide opportunities to implement segments of the trail sooner, and a planned Town of Smithfield Park is expected to begin construction by 2026.

**JULY
30
2024**

Working Group Meeting #4

The fourth Working Group meeting was held at the Johnston County Land Use Center on July 30, 2024. During the meeting, the project team presented the route alternative decision matrix and preferred route, shared design guidance, and facilitated preliminary discussions about maintenance of the corridor.

At the meeting, attendees provided feedback on the preferred route and connections from it to nearby destinations. The project team answered questions about an anticipated timeline for implementing the greenway corridor, and how it may be constructed in phases depending on various factors.

**SEPT
05
2024**

Working Group Meeting #5

Working Group members met for the fifth time online on September 5, 2024. During the meeting, the project team presented cutsheets of the preferred route alternative and covered cost estimates for each proposed segment of the corridor. A discussion about maintenance of the corridor was held, with considerations for how each community may take on its share of the corridor, and the project team provided guidance on implementing and funding the project.

Meeting attendees noted that the Capital Area Metropolitan Planning Organization is in the process of beginning an update to its Metropolitan Transportation Plan, and that NCDOT encroachment guidelines for trails are under development and will be available soon. Representatives from the Friends of the Mountains-to-Sea Trail shared that they typically prefer unpaved trails but will work with communities to implement segments of paved trails where desired. The implementation of the corridor may be further prioritized through subsequent planning efforts, and the County is attempting to be opportunistic on all phases.

**MON
XX
2024**

Working Group Meeting #6

Stakeholder Meetings

The project team conducted several meetings with the following key area stakeholders and potential implementation partners to gather local insight and guidance on route development for the greenway: NCDOT, Town of Smithfield, Town of Four Oaks, Town of Benson, Johnston County Public Schools, Johnston County, Johnston Community College, East Coast Greenway Alliance, and Friends of the Mountains-to-Sea Trail.

**NOV
1
2023**

NCDOT Division 4

Representatives from NCDOT Division 4 met with the project team to discuss preliminary route alternatives, as well as nearby STIP and bridge program projects. Select findings from the meeting are presented to the right. Several of the bicycle and pedestrian project improvements listed would require additional coordination with NCDOT. Key findings are summarized below.

- ◆ STIP Project I-5974 (I-95/US-701/NC-96 Interchange Project): Any shared use path modifications would require additional coordination with the railroad which may delay the project.
- ◆ I-95 Bridge over Neuse River (bridge replacement): A multi-use path will be constructed under the bridge to accommodate the MST route as part of the project.
- ◆ US-301 Bridge over the Neuse River adjacent to the Smithfield Flea Market (bridge replacement) – A multi-use path will be constructed along the bridge to accommodate the MST/ECG route.
- ◆ US-301 Bridge over Holt Lake (bridge replacement): A multi-use path will be constructed along the bridge to accommodate the MST/ECG route.
- ◆ STIP Project R-5761 (NC-242 Roadway Improvement): The bridge over I-95 could potentially be modified to accommodate a sidepath along the bridge.
- ◆ Bridge along NC-1178/Keen Rd over I-95 South of Four Oaks could be resurfaced to accommodate a sidepath.
- ◆ US-301/Wall St project in Benson has potential for a road diet (4-lane to 3-lane conversion), but it will depend on traffic volumes.
- ◆ US-301 2026 HMIP Resurfacing Project (Harnett County to US-701): The project team will coordinate with the Division Maintenance Office to evaluate a road diet.

**NOV
2**

Town of Smithfield

Representatives from the Town of Smithfield met with the project team to discuss preliminary route alternatives and local constraints that may impact greenway development and route selection. Key findings are summarized below.

- ◆ The preliminary route will be adjusted to connect to the future town park. The connector will also extend between Johnston Community College and Market St.
- ◆ The Holt Lake bridge replacement will include a multi-use path.
- ◆ The Town is conducting a resiliency project on Spring Branch and will share the findings with the team.
- ◆ The I-95 bridge over the Neuse River will contain an underpass section that may allow a trail underneath.

**NOV
6**

Johnston County Public Schools

The project team shared the preliminary routes with representatives from Johnston County Public Schools. The route currently passes six schools in the County. There are no plans to route the greenway directly through school properties. Key findings are summarized below.

- ◆ Schools must take safety measures into consideration if greenways are planned adjacent to or located on school property.
- ◆ Schools will not be promoted as trailheads or provide dedicated parking to the greenway.
- ◆ Several 1-mile walksheds around schools do not receive school transportation.
- ◆ Parks and schools within a 10-minute walk should be considered for greenway routing.
- ◆ The Innovation Academy recently constructed a greenway connecting to the splashpad.
- ◆ School programs focusing on health and recreation that may benefit to expanded access to the greenway.
- ◆ The greenway route should not go through school properties to avoid fencing.
- ◆ Several schools have outdoor walking trails on their campuses (Four Oaks and South Johnston High).

**NOV
7**

Town of Benson

Representatives from the Town of Benson met with the project team to discuss preliminary route alternatives and local constraints that may impact greenway development and route selection. Key findings are summarized below.

- ◆ Within the Town, the main concern is avoiding a grade-separated crossing of the railroad if possible.
- ◆ The Town recently approved a residential subdivision adjacent to the middle school. Walking/recreation facilities may be included in the design.
- ◆ The team should explore a new connection to the south, connecting the middle school, park, and nearby low-income neighborhoods.
- ◆ At the county level, stakeholders are supportive of connections between new development and the ECG.

**NOV
8**

Johnston County

Representatives from Johnston County met with the project team to discuss preliminary route alternatives and local constraints that may impact greenway development and route selection. Key findings are summarized below.

- ◆ The wastewater treatment plant in Smithfield has concerns with flooding and access.
- ◆ The County will allow greenways to use or cross its utility easements, provided maintenance access to the utility is not impaired. Existing cover of three feet above the utility must be maintained.
- ◆ A private landowner across from the wastewater treatment plant has concerns with trespassing and would likely not support alignments on the west side of the Neuse.
- ◆ Mile markers should be installed on the greenway to improve safety measures for greenway users.
- ◆ The County would like the greenway to be paved to a minimum width of 12 feet.

**NOV
13**

Trail Partners

Representatives from NC State Parks, East Coast Greenway Alliance, and Friends of the Mountains-to-Sea Trail joined to provide input on the preliminary route alternatives. Key findings are summarized below.

- ◆ State-designated trail facilities must be physically separated from vehicular travel.
- ◆ Landowner coordination for the Black Creek area may pose a greater challenge than existing natural environmental constraints.
- ◆ The proposed connector south on Keen Rd was not assessed in depth because it is difficult to cross I-95 twice. Attendees want the project team to reassess a route along Keen Rd to make connections to the MST.
- ◆ The project team will review ECGA's new design guidance document once it has been finalized.
- ◆ Flexible delineators may be considered if the greenway routes along a bridge.

**JAN
8
2024**

Town of Four Oaks

Representatives from the Town of Four Oaks met with the project team to provide input on the preliminary route alternatives and local constraints which may impact greenway development and route selection. Key findings are summarized below.

- ◆ The Town prefers alternatives which route through central or southern Four Oaks over alternatives to the north.
- ◆ Multiple residential developments on the north side of Four Oaks are planned which may impact the ability to create a greenway.
- ◆ Four Oaks is looking at grant funding options for acquiring and building a proposed park adjacent to Four Oaks Middle School.
- ◆ Greenway design standards and ordinances may be updated in the near future as part of a Townwide ordinance update, and will likely be closely aligned with ordinances and standards from Johnston County.

**APR
16**

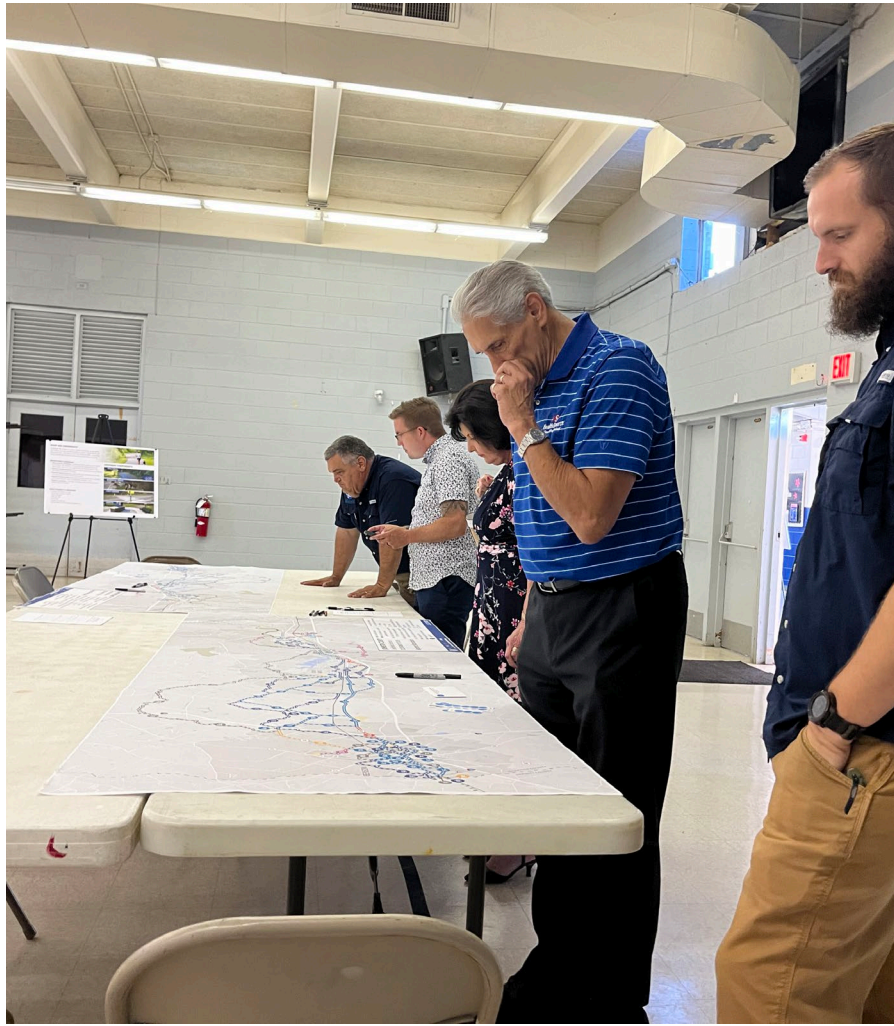
NCDOT Rail Division

The project team met with representatives from the NCDOT Rail Division to discuss the relationship of preliminary route alternatives to the railroad corridor and necessary treatments for crossings. Key findings are summarized below.

- ◆ A path wider than 5 feet at a railroad crossing would require additional crossing equipment and safety features, adding significantly to the cost.
- ◆ People should be encouraged to cross at established trail crossings with safety features in place.
- ◆ NCDOT Rail Division discourages the use of pedestrian crossing gates at rail crossings.

Public Meetings

Three public meetings were held for the project in June 2024, bringing the project team to each community along the proposed route to engage with residents and visitors, provide information, and answer questions about the project.



**JUN
4**

Benson Public Meeting

An open house meeting was held at the Benson Parks and Recreation Department and attracted residents who shared feedback about a desire to include off-road greenway segments while still connecting to community destinations.

**JUN
18**

Four Oaks Public Meeting

Residents attended a meeting at the Four Oaks Town Hall where they voiced concerns with impacts to private property and routing along US-301 near high-speed traffic. Attendees expressed support for improving pedestrian connections to downtown Four Oaks.

**JUN
25**

Smithfield Public Meeting

Attendees of a public meeting held at the Smithfield Recreation & Aquatics Center expressed a desire to see the trail completed soon to provide connectivity to trails in other communities and to route away from roadways where possible.

Pop-Up Events

The project team set up a booth at the Ham & Yam Festival in downtown Smithfield on May 4, 2024, where they shared information about route alternatives for the proposed greenway and answered questions about the project. Members of the public expressed a general support for more greenways and active transportation facilities in Johnston County.



COMMUNITY SURVEY SUMMARY

The project team conducted a community survey for the *Johnston County ECG Feasibility Study* between October 9 and November 13, 2023, via Publicinput.com. The survey attracted 483 participants, who collectively contributed 534 comments.

The project team distributed the community survey to accomplish the following goals:

- ◆ Introduce the project and gauge public support.
- ◆ Solicit and compile public comment on destinations, opportunities and challenges, user preferences, and route preferences.
- ◆ Fulfill requests for information.
- ◆ Develop an email contact list for interested parties.

The survey contained three sections: project-specific questions, interactive mapping questions, and optional demographic questions. Public feedback is summarized below by question. Overall, the comments collected were generally positive and provided critical insight into community preferences influencing the development of the project.

Key takeaways from the community survey include the following:

- ◆ Most survey respondents currently use greenways for health and exercise (74%) or recreational purposes (67%).
- ◆ The greatest barriers to using greenways in Johnston County are a lack of safe biking and walking connections to and from existing greenways (45%) and personal safety concerns (30%).
- ◆ Survey respondents would use the proposed ECG segment for longer trips, including 30 percent who would make trips of 10 or more miles.
- ◆ A route that provides connections between existing greenways is

more important to survey respondents than a route that is the most cost-effective or most direct, and many respondents voiced concern about a route situated alongside or crossing busy corridors like US-301.

- ◆ Survey respondents in southern Johnston County would like to have a greenway that is closer to them than existing greenways in Smithfield and Dunn, and survey respondents would also like existing greenways in Smithfield to be connected to the greater Raleigh network and the Neuse River Trail.
- ◆ In the future, survey respondents would like to use the proposed ECG segment to access destinations such as shops and restaurants, access natural areas such as the Neuse River, and to accommodate camping and rest stations for users of the MST.

Key quotes:

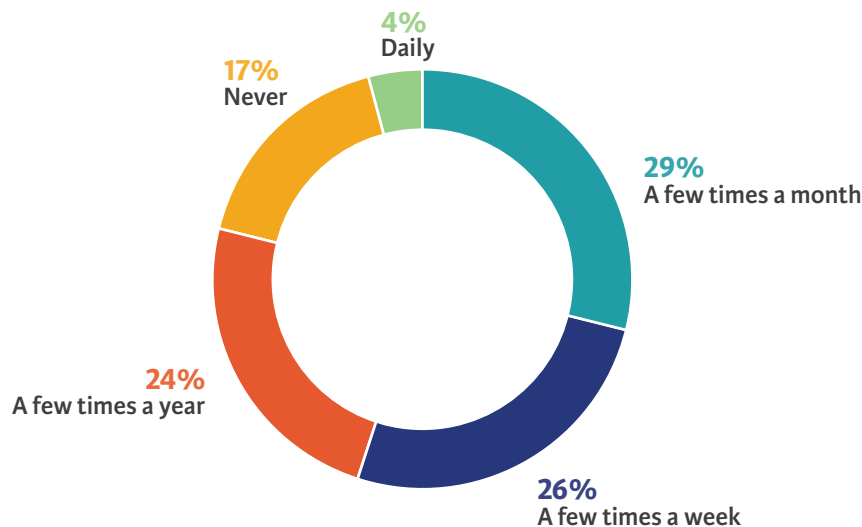
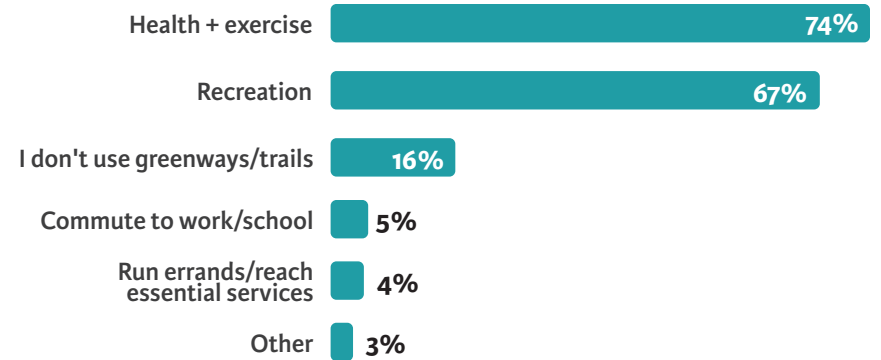
- ◆ *“I see people walking / biking on Brightleaf Blvd all the time and it is so dangerous. We need more infrastructure to help them get to town / work / the grocery store without getting hit by cars.”*
- ◆ *“Having an interconnected greenway from Benson to Raleigh would bring a lot of cyclists. I have to ride on the road now around Benson and would prefer not to but have no other option. It’s dangerous for me and frustrates drivers.”*
- ◆ *“Bring it on. Let’s connect our towns via greenways and safe passages for walkers and bikers. It’s healthy and it’s green!”*
- ◆ *“It is not feasible to drive to Smithfield from the southern part of the county to get on a greenway. This proposed project would make it worth using!”*

How do you currently use greenways and trails in Johnston County? *Select all that apply.*

The majority of survey respondents use greenways and trails in Johnston County for health and exercise (74%) and for recreation (67%), while 16 percent do not use greenways and trails. Some respondents also reported that they use greenways and trails to commute to work or school (5%), run errands or reach essential services (4%), or for other purposes (3%).

Select comments:

- ◆ “Multi day bike tours.”
- ◆ “Family fun.”
- ◆ “There are none near me in downtown Benson.”
- ◆ “Training for marathons.”
- ◆ “There are no greenways nearby to use.”
- ◆ “Does not connect to Benson.”



How frequently do you use greenways and trails in Johnston County?

Survey respondents enjoy using greenways and trails in Johnston County, with 29 percent reporting they use greenways a few times a month. An additional 26 percent use greenways a few times a week, and 24 percent reported using greenways a few times a year. Seventeen percent (17%) of respondents never use greenways and trails in Johnston County, while four percent (4%) use greenways daily.

What activities do you participate in along greenways and trails in Johnston County? *Select all that apply.*

Walking is the most popular greenway activity reported by survey respondents, with 71 percent of respondents indicating they walk on greenways and trails in Johnston County. Other popular activities include biking (55%), running or jogging (35%), activities with children and family (34%), nature viewing or birding (33%), dog walking (33%), and hiking (30%). Fifteen percent (15%) of respondents reported that they do not use greenways and trails, while 14 percent use greenways and trails for accessing blueways such as the MST paddle route.

Select comments:

- ◆ “Things I’ve done on other greenways that I would do if this one was completed!”
- ◆ “There are no greenways nearby to use.”

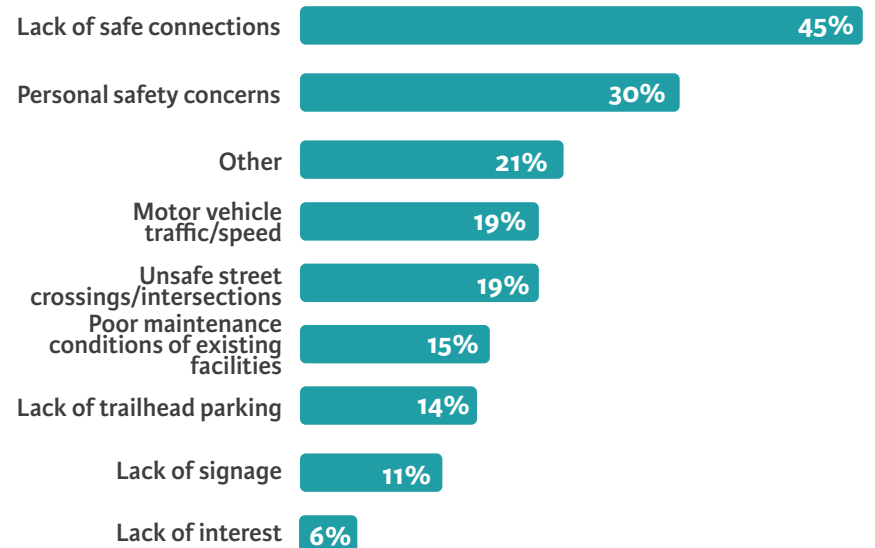


What factors discourage you from using greenways and trails in Johnston County? *Select all that apply.*

Forty-five percent (45%) of respondents selected a lack of safe biking and walking connections to and from existing greenways and trails as a factor discouraging greenway and trail usage in Johnston County, while 30 percent indicated personal safety concerns discourage them from using greenways. Twenty-one percent (21%) of respondents reported other barriers to greenway usage, while other factors reported include motor vehicle traffic and speed (19%), unsafe street crossings and intersections (19%), poor maintenance conditions of existing greenways and trails (15%), lack of parking at trailheads (14%), and lack of signage and wayfinding (11%). A lack of interest was selected by the fewest number of respondents, with only six percent (6%) indicating this discourages them from using greenways and trails.

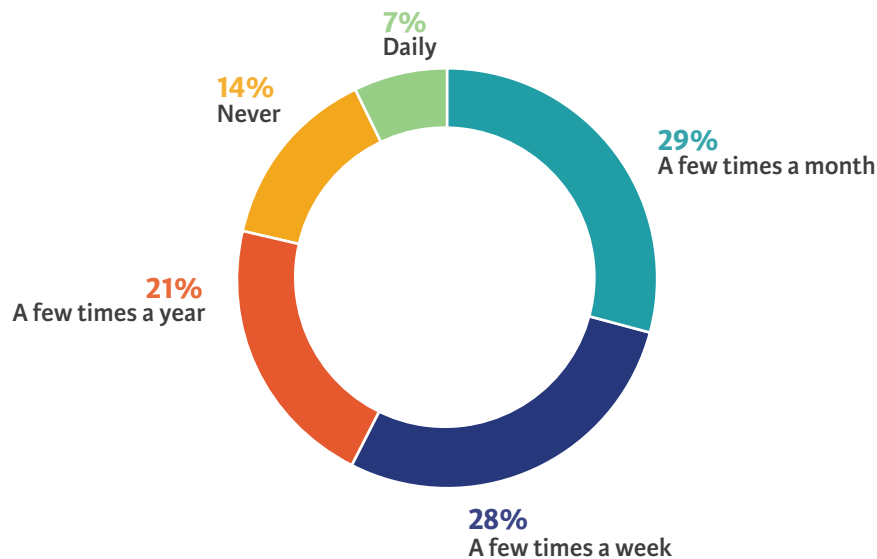
Select comments:

- ◆ “There are no greenways near me in Benson. It’s too long of a drive to go to Smithfield or Clayton. We need this in Benson!!!”



How frequently would you use the Smithfield to Benson ECG once it is constructed?

Survey respondents would use the proposed Smithfield to Benson ECG regularly, with 29 percent indicating they would use the greenway a few times a month, 28 percent indicating they would use it a few times a week, and 21 percent indicating they would use it a few times a year. Fourteen percent (14%) do not plan to use the proposed greenway, while seven percent (7%) reported they would use it daily.



What activities would you participate in along the Smithfield to Benson ECG once it is constructed? *Select all that apply.*

Walking and biking are the activities that the greatest number of survey respondents plan to participate in once the proposed greenway is constructed, selected by 76 percent and 61 percent of respondents, respectively. Many respondents would also like to use the greenway for running or jogging (36%), hiking (36%), nature viewing or birding (36%), activities with children or family (36%), dog walking (35%), and access to blueways for water activities (18%). Ten percent (10%) of respondents do not plan to use the proposed greenway once it is constructed.

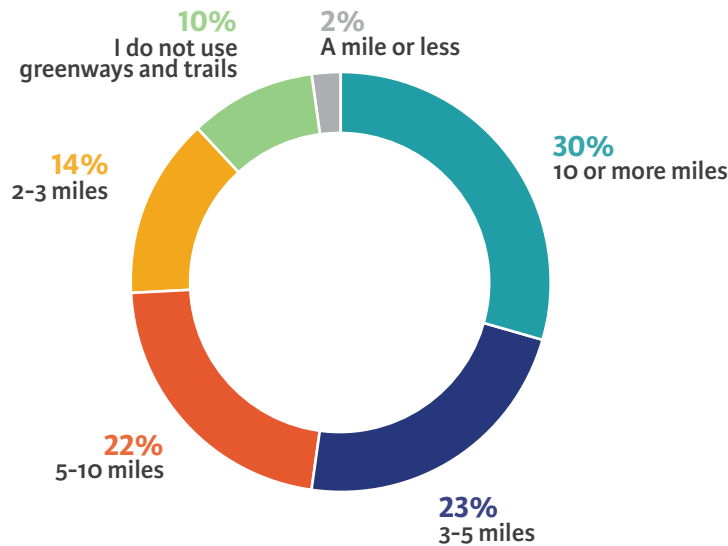
Select comments:

- ◆ “Backpacking if camping is allowed.”
- ◆ “Bike to work.”



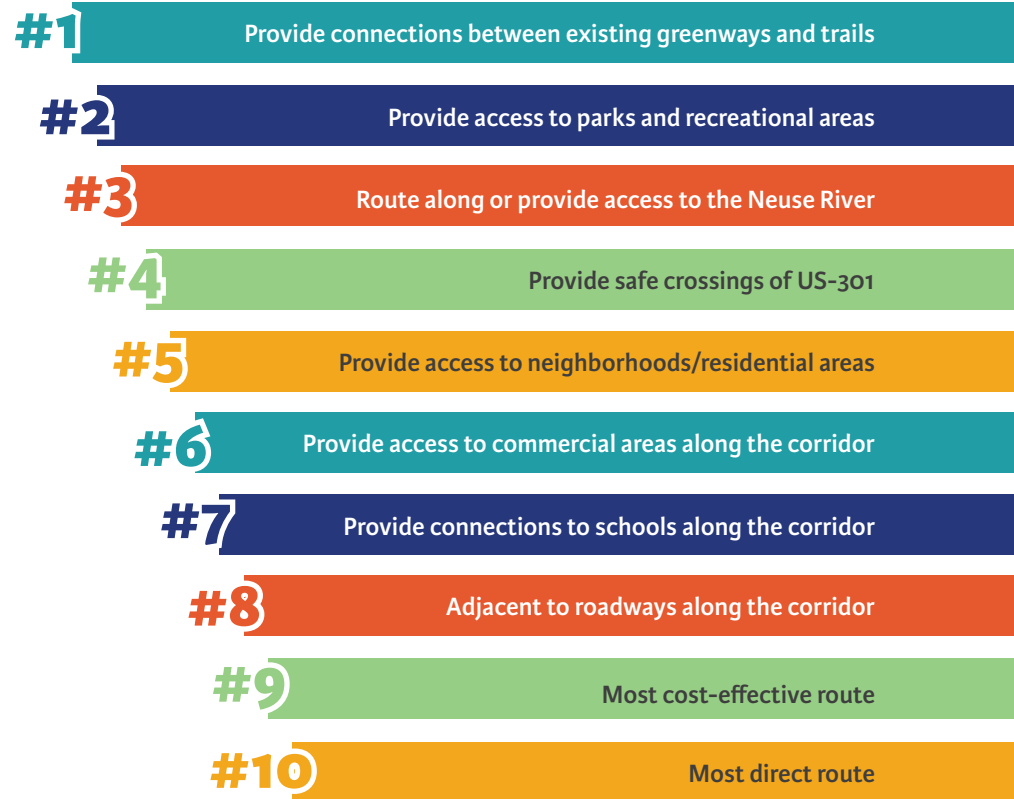
On average, how long of a distance would you be willing to travel along the proposed Smithfield to Benson ECG as a part of a trip or activity?

Survey respondents would be willing to travel long distances using the proposed ECG, with the largest group (30%) indicating they would use the greenway for trips of 10 or more miles. Many other respondents would use the greenway for trips of multiple miles, with 23 percent indicating they would travel 3-5 miles on the greenway and 22 percent indicating they would travel between 5 and 10 miles. Fewer respondents would travel 2-3 miles (14%), do not use greenways (10%), or would travel a mile or less (2%).



Rank your most important routing preferences for the proposed Smithfield to Benson ECG? Rank from 1 (most important) to 10 (least important).

Survey respondents prefer a route that provides connections between existing greenways and trails to facilitate longer trips by walking and biking. Additional priorities for the Johnston County community include a route that provides access to parks and recreational areas (ranked 2nd), a route that follows or provides access to the Neuse River (3rd), and a route that provides safe crossings of US-301 (4th). The lowest priorities of the community are a route that is the most cost-effective (ranked 9th) and most direct (10th).

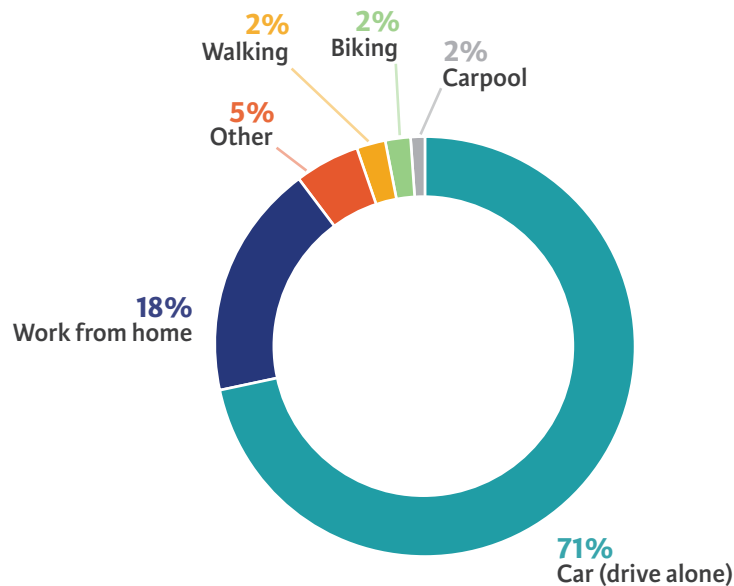


What is your primary mode of transportation for commuting to work and/or school?

The primary mode of transportation for commuting to work or school is by car for 71 percent of survey respondents. An additional 18 percent of respondents indicated they work from home and do not have a regular commute. Two percent (2%) of respondents selected either walking, bicycling, or carpooling as their primary mode of transportation. Five percent (5%) of respondents chose other options, including some who are retired and do not commute.

Select comments:

- ◆ “Retired.”
- ◆ “None.”
- ◆ “Power wheelchair.”

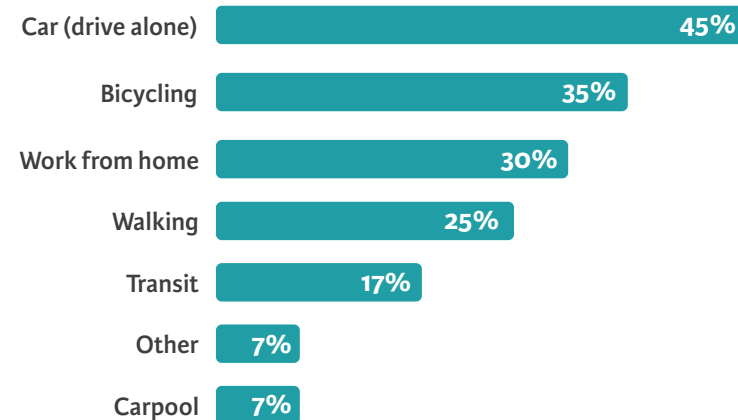


Now consider your desired commute in the future. Which modes would you like to use? *Select all that apply.*

When asked which modes they would like to use for commuting in the future, survey respondents expressed a desire for more diverse commuting options. Forty-five percent (45%) of respondents would prefer to commute by car, while 35 percent of respondents would like to commute by bicycling. Working from home was selected by 30 percent of respondents, while a quarter (25%) of respondents would like to walk and 17 percent would like to use transit for commuting. Seven percent (7%) each selected carpooling and other commuting options.

Select comments:

- ◆ “Retired.”
- ◆ “None.”
- ◆ “Power wheelchair.”
- ◆ “Home bound.”
- ◆ “No desire to commute.”



What do you think would increase trail usage or bring new users to greenways and trails in Johnston County?

Select comments are highlighted below.

“Greenways encourage recreation, health and wellness with most enjoying the outdoors and family time. Longer and most accessible routes encourage the use more frequently.”

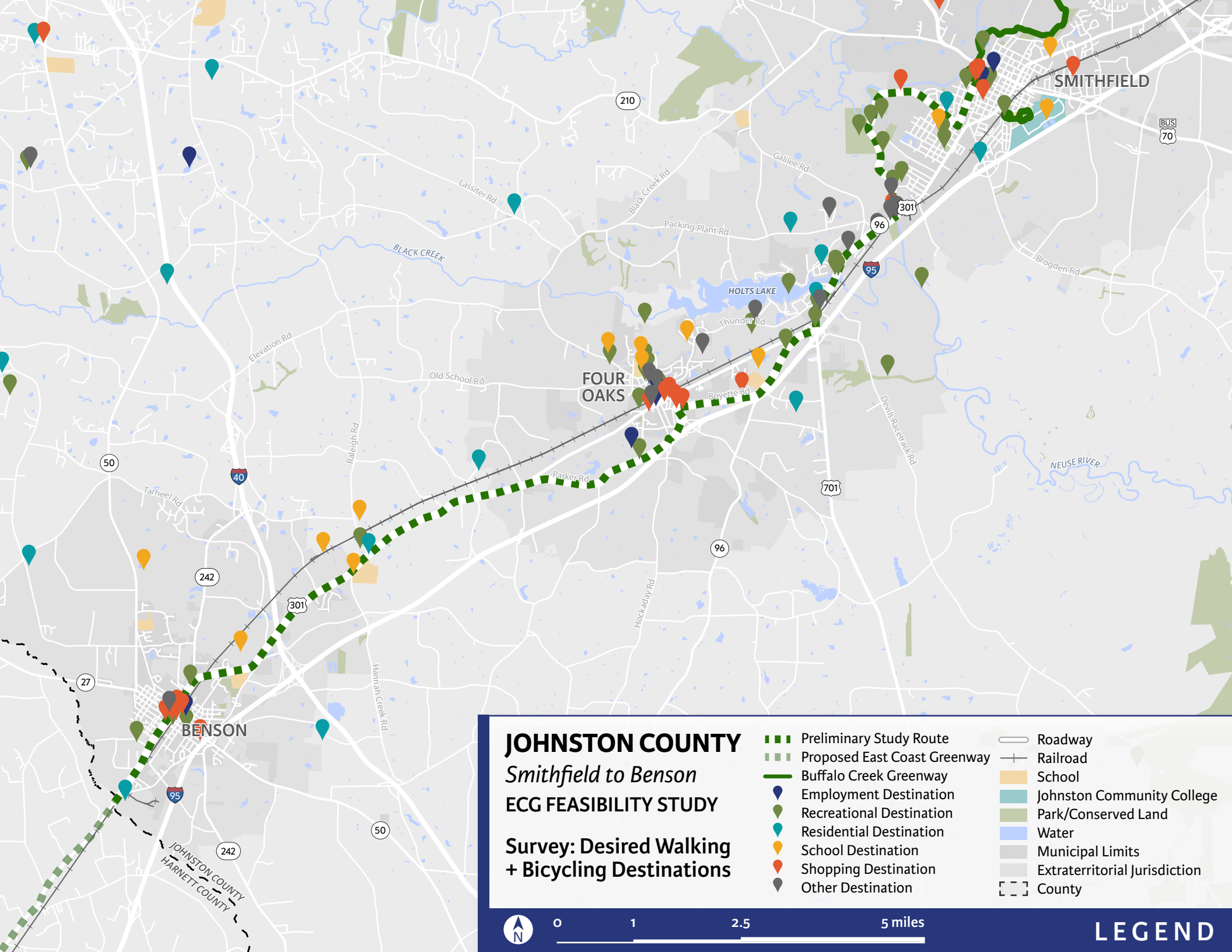
“It is not feasible to drive to Smithfield from the southern part of the county to get on a greenway. This proposed project would make it worth using!”

“This would bring more bicycle tourism into JoCo. Bicycle touring is a growing international activity.”

“Road crossings are a huge one. But overall better access to trails and working with new developments that are being built to coordinate access from those developments to current/planned trails.”

“Primarily I go to greenways in Wake County because they are closer to home and a wide variety. Being able to safely walk near my home has been one of my biggest negatives to living in the McGees/Cleveland area. I don't want to have to drive 30-30 minutes just to walk safely.”

“It would be a major amenity to have a trail system from Smithfield to Benson. There should definitely be stopping points as most would not walk the entire trail.”



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

**Survey: Desired Walking
 + Bicycling Destinations**

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- Employment Destination
- Recreational Destination
- Residential Destination
- School Destination
- Shopping Destination
- Other Destination
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



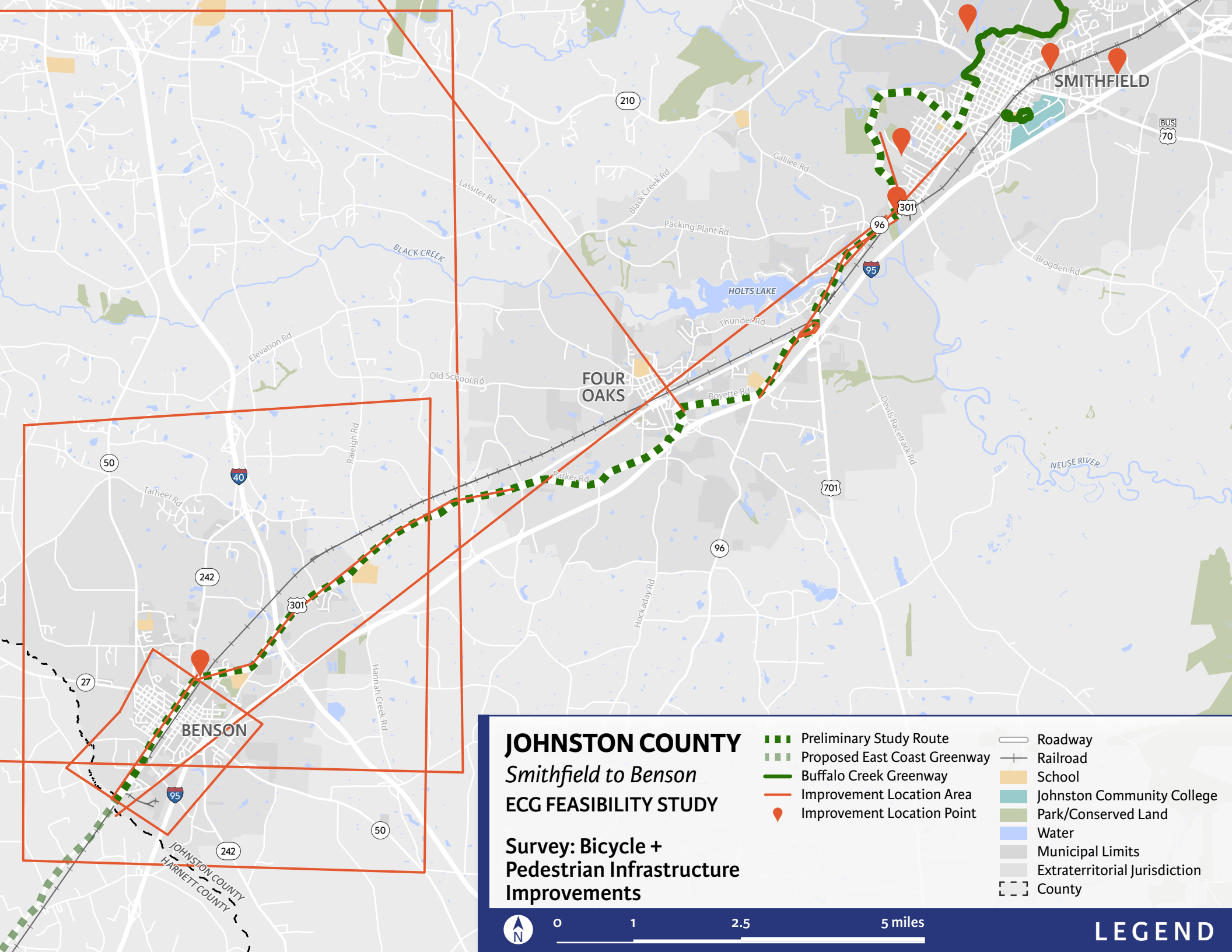
LEGEND

Mark destinations that you would like to access via the proposed Smithfield to Benson ECG corridor.

Survey respondents identified recreational destinations across the study corridor, with concentrations around Four Oaks, Holts Lake, and the Neuse River. Residential destinations were marked in rural areas north of Four Oaks and Benson. Clusters of shopping destinations were identified in the downtowns of Benson and Four Oaks, as well as around Smithfield. Educational destinations were marked near South Johnston High School, Four Oaks Elementary School, South Smithfield Elementary School, and Johnston Community College. Work destinations were identified in the downtowns of Benson, Four Oaks, and Smithfield. Respondents marked additional destinations around Baker St in Four Oaks, Thunder Rd, and the Brightleaf Flea Market.

Select comments:

- ◆ “Nice area to enjoy the outdoors, local wine and food.”
- ◆ “Nice area to relax and enjoy the outdoors.”
- ◆ “Connection to the Clayton Greenway would be ideal.”
- ◆ “Biking along the river.”
- ◆ “If you’re going to follow a roadway, why not 1183 / Thunder Road?”
- ◆ “Four Oaks would make a great place for rest along the route.”
- ◆ “Great location for recreation/REST spot!”
- ◆ “Connect to the college.”
- ◆ “Bring further into Benson using trail connectors.”
- ◆ “Use this location to make connectors to environmental assets to the southeast.”
- ◆ “Redevelop for restaurant or bar.”
- ◆ “95 and 301.”
- ◆ “Extend the trail so it goes to the outlets.”
- ◆ “People can stop off for drinks and lunch.”
- ◆ “Or add a connector trail here that connects to the proposed trail.”
- ◆ “Add a connector trail over here.”
- ◆ “Consider a spur trail to Four Oaks Business Park and invite companies to invest in it. The trail will (1) attract & retain employees, and will (2) lower employee healthcare costs.”



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

**Survey: Bicycle +
 Pedestrian Infrastructure
 Improvements**

- Preliminary Study Route
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- Improvement Location Area
- Improvement Location Point
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Mark areas (streets, intersections, neighborhoods, etc.) that need the most pedestrian and bicycle infrastructure improvements along the proposed Smithfield to Benson ECG corridor.

Survey respondents expressed concern with US-301 as a corridor for walking and biking, and identified locations where bicycle and pedestrian infrastructure improvements are most needed along the proposed greenway corridor. Segments of US-301 between Four Oaks and Smithfield, including the Neuse River crossing, were a key focus of community feedback. Several comments associated with the lines on the map (see left) identified the Benson area as an additional location in need of improvements. Respondents marked locations in Smithfield they would like to be able to walk and bike to, including Food Lion, Johnston Community College, and the outlet center.

Select comments:

- ◆ “This area is about to explode with growth and now is the time to make infrastructure changes that people are going to need. The days of tobacco fields are over, just a useless crop.”
- ◆ “This area of town is sorely lacking green spaces and the extension of the greenway along the river will not only help with that, but also connect residents here to other green spaces downtown.”
- ◆ “I see people walking / biking on Brightleaf Blvd all the time and it is so dangerous. We need more infrastructure to help them get to town / work / the grocery store without getting hit by cars.”
- ◆ “Bike /Ped infrastructure is important along the entire project area, but I understand funding wouldn't allow that. Focus on the higher density areas to support good access for the higher populated areas.”
- ◆ “The entire Benson to Smithfield area needs better trails for biking!”
- ◆ “I would bike to Food Lion.”
- ◆ “Between Raleigh Road and Hannah Creek Road, this is a very busy stretch during school morning & afternoon rush.”
- ◆ “To avoid the dangerous US301, US701, and I95 interchange, perhaps consider running the trail down Thunder Road to pick up US 301 near Corinth Methodist Church.”
- ◆ “This is already a congested vehicle interchange and will be even more dangerous for pedestrians and cyclists.”



EVALUATION + RECOMMENDATIONS

04

OVERVIEW

Analysis of existing conditions and feedback from the Working Group, stakeholders, and the public informed the development and evaluation of route alternatives for the Smithfield-Benson ECG corridor, as well as recommendations for greenway design, intersection and crossing treatments, and policies and programs to support the project. This chapter details considerations for the selection of a preferred route alignment.

The following sections are included within Chapter 4:

- ◆ Evaluation Criteria
- ◆ Alternatives Development
- ◆ Decision Matrix + Scoring
- ◆ Preferred Alternative
- ◆ Design Guidance

EVALUATION CRITERIA

Evaluation criteria were developed to help guide the decision-making process to determine the most appropriate alignments for the Smithfield to Benson ECG corridor. The following thirteen evaluation criteria were used to guide the recommendations for the greenway:



Route Alternative Selection Criteria

- ◆ **Physical Feasibility:** The ability to successfully engineer, permit, construct and maintain each alternative is a critical consideration for determining realistic options for the route alternative, especially as it relates to any crossings of the Neuse River, Interstate 40 or 95, and CSX Rail Corridor.
- ◆ **Connectivity + Accessibility:** In order to maximize use of the facility, determining which route alternatives connect popular origins and destinations identified by the public and other stakeholders is considered. Ensuring that route alternative considers first/last-mile approach, removes barriers connecting people to affordable housing, improves access to transit, improves access to daily destinations, and meets equity goals.
- ◆ **Community Priorities:** To ensure consistency with public preferences and existing plans, goals identified in previous planning efforts and feedback from public engagement/stakeholder outreach activities are utilized to evaluate the route alternative.
- ◆ **Cost:** The magnitude of the total life-cycle cost for each alternative (including design, construction and ongoing maintenance) is a significant factor in determining which alternative to implement.
- ◆ **Environmental Impacts:** The ability of each alternative to minimize impacts to streams, wetlands and other jurisdictional features (including associated buffers, floodplain elevations, and other environmental factors) during construction and operation of the proposed facility is also considered. The ability to improve resilience, protect wildlife, and align with decarbonization plans.
- ◆ **User Experience:** Convenience of use and accommodation for users of all ages and abilities is a significant consideration to ensure the ultimate route alternative is a community amenity designed for universal use.
- ◆ **Property Impacts:** Real estate acquisition can play a major role in project cost and schedule. The ability of the route alternatives to utilize publicly-owned properties, existing easements, public ROW, and limit impacts to privately property owners is considered.
- ◆ **Potential Funding Opportunities:** Given the importance of securing funding from a variety of potential sources, the diversity, total amount, and likelihood of receiving funding available to each alternative is considered.
- ◆ **Placemaking:** The potential ability of the route alternatives to help drive tourism, contribute to the local economy, and brand the surrounding area by as one that promotes healthy, active lifestyles is also considered.
- ◆ **Leadership Support:** The depth of support from governmental agencies and elected officials for each route alternative, as well as whether there is a clear project sponsor to champion the route alternative through implementation, is an important factor for ensuring successful project completion.
- ◆ **Traffic Impacts:** The magnitude of vehicular traffic impacts by the ultimate design of each route alternative, in particular, segments which recommend a road diet, and associated temporary impacts during the construction process is considered.
- ◆ **Safety Benefits:** The project targets a well-known safety problem and incorporates innovative design and technology aimed to improve health and safety of vulnerable roadway users.
- ◆ **Implementation Timeframe:** The time it takes to plan, fund, design, and ultimately construct each route alternative is important to consider, especially in conjunction with community priorities, as they relate to a tolerable timeframe for project completion.

ALTERNATIVES DEVELOPMENT

Individual route segments were identified for feasibility evaluation. The alignment of these segments were determined by a variety of factors, including, but not limited to, ROW availability, environmental constraints, access to the Neuse River, and connectivity to local municipalities and destinations. A key piece of the feasibility study is the opportunities and constraints analysis, which identifies factors that may enable easier implementation as well as other issues which may create additional barriers to trail development.

From the segments studied, the study team developed four recommended route alternatives from combinations of those segments. These routes were informed by the opportunities and constraints analysis, input from the project Working Group, engagement with area stakeholders and key landowners, and feedback from the community input session. These routes were analyzed for feasibility in additional detail to identify a preferred alternative.

ROUTES STUDIED

The four routes evaluated are identified as:

Route Alternative 1 - Maximum Greenway

This route alternative was designed to maximize the total length of greenway segments and to avoid sidepath segments along existing roadways where feasible. See pages 134 and 135 for additional information.

Route Alternative 2 - Direct/US-301

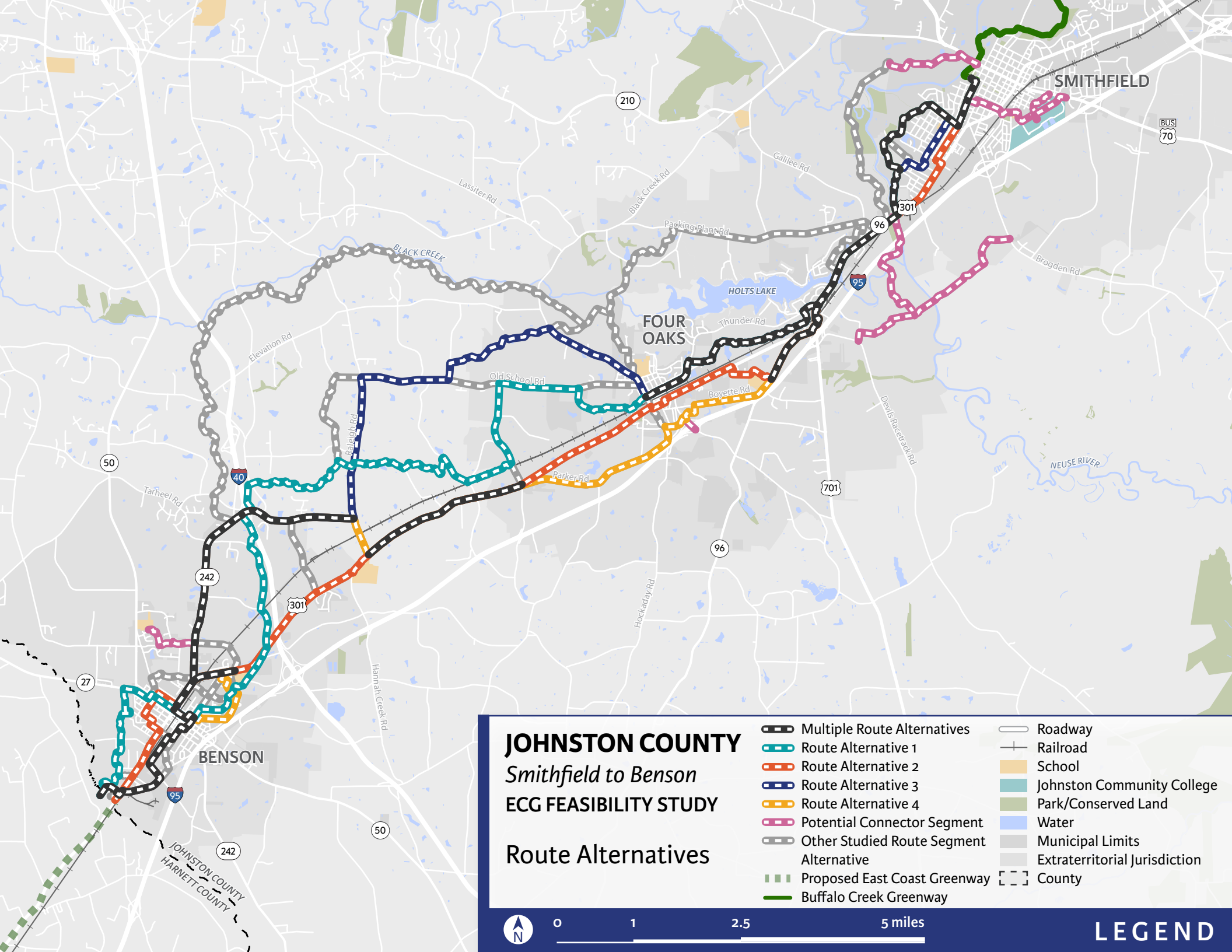
This route alternative was designed to utilize the most direct route, primarily along US 301, and maximize the number of potential complete streets project opportunities. See pages 136 and 137.

Route Alternative 3 - Core Connections

This route was designed to run through the core of the developed areas within the three municipalities (Smithfield, Four Oaks, and Benson) through which the planned ECG route passes. See pages 138 and 139.

Route Alternative 4 - Desired Destinations

This route was designed to provide connectivity to key community destinations, even if these are somewhat removed from the center of the municipalities along the study corridor. See pages 140 and 141.



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Route Alternatives

- | | | | |
|--|---|--|-------------------------------|
| | Multiple Route Alternatives | | Roadway |
| | Route Alternative 1 | | Railroad |
| | Route Alternative 2 | | School |
| | Route Alternative 3 | | Johnston Community College |
| | Route Alternative 4 | | Park/Conserved Land |
| | Potential Connector Segment | | Water |
| | Other Studied Route Segment Alternative | | Municipal Limits |
| | Proposed East Coast Greenway | | Extraterritorial Jurisdiction |
| | Buffalo Creek Greenway | | County |



LEGEND

Route Alternative #1 - "Maximum Greenway"

Segments: 1A > 1B > 1E > 3A > 3B > 3D > 3F > 4D > 4H > 4J > 5B > 5F > 5J > 6A > 6C > 7D > 7E > 8E > 9A

Beginning in Smithfield at Bob Wallace Jaycee Kiddie Park, this route follows S. 2nd St as a bicycle boulevard with sidewalk and turns north onto Wellons St. It then turns west behind existing homes as a greenway, passing in front of the Wastewater Treatment Plant and crossing Huntley St before paralleling the Neuse River along the Brightleaf Flea Market to US 301. From there it turns west as a sidepath, crossing the Neuse on an NCDOT funded bridge replacement project (BR-0086) which will construct a 14 ft sidepath. It continues along US-301, turning onto Thunder Rd (SR 1183), where it begins a greenway segment crossing several private parcels before connecting to the Dawn Ave right-of-way (ROW). There it continues as a sidepath, crossing E. Sanders St (SR 1183) and continuing west to downtown Four Oaks.

