



BRUNSWICK COUNTY
NORTH CAROLINA

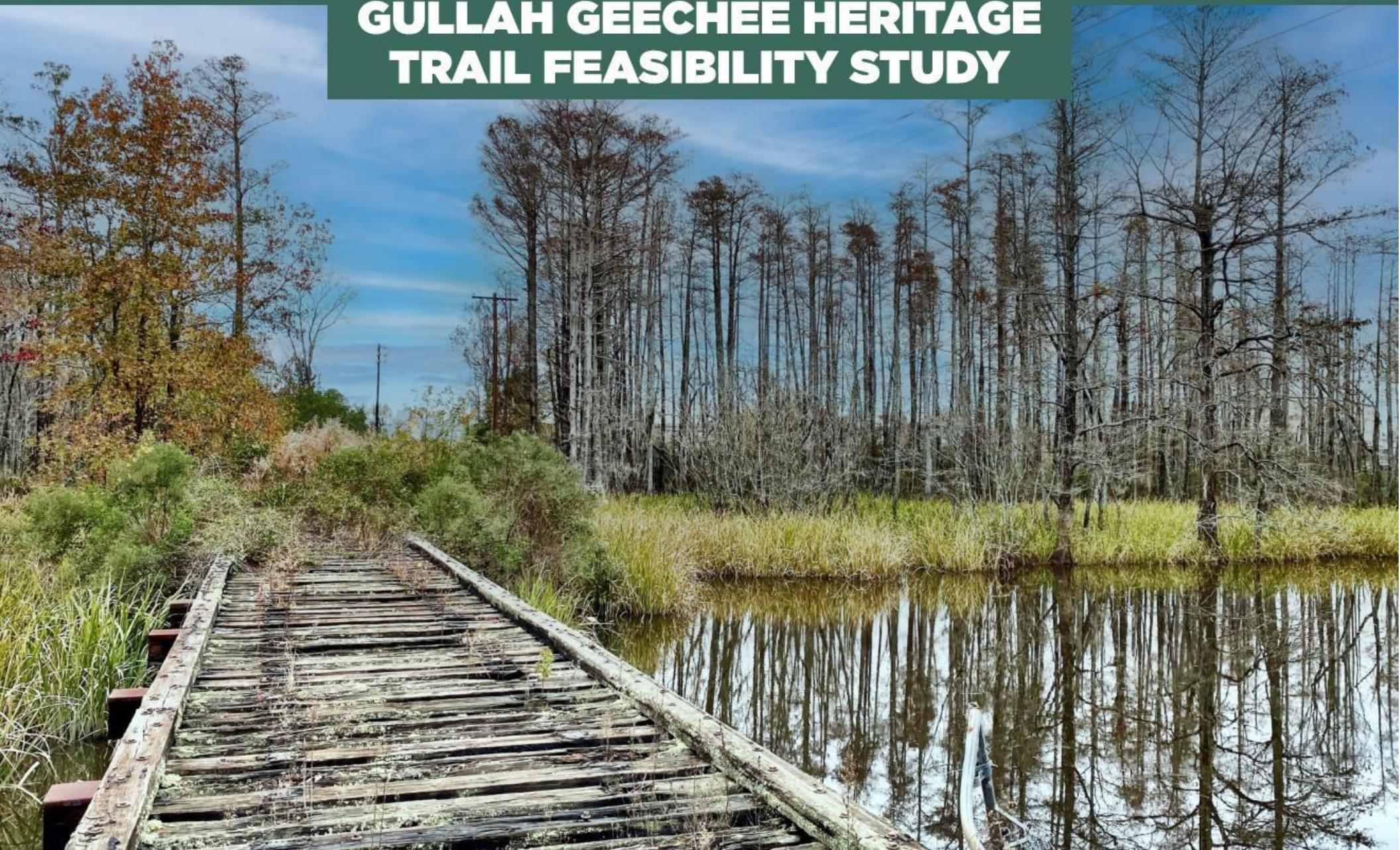
Town of
Navassa



Town of
Leland



GULLAH GEECHEE HERITAGE TRAIL FEASIBILITY STUDY



Gullah Geechee Heritage Trail Feasibility Study

Brunswick County, NC

Prepared for:
Wilmington Urban Area Metropolitan Planning Organization
and **North Carolina Department of Transportation**
Integrated Mobility Division

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ACKNOWLEDGEMENTS

The project team would like to thank the members of the Project Steering Committee for their participation and commitment to the Gullah Geechee Heritage Trail in Brunswick County.

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Section 1:
Executive Summary

Executive Summary

The Wilmington Urban Area Metropolitan Planning Organization (WMPO) partnered with the North Carolina Department of Transportation Integrated Mobility Division (NCDOT IMD) to conduct a feasibility study for the Gullah Geechee Heritage Trail in Brunswick County. The purpose of this study is to identify a recommended alignment for the trail.

The Gullah Geechee Heritage Corridor was designated by an act of Congress on October 12, 2006 through the National Heritage Areas Act of 2006, stretching from Jacksonville, NC, to Jacksonville, FL (Figure 1). The corridor was established to help community stakeholders in the southeast interpret the Gullah Geechee story and preserve their folklore, arts, crafts, and music. It also aims to identify and safeguard sites, historical data, artifacts, and objects connected to Gullah Geechee people and culture.

The Gullah Geechee Heritage Trail Feasibility Study is focused on providing a recommended alternative for the shared use path that will connect Phoenix Park to the Brunswick Nature Park. Study partners include the Town of Navassa, Town of Leland, Town of Belville, and Brunswick County. The study team conducted a comprehensive planning-level analysis to help decision-makers determine how to proceed with the trail and how to best carry it forward to the design and engineering phase.

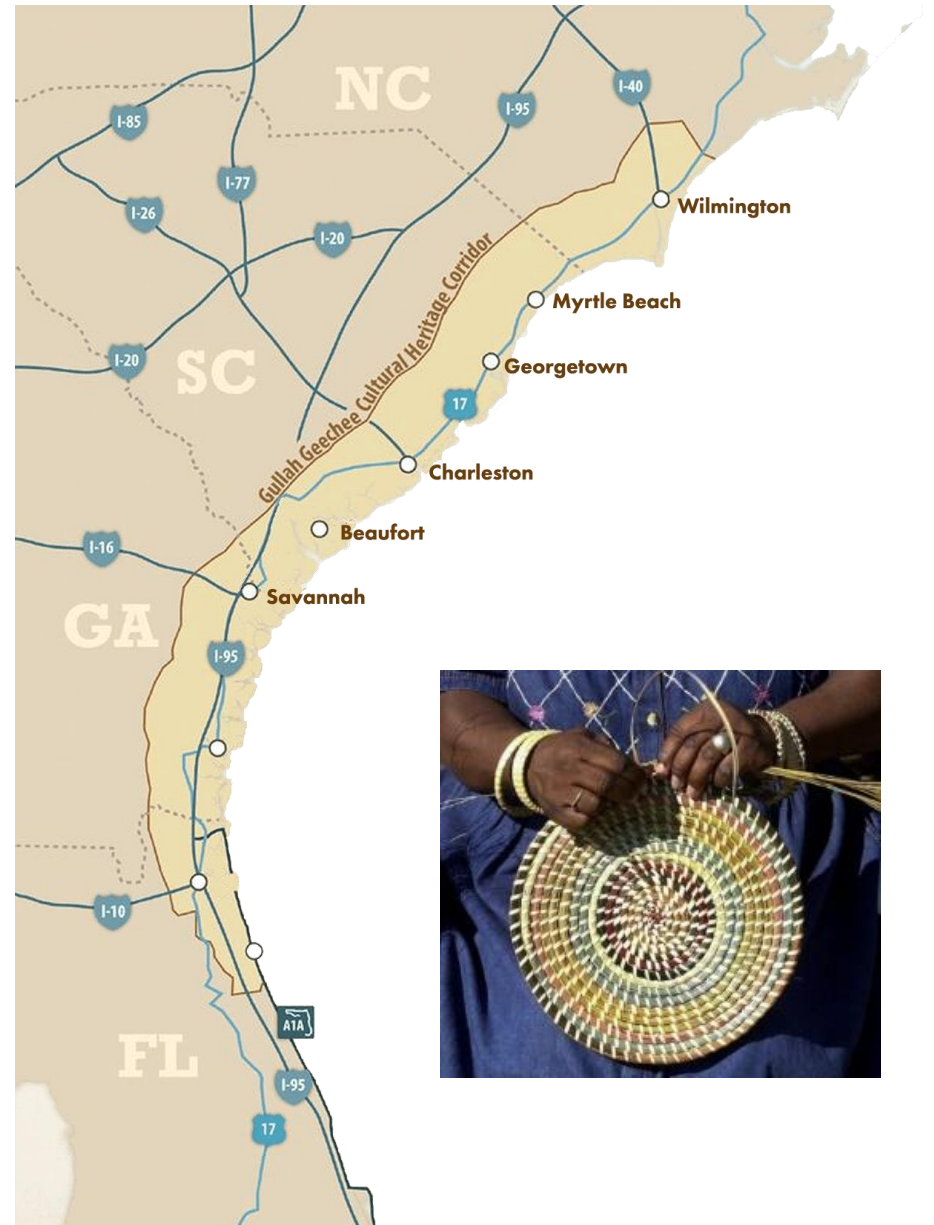


Figure 1. Gullah Geechee Corridor and Sweetgrass Basket Maker (source: National Park Service)

This feasibility study builds on past work by local government and community partners, including the North Carolina Gullah Geechee Greenway Blueway Heritage Trail. The study team used the proposed Gullah Geechee Multi-Use Greenway / Blueway Heritage Trail base alignment provided by the project Steering Committee and documented in the Navassa Comprehensive Bicycle and Pedestrian Plan (2022) to begin the study. The base alignment has an approximate total length of 14 miles, and key routes along the corridor include Cedar Hill Road, Navassa Road, Village Road, and NC 133/River Road. Figure 2 shows the limits and base alignment.

While the focus of the study was along this base alignment, the project team expanded the analysis area and limits of potential alignments to explore where the trail could potentially deviate from these key routes, generally within one to three miles of the base alignment.

The feasibility study consisted of technical analysis, agency coordination, and community feedback to develop a recommended alignment. This report consists of the following sections:

1. Introduction
2. Public Engagement
3. Existing Conditions
4. Alignment Development and Assessment
5. Preferred Alignment
6. Project Prioritization and Implementation

The project team formed a Gullah Geechee Heritage Trail Steering Committee to support establishing project goals and to provide feedback throughout the entire study. Members included local, regional, and state agencies as well as local community organizations focused on preserving Gullah Geechee heritage and culture, as well as enhancing regional bicycle and pedestrian safety and connectivity.