From there it follows an existing sewer line from the end of W. Sanders St as a greenway, connecting to the ROW of Hollingsworth Rd (SR 1364) and continuing as a sidepath along Old School Rd (SR 1350) before turning south along Parkertown Rd (SR 1166). It then turns west and follows the CSX Railroad corridor as a greenway (outside of the rail ROW) to Olivers Grove Rd (SR 1353) where it turns north as a sidepath before crossing the road and heading west as a greenway to Camelia Rd (SR 1354). From there it continues west as a greenway towards Stoney Creek, crossing Raleigh Rd (SR 1330) then crossing the creek parallel to the road. From there it follows the creek corridor west to Federal Rd (SR 1331) which it crosses and continues to the I-40 westbound on-ramp ROW towards Woodall Dairy Rd (SR 1356). It crosses at the intersection here, then heads west across the bridge over I-40, repurposing the existing shoulder into a sidepath. It then turns south along the I-40 eastbound on-ramp ROW, and continuing within the I-40 ROW before turning south as a greenway to Tarheel Rd (SR 1168). The route then continues south, crossing the railroad tracks and continuing to US 301, which it crosses and uses the old Honeycutt Rd (SR 1173) ROW and continues as a sidepath to Benson Middle School.

From there it begins a greenway segment through a stream corridor, before connecting to E Branch St as a sidepath. It continues south along N. Johnston St before turning west onto E. Church St, crossing the railroad tracks, then following N. Lincoln St (SR 1360) and turning west on W. Main St (NC 27). The route then turns south into an approved development, widening the proposed sidewalk to sidepath width, and south continuing as a greenway out the back of the development. Continuing as a greenway, it crosses McLamb Tart Rd (SR 1301) and J Lee Rd (SR 1300) before turning west where it crosses a Duke easement before transitioning to boardwalk across Mingo Swamp to the Harnett County Line.

Length: 22.9 miles

(54% greenway / 46% sidepath)

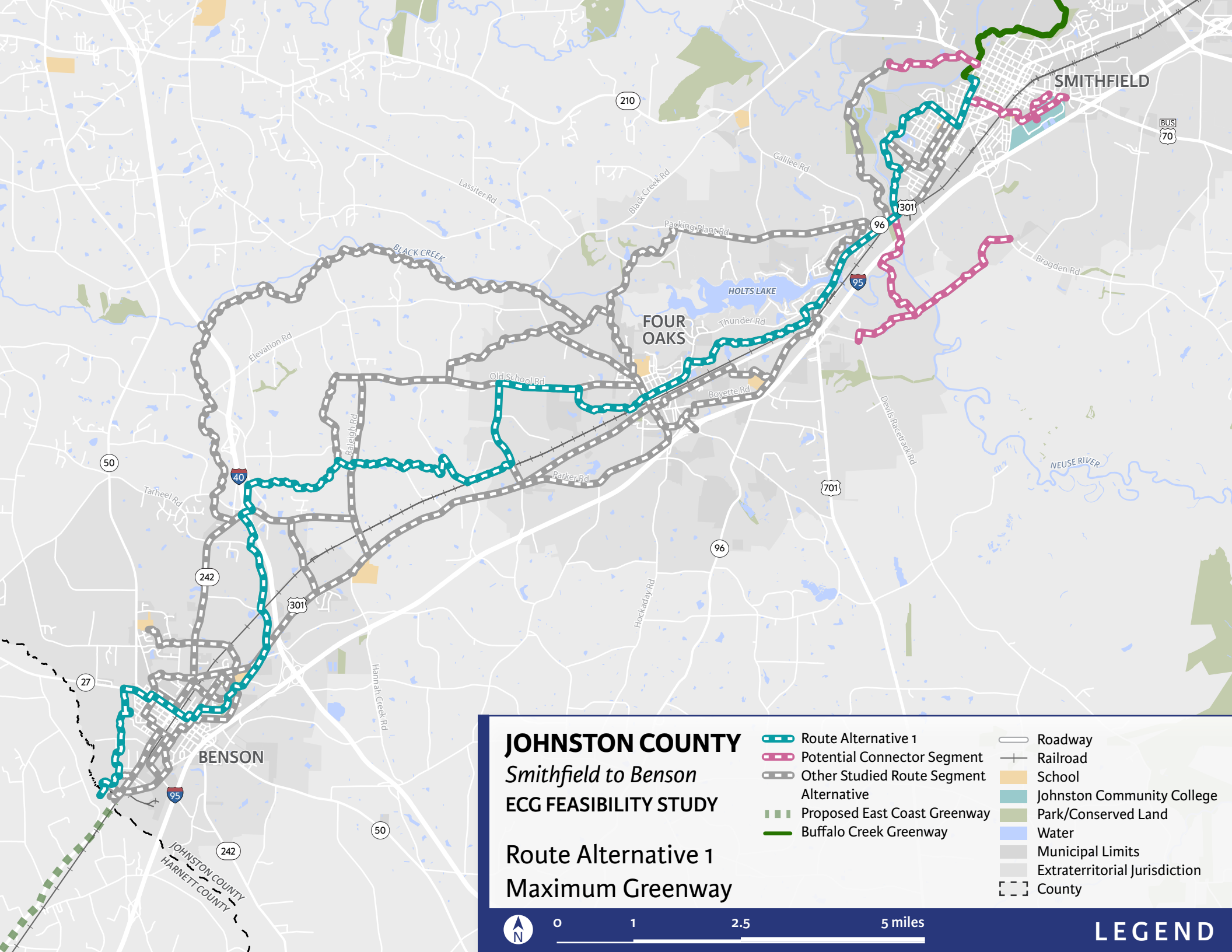
Estimated 2024 Construction Cost:
\$44,700,000

PROS

- ◆ Greatest amount of separation from motor vehicles
- ◆ Provides most access to nature.
- ◆ Unique Placemaking opportunities
- ◆ Uses existing bridge crossing of I-40
- ◆ Greatest safety benefits (crashes/fatalities along route)

CONS

- ◆ Highest Total Cost
- ◆ Most Property Impacts
- ◆ Most Environmental Impacts
- ◆ Some key destinations not reached
- ◆ Fewest Complete Streets opportunities



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Route Alternative 1
Maximum Greenway

- Route Alternative 1
- Potential Connector Segment
- Other Studied Route Segment Alternative
- Proposed East Coast Greenway
- Buffalo Creek Greenway

- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Route Alternative #2 - "US-301/Direct"

Segments: 1A > 1D > 1F > 3A > 3B > 3D > 3G > 3H > 4E > 5C > 5H > 6D > 6E > 7B > 8A > 8C > 9B > 9E

Beginning in Smithfield at Bob Wallace Jaycee Kiddie Park, this route follows S 2nd St as a bicycle boulevard with sidewalk and turns south onto W Wilson St before turning west onto US 301 and continuing as a sidepath. It crosses the Neuse on an NCDOT funded bridge replacement project (BR-0086) which will construct a 14' sidepath. It continues as a sidepath along US 301, navigating the proposed STIP project at the interchange of I-95/US 301/US 701 and crossing the CSX Railroad Corridor as a separate pedestrian bridge. It continues as a sidepath along Boyette Rd (SR 1182) to Four Oaks Middle School, using a proposed town park parcel to connect as a greenway to Harper Ave public ROW. It then continues as a sidepath along US 301 into downtown Four Oaks, before turning off onto town-maintained Woodall St to avoid constrained building setbacks along US 301.

From there it continues west as a sidepath along US 301, connecting along the entrance to South Johnston High School. It then reaches I-40, which it crosses as a separate pedestrian bridge, parallel to the existing roadway bridge. It follows US 301 into Benson, crossing the CSX Railroad Corridor as a separate pedestrian bridge parallel to the existing roadway bridge, before continuing into downtown Benson along N Wall St (US 301). Upon reaching the constrained building setbacks in Downtown, it turns north widening existing sidewalks and creating a sidepath along W Hill St to S McLamb St, to W Woodall St, to S Ryals St to W Brocklyn St before reconnecting to US 301. From there it continues west as a sidepath, before crossing Mingo Swamp to reach the Harnett County Line.

Length: 17.3 miles

(5% greenway / 95% sidepath)

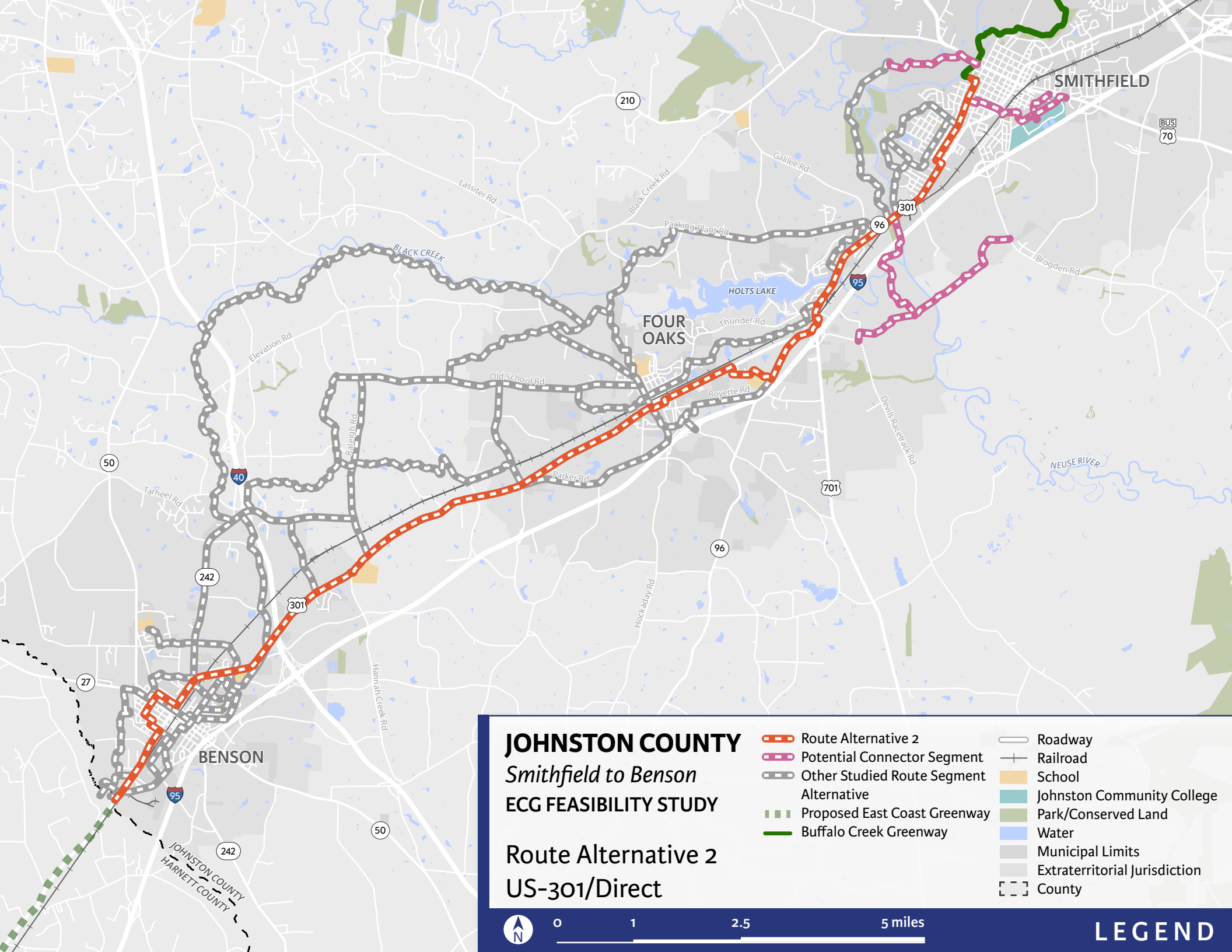
Estimated 2024 Construction Cost:
\$47,700,000

PROS

- ◆ Lowest Total Cost
- ◆ Least Property Impacts
- ◆ Least Environmental Impacts
- ◆ Greatest opportunity to implement through Complete Streets

CONS

- ◆ New bridge construction over I-40
- ◆ Least amount of separation from motor vehicles
- ◆ Least access to nature
- ◆ Fewest Placemaking opportunities
- ◆ Highest construction impact to existing roadways
- ◆ Long/uncertain implementation timeline (for Complete Streets)



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Route Alternative 2
US-301/Direct

- Route Alternative 2
- Potential Connector Segment
- Other Studied Route Segment Alternative
- Proposed East Coast Greenway
- Buffalo Creek Greenway

- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Route Alternative #3 - "Core Connectivity"

Segments: 1A > 1C > 1E > 3A > 3B > 3D > 3F > 3J > 4B > 4G > 5A > 5D > 5G > 5L > 6A > 6B > 7A > 8A > 8E > 9C > 9H

Beginning in Smithfield at Bob Wallace Jaycee Kiddie Park, this route follows S 2nd St as a bicycle boulevard with sidewalk and turns west onto Wellons St then south onto S Vermont St continuing past its terminus as a greenway through a sewer easement. It then crosses Huntley St and continues towards the Neuse River which it follows along the Brightleaf Flea Market property to US 301. From there it turns west as a sidepath, crossing the Neuse on an NCDOT funded bridge replacement project (BR-0086) which will construct a 14' sidepath. It continues as a sidepath along US 301, turning onto Thunder Rd (SR 1183), where it begins a greenway segment which crosses several private parcels before connecting to the public street Right-of-Way (ROW) of Dawn Ave. There it continues as a sidepath, crossing E Sanders St (SR 1183) and continuing west into downtown Four Oaks.

The route then turns north, continuing as a sidepath along N Church St, passing Four Oaks Elementary School and turning west onto W Hatcher St (SR 1162) continuing along Black Creek Rd till it reaches the Gum Swamp crossing. From there it continues west as a greenway to Gum Swamp Rd (SR 1349) which it follows south as a sidepath to Old School Rd (SR 1350). It then turns west and continues to Raleigh Rd (SR 1330) continuing south to Woodall Dairy Rd (SR 1356) to the bridge over I-40, where it repurposes the existing shoulder into a sidepath. The route continues south as a sidepath along NC 242, entering Benson from the north.

It continues onto US 301 (N Wall St) as a sidepath, before turning south and crossing the railroad with W Church St and crosses in front of Benson Town Hall, turning south onto N Johnson St. From there it navigates as a sidepath along several local streets: S Johnston St, E Harnett St, S Elm St, and E Brooklyn St before turning onto S Market St (SR 1204) which it follows to Chicopee Rd (SR 1100). The route continues west, crossing the CSX Railroad at grade and crossing US 301 before crossing a Duke Easement and Mingo Swamp before reaching the County Line.

Length: 21.7 miles

(24% greenway / 76% sidepath)

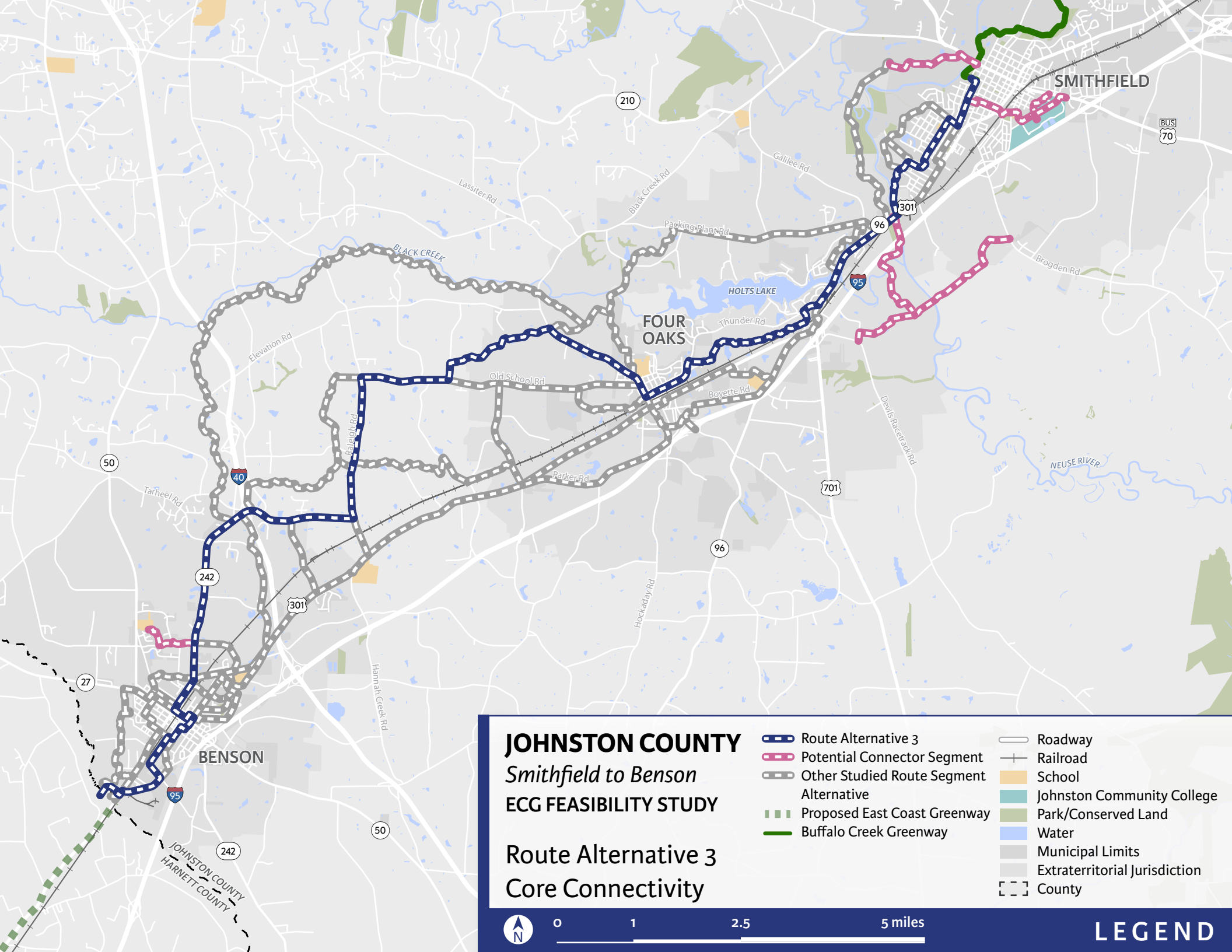
Estimated 2024 Construction Cost:
\$42,700,000

PROS

- ◆ Lowest cost per mile
- ◆ Provides greatest connectivity through the center of towns
- ◆ Most placemaking opportunities
- ◆ Uses existing bridge crossing of I-40

CONS

- ◆ Some key destinations not reached
- ◆ Few Complete Streets opportunities



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Route Alternative 3
Core Connectivity

- Route Alternative 3
- Potential Connector Segment
- Other Studied Route Segment Alternative
- Proposed East Coast Greenway
- Buffalo Creek Greenway

- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

Route Alternative #4 - "Desired Destinations"

Segments: 1A > 1B > 3A > 3B > 3D > 3G > 3I > 4F > 5C > 5E > 5G > 5L > 6A > 6B > 7A > 7B > 7H > 8D > 9C > 9H

Beginning in Smithfield at Bob Wallace Jaycee Kiddie Park, this route follows S 2nd St as a bicycle boulevard with sidewalk and turns north onto Wellons St. It then turns west behind existing homes as a greenway, passing in front of the Wastewater Treatment Plant (WWTP) and crossing Huntley St before it follows the Neuse River along the Brightleaf Flea Market property to US 301. From there it turns west as a sidepath, crossing the Neuse on an NCDOT funded bridge replacement project (BR-0086) which will construct a 14' sidepath. It continues as a sidepath along US 301, navigating the proposed STIP project at the interchange of I-95/US 301/US 701 and crossing the CSX Railroad Corridor as a separate pedestrian bridge. It continues as a sidepath along Boyette Rd (SR 1182) and navigates through the approved JCC development to access Keen Rd (SR 1178) north of I-95. It passes through the south side of Four Oaks along Allendale Rd (SR 1164).

It continues south on S Main St (SR 1264) as a sidepath before heading west on Parker Rd (SR 1163) to US 301. From there it continues west to Raleigh Rd (SR 1330) where it turns north and crosses the CSX Railroad at grade and continuing to Woodall Dairy Rd (SR 1356) which it follows to the bridge over I-40, where it repurposes the existing shoulder into a sidepath. The route continues south as a sidepath along NC 242, entering Benson from the north.

It continues onto US 301 (N Wall St) as a sidepath, heading east and crossing the CSX Railroad as a separate pedestrian bridge parallel to the roadway bridge, before turning south onto N Johnson St (SR 1175) and using the Benson Parks and Rec property to access natural areas and continuing as a greenway to Honeycutt Rd (SR 1173). It follows Honeycutt Rd south as a sidepath to Morris Ave, where it then turns onto N Johnson St and crosses in front of Benson Town Hall. From there it navigates as a sidepath along several local streets: S Johnston St, E Harnett St, S Elm St, and E Brooklyn St before turning onto S Market St (SR 1204) which it follows to Chicopee Rd (SR 1100). The route continues west, crossing the CSX Railroad at grade and crossing US 301 before crossing a Duke Easement and Mingo Swamp before reaching the County Line.

Length: 21.4 miles

(15% greenway / 85% sidepath)

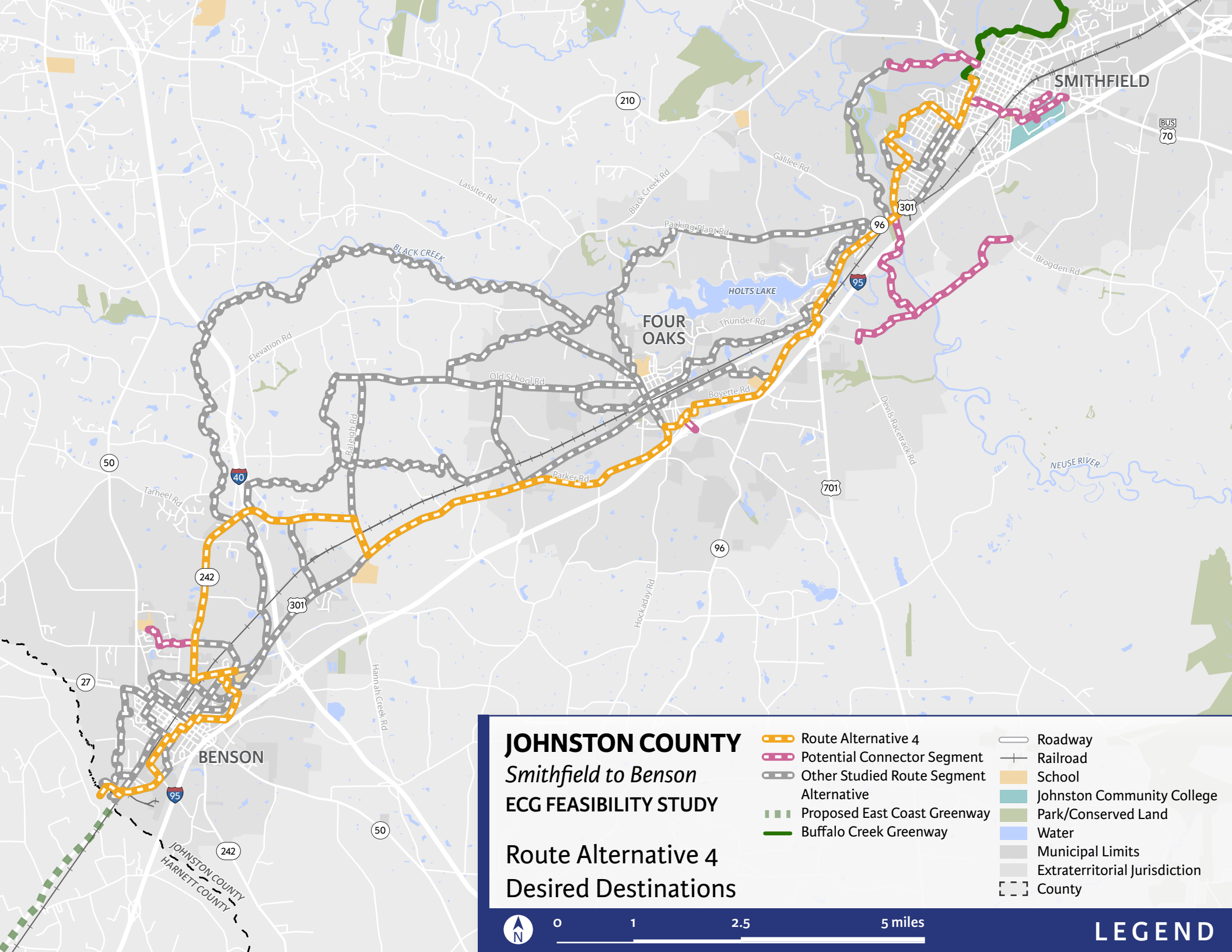
Estimated 2024 Construction Cost:
\$49,100,000

PROS

- ◆ Provides connectivity to key community destinations
- ◆ Uses existing bridge crossing of I-40

CONS

- ◆ Connector routes needed to reach other destinations
- ◆ Greatest amount of Railroad coordination required



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Route Alternative 4
Desired Destinations

- Route Alternative 4
- Potential Connector Segment
- Other Studied Route Segment Alternative
- Proposed East Coast Greenway
- Buffalo Creek Greenway

- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

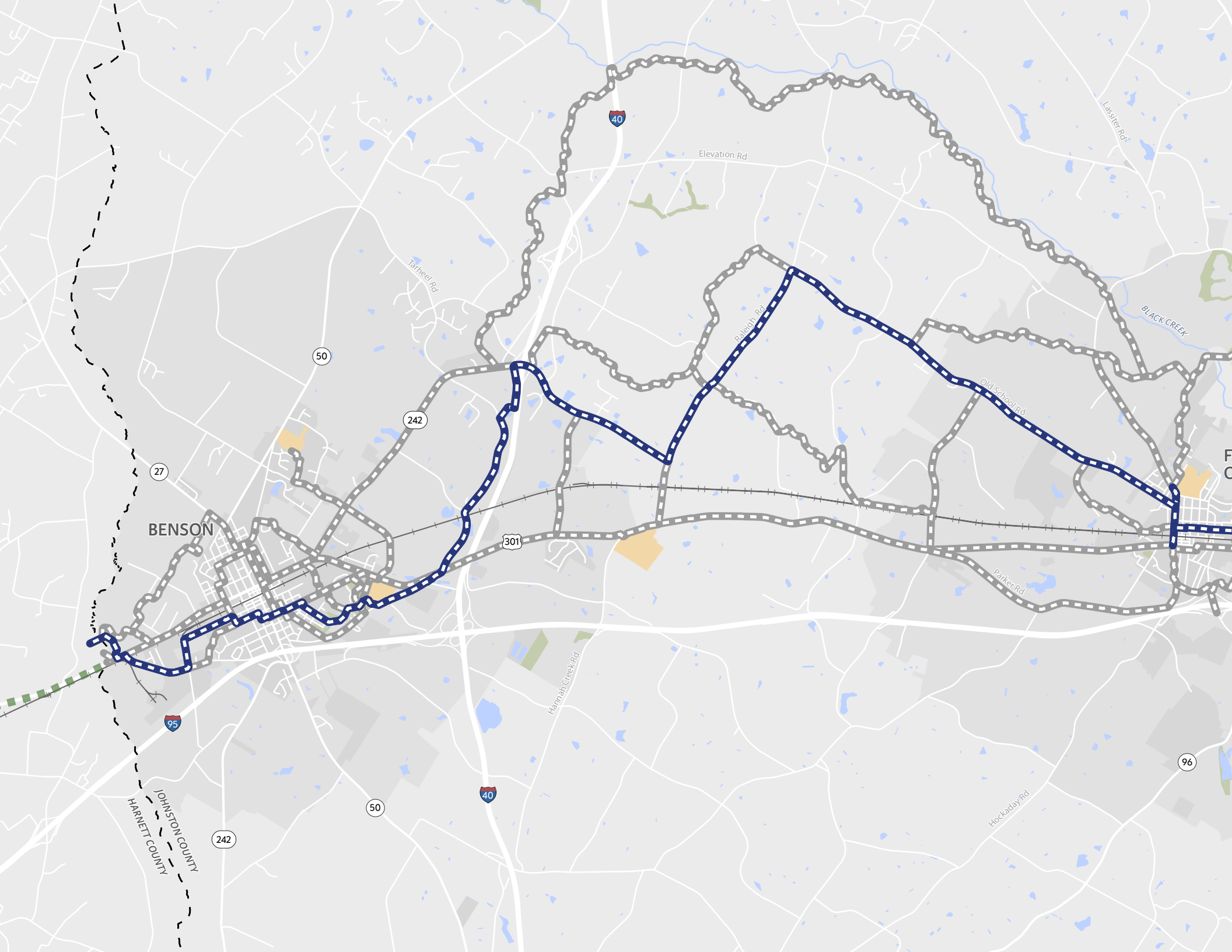
DECISION MATRIX + SCORING

The decision matrix is a qualitative assessment tool that is used to incorporate feedback obtained from the Working Group. The four alignment alternatives that were developed during this study were assigned a qualitative ranking (High, Medium, or Low) by the project team for their scoring in each evaluation criteria. A "High" score represents the most desirable and "Low" represents the least desirable evaluation in the table below. This feedback informed the recommended route which represents the alignment that best aligns with the Working Group's priorities.

ROUTE ALTERNATIVE SELECTION CRITERIA	JOHNSTON COUNTY ECG FEASIBILITY STUDY ROUTE ALTERNATIVES			
	1. Maximum Greenway	2. Direct/301	3. Core Connections	4. Desired Destinations
Physical Feasibility	Low	Low	High	Medium
Connectivity + Accessibility	Medium	Low	Medium	High
Community Priorities	Medium	Low	Medium	High
Cost	Low	Medium	High	Medium
Environmental Impacts	Low	High	Medium	Medium
User Experience	Medium	Medium	High	Low
Property Impacts	Low	High	Medium	Medium
Potential Funding Opportunities	Medium	Low	High	Medium
Placemaking	Medium	Medium	High	Low
Leadership Support	Medium	Low	Medium	High
Traffic Impacts	High	Low	Medium	Medium
Safety Benefits	High	Low	Medium	Medium
Implementation Timeframe	Medium	Low	High	Medium

PREFERRED ALTERNATIVE

The preferred route alignment for the Johnston County Smithfield to Benson ECG corridor was informed by the results of the opportunities and constraints analysis, feedback received from the public and stakeholders, and the decision matrix. The preferred route is displayed in the map on the following pages. The route spans approximately 23.1 miles from the existing Buffalo Creek Greenway in Smithfield to the Harnett County line. This represents the most practical route for implementation which also achieves the overall goals for the project and provides the desired user experience.



BENSON

JOHNSTON COUNTY
HARNETT COUNTY

40

27

50

242

301

95

50

40

242

96

Elevation Rd

Farheel Rd

Raleigh Rd

Old School Rd

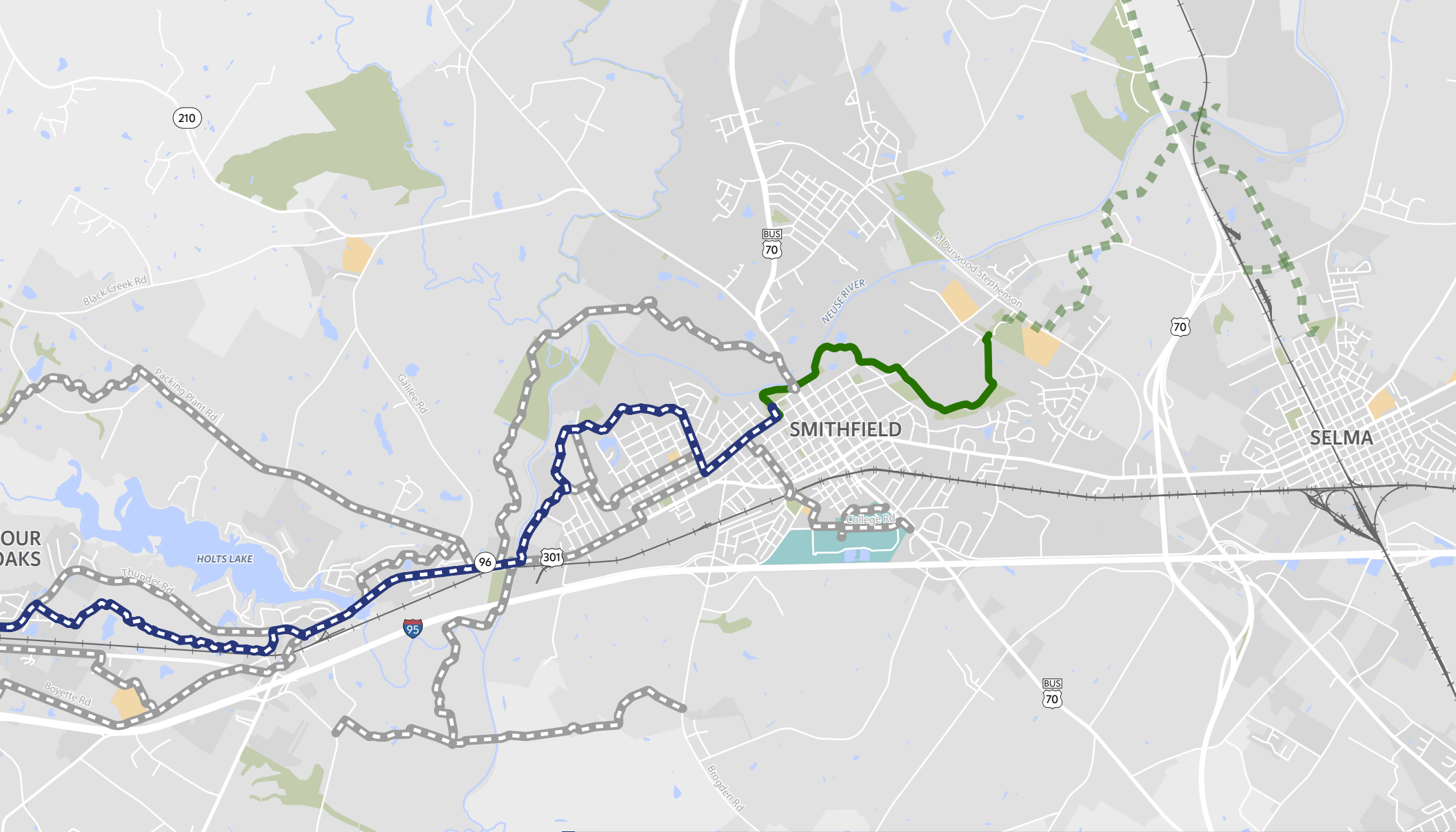
Parker Rd

Hannah Creek Rd

Hockabay Rd

Lasifer Rd

BLACK CREEK



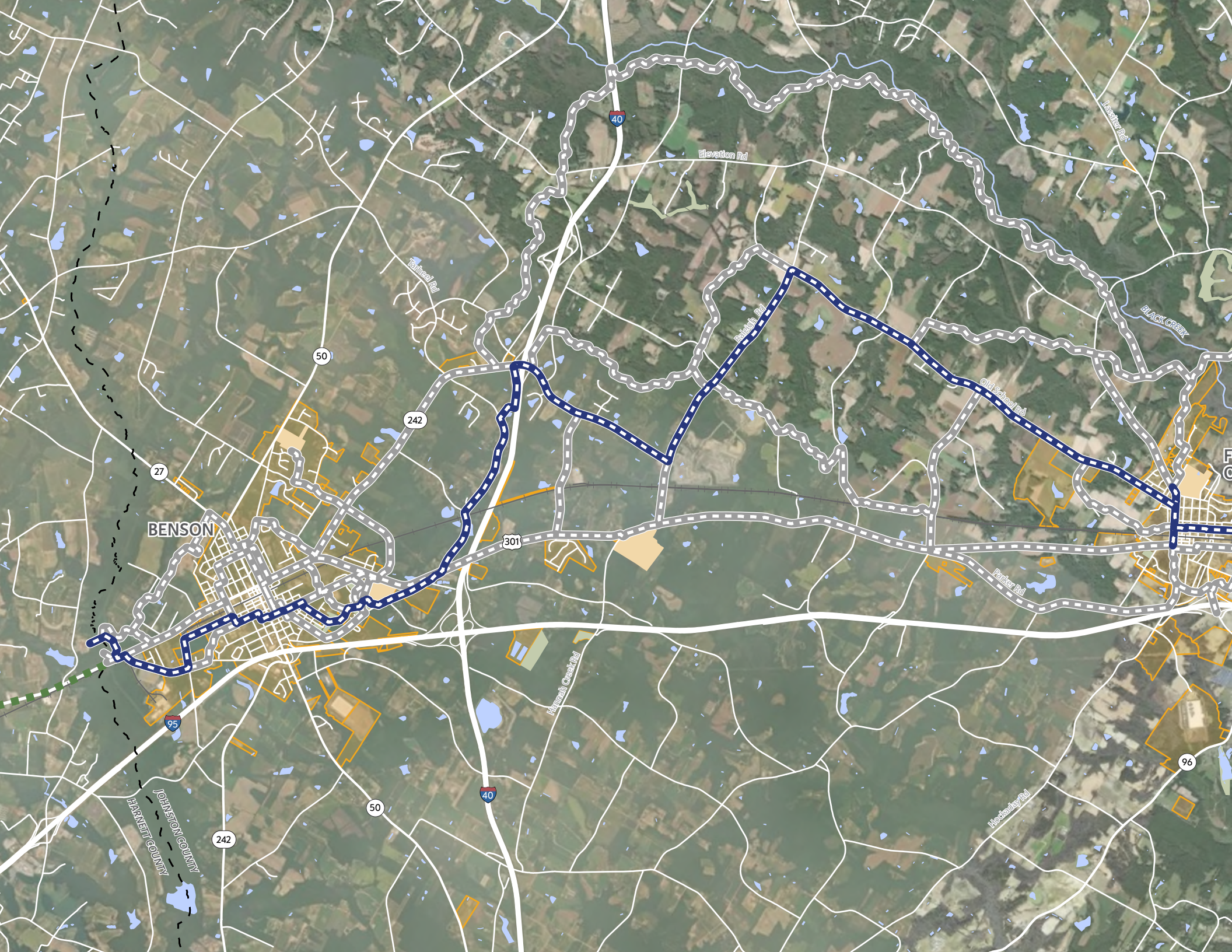
JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

**Preferred Route
 Alternative**

- | | |
|---|-------------------------------|
| Preferred Route Alternative | Roadway |
| Other Studied Route Segment Alternative | Railroad |
| Proposed East Coast Greenway | School |
| Buffalo Creek Greenway | Johnston Community College |
| | Park/Conserved Land |
| | Water |
| | Municipal Limits |
| | Extraterritorial Jurisdiction |
| | County |



LEGEND



BENSON

JOHNSTON COUNTY
HARNETT COUNTY

50

242

27

301

95

50

242

40

96

Elevation Rd

Fairview Rd

Black Creek Rd

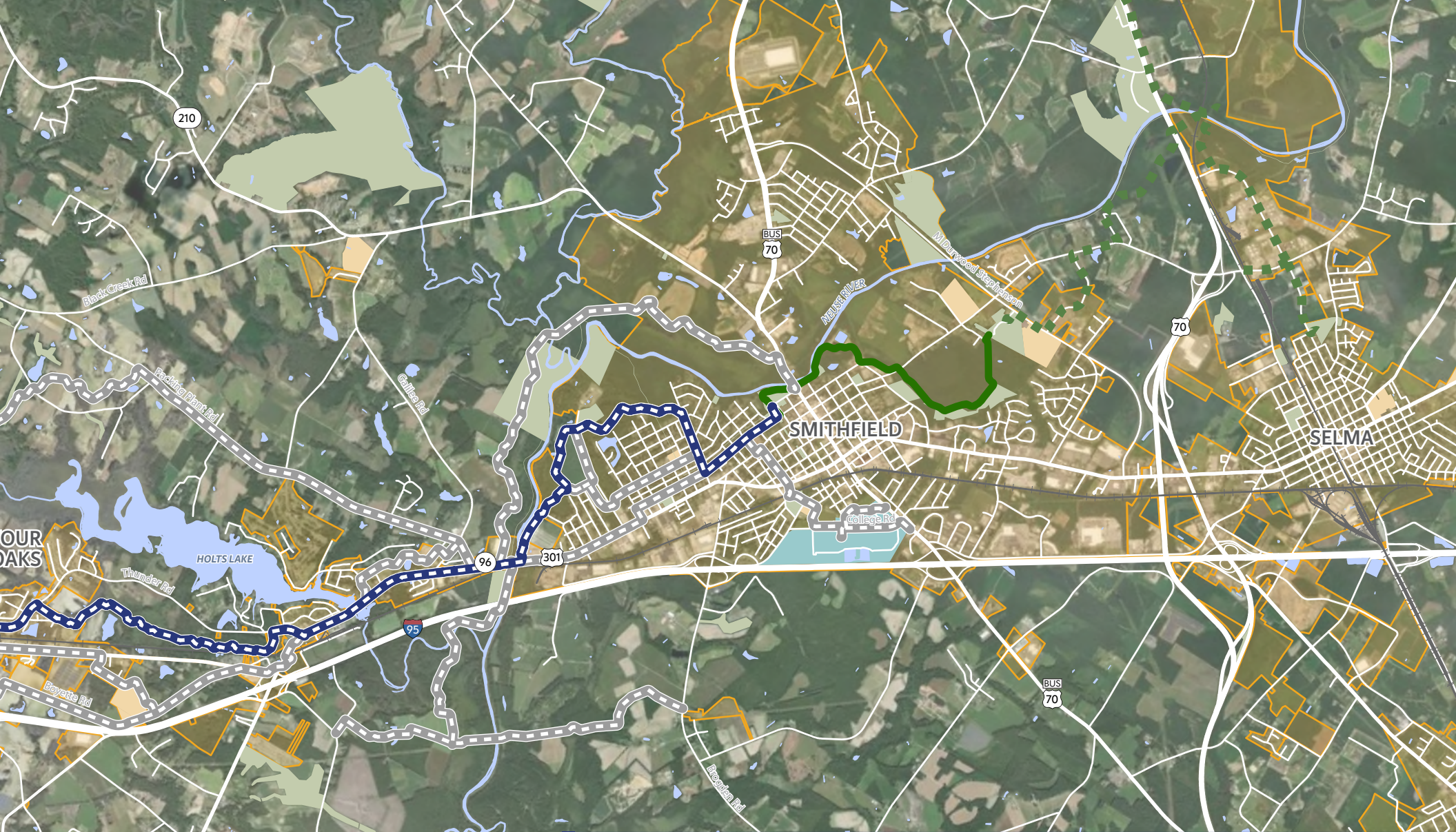
Old School Rd

Parker Rd

Kanawha Creek Rd













Rockaway Rd

BLACK CREEK



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

**Preferred Route
Alternative**

-  Preferred Route Alternative
-  Other Studied Route Segment Alternative
-  Proposed East Coast Greenway
-  Buffalo Creek Greenway
-  Roadway
-  Railroad
-  School
-  Johnston Community College
-  Park/Conserved Land
-  Water
-  Municipal Limits
-  County



DESIGN GUIDANCE

To achieve the vision for a safe, accessible greenway that connects people, places, and communities in the region, a set of design standards is recommended for the Smithfield to Benson ECG corridor. Applying consistent facility widths and materials will create a seamless and intuitive user experience and promote predictable user behavior that contributes to making the facility safe for users of all ages and abilities. In conjunction with signage, wayfinding, and other branding efforts, applying consistent design standards will also increase recognition of the trail not only by users already on the facility but passing motorists as well. Recognition of the facility by the public in multiple locations through the course of their daily lives helps highlight and reinforce the connections the trail makes and may result in individuals considering alternative modes of transportation for some trips or for recreational purposes.

The proposed typical design for the Smithfield to Benson ECG corridor consists of a paved greenway 10 to 12 feet in width to accommodate a variety of uses. This facility will incorporate design standards from local, statewide, and national trail design guides to ensure user safety and comfort while also meeting the recreation and transportation needs of the communities it serves. At intersections and crossings, safety improvements are recommended to minimize conflicts between greenway users and vehicles, and the recommended route should include grade-separated crossings wherever feasible.

Recognizing the impracticality of applying a single typical design section for the entire length of the corridor due to environmental and other design constraints, the following pages detail several typical sections and the context in which they should be applied. Material types specified seek to balance up-front construction costs and to minimize maintenance burden and reduce overall life-cycle costs. Images of similar design precedents are also provided for reference. Additional design resources are provided in **Appendix B**.

The following publications were referenced during the development of greenway design recommendations for this plan:

- ◆ National Association of City Transportation Officials' Urban Bikeway Design Guide and Urban Street Guide;
- ◆ American Association of State Highway and Transportation Officials' Guide for the Development of Bicycle Facilities and Guide for the Planning, Design and Operation of Pedestrian Facilities;
- ◆ Manual on Uniform Traffic Control Devices;
- ◆ Americans with Disabilities Act; and
- ◆ NCDOT Complete Streets Policy

Design Standards

The standards and methods in which greenways and trails are designed impact the experience and safety of the diverse set of users that take to these facilities for a variety of recreational, utilitarian, health, and transportation purposes. This section illustrates aspects of facility design to help guide future actions by the project partners in planning for, designing, constructing, and maintaining a greenway that connects to a variety of destinations, promotes a diverse user experience, and is built to a maintainable scale.

Materials Selection

Factors to be considered in the selection of materials for trails, multi-use paths, and greenways include anticipated facility type (recreational versus commuter), expected use activities (i.e., walking, bicycling, running, or roller blading), age and ability of users, environmental conditions, construction cost, maintenance burden and costs, and funding source requirements among others. A variety of materials are described and illustrated on the following pages.

Paved Surface

Paved trail surfaces such as asphalt or concrete offer great accessibility to accommodate users of all ages and abilities. Asphalt pavement tends to be the most popular and cost effective for paved trails. Concrete pavement is more durable, but costs more than asphalt pavement. As such, concrete trails are typically more common in urban settings (where projected user volumes are high or the trail may be subject to vehicular loading more often) or in areas subject to heavy flooding forces that may cause damage to the trail.



Asphalt paved trail - Neuse River Trail (Raleigh, NC)



Concrete paved trail - Lower Booker Creek Greenway (Chapel Hill, NC)

Natural Surface

Compacted aggregates and compacted native soil are two types of natural surfaces considered for this study. Both are budget-friendly options that have been implemented in trail systems across North Carolina and beyond to provide a durable alternative to paved trails.

Compacted aggregates have proven to be a durable, affordable, and readily available means of providing a natural surface for trail construction. Granite fines are a commonly used material due to their availability from local quarries and their ability to achieve compaction of a level surface that is accessible to most users. Proper compaction and handling adjacent drainage are keys to the success of using this material. Annual maintenance is required to ensure that the trail's crown pitches to drain. This typically includes laying and grooming additional aggregate as necessary to ensure that water rills and deep grooves do not form within the trail surface because of regular rain events. It is critical to establish drainage adjacent to the trail during construction to ensure concentrated runoff is not allowed to cross the trail perpendicularly. Over time, these types of flows will erode the trail and surfacing.

One of the cheapest and most easily constructed natural surface options is compacted native soil. Similar to compacted aggregate, this surfacing method relies heavily on material compaction and adjacent drainage. The existing soil must be able to achieve compaction levels of 95-98% to ensure trail integrity. If native soil is unsuitable, material may be imported at an additional cost and installed with a roller and small excavating equipment depending on topography. Surface drainage should not be allowed to cross perpendicular to the trail to prevent washout and rills within the walking surface. Annual maintenance is required and includes re-compaction to ensure the trail remains crowned to properly pitch water to adjacent drainage features. Installation of additional soil in rain wash out areas may also be required.



Compacted aggregate trail - Peavine Trail (Marion, NC)



Compacted soil trail - American Tobacco Trail (Cary, NC)

Boardwalk

Timber and concrete (cast-in-place or pre-cast) are the two most popular material options for boardwalk decks. Timber has traditionally been used for its lower construction cost, but it requires regular maintenance and deck repairs/replacement to extend its functional life. Concrete deck options typically cost more upfront but have lower life-cycle costs due to reduced maintenance requirements.

Regardless of the deck type, safety rails and handrails should still be provided in accordance with applicable building codes. Timber, metal, and composite railing options are available depending on site conditions, desired aesthetics, and budget. Boardwalk substructure design and materials may vary depending upon specific site conditions and geotechnical recommendations.

Bridge

Prefabricated steel truss bridges are a common, cost-effective bridge type in this application and are the recommended bridge type for this typical section. A variety of truss designs and finishes are available to choose from. Corten/weathering steel is a finish which should be considered for its ability to blend well with natural surroundings and its minimal maintenance requirements as compared to those for painted finishes. The deck surface should be concrete which provides greater friction to reduce the risks of slips and falls and reduces long-term maintenance burdens compared to those associated with other materials such as timber. Safety rails and handrails should be provided in accordance with applicable building codes. A variety of materials for railing are available, but it is recommended that a single railing design and material be selected and used throughout the entire Smithfield to Benson ECG corridor to ensure a consistent user experience and streamline any associated maintenance. Bridge substructure design and materials may vary depending upon bridge design type, specific site conditions, and geotechnical recommendations.



Timber deck boardwalk - White Oak Creek Greenway (Cary, NC)



Concrete deck boardwalk - Toby Creek Greenway (Charlotte, NC)

Typical Sections

This section includes typical cross-sections for the following types of facilities:

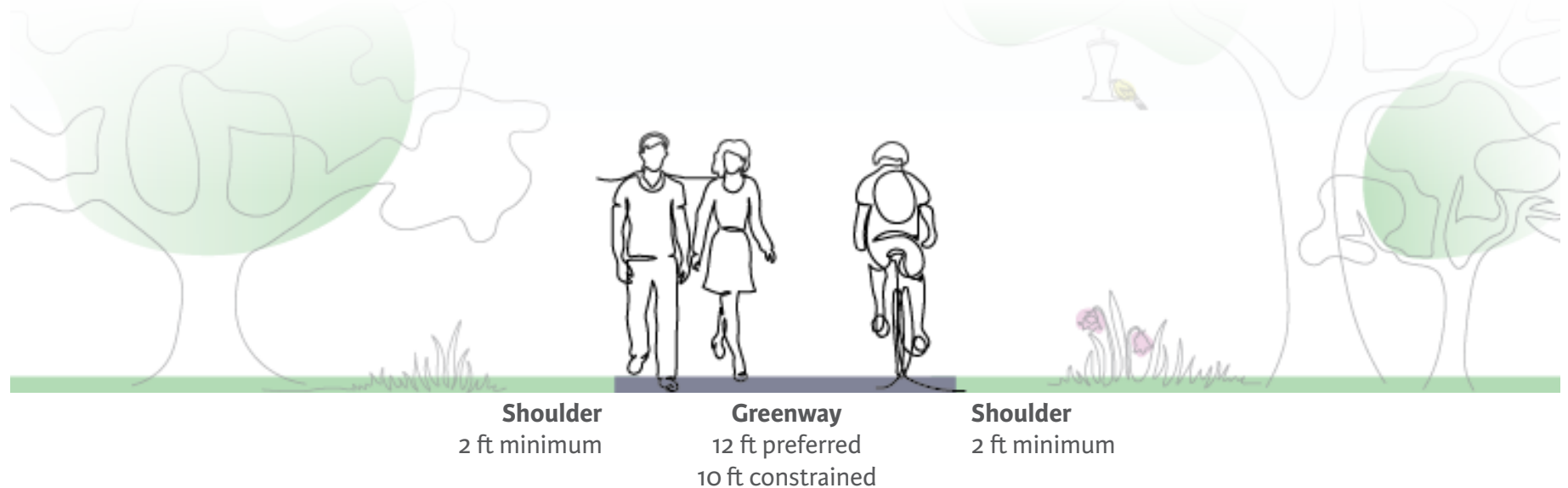
- ◆ Greenway
- ◆ Sidepath
- ◆ Boardwalk
- ◆ Bridge

Greenway

A 10 to 12 ft wide paved trail is recommended as the preferred typical section, as it requires the least amount of long-term maintenance and offers greater eligibility from the widest variety of funding sources. Asphalt pavement is recommended based on site conditions within Johnston County, anticipated facility use, and cost considerations. Limited sections of concrete pavement may be required to accommodate site conditions as necessary, including areas especially prone to flooding. Shoulders or shy zones of 2 ft or greater should be kept clear of any obstacles to ensure the full greenway width remains usable.



Smithfield Neuse Riverwalk (Smithfield, NC)

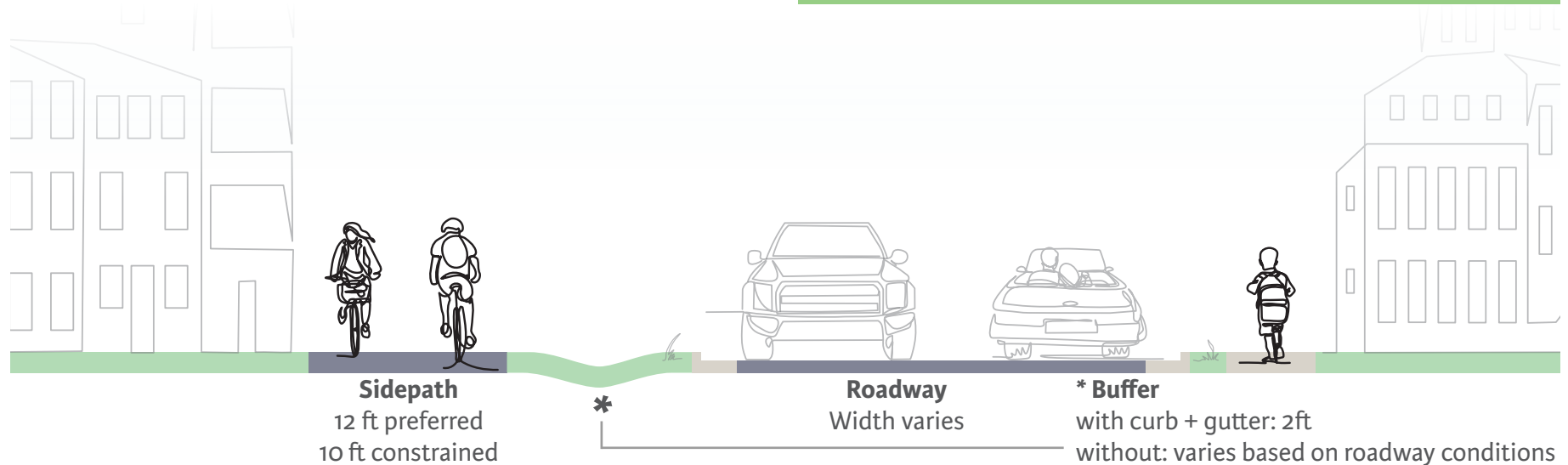


Sidepath

A 10 to 12 ft wide paved trail is recommended along roadway corridors where the greenway connects with the transportation network, allowing residents and visitors to reach destinations in residential neighborhoods and commercial areas. Asphalt pavement is recommended based on site conditions within Johnston County, anticipated greenway use, and cost considerations. Limited sections of concrete pavement may be required to accommodate site conditions as necessary, including areas especially prone to flooding. A minimum five-foot planting strip is recommended to separate users from motorized traffic on the adjacent roadway. Planting strip width may be reduced in highly constrained areas where curb and gutter are present.



Gary Shell Cross City Trail (Wilmington, NC)

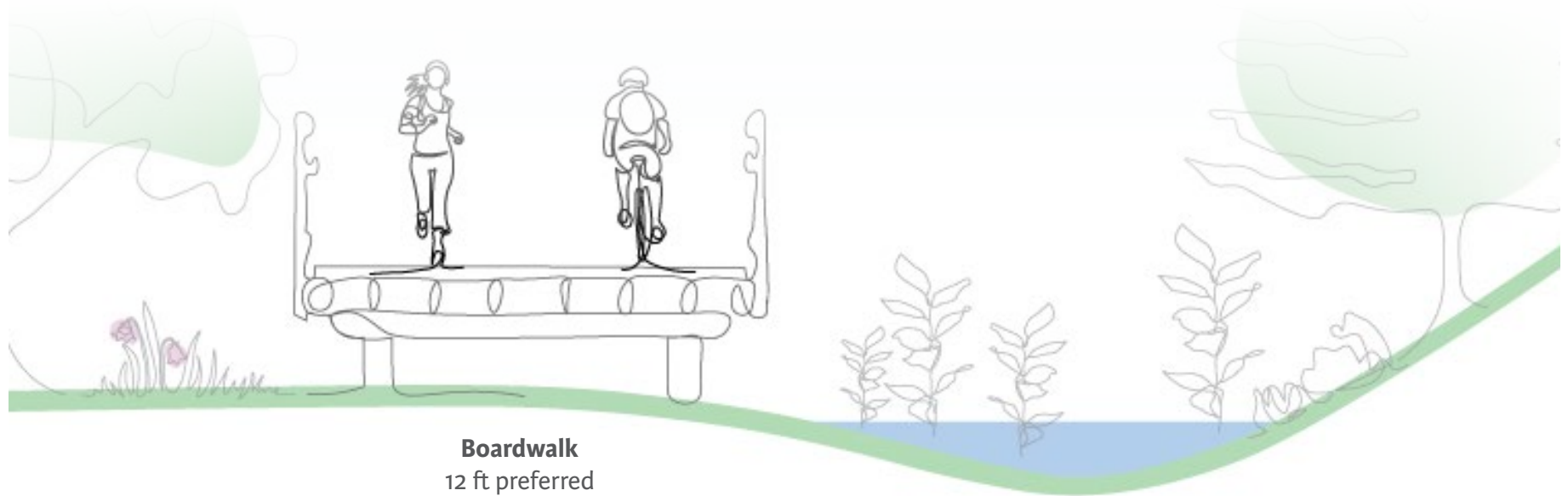


Boardwalk

A 10 to 12 ft wide elevated boardwalk is recommended to minimize environmental impacts in areas where the trail crosses wetlands or steep cross slope topography to limit grading and need for retaining walls. The deck surface should be concrete which provides greater friction to reduce the risks of slips and falls and reduces long-term maintenance burdens compared to those associated with other materials such as timber. Timber safety rails and hand rails are shown with a timber pile substructure system. Boardwalk substructure design and materials may vary depending upon specific site conditions and geotechnical recommendations.



Toby Creek Greenway (Charlotte, NC)



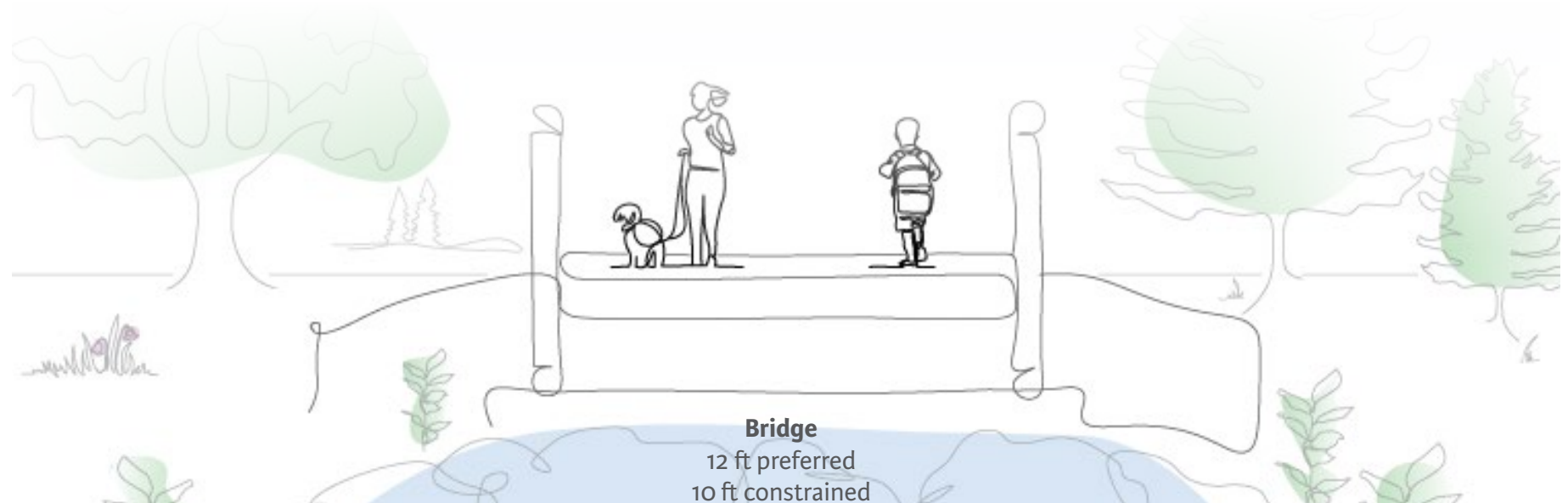
Boardwalk
12 ft preferred
10 ft constrained

Bridge

A 10 to 12 ft wide bridge is recommended to elevate the Smithfield to Benson ECG corridor over creeks, rivers, and floodways to connect to shared use path sections at either end of the bridge. The bridge should have a clear width of 12 feet where possible to ensure adequate space for trail users in both directions, but may be reduced to 10 feet when constrained. Directional separation can be provided by a dashed yellow centerline. Pavement markings and signage can enhance safety, provide visual continuity, and inform bicyclists and pedestrians to share the same space.



S Tar River Greenway (Greenville, NC)



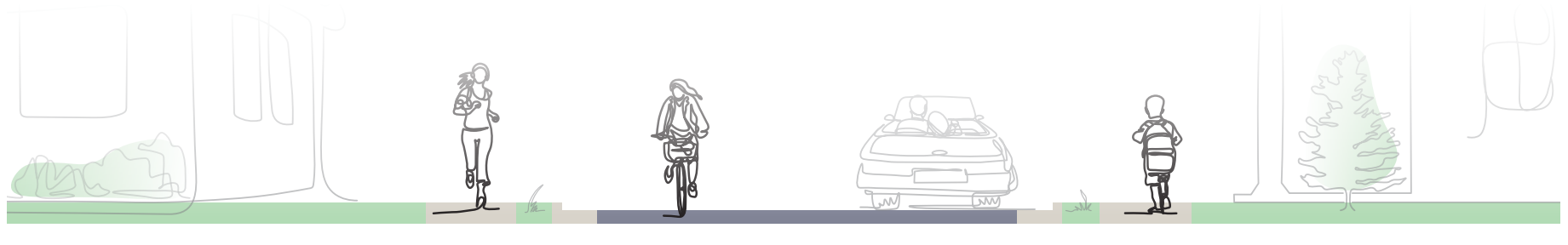
Sidewalk + Bicycle Boulevard

A bicycle boulevard designates a roadway for joint use by both bicyclists and automobiles. Bicycle boulevards are specifically designed to offer low-stress bicycle connections along local streets characterized by low vehicle speeds and traffic volumes. Recognizable by shared lane markings or "sharrows" on the roadway, these boulevards may also include signage to indicate the route or alert drivers to the presence of bicyclists and traffic calming measures to reduce vehicle speeds on the roadway.

Bicycle boulevards provide a low-impact greenway facility on streets where limited right-of-way, historic district regulations, or other constraints make a sidepath or other dedicated trail facility unfeasible. Best suited for streets with traffic volumes below 2,000 vehicles per day (vpd) and speed limits below 20 mph, bicycle boulevards are particularly fitting for residential neighborhoods.



Bicycle boulevard signage (Portland, OR) - Credit: Russ Roca



Sidewalk
5 ft

Roadway
Width varies
Sharrow markings (min. 112x40 in)

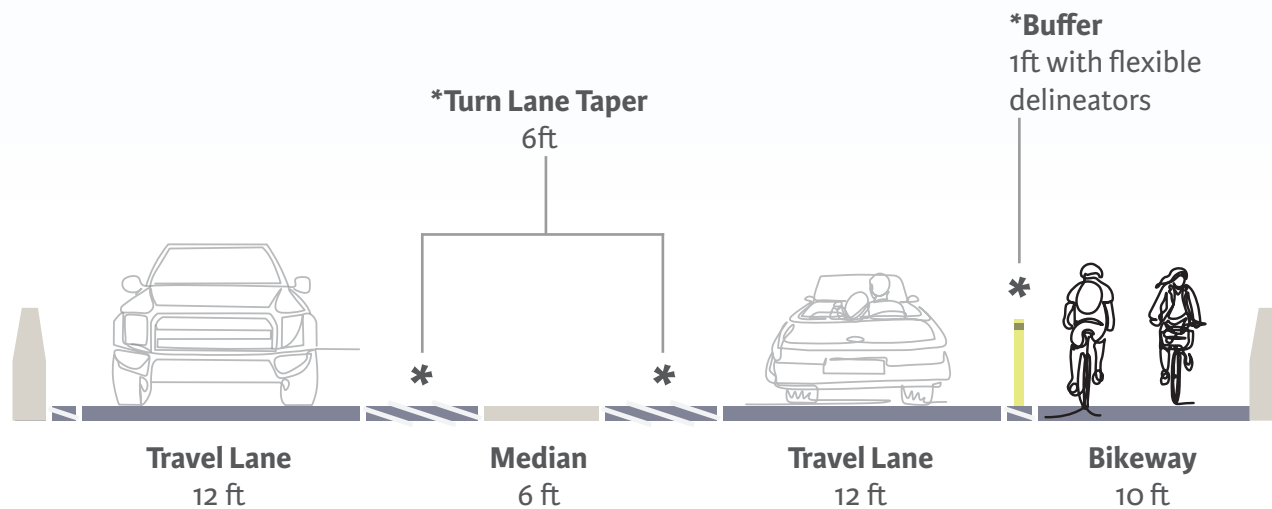
Sidewalk
5 ft

NC-242 Bridge over I-40

A 10 ft wide on-street bikeway is recommended on the existing NC-242 roadway bridge over I-40 in Benson to create a safe crossing of a major barrier along the corridor. While space on the existing bridge is limited, there is adequate width to restripe the roadway to create a 10 ft bikeway while maintaining 12 ft travel lanes. This will require reallocating space on the bridge to also include a striped buffer space between the travel lane and bikeway. To add an element of vertical separation, flexible delineator posts are recommended.



NC-242 bridge crossing of I-40 features a wide shoulder.



Greenway Amenities

In tandem with infrastructure and policy recommendations, greenway amenities improve user safety and experience and enhance recreational and multi-modal accommodations in a community. A summary of recommended trail amenities is provided below and on subsequent pages.

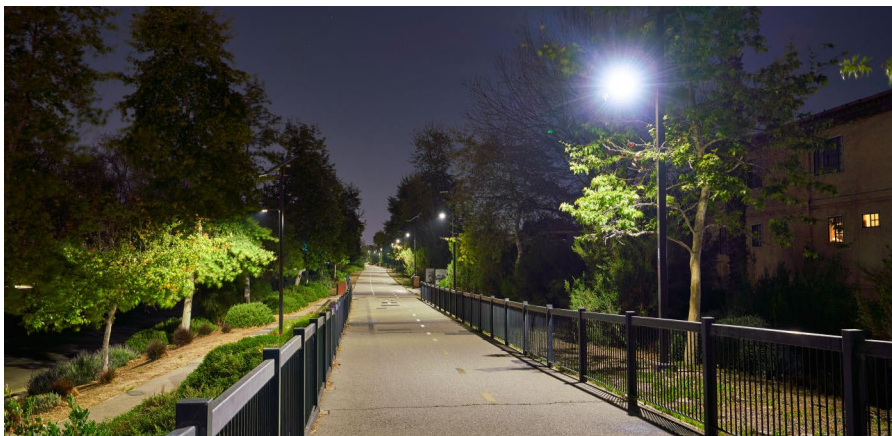
Lighting

Well-placed and properly maintained lighting can improve visibility, increase overall greenway access, and give users a greater sense of security. Consider the following lighting guidance for the Smithfield to Benson ECG corridor:

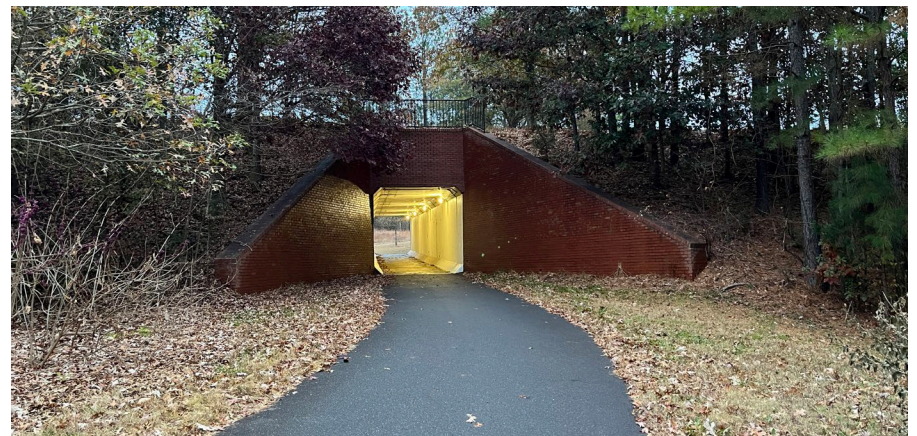
- ◆ Meet the American Association of State Highway and Transportation Officials' (AASHTO) Guide for the Development of Bicycle Facilities requirements for shared-use paths.
- ◆ Light only what is needed and comply with dark-sky requirements to help minimize light pollution, which impacts people, animals, and the environment.
- ◆ Ensure lighting is of appropriate scale and spacing to provide adequate coverage.
- ◆ Strategically place lighting to enhance user safety at tunnels and overpasses, trailheads, bridges, gathering places, along streets, crosswalks, where a greenway crosses another path or sidewalk, and on signage.

A variety of lighting types are available including wired, battery-powered, and solar-powered each of which offers unique advantages or disadvantages regarding cost, maintenance burden, and environmental impacts.

Colored or dynamic lighting schemes may be used in select areas (such as tunnels and bridges) to enhance the user experience, contribute to the overall brand and identity of the greenway network, and raise awareness of the facility to the traveling public.



Greenway lighting - Credit: Sol by Sunna Design



Greenway tunnel lighting - Walnut Creek Trail (Raleigh, NC)

Wayfinding

Wayfinding consists of comprehensive signage, mapping, and marking systems that help inform and educate users as they make their way to, from, and along the greenway. A cohesive system across the corridor will enhance access, provide a greater sense of security and comfort, promote desired user behaviors, improve awareness of nearby trail and transit networks, and reinforce the brand and/or identity of the facility. The following principles should guide the implementation of wayfinding on the Smithfield to Benson ECG corridor:

- ◆ **CONSISTENCY:** User experience should feel consistent and continuous across the entire corridor, regardless of jurisdiction.
- ◆ **CONNECTIVITY:** A primary function of wayfinding is to connect users to destinations and other routes. It should clearly communicate current locations, access points, adjacent streets, distances, directions, destinations, estimated travel times, and historical/cultural/environmental information where applicable.
- ◆ **IDENTITY:** A strong wayfinding identity will make the greenway more recognizable and memorable to visitors and residents alike. Custom designs and graphics should be used to create a unique identity which reflects the goals of the Smithfield to Benson ECG and the character of the region it will serve.
- ◆ **PREDICTABILITY:** Apply wayfinding in a predictable manner (including sign placement, design, and content) to allow users to quickly understand the information being presented. For users, this builds trust, increases comfort, reduces stress, and provides a welcoming and low-stress experience as they navigate the greenway.
- ◆ **SIMPLICITY:** Present information in a clear, logical, universal way to reach the widest possible demographic. The longer it takes to understand the information presented, the less likely the system will be used or relied upon.



Greenway wayfinding with ECG branding - Black Creek Greenway (Cary, NC)



Greenway wayfinding - South Tar River Greenway (Greenville, NC)

Signage + Branding

Popular greenway and trail systems establish strong brands and identities to drive recognition at the local and regional levels and beyond to attract users. A consistent, high-quality user experience may be achieved through repeating brand elements such as typical sections (including materials selection), wayfinding (including logos, graphics, and color palette), lighting, furnishings, and other amenities. At a minimum, good signage will increase the awareness of trails within a community, even outside of the system itself. Effective network signage should strike a balance between establishing a consistent look and feel, promoting the system, and respecting individual greenway corridors.

There are a variety of methods available to improve the branding and wayfinding of a trail network beyond the installation of traditional signage. Logos can be painted on greenway surfaces, and smaller signs or stickers can be added to existing streetscape elements like benches, bike racks, trash receptacles and street signs to catch the attention of passers-by and entice new users into the system. These efforts can complement the installation of dedicated network signage, or in some cases, make more expensive signage unnecessary. A branding study is recommended with community input to establish these elements to be used along the Smithfield to Benson ECG corridor in Johnston County.

The Smithfield to Benson ECG corridor is proposed as a segment of the East Coast Greenway's spine route between Richmond, Virginia and Wilmington, North Carolina, which is an adopted state trail in North Carolina. ECG signage and branding will be installed in addition to any trail-specific branding to designate the corridor as part of the ECG. Additionally, segments of the corridor align with the Mountains-to-Sea Trail, also an adopted state trail, and will feature MST signage and branding on those segments.



Branded mile marker signage - Buffalo Creek Greenway (Smithfield, NC)



ECG wayfinding - South Tar River Greenway (Greenville, NC)

Trailheads

Trailheads provide public access to trails and greenways. They are typically in places where users begin or end their journeys and where they get oriented to the greenway or greenway network. While there are minor access points along greenways such as road crossings, within neighborhoods, or where two greenways intersect, a trailhead tends to be a developed site, purposefully designed to provide amenities to greenway users such as parking, signage, information kiosks, restrooms, drinking fountains, bike racks, bike repair stations, seating, public art, landscaping, and trash receptacles. Guidance for trailhead placement includes:

- ◆ Endpoints are natural places to locate trailheads, but any place where a large volume of users is expected should be considered as a possible trailhead location.
- ◆ Utilize areas where amenities already exist, such as parks.
- ◆ Consider placing a trailhead where greenways intersect.
- ◆ Consider placing a trailhead within residential neighborhoods. Trailheads that are located within neighborhoods should be designed to be compatible with their surrounding uses.
- ◆ Consult with the community and seek public input on locations. Residents may have insights or preferences for areas that best meet trail user needs.

At all greenway access points, including trailheads, enhance user safety by implementing access management tools. Bollards, gates, fences, landscaping, and signage can prevent motorized vehicles from accessing the greenway. These barriers should be accessible for persons with disabilities to ensure that users of all ages and abilities can access the greenway. Barriers should also allow emergency or maintenance vehicles to access the greenway.



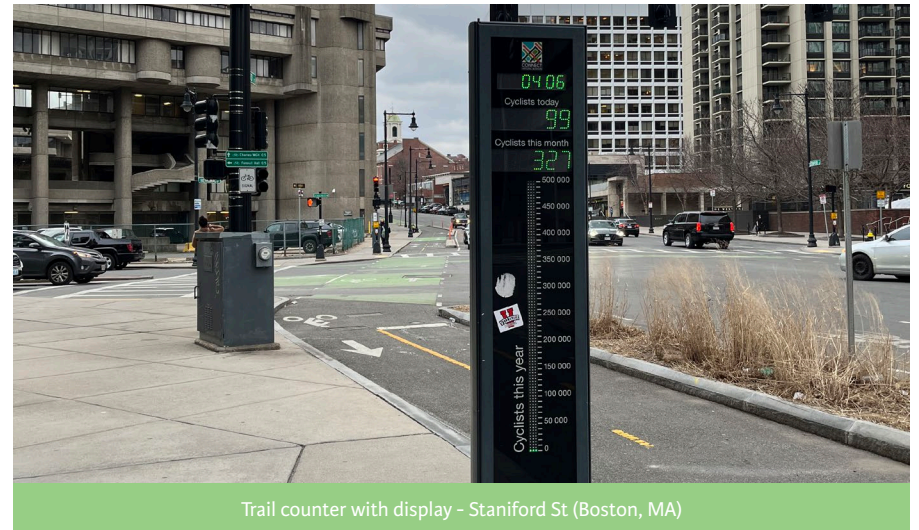
Trailhead with amenities and signage - Buffalo Creek Greenway (Smithfield, NC)

Data Collection

Bicycle and pedestrian count data are an essential tool to justify investments in greenway and active transportation infrastructure and communicate needs with the public, elected officials, and other stakeholders. Collecting this data provides insights into temporal user volume trends (time of day and seasonal), user type trends (biking vs. walking), and user volume trends by geographic location (which sections are most frequently used). This information can also help identify potential areas of need as municipalities plan their future pedestrian and bicycling infrastructure projects.

A variety of counting technologies and products are available depending on the specific application and budget. These range from inductive loop detectors, pneumatic tube detectors, and passive infrared detectors among others. Mobile counters provide the flexibility to collect data in one location before moving to another collection location and are typically battery-powered. Fixed counters are used at locations where long-term data collection is desired and may be wired or battery-powered. Some blend in with their surroundings and others utilize real-time display totems to present daily and yearly counts and engage directly with those users being counted.

Depending on the specific product, count data may be retrieved manually from the counter or may streamline the process via wireless transmission, reducing trips to the field. Online, easy-to-use data platforms are also offered to analyze and visualize the data. Features include dashboards and interfaces to provide access to count data for the development of custom websites and mobile applications. The emerging use of “Big Data” crowd-sourced from mobile phone users, via services such as Streetlight and Strava, may also be an option for collecting user count data.



Trail counter with display - Stanford St (Boston, MA)



Trail counter - Black Creek Greenway (Cary, NC)

Intersection + Crossing Treatments

The Smithfield to Benson ECG corridor traverses both urban and rural areas and will require crossing roadways, railroads, and driveways along its route, placing users into potential conflict with vehicles. The application of crossing safety measures at these locations is critical to ensuring the success of the greenway by making users feel comfortable at intersections and crossings. The type and variety of intersections and crossings, as well as existing crossing safety features, inform the need for additional measures to make a facility that is safe, accessible, and comfortable for users of all ages and abilities. Multiple crossing treatments are recommended for the various crossing types along the corridor:

High-Visibility Crosswalk

A crosswalk is a designated place for pedestrians and greenway users to cross a road at an intersection or midblock crossing. High-visibility crosswalk markings, such as bar pairs, continental, and ladder are recommended to alert motorists of pedestrian crossing points across roadways. Inlay or thermoplastic tape is also recommended for highly reflective crosswalk markings. Crosswalks should be accompanied by Manual on Uniform Traffic Control Devices (MUTCD) pedestrian warning and advance yield signs W11-2, W16-7P, and R1-6 to alert motorists of a crosswalk. Additionally, while standard high-visibility crosswalks can be found across North Carolina, consideration may be given to using a custom decorative crossing on the Smithfield to Benson ECG corridor. Decorative crossing elements may consist of paint, pavers, or branding to set the ECG corridor apart from other multimodal facilities in the region.



High-visibility crosswalk - Spring Dr (Garner, NC)



Custom decorative trail crossing (Wilmington, NC)

Rectangular Rapid Flashing Beacon (RRFB)

A Rectangular Rapid Flash Beacon (RRFB) is a pedestrian-activated signal used in combination with pedestrian or trail crossing warning signage to improve safety at uncontrolled, marked crosswalks. The device includes two rectangular-shaped yellow indicators, each with an LED-array-based light source, that flash with high frequency when activated. RRFBs should be accompanied by MUTCD pedestrian warning and advance yield signs W11-2 and W16-7P to alert motorists of a crosswalk.

RRFBs are placed on both ends of a crosswalk. If the crosswalk contains a pedestrian refuge island or other type of median, an RRFB should be placed to the right of the crosswalk and on the median (instead of the left side of the crosswalk). RRFBs typically draw power from standalone solar panel units but may also be wired to a traditional power source.



Rectangular Rapid Flashing Beacon crosswalk



RRFB push button - Avent Ferry Rd (Raleigh, NC) - Credit: City of Raleigh

High-Intensity Activated Crosswalk (HAWK) Signal

A High-Intensity Activated Crosswalk (HAWK) signal, also known as a Pedestrian Hybrid Beacon, is a traffic control signal designed to help pedestrians and greenway users safely cross streets. HAWK signals like other push-button activated traffic signals stop traffic with a red signal, allowing pedestrians to cross with a WALK signal. In addition to the signal head displays, stop lines, and marked crosswalks are required at HAWK crossings. Advance stop lines should be used on multi-lane crossings to reduce the potential for second threat crashes. HAWKs should be accompanied by MUTCD pedestrian warning and advance yield signs W11-2, W16-7P, R10-23, and R9-8 to alert motorists of the signalized pedestrian crossing.



HAWK crossing of a road with cycletrack - 10th St NE (Atlanta, GA)



HAWK crossing of Sunnybrook Rd - Walnut Creek Trail (Raleigh, NC)

Railroad Crossing

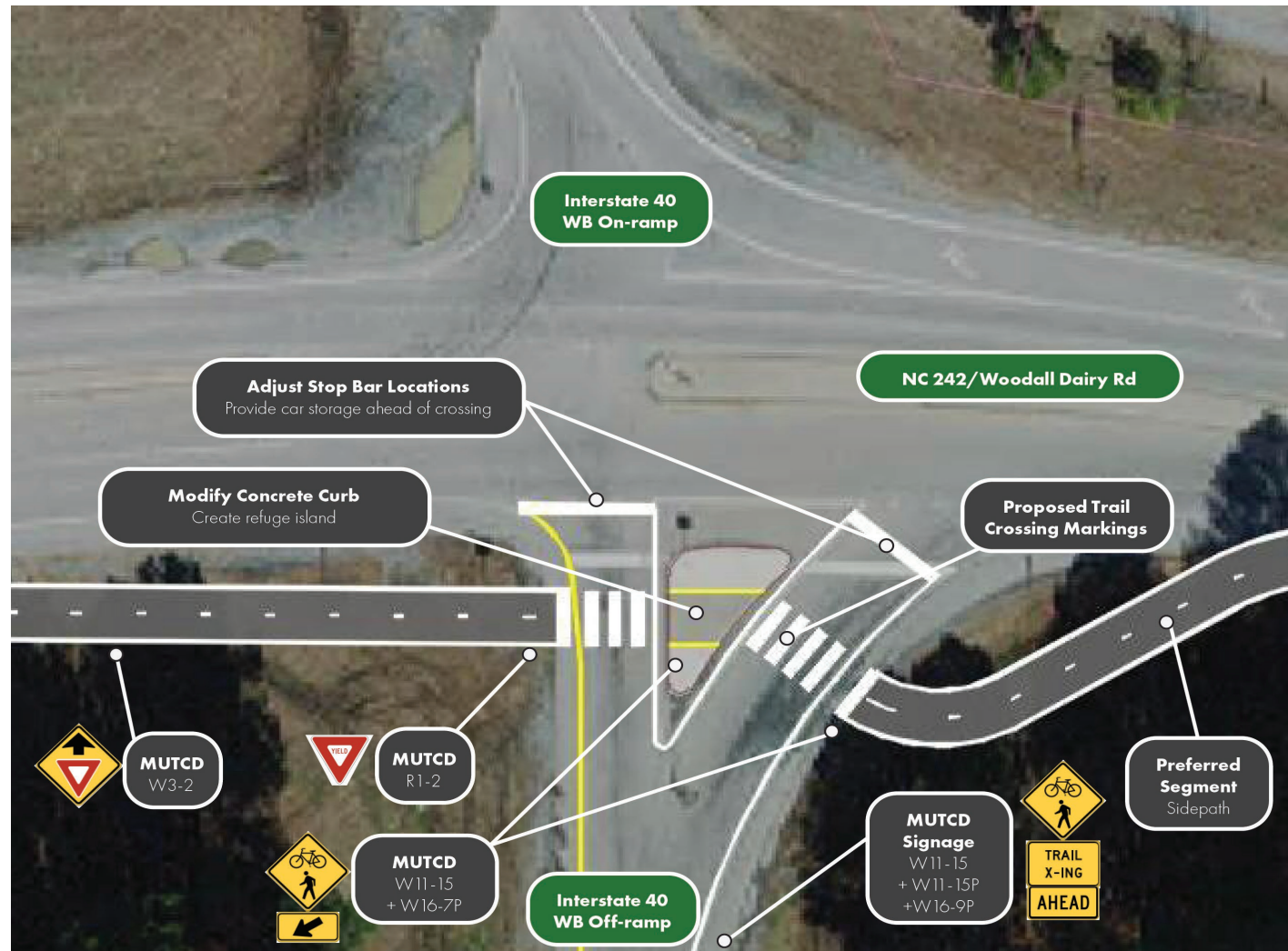
The Smithfield to Benson ECG corridor parallels a railroad and must cross the tracks at multiple locations. MUTCD W10-1 signage (Grade Crossing Advance Warning) should be used in advance of at-grade railroad crossings to provide warning of the potential hazard to multiuse path users. A R1-2 (Yield) and R15-1 (Railroad Crossing) signage assembly should be installed a minimum of 12 feet from the railroad track. It is recommended that railroad crossings on the Smithfield to Benson ECG corridor where along a roadway should cross within the existing roadway grade crossing to avoid the additional cost of relocating or installing new crossing signal infrastructure. This may require the trail to neck down to a width less than typically desired.



Railroad crossing within the existing roadway crossing and mast arm - Laura Duncan Rd (Cary, NC)

Interstate 40 @ NC 242 - Westbound Off-Ramp Crossing

One location, the crossing of the I-40 WB off-ramp at NC 242 stood out as a special case deemed worth of additional attention due to the high-speeds of motor vehicle travel on interstate routes and the transition to a rural arterial occurring at a trail crossing location. There is minimal guidance available for the development trail crossings of freeway ramps, as the preference tends to be to either avoid entirely or fully grade separate wherever possible. Due to the rural nature of the location and topographic constrains, grade separation is both technically infeasible and cost prohibitive.



The Minnesota Department of Transportation’s Bicycle Facility Design Manual does provide some direction on potential sidewalk and bike lane crossing treatments at freeway entrance ramps. Proposed treatments include MUTCD standard warning signage for both trail users and drivers, high visibility crosswalks, creation of a median refuge island, and adjustment of stop bar locations to provide one car length of storage (in front of the trail crossing) to allow space for drivers to achieve desired sightlines. All potential improvements should be designed to meet PROWAG standards and the final locations of all signs and proposed modifications within the right-of-way will need to be coordinated with NCDOT Division 4 and approved during the design phase.

Intersection Crossing Concept
NC 242/Woodall Dairy Road at I-40 Westbound Ramps





BIKE
ROUTE

East Coast



Greenway

PLANNING CITIES
GAINING TO FIGHT

NO MOTOR
VEHICLE

IMPLEMENTATION

05

OVERVIEW

Recommendations outlined in this feasibility study represent a significant investment in a recreational and transportation-based amenity that will positively impact how both residents and visitors travel and experience the greenway system. Key outputs of this study are the project cut sheets and cost estimates, which are essential to establishing project implementation scenarios.

Successful implementation will require a coordinated, consistent effort with a wide range of partners. Some of the key agencies and partners include the Upper Coastal Plain Rural Planning Organization (UCPRPO), Capital Area Metropolitan Planning Organization (CAMPO), Johnston County, Town of Smithfield, Town of Four Oaks, Town of Benson, NCDOT, private partners, local advocacy groups, and community members.

The following sections are included within Chapter 5:

- ◆ Summary of Strategies
- ◆ Preferred Phase Cutsheets
- ◆ Funding Resources
- ◆ Partner Roles
- ◆ Action Plan
- ◆ Maintenance Recommendations

SUMMARY OF STRATEGIES

Phasing + Prioritization

To accelerate implementation, the project may be split into multiple phases. Considerations when phasing and prioritizing sections may include:

Destinations and connectivity (to existing segments of greenway and to parks/other destinations)

One of the ways this corridor can be implemented is through prioritization of greenway segments through destination-based phasing. Greenway segments that connect to existing amenities, such as Johnston Community College, Downtown Four Oaks, Downtown Benson, and the Neuse River, can serve as low hanging fruit to establish a well-used and highly accessible starting point for the greenway corridor.

Corridor phasing

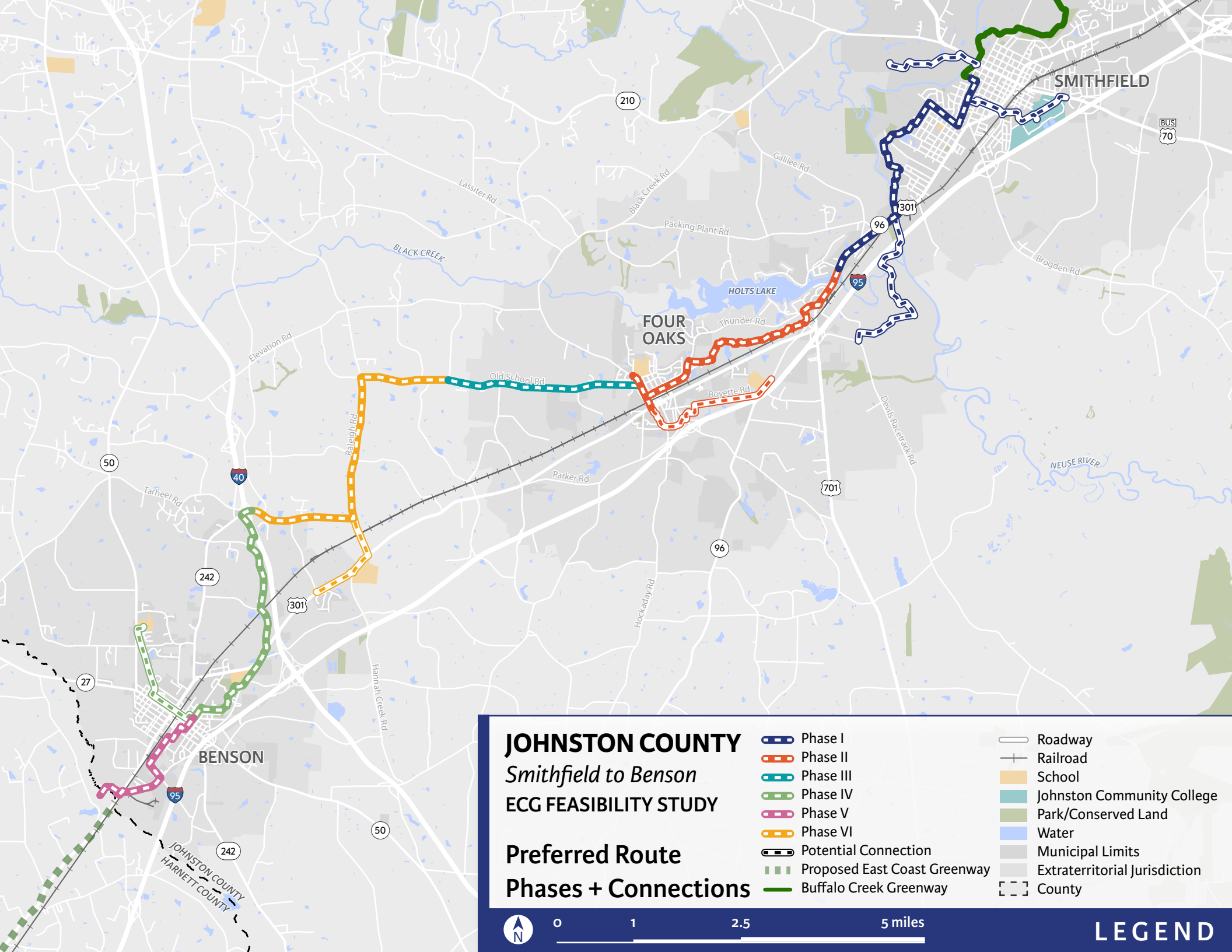
The corridor mainline should be prioritized as the primary implementation focus. Once established, connections to destinations such as the future Smithfield Park, Four Oaks Middle School, South Johnston High School, and Benson Elementary School can be coordinated with stakeholders and prioritized.

Funding availability

Establishing the greenway alignment through funding availability may be the most critical aspect when considering implementation strategies. Funds can be appropriated through capital improvement requests, grant applications with funding matches, as well as other means to establish a strategy towards achieving a built system (see Appendix A for full list of potential funding sources).

Private development coordination

Development can also aid in establishing key pieces of greenway corridors which run through or along privately held land. Coordination on these segments between private and public interests can and should be leveraged for the good of the greenway system, and often certain costs such as shared permitting and construction access can be split amongst parties.



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Preferred Route
Phases + Connections

- Phase I
- Phase II
- Phase III
- Phase IV
- Phase V
- Phase VI
- Potential Connection
- Proposed East Coast Greenway
- Buffalo Creek Greenway

- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND

PROJECT COST ESTIMATE DESCRIPTION

In addition to understanding if a project is feasible from a technical perspective, understanding project cost is an equally important component to any feasibility study. Having this information enables communities to make informed decisions about whether or not to proceed with the project and may influence funding strategies. There are several types of costs to consider when establishing a project budget including, but not limited to, the following:

BASELINE CONSTRUCTION COST

Baseline construction costs for the current year of 2024 were generated using quantity takeoffs and calculations based on the preliminary design concepts. Detailed line-item estimates for the recommended routes analyzed, as well as for the individual segments which make up those routes can be found in Appendix D.



BASELINE CONSTRUCTION CONTINGENCY

Project contingencies help address unforeseen costs due to a variety of reasons. They typically range from 5% to 25% or more of the construction cost, depending on how well defined the project scope is and the existing site condition are known at the time of the estimate. A 30% contingency was assumed for preferred segments and 35% contingency was considered for individual segments analyzed over the course of this feasibility study. This contingency is assumed to help cover addition costs related to utility relocations, drainage needs, and other site conditions that cannot be determined at the feasibility study level.



ESCALATED CONSTRUCTION COSTS

To account for inflation, the baselined costs were projected into the future to a fiscal year (FY) of probable construction. Baseline construction costs are listed in current year (2024) dollars, with the build year cost escalated at an industry standard rate of 5% compounded annually to determine the build year cost.



CONSTRUCTION ENGINEERING + INSPECTION SERVICES (CEI)

A requirement for many state and federal funding sources. CEI services usually range from 9% to 12% of the build year construction cost estimate plus contingency.



ADDITIONAL PROJECT CONTINGENCY

And additional project contingency can be added depending on how well defined the project scope is and the existing site condition are known at the time of the estimate. An additional 5% contingency was assumed for this project due to the extent of the study area, the total length of the project, the number of potential environmental impacts, total structures anticipated, required railroad coordination, and other unknowns.



SURVEY + DESIGN SERVICES

Costs were estimated for survey and design services based on project size, design elements, anticipated permitting required, and other activities related to funding source requirements. Assumed design services costs are 12% of the base year construction estimate.



TOTAL BUDGET ESTIMATES

Total budget estimates were calculated by adding the aforementioned cost components and contingency. All calculated values were rounded up to the nearest \$1,000 for the simplicity of this exercise.

Please note that these are planning level cost estimates and should be refined as more detailed information becomes available throughout the design process. Actual costs will vary based on final project scope, prevailing market conditions, material prices, and labor rates at time of construction.

PREFERRED PHASE CUTSHEETS

Preferred Phase I: Smithfield Jaycee Kiddie Park to US-301 at Country Club Rd

The first phase begins at the existing Smithfield Riverwalk in Jaycee Kiddie Park. Due to the constraints of the existing development, it continues along 2nd St as a sidewalk with bicycle boulevard treatments on the existing roadway before turning north onto W. Wellons St. The route then turns left, heading south through the proposed Wellons Development as a sidepath, and continuing west along Baker St. It then transitions to a greenway east, of the wastewater treatment plant, continuing south before crossing Huntley St, and approaching the Neuse River near Michael Ln. The segment continues along the edge of the Brightleaf Flea Market property, then transitions to a sidepath along US-301. It crosses the Neuse River as part of a bridge reconstruction project that is funded by NCDOT (STIP BR-0086), which will include a 14 ft wide sidepath on the proposed bridge. The segment continues as a sidepath along US-301 to Country Club Rd near the edge of Smithfield’s ETJ. For connections along the Neuse River, two NCDOT Bridge Projects BR-0086 and B-6044 will replace existing bridges at US-301 and I-95 respectively, with preliminary designs including sufficient clearance beneath the bridge to construct a greenway crossing without additional structure needed.

Potential Permitting Needs

- ◆ NCDOT Encroachment
- ◆ NCDOT Control-of-Access Committee (Segment C4)
- ◆ Railroad Coordination (Segment C4)
- ◆ 401/404 Permit
- ◆ Erosion Control Permit
- ◆ FEMA Flood Model
- ◆ Neuse River Buffer Impacts

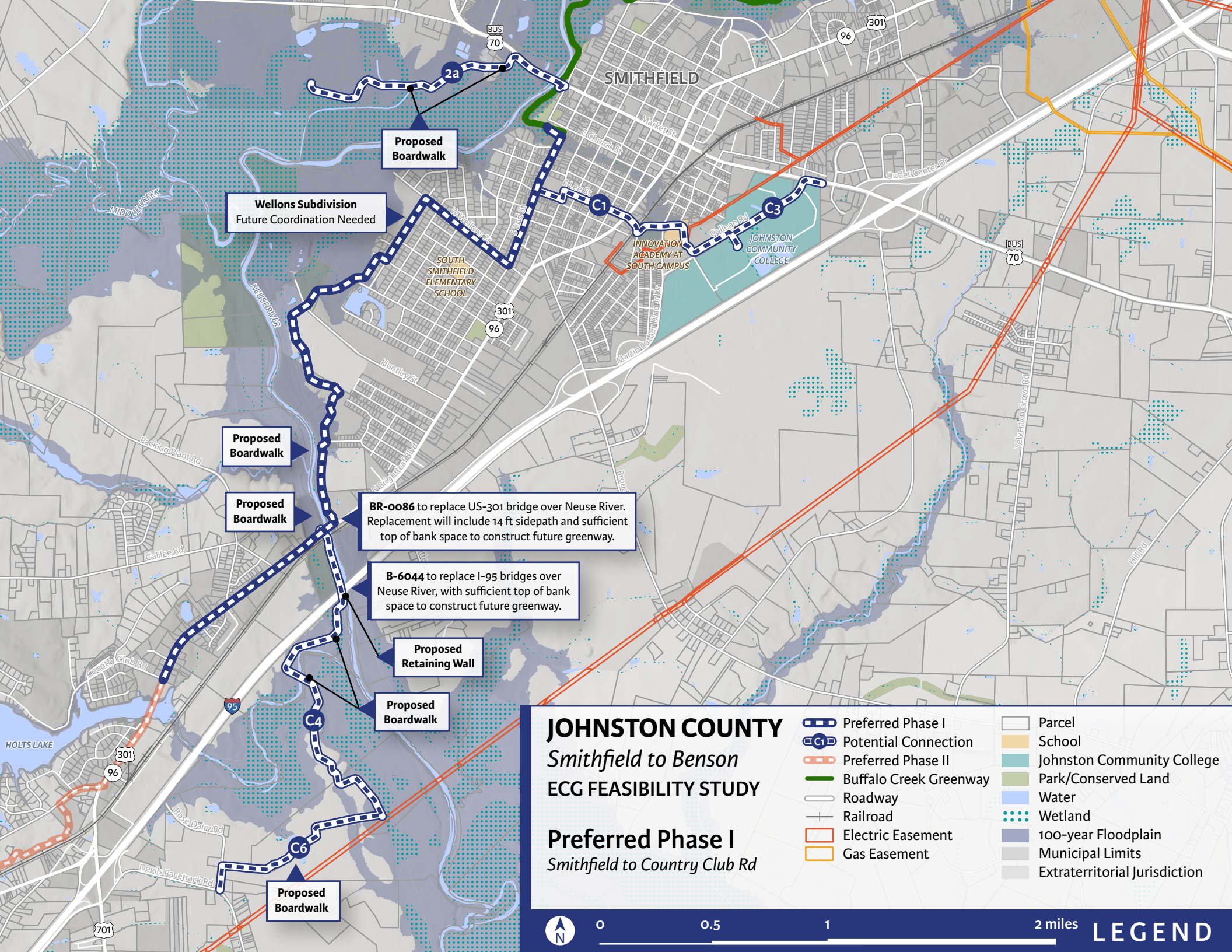
Project Snapshot

- ◆ **Location:** Local Streets, Neuse River, US-301
- ◆ **Jurisdiction:** Town of Smithfield
- ◆ **Mainline Facility Types:** Greenway (44%), Sidepath (56%)
- ◆ **Mainline Segments:** 1a>1b>1e>3a>3b
- ◆ **Total Length:**
 - ◆ Preferred Phase I: 3.9 Miles
 - ◆ Segment C1 – JCC Connection: 1.2 Miles
 - ◆ Segment C3 – Market St Connection: 0.6 Miles
 - ◆ Segment 2a – Future Smithfield Park Connection: 1.4 Miles
 - ◆ Segment C4 – Mountains to Sea Neuse River Trail Extension: 1.9 Miles
 - ◆ Segment C6 – Mountains to Sea Four Oaks Connector: 1.0 Miles
- ◆ **Structures:**
 - ◆ Preferred Phase I: Boardwalk (1, 100 LF)
 - ◆ Segment 2a: Boardwalk (2, 400 LF)
 - ◆ Segment C4: Boardwalk (4, 920 LF)
 - ◆ Segment C6: Boardwalk (2, 680 LF)
- ◆ **Mainline Roadway Crossings:**
 - ◆ Local Streets
 - ◆ Packing Plant Rd
 - ◆ Country Club Rd
- ◆ **Trail Connections:**
 - ◆ Johnston Community College/ Market Street
 - ◆ Mountains-to-Sea Trail
 - ◆ Future Smithfield Park
- ◆ **Destinations Served:**
 - ◆ Johnston Community College/ Market Street
 - ◆ Existing Smithfield Riverwalk
 - ◆ Smithfield Elementary School

Potential Right-of-Way/Easement Needs

SEGMENT	ALONG ROADWAY		NON-ROADWAY	
	# of Parcels	Unique Owners	# of Parcels	Unique Owners
Pref. Ph. I	40*	29	10	7
Seg. C1	21	20	6	4
Seg. C3	2	2	0	0
Seg. 2a	3	3	7	5
Seg. C4	0	0	7	6
Seg. C6	2	2	1	1

*Includes parcels and owners along existing sidewalk along 2nd street. Additional landowners and parcels will need to be identified and coordinated with once the Wellons Development Subdivision plat is recorded.



Wellons Subdivision
Future Coordination Needed

Proposed Boardwalk

Proposed Boardwalk

Proposed Boardwalk

BR-0086 to replace US-301 bridge over Neuse River. Replacement will include 14 ft sidepath and sufficient top of bank space to construct future greenway.

B-6044 to replace I-95 bridges over Neuse River, with sufficient top of bank space to construct future greenway.

Proposed Retaining Wall

Proposed Boardwalk

Proposed Boardwalk

JOHNSTON COUNTY

Smithfield to Benson

ECG FEASIBILITY STUDY

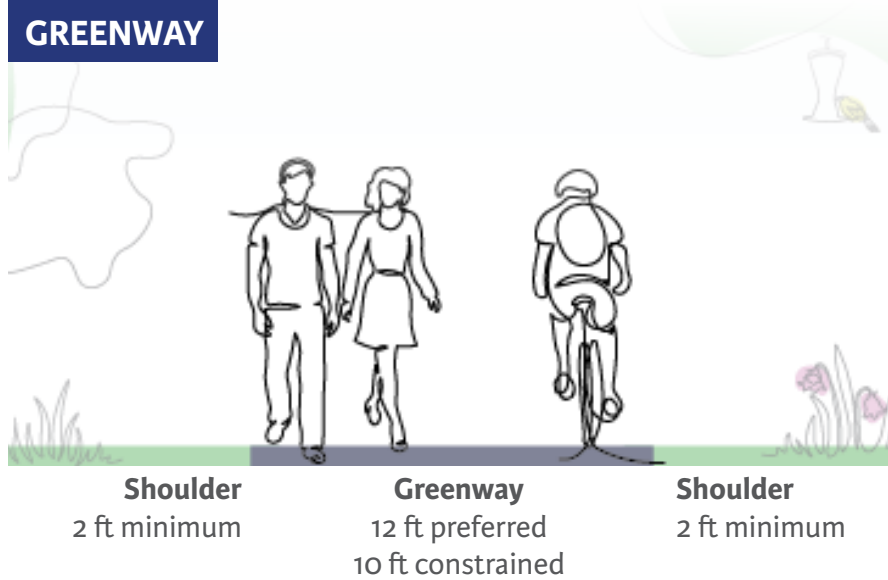
Preferred Phase I

Smithfield to Country Club Rd

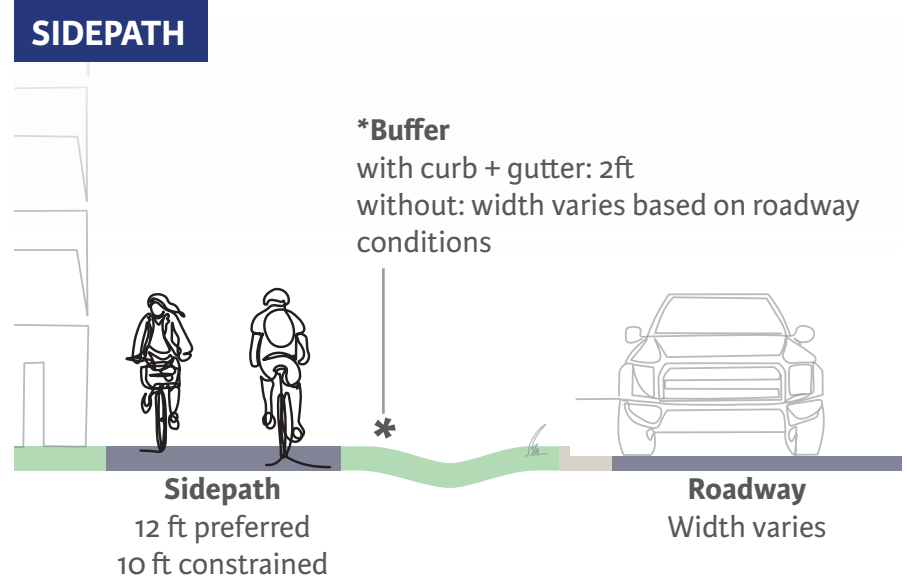
- Preferred Phase I
- Preferred Phase II
- Buffalo Creek Greenway
- Roadway
- Railroad
- Electric Easement
- Gas Easement
- Parcel
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Wetland
- 100-year Floodplain
- Municipal Limits
- Extraterritorial Jurisdiction

Typical Sections

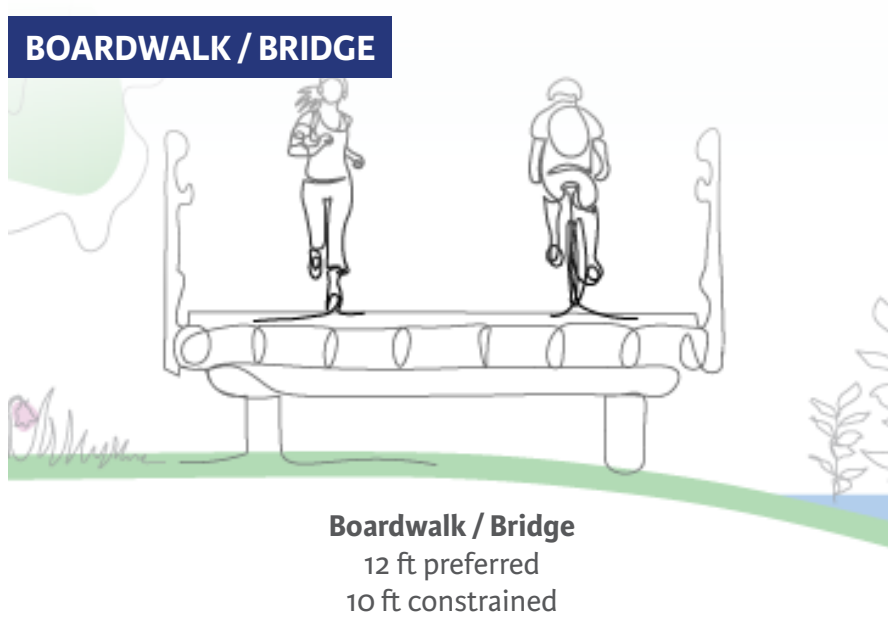
GREENWAY



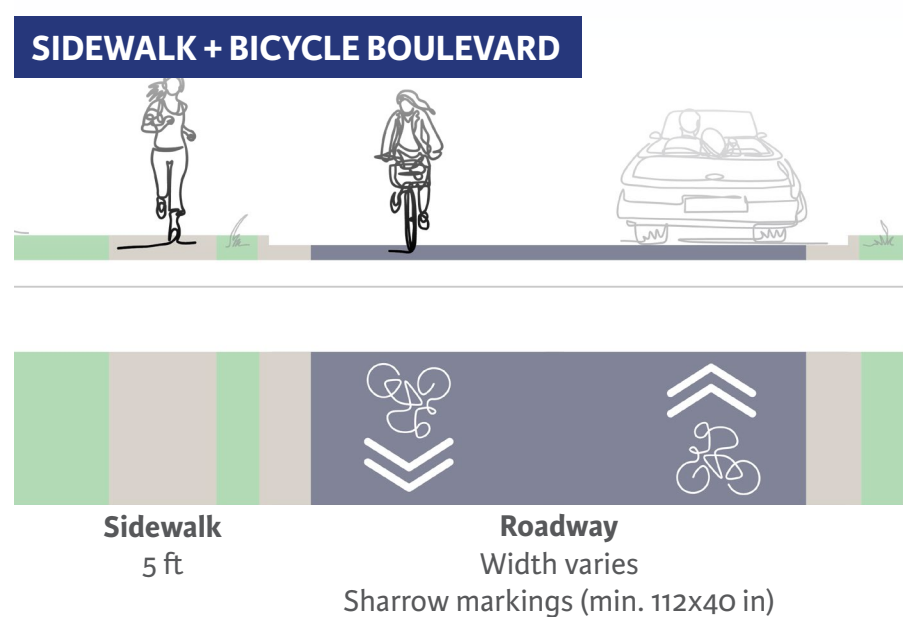
SIDEPATH



BOARDWALK / BRIDGE



SIDEWALK + BICYCLE BOULEVARD



Estimated Project Cost

Cost Category	Pref. Phase I	Segment 2a	Segment C1	Segment C3	Segment C4	Segment C6
2024 Baseline Construction Cost Estimate	\$4,452,890	\$1,863,260	\$842,800	\$698,400	\$3,754,200	\$2,076,600
Baseline Construction Contingency (percentage may vary by segment)	\$1,335,867	\$652,141	\$294,980	\$244,440	\$1,313,970	\$726,810
Baseline Total Construction Cost Estimate	\$5,789,000	\$2,515,000	\$1,138,000	\$943,000	\$5,068,000	\$2,803,000
Assumed Build Year	2027	2030	2030	2032	2035	2040
Build Year Construction Cost Estimate	\$6,710,000	\$3,380,000	\$1,530,000	\$1,400,000	\$8,670,000	\$6,120,000
Construction Engineering & Inspection (CEI) Services Cost Estimate (12% of Build Year Estimate)	\$806,000	\$406,000	\$184,000	\$168,000	\$1,041,000	\$735,000
Additional Project Contingency (5% of Build Year Estimate)	\$336,000	\$169,000	\$77,000	\$70,000	\$434,000	\$306,000
Total Construction Cost Estimate (w/ CEI)	\$7,852,000	\$3,955,000	\$1,791,000	\$1,638,000	\$10,145,000	\$7,161,000
Design Services Cost Estimate (12% of Baseline Construction Cost)	\$535,000	\$224,000	\$102,000	\$84,000	\$451,000	\$250,000
Total Project Cost Estimate (Build Year Construction + Design)	\$8,387,000	\$4,179,000	\$1,893,000	\$1,722,000	\$10,596,000	\$7,411,000

Preferred Phase II: US-301 at Country Club Rd to Downtown Four Oaks

The second phase begins on US-301 at Country Club Rd near the Smithfield ETJ, and continues west across the Holt Lake bridge, which will include a 10 ft multi-use path as part of an NCDOT funded bridge replacement project. The sidepath continues along the northern edge of the proposed I-95/US-301/US-701 Interchange project (I-5974) before turning onto Thunder Rd. It then crosses a large section of undeveloped land as a greenway before connecting to public right of way on Dawn Ave. It crosses E. Sanders St and continues into Four Oaks as a sidepath to N. Church St. This mainline also includes sidepath segments along S. Church St to Downtown Four Oaks and N. Church St to Four Oaks Elementary School.