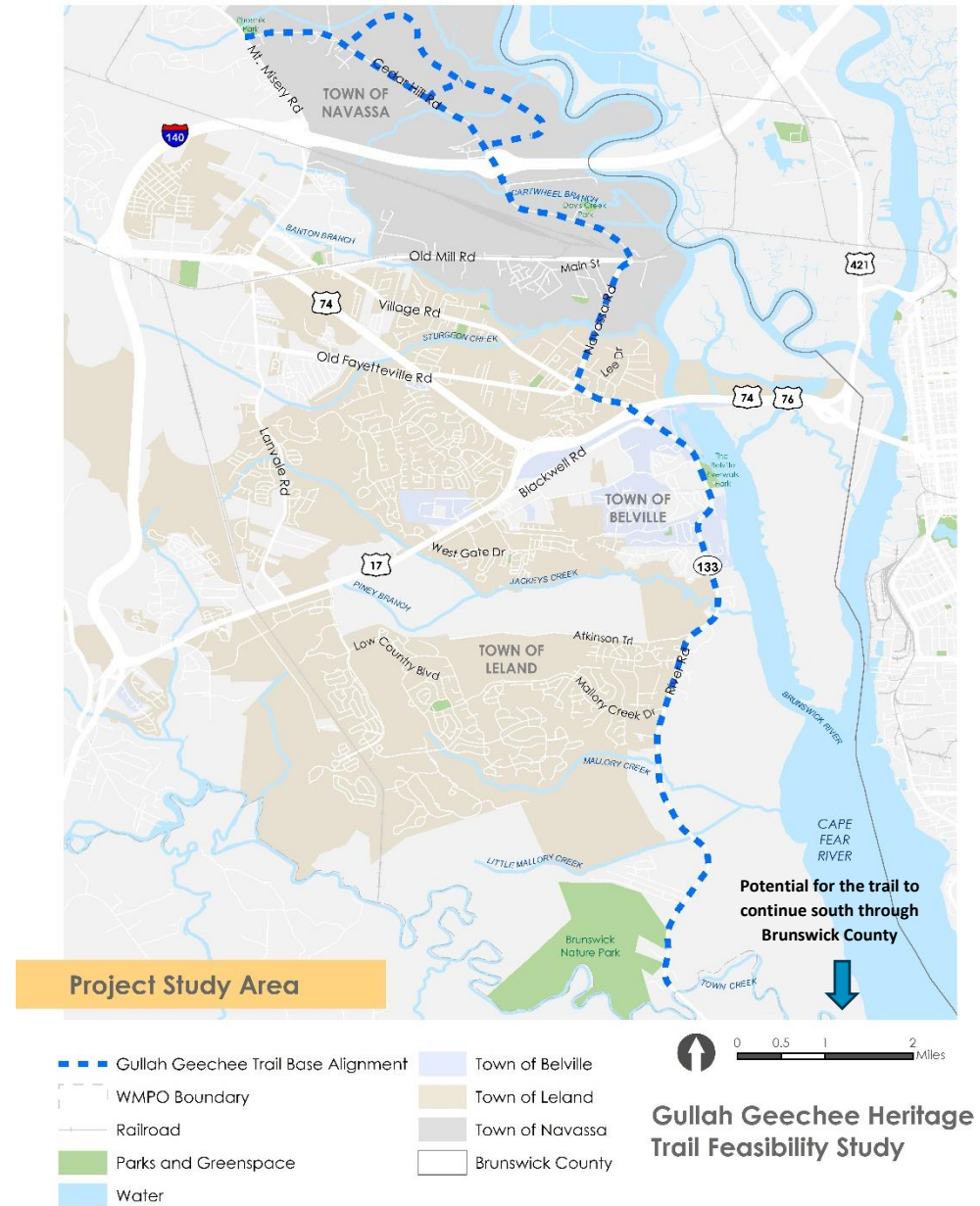


Figure 2. Base Alignment

The project team and steering committee identified several goals that focus on creating a community-driven alignment for the trail that can be widely supported through implementation:

PROJECT GOALS



Community feedback was essential to the study process. The study team collected feedback in two rounds (Figure 3). The first round focused on existing conditions to gather more feedback on area issues and opportunities. The second round focused on collecting trail alignment preferences from the community to inform the plan’s final recommendations.

In both rounds, the study team offered ways to collect data in multiple ways, including online surveys and map comments, in-person conversations, and

in-person voting exercises. Four touchpoints were conducted at each round of engagement, including one public outreach event held in Brunswick County outside any municipality, open house events held in Navassa and Leland, and one pop-up event held in Belville in conjunction with area festivals. The team documented high-level results from both rounds:

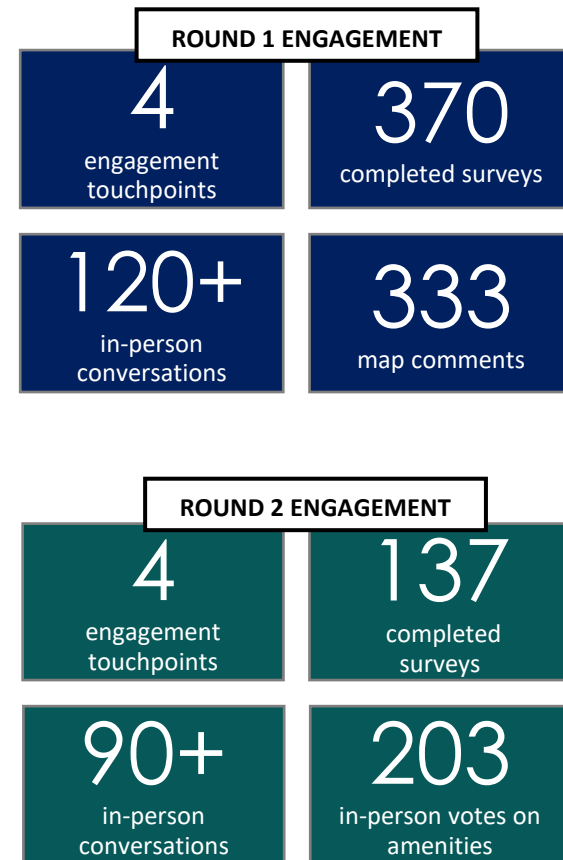


Figure 3. Community Engagement By-the-Numbers (top, Round 1; bottom, Round 2)

After beginning the project with a detailed review of recent local and regional multimodal plans, the project team documented the existing transportation and land use conditions for the study area. An existing conditions analysis is a crucial component of a trail feasibility study because it provides a comprehensive understanding of the current state of the focus area. The project team examined various factors such as existing and proposed multimodal infrastructure, pedestrian and bicyclist crash data, roadway characteristics, land use, conservation and habitats, and environmental constraints. By assessing these elements, potential challenges and opportunities could be identified that may impact the trail's development. In addition to helping brainstorm options for the trail alignment, the existing conditions analysis helped the project team anticipate regulatory requirements and necessary permits. Existing conditions also identified sensitive areas and helps in creating a trail that harmonizes with the natural and built environment. High-level findings from the existing conditions analysis and first round of community engagement included the following:

- **Pedestrian and Bicyclist Crashes:** The highest density of crashes within the study area is on Village Rd from Navassa Rd to US 74/US 76 diverging interchange; several crashes on are also River Road from US 74/US 76 diverging diamond to the Brunswick Nature Park.
- **Gullah Geechee Historical Assets:** Cemeteries, rice fields, and historic churches along the base alignment; further alignments offer more connections to historical assets and educational opportunities.
- **Community Assets:** Schools, healthcare, cemeteries, and historical areas along the proposed alignment; alignments further from the road offer more connections to historical assets.
- **Environmental Constraints:** Wetlands, 100-year floodplains, cemeteries, brownfields, and the Kerr McGee Superfund site impact alignment decisions; also, bridges, railroad crossings, and interchange ramps.
- **Annual Average Daily Traffic (AADT):** Several roadways within the base alignment contain AADT over 15,000 vehicles per day, including portions of both Village Rd and River Rd.

- **Capital Projects:** Residential, commercial, and park developments and transportation improvement projects present opportunities for collaboration on trail construction.
- **Transportation Disadvantaged Populations:** While most households within the study area own a vehicle, much of the trail alignment services historically disadvantaged populations.
- **Bicycle Level of Traffic Stress:** Several key roads in the study area are stressful for bicycling due to speed, volume, and lack of existing bicycle facilities.

After the existing conditions analysis was completed and public feedback was gathered on the initial base alignment, the trail was split into nine segments for alternatives development and evaluation. By breaking the study area into nine segments, the project team could develop individual projects that will help local agencies move sections of the trail forward toward design and implementation. The project team identified these segments based on major roadways, key existing infrastructure elements, points of interest, and town boundaries. Two potential alignments were developed per segment. In general, one alignment closely followed existing roadways and was intended to minimize the end-to-end travel distance along the trail, as well as incorporate existing roadway right-of-way. The second alignment was generally routed away from major roadways or some other routing based on ideas identified from public feedback during Round 1 of public engagement.

The following is a description of each potential alignment (Figure 4):

SEGMENT 1: CEDAR HILL RD FROM PHOENIX PARK TO I-140 INTERCHANGE

Alignment 1A would follow Cedar Hill Rd as a shared-use path along the northeast side of the road. Alignment 1B would traverse a more natural environment closer to the Cape Fear River.

SEGMENT 2: CEDAR HILL RD/I-140 INTERCHANGE

Alignment 2A would follow Cedar Hill Rd as a shared-use path along the northeast side of the road and across the I-140 ramps. Alignment 2B would run on an independent trail alignment closer to the Cape Fear River and pass underneath the I-140 high-rise bridge without crossing any ramps.

SEGMENT 3: CEDAR HILL RD FROM I-140 INTERCHANGE TO OLD MILL RD

Alignment 3A would follow Cedar Hill Rd as a shared-use path along the northeast side of the road. Alignment 3B would traverse a more natural environment closer to the Cape Fear River and utilize an abandoned rail alignment north of Davis Creek Park.

SEGMENT 4: NAVASSA RD FROM OLD MILL RD TO BALDWIN DR

Alignment 4A would follow Navassa Rd as a shared-use path along the east side of the road. Alignment 4B would traverse a more natural environment closer to the Brunswick River. Both alignments would cross Sturgeon Creek on a new multimodal bridge.

SEGMENT 5: FROM NAVASSA RD/BALDWIN DR TO VILLAGE RD/BALDWIN DR

Alignment 5A would run on a shared-use path on the east side of Navassa Rd and the north side of Village Rd. Alignment 5B would run along Baldwin Dr from Navassa Rd through the Harrington Square Apartment Complex to Village Rd utilizing a combination of shared-use paths, sharrows, and existing sidewalk.

SEGMENT 6: NC 133/RIVER RD INTERCHANGE WITH US 74

Alignment 6A would follow Village Rd as a shared-use path on the northeast side, while Alignment 6B would run along the southwest side of Village Rd. Both alignments would pass under US 17/74/76 through the diverging diamond interchange.