Potential Permitting Needs

- ◆ NCDOT Encroachment
- ◆ Railroad Coordination
- ◆ NCDOT Control of Access Review (Segment 3i)
- ◆ 401/404 Permit
- ◆ Erosion Control Permit

Project Snapshot

- ◆ **Location:** US-301, Thunder Road
- ◆ **Jurisdiction:** Town of Four Oaks
- ◆ **Mainline Facility Types:** Greenway (35%), Sidepath (65%)
- ◆ **Mainline Segments:** 3d>3f>3j
- ◆ **Total Length:**
 - ◆ **Preferred Phase II:** 5.4 Miles
 - ◆ **Segment 3L – Four Oaks Greenway:** 0.4 Miles
 - ◆ **Segment 3i – Four Oaks Middle School Connector:** 2.0 Miles
- ◆ **Structures:**
 - ◆ **Preferred Phase II:** Bridge (1, 260 LF); Retaining Wall (2, 1700 SF)
 - ◆ **Segment 3L:** Boardwalk (1, 40 LF)
- ◆ **Roadway Crossings:**
 - ◆ US-301
 - ◆ Thunder Road
 - ◆ E. Sanders Street
- ◆ **Destinations Served:**
 - ◆ Downtown Four Oaks
 - ◆ Four Oaks Elementary School
 - ◆ Four Oaks Middle School
 - ◆ JCC Skills Development Center
- ◆ **Trail Connections:**
 - ◆ Four Oaks Middle School

Potential Right-of-Way/Easement Needs

SEGMENT	ALONG ROADWAY		NON-ROADWAY	
	# of Parcels	Unique Owners	# of Parcels	Unique Owners
Pref. Ph. II	61	56	8	8
Seg. 3L	3	3	2	2
Seg. 3i	34	28	1	1

JOHNSTON COUNTY

Smithfield to Benson

ECG FEASIBILITY STUDY

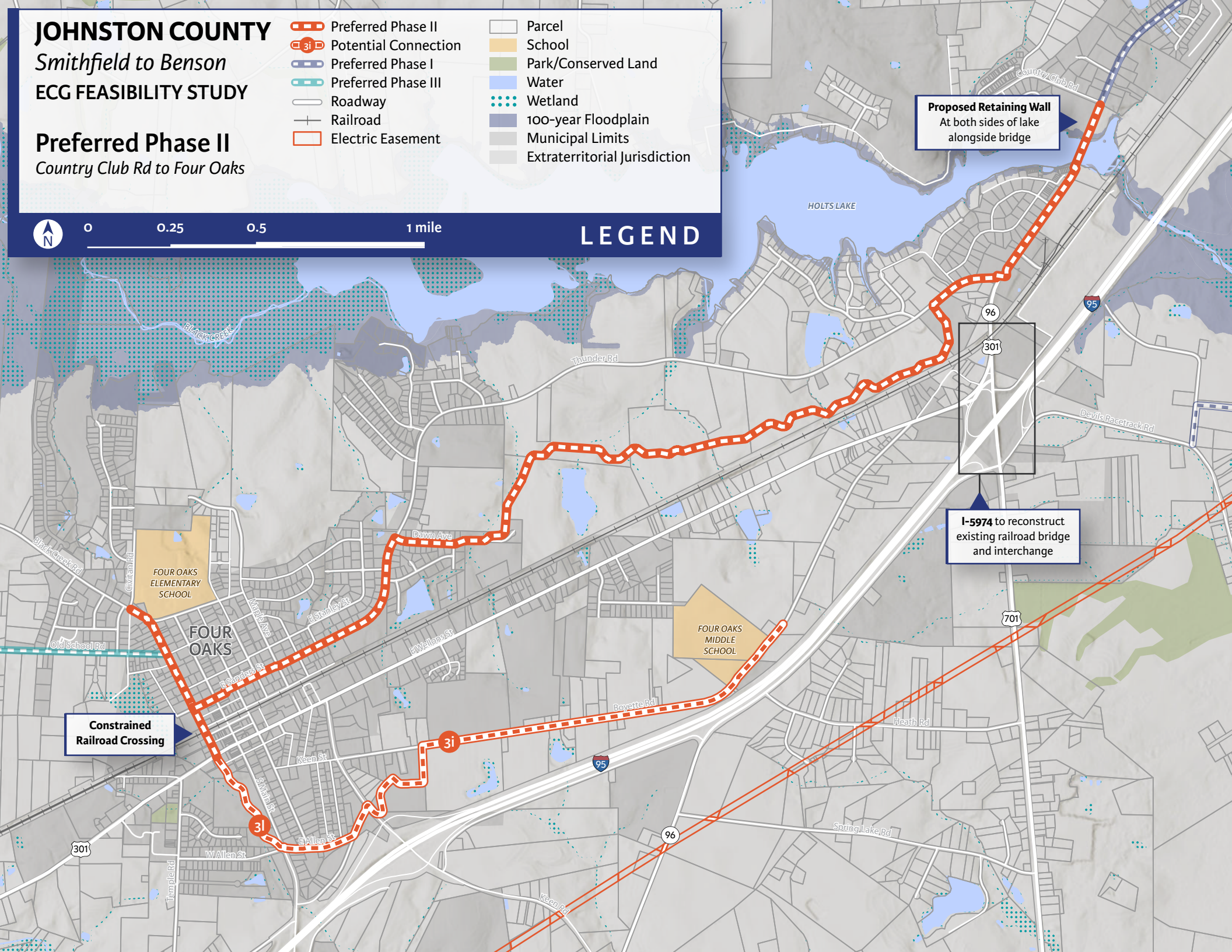
Preferred Phase II

Country Club Rd to Four Oaks

- | | | | |
|--|----------------------|--|-------------------------------|
| | Preferred Phase II | | Parcel |
| | Potential Connection | | School |
| | Preferred Phase I | | Park/Conserved Land |
| | Preferred Phase III | | Water |
| | Roadway | | Wetland |
| | Railroad | | 100-year Floodplain |
| | Electric Easement | | Municipal Limits |
| | | | Extraterritorial Jurisdiction |



LEGEND



Proposed Retaining Wall
At both sides of lake alongside bridge

I-594 to reconstruct existing railroad bridge and interchange

Constrained Railroad Crossing

Typical Sections

GREENWAY

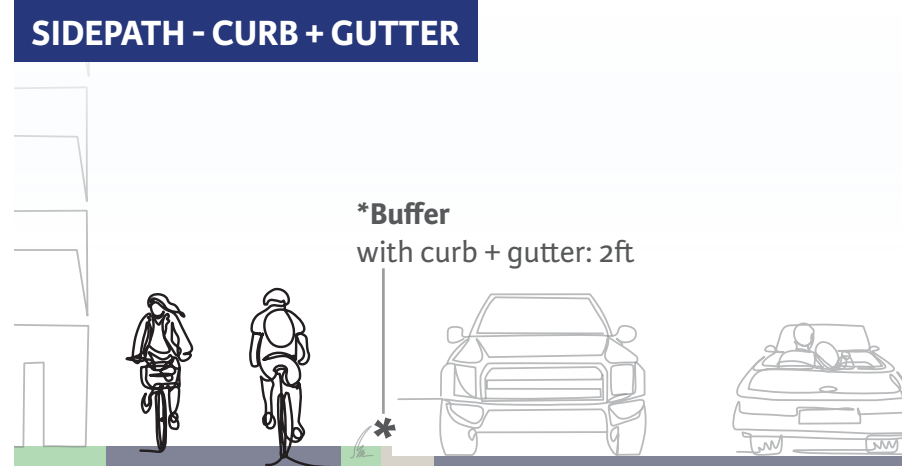


Shoulder
2 ft minimum

Greenway
12 ft preferred
10 ft constrained

Shoulder
2 ft minimum

SIDEPATH - CURB + GUTTER

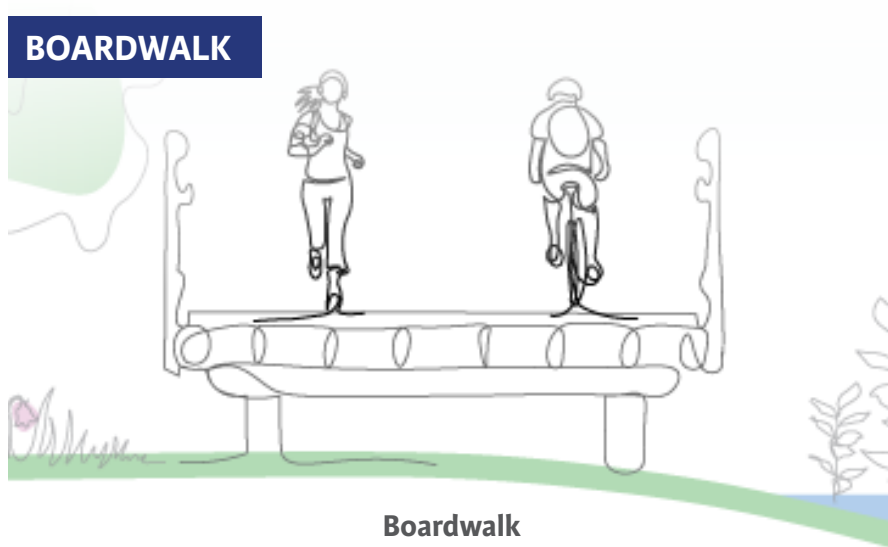


***Buffer**
with curb + gutter: 2ft

Sidepath
12 ft preferred
10 ft constrained

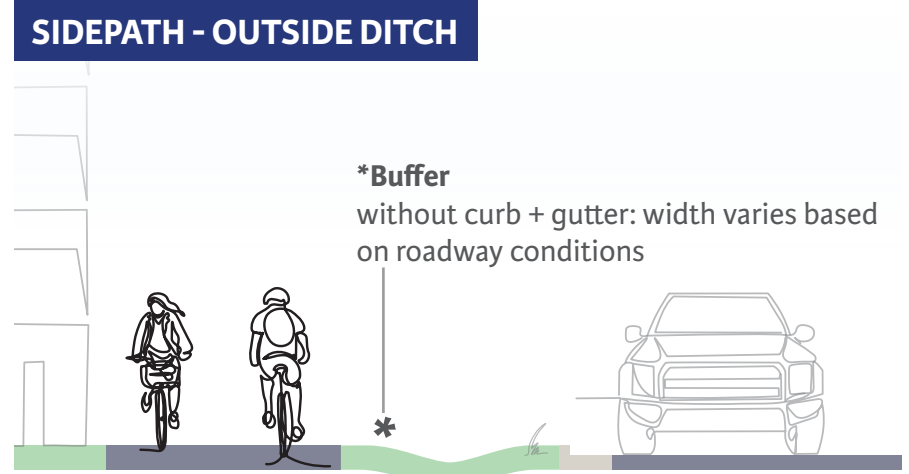
Roadway
Width varies

BOARDWALK



Boardwalk
12 ft preferred
10 ft constrained

SIDEPATH - OUTSIDE DITCH



***Buffer**
without curb + gutter: width varies based
on roadway conditions

Sidepath
12 ft preferred
10 ft constrained

Roadway
Width varies

Estimated Project Cost

Cost Category	Prof. Phase II	Segment 3L	Segment 3i
2024 Baseline Construction Cost Estimate	\$7,515,180	\$482,700	\$2,739,000
Baseline Construction Contingency (percentage may vary by segment)	\$2,254,554	\$168,945	\$958,650
Baseline Total Construction Cost Estimate	\$9,770,000	\$652,000	\$3,698,000
Assumed Build Year	2030	2035	2040
Build Year Construction Cost Estimate	\$13,100,000	\$1,120,000	\$8,080,000
Construction Engineering & Inspection (CEI) Services Cost Estimate (12% of Build Year Estimate)	\$1,572,000	\$135,000	\$970,000
Additional Project Contingency (5% of Build Year Estimate)	\$655,000	\$56,000	\$404,000
Total Construction Cost Estimate (w/CEI)	\$15,327,000	\$1,311,000	\$9,454,000
Design Services Cost Estimate (12% of Baseline Construction Cost)	\$902,000	\$58,000	\$329,000
Total Project Cost Estimate (Build Year Construction + Design)	\$16,229,000	\$1,369,000	\$9,783,000

Preferred Phase III: Old School Rd from N. Church St to Gum Swamp Rd

This third phase begins in Four Oaks at the intersection of N. Church St and Old School Rd, heading west along the north side of the road. This segment contains some sections of curb and gutter to minimize property impacts, but the ideal treatment is to place the sidepath at the back of the existing roadway drainage ditch for maximum separation. It crosses Old School Rd at Parkertown Rd, to minimize total property impacts, before ending near Four Oaks ETJ at Gum Swamp Rd.

Potential Permitting Needs

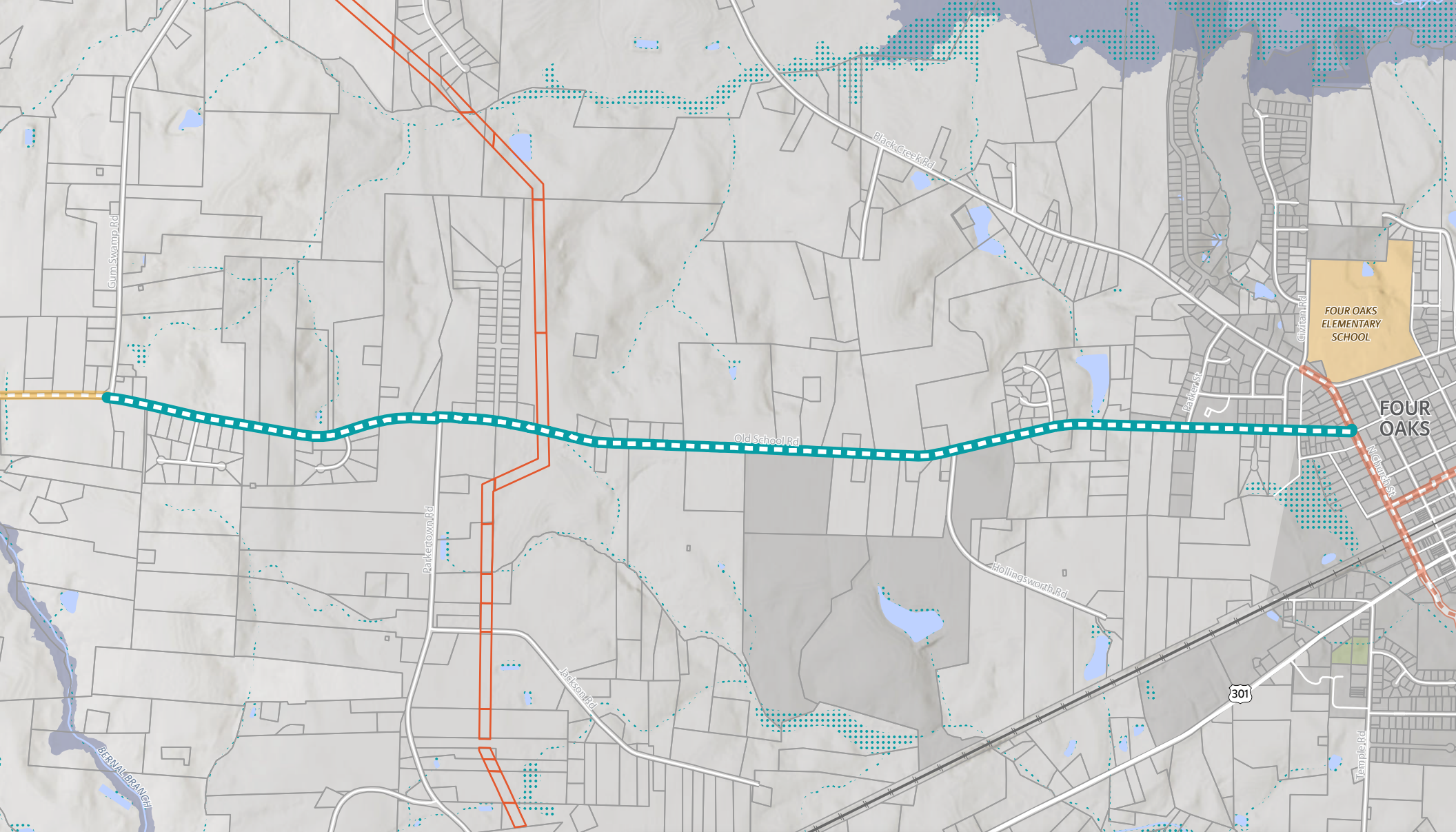
- ◆ NCDOT Encroachment
- ◆ Erosion Control Permit
- ◆ Duke Energy Encroachment
- ◆ Speed Limit Reduction to 45 MPH for Curb and Gutter

Project Snapshot

- ◆ **Location:** Old School Road
- ◆ **Jurisdiction:** Johnston County, Town of Four Oaks
- ◆ **Mainline Facility Types:** Sidepath
- ◆ **Mainline Segments:** 4c>4h>4i
- ◆ **Total Length:**
 - ◆ **Preferred Phase III:** 2.7 Miles
- ◆ **Structures:** None
- ◆ **Mainline Roadway Crossings:**
 - ◆ Old School Road
- ◆ **Trail Connections:** None
- ◆ **Destinations Served:**
 - ◆ Existing housing developments
 - ◆ Downtown Four Oaks
















Potential Right-of-Way/Easement Needs

SEGMENT	ALONG ROADWAY	
	# of Parcels	Unique Owners
Pref. Phase III	58	43



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Preferred Phase III
N. Church St to Gum Swamp Rd

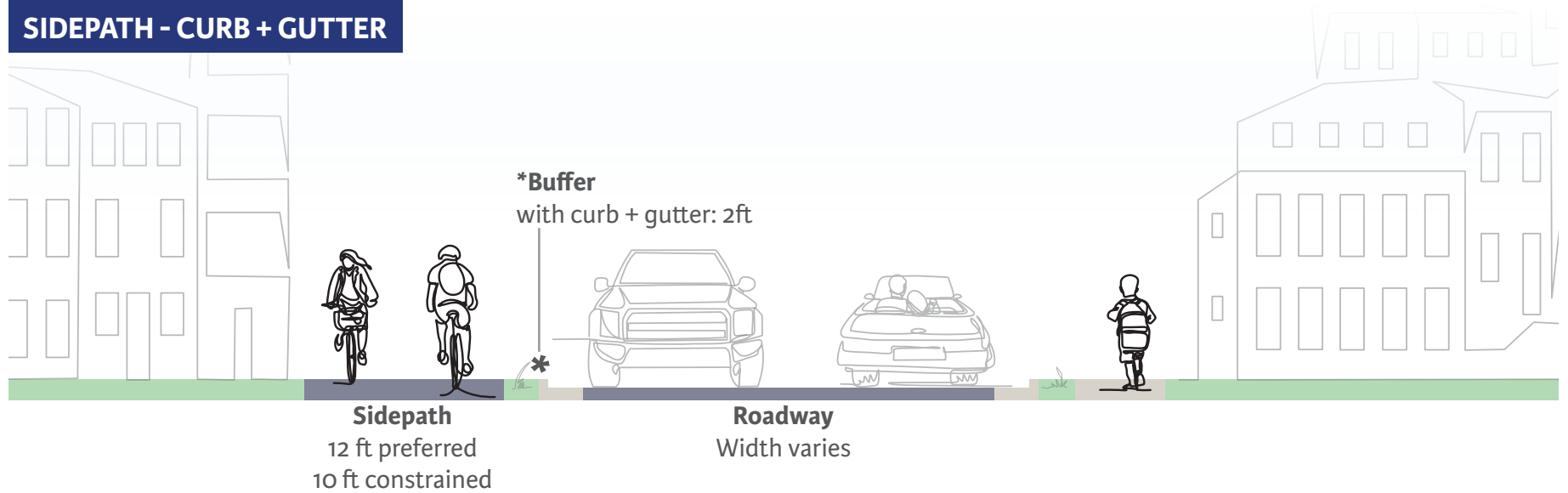
-  Preferred Phase III
-  Preferred Phase II
-  Potential Phase II
-  Preferred Phase VI
-  Roadway
-  Railroad
-  Electric Easement
-  Parcel
-  School
-  Park/Conserved Land
-  Water
-  Wetland
-  100-year Floodplain
-  Municipal Limits
-  Extraterritorial Jurisdiction



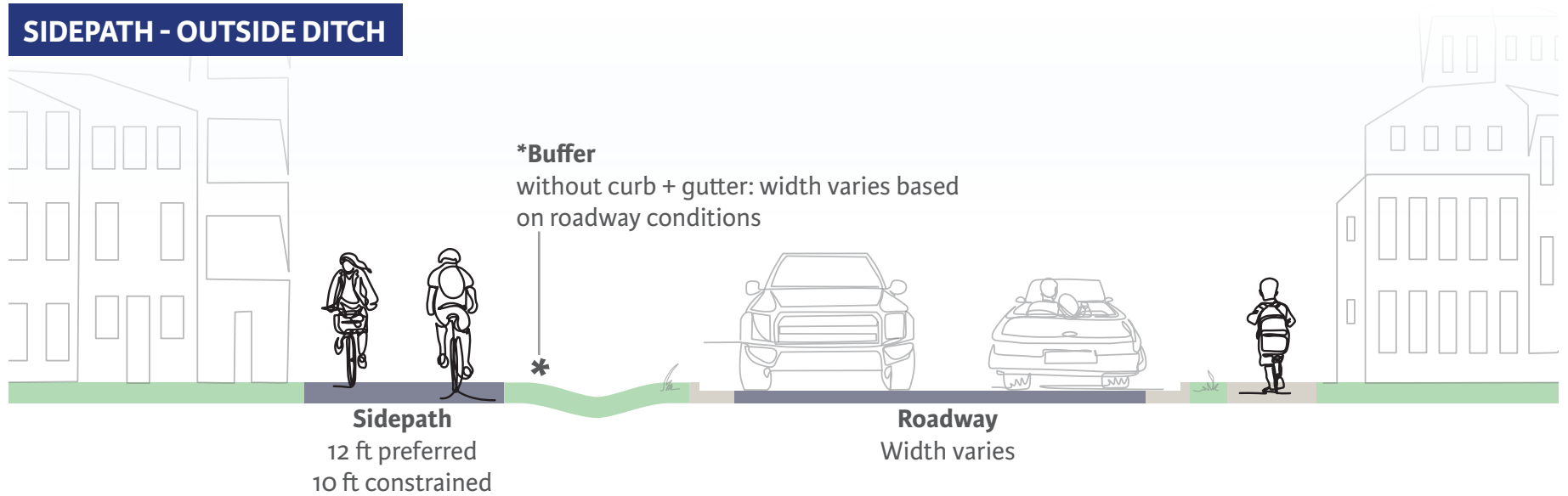
LEGEND

Typical Sections

SIDEPATH - CURB + GUTTER



SIDEPATH - OUTSIDE DITCH



Estimated Project Cost

Cost Category	Pref. Phase III
2024 Baseline Construction Cost Estimate	\$4,077,800
Baseline Construction Contingency (percentage may vary by segment)	\$1,223,340
Baseline Total Construction Cost Estimate	\$5,301,000
Assumed Build Year	2035
Build Year Construction Cost Estimate	\$9,070,000
Construction Engineering & Inspection (CEI) Services Cost Estimate (12% of Build Year Estimate)	\$1,089,000
Additional Project Contingency (5% of Build Year Estimate)	\$454,000
Total Construction Cost Estimate (w/CEI)	\$10,613,000
Design Services Cost Estimate (12% of Baseline Construction Cost)	\$490,000
Total Project Cost Estimate (Build Year Construction + Design)	\$11,103,000

Preferred Phase IV: NC-242 at I-40 to Downtown Benson

The fourth phase begins on NC-242 (Woodall Dairy Rd) at I-40 and uses a portion of the I-40 ROW (Control-of-Access modification needed) to access Tarheel Rd. From there it continues as a sidepath, crossing the rail corridor before reaching US-301. It then continues onto Honeycutt Rd, passing Benson Middle School, then running a greenway segment to connect to E. Branch St before following N. Johnson St into Downtown Benson.

Potential Permitting Needs

- ◆ NCDOT Encroachment
- ◆ 401/404 Permit
- ◆ Erosion Control Permit
- ◆ Railroad Coordination
- ◆ NCDOT Control of Access Review

Project Snapshot

- ◆ **Location:** Tarheel Road, Honeycutt Road, N. Johnson Street
- ◆ **Jurisdiction:** Town of Benson
- ◆ **Mainline Facility Types:** Sidepath (70%), Greenway (30%)
- ◆ **Mainline Segments:** 6a>6c>7d>7e
- ◆ **Total Length:**
 - ◆ **Preferred Phase IV:** 3.9 Miles
 - ◆ **Segment 8e+C9 – Benson Elementary School Connector:** 1.7 Miles
- ◆ **Structures:**
 - ◆ **Preferred Phase IV:** Boardwalk (1, 100 LF)
- ◆ **Roadway Crossings:**
 - ◆ US-301
 - ◆ N. Johnson Street
- ◆ **Trail Connections:**
 - ◆ Benson Elementary School
- ◆ **Destinations Served:**
 - ◆ Downtown Benson
 - ◆ Benson Elementary School
 - ◆ Benson Middle School

Potential Right-of-Way/Easement Needs

SEGMENT	ALONG ROADWAY		NON-ROADWAY	
	# of Parcels	Unique Owners	# of Parcels	Unique Owners
Pref. Ph. IV	52	42	6	4
Seg. 8e+C9	64	58	0	0

JOHNSTON COUNTY

Smithfield to Benson

ECG FEASIBILITY STUDY

Preferred Phase IV

I-40 to Downtown Benson

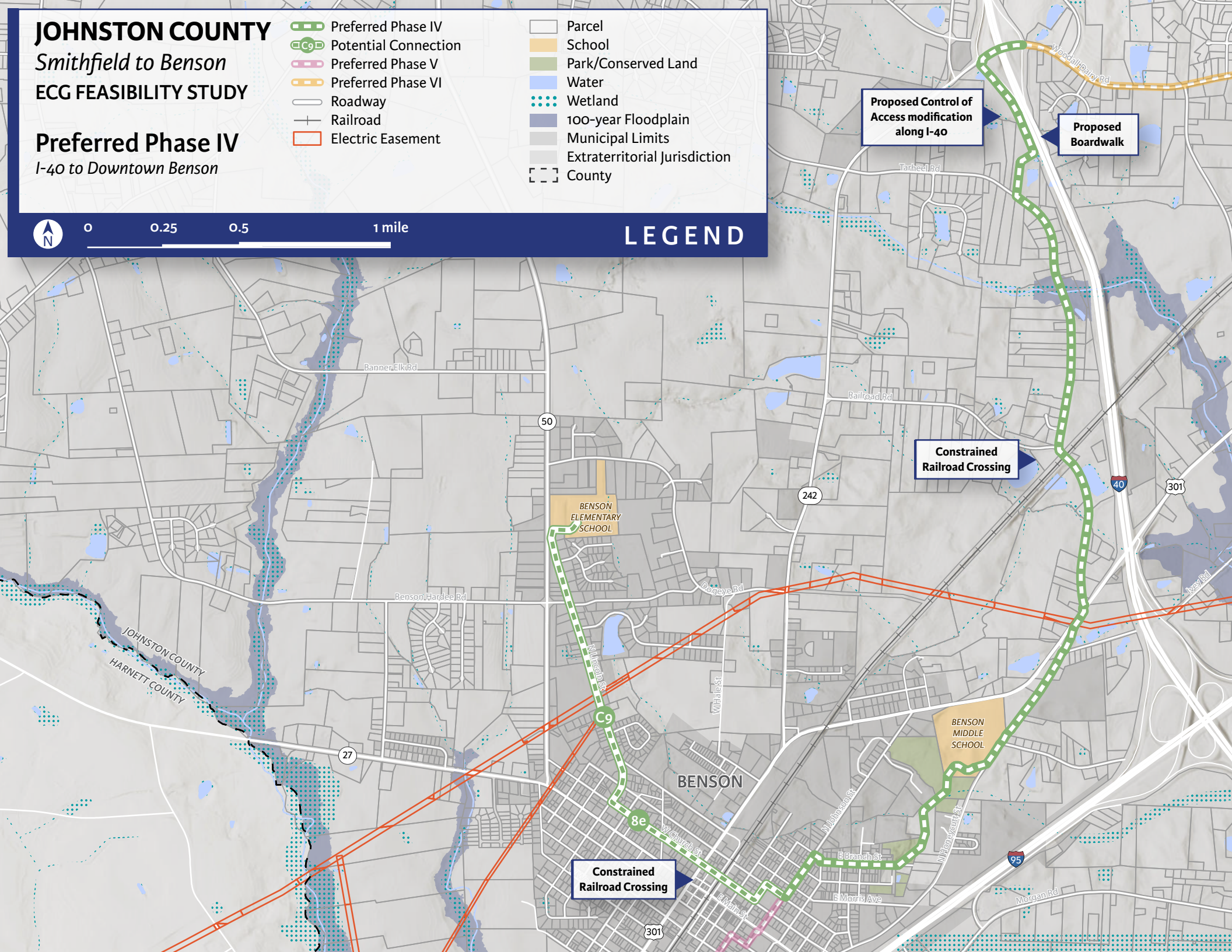


0 0.25 0.5 1 mile

- Preferred Phase IV
- Potential Connection
- Preferred Phase V
- Preferred Phase VI
- Roadway
- Railroad
- Electric Easement

- Parcel
- School
- Park/Conserved Land
- Water
- Wetland
- 100-year Floodplain
- Municipal Limits
- Extraterritorial Jurisdiction
- County

LEGEND



Proposed Control of Access modification along I-40

Proposed Boardwalk

Constrained Railroad Crossing

Constrained Railroad Crossing

50

242

40

301

27

301

95

BENSON ELEMENTARY SCHOOL

BENSON MIDDLE SCHOOL

BENSON

JOHNSTON COUNTY
HARNETT COUNTY

Banner Elk Rd

Benson Hardee Rd

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BENSON ELEMENTARY SCHOOL

BENSON MIDDLE SCHOOL

BENSON

JOHNSTON COUNTY
HARNETT COUNTY

Banner Elk Rd

Benson Hardee Rd

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BENSON MIDDLE SCHOOL

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JOHNSTON COUNTY
HARNETT COUNTY

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BENSON ELEMENTARY SCHOOL

BENSON MIDDLE SCHOOL

BENSON

JOHNSTON COUNTY
HARNETT COUNTY

Banner Elk Rd

Benson Hardee Rd

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Typical Sections

GREENWAY

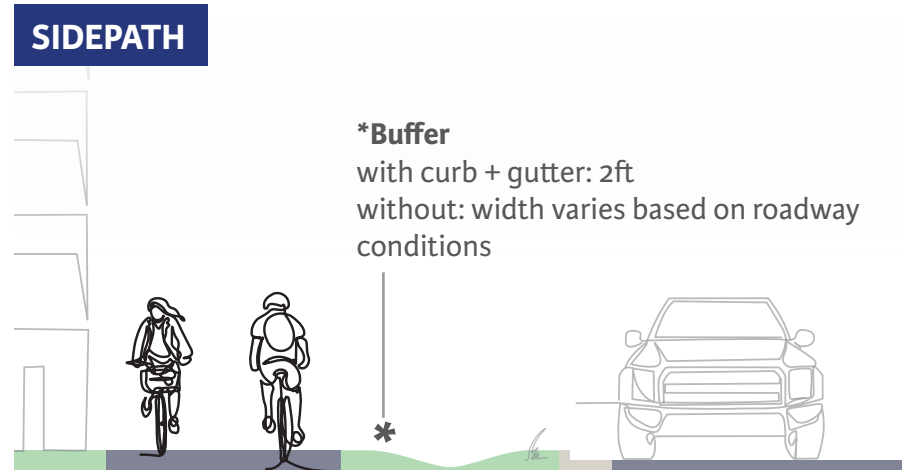


Shoulder
2 ft minimum

Greenway
12 ft preferred
10 ft constrained

Shoulder
2 ft minimum

SIDEPATH

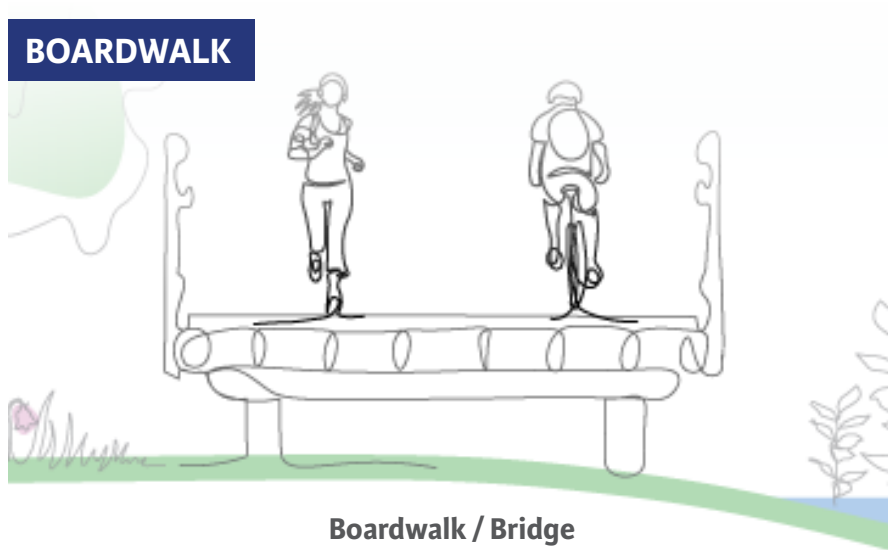


***Buffer**
with curb + gutter: 2ft
without: width varies based on roadway conditions

Sidepath
12 ft preferred
10 ft constrained

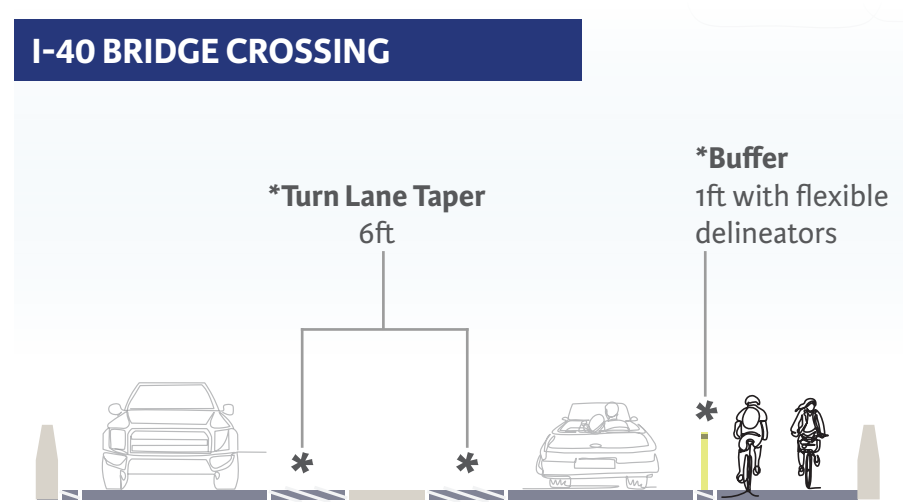
Roadway
Width varies

BOARDWALK



Boardwalk / Bridge
12 ft preferred
10 ft constrained

I-40 BRIDGE CROSSING



***Turn Lane Taper**
6ft

***Buffer**
1ft with flexible delineators

Travel Lane
12 ft

Median
6 ft

Travel Lane
12 ft

Bikeway
10 ft

Estimated Project Cost

Cost Category	Prof. Phase IV	Segment 8e	Segment C9
2024 Baseline Construction Cost Estimate	\$5,579,340	\$651,000	\$1,656,200
Baseline Construction Contingency (percentage may vary by segment)	\$1,673,802	\$227,850	\$579,670
Baseline Total Construction Cost Estimate	\$7,253,000	\$879,000	\$2,236,000
Build Year	2032	2040	2040
Build Year Construction Cost Estimate	\$10,720,000	\$1,920,000	\$4,890,000
Construction Engineering & Inspection (CEI) Services Cost Estimate (12% of Build Year Estimate)	\$1,287,000	\$231,000	\$587,000
Additional Project Contingency (5% of Build Year Estimate)	\$536,000	\$96,000	\$245,000
Total Construction Cost Estimate (w/CEI)	\$12,543,000	\$2,247,000	\$5,722,000
Design Services Cost Estimate (12% of Baseline Construction Cost)	\$670,000	\$79,000	\$199,000
Total Project Cost Estimate (Build Year Construction + Design)	\$13,213,000	\$2,326,000	\$5,921,000

Preferred Phase V: Downtown Benson to Harnett County line

This fifth phase begins at the intersection of N. Johnson St at E. Church St, navigating as a sidepath along local streets to the southwest, before turning onto S. Market St and following the route identified in the Benson CTP. It continues west along Chicopee Rd as a sidepath, before crossing the railroad tracks and US-301. From there it turns north as a greenway, navigating natural areas, wetlands, and a Duke Transmission Easement before crossing Mingo Swamp into Harnett County.

Potential Permitting Needs

- ◆ NCDOT Encroachment
- ◆ 401/404 Permit
- ◆ Buffer Impacts
- ◆ Erosion Control Permit
- ◆ Railroad Coordination
- ◆ FEMA Flood Model
- ◆ Duke Transmission Easement Encroachment

Project Snapshot

- ◆ **Location:** Local Streets, Mingo Swamp
- ◆ **Jurisdiction:** Town of Benson
- ◆ **Mainline Facility Types:** Sidepath (80%), Greenway (20%)
- ◆ **Mainline Segments:** 9c>9h
- ◆ **Total Length:**
 - ◆ **Preferred Phase V:** 2.2 Miles
- ◆ **Structures:**
 - ◆ Boardwalk (2, 1270 LF)
- ◆ **Roadway Crossings:**
 - ◆ US-301
 - ◆ Local Streets
- ◆ **Trail Connections:** None
- ◆ **Destinations Served:**
 - ◆ Downtown Benson
 - ◆ Harnett County

Potential Right-of-Way/Easement Needs

SEGMENT	ALONG ROADWAY		NON-ROADWAY	
	# of Parcels	Unique Owners	# of Parcels	Unique Owners
Pref. Ph. V	51	39	3	3

















JOHNSTON COUNTY

Smithfield to Benson

ECG FEASIBILITY STUDY

Preferred Phase V

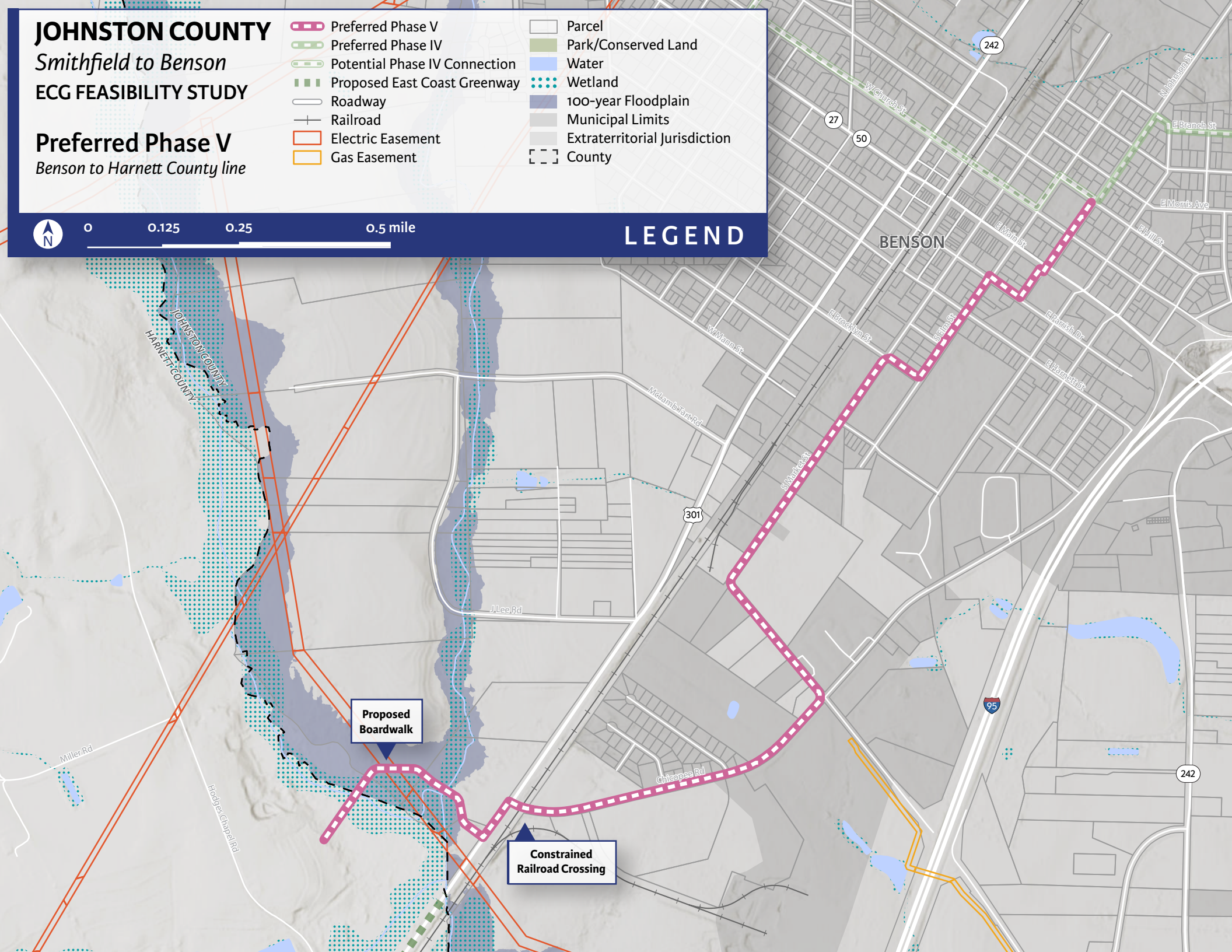
Benson to Harnett County line

- | | |
|--|---|
|  Preferred Phase V |  Parcel |
|  Preferred Phase IV |  Park/Conserved Land |
|  Potential Phase IV Connection |  Water |
|  Proposed East Coast Greenway |  Wetland |
|  Roadway |  100-year Floodplain |
|  Railroad |  Municipal Limits |
|  Electric Easement |  Extraterritorial Jurisdiction |
|  Gas Easement |  County |



0 0.125 0.25 0.5 mile

LEGEND



Typical Sections

GREENWAY

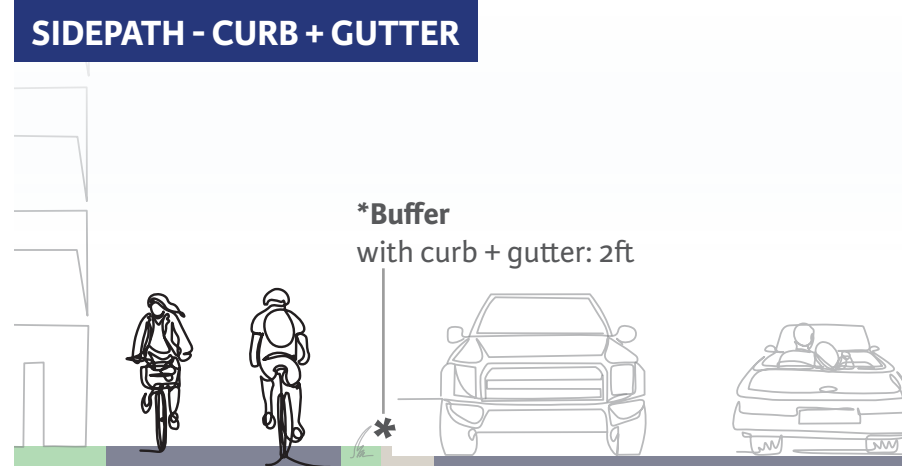


Shoulder
2 ft minimum

Greenway
12 ft preferred
10 ft constrained

Shoulder
2 ft minimum

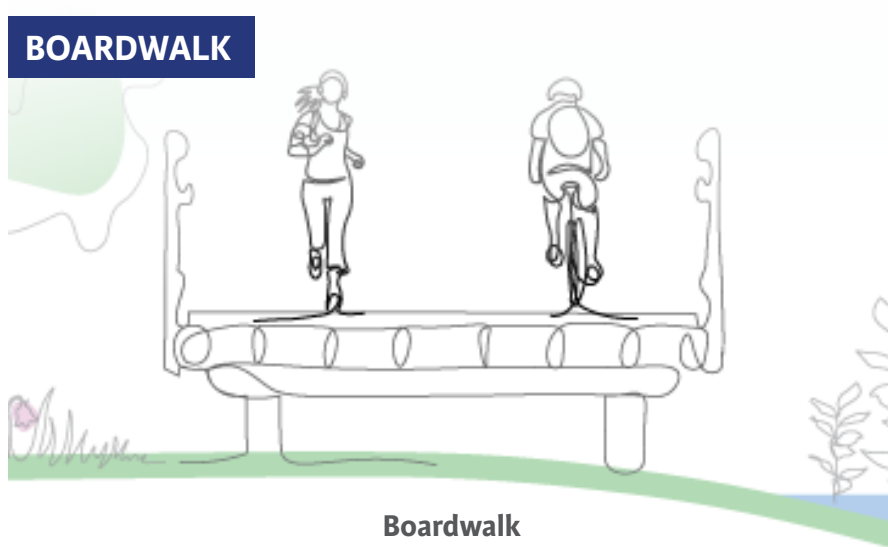
SIDEPATH - CURB + GUTTER



Sidepath
12 ft preferred
10 ft constrained

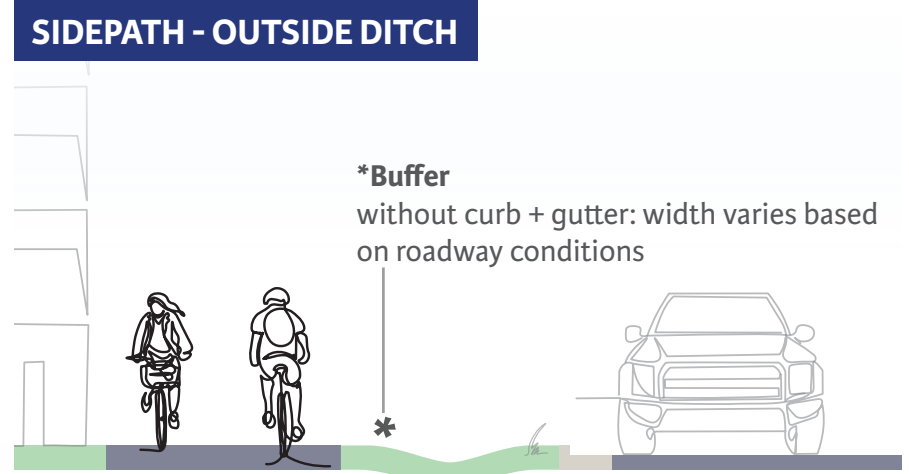
Roadway
Width varies

BOARDWALK



Boardwalk
12 ft preferred
10 ft constrained

SIDEPATH - OUTSIDE DITCH



Sidepath
12 ft preferred
10 ft constrained

Roadway
Width varies

Estimated Project Cost

Cost Category	Pref. Phase V
2024 Baseline Construction Cost Estimate	\$4,980,920
Baseline Construction Contingency (percentage may vary by segment)	\$1,494,276
Baseline Total Construction Cost Estimate	\$6,475,000
Build Year	2035
Build Year Construction Cost Estimate	\$11,080,000
Construction Engineering & Inspection (CEI) Services Cost Estimate (12% of Build Year Estimate)	\$1,330,000
Additional Project Contingency (5% of Build Year Estimate)	\$554,000
Total Construction Cost Estimate (w/CEI)	\$12,964,000
Design Services Cost Estimate (12% of Baseline Construction Cost)	\$598,000
Total Project Cost Estimate (Build Year Construction + Design)	\$13,562,000

Preferred Phase VI: Old School Rd at Gum Swamp Rd to Woodall Dairy Rd at I-40

The final phase begins as a sidepath on the north side of Old School Rd near Gum Swamp Rd and continues west to Raleigh Rd, where it continues south along the west side of the road. It crosses Stony Fork creek on a boardwalk before turning west onto Woodall Dairy Rd. It crosses to the south side of Woodall Dairy Rd at the intersection with Federal Rd, before ending near the I-40 Westbound Off-Ramp.