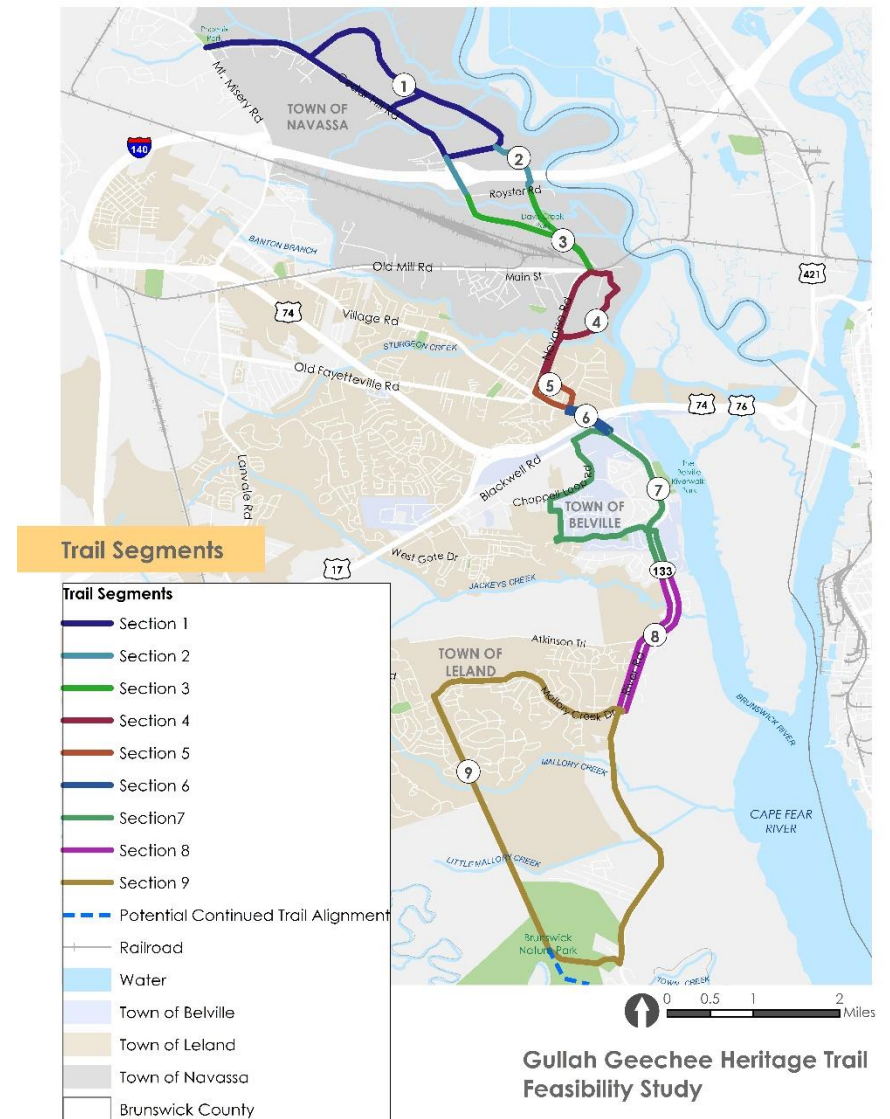


Figure 4. Trail Alignment Alternatives

SEGMENT 7: NC 133/RIVER RD FROM BLACKWELL RD TO BELVILLE TOWN LIMIT

Alignment 7A would follow River Road/NC 133 as a shared-use path along the west side of the road, while Alignment 7B would follow Blackwell Road and Chappell Loop Road and traverse the neighborhoods behind Belville Elementary School.

SEGMENT 8: NC 133/RIVER RD FROM BELVILLE TOWN LIMIT TO MALLORY CREEK

Alignment 8A would follow NC 133/River Road as a shared-use path along the west side of the road, while Alignment 8B would run along the east side of the road.

SEGMENT 9: NC 133/RIVER RD FROM MALLORY CREEK TO BRUNSWICK NATURE PARK

Alignment 9A would follow NC 133/River road as a shared-use path along the west side of the road. Alignment 9B would run along Mallory Creek Drive and then on an independent trail alignment utilizing an existing utility easement. *Both options end at the Brunswick Nature Park.*

The project team then assessed each pair of alignments within each segment based on the following performance measures:

- Right of way impacts
- Environmental Constraints
- Safety
- Community Resources
- Gullah Geechee Historic Site
- Transportation Equity

These performance measures were selected to emphasize the goals and objectives for the feasibility study. Evaluation criteria included a mix of quantitative and qualitative measures that were identified by the project team and discussed with the Steering Committee for feedback.

Each alignment was scored based on these performance measures as well as feedback received from Round 2 of public engagement. A scoring system was created for the trail, and each segment and each alignment was analyzed. This process was used to make decisions around which alignment to select as well as how constraints and opportunities of each segment compare to the rest of the corridor. The project team documented the scoring for each alignment (see Figure 5 for an example from Segment 1).

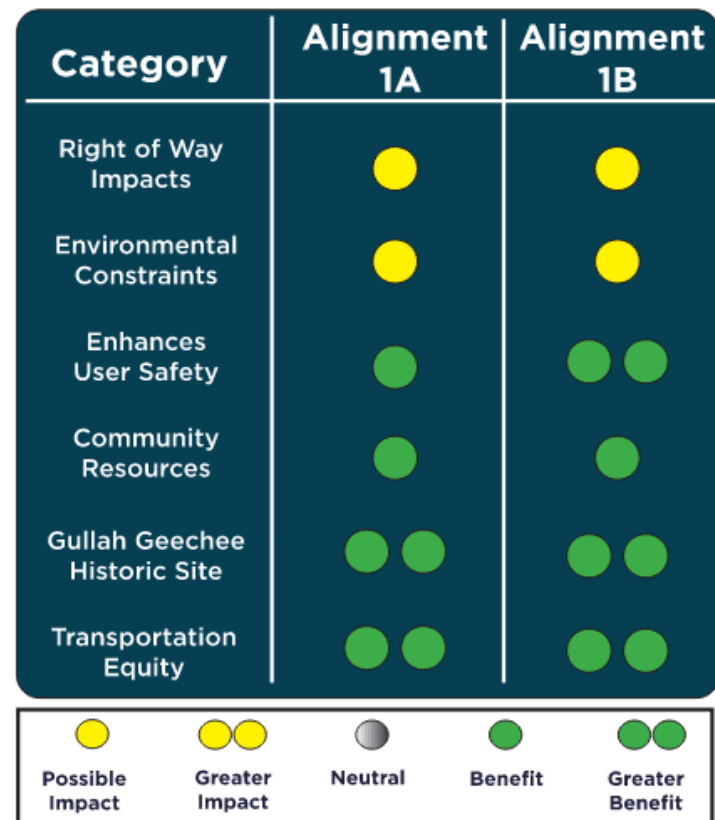


Figure 5. Example Technical Analysis Summary for Segment 1

Following the alternatives assessment, a preferred alignment was recommended as the proposed Gullah Geechee Heritage Trail (Figure 6):

- Alignment 1B
- Alignment 2B
- Alignment 3B
- Alignment 4B
- Alignment 5B
- Alignment 6B
- Alignment 7A
- Alignment 8A
- Alignment 9B

Appendix D provides detailed cut sheets and information on each of the 9 proposed trail segments with high-level cost estimates, constraints and considerations, and visuals.

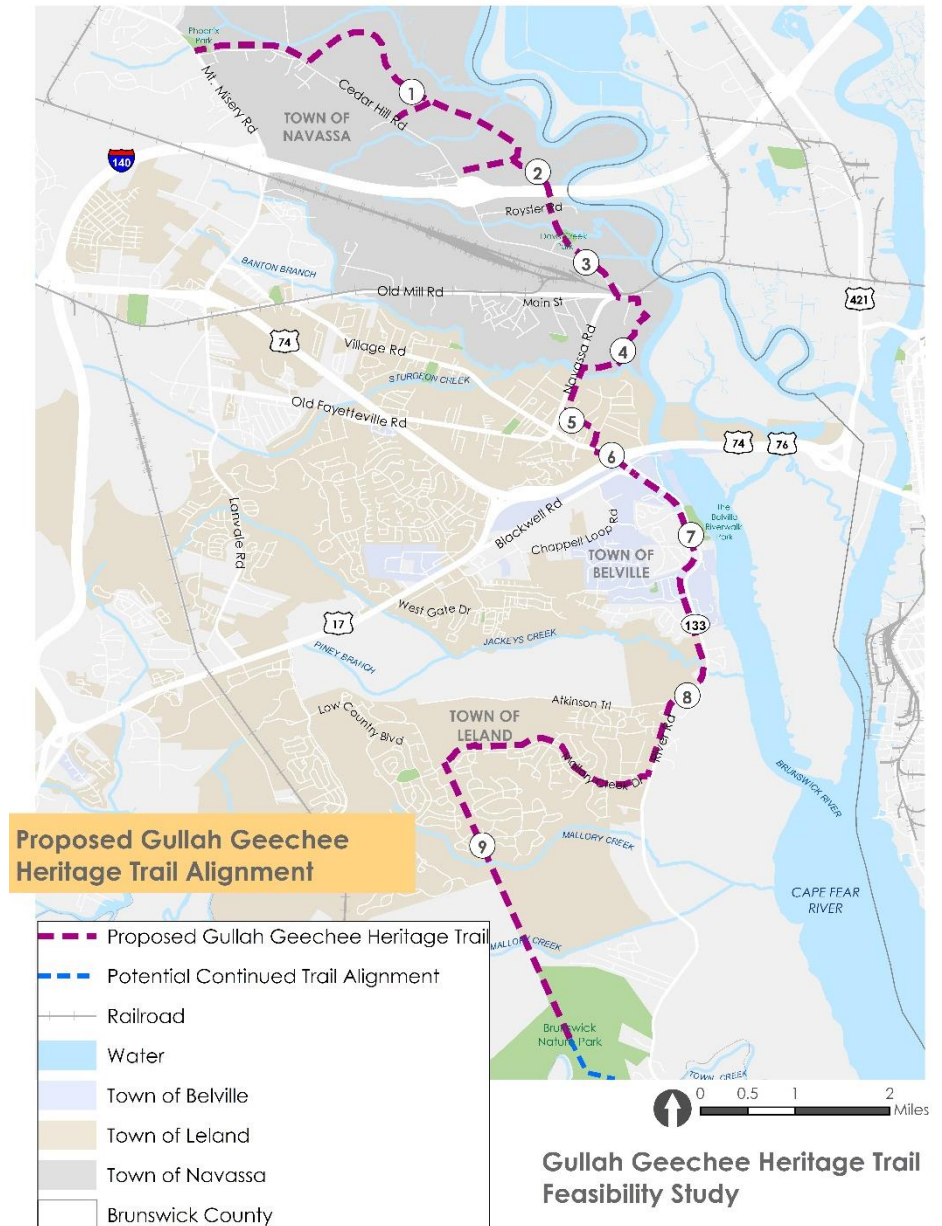


Figure 6. Gullah Geechee Heritage Trail Preferred Alignment

In addition to the preferred alignment, several trail amenities were recommended to be incorporated into various segments of the trail, including historical markers, trail wayfinding, trail access points, and vehicle parking.

The project team also prioritized the recommended projects to inform next steps and implementation. The same technical performance measures and evaluation criteria from the initial scoring performed for the individual trail alignments were utilized to compare the individual segments for the preferred alignment, and these were supplemented by feedback from the public and steering committee:

- Safety/Comfort
- Access
- Equity
- Feasibility
- Public Support

Each segment was classified as high, medium, or low priority as follows:

- **High Priority:** Segment 1, Segment 3, and Segment 7
- **Medium Priority:** Segment 2, Segment 4, and Segment 6
- **Low Priority:** Segment 5, Segment 8, and Segment 9

Note that even the medium and low priority segments are still widely supported by the public.

The final step in the feasibility study was to support the trail from recommendations to implementation. The project team developed an implementation plan based on the prioritization results as well as cost estimates, constraints, and potential overlap with private development or public transportation improvements. The purpose of the implementation plan is to provide reasonable timelines for project development and identify corresponding funding sources. Each segment was classified as short-term (0-5years), medium-term (6-14 years), and long-term (15+ years) implementation:

SHORT-TERM (0-5 YEARS):

Projects that have moderate cost but minimal property or environmental impacts and the opportunity to be constructed by private developers or as part of projects that are already programmed for funding

- Segment 1: Phoenix Park to I-140 (to be mostly built by developers)
- Segment 5: Navassa Rd to Village Rd at Baldwin Dr
- Segment 7: West side of River Road from Blackwell Road to Belville South Limit (under construction)

MEDIUM-TERM (6-14 YEARS):

Projects with moderate to high cost and potential environmental impacts but low property impacts

- **Segment 2:** I-140 Underpass
- **Segment 3:** I-140 to Old Mill Rd
- **Segment 6:** US 17 Interchange

LONG-TERM (15+ YEARS):

Projects with moderate to high cost and substantial property and/or environmental impacts

- **Segment 4:** New Sturgeon Creek Bridge
- **Segment 8:** West side of River Road from Belville to Mallory Creek
- **Segment 9:** Mallory Creek to Brunswick Nature Park

Lastly, the project team documented community partners, funding sources, and design resources that can be considered when moving the nine recommended trail projects through to design and implementation. Key funding sources include federal, state, and local opportunities as well partnerships with developers developing along the alignment. Key design resources include North Carolina Complete Streets Guide and the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide.

Section 2: Introduction

Introduction

The Gullah Geechee Heritage Corridor was created to recognize, sustain, and celebrate the important contributions made to American culture and history by African Americans, known as the Gullah Geechee, who settled in the coastal counties of South Carolina, Georgia, North Carolina, and Florida. The corridor was also designated to assist community stakeholders in the southeast in interpreting the story of the Gullah Geechee and preserving Gullah Geechee folklore, arts, crafts, and music as well as identifying and preserving sites, historical data, artifacts, and objects associated with Gullah Geechee people and culture.¹

Gullah Geechee Cultural Heritage Corridor Multi-Use Greenway/Blueway Trail

In Brunswick County, community partners have led planning work for connections between greenways (shared use paths for walking and biking), blueways (kayaking and boat routes), parks, and historical Gullah Geechee sites (see Figure 7 for proposed routes). The trail is intended to support these connections with region wide benefits.

The following are several key elements of past planning work that has been completed in support of the Gullah Geechee trail:

- Educational Outreach
- Economic Development
- Documentation and Preservation
- Promoting Healthy Living
- Protecting the Environment
- Connections to the East Coast Greenway

Past planning work has also identified key sites that are essential to celebrating Gullah Geechee culture and providing public educational opportunities:

- Phoenix Colored School
- Reaves Chapel Church
- Cedar Hill Cemetery
- Moze Gullah Geechee Heritage Site
- Leland Future Sturgeon Park
- Belville Riverwalk Park
- Brunswick Nature Park



Figure 7. Proposed Greenway and Blueway (source: NC Gullah Geechee Greenway Blueway Heritage Trail)

This feasibility study builds off the proposed alignment identified by the NC Gullah Geechee Greenway Blueway Heritage Trail and prior planning work in the area by identifying the preferred alignment in Brunswick County within the Wilmington Urban Area Metropolitan Planning Organization (WMPO) boundary.

¹ National Park Service (2024). "Gullah Geechee Cultural Heritage Corridor", retrieved from [Gullah Geechee Cultural Heritage Corridor \(U.S. National Park Service\) \(nps.gov\)](https://www.nps.gov/gullah-geechee-cultural-heritage-corridor)

Multimodal Planning work in Brunswick County

The proposed Gullah Geechee Heritage Trail runs through Town of Navassa, Town of Leland, Town of Belville, and parts of unincorporated Brunswick County (see Figure 2 for study area). Much of the study area has planned or proposed multimodal facilities near or along the base alignment of the Heritage trail that were reviewed as a part of this feasibility study. Key plans include the following:

- Cape Fear Moving Forward 2045: WMPO Metropolitan Transportation Plan
- Brunswick County: More Than a Trail
- Leland Pedestrian Plan
- Comprehensive Leland Bicycle Plan
- Navassa Bicycle and Pedestrian Plan

Overall, these plans balance local network connectivity and economic development for inland communities as well as plans for recreational opportunities and tourism on a regional level. Additionally, key values include affordable and sustainable transportation options, improving safety, improving health and wellbeing, and building community wealth. Key projects include those along or intersecting key roads of the trail, including Cedar Hill Road, Navassa Road, Village Road, and River Road (NC 133).

This feasibility study synthesizes multimodal planning work in the study area to develop an alignment that builds from existing and future infrastructure needs in Brunswick County.

Planning Process

The Gullah Geechee Heritage Trail was developed in a series of seven tasks, led by the project team, which included the consultant team, NCDOT, and the WMPO:

1. Project Management
2. Existing Conditions Assessment
3. Public and Stakeholder Engagement
4. Alternatives Development and Assessment
5. Project Recommendations
6. Project Prioritization and Implementation
7. Plan Preparation

The project took place from June 2023 to July 2024 (see Figure 8 for the full project schedule). The project team kicked off the project in Task 1 with a kickoff meeting, review of the project background materials, and coordination with the WMPO and NCDOT.

In Task 2, the project team evaluated existing conditions within Belville, Leland, Navassa, and unincorporated Brunswick County along the base alignment. Mapping demographic data, land use, annual average daily traffic, posted speed limits, functional classification, multimodal crash history, and existing parks and trails enabled the team to gain a better understanding of the unique contexts along the proposed trail. The project team also performed a field review along the major streets to complement publicly available GIS data.



Figure 8. Gullah Geechee Heritage Trail Feasibility Study Schedule

Task 3 consisted of all public and stakeholder engagement. Engagement was essential in this process as alignment recommendations were directly generated from public input. Engagement included steering committee meetings, two rounds of in-person events, and two online surveys. The

project team met with the steering committee during the early, middle, and late portions of plan development to review progress and solicit feedback from the project stakeholders. The project team used public engagement to review existing conditions and deficiencies as well as gather alignment preferences.

In Task 4, the project team identified potential alignment options along the trail and evaluated each option. The trail was split into nine segments to create distinct projects, and two possible alignments were identified per segment. The project team developed an evaluation matrix to document right of way impacts, connections to historical Gullah Geechee assets, connections to the multimodal network, and environmental constraints, among others. These alignments were screened by the project steering committee and ultimately refined by the project team to bring to the public for feedback on preferences.

In Task 5, the project team solidified a preferred alignment based on the alignment evaluation such as overall feasibility as well as costs. Performance measures included overall safety, comfort, feasibility, and public and steering committee support. Trail amenities were also recommended per segment. Nine concept-level cost estimates and cut sheets for the preferred alignments were also created.

In Task 6, the components of the preferred alignment were prioritized based on the performance measures developed as part of this study as well as knowledge of NCDOT's Strategic Prioritization and other funding sources. Each of the nine segments was classified as short-, medium-, or long-term implementation based on cost, feasibility, and potential availability of funding sources. Lastly, key funding sources, key partners, and design guidelines were identified for each segment of the preferred alignment.

In Task 7, the project team developed the final feasibility study focused on and documented Tasks 1-6, including the report, executive summary, and technical appendices.

Project Goals

At the outset, the project team collaborated with the community and stakeholders to develop a set of goals for the plan that are aligned with the community's needs. The purpose of the study is to assess the feasibility of the trail through Brunswick County and provide a recommended alternative that can be moved forward to the design phase. Key project goals included building on past multimodal transportation work and connecting to the existing and proposed network, preserving and enhancing access to Gullah Geechee culture and history, and enhancing multimodal safety in Brunswick County. Much of the trail includes abundant natural environment and habitats (Figure 9).

PROJECT GOALS

	Establish a vision for the trail alignment.
	Connect the trail to the existing and proposed multimodal network.
	Preserve and enhance culture and history.
	Build on previous planning efforts.
	Support public health and safety.
	Provide guidance and requirements for design.
	Encourage economic development along the corridor.



Figure 9. Areas along the Base Alignment (top: Cedar Hill Road in Navassa, bottom: NC 133/River Road Near Jackeys Creek)

Section 3:
Public Engagement

Public Engagement

Public engagement is a critical element of any trail feasibility study planning process. The Gullah Geechee Heritage Trail Feasibility Study project team engaged local community members repeatedly to brainstorm potential trail alignments and weigh preferences on project alternatives. Prior to beginning any detailed public engagement, the team created a Public Engagement Plan (Appendix A) to document the engagement strategy, timeline, key community groups, and general goals for public engagement. Public engagement for the project included a range of methods, including in-person events, online surveys, and both digital and printed materials.

Engagement Goals and Outreach Strategies

Acknowledging the key goal for the feasibility study of serving local community needs, the project team developed a broad strategy for engaging with members of each community impacted by the trail, with a goal to not only inform but also to encourage interactive activities over a mix of in-person and online media. The following public engagement activities and tools were utilized to help achieve the goals of the project and position the feasibility study for success:

- Project Steering Committee meetings
- Project Support Group outreach
- Project website and online comment map
- Two rounds of in-person public engagement, including:
 - Project poster boards
 - Designed printed and digital materials such as handouts and flyers
 - Online surveys
 - Comment forms
 - Interactive comment boards and dot exercises.

The public engagement plan also identified several critical and/or traditionally underrepresented populations for the purpose of targeting public outreach and engagement, including Gullah Geechee descendants, Black, Indigenous, or People of Color (BIPOC) populations, zero-car households, low-income populations, and those who walk, roll, or bike often. At the project kickoff meeting, the Steering Committee emphasized the goal to reach individual communities by providing repeated events (e.g. one event in each Town) and alternative methods for public input (e.g. in person and online) during each round of public engagement.

As documented in the following sections, the public engagement for the feasibility study was successful in generating hundreds of comments and survey responses, as well as individual conversations at in-person events. A notable success identified by the Steering Committee was the strong level of engagement from BIPOC communities and Gullah Geechee descendants, as indicated by the level of participation from (but not limited to) the Town of Navassa and unincorporated communities from Brunswick County.

Steering Committee Meetings

The Steering Committee was formed to help guide the vision for the trail feasibility study, screen public facing materials, and review draft deliverables. Steering committee members consisted of representatives from local, regional, and state public agencies as well as advocates for multimodal safety and Gullah Geechee heritage preservation. In addition to the core project team from NCDOT and the WMPO, members of the Steering Committee represented the following:

- Town of Navassa
- Town of Leland
- Town of Belville
- Brunswick County
- Cape Fear Council of Governments
- North Carolina Gullah Geechee Blueway Greenway Heritage Trail
- Cedar Hill/West Bank Heritage Foundation

Alongside the Steering Committee, the project team worked with a Project Support Group to help disseminate project information to their groups and the people they serve. A total of three steering committee meetings were held:

MEETING #1: EXISTING CONDITIONS

This meeting was held in September 2023 to kick off the project and prepare for the first round of public engagement. This meeting focused on steering committee roles and responsibilities, solidifying study goals and objectives, and soliciting feedback on existing conditions. Many steering committee members spoke to historic Gullah Geechee resources they would like to connect the trail to. Members also spoke to preliminary alignment ideas based on current development and planned and programmed multimodal facilities.

MEETING #2: DRAFT ALTERNATIVES

This meeting was held in January 2024 to present the potential trail alignments to the steering committee. This meeting focused on reaching an agreement on the two alignments per segment based on environmental feasibility, public feedback, and steering committee preferences. These alignments were moved forward to the second round of public feedback. Many steering committee members emphasized the importance of connecting the trail to as many historical elements as possible, as well as making use of the natural environment close to the Cape Fear and Brunswick Rivers.

MEETING #3 PREFERRED ALIGNMENT

The final steering committee meeting was held in June 2024 and included the presentation of the preferred alignment, trail amenities and recommendations, cost estimates, and implementation plan. Feedback collected at this meeting helped refine recommendations and was incorporated into the final plan.

Project Website

A landing page for the feasibility study was created on the WMPO website to provide timely updates on the study to the community (Figure 10). The [website](#) houses a project library as well as links to the online surveys and comment maps.