Potential Permitting Needs

- ◆ NCDOT Encroachment
- ◆ 401/404 Permit
- ◆ Erosion Control Permit
- ◆ Railroad Coordination (Segment 5e+5h)
- ◆ Speed Limit Reduction to 45 MPH for Curb and Gutter

Project Snapshot

- ◆ **Location:** Old School Road, Raleigh Road, Woodall Dairy Road
- ◆ **Jurisdiction:** Johnston County
- ◆ **Mainline Facility Types:** Sidepath
- ◆ **Mainline Segments:** 5a>5d>5g>5l
- ◆ **Total Length:**
 - ◆ **Preferred Phase VI:** 4.6 Miles
 - ◆ **Segment 5e+5h:** 1.3 Miles
- ◆ **Structures:**
 - ◆ Boardwalk (1, 200 LF)
- ◆ **Roadway Crossings:**
 - ◆ Old School Road
 - ◆ Raleigh Road
 - ◆ Woodall Dairy Road
 - ◆ I-40 Westbound Off-Ramp
- ◆ **Trail Connections:**
 - ◆ South Johnston High School
 - ◆ Existing housing developments

Potential Right-of-Way/Easement Needs

SEGMENT	ALONG ROADWAY	
	# of Parcels	Unique Owners
Pref. Phase VI	78	62
Seg. 5e+5h	27	22

JOHNSTON COUNTY

Smithfield to Benson

ECG FEASIBILITY STUDY

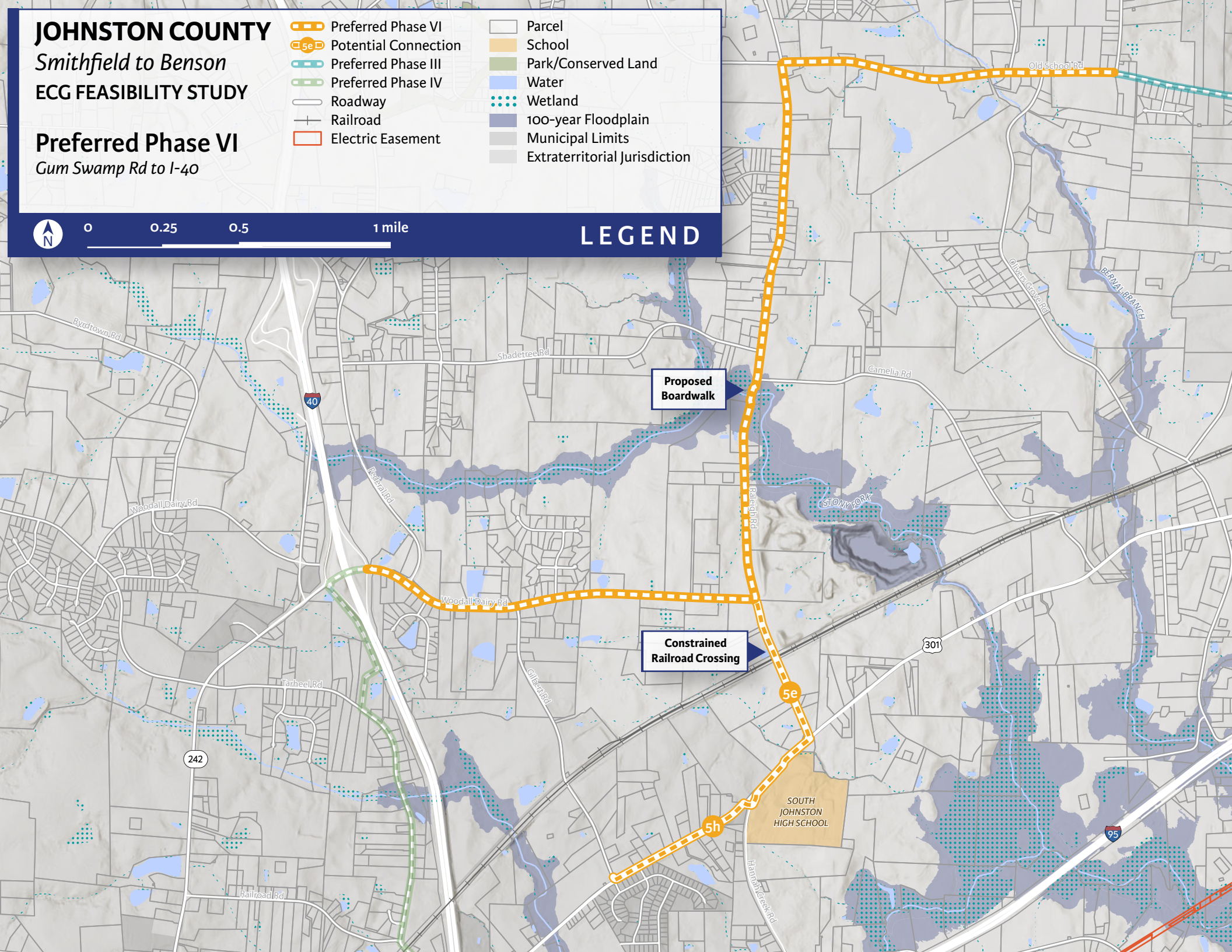
Preferred Phase VI

Gum Swamp Rd to I-40

- | | | | |
|--|----------------------|--|-------------------------------|
| | Preferred Phase VI | | Parcel |
| | Potential Connection | | School |
| | Preferred Phase III | | Park/Conserved Land |
| | Preferred Phase IV | | Water |
| | Roadway | | Wetland |
| | Railroad | | 100-year Floodplain |
| | Electric Easement | | Municipal Limits |
| | | | Extraterritorial Jurisdiction |

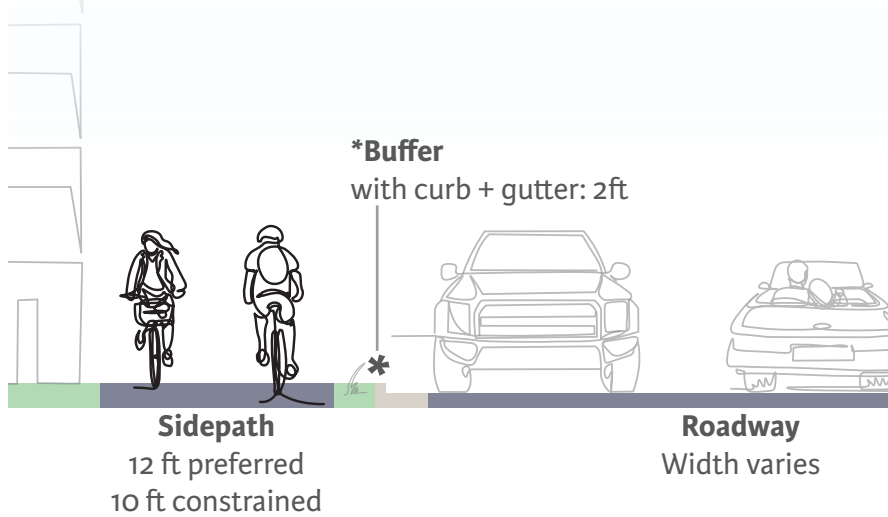


LEGEND

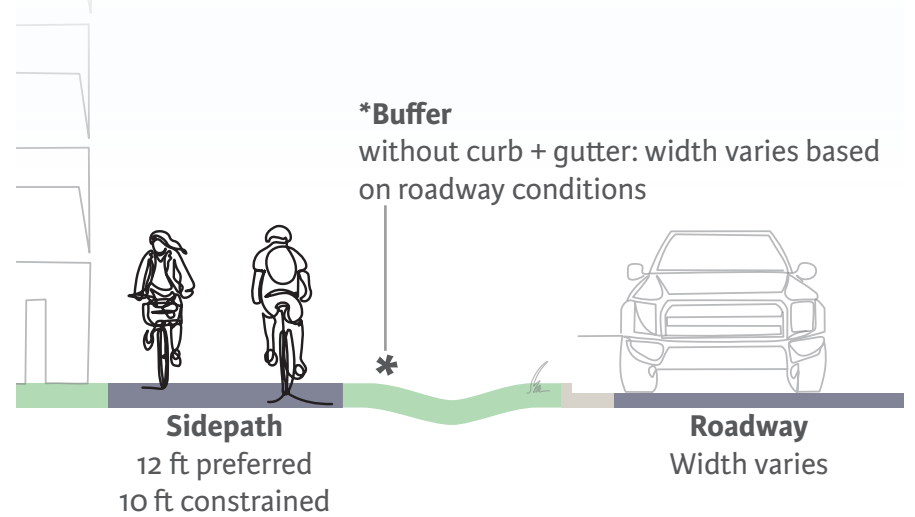


Typical Sections

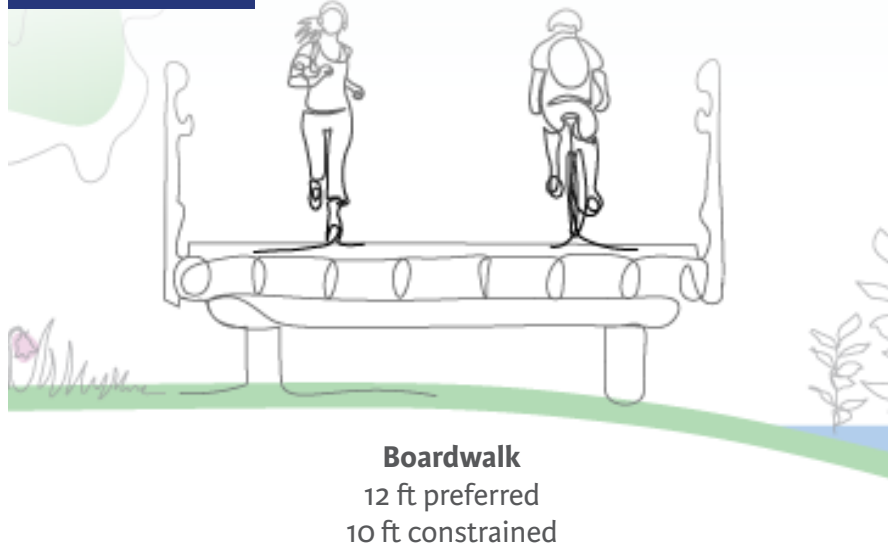
SIDEPATH - CURB + GUTTER



SIDEPATH - OUTSIDE DITCH



BOARDWALK



Estimated Project Cost

Cost Category	Prof. Phase VI	Segment 5e	Segment 5h
2024 Baseline Construction Cost Estimate	\$6,599,400	\$736,400	\$1,455,860
Baseline Construction Contingency (percentage may vary by segment)	\$1,979,820	\$257,740	\$509,551
Baseline Total Construction Cost Estimate	\$8,579,000	\$994,000	\$1,965,000
Build Year	2040	2045	2045
Build Year Construction Cost Estimate	\$18,730,000	\$2,770,000	\$5,480,000
Construction Engineering & Inspection (CEI) Services Cost Estimate (12% of Build Year Estimate)	\$2,248,000	\$333,000	\$658,000
Additional Project Contingency (5% of Build Year Estimate)	\$937,000	\$139,000	\$274,000
Total Construction Cost Estimate (w/CEI)	\$21,915,000	\$3,242,000	\$6,412,000
Design Services Cost Estimate (12% of Baseline Construction Cost)	\$792,000	\$89,000	\$175,000
Total Project Cost Estimate (Build Year Construction + Design)	\$22,707,000	\$3,331,000	\$6,587,000

FUNDING RESOURCES

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, while 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. These historic investments in infrastructure provide new and expanded opportunities for the design, and construction of the Smithfield to Benson ECG. There are several Federal, state, and local, and private funding programs that have been instrumental in the successful development of bicycle and pedestrian networks in North Carolina communities and can be leveraged to provide the necessary funding to plan, design, and construct the Smithfield to Benson ECG. For a comprehensive list of funding opportunities, see Appendix A.

Federal Funding Opportunities

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 BIL authorizes transportation funding for highway, transit, rail, bicycle and pedestrian, and safety programs and infrastructure through fiscal year (FY) 2026. Federal Highway Administration (FHWA) administers BIL funding for surface transportation projects and distributes funding to NCDOT and MPOs. Available funding sources for bicycle and pedestrian facilities in Johnston County include Transportation Alternatives (TA), State Transportation Block Grant - Direct Attributable, (STBG-DA), and Highway Safety Improvement Program (HSIP); a 20% local match is required. For the Smithfield to Benson ECG to access these Federal Funding Sources, it should be submitted for consideration through NCDOT's Prioritization Process and inclusion in the Statewide Transportation Improvement Program (STIP). Capital Area Metropolitan Planning Organization (CAMPO) may hold additional calls for projects as funding is available.

Johnston County should work with CAMPO and the Upper Coastal Rural Planning Organization (UCRPO) to submit elements of this section of the ECG through NCDOT's prioritization process for potential allocation of these Federal formula funds. Additionally, the Smithfield to Benson ECG is eligible to compete for discretionary grants throughout the year, some of which would allow for up to 100% Federal funding due to the project location in disadvantaged areas. The project is eligible and most competitive for the following programs (descriptions of the programs are included in Appendix A):

Formula Funding Programs

- ◆ Carbon Reduction Program (CRP)
- ◆ Transportation Alternatives (TA)
- ◆ Surface Transportation Block Grant (STBG) - Direct Attributable (DA)

Discretionary Funding Programs

- ◆ Recreational Trails Program (RTP)
- ◆ Active Transportation Infrastructure Investment Program (ATIIP)
- ◆ Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

Federal Funding Priorities

To compete for discretionary grant programs, it is important to align with USDOT priorities and goals. The Smithfield to Benson ECG involves various elements that enhance its competitiveness for discretionary funding and align with the merit and evaluation criteria for funding programs outlined in this memorandum.

Equity

USDOT discretionary grant programs under the current administration aim to reduce transportation-related disparities and adverse community and health impacts. The Justice40 initiative embodies this commitment to equity. Justice40 mandates that 40% of the overall benefits of certain Federal investments, including clean transportation, flow to disadvantaged communities that are marginalized, underserved, or overburdened by pollution. Several funding programs have less stringent or no match requirements for projects located in disadvantaged communities.

The Smithfield to Benson ECG aligns with this priority by serving census tracts that have higher than median Transportation Disadvantage Index (TDI) scores and exceed that NC average for populations age 15 and under, living in poverty, black, Indigenous and people of color (BIPOC), zero-vehicle households, and disability prevalence. Moreover, the project provides connectivity for tracts identified as disadvantaged by the Climate and Economic Justice Screening Tool (CEJST).

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 Smithfield to Benson ECG aligns with this priority by providing a separated facility and safe road and rail crossings to minimize potential conflicts between users of different transportation modes, and implementing proven safety countermeasures such as crosswalk visibility enhancements and speed limit reductions.

Sustainability and Resiliency

Climate change presents a significant and growing risk to transportation infrastructure. USDOT is working to tackle the climate crisis by ensuring that transportation plays a significant role in the solution. This includes substantially reducing greenhouse gas emissions and transportation-related pollution and building more resilient and sustainable transportation systems to benefit and protect communities from the impacts of climate change.

The Smithfield to Benson ECG aligns with this priority by reducing greenhouse gas emissions through increased bicycle and pedestrian travel and providing opportunities to improve water quality and improve stormwater management through the design process.

Economic Competitiveness and Opportunity

This priority aims to grow an inclusive and sustainable economy, invest in the transportation system to provide American workers and businesses reliable and efficient access to resources, markets, and good-paying jobs. Several Federal discretionary grant programs aim to promote greater public and private investments in land-use productivity, including rural main street revitalization or locally driven density decisions that support equitable commercial and mixed-income residential development.

The Smithfield to Benson ECG aligns with this priority by connecting the downtowns of Smithfield and Benson with the smaller community of Four Oaks. This will provide multimodal access to employment centers and residential areas along the corridor, including affordable housing developments.

Mobility and Accessibility

This priority aims to improve mobility and community connectivity and address gaps in the existing network, remove physical barriers for individuals by reconnecting communities to direct, affordable transportation options; and include transportation features that increase accessibility for non-motorized travelers. Projects that improve mobility are viewed favorably for several transportation grant programs.

The Smithfield to Benson ECG aligns with this priority by improving bicycle and pedestrian connectivity to Johnston County Area Transit (JCATS) Demand Response service and micromobility zones as well as centers of commerce and residential areas in Smithfield, Four Oaks, and Benson, thereby enhancing mobility and multimodal access along the corridor. The project will improve multimodal access to daily destinations, including schools, grocery stores, healthcare facilities, affordable housing developments, places of worship, and parks.

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.

Innovative elements of Smithfield to Benson ECG include the top-down construction approach in environmentally sensitive areas described above and use of precast or cast-in-place concrete decking for new structures.

Rural Opportunities to Use Transportation for Economic Success (ROUTES)

This initiative prioritizes the needs of rural America by supporting rural transportation policy and equitable access for communities that face

challenges related to safety, mobility, and economic development, addressing disparities in rural transportation infrastructure by developing user-friendly tools and information, aggregating DOT resources, and providing direct technical assistance to better connect rural communities with funding, financing, and outreach resources available.

State Funding Opportunities

There are several state programs to support the development and construction of 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.

State funding opportunities that Johnston County and its partners can pursue to construct the Smithfield to Benson ECG include the Great Trails State Program Fund, Complete the Trails Fund (CTF), Accessible Parks Grant, North Carolina Land and Water Fund (NCLWF), and Parks and Recreation Trust Fund (PARTF).

Local Funding Opportunities

Local governments can utilize various strategies to secure funding for greenway projects from local sources to leverage their resources and community support to successfully fund greenway projects that promote environmental sustainability, recreational opportunities, and community well-being. Municipalities often plan for funding of bicycle and pedestrian facilities through their Capital Improvement Program (CIP), and some local funding sources, such as impact fees and in-lieu fees, can support the delivery of specific components of a greenway project. Additionally, local funds can be used as a match for state and Federal funding programs where required.

There are a few local funding opportunities that the Johnston County and its partners can pursue, including Johnston County Community Foundation awards, Developer Built Trails/In-Lieu Fees, Impact Fees, Capital Improvement Program (CIP) funding, and Municipal Service Districts (MSD).

Private Funding Opportunities

Non-profit and private organizations sponsor grant programs that can be used to supplement Federal, state, and local funding sources. With few exceptions, private grant awards are often smaller and more appropriate for discrete portions of greenway development, or for programming, amenity improvements, and maintenance activities once a greenway is completed.

Private funding sources that Johnston County and its partners can consider for the Smithfield to Benson ECG include Public/Private Partnerships, Corporate Sponsorships, AARP Community Challenge, Golden Leaf, People for Bikes Community Grant Program, and Two for the Trails (Athletic

Brewing Company).

Please see **Appendix A** for a comprehensive list of funding opportunities.

POWER OF PARTNERSHIPS

One critical step in obtaining funding for the Smithfield to Benson ECG is building consensus and developing partnerships. Strong partnerships and broad support are a cornerstone of successful grant applications and are often invaluable to project teams for the provision of data and information that supports grant applications, sources of match funding, demonstration of broad-based community support to agencies awarding funding, and the provision of technical assistance during project development. Potential partners and supporters for the Smithfield to Benson ECG may include, but are not limited to:

- ◆ State agencies including 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
- ◆ Capital Area Metropolitan Planning Organization (CAMPO)
- ◆ Upper Coastal Rural Planning Organization
- ◆ Town of Smithfield
- ◆ Town of Benson
- ◆ Town of Four Oaks
- ◆ East Coast Greenway Alliance
- ◆ Friends of the Mountains-to-Sea Trail
- ◆ Johnston County Visitors Bureau
- ◆ Friends of Johnston County Parks
- ◆ Johnston County College
- ◆ All Out Bikes
- ◆ Triangle Trails Initiative
- ◆ BikeWalk NC
- ◆ Triangle Land Conservancy
- ◆ Johnston County Hiking & Outing Group
- ◆ East Triangle YMCA
- ◆ Great Trails State Coalition
- ◆ Developers for new developments along the corridor

PARTNER ROLES

Achieving success in the development of the Smithfield to Benson ECG corridor will depend on collaboration with community partners and stakeholders at the state, regional, and local levels. Successful implementation of the extension will depend on maintaining and developing partnerships with all project stakeholders. Key partners and their respective roles in the implementation of the project are outlined in the following section.

Key partners:

- ◆ Johnston County
- ◆ Upper Coastal Plan Rural Planning Organization (UCPRPO)
- ◆ Capital Area Metropolitan Planning Organization (CAMPO)
- ◆ NCDOT Division 4 + IMD
- ◆ Town of Smithfield
- ◆ Town of Four Oaks
- ◆ Town of Benson
- ◆ Nonprofits + community groups
 - ◆ Johnston Community College
 - ◆ BikeWalk NC
 - ◆ East Coast Greenway Alliance
 - ◆ Friends of the Mountains-to-Sea Trail
 - ◆ Friends of Johnston County Parks
 - ◆ Great Trails State Coalition
- ◆ Private sector partners + local residents
 - ◆ Developers
 - ◆ Local Businesses
 - ◆ Landowners

Johnston County

Johnston County is responsible for land use and land development ordinances in its boundaries. The County will be responsible for supporting its municipalities as a partner in the actions outlined in the Implementation chapter. For example, Johnston County should partner with the municipalities in the development of a maintenance plan to support the longevity of the project and preserve safe conditions for users of the facility across jurisdictions. Johnston County will maintain sections of the Smithfield to Benson ECG corridor that fall within its jurisdictional boundaries, and will also work with UCPRPO, CAMPO, and NCDOT to coordinate on phasing, prioritization, and funding opportunities.

Anticipated Roles:

- ◆ The County governing body should adopt the Smithfield to Benson ECG Feasibility Study.
- ◆ Johnston County should coordinate with municipalities to develop a maintenance plan for the project corridor.

UCPRPO + CAMPO

UCPRPO and CAMPO often act as facilitators to develop plans and projects in conjunction with NCDOT. CAMPO also ranks and prioritizes projects submitted to the Strategic Transportation Prioritization (SPOT), which is the methodology NCDOT uses to develop the State Transportation Improvement Program (STIP). The UCPRPO and CAMPO have one key role in the implementation of the Smithfield to Benson ECG corridor in coordinating funding opportunities between the municipalities, counties, and NCDOT and should act as a partner to municipalities and the County throughout the development and implementation of the Smithfield to Benson ECG.

Anticipated Roles:

- ◆ The CAMPO should include the Smithfield to Benson ECG corridor in the Destination 2055 MTP—either in the recommendations for projects or in the unfunded recommendations appendix.
- ◆ The UCPRPO and CAMPO should work with the cities and NCDOT on determining the project phases for implementation.
- ◆ The UCPRPO and CAMPO should work with municipalities and NCDOT on prioritizing the project corridor to submit as an NCDOT SPOT project.

NCDOT Division 4 + IMD

NCDOT allocates federal and state funding and establishes policies for transportation improvements in communities across North Carolina. Every two years, NCDOT develops the STIP, which identifies projects that will receive funding during a 10-year period. NCDOT policies, such as Complete Streets provide guidance and oversight for permitting and implementing active transportation projects. The Complete Streets Policy (adopted in August 2019) requires NCDOT to consider and incorporate multimodal facilities in the design and improvement of the state's transportation projects. According to the Complete Streets Policy, if an active transportation facility is included in an adopted local plan, the municipalities will not be held responsible for the cost. As the lead state agency allocating funding, guiding implementation of the Complete Streets Policy, and approving activities along NCDOT-maintained roadway corridors such as US-301, NCDOT plays a critical role in the implementation of the Smithfield to Benson ECG.

A significant portion of the project will utilize NCDOT ROW, and there is currently STIP project under construction along the Smithfield to Benson ECG corridor (RX-2004B), two that are slated for construction in 2028 (I-5974) and 2029 (R-5761), and one that is funded for preliminary engineering only (HB-0042). Additional projects offering the potential to help implement the greenway may be added to the STIP throughout the buildout period of the corridor. Coordination between partners and property owners along the corridor will also be crucial in securing land for the project. Infrastructure recommendations along NCDOT-maintained roadways would require review and approval by NCDOT Division 4 prior to implementation. IMD will also play a large role as it works with other business units of the NCDOT as well as local municipalities to develop and design active transportation projects.

Anticipated Roles:

- ◆ NCDOT Division 4 should provide guidance on the design of the Smithfield to Benson ECG corridor.
- ◆ NCDOT Division 4 should coordinate with the municipalities along the corridor on programmed Highway Maintenance Improvement Program (HMIP) improvements to incorporate pedestrian facility and intersection enhancements during the roadway resurfacing projects.
- ◆ NCDOT should support the municipalities, UCPRPO, and CAMPO on determining project phases for implementation.
- ◆ NCDOT IMD and Division 4 should provide technical assistance to regional, county, and municipal partners on Complete Streets Policy, Strategic Transportation Investments (STI), and other state funding opportunities.

Municipalities: Smithfield, Four Oaks, Benson

Municipalities are responsible for the planning, review, and compliance of growth and development of private and public improvements within their boundaries. Municipal staff support and guide other agencies and organizations to carry out community development projects and programs. Municipal staff often play a large role on projects that they lead, such as through the act of primary coordinators for project development, community engagement, policy development, funding strategies, and maintenance. Smithfield Planning Department, Four Oaks Planning and Zoning and Public Works departments, and Benson Planning & Zoning Department currently lead and support the development of active transportation projects within their respective jurisdictions, such as the Smithfield to Benson ECG.

The municipalities will play an integral role in shaping and developing the greenway project. Municipalities should coordinate with stakeholders and partners to create a vibrant corridor that fosters a sense of place. Through plan adoption, the municipalities express their commitment to expanding active transportation infrastructure within the region.

Anticipated Roles:

- ◆ Municipal governing bodies should adopt the Smithfield to Benson ECG Feasibility Study.
- ◆ The municipal departments responsible for developing/implementing active transportation infrastructure should coordinate with other departments responsible for public works, parks and recreation facilities, development services, and capital projects to assist in the project development.
- ◆ The municipalities should coordinate with NCDOT Division 4 on the programmed HMIP improvements to incorporate pedestrian facility and intersection enhancements during nearby resurfacing.
- ◆ The municipalities should coordinate with NCDOT and the UCPRPO on future STIP projects proposed along the project corridor to ensure elements of the greenway are included with roadway improvement projects.
- ◆ The municipalities should conduct landowner outreach and coordinate with developers and landowners along the project corridor.

Johnston County Visitors Bureau

The Johnston County Visitors Bureau is a public authority created by state law and responsible for marketing the County and its communities. The Visitors Bureau administers the proceeds of the occupancy tax within the legislative mandate of the legislation that established the tax, as well as additional taxes dedicated for the towns of Benson, Smithfield, Selma, and Kenly. The Visitors Bureau's purpose is to further the development of travel, tourism, meetings and events in the county through marketing, advertising, sales and promotion.

Anticipated Roles:

- ◆ The Visitors Bureau should partner with County and municipal staff to explore economic development opportunities along the corridor and understand the economic impact of constructing the Smithfield to Benson ECG corridor.

Non-profits, institutions, and community groups

In general, non-profits may participate as partners in active transportation projects, while others may act as advocates for policies and funding that support the facilities they endorse. Non-profits can provide technical assistance for things like branding and wayfinding. The following key nonprofit and community group partners which may be associated with the Smithfield to Benson ECG corridor are described below:

Johnston Community College (JCC)

The Smithfield to Benson ECG corridor includes potential future connection segments providing access to Johnston Community College's campus. JCC offers a class for police bicycle patrol training and maintains bike trails at its Howell Woods property. As a major employment and activity center within the region, JCC plays a role in facilitating active transportation for its students, faculty, and staff, as well as the community at large.

BikeWalk NC

BikeWalk NC is a statewide, member-based nonprofit whose mission is to lead, support, and inspire advocacy and educational efforts throughout North Carolina for an environment that fairly, safely, and equitably serves bicyclists, pedestrians, and others using active mobility and human-powered transportation. This organization has a long history of advocacy and work surrounding public policy, hosts an annual summit, and leads safety and educational events.

East Coast Greenway Alliance

The East Coast Greenway Alliance focuses on supporting communities in accessing funding for greenways and trails. The nonprofit has attracted \$2 billion in investment to build out more than 1,000 miles of East Coast Greenway by working collaboratively over the last three decades. The East Coast Greenway Alliance supports the Smithfield to Benson ECG corridor, which aligns with the East Coast Greenway's vision of a completed trail through North Carolina.

Friends of Mountains-to-Sea Trail (FMST)

FMST is a nonprofit in which advocates for maintenance, expansion, and improvements to the Mountains-to-Sea Trail, an adopted state trail. FMST works alongside State Parks, county and municipal agencies, and nonprofit partners to build new sections of the trail, open campsites, build a network of trail users, advocate for continued investment in the trail, and organize volunteer and trail maintenance events.

Friends of Johnston County Parks

Friends of Johnston County Parks is a volunteer coalition formed in 2020 which advocates for parks, open space, the arts, and recreational opportunities in Johnston County. The organization works with communities to advance park and recreation projects that improve the quality of life for people who live, work, and play in Johnston County.

Great Trails State Coalition (GTSC)

The GTSC is a broad-based group of diverse organizations, agencies, and supporters advocating for increased state investment in all types of trails. The GTSC's goal is to make trails accessible to all 100 counties in North Carolina. Formed in 2020, the GTSC lobbied the legislature to designate 2023 the Year of the Trail successfully and more recently, successfully lobbied for the initiation of the Great Trails State Program, a competitive funding program for planning and construction of trails in NC.

Anticipated Roles:

- ◆ The nonprofit, institutional, and community group partners should coordinate with municipal, county, and regional government staff to support inter-agency coordination and assist in project development and public engagement.
- ◆ The nonprofit and community group partners, especially ECGA and FMST should work with the municipalities to incorporate wayfinding along the project corridor.
- ◆ If a municipality, county, or CAMPO/UCPRPO pursues competitive funding for the Smithfield to Benson ECG corridor, Johnston Community College, East Coast Greenway Alliance, Friends of the Mountains-to-Sea Trail, Friends of Johnston County Parks, the Great Trails State Coalition, and BikeWalk NC could contribute letters of support for the grant application.

Private sector partners + local residents

Developers

Municipalities may ask developers to construct planned sidepaths and greenways as a requirement to develop in the municipal jurisdiction. While the Smithfield to Benson ECG corridor primarily transects residential neighborhoods in downtown Smithfield, Four Oaks, and Benson, there are segments in fast-growing areas on the edges of each community. If zoning along the corridor changes in the future, the respective municipality should coordinate to ensure that developers include active transportation facilities in future developments that provide connections to the Smithfield to Benson ECG corridor.

Anticipated Roles:

- ◆ Developers should be prepared to include active transportation facilities in future developments along the project corridor, including the construction or dedication of easements for segments of the Smithfield to Benson ECG corridor that pass through or along their property.

Local residents + businesses

Local businesses adjacent to the Smithfield to Benson ECG corridor may serve as key destinations and potential generators of bicycle and pedestrian travel along the corridor. As a result, they may have the resource capacity to advance phases of the project and make the case for increased investment in active transportation infrastructure within the region.

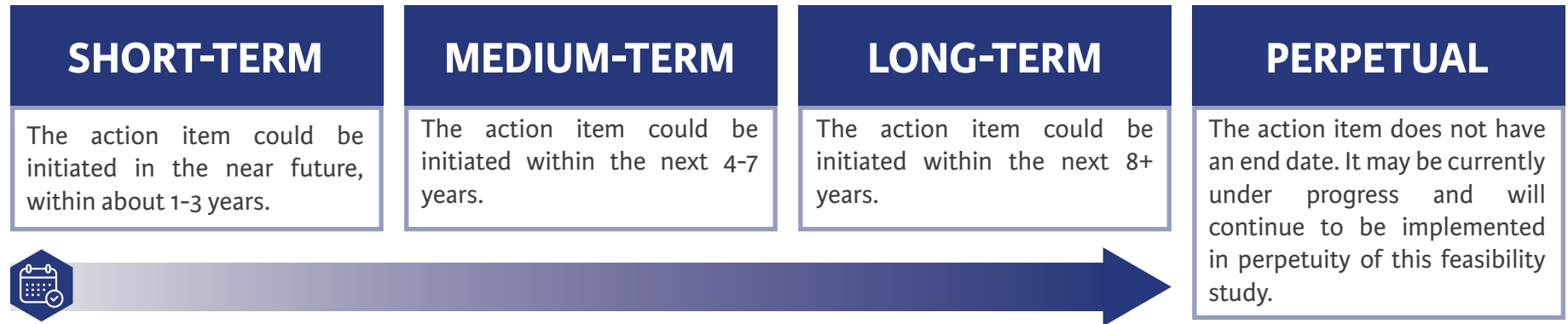
Anticipated Roles:

- ◆ Landowners and businesses should support regional agencies and municipalities in developing public/private partnerships to fund the design and construction of the project.
- ◆ Landowners and businesses should support marketing efforts and participate in future fundraising campaigns for the project.
- ◆ Landowners and businesses should participate in future landowner outreach to streamline coordination between project stakeholders as development opportunities arise along the corridor.

ACTION PLAN

The following table provides a summary of action steps to implement the Smithfield to Benson ECG corridor over an 8-year planning horizon. The previously mentioned partners may act as the responsible parties for various actions associated with the greenway development.

Timeline of Action Items



Task #	Action	Lead	Partners	Timeframe
1	Adopt the Smithfield to Benson ECG Feasibility Study. This action allows the study to become the official planning document for the greenway and demonstrates local intention to support project implementation.	Johnston County, Municipalities (Smithfield, Four Oaks, and Benson)	CAMPO, UCPRPO, NCDOT Division 4, and NCDOT IMD	Short-Term
2	Amend the CAMPO Metropolitan Transportation Plan (MTP) to include the Smithfield to Benson ECG corridor alignment.	CAMPO, NCDOT Transportation Planning Division	Municipalities, Johnston County, NCDOT Division 4, NCDOT IMD	Short-Term
3	Update the CAMPO Transportation Improvement Plan (TIP) and the State Transportation Improvement Plan (STIP) after the MTP is updated.	CAMPO, NCDOT Transportation Planning Division	Municipalities, Johnston County, NCDOT Division 4, NCDOT IMD	Short-Term

Task #	Action	Lead	Partners	Timeframe
4	Consider developing an annual work plan based on opportunities to advance project development. The work plan should include key goals/milestones to make progress on coordination with NCDOT, secure funding, design, permitting, and construction. The work plan should be updated annually.	Johnston County, Municipalities	CAMPO, UCPRPO, NCDOT Division 4, NCDOT IMD	Short-Term
5	Coordinate with NCDOT Division 4 on programmed HMIP improvements to incorporate pedestrian facility and intersection enhancements during roadway resurfacing along the Smithfield to Benson ECG corridor alignment.	Johnston County, Municipalities	NCDOT Division 4, NCDOT IMD, CAMPO, UCPRPO	Short-Term
6	Coordinate with CAMPO, UCPRPO, and NCDOT to determine project phasing based on the recommended implementation phasing in this report. Consider the impact of funding and development opportunities as they arise	Johnston County, CAMPO, UCPRPO,	NCDOT Division 4, NCDOT IMD, Municipalities	Short-Term Perpetual
7	Coordinate with NCDOT, CAMPO, and UCPRPO on prioritizing the project corridor to submit through NCDOT SPOT. Consider where projects can be bundled to ensure competitive scoring.	Johnston County, CAMPO, UCPRPO	NCDOT Division 4, NCDOT IMD, Municipalities	Short-Term Perpetual
8	Coordinate with NCDOT Division 4 on future STIP projects proposed along the project corridor to ensure that the greenway may be developed through future roadway improvement projects.	CAMPO, UCPRPO	NCDOT Division 4, NCDOT IMD, Municipalities, Johnston County	Short-Term Perpetual

Task #	Action	Lead	Partners	Timeframe
9	Develop a landowner outreach program to coordinate with developers and landowners as development opportunities arise along the project corridor. The program should include strategies to work towards acquiring easements from willing landowners and working with developers to coordinate access across the trail and/ or build planned segments that may be constructed outside of NCDOT ROW.	Johnston County, Municipalities	NCDOT Division 4, NCDOT IMD, CAMPO, UCRPO	Medium-Term Perpetual
10	Coordinate with NCDOT Division 4 on the design of the project corridor. Design plans should be guided by the recommendations developed through this study.	Johnston County, Municipalities	NCDOT Division 4, NCDOT IMD, CAMPO, UCRPO	Medium- to Long-Term (Dependent on project schedules)
11	Coordinate with NCDOT IMD to remain aware of grant opportunities that could help facilitate the project development.	Municipalities	East Coast Greenway Alliance, CAMPO, UCRPO, Great Trails State Coalition	Medium-Term Perpetual
12	Develop a community engagement plan to guide the project development of the Smithfield to Benson ECG project.	Johnston County, CAMPO, UCRPO, Municipalities	NCDOT Division 4, NCDOT IMD	Short- to Medium-Term
13	Coordinate with East Coast Greenway Alliance, Friends of the Mountains-to-Sea Trail, Friends of Johnston County Parks, municipalities, and other stakeholders to incorporate wayfinding and branding along the project corridor.	Johnston County, Municipalities	ECCA, FMST, FJCP, NCDOT Division 4, NCDOT IMD	Medium-Term
14	Coordinate with NCDOT, UCRPO, CAMPO, and municipal partners to develop a maintenance plan for the project corridor.	Johnston County	Municipalities, CAMPO, UCRPO, NCDOT Division 4, NCDOT IMD	Medium-Term
15	Coordinate with community groups, institutions, and non-profit partners such as JCC , FMST, East Coast Greenway Alliance, and GTSC.	Municipalities	Non-profit partners and community groups	Short-Term Perpetual

Task #	Action	Lead	Partners	Timeframe
16	Develop a grant procurement and fundraising plan (using cost estimates in this study) to identify steps in securing funding to construct the Smithfield to Benson ECG corridor.	Johnston County	NCDOT IMD, NCDOT Division 4, UCRPO, CAMPO Municipalities	Medium-Term Perpetual
17	Once funding is secured, build out the preferred alignment within municipalities.	Municipalities	Johnston County, NCDOT Division 4, NCDOT IMD, UCRPO, CAMPO	Medium-Term Long-Term
18	After funding is secured, build out the preferred alignment within Johnston County.	NCDOT Division 4 and NCDOT IMD	Johnston County, UCRPO, CAMPO	Long-term

MAINTENANCE RECOMMENDATIONS

Maintenance of active transportation facilities such as the proposed Smithfield to Benson ECG corridor is essential to the long-term viability of the network. Facilities that are consistently maintained have lower costs over time and provide a safe and positive user experience than facilities that require major rehabilitation work from a lack of consistent maintenance. Good maintenance practices also prolong the useful life of these facilities, promote positive relationships with adjacent landowners, and create a sense of stewardship in the community. This feasibility study recommends a comprehensive approach to maintenance with the development of a maintenance plan to prioritize funding and responsibilities amongst project stakeholders. The maintenance plan should be reviewed and updated annually, responding to lessons learned and changes in tasks, operational policies, standards, and maintenance goals.

Key considerations for a greenway maintenance plan include:

- ◆ Understanding of the anticipated needs of the greenway system and assessing the capacity of staff to meet those maintenance needs.
- ◆ Development of a facility inventory to understand the routine and substantial maintenance needs of greenway signs, amenities, bridges, culverts, and pavement conditions.
- ◆ Estimation of baseline maintenance costs accounting for necessary maintenance activities such as mowing, edging, landscaping, trash removal, debris clearing, lighting, drainage, seasonal maintenance needs, sealcoating, repaving, patching, and bridge repair.
- ◆ Consideration of labor costs based on which maintenance tasks can be completed in-house versus contracted out.
- ◆ Assessment of available technologies to collect data on facility conditions and facilitate maintenance functions.
- ◆ Development of a methodology to prioritize annual maintenance needs based on facility conditions and available funding.
- ◆ Consideration of emergency services including designated ingress/egress locations, mile-marker signage along the facility for location identification, and emergency notification systems.

Maintenance Task	Task Type	Recommended Frequency
Tree / Bush trimming	Routine	Ongoing / Annually
Mowing		
Trail sweeping		
Signage / Map / Kiosk Updates / Replacement		
Trash removal / Litter clean-up Planting, pruning, landscaping		
Flooding repairs		
Repainting / Restriping		
Minor patching		
Lighting replacement		
Bollard locks / Replacement Pest management		
Sidepath sealcoating	Minor Repairs	Every 5 years
Sidepath Resurfacing:	Major Reconstruction	
♦ Asphalt		Every 10-15 years
♦ Concrete		Every 20 years
♦ Boardwalk		10 years
Complete greenway and sidepath replacement, regrading, and resurfacing	Major Reconstruction	Every 20 years

Source: Best Practices in Trail Maintenance: A Manual by the Ohio River Greenway, Purdue University

Budgeting for Routine Maintenance of Trails

Some of the factors which managers should consider in budgeting for future trail maintenance could include:

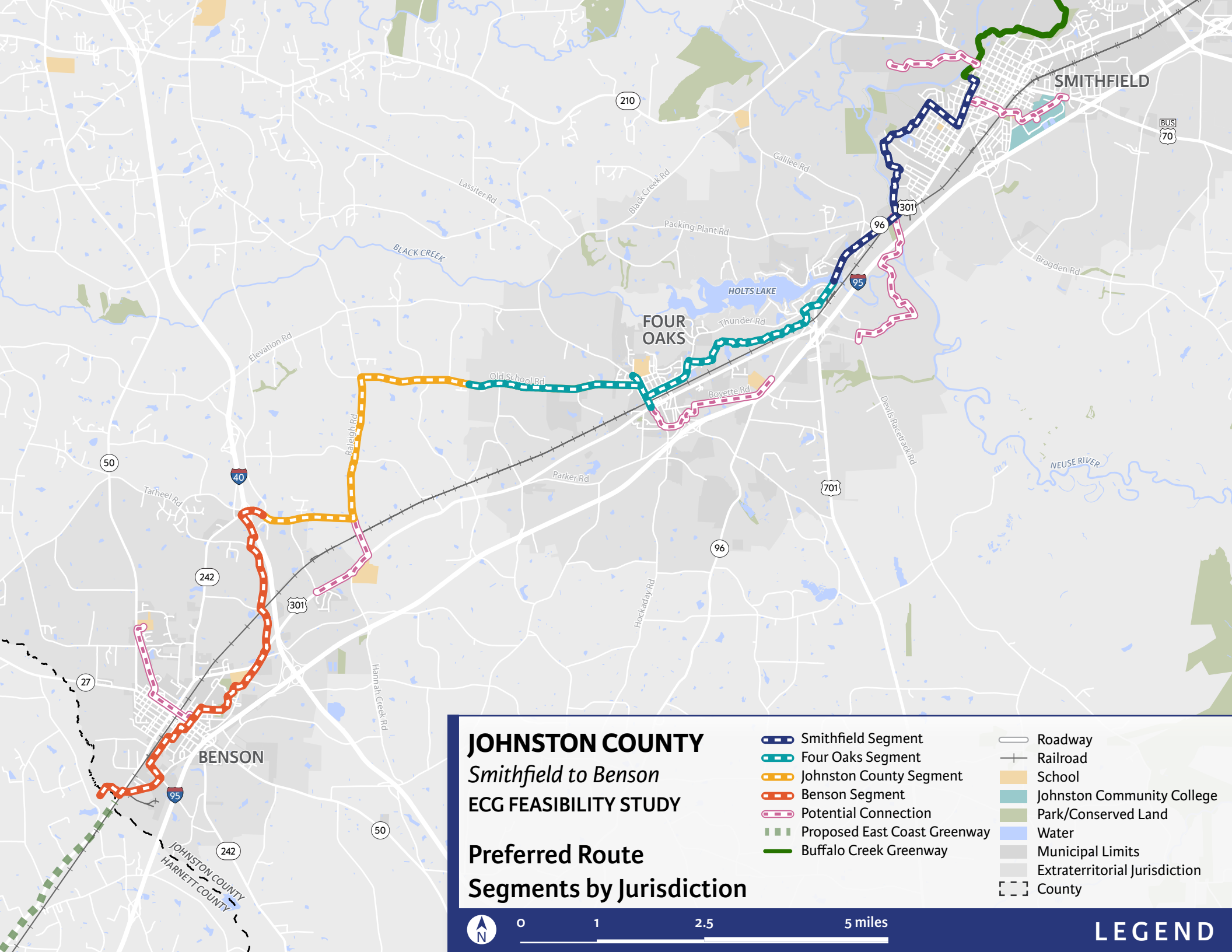
- ◆ Trail environment and costs of labor and materials
- ◆ Trail surface material
- ◆ Number of visitors
- ◆ Number and type of amenities like bathrooms, trash cans, lawns, or special plantings
- ◆ Number and length of structures such as bridges or boardwalks
- ◆ Frequency of flooding events
- ◆ Capacity of community members and volunteer groups to help perform maintenance tasks

According to a 2022 study by the Rails to Trails Conservancy (RTC), the maintenance costs of multi-use trails has not been well documented. Annual per mile maintenance costs for urban and suburban areas vary from lower amounts for a trail with low amenities and volunteer maintenance support to higher amounts for a trail with a large number of visitors, restrooms, and dedicated staff and maintenance support.

Ongoing discussion among project stakeholders and partners is necessary to establish an effective maintenance plan, and each municipality should plan to take maintenance responsibility for sections within its jurisdiction (both corporate limits and ETJ). Greenway resurfacing is an eligible use of Powell Bill funding (NC GS 136-41.3), a state allocation for roadway maintenance. In each community along the project corridor, significantly more road miles are maintained than miles of the proposed greenway. Additionally, while NCDOT will construct sidepath segments outside of municipal jurisdictions as part of the Complete Streets policy, they will first require a maintenance agreement with the County or another partner.

Jurisdiction	Powell Bill Roadway Mileage ¹	Smithfield to Benson ECG Mainline Mileage	Smithfield to Benson ECG Connections Mileage
Smithfield	62.7	4.8	4.1
Four Oaks	13.4	7.6	4.0
Benson	21.4	5.8	2.0
Johnston County	n/a	4.9	0.8

1. Based on allocation issued January 2024



JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Preferred Route
Segments by Jurisdiction

- Smithfield Segment
- Four Oaks Segment
- Johnston County Segment
- Benson Segment
- Potential Connection
- Proposed East Coast Greenway
- Buffalo Creek Greenway
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County



LEGEND



Celebrate Community!
PAST. PRESENT. FUTURE

CIVITAN

FOUR OAKS
Keep it Clean

The Four Oaks Board

APPENDICES

A

- ◆ APPENDIX A: FUNDING RESOURCES
- ◆ APPENDIX B: DESIGN RESOURCES
- ◆ APPENDIX C: COMMUNITY ENGAGEMENT
- ◆ APPENDIX D: COST ESTIMATES

APPENDIX A: FUNDING RESOURCES

The following Federal, state, and private funding programs that have been instrumental in the successful development of bicycle and pedestrian networks in North Carolina communities and can be leveraged to provide the necessary funding to plan, design, and construct the Smithfield to Benson East Coast Greenway (ECG) project. This section includes information on funding programs known at the time of publication; funding amounts, cycles, and programs may change over time. All discretionary programs are reimbursement-based unless otherwise stated.

FEDERAL FUNDING

North Carolina communities have partnered with Federal agencies to build multi-use paths, greenways, sidewalks, bike lanes, and improve crossings. The Federal government provides significant funding for active transportation facilities, which it distributes to municipalities through state agencies and Metropolitan Planning Organizations (MPO), as well as through discretionary grant programs.

The BIL authorizes transportation funding for highway, transit, rail, bicycle and pedestrian, and safety programs and infrastructure through fiscal year (FY) 2026. Federal Highway Administration (FHWA) administers BIL funding for surface transportation projects. FHWA distributes funding to the North Carolina Department of Transportation (NCDOT) and directly to MPOs through the Locally Administered Projects Program (LAPP). Communities wishing to access Federal funding must submit their candidate projects to their MPO, who 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 municipality. Federal transportation funds for bicycle and pedestrian projects are primarily distributed through four programs: Transportation Alternatives (TA), Congestion Mitigation & Air Quality (CMAQ), Recreational Trails Program, (RTP), and Highway Safety Improvement Program (HSIP).

State and MPO Administered Federal Funding

Transportation funding, apportioned by Congress, using enabling legislation such as the former Fixing America's Surface Transportation Act (FAST) Act and current BIL, goes from the United States Department of Transportation (USDOT) and its departments to State DOTs and MPOs. 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 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>

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 (CO₂) 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 Program, Highway Safety Improvement Program, 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

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

<https://www.ptrc.org/services/regional-planning/transportation/clean-transportation>

Surface Transportation Block Grant (STBG) – Direct Attributable (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) funding is one of the most flexible funding sources for highway programs and provides immense financial support to local agencies.

- ◆ **Total Funding:** \$30 million (FY24)
- ◆ **Application Deadline/Cycle:** February - Biennial
- ◆ **Project Awards:** minimum \$100,000
- ◆ **Match Requirements:** 20% non-Federal
- ◆ **Eligible Applicants:** MPOs, RPOs, local governments, nonprofits, tribal governments, regional transportation authorities, transit agencies
- ◆ **Eligible Projects:** Maintenance/restoration of existing recreational trails; Planning/construction of projects that facilitate intermodal connections; Protective features to enhance transportation facility resiliency; Projects that enhance travel and tourism; Bicycle and pedestrian projects; addition/retrofit of structures or other measures to eliminate or reduce crashes involving vehicles; Installation and deployment of current and emerging intelligent transportation technologies.

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

Community Development Block Grant (CDBG)

The Community Development Block Grant Program, authorized by Title 1 of the Housing and Community Development Act of 1974, provides annual grants on a formula basis to states, cities, and counties to develop viable urban communities by providing decent housing, suitable living environments, and expanding economic opportunities for low- and moderate-income persons. CDGB 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. Johnston County and the relevant municipalities are eligible to receive State CDBG funding. CDBG State funding could support the acquisition of real property and construction of public facilities/improvements for the Smithfield to Benson ECG.

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

Land and Water Conservation Fund (LWCF)

Congress established the Land and Water Conservation Fund in 1964 to create parks and open space; protect wilderness, wetlands, and refuges; preserve habitat; and enhance outdoor recreational opportunities. In 2020, the Great American Outdoors Act included a provision to permanently fund the LWCF using royalties from offshore oil and natural gas. Sixty percent of LWCF funding is allocated to the National Park Service, and the remaining forty percent of the funds are allocated to states and local governments according to a national formula for outdoor recreation development and land acquisition by local governments and state agencies. In North Carolina, the program is administered by the Department of Natural and Cultural Resources. A project must be located on a single site.

- ◆ **Application Deadline/Cycle:** Annual
- ◆ **Project Awards:** up to \$500,000
- ◆ **Match Requirements:** 50%
- ◆ **Eligible Applicants:** North Carolina counties and incorporated municipalities, Federally recognized Native American tribes
- ◆ **Eligible Projects:** LWCF grants can be used to acquire land for a public park; to develop outdoor recreation and support facilities; or a combination of both.

Highway Safety Improvement Program (HSIP)

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% of 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

Discretionary Grants

The discretionary grant programs outlined in this section can provide millions of dollars towards the Smithfield to Benson ECG’s planning, design, and construction costs. These programs are competitive and 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.

Reconnecting Communities Pilot (RCP) Program

The Reconnecting Communities Pilot (RCP) seeks to advance community-centered connection transportation projects, with a priority for projects that benefit disadvantaged communities, by improving access to daily needs such as jobs, education, health care, food, nature and recreation; fostering equitable development and restoration; and reconnecting communities by removing, retrofitting, or mitigating highways or other transportation facilities that create barriers to community connectivity, including to mobility, access, or economic development.

Established in the Bipartisan Infrastructure Law (BIL), RCP prioritizes applications that demonstrate equity, access, facility suitability, community engagement, equitable development, climate change mitigation, workforce development, and planning integration. This program seeks to address highway or other surface transportation facilities that create barriers to community connectivity by removing, retrofitting, or mitigating the existing facility.

- ◆ **Total Funding:** \$607 million (FY24-26); \$200 million (FY24), \$202 million (FY25), \$205 million (FY26) \$1.785 billion (FY22-26):
 - ◆ **Capital Construction:** \$457 million (FY24)
 - ◆ **Planning and Technical Assistance:** \$150 million (FY24)
- ◆ **Application Deadline/Cycle:** September 30, 2024 - Annual
- ◆ **Project Awards:**
 - ◆ **RCP:**
 - ◆ **Planning:** Up to \$2 million
 - ◆ **Construction:** Minimum of \$5 million
 - ◆ **NAE:**
 - ◆ **Planning:** No min/max

- **Construction:** No min/max
- **Regional Partnerships Challenge:** No min/max – 3-5 projects will be awarded
- ◆ **Match Requirements:**
 - **Community Planning Grants:** 20%
 - **Capital Construction Grants:** 50% (other Federal funds may be used to bring the total Federal share up to a maximum of 80% of the total cost of the project)
- ◆ **Eligible Applicants:**
 - **Planning Grants:** State, local government, Tribal government, MPO, nonprofit organization
 - **Capital Construction:** Owner of facility; partnership between facility owner and applicant eligible for RCP planning grants.
- ◆ **Eligible Projects:** Facilities that divide or burden community; planning studies to assess feasibility of mitigating existing dividing facility or build capacity in disadvantaged area; pre-construction and construction activities for mitigating a burdening/dividing facility; improving complete streets/ multi-use trails/ regional greenways.
- ◆ **Merit Criteria:** Equity and Environmental Justice; Access; Facility Suitability; Community Engagement, and Community-based Stewardship, Management, and Partnerships; Equitable Development; Climate and Environment; and Workforce Development and Economic Opportunity.
<https://www.transportation.gov/grants/rcnprogram/about-rcp>

Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

This program, formerly known as TIGER and BUILD, and now as Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants, 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 RAISE 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.

- ◆ **Total Funding:** \$1.5 billion (FY 24) with set asides for Areas of Persistent Poverty and Historically Disadvantaged Communities
- ◆ **Application Deadline/Cycle:** February - Annual
- ◆ **Project Awards:**
 - **Planning Projects:** No minimum
 - **Capital Projects:** Minimum \$1 million (rural); minimum \$5 million (urban)
- ◆ **Match Requirement:** 20% – Federal share may increase in rural areas, Areas of Persistent Poverty, and Historically Disadvantaged Communities

- ◆ **Eligible Applicants:** State/local governments; multijurisdictional entity or group of entities; tribal government; transit agency.
- ◆ **Eligible Projects:** Capital projects (highway, intermodal, surface transportation, infrastructure, culvert replacement or stormwater runoff) and Planning (preparation for eligible surface transportation capital projects)
- ◆ **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/RAISEgrants/about>

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 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, NCDENR'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.

- ◆ **Total Funding:** \$1.49 million (FY24)
- ◆ **Application Deadline/Cycle:** Annual – Spring
- ◆ **Project Awards:** \$10,000-\$100,000
- ◆ **Match Requirement:** 25%
- ◆ **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)

Due to the high cost of construction relative to available project awards, Smithfield to Benson ECG could apply for RTP funding for land acquisitions, permitting, and/or environmental review.

<https://trails.nc.gov/trail-grants/apply-grant>

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 FY23 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 (FY23)
 - ◆ **Construction Grants:** up to \$41,550,000 – of that, at least 30% (\$12,465,000) will be set aside for construction of active transportation networks and at least 30% (\$12,465,000) will be set aside for construction of active transportation spines
 - ◆ **Planning & Design Grants:** at least \$3,000,000 and up to \$19,620,000 will be awarded
- ◆ **Application Deadline/Cycle:** July 17, 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)
 - ◆ **Planning & Design Grants:** Minimum of \$100,000 and expected maximum of \$2 million
- ◆ **Match Requirements:** 20% or more (qualified disadvantaged census tracts are those with 40% 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
- ◆ **Eligible Projects:** Projects that support active transportation networks connecting destinations.
- ◆ **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

Safe Streets and Roads For All (SS4A) Grant Program

The BIL established this program, which funds regional, local, and tribal initiatives to prevent roadway deaths and serious injuries. The program supports the development of a comprehensive safety action plan (Action Plan) that identifies the most significant roadway safety concerns in a community and the implementation of projects and strategies to address roadway safety issues. Action Plans are the foundation of the SS4A grant program. Applicants can either receive Planning and Demonstration Grant (to complete a safety action plan) or Implementation Grants (to implement projects/strategies identified in an Action Plan). SS4A requires an eligible Action Plan be in place before applying to implement projects and strategies.