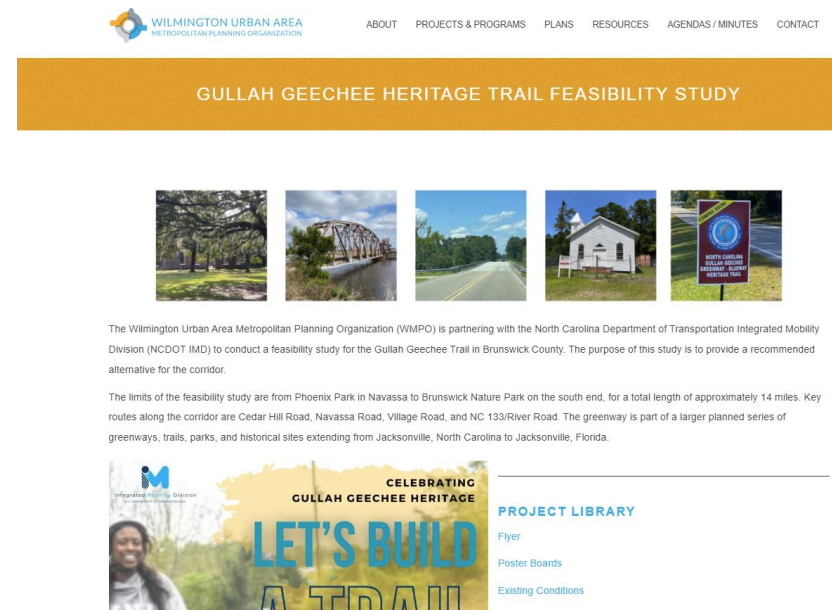


Figure 10. Homepage for the Study on the WMPO’s Website

Public Engagement Touchpoints

The project team conducted two rounds of public engagement, each coinciding with a key project milestone. Printed and digital materials were disseminated to reach people in person as well as on social media and online. Each round had four touchpoints that aligned with the four key communities for the plan (Navassa, Leland, Belville, and unincorporated Brunswick County) to collect distinct yet cohesive feedback on how to make a unified and community-driven trail. The first round of public engagement was held in fall 2023 and collected input on trail priorities, existing conditions, and key challenges and opportunities. The second round of public engagement was

held in spring 2024 to collect feedback on trail alignment preferences and trail amenities. Each round utilized an online survey to collect additional feedback and to reach people who were not able to attend the in-person events. The community was encouraged to engage in conversations with the study team, ask questions about the project, and meet other community members to collaborate on ideas. Each round of public engagement is summarized below.

ROUND 1 ENGAGEMENT

The first round of public engagement had both in-person and online survey for the community to review and provide input on trail goals and existing conditions analysis. This was used to supplement mapping done for the trail to understand nuances of key challenges and opportunities the community sees for the trail (see Section 3. Existing Conditions for more information). The first round of public engagement began with an outreach event at the Brunswick Heritage Riverside Ride on September 30, 2023 to pass out flyers on the upcoming engagement touchpoints.

Three touchpoints were held in the towns along the trail. All meetings held had the same information presented at the following locations:

- **Open House at Navassa Recreation Center, 10/5/2023**
 - Event was held from 4pm-6pm
 - Approximately 35 people attended
- **Pop-Up Table at Belville Fall Festival, 10/7/2023**
 - Event was held from 10am-1pm
 - Approximately 70 conversations were had
- **Open House at Leland Town Hall, 10/11/2023**
 - Event was held from 4pm-6pm
 - Approximately 15 people attended

The study team had several opportunities to hear feedback on trail priorities and issues and opportunities (Figure 11).



Figure 11. Photos from Belville (top left), Leland (top right), and Navassa (bottom) Round 1 events

A total of 370 completed surveys, over 120 in-person conversations, and 333 online map comments were received during the first round of public engagement. Key findings from round one engagement will be described further in the Existing Conditions Assessment.

ROUND 2 ENGAGEMENT

The second round of public engagement had both in-person and online survey for the community to review and provide input on alignment preferences for each of the nine segments and trail amenities. This was used to supplement the technical alignment assessment and cost estimates to understand community preferences (see Section 5. Alternatives Development and Assessment for more information). The first round of public engagement began with an outreach event at the North Carolina Rice Festival on March 2, 2024 to pass out flyers on the upcoming engagement touchpoints.

Three touchpoints were held in the towns along the trail. All meetings held had the same information presented at the following locations:

- **Navassa Community Center, 3/14/2024**
 - Event was held from 4pm-7pm
 - Approximately 25 people attended
- **Belville Easter Egg Hunt at Belville Riverwalk Park, 3/24/2024**
 - Event was held from 10am-1pm
 - Approximately 50 conversations were had
- **Leland Town Hall, 3/26/2024**
 - Event was held from 4pm-7pm
 - Approximately 15 people attended

The study team had several opportunities to hear feedback on trail alignment and amenity preferences (Figure 12). A total of 137 completed surveys, over 90 individual conversations, and 203 in-person votes on trail amenities were collected during the second round of public engagement. Key findings from will be described further in the Alternatives Development and Assessment section.



Figure 12. Photos from Belville Round 2 engagement (top) and a summary of the trail amenity voting exercise (bottom)

Section 4:
Existing Conditions

Existing Conditions

The project team gathered existing data along the Gullah Geechee Gullah Geechee Multi-Use Greenway / Blueway Heritage Trail base alignment provided by the project Steering Committee to help develop preliminary alternatives for the trail. Information included community demographics, existing and planned multimodal infrastructure, land use, development and capital projects, and environmental constraints. The assessment also included a field review and integrated feedback from the public and steering committee.

Existing Conditions Maps

The following is a description of each existing conditions map and the associated data sources. Full-size maps are contained in Appendix B.

DEMOGRAPHICS

Demographics were documented to understand more about the community context and who the trail will serve. Understanding demographics helps determine the potential usage and support for the trail as well as assesses how the trail serves and is accessible to diverse communities.

ANNUAL AVERAGE DAILY TRAFFIC (AADT)

Evaluating traffic volumes helps in understanding where high risk areas are along the trail and guide safety improvements on the trail.

SPEED

Knowing the speed of nearby traffic aids in determining where high risk areas are along the trail and guide safety improvements on the trail.

BICYCLE LEVEL OF TRAFFIC STRESS

This measure helps identify how comfortable and safe cyclists feel on various key roads.

COMMUNITY ASSETS

Identifying community assets like parks, schools, and businesses helps integrate the trail into existing community hubs, enhancing its utility and appeal.

GULLAH GEECHEE HISTORICAL ASSETS

Recognizing these assets ensures the trail respects and highlights local cultural heritage, promoting education and tourism.

PROPOSED DEVELOPMENTS

Reviewing proposed developments ensures the trail design aligns with future growth and infrastructure plans.

FUNDED TRANSPORTATION PROJECTS

Coordinating with funded projects can provide opportunities for shared resources and integrated planning.

PEDESTRIAN AND BICYCLE CRASHES

Analyzing crash data helps identify high-risk areas and guide safety improvements on the trail.

PEDESTRIAN AND BICYCLE INFRASTRUCTURE

Assessing existing infrastructure helps in planning connections and enhancements to create a seamless trail network.

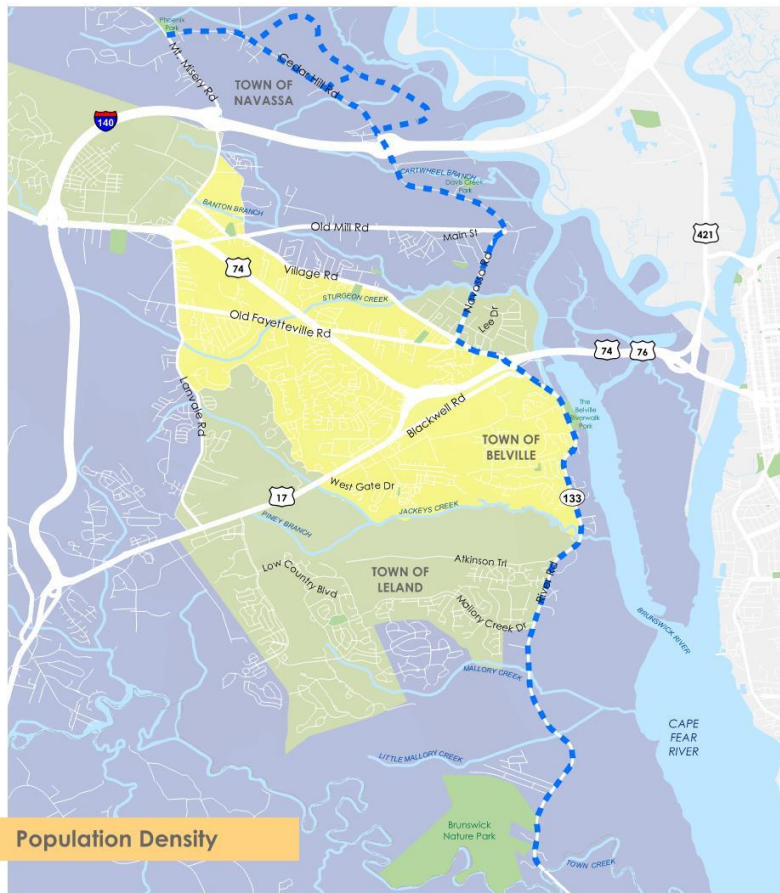
FUTURE LAND USE

Considering future land use plans ensures the trail remains relevant and accessible as the area develops.

ISSUES AND CONSTRAINTS

Identifying potential issues and constraints early in the planning process allows for proactive solutions and implementable project recommendations.

Figure 13 displays the population and employment density for the study area. The highest population and job density is found within Leland and Belville along the south and west sides of Village Road and River Road near US 17/74/76.

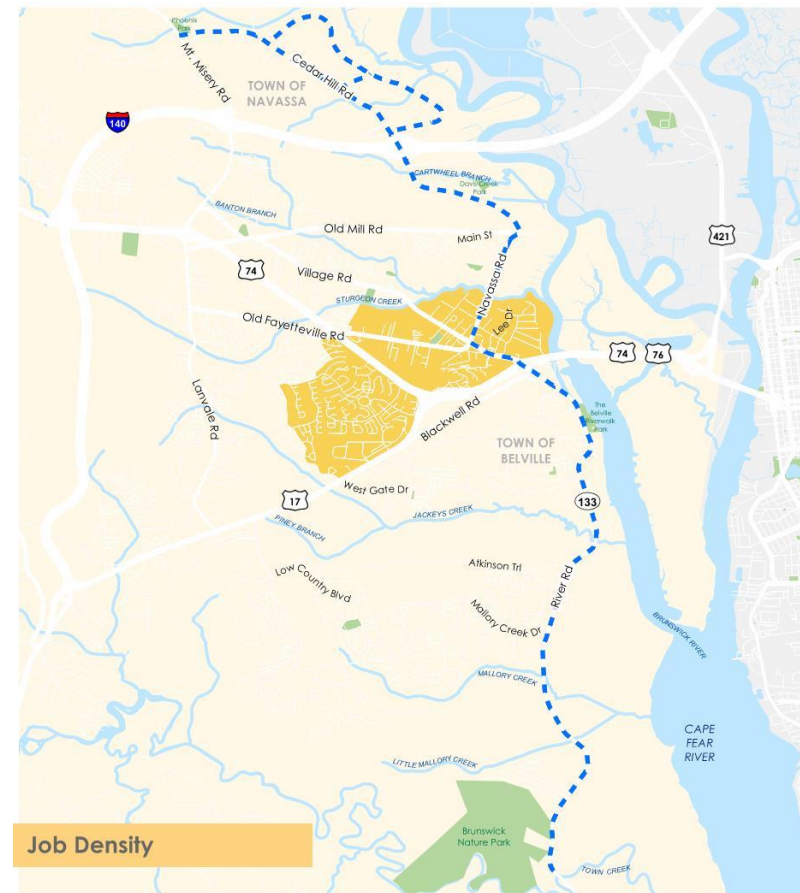


Population Density



Gullah Geechee Heritage Trail Feasibility Study

Data Source: American Community Survey 5 Year Survey (2017-2021)



Job Density



Gullah Geechee Heritage Trail Feasibility Study

Data Source: US Census Longitudinal Employer-Household Dynamics

Figure 13. Population Density (left) and Job Density (right) Along the Trail Corridor

Figure 14 displays the Black, Indigenous, and People of Color (BIPOC) and low-income communities along the trail. BIPOC communities are prevalent in Navassa and on northern portions of trail. Higher concentrations of households below the poverty line are located along the northern and central sections of the trail.