- ◆ **Total Funding:** \$5 billion (FY22-26)
- ◆ **Application Deadline/Cycle:** Annual – Fall
- ◆ **Project Awards:** \$100,000-\$10,000,000 (Planning & Demonstration Grants) and \$2,500,000-\$25,000,000 (Implementation Grants)
- ◆ **Match Requirements:** 20%
- ◆ **Eligible Applicants:** Counties, cities, towns, transit agencies, MPOs, tribal governments
- ◆ **Eligible Projects:**
 - ◆ **Planning and Demonstration Grants:** Develop a comprehensive Action Plan; conduct supplemental safety planning to enhance an Action Plan; conduct demonstration activities to inform the development of, or an update to, an Action Plan
 - ◆ **Implementation Grants:** Fund projects and strategies identified in an Action Plan; planning, design, and development activities for projects and strategies identified in Action Plan; must have an existing Action Plan to receive Implementation Grant funding.

<https://www.transportation.gov/grants/SS4A>

Rural and Tribal Assistance Pilot Program

The BIL created the Rural and Tribal Assistance Pilot Program, which makes \$10 million available over five years to provide states, local governments, and tribal governments in rural areas with funding to support early-stage development assistance for rural and tribal infrastructure projects. This program awards grants for either the hiring of staff or the procurement of expert firms to provide financial, technical, and legal assistance; assistance with development-phase activities; and information regarding innovative financing best practices and case studies. The first NOFO makes \$3.4 million available for the first two fiscal years to eligible applicants on a first-come, first-served basis.

- ◆ **Total Funding:** \$10 million (FY22-26)
- ◆ **Application Deadline/Cycle:** September – Annual
- ◆ **Project Awards:** up to \$360,000
- ◆ **Match Requirements:** N/A
- ◆ **Eligible Applicants:** State, local government, Federally recognized tribe
- ◆ **Eligible Projects:**
 - ◆ Financial services, such as revenue forecasting and economic assessments
 - ◆ Technical services, such as feasibility studies, environmental review and permitting, preliminary engineering and design, funding application assistance, and public engagement
 - ◆ Legal services, such as statutory and regulatory framework analysis and procurement support
- ◆ **Merit Criteria:** Appropriateness of services requested; Viability of grant funds requested

<https://www.transportation.gov/buildamerica/RuralandTribalGrants>

National Endowment for the Arts Our Town Program

Our Town is the National Endowment for the Arts' 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 \$25,000 to \$150,000, with a minimum cost share/match equal to the grant amount.

<https://www.arts.gov/grants/our-town>

STATE FUNDING

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>

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.

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 Strategic Transportation Investments (STI) law prohibits the use of state funding for bicycle and pedestrian projects, requiring municipalities to provide the 20% match for Federally-funded projects.

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.

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.

FUNDING CATEGORY	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%

Bicycle and Pedestrian STI Prioritization: Qualitative Scoring

It is recommended that Johnston County submit the Smithfield to Benson ECG through CAMPO to NCDOT's prioritization 8.0 (P8.0). The schedule for the next round of prioritization has not been announced. Depending on project scoring, this will open up State funding. It is important to note that STIP funding will be more competitive in the current funding environment for NCDOT.

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 be within a single municipality or across multiple jurisdictions. Bundled projects must be under one project manager, which must be a TAP eligible entity.

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. Funds projects 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 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>

Spot Safety Program

The Spot Safety Program is used to develop smaller improvement projects to address safety and potential safety and operational issues. The program is funded with state funds and currently receives approximately \$9 million per fiscal year. Other monetary sources (such as Small Construction or Contingency funds) can assist in funding Spot Safety projects, however, the maximum allowable contribution of Spot Safety funds per project is \$400,000. A Safety Oversight Committee (SOC) reviews and recommends Spot Safety projects to the Board of Transportation (BOT) for approval and funding. Criteria used by the SOC to select projects for recommendation to the BOT include, but are not limited to, the frequency of correctable crashes, severity of crashes, delay, congestion, number of signal warrants met, effect on pedestrians and schools, division and region priorities, and public interest.

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

Great Trails State Program Fund

The Great Trails State Program, funded with \$12.5 million each year for two years, will be a competitive grant program for new trail development and

extension of existing trails, including paved trails, greenways, and natural surface trails for biking, hiking, walking, equestrian use, and paddling. The fund will be administered by the North Carolina Department of Natural and Cultural Resources (NCDNCR). Eligible applicants will include municipalities or counties, regional councils of government, other public authorities, and nonprofit organizations. Eligible uses for funds will include planning, design, and related environmental assessment or permitting, land and easement acquisition, trail construction, trail structures (such as bridges), trail amenities (such as trailhead parking, signage, etc.), and maintenance, and can be used as matching funds for federal or other non-state grants. The fund will require a minimum of a 25% flexible match, including cash, in-kind services, or donation of assets. Grants awarded will be limited to \$500,000 per project.

- ◆ **Total Funding:** \$25 million (FY24-25)
- ◆ **Application Deadline/Cycle:** November 12, 2024
- ◆ **Project Awards:** up to \$500,000
- ◆ **Match Requirements:** 25% flexible match (including cash, in-kind services, or donation of assets)
- ◆ **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

Smithfield to Benson ECG could use Great Trails State Program funding as a match for any Federal funding it applies for, or to fund activities like environmental review and property acquisition. This would demonstrate commitment to the project on a local and state level, strengthening applications for competitive Federal funding.

<https://greattrailsstatecoalition.org/latest/#:~:text=The%20North%20Carolina%20General%20Assembly's,outdoor%20recreation%20in%20American%20history.>

Complete the Trails Fund (CTF)

In 2021, legislation created the Complete the Trails Fund (CTF), which provided \$29.5 million for the 14 State Trails in NC, of which the East Coast Greenway is one. The 2023-2025 North Carolina Budget added \$5 million to the CTF. Non-profit partners must apply for and receive CTF funding to comply with program requirements. Therefore, East Coast Greenway Alliance and Friends of the Mountains-to-Sea Trail (Smithfield only) would be the lead applicant for this funding, if pursued. Eligible activities for these funds include land acquisition, capacity building, trail development, and small community grants. NCDNCR administers this funding source.

<https://trails.nc.gov/state-trails/nc-complete-trails-program>

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 (FY24)
- ◆ **Application Deadline/Cycle:** May 1, 2024 (unclear if additional years will be funded)
- ◆ **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>

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 Environmental Protection Agency (EPA) funding, distributed through the North Carolina Department of Natural and Cultural Resources (NCDENR), land acquisition, stream restoration, stormwater, and planning projects that protect and conserve riparian buffers to provide environmental protection and establish a network of greenways for environmental, educational, or recreational uses. The NCLWF also funds mini grants of up to \$25,000 for donated property or the value of the conservation donation to pay transaction costs associated with the donation of property or a permanent conservation agreement. All NCLWF funded projects must sign a permanent conservation agreement.

- ◆ **Application Deadline/Cycle:** March (Acquisition/Restoration/Innovative Stormwater/Planning) and April, August, January (Donation Mini-grants) – Annual
- ◆ **Project Awards:** up to \$500,000
- ◆ **Match Requirements:** 50%
- ◆ **Eligible Applicants:** North Carolina counties and incorporated municipalities
- ◆ **Eligible Projects:** Stream restoration, land acquisition, stormwater, and planning projects

The Smithfield to Benson ECG could apply for NCLWF funds for acquisition of a conservation easement, stream restoration, stream enhancement, streambank stabilization, design, project administration, or construction.

<https://nclwf.nc.gov/apply>

Water Resources Development Grant Program (WRDG) – State and Local Projects (S&L)

The Water Resources Development Grant (WRDG) State & Local Projects¹, awarded by the North Carolina Department of Environmental Quality (NCDEQ) provides cost-share grants and technical assistance to local governments to implement water management, stream restoration, water-based recreation projects, and feasibility or engineering studies. The non-navigation projects are collectively referred to as State and Local Projects (S&L).

- ◆ **Total Annual Funding:** \$25 million (FY24-25)
- ◆ **Application Deadline/Cycle:** Bi-annual – Fall and Spring (December 31, 2024 is next deadline)
- ◆ **Project Awards:** up to \$200,000
- ◆ **Match Requirements:** 50% of nonfederal project costs; any non federal funding, including in-kind contributions of staff time and materials/

¹ WRDG funds can be used to reimburse activities that occur between application submittal and grant award announcement if the activities are described/detailed in the budget submitted with the application.

equipment usage can be used to fulfill match requirement.

- ◆ **Eligible Applicants:** Local government; Non-governmental entities (nonprofit, consultant, university, watershed association) can serve as Primary Contact.
- ◆ **Eligible Projects:** water management (stormwater control measures (BMPs), LID/GSI, drainage/flood control), stream restoration (including dam/aquatic passage/flow barrier removals, shoreline stabilization/living shorelines, etc.), water-based recreation projects (greenways adjacent to waterbodies, park development, water access sites, etc.), and feasibility or engineering studies to support implementation of these projects..
- ◆ **Merit Criteria:** Economic, social, and environmental benefits; regional benefits; financial resources of local sponsoring entity; environmental impact of the project; direct benefit to State-owned lands and properties.

This funding source is ideal because of its quick turnaround time. The next round of applications for WRDG funding ends on December 31, 2024, with awards typically announced in May. Agreements can often be executed within 6 months of award. To note, the components of the Smithfield to Benson ECG that would align with this program are any stream restoration and stormwater management efforts that correlate with the greenway.

<https://www.deq.nc.gov/about/divisions/water-resources/water-resources-grants/water-resources-development-grant-program>

<https://www.deq.nc.gov/water-resources/wrdg-s-l-eqip-overview-2021f-updatev4/open>

LOCAL FUNDING

While Federal funding can support high-cost projects, local funding is often ideal for supporting the delivery of specific components of greenway projects. 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.

Johnston County Community Foundation

The Johnston County Community Foundation is a growing family of philanthropic funds, source of grants for local causes and partner for donors. JCCF was founded in 1992 and is led by a local volunteer advisory board that helps build community assets through the creation of permanent endowments, makes grants and leverages leadership – all for the benefit of Johnston County.

- ◆ **Application Deadline/Cycle:** April - Annual
- ◆ **Project Awards:** \$1,000 to \$5,000
- ◆ **Match Requirements:** 25% flexible match (including cash, in-kind services, or donation of assets)

- ◆ **Eligible Applicants:** Local governments, fire and rescue departments, religious entities, and nonprofit organizations in Johnston County
- ◆ **Eligible Projects:** General operating support to help organizations meet their mission and program/project support to fund specific initiatives.

<https://www.nccommunityfoundation.org/affiliate/johnston-county-community-foundation>

Bonds

Towns can propose bonds to protect open space corridors and build greenway networks, as has been seen in Wake County, City of Raleigh, City of Wilmington, Town of Chapel Hill, and City of Greenville. For example, Wake County successfully passed a \$120 million Parks, Greenways, Recreation and Open Space Bond in 2018. Successful bond campaigns require a well-defined plan with specific projects supported by the community. Bond campaigns should be well organized with a community's public affairs department and thoroughly coordinated across all internal departments. Public outreach during the campaign is essential to educate residents about the benefits of infrastructure investment and to understand which projects garner the highest community support.

Developer Built Trails/In-Lieu Fees

North Carolina communities can require developers to dedicate land for greenways and recreational areas, open space, streets, and sidewalks through local land use and development ordinances. In-lieu fees are one-time fees that developers pay to municipalities instead of dedicating land for these purposes. These fees can then be used to fund larger capital and operational improvements. For example, the Town of Cary built its first greenway 40 years ago, now has over 80 miles of greenway trails, and requires developers to set aside important open space providing trail connectivity, wildlife habitat corridors, and water quality protection. Cary requires developers to dedicate land or make payment in-lieu of public park and/or greenway development to serve the recreational needs of residents.

Johnston County maintains an Open Space Fund which requires a 5 percent match and a site map for selected projects. The creation and implementation of the Open Space Fund for Johnston County provides a means of disbursing the open space funds (fee-in-lieu) that have been collected by Johnston County in accordance with North Carolina General Statutes. Open Space Funds may be used to purchase, develop, or improve existing or new properties for passive and/or active recreational use for the enjoyment of the general public. These sites are to be located outdoors and need to be permanent structures. North Carolina General Statutes require the funds to be spent in the area of collection. Approximately two-thirds of the open space funds will be eligible for use within the current high school district attendance boundaries. More than one applicant from the same high school district may apply and receive funding. The remaining one-third of the funds will be reserved for future county-wide public projects.

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's 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.

Capital Improvement Program (CIP)

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.

Municipal Service Districts (MSD)

Municipal Service Districts provide an equitable method for funding special improvements to public right-of-way areas because property owners share in the cost. For example, the Town of Morrisville uses Municipal Service Districts in several neighborhoods to perform pavement, curb and gutter, and sidewalk enhancements and repairs on the public streets throughout neighborhoods in the MSD.

PRIVATE FUNDING

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 and 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. Johnston County's Parks and Recreation Department encourages partnerships as ways to better serve the public. Partnerships can occur through contracts, land purchase agreements, volunteer opportunities, and promotional events. Currently, Johnston County's partners include: Friends of Johnston County Parks, Johnston County Visitors Bureau, Triangle Land Conservancy, East Coast Greenway, Friends of the Mountains-to-Sea Trail, North Carolina State Parks, Bentonville Battlefield, Clemmons Educational State Forest, Howell Woods Educational Learning Center, Artmosphere Community Arts Center, Triangle Trails Initiative, Johnston County Hiking & Outing Group, East Triangle YMCA, Neuse Adventures Canoe & Kayak Rentals, and the Johnston County Special Olympics. By leveraging public and private funds, Johnston County and the towns along the Smithfield to Benson ECG corridor could advance the project through design, engineering, and construction.

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.

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 has two standard programs open to eligible entities seeking grants: Open Grants Program and Economic Catalyst Program. These programs complement other ongoing initiatives of the Foundation, such as the Community-Based Grants Initiative.

- ◆ **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.
- ◆ **Economic Catalyst Program:** The Economic Catalyst process is open to governmental entities and 501(c)(3) organizations with projects that will create jobs at risk without Golden LEAF funding. Grants include funds for public infrastructure, job training, upfit for buildings owned by

governmental or nonprofit entities, or equipment acquisition where the building or equipment will be leased or sold at fair-market value to a company creating jobs. Grants are available only for projects that include a specific company's commitment to create full-time jobs in NC.

- ◆ **Community-Based Grants Initiative:** Each year, the Golden LEAF Foundation invites organizations from counties from a different Prosperity Zone to participate in the Community-Based Grant Initiative (CBGI). The process is competitive, but organizations from all counties within the Prosperity Zone will have an opportunity to apply. The CBGI identifies projects with the potential to have a significant impact. It is a focused process with grants targeted toward investments in the building blocks of economic growth. Projects must address economic development, agriculture, workforce preparedness, infrastructure, and capital costs necessary to create health care jobs. County managers serve a key role in the process. Each county manager will submit a slate of up to four projects for consideration. Applicants must be 501(c)(3) organizations or governmental entities, such as county and municipal governments, community colleges, or universities. Golden Leaf limits awards to no more than three projects per county and will total no more than \$1.5 million per county.

Golden LEAF funding can assist with funding infrastructure costs for segments of the Smithfield to Benson ECG that connect to employment opportunities.

<https://www.goldenleaf.org/>

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 greenway feasibility study and contribute to intentional and thoughtful collection of public input over the course of the development of the Smithfield to Benson ECG.
- ◆ **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.

Smithfield to Benson ECG can leverage this funding in multiple ways. The Smart Growth Level 3 NAR grant could fund visioning workshops for placemaking opportunities along the corridor. The NAR Placemaking grant could fund facets of the creation of outdoor, public spaces and public art along the greenway. It is important to note that application for this funding source requires a partnership with the local Realtor association, which will serve as the lead applicant.

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

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.

Smithfield to Benson ECG could use this funding to install important amenities along the alignment such as bike parking and bike repair stations.

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

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>

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, coronavirus recovery, 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:** \$3.6 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.

Additionally, AARP has introduced a Capacity Building Microgrant program, which provides \$2,500 to either conduct a walk audit to enhance pedestrian safety and walkability or to start/grow a community garden. This funding opportunity is better suited for incremental improvements after the construction of a greenway project.

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

TECHNICAL ASSISTANCE

Building Blocks for Sustainable Communities

Local land use decisions, such as transportation options, housing type and location, stormwater management, and issues of equity, all have direct impacts on the health and environment of our communities. Founded in 2011, the Building Blocks for Sustainable Communities program collaborates with local communities across the US including tribes and territories, to develop smart growth solutions and strategies in ways that benefit human health and the environment. The program uses an inclusive and locally-led process that strengthens local capacity, facilitates partnerships, and creates a path forward to achieve community-identified goals.

EPA staff and EPA-hired consultant teams deliver the Building Blocks for Sustainable Communities technical assistance program. Each technical assistance project spans a period of roughly eight months, including inclusive public engagement through a two-day workshop, the involvement of relevant decision-makers and potential public and private sector partners, and a report outlining the workshop process and specific next steps generated that the community could take to achieve its goals. The workshop focuses on the issues and priorities determined by the community.

The application for Building Blocks consists of a two-page letter of interest that outlines the issue(s) the community wishes to address. The most recent call for letters closed in 2020.

<https://www.epa.gov/smartgrowth/building-blocks-sustainable-communities>

Rivers, Trails, and Conservation Assistance Program (RTCA)

The National Parks Service (NPS) Rivers, Trails, and Conservation Assistance (RTCA) 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>

Rural Downtown Economic Development Grant Program

The Rural Downtown Economic Development Grant Program (RDEDG) is managed by the NC Main Street & Rural Planning Center, a division of the Rural Economic Development Division within the North Carolina 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 Johnston County Economic Development 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>

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APPENDIX B: DESIGN RESOURCES

Below are several design resources that may be used to inform design decisions for bicycle and pedestrian facilities. Organizations such as the Federal Highway Administration (FHWA), American Association of State Highway and Transportation Officials (AASHTO), National Association of City Transportation Officials (NACTO), and North Carolina Department of Transportation (NCDOT) offer general guidelines and project-specific tools to help professionals make design decisions. These guidelines promote flexibility to ensure context-sensitive applications.

AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES

The AASHTO Guide for the Development of Bicycle Facilities is the authoritative national standard for bikeway design. The document provides guidance to designers and planners by referencing a recommended range of design values and describing alternative design approaches. The guide provides information on how to accommodate bicycle travel and operations in most environments. Sufficient flexibility is permitted to encourage designs that are sensitive to local context and incorporate the needs of bicyclists, pedestrians, and motorists.

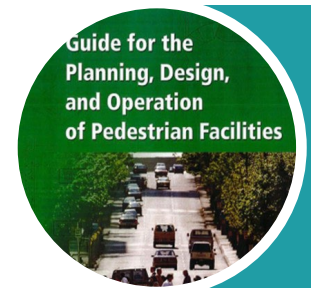
https://nacto.org/wp-content/uploads/2015/04/AASHTO_Bicycle-Facilities-Guide_2012-toc.pdf



AASHTO GUIDE FOR THE PLANNING, DESIGN AND OPERATION OF PEDESTRIAN FACILITIES

The AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities provides guidance for pedestrian facilities along streets and highways. The primary audiences for this manual are planners, roadway designers, and transportation engineers, whom make decisions on a daily basis that affect pedestrians. The guide focuses on identifying effective measures for accommodating pedestrians on public rights-of-way, and it recognizes the effect that land use planning and site design have on pedestrian mobility and addresses these topics as well.

[https://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP20-07\(263\)_FR.pdf](https://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP20-07(263)_FR.pdf)



MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

The Manual on Uniform Traffic Control Devices for Streets and Highways, or MUTCD defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public travel. The MUTCD is published by the Federal Highway Administration (FHWA) and is a compilation of national standards for all traffic control devices, including road markings, roadway signs, and traffic signals.

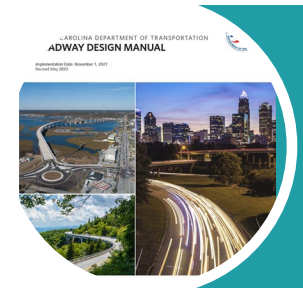
<https://mutcd.fhwa.dot.gov/>



NCDOT ROADWAY DESIGN GUIDE

The North Carolina Department of Transportation (NCDOT) Roadway Design Guide defines standards for roadways owned and maintained by NCDOT, including typical sections for roadways. Typical sections establish design elements that emphasize safety, mobility, complete streets, and accessibility for multiple modes of travel. Typical sections also provide guidelines for comprehensive transportation planning, project planning, and project design activities.

<https://connect.ncdot.gov/projects/Roadway/pages/roadway-design-manual.aspx>



NCDOT COMPLETE STREETS IMPLEMENTATION GUIDANCE

The North Carolina Department of Transportation (NCDOT) Complete Streets Implementation Guide is designed to assist NCDOT staff engineers, project managers and designers in implementing the Complete Streets Policy adopted by the Board of Transportation in August 2019. This document provides comprehensive guidance for incorporating a complete streets approach into NCDOT's planning, programming, design, and maintenance processes.

<https://connect.ncdot.gov/projects/BikePed/Pages/Complete-Streets.aspx>



NACTO URBAN STREETS DESIGN GUIDE

The Urban Street Design Guide charts the principles and practices of the nation's foremost engineers, planners, and designers working in cities today. A blueprint for designing 21st century streets, the guide unveils the toolbox and the tactics cities use to make streets safer, more livable, and more economically vibrant. The Guide outlines both a clear vision for complete streets and a basic road map for how to bring them to fruition.

<https://nacto.org/publication/urban-street-design-guide/>



NACTO URBAN BIKEWAY DESIGN GUIDE

The NACTO Urban Bikeway Design Guide provides cities with state-of-the-practice solutions that can help create complete streets that are safe and enjoyable for bicyclists. Design treatments included in the guide offer required, recommended, and optional design elements to address the complexity of individual streetscape situations. In August 2013, the FHWA issued a memorandum officially supporting the use of this document. All of the NACTO Urban Bikeway Design Guide treatments are in use internationally and in many cities around the US.

<https://nacto.org/publication/urban-bikeway-design-guide/>



NACTO URBAN STREET STORMWATER GUIDE

The Urban Street Stormwater Guide advances the discussion about how to design and construct sustainable streets. The guide provides cities with national best practices for sustainable stormwater management in the public right-of-way, including core principles about the purpose of streets, strategies for building inter-departmental partnerships around sustainable infrastructure, technical design details for siting and building bioretention facilities, and a visual language for communicating the benefits of such projects. The guide sheds light on effective policy and programmatic approaches to starting and scaling up green infrastructure, provides insight on innovative street design strategies, and proposes a framework for measuring performance of streets comprehensively.

<https://nacto.org/publication/urban-street-stormwater-guide/>

FHWA SMALL TOWN & RURAL MULTIMODAL NETWORKS

The Federal Highway Administration (FHWA) Small Town and Rural Multimodal Networks applies existing national design guidelines in a rural setting and highlights small town and rural case studies. It addresses challenges that are specific to rural areas and focuses on opportunities to make improvements despite the geographic, fiscal, and other challenges that many rural communities face. It also includes several design concepts applicable to National Scenic and Historic Trails.

https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/

FHWA BIKEWAY SELECTION GUIDE

A resource to help transportation practitioners consider the trade-offs relating to the selection of bikeway types. The document builds upon other FHWA resources that promote design flexibility and support connected, safe, and comfortable bicycle networks. The Bikeway Selection Guide outlines a process for identifying the desired bikeway type and assessing and refining potential options based on real-world conditions and decision-making factors. This process is intended to accelerate the delivery of high-quality multimodal projects that improve safety for everyone and meet the transportation needs of people of all ages and abilities.

<https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-07/fhwas18077.pdf>



FHWA SEPARATED BIKE LANE PLANNING AND DESIGN GUIDE

The Separated Bike Lane Planning and Design Guide outlines planning considerations for separated bike lanes and provides a menu of design options covering typical one and two-way scenarios. It highlights different options for providing separation, while also documenting intersection treatments and mid-block design considerations for driveways, transit stops, accessible parking, and loading zones. Case studies within the guide highlight best practices and lessons learned.

https://nacto.org/wp-content/uploads/2016/05/2-4_FHWA-Separated-Bike-Lane-Guide-ch-5_2014.pdf



PENNSYLVANIA TRAIL DESIGN & DEVELOPMENT PRINCIPLES: GUIDELINE FOR SUSTAINABLE, NON-MOTORIZED TRAILS

This document compiles the best practices and guidelines for the planning, design, construction, and management of trails. Techniques are presented for developing trails that create desirable and enjoyable experiences for trail users. These techniques employ sustainable design elements and construction practices that allow the trail to make use of natural systems so that the trail remains both physically and environmentally sustainable.

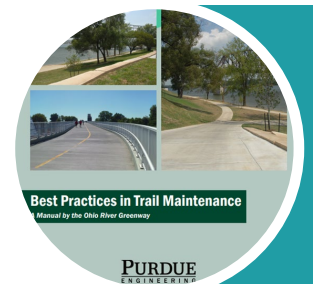
<https://www.americantrails.org/resources/pennsylvania-trail-design-development-principles>



BEST PRACTICES IN TRAIL MAINTENANCE: A MANUAL BY THE OHIO RIVER GREENWAY

This manual is intended for practical use by trail maintenance managers. It will also be useful for policy makers who are tasked with anticipating and planning for maintenance budget and personnel needs. The recommendations included in this manual were chosen, in part, to facilitate widespread adoption by other trail operators. They are cost-effective solutions that require minimal technological or financial commitments. It also provides guidance for trail construction and design where a maintenance issue can best be resolved by constructing new trail segments.

<https://www.railstotrails.org/resourcehandler.ashx?name=best-practices-in-trail-maintenance-a-manual-by-the-ohio-river-greenway&id=21221&fileName=Best%20Practices%20in%20Trail%20Maintenance.pdf>



FHWA ACHIEVING MULTIMODAL NETWORKS: APPLYING DESIGN FLEXIBILITY AND REDUCING CONFLICTS

This publication is resource for practitioners seeking to build multimodal transportation networks. It highlights ways that planners and designers can apply the design flexibility found in current national design guidance to address common roadway design challenges and barriers. It focuses on reducing multimodal conflicts and achieving connected networks so that walking and bicycling are safe, comfortable, and attractive options for people of all ages and abilities.

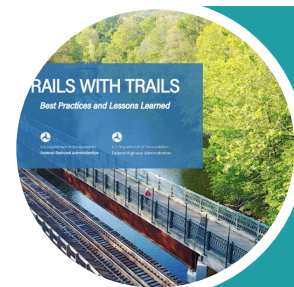
https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_networks/



RAILS TO TRAILS CONSERVANCY (RTC) RAIL WITH TRAILS: BEST PRACTICES AND LESSONS LEARNED

This updated USDOT Rails-with-Trails: Lessons Learned report documents how the state of the practice, perspectives, and context for rails-with-trails have evolved since the first report in 2002 and includes updated effective practices. Best practices are based on extensive research into existing and planned rails with-trails that involved interviews with railroad officials and trail managers; a literature review of previous rail-with-trail studies; a review of trail planning guidance documents; and input from various railroad and trail professionals.

https://www.fhwa.dot.gov/environment/recreational_trails/publications/rwt2021/



ADA STANDARDS FOR ACCESSIBLE DESIGN

This guide explains requirements in the current editions of the Americans with Disabilities Act (ADA) Standards issued by the Department of Justice (DOJ) and the Department of Transportation (DOT). It provides the scoping and technical requirements for new construction and alterations resulting from the adoption of revised 2010 Standards in the final rules for Title II and Title III.

https://www.ada.gov/2010ADASTandards_index.htm



EAST COAST GREENWAY ALLIANCE DESIGN GUIDE

The East Coast Greenway Alliance Design Guide describes a vision for trails included in the East Coast Greenway network. The guide includes design considerations for greenway surface, width, grade, maintenance, intersections and crossings, and signage. Examples of best practices from trails across the East Coast Greenway network are included, as well as funding options available for trail construction.

<https://greenway.org/design-guide>



APPENDIX C: COMMUNITY ENGAGEMENT

Materials from community engagement efforts conducted throughout the project are provided on the following pages and include the following contents:

- ◇ Working Group Meeting #1 Notes
- ◇ Working Group Meeting #2 Notes
- ◇ Working Group Meeting #3 Notes
- ◇ Working Group Meeting #4 Notes
- ◇ Working Group Meeting #5 Notes
- ◇ Working Group Meeting #6 Notes
- ◇ Public Meetings
- ◇ Community Survey

Working Group Meeting #1 Notes



WORKING GROUP MEETING #1 > JOCO ECG FEASIBILITY STUDY

PROJECT	DATE + TIME	LOCATION	ATTENDEES	
JOCO SMITHFIELD TO BENSON ECG FEASIBILITY STUDY	September 26, 2023 10:30am-12:00pm	Four Oaks Town Hall (304 N Main St, Four Oaks, NC 27524)	Kathryn Zeringue Haley Nafissi Christopher Normile Adrian O'Neal Austin Cross Andrew Meeker Rashawn King	Kim Robertson Jason Jeannette Stephen Wensman

JOHNSTON COUNTY - SMITHFIELD TO BENSON ECG FEASIBILITY STUDY WORKING GROUP MEETING #1 NOTES

MEETING NOTES

- > Kathryn opened the meeting and introduced the project and the project team.
- > Jason asked about whether the facility would be separated from roadway traffic similar to the Rocky Branch Greenway in Raleigh, and noted safety concerns with facilities too close to traffic or too far from development. The team noted that the study will evaluate routes for the most safe and comfortable user experience and will seek to avoid US-301 whenever possible.
- > Jason asked about whether the railroad corridor could be used for trail development, or if the trail could be routed parallel to the railroad. The team noted that no activities are permitted within the railroad right-of-way, but we could cross the tracks if needed.
- > The group held a visioning exercise to identify successful outcomes of the project. Common themes were funding, safety, maintenance responsibilities, connectivity to parks and other destinations, and shade and landscaping.
 - o Readily implementable
 - o Camping sites
 - o Alignment with the MST
- > Adrian noted that an increase in recreation equipment such as bicycles would be a good outcome, and Jason added that walking and biking also tend to increase food sales as people burn calories from exercising.
- > The team reviewed the project schedule and activities that will occur during each phase of the project.
- > The team handed out copies of the draft public survey for working group review, and noted that the survey is expected to launch in early October. The team then reviewed some of the draft survey questions.
- > Someone noted that the map in the draft survey questions does not show the MST route. The team noted that a map showing the MST will be included in Public Input, and that the State Trails map could be used instead.
- > The team reviewed proposed public meetings and landowner engagement, and noted that the project team will coordinate with the Johnston County Parks and Greenways Master Plan planning process whenever possible.
- > The team reviewed study area demographics and employment density, noting that the trail could act as a transportation corridor for households within the study area with no access to vehicles.



MEETING NOTES > JOCO ECG FEASIBILITY STUDY

- > The team reviewed previous plans and policies that the team has reviewed during the planning process.
- > The team reviewed existing conditions maps, including existing and planned bicycle and pedestrian facilities, state trails, etc.
- > Someone noted that the US-301 bridge over the Neuse River will be replaced, and the team said that it will be used for crossing the river as it will include a sidepath. The Holts Lake bridge is also anticipated to be replaced, although it is not yet in the STIP.
- > The team shared some pictures and observations from the site visit.
- > Someone noted that there is Town of Smithfield owned property near the Neuse River
- > Jason noted that some walkers and bicyclists open carry, so routing the trail close to schools could be a safety concern.

Working Group Meeting #2 Notes



PROJECT	DATE + TIME	LOCATION	ATTENDEES	
JOCO SMITHFIELD TO BENSON ECG FEASIBILITY STUDY	November 28, 2023 10:00am-11:30am	Johnston County Land Use Center (309 E Market St, Smithfield, NC 27577)	Kathryn Zeringue Zachary Hallock Christopher Normile Adrian O’Berry Austin Cross James Salmons Kim Robertson	Ashby Brame Kim Pickett Tim Messer Andrew Meeker Stephen Wensman Chloe Allen

JOHNSTON COUNTY - SMITHFIELD TO BENSON ECG FEASIBILITY STUDY WORKING GROUP MEETING #2 NOTES

AGENDA

- > Project Schedule Review
- > Community Survey Results
- > Draft Study Goals
- > Stakeholder Meetings Review
- > Review of Preliminary Routes
- > Next Steps

MEETING NOTES

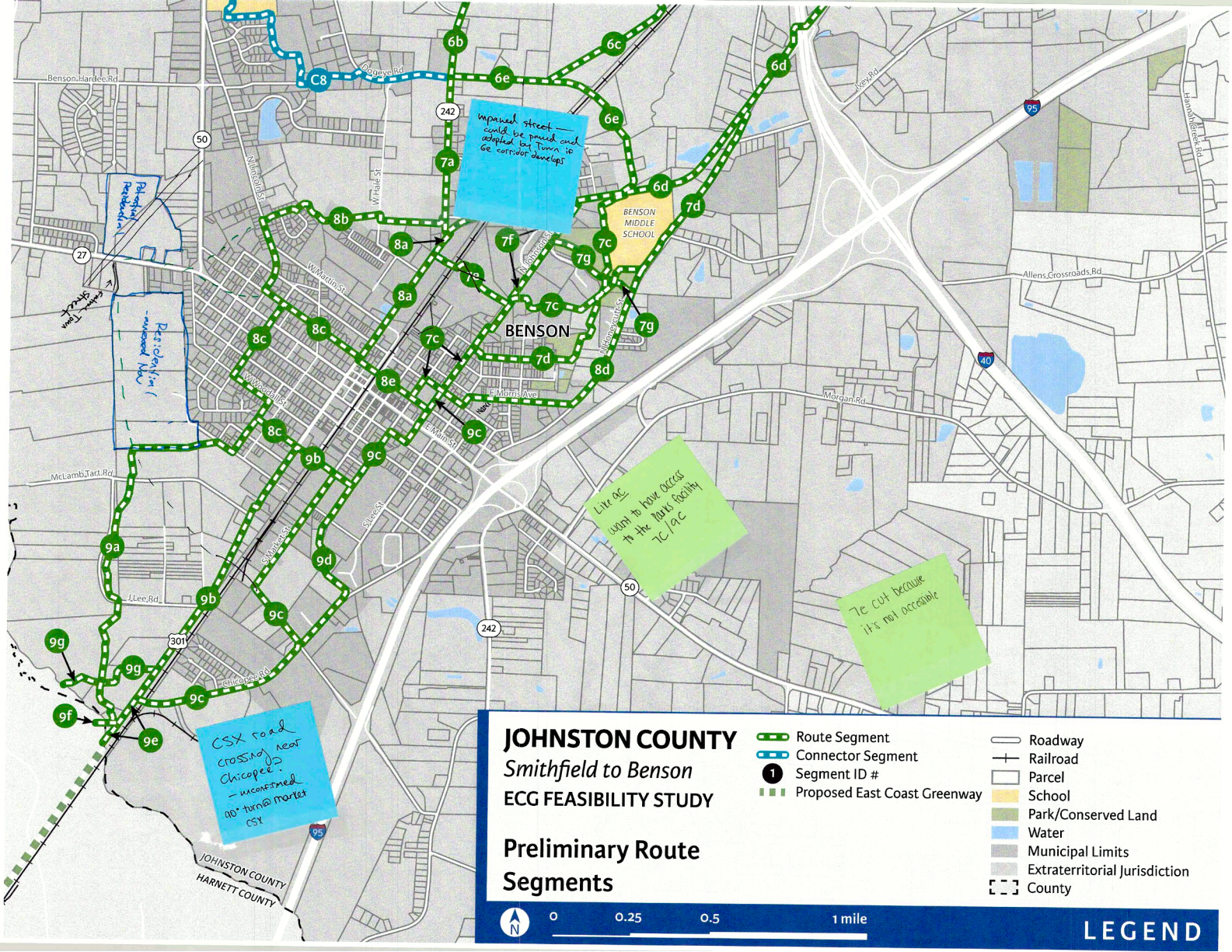
- > Kathryn opened the meeting and provided an overview of the agenda and project schedule.
- > Stephen asked if the plan will be presented to the individual towns. The project team replied that they will be trying to get a resolution of support from each.
- > Christopher reviewed the survey results.
- > Andrew asked how the routing preferences in the survey influence the route selection, whether it is more qualitative or quantitative. Kathryn replied that it is more qualitative at this point and is used to get an assessment of the community’s priorities at the initial stage, but that route evaluation criteria will provide a more qualitative assessment once routes are developed. The community survey ranking will help influence route selection, particularly considering that respondents prefer a route offering connections to destinations.
- > Kathryn reviewed project goals and the results of the visioning exercise at the first working group meeting.
 - o Safety
 - Address community safety needs in the development of the greenway and propose safety improvements at critical intersections, access points, and destinations such as schools and parks.
 - o Connectivity
 - Ensure that Johnston County’s greenway network expands transportation and recreational access for residents and visitors and connects to key destinations, the regional trail system, and neighboring jurisdictions.



- o Project Feasibility
 - Prioritize the development of a greenway that is permittable, solves right-of-way challenges, meets community needs, and can be implemented and maintained with local, regional, and state resources.
- o Community Support
 - Develop a plan for the greenway that actively engages and enlists local support, fostering a sense of ownership and involvement in the greenway’s development.
- o Placemaking
 - Develop a vibrant, community-centered route that fosters a strong sense of place and enjoyment by integrating public art, wayfinding, and shaded areas for relaxation and gatherings, enhancing the overall experience for all users.
- o Stephen suggested a small change to the wording of the safety goal.
- > Kathryn reviewed stakeholder engagement up to this point.
 - o NCDOT Division 4
 - US-301 bridge over Neuse River will include a 14.5 ft sidepath. Stephen asked if space is being included beneath the bridge for a greenway, and Zach said it is.
 - US-301 bridge over Holts Lake is in preliminary design but will likely include a 10 ft sidepath. Stephen asked if a 10 ft facility is wide enough for the Mountains-to-Sea Trail (MST), and Kathryn said it is. The sidepath will be more than just a wide shoulder and should include at least a Jersey barrier separating it from traffic, pending further design from NCDOT.
 - o Town of Smithfield
 - o Johnston County Schools
 - Stephen noted that the trail at Innovation Academy at South Campus is finished and is an 8ft multiuse path. Kathryn said this is narrower than preferred but could likely be incorporated into the greenway connection.
 - o Town of Benson
 - o Johnston County
 - There is potential to use a property on one side of Huntley St. Stephen said the properties on either side of Huntley St are owned by cousins who are not working together, and there is no developer involved for the parcels currently. Other landowners who have been made aware of the project may be amenable to providing an easement.
 - o Trail partners
 - o Town of Four Oaks and Johnston Community College (JCC) meetings are yet to be held. An overview of those meetings will be provided at the next working group meeting.
- > Zach reviewed preliminary route options.
 - o The project team made edits to the alignments based on previous stakeholder feedback, incorporating connections to JCC and MST.

- Option 1a is the main option heading south from Jaycee Park in Smithfield and would primarily be a combination of sidewalk and neighborhood bikeway due to physical constraints and a desire to minimize neighborhood impacts.
- Stephen asked about 1c and 1d, and whether connectors could still be included to South Smithfield Elementary School and the dog park. Zach said these could be included if 1b is selected as the preferred option, and that any of the proposed spine segments can be shortened and modified to serve as connectors if necessary.
- Stephen noted that 2a and 2b may be difficult for Smithfield residents to access and use. This option also would require significant boardwalk.
- 3f and 3g are subject to change due to the proposed interchange STIP project at US-301/US-701/NC-96/I-95 but impacts to 3f may be able to be avoided. If roundabouts are constructed, 3g may be able to avoid crossing the roadway by routing along the northern side of the roadway.
- 3i includes a section on a sewer easement connecting to downtown Four Oaks, and crosses a parcel adjacent to I-95 intended for future JCC use.
- 5b utilizes some large parcels near the railroad to minimize roadside segments and landowner coordination.
- One series of segments provides an option along Black Creek, but it is expected to be very expensive and may be removed. However, it provides an option for a safe underpass beneath I-40.
- Segment 7c routes behind Benson Middle School and provides connections to the municipal park, while segment 7g uses the park parcel to connect between Johnson St and Honeycutt St.
- Part of 9c has been previously identified in the Benson CTP. 9d could be coordinated with a future Town of Benson redevelopment project.
- > Zach asked for feedback on the route segment alternatives, and meeting attendees reviewed and made comments on paper maps.
 - Town of Benson staff noted several proposed developments and annexations, including parcels south of the intersection of NC-27 and NC-50 that have been annexed for residential development, potentially offering an additional segment alternative. North of NC-27, a site bisected by electric transmission lines may be developed for residential uses in the future.
 - Town of Benson staff suggested removing segment 7e due to challenges regarding construction feasibility, landowner coordination, and accessibility.
 - Town of Benson staff noted there has been work on the CSX railroad corridor recently, and there may be improvements that would benefit greenway development south of downtown Benson. A roadway loop bypassing Benson to the south has been proposed in the Benson Community Transportation Plan.
 - Town of Benson staff noted that Dogeye Rd east of NC-242 is unpaved and not maintained by the Town. In the event of development along this corridor, the Town may adopt and pave the roadway, making greenway segments 6c and 6e more feasible.
 - Town of Benson staff expressed support for connecting to the Municipal Park via segments 7c and 9c.

- > Kathryn reviewed next steps and the preliminary schedule for the next meetings.
 - Stakeholder Engagement with the Town of Four Oaks and JCC
 - Working Group Meeting #3 – Route Alternatives Development (January)
 - Landowner Meetings (January-March)
 - Public Meeting(s) (February/March)



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Working Group Meeting #3 Notes



PROJECT	DATE + TIME	LOCATION	ATTENDEES
JOCO SMITHFIELD TO BENSON ECG FEASIBILITY STUDY	February 16, 2024 1:00pm-2:30pm	Johnston County Land Use Center (309 E Market St, Smithfield, NC 27577)	Joel Strickland Zachary Hallock Christopher Normile, McAdams Austin Cross, Adrian O'Neal, Ashby Brame, Johnston County Stephen Wensman, Smithfield James Salmoms, NCDOT Jennifer Roman, UCPRPO Jason Jennette, All Out Bikes Betsy Brown, Ben Jones, FMST Andrew Meeker, ECGA

JOHNSTON COUNTY – SMITHFIELD TO BENSON ECG FEASIBILITY STUDY WORKING GROUP MEETING #3 NOTES

AGENDA

- > Project Schedule Review
- > Stakeholder Meetings Review
- > Opportunities + Constraints Analysis
- > Route Alternatives
- > Route Evaluation Criteria
- > Next Steps

MEETING NOTES

- > Joel opened the meeting and introduced himself as the new project manager. He reviewed the meeting agenda and project schedule.
- > Joel reviewed preliminary routes and stakeholder engagement conducted to date, focusing on feedback received from Four Oaks since the last meeting.
- > Zach reviewed opportunities and constraints for the preliminary routes.
 - o Smithfield
 - Historic homes and landscaping near downtown Smithfield are very constrained, making a bicycle boulevard likely.
 - Additional coordination is needed for bridge crossings.
 - o Four Oaks
 -
 - o Benson
 - Segments 6f and 7f would have to be new dedicated bike/ped bridges, adding greatly to the cost, and have been removed.
 - Spatial limitations on US-301 in Downtown Benson force a route to the east or west.
- > Zach reviewed the route alternatives.
 - o Route 1: Maximum Greenway



- o Route 2: US-301/Direct
 - Adrian asked if the lowest cost of this option includes crossing I-40. Zach said it does.
 - Jason said there needs to be a barrier between vehicles and trail users on any route on major roads such as US-301. Zach said this will be included everywhere except some segments in Downtown Smithfield where constraints are greater. Jason said he has ridden from Benson to Smithfield on US-301 and it is very dangerous.
- o Route 3: Core Connectivity
 -
- o Route 4: Desired Destinations
 -
- o Jason said the route should avoid crossing railroads as much as possible for user safety. He asked how long it took to implement the Neuse River Trail in Wake County. Adrian said Wake County started the planning process earlier, and Johnston County has grown very fast recently and is now having to catch up.
- o Jason asked what material the greenway surface would be. Adrian said this is still under consideration. Jason said some of the connector routes may be constructed with crush and run, similar to the Dunn-Erwin Rail Trail. Ben said some funding sources are only for unpaved trails.
- > Ashby asked how interested schools are in connectivity to the greenways. Zach said coordination so far has found that they are more okay with a connection or with a route that provides opportunity to install a fence and gate for security purposes. Adrian said many schools are not supposed to provide bus service within a mile of the school.
- > Zach reviewed evaluation criteria.
- > Zach shared the Conceptboard and noted that it would be sent out following the meeting.
 - o James asked if cost estimates are available for the route alternatives. Zach said this could be sent following the meeting.
 - o Ben asked how specific the matrix incorporates factors such as unwilling landowners. Zach said this would affect a route's score.
- > Joel reviewed next steps for the project.

Map Notes + Comments

- > Vacant lot for trailhead in downtown four oaks (north end of Seg 3L)
- > Route crossing under I-95 is preferred connection for MST
- > Old cart path along Neuse west of Flea Mkt
- > Smithfield Special Use Permit pending with Flea Market
- > Huntley St is drive for WWTP, not R/W. Remove seg 1g from consideration and update routes
- > Wellons properties (east of WWTP, segment 1b) to develop soon
- > Developable property along US 301 between Core Connections and US 301/Direct route (either side of Huntley St)



MEETING NOTES > JOCO ECG FEASIBILITY STUDY

- > Connection C1: RR Xing being studied by Town (RKA consultant), several segments already constructed
 - o Roadway crossing to JCC main parcel be coordinated with NCDOT
- > Connection C2: Segment nearest Market St already constructed
- > Connection C3: SECU project along Market St at end of segment pending
- > Segment 2a:
 - o Smithfield town park construction in '25-26
 - o Trail planned for east side market
 - o Steep slope along US 70 BUS R/W

Working Group Meeting #4 Notes



WORKING GROUP MEETING #4 >
SMITHFIELD TO BENSON ECG FEASIBILITY STUDY



MEETING NOTES > ECG FEASIBILITY STUDY

PROJECT	DATE	LOCATION	TIME
Johnston County Smithfield to Benson ECG Feasibility Study	July 30, 2024	Johnston County Land Use Center (309 E Market St, Smithfield, NC 27577)	10:00am-12:00pm

SMITHFIELD TO BENSON ECG FEASIBILITY STUDY WORKING GROUP MEETING #4 AGENDA

AGENDA

- Project Schedule Review
- Stakeholder + Public Meetings Review
- Route Evaluation + Decision Matrix
- Preferred Route
- Design Guidance
- Preliminary Maintenance Discussion
- Next Steps

NOTES

- 5+ calls from mailings
- Questions on Smithfield landowner coordination
- Leaning toward constrained railroad crossing(s)
- Raised crossings not allowed on NCDOT roads
- Rashawn asked about proposed completion date:
 - Adrian said it is hard to answer, dependent on landowners and NCDOT projects, etc. Maybe 10-20 years.
 - Austin said Clayton to Smithfield is moving along well.
- Stephen asked if cutsheets will show the design of the greenway. Zach said they will be at a conceptual level.
- Question on where to start.

- Zach said it will likely start on either end and meet in the middle.
- Adrian said it is dependent on the towns' ability to help construct the facility.
- Maintenance – could there be an “adopt a trail” program?
 - Adrian said the Friends of Johnston County Parks group is already in place and is helping with maintenance.
- Ben asked if “Connection only” segments are not part of the mainline but will be included in the final plan.
 - Zach said they are all broken out separately and are shown on the cutsheets.
- Adrian mentioned inclusion in the upcoming countywide greenways plan.
- Andrew asked about the connection to Harnett County.
 - Zach detailed options that were considered.
- Andrew asked about the NC-242 bridge crossing of I-40, and whether its location and design would require a traffic study.
 - Zach said it would not.
- The connection south of I-95 is for the Mountains-to-Sea Trail.
- A Memorandum of Understanding (MOU) is required to be in place for maintenance agreements.



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Working Group Meeting #5 Notes



WORKING GROUP MEETING #5 >
SMITHFIELD TO BENSON ECG FEASIBILITY STUDY



MEETING NOTES > ECG FEASIBILITY STUDY

PROJECT	DATE	LOCATION	TIME
Johnston County Smithfield to Benson ECG Feasibility Study	September 5, 2024	Virtual on Microsoft Teams	1:00 pm to 3:00 pm

SMITHFIELD TO BENSON ECG FEASIBILITY STUDY WORKING GROUP MEETING #5 AGENDA

ATTENDEES

- Adrian O’Neal, Johnston County
- Austin Cross, Johnston County
- Andrew Meeker, East Coast Greenway Alliance
- Ashby Brame, Johnston County
- Ben Jones, Friends of the Mountains to Sea Trail
- Betsy Brown, Friends of the Mountains to Sea Trail
- Kat Deutsch, North Carolina State Parks
- Jennifer Roman, Upper Coastal Plain Rural Planning Organization
- Rashawn King, Triangle Trails Initiative
- James Salmons, NCDOT
- Stephen Wensman, Town of Smithfield
- Joel Strickland, McAdams
- Zach Hallock, McAdams
- Mike Porvaznik, McAdams
- Christopher Normile, McAdams

AGENDA

- Project Schedule Review
- Preferred Route Overview
- Cutsheets and Estimates
- Maintenance and Policy Recommendations

- Implementation and Funding Strategies
- Next Steps

NOTES

- Project Schedule Review
 - Joel opened the meeting and reviewed the project schedule, reviewing community engagement and alternatives development activities
- Preferred Route Overview
 - Zach reviewed the preferred route and how it was developed. He provided an explanation of the components of cost estimates, including baseline estimates, contingencies, assumed build years, construction engineering and inspection services, and design services.
- Cutsheets and Estimates
 - Zach reviewed each cutsheet, important considerations for the routing and design, and cost estimate and parcel impact information, as well as considerations for easements.
 - Segment 1
 - Several structures along the Neuse River, and a crossing of the Neuse River through a STIP project.
 - In Smithfield, some of the corridor will consist of a sidewalk and bicycle boulevard section.
 - Segment 2a
 - A bridge replacement over Holts Lake is planned and would include a 10ft sidepath, but cost estimates include a separate multiuse bridge at a 12ft width
 - The team looked at using the I-5974 STIP project, but several design constraints related to roadway speed, proposed roundabouts, and the existing railroad bridge and embankments made this an undesirable routing choice.
 - Segment 2b
 - Curb and gutter may be needed in some places, which would require a speed limit reduction to 45 mph.
 - Segment 3a
 - Using the I-40 right of way (ROW) is feasible but requires coordination with NCDOT to provide adequate fencing and modifications to the control of access line.
 - Segment 3b



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Working Group Meeting #6 Notes



WORKING GROUP MEETING #6 >
SMITHFIELD TO BENSON ECG FEASIBILITY STUDY



MEETING NOTES > ECG FEASIBILITY STUDY

PROJECT	DATE	LOCATION	TIME
Johnston County Smithfield to Benson ECG Feasibility Study	November 6, 2024	Virtual on Microsoft Teams	1:00 pm to 2:00 pm

SMITHFIELD TO BENSON ECG FEASIBILITY STUDY WORKING GROUP MEETING #6 AGENDA

ATTENDEES

- Adrian O’Neal, Johnston County
- Austin Cross, Johnston County
- Andrew Meeker, East Coast Greenway Alliance
- Ashby Brame, Johnston County
- Ben Jones, Friends of the Mountains to Sea Trail
- Betsy Brown, Friends of the Mountains to Sea Trail
- Kat Deutsch, North Carolina State Parks
- Rashawn King, Triangle Trails Initiative
- James Salmons, NCDOT
- Stephen Wensman, Town of Smithfield
- Kimberly Robertson, Town of Four Oaks
- Tim Messer, Town of Benson
- Joel Strickland, McAdams
- Zach Hallock, McAdams
- Mike Porvaznik, McAdams
- Christopher Normile, McAdams

AGENDA

- Draft Plan Review
- Next Steps

NOTES

- Draft Plan Review
 - Joel reviewed the opening section of the plan and Chapter 1.
 - Zach reviewed Chapter 2.