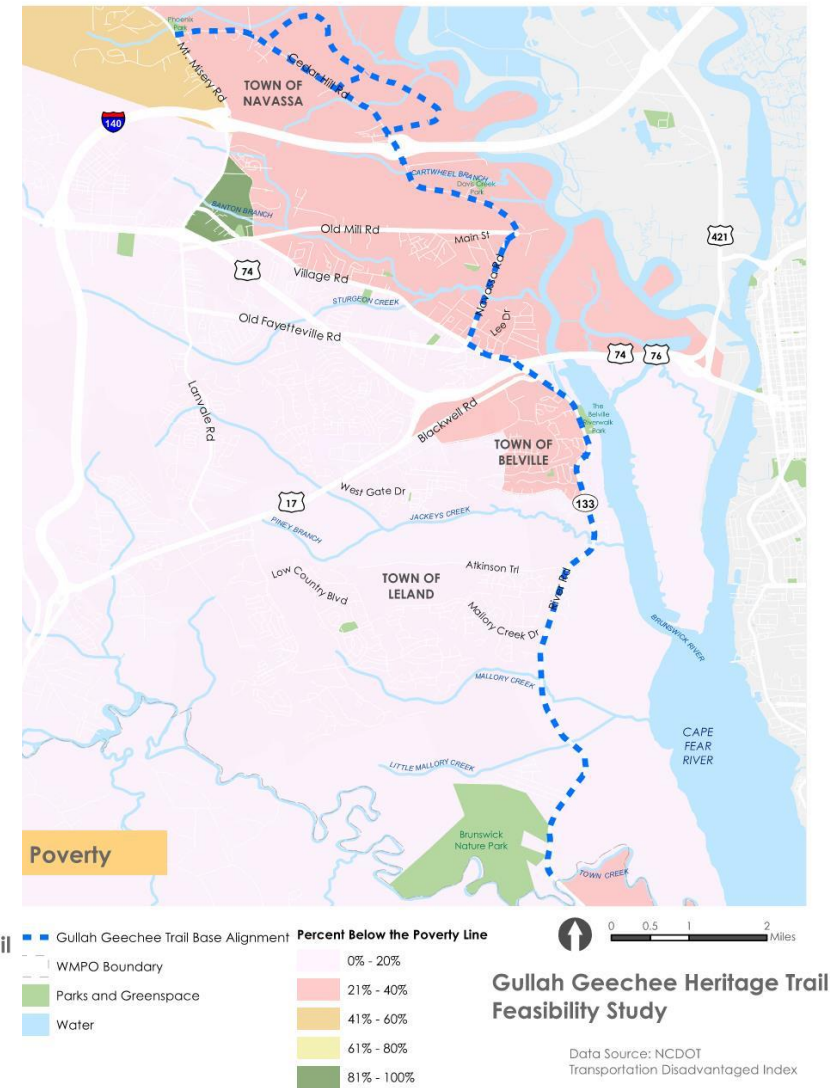
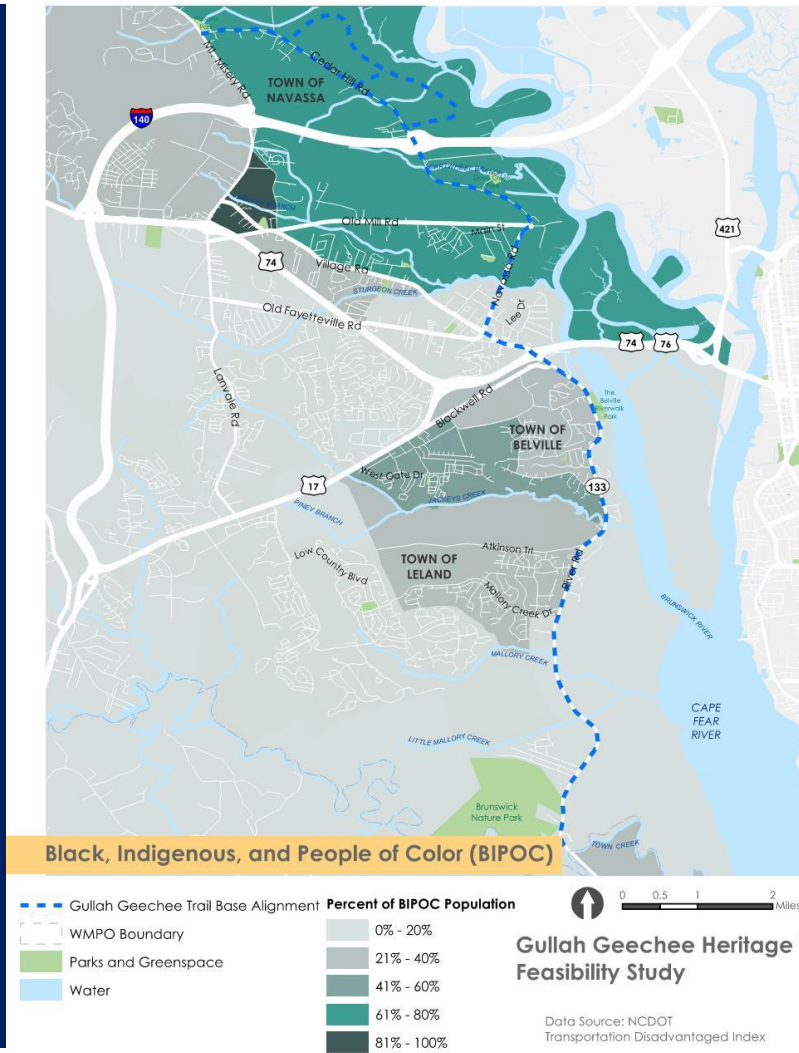


Figure 14. Black, Indigenous, and People of Color (BIPOC) (left) and Poverty (right) Along the Trail Corridor

Figure 15 displays households without a car as well as annual average daily traffic (AADT) along the trail. Much of the areas along the trail have 10% or below of people who do not have access to a car. For AADT, the northern section generally has lower traffic volumes that increase as the trail travels through Leland and Belville down to the Brunswick Nature Park.

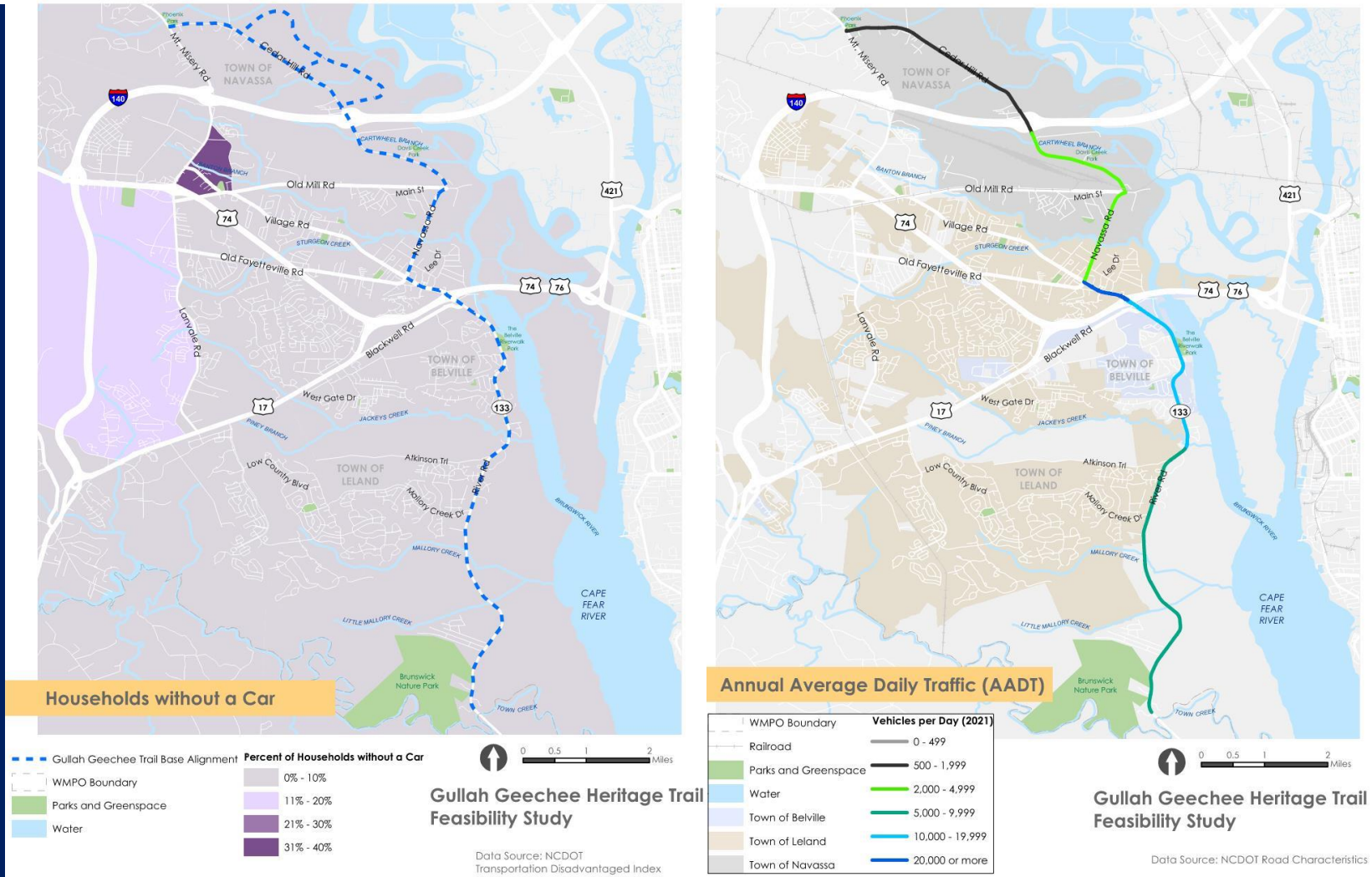


Figure 15. Households without a Car (left) and Annual Average Daily Traffic (AADT) (right) Along the Trail Corridor

Figure 16 displays speed and bicycle level of traffic stress (BLTS) along the trail. Speed limits on the key routes are 45 mph above apart from Village Rd in Leland. When looking at how higher speeds and higher volumes on these routes impact how bicyclists feel on these roads, many of these key routes are stressful and highly stressful.

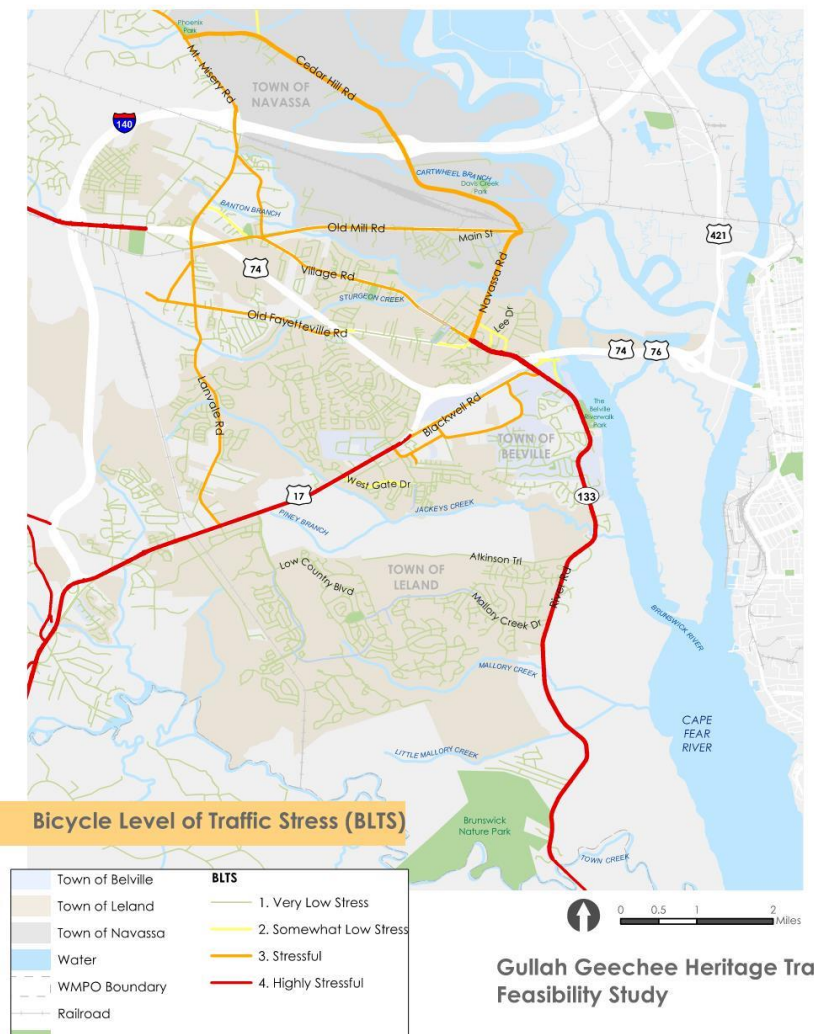
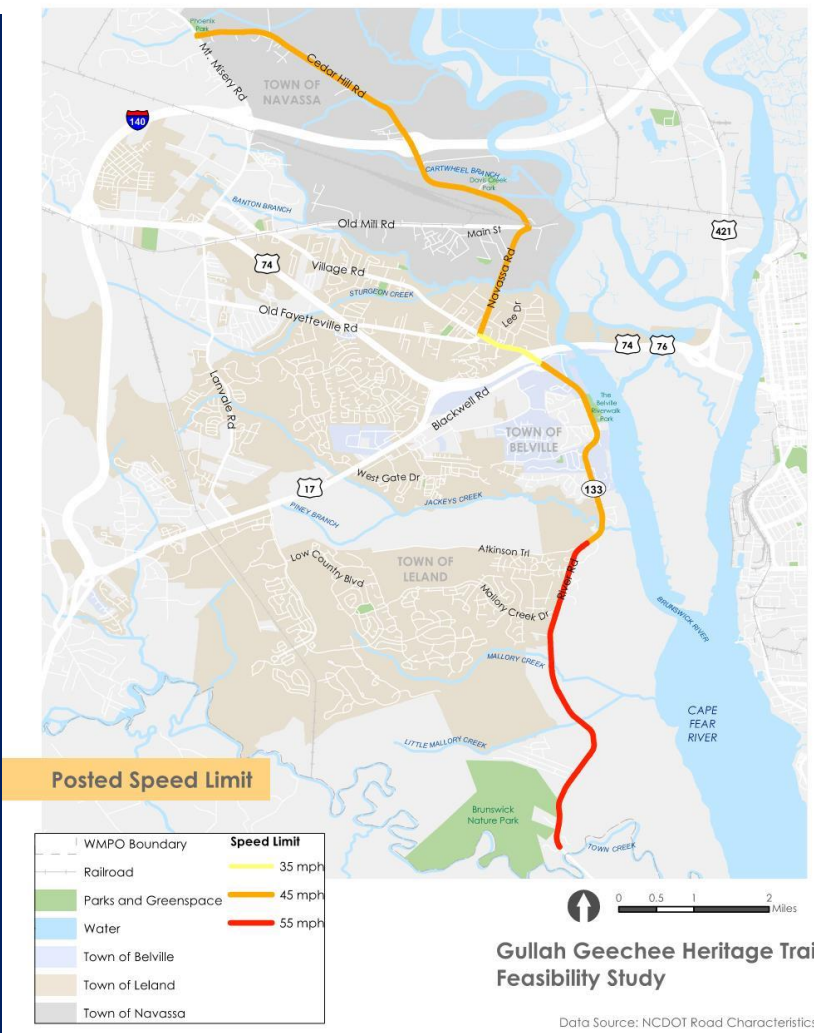


Figure 16. Speed (left) and Bicycle Level of Traffic Stress (BLTS) (right) Along the Trail Corridor

Figure 17 identifies community assets such as medical facilities, libraries, schools, among others as well as important Gullah Geechee historical assets along the trail such as Reaves Chapel. Community resources are concentrated in central Leland along Village Rd as well as along NC 133/River Rd. Gullah Geechee historical assets and areas follow the key roads but follow closer to the river where rice farming has historically taken place in the region.

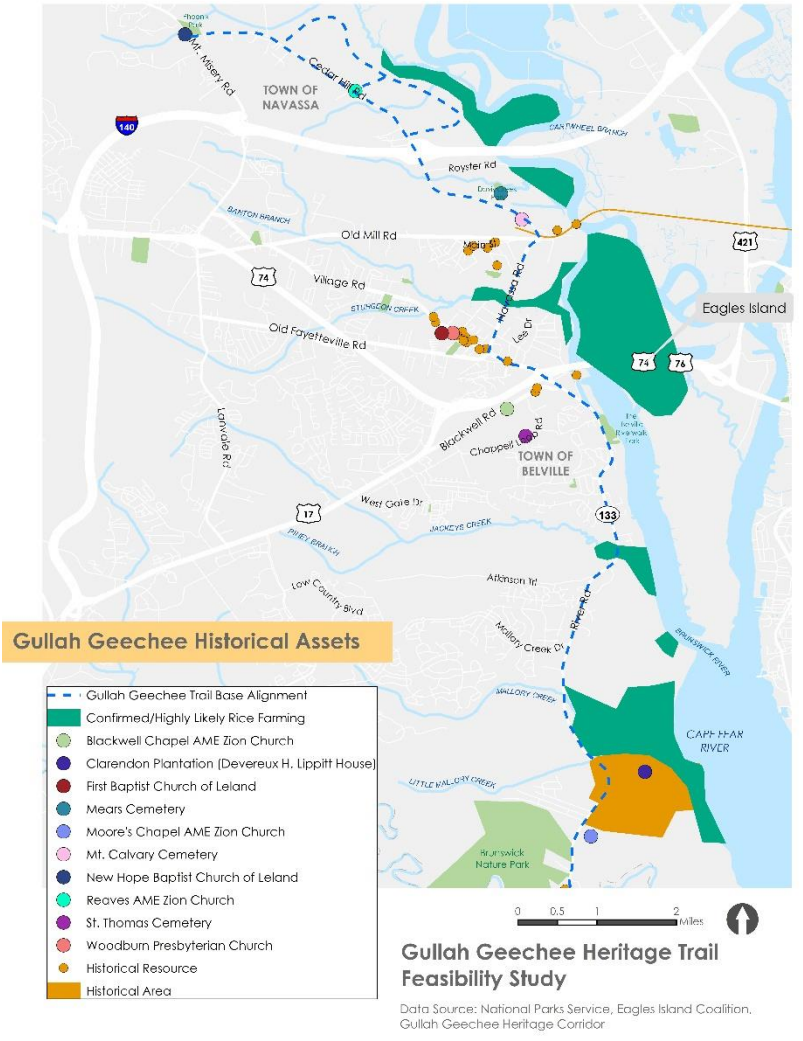
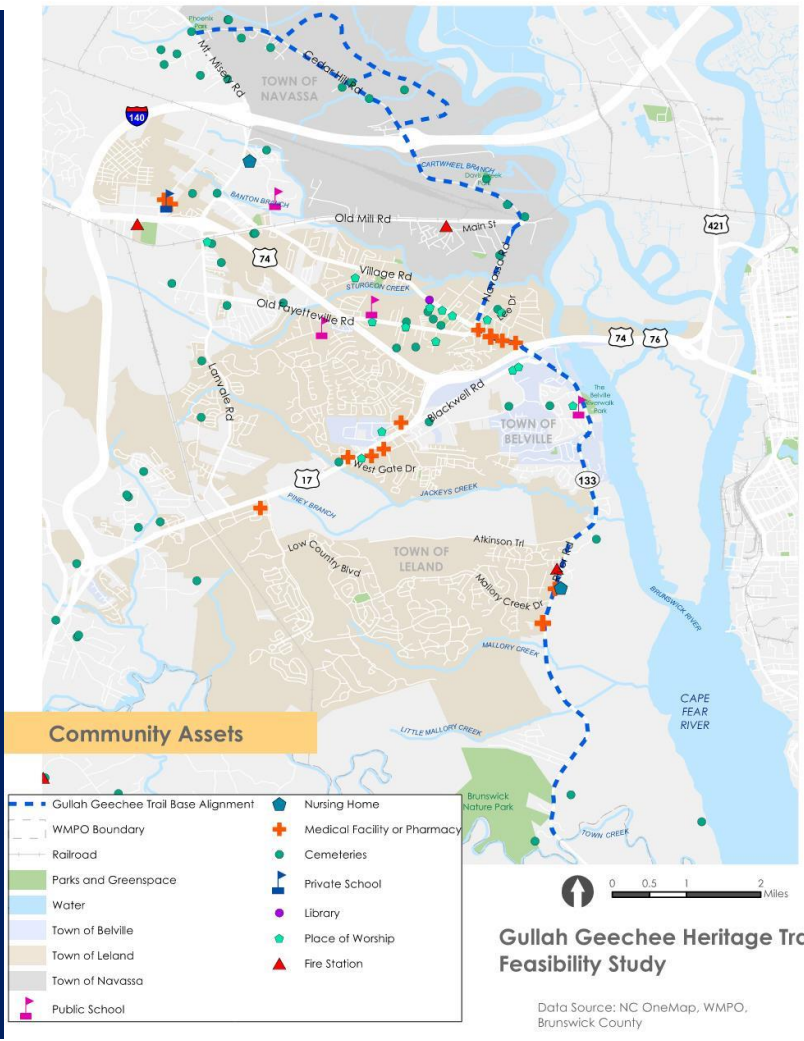


Figure 17. Community Assets (left) and Gullah Geechee Historical Areas (right) Along the Trail Corridor

Figure 18 shows the proposed developments along the trail as well as programmed and funded transportation projects in Brunswick County. Brunswick County is rapidly developing, and there are several developments under construction for residential, commercial, and parks that may offer opportunities to collaborate with developers for trail development. Additionally, several NCDOT STIP 2024-2033 and Cape Fear Moving Forward 2045 projects run along the base alignment, such as the shared use path on NC 133/River Rd that began construction in June 2023.