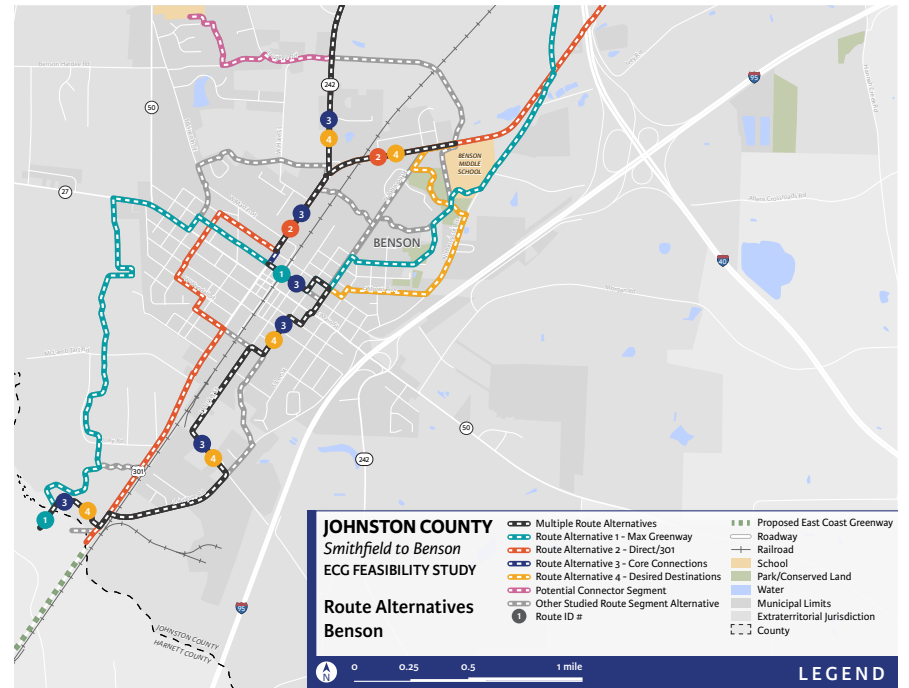
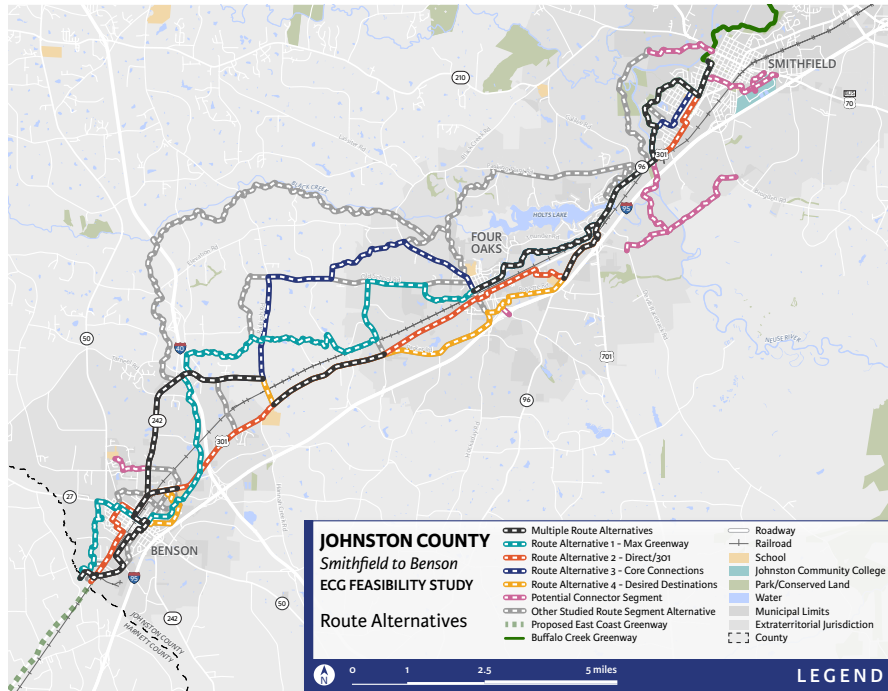
- Christopher reviewed Chapter 3.
- Zach reviewed Chapter 4.
 - Kat: “That railroad crossing will likely not be designatable as a state trail as there is not sufficient separation from motor vehicles.”
- Zach and Christopher reviewed Chapter 5.
 - Andrew asked if the cutsheets highlight areas with boardwalk, bridges, and other facilities that may help quantify the environmental impact. Zach said they do, and that at this scale the design team used wetlands data based on GIS, but that actual wetlands may vary based on development patterns and should be professionally surveyed as design advances.
 - Andrew asked how the project can avoid environmental impacts. Zach said this may come later in the design process with more detailed wetlands information and cost estimates, usually at 65% design. This will help inform permitting needs and costs.
 - Austin and Andrew asked about engineering costs. Zach said that cost estimates will be refined more as the process advances.
- Christopher reviewed the appendices.
- Next Steps
 - Adrian and Austin said the plan will be presented to the County Board of Commissioners for adoption, and later to the individual towns.
 - Working Group members may be involved in the countywide Trails Master Plan.

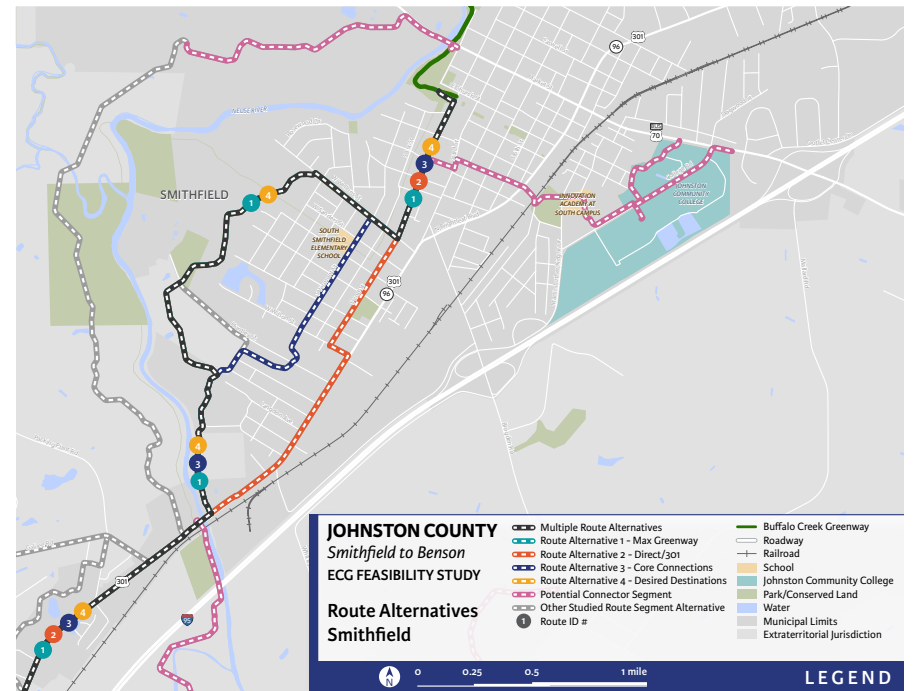
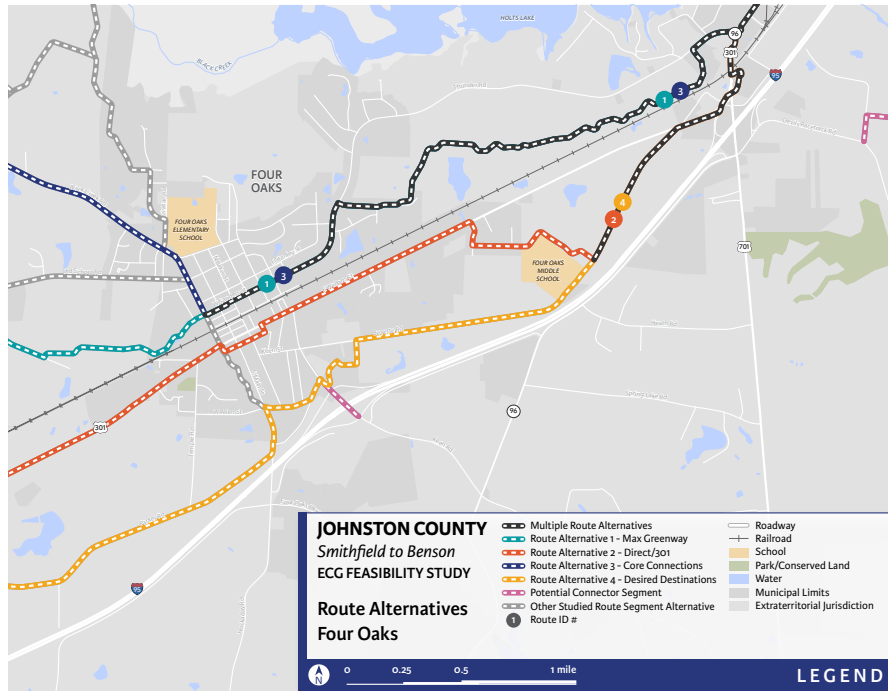


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Public Meeting Materials





PUBLIC ENGAGEMENT SUMMARY

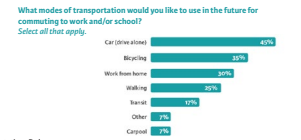
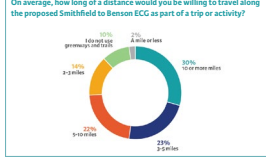
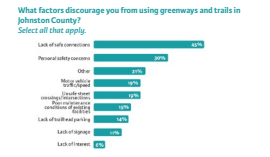
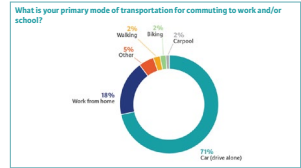
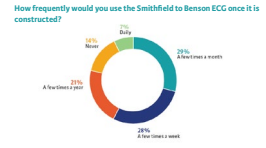
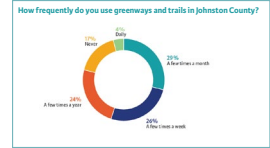
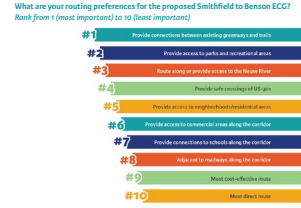
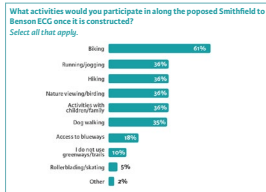
An online public survey was conducted from October 9 - November 13, 2023 and received 536 comments from 483 participants.

"It would be a major amenity to have a trail system from Smithfield to Benson. There should definitely be ongoing projects around town with the entire trail."
-Garry Rappoport

"It is not feasible to drive to Smithfield from the southern part of the county to get on greenway. This proposed project would make it worth using!"
-Garry Rappoport

"I see people walking / biking on digital trail all the time and it is dangerous. We need more infrastructure to help them get to town's north the grocery stores without getting hit by cars."
-Garry Rappoport

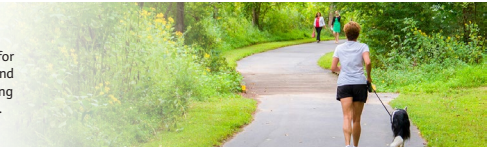
"Road crossings are a huge one, but overall better access to trails and working with new developments that are being built to provide access from these developments to common/greenway trails."
-Garry Rappoport



Community, regional, state, and private stakeholders engaged throughout the project include: Johnston County, Town of Benson, Town of Four Oaks, Town of Smithfield, Upper Coastal Plain Rural Planning Organization, North Carolina Department of Transportation, Duke Energy, Friends of the Mountains-to-Sea Trail, Triangle Trails Initiative, and East Coast Greenway Alliance.

WHAT ARE GREENWAYS?

Greenways are corridors of land for biking and walking, recognized for their ability to connect people and places; used for transportation and leisure activities. Greenways can also be utilized as buffers, separating and protecting the natural environment from the built environment.



BENEFITS OF A GREENWAY

- **Enhances Health and Wellness:** Greenways promote a healthy, active lifestyle by providing a safe and attractive environment for physical recreational opportunities such as running, jogging, biking or simply going for a walk.
- **Positive Environmental Impacts:** Supports clean air and water, preserves habitat, and mitigates the impacts of flooding.
- **Economic Impacts:** Greenways create benefits on a microeconomic scale by encouraging trail-oriented local business growth.
- **Alternative Transportation:** Greenways can remove vehicles from congested roads by creating safe bicycle and pedestrian commuter routes.
- **Aesthetic Contribution:** Greenways contribute to the visual character and identity of the community.

GREENWAY COMPONENTS



WAYS TO ENJOY A GREENWAY

- Connect with family on a walk
- Exercise by running or jogging
- Visit a neighbor
- Walk your pet
- Go to work
- Go grocery shopping
- Reduce daily stress by connecting with nature

61

Write your comment below and then write the number of this card on the sticker it corresponds to.

STEEP

22

Write your comment below and then write the number of this card on the sticker it corresponds to.

I like that the core connections
Route lets people explore each of
the communities
- NP

21

Write your comment below and then write the number of this card on the sticker it corresponds to.

Route choice ^① Max Greenway
but due to land issues, I
am sure not realistic.
② Direct/301
③ Core Connection

Benson Civic Center | 4 June 2024 | 5:30 - 7:30 pm

PUBLIC MEETING COMMENT FORM
Johnston County East Coast Greenway Feasibility Study

Thank you for attending the public meeting. Your input is incredibly valuable to this project.

Please type or print the following information. All questions are optional and personal information will not be distributed.

Name: _____

Address: _____

Email: _____

> Of the four recommended routes, which do you prefer? Please add a check mark below.

Max Greenway Direct/301 Core Connections Desired Destinations

Please describe which elements of the route you like or dislike:

~~scenery~~ destination stops, ~~scenery~~ scenery, less noise space.

Lets hope for shorter build time.

> Use the space below to provide additional comments, support for or objection to the project, or feedback on the meeting:

Support the project, love biking + walking on trails
Tobacco Rd Trail, Dumfries

Please drop your completed form in the box or hand it to the project team before you leave.

Four Oaks Town Hall | 18 June 2024 | 5:30 – 7:30 pm

PUBLIC MEETING COMMENT FORM
Johnston County East Coast Greenway Feasibility Study

Thank you for attending the public meeting. Your input is incredibly valuable to this project.

Please type or print the following information. All questions are optional and personal information will not be distributed.

Name: _____

Address: _____

Email: _____

> Of the four recommended routes, which do you prefer? Please add a check mark below.

Route Alt 1: Max Greenway Route Alt 2: Direct/301 Route Alt 3: Core Connections Route Alt 4: Desired Destinations

Please describe which elements of the route you like or dislike:

> Use the space below to provide additional comments, support for or objection to the project, or feedback on the meeting:

Please drop your completed form in the box or hand it to the project team before you leave.

Four Oaks Town Hall | 18 June 2024 | 5:30 – 7:30 pm

PUBLIC MEETING COMMENT FORM
Johnston County East Coast Greenway Feasibility Study

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Please type or print the following information. All questions are optional and personal information will not be distributed.

Name: _____

Address: _____

Email: _____

> Of the four recommended routes, which do you prefer? Please add a check mark below.

Route Alt 1: Max Greenway Route Alt 2: Direct/301 Route Alt 3: Core Connections Route Alt 4: Desired Destinations

Please describe which elements of the route you like or dislike:

*Goes along Middle School, then down by restaurant row
Easily can visit downtown, then back onto trail*

> Use the space below to provide additional comments, support for or objection to the project, or feedback on the meeting:

Please drop your completed form in the box or hand it to the project team before you leave.

Four Oaks Town Hall | 18 June 2024 | 5:30 – 7:30 pm

PUBLIC MEETING COMMENT FORM
Johnston County East Coast Greenway Feasibility Study

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Please type or print the following information. All questions are optional and personal information will not be distributed.

Name: _____

Address: _____

Email: _____

> Of the four recommended routes, which do you prefer? Please add a check mark below.

Route Alt 1: Max Greenway Route Alt 2: Direct/301 Route Alt 3: Core Connections Route Alt 4: Desired Destinations

Please describe which elements of the route you like or dislike:

Do not like the Greenway going down 301 past Oliver's Grove Baptist. ~~Bad~~ Dangerous traffic including fatality in past 3 years. Speed limit is 50, too fast for Greenway

> Use the space below to provide additional comments, support for or objection to the project, or feedback on the meeting:

Please drop your completed form in the box or hand it to the project team before you leave.

fatality was at 5C

Four Oaks Town Hall | 18 June 2024 | 5:30 – 7:30 pm

PUBLIC MEETING COMMENT FORM
Johnston County East Coast Greenway Feasibility Study

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Please type or print the following information. All questions are optional and personal information will not be distributed.

Name: _____

Address: _____

Email: _____

> Of the four recommended routes, which do you prefer? Please add a check mark below.

Route Alt 1: Max Greenway Route Alt 2: Direct/301 Route Alt 3: Core Connections Route Alt 4: Desired Destinations

Please describe which elements of the route you like or dislike:

DISRUPTION OF MY FARMING OPERATION THE WAY I SEE IT

> Use the space below to provide additional comments, support for or objection to the project, or feedback on the meeting:

Please drop your completed form in the box or hand it to the project team before you leave.

Four Oaks Town Hall | 18 June 2024 | 5:30-7:30 pm

PUBLIC MEETING COMMENT FORM
Johnston County East Coast Greenway Feasibility Study

Thank you for attending the public meeting. Your input is incredibly valuable to this project.

Please type or print the following information. All questions are optional and personal information will not be distributed.

Name: _____

Address: _____

Email: _____

> Of the four recommended routes, which do you prefer? Please add a check mark below.

Route Alt 1: Max Greenway Route Alt 2: Direct/301 Route Alt 3: Core Connections Route Alt 4: Desired Destinations

Please describe which elements of the route you like or dislike:

There are already existing walking trails in the Four Oaks city limits that are underutilized. No additional trails are needed in rural areas

> Use the space below to provide additional comments, support for or objection to the project, or feedback on the meeting:

Please drop your completed form in the box or hand it to the project team before you leave.

Four Oaks Town Hall | 18 June 2024 | 5:30-7:30 pm

PUBLIC MEETING COMMENT FORM
Johnston County East Coast Greenway Feasibility Study

Thank you for attending the public meeting. Your input is incredibly valuable to this project.

Please type or print the following information. All questions are optional and personal information will not be distributed.

Name: _____

Address: _____

Email: _____

> Of the four recommended routes, which do you prefer? Please add a check mark below.

Route Alt 1: Max Greenway Route Alt 2: Direct/301 Route Alt 3: Core Connections Route Alt 4: Desired Destinations

Please describe which elements of the route you like or dislike:

Allows neighborhoods to walk to downtown. Seems like a safer route

> Use the space below to provide additional comments, support for or objection to the project, or feedback on the meeting:

walkability is essential!

Please drop your completed form in the box or hand it to the project team before you leave.

Four Oaks Town Hall | 18 June 2024 | 5:30 – 7:30 pm

PUBLIC MEETING COMMENT FORM
Johnston County East Coast Greenway Feasibility Study

Thank you for attending the public meeting. Your input is incredibly valuable to this project.

Please type or print the following information. All questions are optional and personal information will not be distributed.

Name: _____

Address: _____

Email: _____

> **Of the four recommended routes, which do you prefer? Please add a check mark below.**

Route Alt 1: Max Greenway Route Alt 2: Direct/301 Route Alt 3: Core Connections Route Alt 4: Desired Destinations

Please describe which elements of the route you like or dislike:

away from major traffic areas, allows neighborhood connections to downtown

> **Use the space below to provide additional comments, support for or objection to the project, or feedback on the meeting:**

this a much needed project. health (mental & physical) is so important & so is connection to the community!

Please drop your completed form in the box or hand it to the project team before you leave.

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APPENDIX D: COST ESTIMATES

Cost estimates for evaluated segments are included on the following pages, with a map for reference showing each of the proposed segments.



Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04



Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD

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

ESTIMATES SUMMARY

PRELIMINARY SEGMENTS			
Name	Segment Length (mi.)	Cost + Contingency	Cost Per Mile
Segment 1a	0.75	\$805,000	\$1,075,522
Segment 1b	1.78	\$2,246,000	\$1,261,069
Segment 1c	1.33	\$1,751,000	\$1,314,959
Segment 1d	0.57	\$806,000	\$1,414,228
Segment 1e	0.67	\$1,393,000	\$2,072,204
Segment 1f	1.19	\$2,123,000	\$1,784,712
Segment 2a	1.34	\$2,516,000	\$1,881,542
Segment 3a	0.19	\$428,000	\$2,311,999
Segment 3b	0.78	\$1,141,000	\$1,460,048
Segment 3d	0.51	\$3,447,000	\$6,760,104
Segment 3f	3.10	\$5,515,000	\$1,778,262
Segment 3g	1.28	\$7,620,000	\$5,968,102
Segment 3h	2.02	\$4,647,000	\$2,295,315
Segment 3i	1.75	\$3,698,000	\$2,119,002
Segment 3j	0.50	\$1,185,000	\$2,357,960
Segment 3L	0.35	\$652,000	\$1,877,405
Segment 4b	1.32	\$1,851,000	\$1,400,551
Segment 4c	0.87	\$1,972,000	\$2,266,987
Segment 4d	1.25	\$1,803,000	\$1,444,696
Segment 4e	2.09	\$3,228,000	\$1,547,919
Segment 4f	2.43	\$5,361,000	\$2,209,355
Segment 4g	1.83	\$5,507,000	\$3,008,511
Segment 4h	1.11	\$1,995,000	\$1,796,350
Segment 4i	0.73	\$1,539,000	\$2,121,379
Segment 4j	1.18	\$2,089,000	\$1,770,592
Segment 4k	0.33	\$633,000	\$1,910,463
Segment 5a	2.38	\$4,446,000	\$1,864,702
Segment 5b	2.84	\$4,976,000	\$1,749,323
Segment 5c	2.37	\$4,493,000	\$1,898,472
Segment 5d	0.79	\$1,715,000	\$2,180,095
Segment 5e	0.54	\$995,000	\$1,832,802
Segment 5f	0.27	\$1,895,000	\$7,138,393
Segment 5g	0.89	\$1,721,000	\$1,937,228
Segment 5h	0.89	\$1,966,000	\$2,198,933
Segment 5i	1.69	\$2,291,000	\$1,355,058
Segment 5j	1.96	\$5,262,000	\$2,678,100
Segment 5k	1.08	\$1,973,000	\$1,830,286
Segment 5l	0.56	\$1,029,000	\$1,842,835
Segment 6a	0.31	\$671,000	\$2,138,039
Segment 6b	2.01	\$3,442,000	\$1,713,222
Segment 6c	1.99	\$4,086,000	\$2,056,825
Segment 6d	1.03	\$5,823,000	\$5,647,375
Segment 6e	0.57	\$1,552,000	\$2,700,652
Segment 6f	0.84	\$21,476,000	\$25,556,813
Segment 7a	0.51	\$1,087,000	\$2,144,192
Segment 7b	0.57	\$3,287,000	\$5,734,996
Segment 7c	1.03	\$2,072,000	\$2,009,101
Segment 7d	0.61	\$1,174,000	\$1,930,602
Segment 7e	1.02	\$1,603,000	\$1,572,418
Segment 7h	0.62	\$1,250,000	\$2,000,400
Segment 8a	0.76	\$1,335,000	\$1,750,620
Segment 8c	0.62	\$1,545,000	\$2,486,505
Segment 8d	0.85	\$1,586,000	\$1,856,385
Segment 8e	0.64	\$879,000	\$1,382,063

ESTIMATES SUMMARY

PRELIMINARY SEGMENTS			
Name	Segment Length (mi.)	Cost + Contingency	Cost Per Mile
Segment 9a	1.89	\$3,313,000	\$1,750,626
Segment 9b	0.98	\$1,886,000	\$1,926,176
Segment 9c	1.77	\$3,382,000	\$1,908,941
Segment 9e	0.16	\$962,000	\$6,119,711
Segment 9g	0.54	\$3,346,000	\$6,198,840
Segment 9h	0.46	\$3,343,000	\$7,297,769
Segment C1	1.10	\$1,273,000	\$1,160,526
Segment C2	0.44	\$646,000	\$1,466,421
Segment C4	1.88	\$5,183,000	\$2,758,769
Segment C5	1.90	\$12,352,000	\$6,509,358
Segment C6	0.98	\$2,865,000	\$2,912,594

RECOMMENDED ROUTES			
Name	Total Length (mi.)	Cost + Contingency	Cost Per Mile
Max Greenways Route	22.85	\$44,713,000	\$1,956,870
301-Direct Route	17.33	\$47,657,000	\$2,749,798
Core Connectivity Route	21.68	\$42,720,000	\$1,970,303
Desired Destinations Route	21.44	\$49,072,000	\$2,288,842

PREFERRED PHASES			
Name	Total Length (mi.)	Cost + Contingency	Cost Per Mile
Preferred Phase I	4.30	\$5,789,000	\$1,346,279
Preferred Phase II	5.40	\$9,770,000	\$1,809,259
Preferred Phase III	2.70	\$5,302,000	\$1,963,704
Preferred Phase IV	3.90	\$7,254,000	\$1,860,000
Preferred Phase V	2.20	\$6,476,000	\$2,943,636
Preferred Phase VI	4.60	\$7,254,000	\$1,576,957



Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 09/20/2024
 McAdams Project No:
 NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Preferred Phase I - Smithfield Jaycee Kiddie Park to US 301 at Country Club Road						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 215,000.00	\$ 215,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 150,000.00	\$ 150,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	8280	SY	\$ 6.00	\$ 49,680.00
520	1121000000-E	AGGREGATE BASE COURSE	3060	TON	\$ 56.00	\$ 171,360.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	860	TON	\$ 190.00	\$ 163,400.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	55	TON	\$ 840.00	\$ 46,200.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	2170	LF	\$ 50.00	\$ 108,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ 198,000.00	\$ 198,000.00
SP		EROSION CONTROL	1	LS	\$ 438,000.00	\$ 438,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 656,000.00	\$ 656,000.00
SP		BICYCLE BOULEVARD TREATMENTS	1	LS	\$ 210,000.00	\$ 210,000.00
SP		6" REINFORCED CONCRETE	11290	SY	\$ 80.00	\$ 903,200.00
SP		REMOVE EXISTING CURB AND GUTTER	210	LF	\$ 35.00	\$ 7,350.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	16	EA	\$ 15,000.00	\$ 240,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		SAFETY RAIL	140	LF	\$ 80.00	\$ 11,200.00
SP		TIMBER PILE CONCRETE BOARDWALK	100	LF	\$ 1,600.00	\$ 160,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 685,000.00	\$ 685,000.00

SUBTOTAL \$4,452,890.00
 CONTINGENCY @ 30% \$1,335,867.00
CONSTRUCTION COST SAY \$5,789,000

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 or public 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 September 2024 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.
7. Cost opinion does not include drainage as a separate line item. These costs are assumed to be covered by the construction contingency.
8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 09/20/2024
 McAdams Project No:
 NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

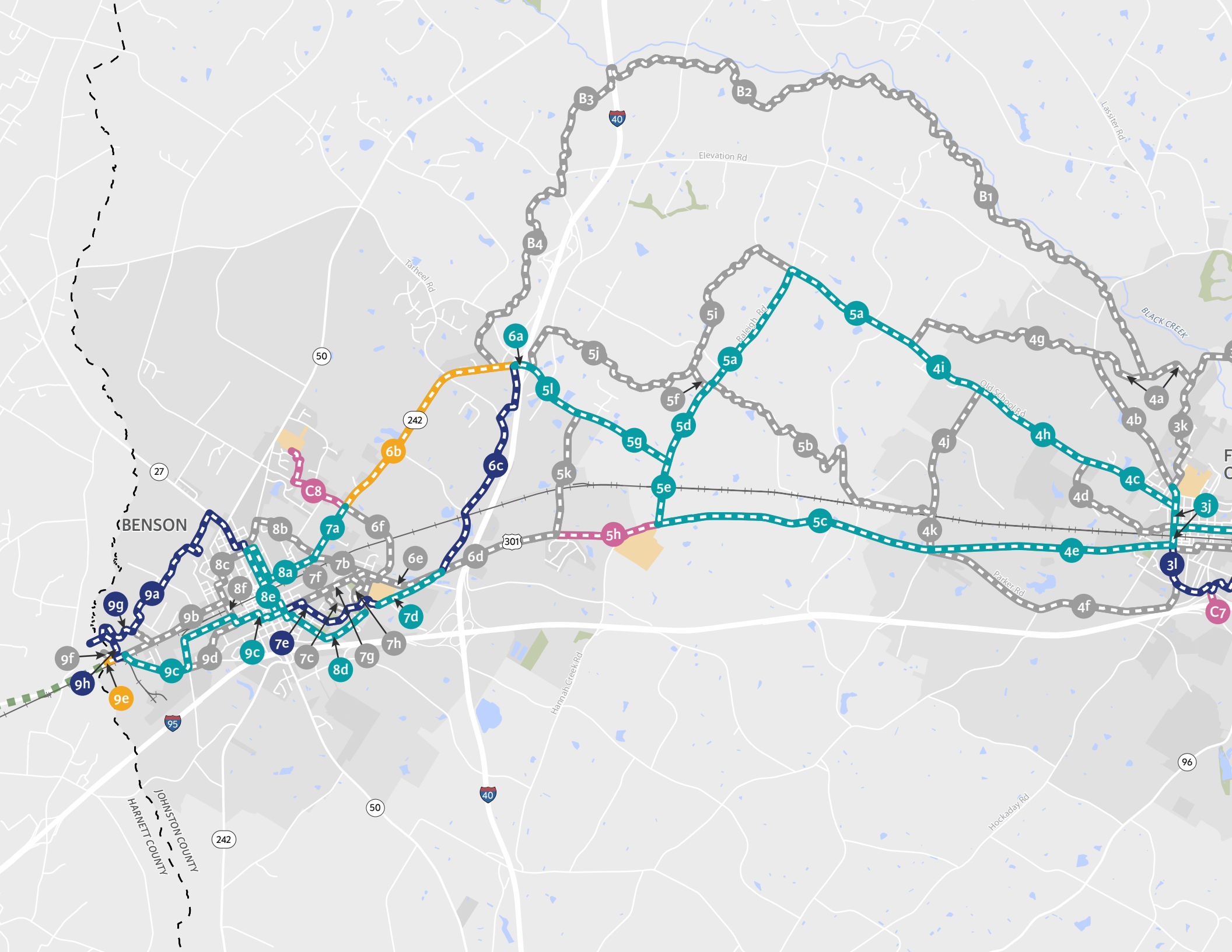
ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

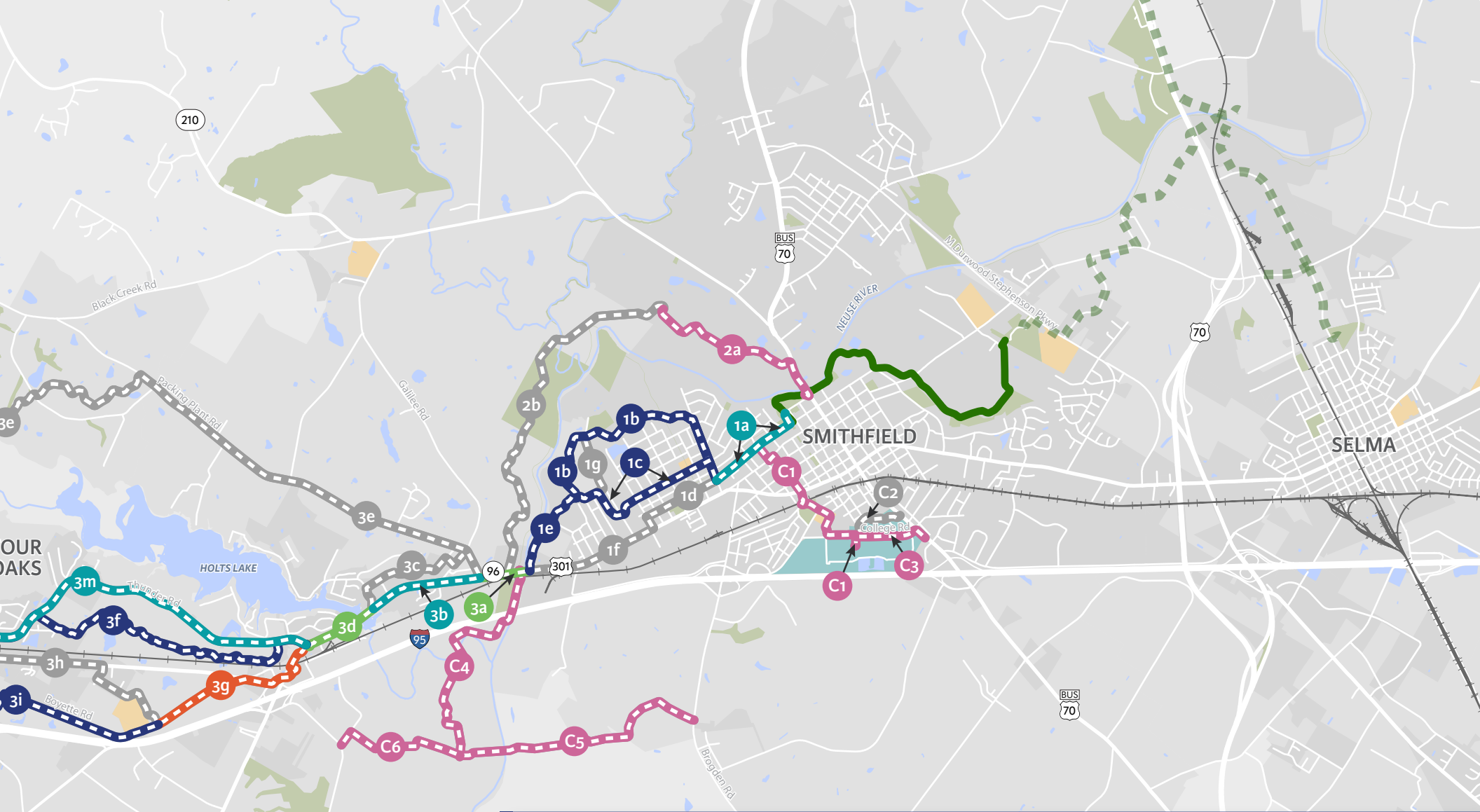
Preferred Phase II - US 301 at Country Club Road to Downtown Four Oaks						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 360,000.00	\$ 360,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 140,000.00	\$ 140,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	14200	SY	\$ 6.00	\$ 85,200.00
520	1121000000-E	AGGREGATE BASE COURSE	5230	TON	\$ 56.00	\$ 292,880.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	1470	TON	\$ 190.00	\$ 279,300.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	90	TON	\$ 840.00	\$ 75,600.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	11040	LF	\$ 50.00	\$ 552,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 217,000.00	\$ 217,000.00
SP		EROSION CONTROL	1	LS	\$ 475,000.00	\$ 475,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 831,000.00	\$ 831,000.00
SP		6" REINFORCED CONCRETE	15280	SY	\$ 80.00	\$ 1,222,400.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	15	EA	\$ 15,000.00	\$ 225,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	5	EA	\$ 40,000.00	\$ 200,000.00
SP		SAFETY RAIL	160	LF	\$ 80.00	\$ 12,800.00
SP		RETAINING WALL	1700	SF	\$ 210.00	\$ 357,000.00
SP		PREFABRICATED PEDESTRIAN BRIDGE	260	LF	\$ 4,500.00	\$ 1,170,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 1,020,000.00	\$ 1,020,000.00

SUBTOTAL \$7,515,180.00
 CONTINGENCY @ 30% \$2,254,554.00
CONSTRUCTION COST SAY \$9,770,000

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 or public 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.
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7. Cost opinion does not include drainage as a separate line item. These costs are assumed to be covered by the construction contingency.
8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.





JOHNSTON COUNTY
Smithfield to Benson
ECG FEASIBILITY STUDY

Segment Alternatives

- Under Consideration
- Under Consideration - *Landowner Coordination Needed*
- Under Consideration - *Coordinate with STIP Project or Bridge Replacement*
- Under Consideration - *Construction/Maintenance Concerns or Utility Conflicts*
- Under Consideration - *Complete Streets*
- Connection Only
- Removed from Consideration
- Segment ID #
- Buffalo Creek Greenway
- Proposed East Coast Greenway
- Roadway
- Railroad
- School
- Johnston Community College
- Park/Conserved Land
- Water
- Municipal Limits
- Extraterritorial Jurisdiction
- County





Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 09/20/2024
 McAdams Project No:
 NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Preferred Phase III - Old School Road from Downtown Four Oaks to Gum Swamp Road						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 195,000.00	\$ 195,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 95,000.00	\$ 95,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	7700	LF	\$ 50.00	\$ 385,000.00
SP		EROSION CONTROL	1	LS	\$ 215,000.00	\$ 215,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 788,000.00	\$ 788,000.00
SP		6" REINFORCED CONCRETE	19060	SY	\$ 80.00	\$ 1,524,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	6	EA	\$ 15,000.00	\$ 90,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	2	EA	\$ 40,000.00	\$ 80,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 705,000.00	\$ 705,000.00

SUBTOTAL \$4,077,800.00

CONTINGENCY @ 30% \$1,223,340.00

CONSTRUCTION COST SAY \$5,302,000

Notes:

- Cost opinion does not include costs for easement or ROW acquisition.
- Cost opinion does not include engineering, geotech, design survey, or construction administration.
- Cost opinion does not include cost for private or public utility relocations.
- 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.
- Quantities used in this cost opinion are approximations based on feasibility study alignments by McAdams dated September 2024 and are subject to revision prior to bid.
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- Cost opinion does not include drainage as a separate line item. These costs are assumed to be covered by the construction contingency.
- Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 09/20/2024
 McAdams Project No:
 NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Preferred Phase IV - I-40/NC 242 Interchange to Downtown Benson						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 270,000.00	\$ 270,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 135,000.00	\$ 135,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	9180	SY	\$ 6.00	\$ 55,080.00
520	1121000000-E	AGGREGATE BASE COURSE	3410	TON	\$ 56.00	\$ 190,960.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	960	TON	\$ 190.00	\$ 182,400.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	65	TON	\$ 840.00	\$ 54,600.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	6600	LF	\$ 50.00	\$ 330,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 141,000.00	\$ 141,000.00
SP		EROSION CONTROL	1	LS	\$ 404,000.00	\$ 404,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 715,000.00	\$ 715,000.00
SP		6" REINFORCED CONCRETE	18770	SY	\$ 80.00	\$ 1,501,600.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	6	EA	\$ 15,000.00	\$ 90,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	6	EA	\$ 40,000.00	\$ 240,000.00
SP		CHAIN LINK FENCE FOR CONTROL OF ACCESS	2100	LF	\$ 35.00	\$ 73,500.00
SP		FLEXIBLE DELINEATORS	25	EA	\$ 80.00	\$ 2,000.00
SP		BRIDGE MOUNTED FENCING	200	LF	\$ 96.00	\$ 19,200.00
SP		TIMBER PILE CONCRETE BOARDWALK	100	LF	\$ 1,600.00	\$ 160,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 1,015,000.00	\$ 1,015,000.00

SUBTOTAL \$5,579,340.00

CONTINGENCY @ 30% \$1,673,802.00

CONSTRUCTION COST SAY \$7,254,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Preferred Phase V - Downtown Benson to Harnett County Line						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 240,000.00	\$ 240,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 75,000.00	\$ 75,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	7360	SY	\$ 6.00	\$ 44,160.00
520	1121000000-E	AGGREGATE BASE COURSE	2710	TON	\$ 56.00	\$ 151,760.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	760	TON	\$ 190.00	\$ 144,400.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	50	TON	\$ 840.00	\$ 42,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	4660	LF	\$ 50.00	\$ 233,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 17,000.00	\$ 17,000.00
SP		EROSION CONTROL	1	LS	\$ 170,000.00	\$ 170,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 514,000.00	\$ 514,000.00
SP		6" REINFORCED CONCRETE	7220	SY	\$ 80.00	\$ 577,600.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	6	EA	\$ 15,000.00	\$ 90,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	1270	LF	\$ 1,600.00	\$ 2,032,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 520,000.00	\$ 520,000.00

SUBTOTAL \$4,980,920.00
 CONTINGENCY @ 30% \$1,494,276.00
CONSTRUCTION COST SAY \$6,476,000

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Preferred Phase VI - Old School Road at Gum Swamp Road to I-40/NC 242 Interchange						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 315,000.00	\$ 315,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 160,000.00	\$ 160,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	4300	LF	\$ 50.00	\$ 215,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 3,000.00	\$ 3,000.00
SP		EROSION CONTROL	1	LS	\$ 367,000.00	\$ 367,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 867,000.00	\$ 867,000.00
SP		6" REINFORCED CONCRETE	32280	SY	\$ 80.00	\$ 2,582,400.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	5	EA	\$ 15,000.00	\$ 75,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	4	EA	\$ 40,000.00	\$ 160,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	200	LF	\$ 1,600.00	\$ 320,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 1,535,000.00	\$ 1,535,000.00

SUBTOTAL \$6,599,400.00
 CONTINGENCY @ 30% \$1,979,820.00
CONSTRUCTION COST SAY \$8,580,000

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
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 Client Project No.

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

Max Greenways Route						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 1,585,000.00	\$ 1,585,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 785,000.00	\$ 785,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	65650	SY	\$ 6.00	\$ 393,900.00
520	1121000000-E	AGGREGATE BASE COURSE	23940	TON	\$ 56.00	\$ 1,340,640.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	6810	TON	\$ 190.00	\$ 1,293,900.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	435	TON	\$ 840.00	\$ 365,400.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	23800	LF	\$ 50.00	\$ 1,190,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 1,156,000.00	\$ 1,156,000.00
SP		EROSION CONTROL	1	LS	\$ 2,532,000.00	\$ 2,532,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 2,995,000.00	\$ 2,995,000.00
SP		BICYCLE BOULEVARD TREATMENTS	1	LS	\$ 210,000.00	\$ 210,000.00
SP		6" REINFORCED CONCRETE	82310	SY	\$ 80.00	\$ 6,584,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	48	EA	\$ 15,000.00	\$ 720,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	17	EA	\$ 40,000.00	\$ 680,000.00
SP		TRAIL CROSSING, MAJOR STREET (HAWK/PHB/CURB RAMPS)	1	EA	\$ 90,000.00	\$ 90,000.00
SP		SAFETY RAIL	300	LF	\$ 80.00	\$ 24,000.00
SP		CHAIN LINK FENCE FOR CONTROL OF ACCESS	2100	LF	\$ 35.00	\$ 73,500.00
SP		FLEXIBLE DELINEATORS	25	EA	\$ 80.00	\$ 2,000.00
SP		BRIDGE MOUNTED FENCING	200	LF	\$ 96.00	\$ 19,200.00
SP		RETAINING WALL	1700	SF	\$ 210.00	\$ 357,000.00
SP		PREFABRICATED PEDESTRIAN BRIDGE	260	LF	\$ 4,500.00	\$ 1,170,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	2660	LF	\$ 1,600.00	\$ 4,256,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 5,290,000.00	\$ 5,290,000.00

SUBTOTAL \$33,120,690.00

CONTINGENCY @ 35% \$11,592,241.50

CONSTRUCTION COST SAY \$44,713,000

Notes:

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 McAdams Project No:
 NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

301-Direct Route						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 1,695,000.00	\$ 1,695,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 600,000.00	\$ 600,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	16200	SY	\$ 6.00	\$ 97,200.00
520	1121000000-E	AGGREGATE BASE COURSE	6050	TON	\$ 56.00	\$ 338,800.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	1710	TON	\$ 190.00	\$ 324,900.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	120	TON	\$ 840.00	\$ 100,800.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	41420	LF	\$ 50.00	\$ 2,071,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 85,000.00	\$ 85,000.00
SP		EROSION CONTROL	1	LS	\$ 1,397,000.00	\$ 1,397,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 6,333,000.00	\$ 6,333,000.00
SP		BICYCLE BOULEVARD TREATMENTS	1	LS	\$ 230,000.00	\$ 230,000.00
SP		6" REINFORCED CONCRETE	88310	SY	\$ 80.00	\$ 7,064,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	50	EA	\$ 15,000.00	\$ 750,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	18	EA	\$ 40,000.00	\$ 720,000.00
SP		TRAIL CROSSING, MAJOR STREET (HAWK/PHB/CURB RAMPS)	2	EA	\$ 90,000.00	\$ 180,000.00
SP		SAFETY RAIL	560	LF	\$ 80.00	\$ 44,800.00
SP		RETAINING WALL	4600	SF	\$ 210.00	\$ 966,000.00
SP		PREFABRICATED PEDESTRIAN BRIDGE	1040	LF	\$ 4,500.00	\$ 4,680,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	580	LF	\$ 1,600.00	\$ 928,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 5,295,000.00	\$ 5,295,000.00

SUBTOTAL \$35,301,300.00

CONTINGENCY @ 35% \$12,355,455.00

CONSTRUCTION COST SAY \$47,657,000

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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 Client Project No.

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

Core Connectivity Route						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 1,515,000.00	\$ 1,515,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 750,000.00	\$ 750,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	37510	SY	\$ 6.00	\$ 225,060.00
520	1121000000-E	AGGREGATE BASE COURSE	13830	TON	\$ 56.00	\$ 774,480.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	3890	TON	\$ 190.00	\$ 739,100.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	245	TON	\$ 840.00	\$ 205,800.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	29380	LF	\$ 50.00	\$ 1,469,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 535,000.00	\$ 535,000.00
SP		EROSION CONTROL	1	LS	\$ 2,037,000.00	\$ 2,037,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 4,160,000.00	\$ 4,160,000.00
SP		BICYCLE BOULEVARD TREATMENTS	1	LS	\$ 260,000.00	\$ 260,000.00
SP		6" REINFORCED CONCRETE	100580	SY	\$ 80.00	\$ 8,046,400.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	59	EA	\$ 15,000.00	\$ 885,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	17	EA	\$ 40,000.00	\$ 680,000.00
SP		TRAIL CROSSING, MAJOR STREET (HAWK/PHB/CURB RAMPS)	1	EA	\$ 90,000.00	\$ 90,000.00
SP		SAFETY RAIL	2300	LF	\$ 80.00	\$ 184,000.00
SP		FLEXIBLE DELINEATORS	25	EA	\$ 80.00	\$ 2,000.00
SP		BRIDGE MOUNTED FENCING	200	LF	\$ 96.00	\$ 19,200.00
SP		RETAINING WALL	1700	SF	\$ 210.00	\$ 357,000.00
SP		PREFABRICATED PEDESTRIAN BRIDGE	260	LF	\$ 4,500.00	\$ 1,170,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	1280	LF	\$ 1,600.00	\$ 2,048,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 5,485,000.00	\$ 5,485,000.00

SUBTOTAL \$31,644,390.00
CONTINGENCY @ 35% \$11,075,536.50
CONSTRUCTION COST SAY \$42,720,000

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
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ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

Desired Destinations Route						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 1,740,000.00	\$ 1,740,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 735,000.00	\$ 735,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	22060	SY	\$ 6.00	\$ 132,360.00
520	1121000000-E	AGGREGATE BASE COURSE	8150	TON	\$ 56.00	\$ 456,400.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	2290	TON	\$ 190.00	\$ 435,100.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	150	TON	\$ 840.00	\$ 126,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	35870	LF	\$ 50.00	\$ 1,793,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ 311,000.00	\$ 311,000.00
SP		EROSION CONTROL	1	LS	\$ 1,855,000.00	\$ 1,855,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 5,467,000.00	\$ 5,467,000.00
SP		BICYCLE BOULEVARD TREATMENTS	1	LS	\$ 210,000.00	\$ 210,000.00
SP		6" REINFORCED CONCRETE	114850	SY	\$ 80.00	\$ 9,188,000.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	45	EA	\$ 15,000.00	\$ 675,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	23	EA	\$ 40,000.00	\$ 920,000.00
SP		TRAIL CROSSING, MAJOR STREET (HAWK/PHB/CURB RAMPS)	1	EA	\$ 90,000.00	\$ 90,000.00
SP		SAFETY RAIL	2700	LF	\$ 80.00	\$ 216,000.00
SP		FLEXIBLE DELINEATORS	25	EA	\$ 80.00	\$ 2,000.00
SP		BRIDGE MOUNTED FENCING	200	LF	\$ 96.00	\$ 19,200.00
SP		RETAINING WALL	3600	SF	\$ 210.00	\$ 756,000.00
SP		PREFABRICATED PEDESTRIAN BRIDGE	740	LF	\$ 4,500.00	\$ 3,330,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	290	LF	\$ 1,600.00	\$ 464,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 7,020,000.00	\$ 7,020,000.00

SUBTOTAL \$36,348,910.00
CONTINGENCY @ 35% \$12,722,118.50
CONSTRUCTION COST SAY \$49,072,000

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Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 1a						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 30,000.00	\$ 30,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 25,000.00	\$ 25,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	620	SY	\$ 6.00	\$ 3,720.00
520	1121000000-E	AGGREGATE BASE COURSE	240	TON	\$ 56.00	\$ 13,440.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	70	TON	\$ 190.00	\$ 13,300.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	5	TON	\$ 840.00	\$ 4,200.00
SP		GREENWAY DRAINAGE	1	LS	\$ 10,000.00	\$ 10,000.00
SP		EROSION CONTROL	1	LS	\$ 40,000.00	\$ 40,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 110,000.00	\$ 110,000.00
SP		BICYCLE BOULEVARD TREATMENTS	1	LS	\$ 120,000.00	\$ 120,000.00
SP		6" REINFORCED CONCRETE	1140	SY	\$ 80.00	\$ 91,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	7	EA	\$ 15,000.00	\$ 105,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 30,000.00	\$ 30,000.00

SUBTOTAL **\$595,860.00**
 CONTINGENCY @ 35% **\$208,551.00**
CONSTRUCTION COST SAY \$805,000

Notes:

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2. Cost opinion does not include engineering, geotech, design survey, or construction administration.
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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 1b						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 80,000.00	\$ 80,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 60,000.00	\$ 60,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	7660	SY	\$ 6.00	\$ 45,960.00
520	1121000000-E	AGGREGATE BASE COURSE	2820	TON	\$ 56.00	\$ 157,920.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	790	TON	\$ 190.00	\$ 150,100.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	50	TON	\$ 840.00	\$ 42,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 117,000.00	\$ 117,000.00
SP		EROSION CONTROL	1	LS	\$ 220,000.00	\$ 220,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 132,000.00	\$ 132,000.00
SP		BICYCLE BOULEVARD TREATMENTS	1	LS	\$ 90,000.00	\$ 90,000.00
SP		6" REINFORCED CONCRETE	2920	SY	\$ 80.00	\$ 233,600.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	4	EA	\$ 15,000.00	\$ 60,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 275,000.00	\$ 275,000.00

SUBTOTAL **\$1,663,580.00**
 CONTINGENCY @ 35% **\$582,253.00**
CONSTRUCTION COST SAY \$2,246,000

Notes:

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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 1c						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 60,000.00	\$ 60,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 45,000.00	\$ 45,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	4520	SY	\$ 6.00	\$ 27,120.00
520	1121000000-E	AGGREGATE BASE COURSE	1670	TON	\$ 56.00	\$ 93,520.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	470	TON	\$ 190.00	\$ 89,300.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	30	TON	\$ 840.00	\$ 25,200.00
SP		GREENWAY DRAINAGE	1	LS	\$ 69,000.00	\$ 69,000.00
SP		EROSION CONTROL	1	LS	\$ 153,000.00	\$ 153,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 166,000.00	\$ 166,000.00
SP		BICYCLE BOULEVARD TREATMENTS	1	LS	\$ 140,000.00	\$ 140,000.00
SP		6" REINFORCED CONCRETE	2610	SY	\$ 80.00	\$ 208,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	6	EA	\$ 15,000.00	\$ 90,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 130,000.00	\$ 130,000.00

SUBTOTAL \$1,296,940.00
CONTINGENCY @ 35% \$453,929.00
CONSTRUCTION COST SAY \$1,751,000

Notes:

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 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 1d						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 30,000.00	\$ 30,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 46,000.00	\$ 46,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 120,000.00	\$ 120,000.00
SP		BICYCLE BOULEVARD TREATMENTS	1	LS	\$ 110,000.00	\$ 110,000.00
SP		6" REINFORCED CONCRETE	2010	SY	\$ 80.00	\$ 160,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	5	EA	\$ 15,000.00	\$ 75,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 35,000.00	\$ 35,000.00

SUBTOTAL \$596,800.00
CONTINGENCY @ 35% \$208,880.00
CONSTRUCTION COST SAY \$806,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

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

Segment 1e						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 50,000.00	\$ 50,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 25,000.00	\$ 25,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	210	LF	\$ 50.00	\$ 10,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ 71,000.00	\$ 71,000.00
SP		EROSION CONTROL	1	LS	\$ 101,000.00	\$ 101,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 7,000.00	\$ 7,000.00
SP		6" REINFORCED CONCRETE	4610	SY	\$ 80.00	\$ 368,800.00
SP		REMOVE EXISTING CURB AND GUTTER	210	LF	\$ 35.00	\$ 7,350.00
SP		SAFETY RAIL	140	LF	\$ 80.00	\$ 11,200.00
SP		TIMBER PILE CONCRETE BOARDWALK	100	LF	\$ 1,600.00	\$ 160,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 220,000.00	\$ 220,000.00

SUBTOTAL **\$1,031,850.00**
 CONTINGENCY @ 35% **\$361,147.50**
CONSTRUCTION COST SAY \$1,393,000

Notes:

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 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
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 Client Project No.

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

Segment 1f						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 75,000.00	\$ 75,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 40,000.00	\$ 40,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	980	SY	\$ 6.00	\$ 5,880.00
520	1121000000-E	AGGREGATE BASE COURSE	380	TON	\$ 56.00	\$ 21,280.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	110	TON	\$ 190.00	\$ 20,900.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	10	TON	\$ 840.00	\$ 8,400.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	4330	LF	\$ 50.00	\$ 216,500.00
SP		EROSION CONTROL	1	LS	\$ 95,000.00	\$ 95,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 265,000.00	\$ 265,000.00
SP		6" REINFORCED CONCRETE	6620	SY	\$ 80.00	\$ 529,600.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	9	EA	\$ 15,000.00	\$ 135,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 160,000.00	\$ 160,000.00

SUBTOTAL **\$1,572,560.00**
 CONTINGENCY @ 35% **\$550,396.00**
CONSTRUCTION COST SAY \$2,123,000

Notes:

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 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 1g						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 35,000.00	\$ 35,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	4760	SY	\$ 6.00	\$ 28,560.00
520	1121000000-E	AGGREGATE BASE COURSE	1750	TON	\$ 56.00	\$ 98,000.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	490	TON	\$ 190.00	\$ 93,100.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	30	TON	\$ 840.00	\$ 25,200.00
SP		EROSION CONTROL	1	LS	\$ 50,000.00	\$ 50,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 44,000.00	\$ 44,000.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	9	EA	\$ 15,000.00	\$ 135,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 160,000.00	\$ 160,000.00

SUBTOTAL \$688,860.00
CONTINGENCY @ 35% \$241,101.00
CONSTRUCTION COST SAY \$930,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

Segment 2a						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 90,000.00	\$ 90,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 45,000.00	\$ 45,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	7850	SY	\$ 6.00	\$ 47,100.00
520	1121000000-E	AGGREGATE BASE COURSE	2910	TON	\$ 56.00	\$ 162,960.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	800	TON	\$ 190.00	\$ 152,000.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	50	TON	\$ 840.00	\$ 42,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 120,000.00	\$ 120,000.00
SP		EROSION CONTROL	1	LS	\$ 182,000.00	\$ 182,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 32,000.00	\$ 32,000.00
SP		6" REINFORCED CONCRETE	140	SY	\$ 80.00	\$ 11,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	1	EA	\$ 15,000.00	\$ 15,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	440	LF	\$ 1,600.00	\$ 704,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 260,000.00	\$ 260,000.00

SUBTOTAL \$1,863,260.00
CONTINGENCY @ 35% \$652,141.00
CONSTRUCTION COST SAY \$2,516,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 3a						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 15,000.00	\$ 15,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 10,000.00	\$ 10,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	980	LF	\$ 50.00	\$ 49,000.00
SP		EROSION CONTROL	1	LS	\$ 15,000.00	\$ 15,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 78,000.00	\$ 78,000.00
SP		6" REINFORCED CONCRETE	1310	SY	\$ 80.00	\$ 104,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	1	EA	\$ 15,000.00	\$ 15,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 30,000.00	\$ 30,000.00

SUBTOTAL \$316,800.00
CONTINGENCY @ 35% \$110,880.00
CONSTRUCTION COST SAY \$428,000

Notes:

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Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 3b						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 40,000.00	\$ 40,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 30,000.00	\$ 30,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	980	LF	\$ 50.00	\$ 49,000.00
SP		EROSION CONTROL	1	LS	\$ 62,000.00	\$ 62,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 329,000.00	\$ 329,000.00
SP		6" REINFORCED CONCRETE	1310	SY	\$ 80.00	\$ 104,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	4	EA	\$ 15,000.00	\$ 60,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 130,000.00	\$ 130,000.00

SUBTOTAL \$844,800.00
CONTINGENCY @ 35% \$295,680.00
CONSTRUCTION COST SAY \$1,141,000

Notes:

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2. Cost opinion does not include engineering, geotech, design survey, or construction administration.
3. Cost opinion does not include cost for private or public utility relocations.
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7. Cost opinion does not include drainage as a separate line item. These costs are assumed to be covered by the construction contingency.
8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

Segment 3d						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 125,000.00	\$ 125,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	2700	LF	\$ 50.00	\$ 135,000.00
SP		GREENWAY DRAINAGE	1	LS	-	\$ -
SP		EROSION CONTROL	1	LS	\$ 41,000.00	\$ 41,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 215,000.00	\$ 215,000.00
SP		6" REINFORCED CONCRETE	3590	SY	\$ 80.00	\$ 287,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	4	EA	\$ 15,000.00	\$ 60,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		SAFETY RAIL	160	LF	\$ 80.00	\$ 12,800.00
SP		RETAINING WALL	1700	SF	\$ 210.00	\$ 357,000.00
SP		PREFABRICATED PEDESTRIAN BRIDGE	260	LF	\$ 4,500.00	\$ 1,170,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 90,000.00	\$ 90,000.00

SUBTOTAL **\$2,553,000.00**
 CONTINGENCY @ 35% **\$893,550.00**
CONSTRUCTION COST SAY \$3,447,000

Notes:

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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 3f						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 190,000.00	\$ 190,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 100,000.00	\$ 100,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	14200	SY	\$ 6.00	\$ 85,200.00
520	1121000000-E	AGGREGATE BASE COURSE	5230	TON	\$ 56.00	\$ 292,880.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	1470	TON	\$ 190.00	\$ 279,300.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	90	TON	\$ 840.00	\$ 75,600.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	5680	LF	\$ 50.00	\$ 284,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 217,000.00	\$ 217,000.00
SP		EROSION CONTROL	1	LS	\$ 394,000.00	\$ 394,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 475,000.00	\$ 475,000.00
SP		6" REINFORCED CONCRETE	8150	SY	\$ 80.00	\$ 652,000.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	7	EA	\$ 15,000.00	\$ 105,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	2	EA	\$ 40,000.00	\$ 80,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 855,000.00	\$ 855,000.00

SUBTOTAL **\$4,084,980.00**
 CONTINGENCY @ 35% **\$1,429,743.00**
CONSTRUCTION COST SAY \$5,515,000

Notes:

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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 3g						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 270,000.00	\$ 270,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 45,000.00	\$ 45,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	2990	SY	\$ 6.00	\$ 17,940.00
520	1121000000-E	AGGREGATE BASE COURSE	1100	TON	\$ 56.00	\$ 61,600.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	310	TON	\$ 190.00	\$ 58,900.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	20	TON	\$ 840.00	\$ 16,800.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	4410	LF	\$ 50.00	\$ 220,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ 50,000.00	\$ 50,000.00
SP		EROSION CONTROL	1	LS	\$ 132,000.00	\$ 132,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 336,000.00	\$ 336,000.00
SP		RAILROAD COORDINATION AND DESIGN REVIEW FEES	1	LS	\$ 100,000.00	\$ 100,000.00
SP		EXTRA-LONG GREENWAY BRIDGE SPAN - ADDITIONAL COST ALLOWANCE	1	LS	\$ 300,000.00	\$ 300,000.00
SP		6" REINFORCED CONCRETE	5880	SY	\$ 80.00	\$ 470,400.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	3	EA	\$ 40,000.00	\$ 120,000.00
SP		PREFABRICATED PEDESTRIAN BRIDGE	300	LF	\$ 4,500.00	\$ 1,350,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	100	LF	\$ 1,600.00	\$ 160,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 1,935,000.00	\$ 1,935,000.00

SUBTOTAL \$5,644,140.00
 CONTINGENCY @ 35% \$1,975,449.00
CONSTRUCTION COST SAY \$7,620,000

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 Client Project No.

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

Segment 3h						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 165,000.00	\$ 165,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 65,000.00	\$ 65,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	3070	SY	\$ 6.00	\$ 18,420.00
520	1121000000-E	AGGREGATE BASE COURSE	1130	TON	\$ 56.00	\$ 63,280.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	320	TON	\$ 190.00	\$ 60,800.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	20	TON	\$ 840.00	\$ 16,800.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	8420	LF	\$ 50.00	\$ 421,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 161,000.00	\$ 161,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 851,000.00	\$ 851,000.00
SP		6" REINFORCED CONCRETE	11430	SY	\$ 80.00	\$ 914,400.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	3	EA	\$ 40,000.00	\$ 120,000.00
SP		RETAINING WALL	1000	SF	\$ 210.00	\$ 210,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 375,000.00	\$ 375,000.00

SUBTOTAL \$3,441,700.00
 CONTINGENCY @ 35% \$1,204,595.00
CONSTRUCTION COST SAY \$4,647,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

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

Segment 3i						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 130,000.00	\$ 130,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 60,000.00	\$ 60,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	6660	LF	\$ 50.00	\$ 333,000.00
SP		GREENWAY DRAINAGE	1	LS	-	\$ -
SP		EROSION CONTROL	1	LS	\$ 139,000.00	\$ 139,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 510,000.00	\$ 510,000.00
SP		6" REINFORCED CONCRETE	12150	SY	\$ 80.00	\$ 972,000.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	4	EA	\$ 15,000.00	\$ 60,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	3	EA	\$ 40,000.00	\$ 120,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 415,000.00	\$ 415,000.00

SUBTOTAL \$2,739,000.00
CONTINGENCY @ 35% \$958,650.00
CONSTRUCTION COST SAY \$3,698,000

Notes:

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

Segment 3j						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 45,000.00	\$ 45,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	2660	LF	\$ 50.00	\$ 133,000.00
SP		GREENWAY DRAINAGE	1	LS	-	\$ -
SP		EROSION CONTROL	1	LS	\$ 40,000.00	\$ 40,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 141,000.00	\$ 141,000.00
SP		6" REINFORCED CONCRETE	3540	SY	\$ 80.00	\$ 283,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	4	EA	\$ 15,000.00	\$ 60,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	2	EA	\$ 40,000.00	\$ 80,000.00
SP		RAIL CROSSING - ADD WARNING ARM AND PAVEMENT WIDENING	1	EA	-	\$ -
SP		COMPREHENSIVE GRADING	1	LS	\$ 75,000.00	\$ 75,000.00

SUBTOTAL \$877,200.00
CONTINGENCY @ 35% \$307,020.00
CONSTRUCTION COST SAY \$1,185,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

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

Segment 3L						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 25,000.00	\$ 25,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 15,000.00	\$ 15,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	2600	SY	\$ 6.00	\$ 15,600.00
520	1121000000-E	AGGREGATE BASE COURSE	1000	TON	\$ 56.00	\$ 56,000.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	270	TON	\$ 190.00	\$ 51,300.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	20	TON	\$ 840.00	\$ 16,800.00
SP		GREENWAY DRAINAGE	1	LS	\$ 40,000.00	\$ 40,000.00
SP		EROSION CONTROL	1	LS	\$ 54,000.00	\$ 54,000.00
SP		TRAFFIC CONTROL	1	LS	\$ -	\$ -
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	2	EA	\$ 40,000.00	\$ 80,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	40	LF	\$ 1,600.00	\$ 64,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 65,000.00	\$ 65,000.00

SUBTOTAL \$482,700.00
CONTINGENCY @ 35% \$168,945.00
CONSTRUCTION COST SAY \$652,000

Notes:

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Project Location: Johnston County, NC
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 Client Project No.

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

Segment 3m						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 135,000.00	\$ 135,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 100,000.00	\$ 100,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	5460	LF	\$ 50.00	\$ 273,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 82,000.00	\$ 82,000.00
SP		EROSION CONTROL	1	LS	\$ 293,000.00	\$ 293,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 301,000.00	\$ 301,000.00
SP		6" REINFORCED CONCRETE	20340	SY	\$ 80.00	\$ 1,627,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	1	EA	\$ 15,000.00	\$ 15,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 65,000.00	\$ 65,000.00

SUBTOTAL \$2,931,200.00
CONTINGENCY @ 35% \$1,025,920.00
CONSTRUCTION COST SAY \$3,958,000

Notes:

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7. Cost opinion does not include drainage as a separate line item. These costs are assumed to be covered by the construction contingency.
8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 4b						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 65,000.00	\$ 65,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 45,000.00	\$ 45,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 105,000.00	\$ 105,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 186,000.00	\$ 186,000.00
SP		6" REINFORCED CONCRETE	9310	SY	\$ 80.00	\$ 744,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	2	EA	\$ 15,000.00	\$ 30,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 155,000.00	\$ 155,000.00

SUBTOTAL **\$1,370,800.00**
 CONTINGENCY @ 35% **\$479,780.00**
CONSTRUCTION COST SAY \$1,851,000

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 or public utility relocations.
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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 4c						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 70,000.00	\$ 70,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 30,000.00	\$ 30,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	4600	LF	\$ 50.00	\$ 230,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 69,000.00	\$ 69,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 366,000.00	\$ 366,000.00
SP		6" REINFORCED CONCRETE	6130	SY	\$ 80.00	\$ 490,400.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	4	EA	\$ 15,000.00	\$ 60,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 145,000.00	\$ 145,000.00

SUBTOTAL **\$1,460,400.00**
 CONTINGENCY @ 35% **\$511,140.00**
CONSTRUCTION COST SAY \$1,972,000

Notes:

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

Segment 4d						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 65,000.00	\$ 65,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 40,000.00	\$ 40,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	6260	SY	\$ 6.00	\$ 37,560.00
520	1121000000-E	AGGREGATE BASE COURSE	2310	TON	\$ 56.00	\$ 129,360.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	650	TON	\$ 190.00	\$ 123,500.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	40	TON	\$ 840.00	\$ 33,600.00
SP		GREENWAY DRAINAGE	1	LS	\$ 96,000.00	\$ 96,000.00
SP		EROSION CONTROL	1	LS	\$ 164,000.00	\$ 164,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 60,000.00	\$ 60,000.00
SP		6" REINFORCED CONCRETE	3010	SY	\$ 80.00	\$ 240,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	1	EA	\$ 15,000.00	\$ 15,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 290,000.00	\$ 290,000.00

SUBTOTAL **\$1,334,820.00**
 CONTINGENCY @ 35% **\$467,187.00**
CONSTRUCTION COST SAY \$1,803,000

Notes:

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 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 4e						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 115,000.00	\$ 115,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 70,000.00	\$ 70,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	6260	SY	\$ 6.00	\$ 37,560.00
520	1121000000-E	AGGREGATE BASE COURSE	2310	TON	\$ 56.00	\$ 129,360.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	650	TON	\$ 190.00	\$ 123,500.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	40	TON	\$ 840.00	\$ 33,600.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 166,000.00	\$ 166,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 1,095,000.00	\$ 1,095,000.00
SP		6" REINFORCED CONCRETE	3010	SY	\$ 80.00	\$ 240,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	1	EA	\$ 15,000.00	\$ 15,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 325,000.00	\$ 325,000.00

SUBTOTAL **\$2,390,820.00**
 CONTINGENCY @ 35% **\$836,787.00**
CONSTRUCTION COST SAY \$3,228,000

Notes:

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 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 4f						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 190,000.00	\$ 190,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 80,000.00	\$ 80,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	2610	LF	\$ 50.00	\$ 130,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 193,000.00	\$ 193,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 1,020,000.00	\$ 1,020,000.00
SP		6" REINFORCED CONCRETE	17090	SY	\$ 80.00	\$ 1,367,200.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	3	EA	\$ 40,000.00	\$ 120,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 870,000.00	\$ 870,000.00

SUBTOTAL \$3,970,700.00

CONTINGENCY @ 35% \$1,389,745.00

CONSTRUCTION COST SAY \$5,361,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

Segment 4g						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 195,000.00	\$ 195,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 60,000.00	\$ 60,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	10810	SY	\$ 6.00	\$ 64,860.00
520	1121000000-E	AGGREGATE BASE COURSE	3980	TON	\$ 56.00	\$ 222,880.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	1120	TON	\$ 190.00	\$ 212,800.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	70	TON	\$ 840.00	\$ 58,800.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1260	LF	\$ 50.00	\$ 63,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 165,000.00	\$ 165,000.00
SP		EROSION CONTROL	1	LS	\$ 244,000.00	\$ 244,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 100,000.00	\$ 100,000.00
SP		6" REINFORCED CONCRETE	1670	SY	\$ 80.00	\$ 133,600.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	2	EA	\$ 40,000.00	\$ 80,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	940	LF	\$ 1,600.00	\$ 1,504,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 975,000.00	\$ 975,000.00

SUBTOTAL \$4,078,940.00

CONTINGENCY @ 35% \$1,427,629.00

CONSTRUCTION COST SAY \$5,507,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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 Client Project No.

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

Segment 4h						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 70,000.00	\$ 70,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 40,000.00	\$ 40,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1000	LF	\$ 50.00	\$ 50,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 88,000.00	\$ 88,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 209,000.00	\$ 209,000.00
SP		6" REINFORCED CONCRETE	7820	SY	\$ 80.00	\$ 625,600.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 355,000.00	\$ 355,000.00

SUBTOTAL **\$1,477,600.00**
 CONTINGENCY @ 35% **\$517,160.00**
CONSTRUCTION COST SAY \$1,995,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

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

Segment 4i						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 55,000.00	\$ 55,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 25,000.00	\$ 25,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	2100	LF	\$ 50.00	\$ 105,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 58,000.00	\$ 58,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 213,000.00	\$ 213,000.00
SP		6" REINFORCED CONCRETE	5110	SY	\$ 80.00	\$ 408,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	2	EA	\$ 15,000.00	\$ 30,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 205,000.00	\$ 205,000.00

SUBTOTAL **\$1,139,800.00**
 CONTINGENCY @ 35% **\$398,930.00**
CONSTRUCTION COST SAY \$1,539,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

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

Segment 4j						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 75,000.00	\$ 75,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 40,000.00	\$ 40,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1340	LF	\$ 50.00	\$ 67,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 94,000.00	\$ 94,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 236,000.00	\$ 236,000.00
SP		6" REINFORCED CONCRETE	8310	SY	\$ 80.00	\$ 664,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	1	EA	\$ 15,000.00	\$ 15,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 355,000.00	\$ 355,000.00

SUBTOTAL **\$1,546,800.00**
 CONTINGENCY @ 35% **\$541,380.00**
CONSTRUCTION COST SAY \$2,089,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

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

Segment 4k						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 25,000.00	\$ 25,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 15,000.00	\$ 15,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	700	LF	\$ 50.00	\$ 35,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 27,000.00	\$ 27,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 84,000.00	\$ 84,000.00
SP		6" REINFORCED CONCRETE	2340	SY	\$ 80.00	\$ 187,200.00
SP		RAIL CROSSING - ADD WARNING ARM AND PAVEMENT WIDENING	1	EA	\$ -	\$ -
SP		COMPREHENSIVE GRADING	1	LS	\$ 95,000.00	\$ 95,000.00

SUBTOTAL **\$468,200.00**
 CONTINGENCY @ 35% **\$163,870.00**
CONSTRUCTION COST SAY \$633,000

Notes:

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2. Cost opinion does not include engineering, geotech, design survey, or construction administration.
3. Cost opinion does not include cost for private or public utility relocations.
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7. Cost opinion does not include drainage as a separate line item. These costs are assumed to be covered by the construction contingency.
8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 5a						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 155,000.00	\$ 155,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 80,000.00	\$ 80,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	2490	LF	\$ 50.00	\$ 124,500.00
SP		GREENWAY DRAINAGE	1	LS	-	-
SP		EROSION CONTROL	1	LS	\$ 189,000.00	\$ 189,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 466,000.00	\$ 466,000.00
SP		6" REINFORCED CONCRETE	16790	SY	\$ 80.00	\$ 1,343,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	3	EA	\$ 15,000.00	\$ 45,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	2	EA	\$ 40,000.00	\$ 80,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 810,000.00	\$ 810,000.00

SUBTOTAL \$3,292,700.00

CONTINGENCY @ 35% \$1,152,445.00

CONSTRUCTION COST SAY \$4,446,000

Notes:

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7. Cost opinion does not include drainage as a separate line item. These costs are assumed to be covered by the construction contingency.
8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 5b						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 175,000.00	\$ 175,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 95,000.00	\$ 95,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	17370	SY	\$ 6.00	\$ 104,220.00
520	1121000000-E	AGGREGATE BASE COURSE	6100	TON	\$ 56.00	\$ 341,600.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	1790	TON	\$ 190.00	\$ 340,100.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	110	TON	\$ 840.00	\$ 92,400.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1150	LF	\$ 50.00	\$ 57,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ 265,000.00	\$ 265,000.00
SP		EROSION CONTROL	1	LS	\$ 401,000.00	\$ 401,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 131,000.00	\$ 131,000.00
SP		6" REINFORCED CONCRETE	3510	SY	\$ 80.00	\$ 280,800.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	3	EA	\$ 40,000.00	\$ 120,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	370	LF	\$ 1,600.00	\$ 592,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 690,000.00	\$ 690,000.00

SUBTOTAL \$3,685,620.00

CONTINGENCY @ 35% \$1,289,967.00

CONSTRUCTION COST SAY \$4,976,000

Notes:

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7. Cost opinion does not include drainage as a separate line item. These costs are assumed to be covered by the construction contingency.
8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 5c						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 155,000.00	\$ 155,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 80,000.00	\$ 80,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	140	LF	\$ 50.00	\$ 7,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 188,000.00	\$ 188,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 669,000.00	\$ 669,000.00
SP		6" REINFORCED CONCRETE	16670	SY	\$ 80.00	\$ 1,333,600.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	3	EA	\$ 40,000.00	\$ 120,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 775,000.00	\$ 775,000.00

SUBTOTAL **\$3,327,600.00**
 CONTINGENCY @ 35% **\$1,164,660.00**
CONSTRUCTION COST SAY \$4,493,000

Notes:

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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 5d						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 60,000.00	\$ 60,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 30,000.00	\$ 30,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 3,000.00	\$ 3,000.00
SP		EROSION CONTROL	1	LS	\$ 62,000.00	\$ 62,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 102,000.00	\$ 102,000.00
SP		6" REINFORCED CONCRETE	5290	SY	\$ 80.00	\$ 423,200.00
SP		TIMBER PILE CONCRETE BOARDWALK	200	LF	\$ 1,600.00	\$ 320,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 270,000.00	\$ 270,000.00

SUBTOTAL **\$1,270,200.00**
 CONTINGENCY @ 35% **\$444,570.00**
CONSTRUCTION COST SAY \$1,715,000

Notes:

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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 5e						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 35,000.00	\$ 35,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	640	LF	\$ 50.00	\$ 32,000.00
SP		GREENWAY DRAINAGE	1	LS	-	\$ -
SP		EROSION CONTROL	1	LS	\$ 43,000.00	\$ 43,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 110,000.00	\$ 110,000.00
SP		6" REINFORCED CONCRETE	3830	SY	\$ 80.00	\$ 306,400.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		RAIL CROSSING - ADD WARNING ARM AND PAVEMENT WIDENING	1	EA	-	\$ -
SP		COMPREHENSIVE GRADING	1	LS	\$ 150,000.00	\$ 150,000.00

SUBTOTAL \$736,400.00
CONTINGENCY @ 35% \$257,740.00
CONSTRUCTION COST SAY \$995,000

Notes:

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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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Johnston County East Coast Greenway Feasibility Study

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

Segment 5f						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 70,000.00	\$ 70,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 10,000.00	\$ 10,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	900	SY	\$ 6.00	\$ 5,400.00
520	1121000000-E	AGGREGATE BASE COURSE	350	TON	\$ 56.00	\$ 19,600.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	100	TON	\$ 190.00	\$ 19,000.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	10	TON	\$ 840.00	\$ 8,400.00
SP		GREENWAY DRAINAGE	1	LS	\$ 16,000.00	\$ 16,000.00
SP		EROSION CONTROL	1	LS	\$ 21,000.00	\$ 21,000.00
SP		TRAFFIC CONTROL	1	LS	-	\$ -
SP		6" REINFORCED CONCRETE	100	SY	\$ 80.00	\$ 8,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	710	LF	\$ 1,600.00	\$ 1,136,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 90,000.00	\$ 90,000.00

SUBTOTAL \$1,403,400.00
CONTINGENCY @ 35% \$491,190.00
CONSTRUCTION COST SAY \$1,895,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

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

Segment 5g						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 60,000.00	\$ 60,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 30,000.00	\$ 30,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1530	LF	\$ 50.00	\$ 76,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 71,000.00	\$ 71,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 206,000.00	\$ 206,000.00
SP		6" REINFORCED CONCRETE	6260	SY	\$ 80.00	\$ 500,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	1	EA	\$ 15,000.00	\$ 15,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 315,000.00	\$ 315,000.00

SUBTOTAL \$1,274,300.00

CONTINGENCY @ 35% \$446,005.00

CONSTRUCTION COST SAY \$1,721,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

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

Segment 5h						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 70,000.00	\$ 70,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 30,000.00	\$ 30,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	1590	SY	\$ 6.00	\$ 9,540.00
520	1121000000-E	AGGREGATE BASE COURSE	620	TON	\$ 56.00	\$ 34,720.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	170	TON	\$ 190.00	\$ 32,300.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	15	TON	\$ 840.00	\$ 12,600.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	2170	LF	\$ 50.00	\$ 108,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ 25,000.00	\$ 25,000.00
SP		EROSION CONTROL	1	LS	\$ 88,000.00	\$ 88,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 293,000.00	\$ 293,000.00
SP		6" REINFORCED CONCRETE	4840	SY	\$ 80.00	\$ 387,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	2	EA	\$ 15,000.00	\$ 30,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	3	EA	\$ 40,000.00	\$ 120,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 215,000.00	\$ 215,000.00

SUBTOTAL \$1,455,860.00

CONTINGENCY @ 35% \$509,551.00

CONSTRUCTION COST SAY \$1,966,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

Segment 5i						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 80,000.00	\$ 80,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 55,000.00	\$ 55,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	1590	SY	\$ 6.00	\$ 9,540.00
520	1121000000-E	AGGREGATE BASE COURSE	620	TON	\$ 56.00	\$ 34,720.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	170	TON	\$ 190.00	\$ 32,300.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	15	TON	\$ 840.00	\$ 12,600.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	2170	LF	\$ 50.00	\$ 108,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ 140,000.00	\$ 140,000.00
SP		EROSION CONTROL	1	LS	\$ 218,000.00	\$ 218,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 49,000.00	\$ 49,000.00
SP		6" REINFORCED CONCRETE	4840	SY	\$ 80.00	\$ 387,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	2	EA	\$ 15,000.00	\$ 30,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	3	EA	\$ 40,000.00	\$ 120,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 420,000.00	\$ 420,000.00

SUBTOTAL \$1,696,860.00
CONTINGENCY @ 35% \$593,901.00
CONSTRUCTION COST SAY \$2,291,000

Notes:

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7. Cost opinion does not include drainage as a separate line item. These costs are assumed to be covered by the construction contingency.
8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 5j						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 185,000.00	\$ 185,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 65,000.00	\$ 65,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	3370	SY	\$ 6.00	\$ 20,220.00
520	1121000000-E	AGGREGATE BASE COURSE	1240	TON	\$ 56.00	\$ 69,440.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	350	TON	\$ 190.00	\$ 66,500.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	25	TON	\$ 840.00	\$ 21,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 184,000.00	\$ 184,000.00
SP		EROSION CONTROL	1	LS	\$ 266,000.00	\$ 266,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 29,000.00	\$ 29,000.00
SP		6" REINFORCED CONCRETE	9420	SY	\$ 80.00	\$ 753,600.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		TRAIL CROSSING, MAJOR STREET (HAWK/PHB/CURB RAMPS)	1	EA	\$ 90,000.00	\$ 90,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	980	LF	\$ 1,600.00	\$ 1,568,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 540,000.00	\$ 540,000.00

SUBTOTAL \$3,897,760.00
CONTINGENCY @ 35% \$1,364,216.00
CONSTRUCTION COST SAY \$5,262,000

Notes:

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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 5k						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 70,000.00	\$ 70,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 35,000.00	\$ 35,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1620	LF	\$ 50.00	\$ 81,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 86,000.00	\$ 86,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 237,000.00	\$ 237,000.00
SP		6" REINFORCED CONCRETE	7590	SY	\$ 80.00	\$ 607,200.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		RAIL CROSSING - ADD WARNING ARM AND PAVEMENT WIDENING	1	EA	\$ -	\$ -
SP		COMPREHENSIVE GRADING	1	LS	\$ 305,000.00	\$ 305,000.00

SUBTOTAL \$1,461,200.00
CONTINGENCY @ 35% \$511,420.00
CONSTRUCTION COST SAY \$1,973,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 5l						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 40,000.00	\$ 40,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	280	LF	\$ 50.00	\$ 14,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 45,000.00	\$ 45,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 93,000.00	\$ 93,000.00
SP		6" REINFORCED CONCRETE	3940	SY	\$ 80.00	\$ 315,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	1	EA	\$ 15,000.00	\$ 15,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	2	EA	\$ 40,000.00	\$ 80,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 140,000.00	\$ 140,000.00

SUBTOTAL \$762,200.00
CONTINGENCY @ 35% \$266,770.00
CONSTRUCTION COST SAY \$1,029,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 6a						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 25,000.00	\$ 25,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 15,000.00	\$ 15,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	560	LF	\$ 50.00	\$ 28,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 22,000.00	\$ 22,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 164,000.00	\$ 164,000.00
SP		6" REINFORCED CONCRETE	1890	SY	\$ 80.00	\$ 151,200.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		LIGHTWEIGHT CONCRETE	55	CY	\$ -	\$ -
SP		FLEXIBLE DELINEATORS	25	EA	\$ 80.00	\$ 2,000.00
SP		BRIDGE MOUNTED FENCING	200	LF	\$ 96.00	\$ 19,200.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 30,000.00	\$ 30,000.00

SUBTOTAL \$496,400.00
CONTINGENCY @ 35% \$173,740.00
CONSTRUCTION COST SAY \$671,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 6b						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 120,000.00	\$ 120,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 65,000.00	\$ 65,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1470	LF	\$ 50.00	\$ 73,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 159,000.00	\$ 159,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 339,000.00	\$ 339,000.00
SP		6" REINFORCED CONCRETE	11980	SY	\$ 80.00	\$ 958,400.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	2	EA	\$ 40,000.00	\$ 80,000.00
SP		SAFETY RAIL	2000	LF	\$ 80.00	\$ 160,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	40	LF	\$ 1,600.00	\$ 64,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 530,000.00	\$ 530,000.00

SUBTOTAL \$2,548,900.00
CONTINGENCY @ 35% \$892,115.00
CONSTRUCTION COST SAY \$3,442,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

Segment 6c						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 145,000.00	\$ 145,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 65,000.00	\$ 65,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	3840	SY	\$ 6.00	\$ 23,040.00
520	1121000000-E	AGGREGATE BASE COURSE	1420	TON	\$ 56.00	\$ 79,520.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	400	TON	\$ 190.00	\$ 76,000.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	25	TON	\$ 840.00	\$ 21,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	3900	LF	\$ 50.00	\$ 195,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 59,000.00	\$ 59,000.00
SP		EROSION CONTROL	1	LS	\$ 196,000.00	\$ 196,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 412,000.00	\$ 412,000.00
SP		6" REINFORCED CONCRETE	10330	SY	\$ 80.00	\$ 826,400.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	3	EA	\$ 40,000.00	\$ 120,000.00
SP		CHAIN LINK FENCE FOR CONTROL OF ACCESS	2100	LF	\$ 35.00	\$ 73,500.00
SP		TIMBER PILE CONCRETE BOARDWALK	100	LF	\$ 1,600.00	\$ 160,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 575,000.00	\$ 575,000.00

SUBTOTAL **\$3,026,460.00**
 CONTINGENCY @ 35% **\$1,059,261.00**
CONSTRUCTION COST SAY \$4,086,000

Notes:

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 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 6d						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 205,000.00	\$ 205,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 35,000.00	\$ 35,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1880	LF	\$ 50.00	\$ 94,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 76,000.00	\$ 76,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 404,000.00	\$ 404,000.00
SP		INTERSTATE GRADE SEPARATION - ADDITIONAL TRAFFIC CONTROL	1	LS	\$ 1,000,000.00	\$ 1,000,000.00
SP		6" REINFORCED CONCRETE	6700	SY	\$ 80.00	\$ 536,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		PREFABRICATED PEDESTRIAN BRIDGE	300	LF	\$ 4,500.00	\$ 1,350,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	130	LF	\$ 1,600.00	\$ 208,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 365,000.00	\$ 365,000.00

SUBTOTAL **\$4,313,000.00**
 CONTINGENCY @ 35% **\$1,509,550.00**
CONSTRUCTION COST SAY \$5,823,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

Segment 6e						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 55,000.00	\$ 55,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	3040	LF	\$ 50.00	\$ 152,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 46,000.00	\$ 46,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 302,000.00	\$ 302,000.00
SP		6" REINFORCED CONCRETE	4050	SY	\$ 80.00	\$ 324,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 250,000.00	\$ 250,000.00

SUBTOTAL **\$1,149,000.00**
 CONTINGENCY @ 35% **\$402,150.00**
CONSTRUCTION COST SAY \$1,552,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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 Client Project No.

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

Segment 6f						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 760,000.00	\$ 760,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 30,000.00	\$ 30,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	6300	SY	\$ 6.00	\$ 37,800.00
520	1121000000-E	AGGREGATE BASE COURSE	2320	TON	\$ 56.00	\$ 129,920.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	650	TON	\$ 190.00	\$ 123,500.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	40	TON	\$ 840.00	\$ 33,600.00
SP		GREENWAY DRAINAGE	1	LS	\$ 92,000.00	\$ 92,000.00
SP		EROSION CONTROL	1	LS	\$ 125,000.00	\$ 125,000.00
SP		TRAFFIC CONTROL	1	LS	\$ -	\$ -
SP		SAFETY RAIL	1850	LF	\$ 80.00	\$ 148,000.00
SP		RETAINING WALL	58300	SF	\$ 210.00	\$ 12,243,000.00
SP		PREFABRICATED PEDESTRIAN BRIDGE	150	LF	\$ 4,500.00	\$ 675,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 1,510,000.00	\$ 1,510,000.00

SUBTOTAL **\$15,907,820.00**
 CONTINGENCY @ 35% **\$5,567,737.00**
CONSTRUCTION COST SAY \$21,476,000

Notes:

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7. Cost opinion does not include drainage as a separate line item. These costs are assumed to be covered by the construction contingency.
8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 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	\$ 40,000.00	\$ 40,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1960	LF	\$ 50.00	\$ 98,000.00
SP		GREENWAY DRAINAGE	1	LS	-	\$ -
SP		EROSION CONTROL	1	LS	\$ 41,000.00	\$ 41,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 175,000.00	\$ 175,000.00
SP		6" REINFORCED CONCRETE	3570	SY	\$ 80.00	\$ 285,600.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	3	EA	\$ 15,000.00	\$ 45,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 100,000.00	\$ 100,000.00

SUBTOTAL **\$804,600.00**
 CONTINGENCY @ 35% **\$281,610.00**
CONSTRUCTION COST SAY \$1,087,000

- 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 or public 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.
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 8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 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	\$ 115,000.00	\$ 115,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	540	SY	\$ 6.00	\$ 3,240.00
520	1121000000-E	AGGREGATE BASE COURSE	210	TON	\$ 56.00	\$ 11,760.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	60	TON	\$ 190.00	\$ 11,400.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	5	TON	\$ 840.00	\$ 4,200.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	2380	LF	\$ 50.00	\$ 119,000.00
SP		GREENWAY DRAINAGE	1	LS	-	\$ -
SP		EROSION CONTROL	1	LS	\$ 43,000.00	\$ 43,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 310,000.00	\$ 310,000.00
SP		6" REINFORCED CONCRETE	3320	SY	\$ 80.00	\$ 265,600.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	3	EA	\$ 15,000.00	\$ 45,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		SAFETY RAIL	400	LF	\$ 80.00	\$ 32,000.00
SP		RETAINING WALL	1900	SF	\$ 210.00	\$ 399,000.00
SP		PREFABRICATED PEDESTRIAN BRIDGE	180	LF	\$ 4,500.00	\$ 810,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 205,000.00	\$ 205,000.00

SUBTOTAL **\$2,434,200.00**
 CONTINGENCY @ 35% **\$851,970.00**
CONSTRUCTION COST SAY \$3,287,000

- Notes:**
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 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.
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 8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 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	\$ 75,000.00	\$ 75,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 35,000.00	\$ 35,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	570	LF	\$ 50.00	\$ 28,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ 76,000.00	\$ 76,000.00
SP		EROSION CONTROL	1	LS	\$ 133,000.00	\$ 133,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 85,000.00	\$ 85,000.00
SP		6" REINFORCED CONCRETE	7270	SY	\$ 80.00	\$ 581,600.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	4	EA	\$ 15,000.00	\$ 60,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 420,000.00	\$ 420,000.00

SUBTOTAL **\$1,534,100.00**
 CONTINGENCY @ 35% **\$536,935.00**
CONSTRUCTION COST SAY \$2,072,000

Notes:

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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 7d						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 45,000.00	\$ 45,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	1160	SY	\$ 6.00	\$ 6,960.00
520	1121000000-E	AGGREGATE BASE COURSE	450	TON	\$ 56.00	\$ 25,200.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	120	TON	\$ 190.00	\$ 22,800.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	10	TON	\$ 840.00	\$ 8,400.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	150	LF	\$ 50.00	\$ 7,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ 18,000.00	\$ 18,000.00
SP		EROSION CONTROL	1	LS	\$ 61,000.00	\$ 61,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 72,000.00	\$ 72,000.00
SP		6" REINFORCED CONCRETE	3220	SY	\$ 80.00	\$ 257,600.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	2	EA	\$ 15,000.00	\$ 30,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	2	EA	\$ 40,000.00	\$ 80,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 215,000.00	\$ 215,000.00

SUBTOTAL **\$869,460.00**
 CONTINGENCY @ 35% **\$304,311.00**
CONSTRUCTION COST SAY \$1,174,000

Notes:

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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 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	\$ 55,000.00	\$ 55,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 35,000.00	\$ 35,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	4180	SY	\$ 6.00	\$ 25,080.00
520	1121000000-E	AGGREGATE BASE COURSE	1540	TON	\$ 56.00	\$ 86,240.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	440	TON	\$ 190.00	\$ 83,600.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	30	TON	\$ 840.00	\$ 25,200.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1990	LF	\$ 50.00	\$ 99,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ 64,000.00	\$ 64,000.00
SP		EROSION CONTROL	1	LS	\$ 125,000.00	\$ 125,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 67,000.00	\$ 67,000.00
SP		6" REINFORCED CONCRETE	3330	SY	\$ 80.00	\$ 266,400.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	4	EA	\$ 15,000.00	\$ 60,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 195,000.00	\$ 195,000.00

SUBTOTAL \$1,187,020.00
CONTINGENCY @ 35% \$415,457.00
CONSTRUCTION COST SAY \$1,603,000

Notes:

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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 7h						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 45,000.00	\$ 45,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	2890	SY	\$ 6.00	\$ 17,340.00
520	1121000000-E	AGGREGATE BASE COURSE	1070	TON	\$ 56.00	\$ 59,920.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	300	TON	\$ 190.00	\$ 57,000.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	20	TON	\$ 840.00	\$ 16,800.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	900	LF	\$ 50.00	\$ 45,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 44,000.00	\$ 44,000.00
SP		EROSION CONTROL	1	LS	\$ 79,000.00	\$ 79,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 101,000.00	\$ 101,000.00
SP		6" REINFORCED CONCRETE	1690	SY	\$ 80.00	\$ 135,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	1	EA	\$ 15,000.00	\$ 15,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	50	LF	\$ 1,600.00	\$ 80,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 170,000.00	\$ 170,000.00

SUBTOTAL \$925,260.00
CONTINGENCY @ 35% \$323,841.00
CONSTRUCTION COST SAY \$1,250,000

Notes:

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 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 8a						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 50,000.00	\$ 50,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 25,000.00	\$ 25,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	1520	LF	\$ 50.00	\$ 76,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 61,000.00	\$ 61,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 200,000.00	\$ 200,000.00
SP		6" REINFORCED CONCRETE	5140	SY	\$ 80.00	\$ 411,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	4	EA	\$ 15,000.00	\$ 60,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 105,000.00	\$ 105,000.00

SUBTOTAL \$988,200.00
CONTINGENCY @ 35% \$345,870.00
CONSTRUCTION COST SAY \$1,335,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

Segment 8c						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 55,000.00	\$ 55,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	3290	LF	\$ 50.00	\$ 164,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 50,000.00	\$ 50,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 174,000.00	\$ 174,000.00
SP		6" REINFORCED CONCRETE	4380	SY	\$ 80.00	\$ 350,400.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	7	EA	\$ 15,000.00	\$ 105,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		TRAIL CROSSING, MAJOR STREET (HAWK/PHB/CURB RAMPS)	1	EA	\$ 90,000.00	\$ 90,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 95,000.00	\$ 95,000.00

SUBTOTAL \$1,143,900.00
CONTINGENCY @ 35% \$400,365.00
CONSTRUCTION COST SAY \$1,545,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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ENGINEER'S OPINION OF PROBABLE COST OF CONSTRUCTION - Feasibility Study

Segment 8d						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 55,000.00	\$ 55,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 30,000.00	\$ 30,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	3200	LF	\$ 50.00	\$ 160,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 19,000.00	\$ 19,000.00
SP		EROSION CONTROL	1	LS	\$ 80,000.00	\$ 80,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 89,000.00	\$ 89,000.00
SP		6" REINFORCED CONCRETE	6020	SY	\$ 80.00	\$ 481,600.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	6	EA	\$ 15,000.00	\$ 90,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 170,000.00	\$ 170,000.00

SUBTOTAL \$1,174,600.00
CONTINGENCY @ 35% \$411,110.00
CONSTRUCTION COST SAY \$1,586,000

Notes:

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7. Cost opinion does not include drainage as a separate line item. These costs are assumed to be covered by the construction contingency.
8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



Prepared By: ZEH Date: 9/19/2024
 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 8e						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 30,000.00	\$ 30,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 25,000.00	\$ 25,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	840	LF	\$ 50.00	\$ 42,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 51,000.00	\$ 51,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 134,000.00	\$ 134,000.00
SP		6" REINFORCED CONCRETE	2800	SY	\$ 80.00	\$ 224,000.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	6	EA	\$ 15,000.00	\$ 90,000.00
SP		RAIL CROSSING - ADD WARNING ARM AND PAVEMENT WIDENING	1	EA	\$ -	\$ -
SP		COMPREHENSIVE GRADING	1	LS	\$ 55,000.00	\$ 55,000.00

SUBTOTAL \$651,000.00
CONTINGENCY @ 35% \$227,850.00
CONSTRUCTION COST SAY \$879,000

Notes:

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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
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 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 9a						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 115,000.00	\$ 115,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 65,000.00	\$ 65,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	6090	SY	\$ 6.00	\$ 36,540.00
520	1121000000-E	AGGREGATE BASE COURSE	2240	TON	\$ 56.00	\$ 125,440.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	630	TON	\$ 190.00	\$ 119,700.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	40	TON	\$ 840.00	\$ 33,600.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	2320	LF	\$ 50.00	\$ 116,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 39,000.00	\$ 39,000.00
SP		EROSION CONTROL	1	LS	\$ 170,000.00	\$ 170,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 135,000.00	\$ 135,000.00
SP		6" REINFORCED CONCRETE	5540	SY	\$ 80.00	\$ 443,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	7	EA	\$ 15,000.00	\$ 105,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	400	LF	\$ 1,600.00	\$ 640,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 270,000.00	\$ 270,000.00

SUBTOTAL \$2,453,480.00

CONTINGENCY @ 35% \$858,718.00

CONSTRUCTION COST SAY \$3,313,000

Notes:

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 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 9b						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 70,000.00	\$ 70,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 25,000.00	\$ 25,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	3880	LF	\$ 50.00	\$ 194,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 59,000.00	\$ 59,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 385,000.00	\$ 385,000.00
SP		6" REINFORCED CONCRETE	5170	SY	\$ 80.00	\$ 413,600.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	3	EA	\$ 15,000.00	\$ 45,000.00
SP		TRAIL CROSSING, MAJOR STREET (HAWK/PHB/CURB RAMPS)	1	EA	\$ 90,000.00	\$ 90,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 115,000.00	\$ 115,000.00

SUBTOTAL \$1,396,600.00

CONTINGENCY @ 35% \$488,810.00

CONSTRUCTION COST SAY \$1,886,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

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 Client Project No.

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

Segment 9c						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 120,000.00	\$ 120,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 60,000.00	\$ 60,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	7360	SY	\$ 6.00	\$ 44,160.00
520	1121000000-E	AGGREGATE BASE COURSE	2710	TON	\$ 56.00	\$ 151,760.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	760	TON	\$ 190.00	\$ 144,400.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	50	TON	\$ 840.00	\$ 42,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	4260	LF	\$ 50.00	\$ 213,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 141,000.00	\$ 141,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 474,000.00	\$ 474,000.00
SP		6" REINFORCED CONCRETE	5680	SY	\$ 80.00	\$ 454,400.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	6	EA	\$ 15,000.00	\$ 90,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		TRAIL CROSSING, MAJOR STREET (HAWK/PHB/CURB RAMPS)	1	EA	\$ 90,000.00	\$ 90,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 440,000.00	\$ 440,000.00

SUBTOTAL **\$2,504,720.00**
 CONTINGENCY @ 35% **\$876,652.00**
CONSTRUCTION COST SAY \$3,382,000

Notes:

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 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment 9e						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 35,000.00	\$ 35,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 10,000.00	\$ 10,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	150	SY	\$ 6.00	\$ 900.00
520	1121000000-E	AGGREGATE BASE COURSE	60	TON	\$ 56.00	\$ 3,360.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	20	TON	\$ 190.00	\$ 3,800.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	5	TON	\$ 840.00	\$ 4,200.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 8,000.00	\$ 8,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 67,000.00	\$ 67,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	350	LF	\$ 1,600.00	\$ 560,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 20,000.00	\$ 20,000.00

SUBTOTAL **\$712,260.00**
 CONTINGENCY @ 35% **\$249,291.00**
CONSTRUCTION COST SAY \$962,000

Notes:

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 Client Project No.

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

Segment 9g						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 120,000.00	\$ 120,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	250	SY	\$ 6.00	\$ 1,500.00
520	1121000000-E	AGGREGATE BASE COURSE	100	TON	\$ 56.00	\$ 5,600.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	30	TON	\$ 190.00	\$ 5,700.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	5	TON	\$ 840.00	\$ 4,200.00
SP		GREENWAY DRAINAGE	1	LS	\$ 37,000.00	\$ 37,000.00
SP		EROSION CONTROL	1	LS	\$ 50,000.00	\$ 50,000.00
SP		TRAFFIC CONTROL	1	LS	\$ -	\$ -
SP		6" REINFORCED CONCRETE	1990	SY	\$ 80.00	\$ 159,200.00
SP		TIMBER PILE CONCRETE BOARDWALK	1200	LF	\$ 1,600.00	\$ 1,920,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 155,000.00	\$ 155,000.00

SUBTOTAL \$2,478,200.00
CONTINGENCY @ 35% \$867,370.00
CONSTRUCTION COST SAY \$3,346,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

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

Segment 9h						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 120,000.00	\$ 120,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 15,000.00	\$ 15,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	400	LF	\$ 50.00	\$ 20,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 17,000.00	\$ 17,000.00
SP		EROSION CONTROL	1	LS	\$ 29,000.00	\$ 29,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 40,000.00	\$ 40,000.00
SP		6" REINFORCED CONCRETE	1540	SY	\$ 80.00	\$ 123,200.00
SP		TIMBER PILE CONCRETE BOARDWALK	1270	LF	\$ 1,600.00	\$ 2,032,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 80,000.00	\$ 80,000.00

SUBTOTAL \$2,476,200.00
CONTINGENCY @ 35% \$866,670.00
CONSTRUCTION COST SAY \$3,343,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

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

Segment C1						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 45,000.00	\$ 45,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 40,000.00	\$ 40,000.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	580	LF	\$ 50.00	\$ 29,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 56,000.00	\$ 56,000.00
SP		EROSION CONTROL	1	LS	\$ 125,000.00	\$ 125,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 121,000.00	\$ 121,000.00
SP		6" REINFORCED CONCRETE	3210	SY	\$ 80.00	\$ 256,800.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	6	EA	\$ 15,000.00	\$ 90,000.00
SP		TRAIL CROSSING, MINOR STREET (TRAFFIC CALMING/RRFB/CURB RAMPS)	1	EA	\$ 40,000.00	\$ 40,000.00
SP		TRAIL CROSSING, MAJOR STREET (HAWK/PHB/CURB RAMPS)	1	EA	\$ 90,000.00	\$ 90,000.00
SP		RAIL CROSSING - ADD WARNING ARM AND PAVEMENT WIDENING	1	EA	\$ -	\$ -
SP		COMPREHENSIVE GRADING	1	LS	\$ 50,000.00	\$ 50,000.00

SUBTOTAL \$942,800.00
CONTINGENCY @ 35% \$329,980.00
CONSTRUCTION COST SAY \$1,273,000

Notes:

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Johnston County East Coast Greenway Feasibility Study

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 Client Project No.

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

Segment C2						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 25,000.00	\$ 25,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 15,000.00	\$ 15,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 48,000.00	\$ 48,000.00
SP		EROSION CONTROL	1	LS	\$ 68,000.00	\$ 68,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 3,000.00	\$ 3,000.00
SP		6" REINFORCED CONCRETE	3110	SY	\$ 80.00	\$ 248,800.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 70,000.00	\$ 70,000.00

SUBTOTAL \$477,800.00
CONTINGENCY @ 35% \$167,230.00
CONSTRUCTION COST SAY \$646,000

Notes:

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 Checked By: GDB Date: 9/20/2024
 McAdams Project No: NCD22015.04

Johnston County East Coast Greenway Feasibility Study

Project Location: Johnston County, NC
 Project Description: 12' Paved Greenway and Multi-Use Path
 Client: Johnston County Parks and Open Space / NCDOT IMD
 Client Project No.

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

Segment C3						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 35,000.00	\$ 35,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 20,000.00	\$ 20,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ -	\$ -
SP		EROSION CONTROL	1	LS	\$ 45,000.00	\$ 45,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 80,000.00	\$ 80,000.00
SP		6" REINFORCED CONCRETE	3980	SY	\$ 80.00	\$ 318,400.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	4	EA	\$ 15,000.00	\$ 60,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 185,000.00	\$ 185,000.00

SUBTOTAL **\$743,400.00**
 CONTINGENCY @ 35% **\$260,190.00**
CONSTRUCTION COST SAY \$1,004,000

Notes:

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2. Cost opinion does not include engineering, geotech, design survey, or construction administration.
3. Cost opinion does not include cost for private or public utility relocations.
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7. Cost opinion does not include drainage as a separate line item. These costs are assumed to be covered by the construction contingency.
8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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Johnston County East Coast Greenway Feasibility Study

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

Segment C4						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 180,000.00	\$ 180,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 65,000.00	\$ 65,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	6650	SY	\$ 6.00	\$ 39,900.00
520	1121000000-E	AGGREGATE BASE COURSE	2450	TON	\$ 56.00	\$ 137,200.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	690	TON	\$ 190.00	\$ 131,100.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	45	TON	\$ 840.00	\$ 37,800.00
SP		GREENWAY DRAINAGE	1	LS	\$ 199,000.00	\$ 199,000.00
SP		EROSION CONTROL	1	LS	\$ 271,000.00	\$ 271,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 26,000.00	\$ 26,000.00
SP		6" REINFORCED CONCRETE	5940	SY	\$ 80.00	\$ 475,200.00
SP		TIMBER PILE CONCRETE BOARDWALK	920	LF	\$ 1,600.00	\$ 1,472,000.00
SP		RAILROAD UNDERPASS PROTECTION	1	LS	\$ 250,000.00	\$ 250,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 555,000.00	\$ 555,000.00

SUBTOTAL **\$3,839,200.00**
 CONTINGENCY @ 35% **\$1,343,720.00**
CONSTRUCTION COST SAY \$5,183,000

Notes:

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8. Cost opinion does not include any costs or impacts associated with adjacent roadway resurfacing.



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 Client Project No.

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

Segment C5						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 435,000.00	\$ 435,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 65,000.00	\$ 65,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 128,000.00	\$ 128,000.00
SP		EROSION CONTROL	1	LS	\$ 175,000.00	\$ 175,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 5,000.00	\$ 5,000.00
SP		6" REINFORCED CONCRETE	7780	SY	\$ 80.00	\$ 622,400.00
SP		PREFABRICATED PEDESTRIAN BRIDGE	260	LF	\$ 4,500.00	\$ 1,170,000.00
SP		TIMBER PILE CONCRETE BOARDWALK	3940	LF	\$ 1,600.00	\$ 6,304,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 245,000.00	\$ 245,000.00

SUBTOTAL **\$9,149,400.00**
 CONTINGENCY @ 35% **\$3,202,290.00**
CONSTRUCTION COST SAY \$12,352,000

Notes:

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

Segment C6						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 100,000.00	\$ 100,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 35,000.00	\$ 35,000.00
SP		GREENWAY DRAINAGE	1	LS	\$ 86,000.00	\$ 86,000.00
SP		EROSION CONTROL	1	LS	\$ 127,000.00	\$ 127,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 9,000.00	\$ 9,000.00
SP		6" REINFORCED CONCRETE	6020	SY	\$ 80.00	\$ 481,600.00
SP		TIMBER PILE CONCRETE BOARDWALK	680	LF	\$ 1,600.00	\$ 1,088,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 195,000.00	\$ 195,000.00

SUBTOTAL **\$2,121,600.00**
 CONTINGENCY @ 35% **\$742,560.00**
CONSTRUCTION COST SAY \$2,865,000

Notes:

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

Segment C8						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 75,000.00	\$ 75,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 50,000.00	\$ 50,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	790	SY	\$ 6.00	\$ 4,740.00
520	1121000000-E	AGGREGATE BASE COURSE	310	TON	\$ 56.00	\$ 17,360.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	90	TON	\$ 190.00	\$ 17,100.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	10	TON	\$ 840.00	\$ 8,400.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	4250	LF	\$ 50.00	\$ 212,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ 48,000.00	\$ 48,000.00
SP		EROSION CONTROL	1	LS	\$ 145,000.00	\$ 145,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 246,000.00	\$ 246,000.00
SP		6" REINFORCED CONCRETE	5660	SY	\$ 80.00	\$ 452,800.00
SP		TIMBER PILE CONCRETE BOARDWALK	90	LF	\$ 1,600.00	\$ 144,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 135,000.00	\$ 135,000.00

SUBTOTAL **\$1,555,900.00**
 CONTINGENCY @ 35% **\$544,565.00**
CONSTRUCTION COST SAY \$2,101,000

Notes:

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

Segment C9						
Section	Item Code	Item Description	Quantity	Unit	Unit Price	Cost
800	0000100000-N	MOBILIZATION	1	LS	\$ 80,000.00	\$ 80,000.00
801	0000400000-N	CONSTRUCTION SURVEYING	1	LS	\$ 40,000.00	\$ 40,000.00
SP	1115000000-E	GEOTEXTILE FOR PAVEMENT STABILIZATION	970	SY	\$ 6.00	\$ 5,820.00
520	1121000000-E	AGGREGATE BASE COURSE	380	TON	\$ 56.00	\$ 21,280.00
610	1519000000-E	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	100	TON	\$ 190.00	\$ 19,000.00
620	1575000000-E	ASPHALT BINDER FOR PLANT MIX	10	TON	\$ 840.00	\$ 8,400.00
846	2549000000-E	2'-6" CONCRETE CURB & GUTTER	5170	LF	\$ 50.00	\$ 258,500.00
SP		GREENWAY DRAINAGE	1	LS	\$ 15,000.00	\$ 15,000.00
SP		EROSION CONTROL	1	LS	\$ 98,000.00	\$ 98,000.00
SP		TRAFFIC CONTROL	1	LS	\$ 274,000.00	\$ 274,000.00
SP		6" REINFORCED CONCRETE	6890	SY	\$ 80.00	\$ 551,200.00
SP		TRAIL CROSSING, LOCAL STREET (SIGNAGE/MARKING/CURB RAMPS)	7	EA	\$ 15,000.00	\$ 105,000.00
SP		COMPREHENSIVE GRADING	1	LS	\$ 180,000.00	\$ 180,000.00

SUBTOTAL **\$1,656,200.00**
 CONTINGENCY @ 35% **\$579,670.00**
CONSTRUCTION COST SAY \$2,236,000

Notes:

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