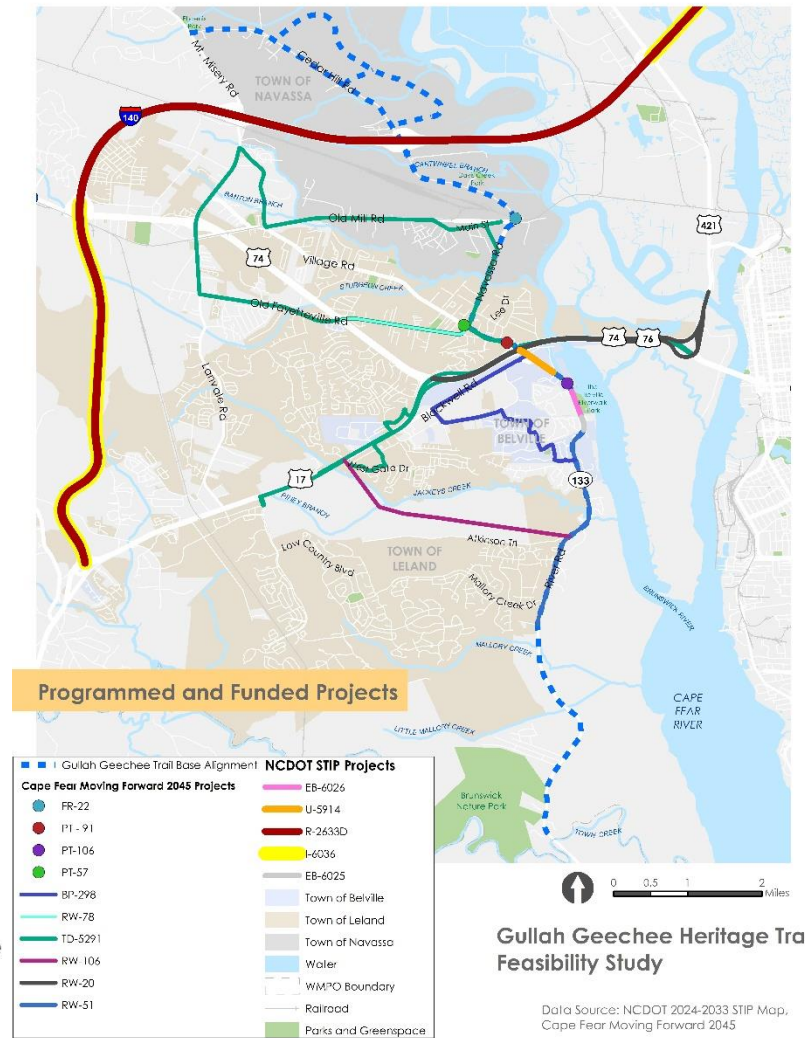
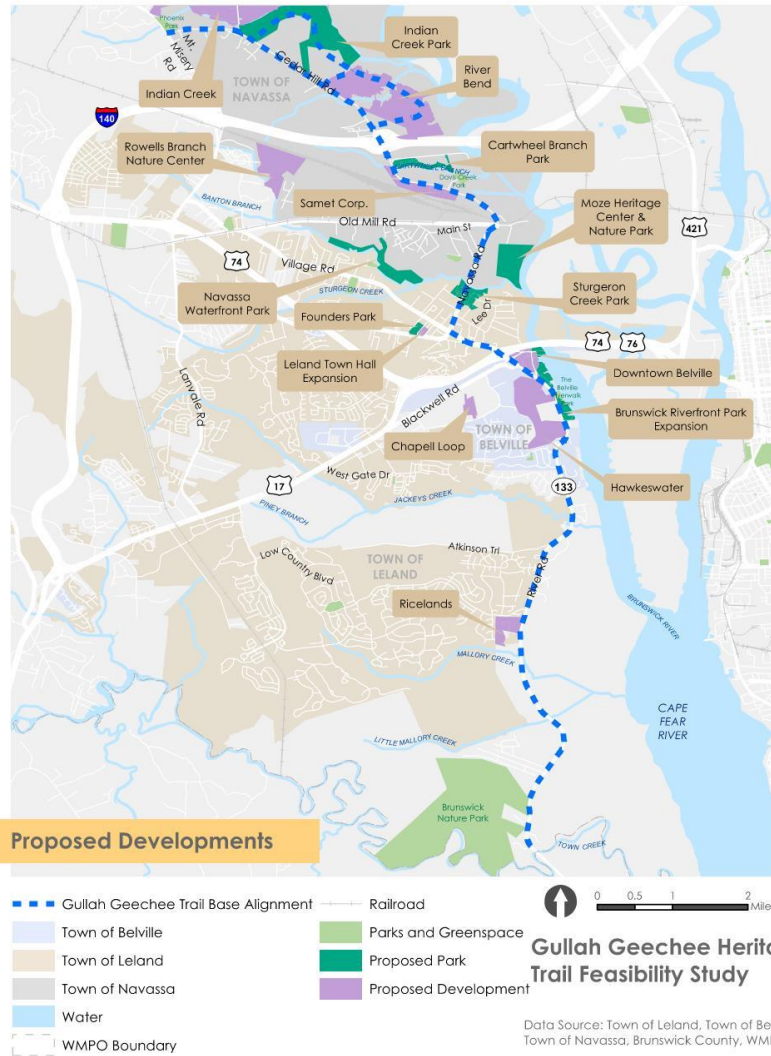


Figure 18. Proposed Developments (left) and Programmed and Funded Transportation Projects (right) Along the Trail Corridor

Figure 19 shows the existing and proposed multimodal infrastructure as well as pedestrian and bicyclist crashes along the trail. This consists of shared use paths, sidewalk, and bicycle infrastructure. Overall, many planned facilities overlap or connect with the proposed trail corridor such as Old Mill Rd, Blackwell Rd, Mallory Creek Dr, and the existing easement to the Brunswick Nature Park. Village Rd has the highest density of pedestrian and bicyclist crashes. NC 133/River Rd also has several crashes from the US 74/76 diverging diamond to the Brunswick Nature Park.

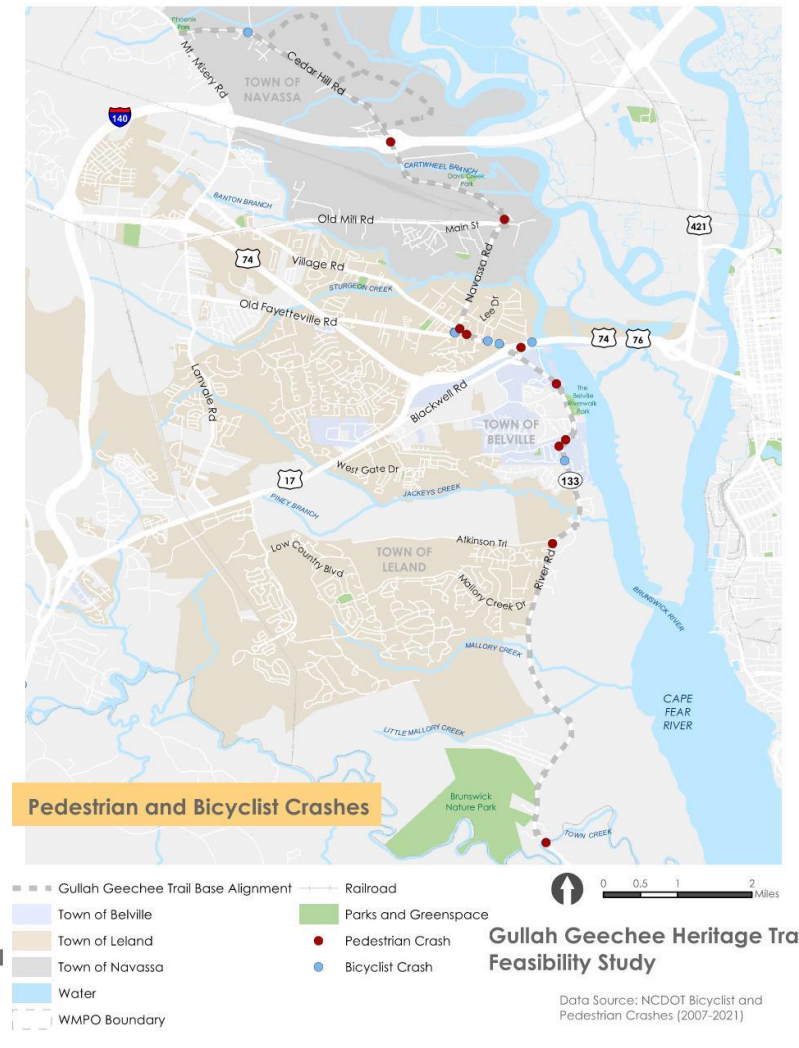
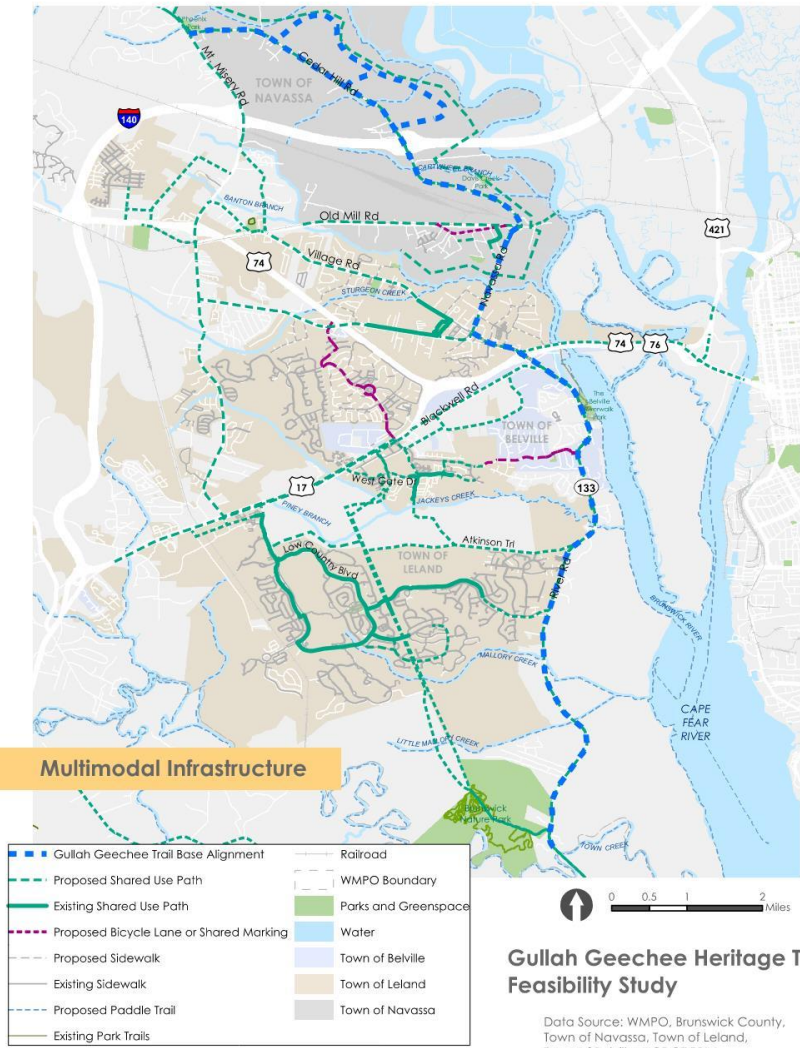


Figure 19. Existing and Proposed Multimodal Infrastructure (left) and Pedestrian and Bicyclist Crashes (right) Along the Trail Corridor

Figure 20 shows future land use as well as environmental constraints and challenges along the trail. Residential and commercial areas are seen along the trail, but much of the corridor has conservation and environmental protection areas. Additionally, much of the proposed trail goes through wetlands as well as the 100 year flood plain. Other portions of the trail touch historical cemeteries, brownfield redevelopment sites, managed land and water areas, and a Superfund site.

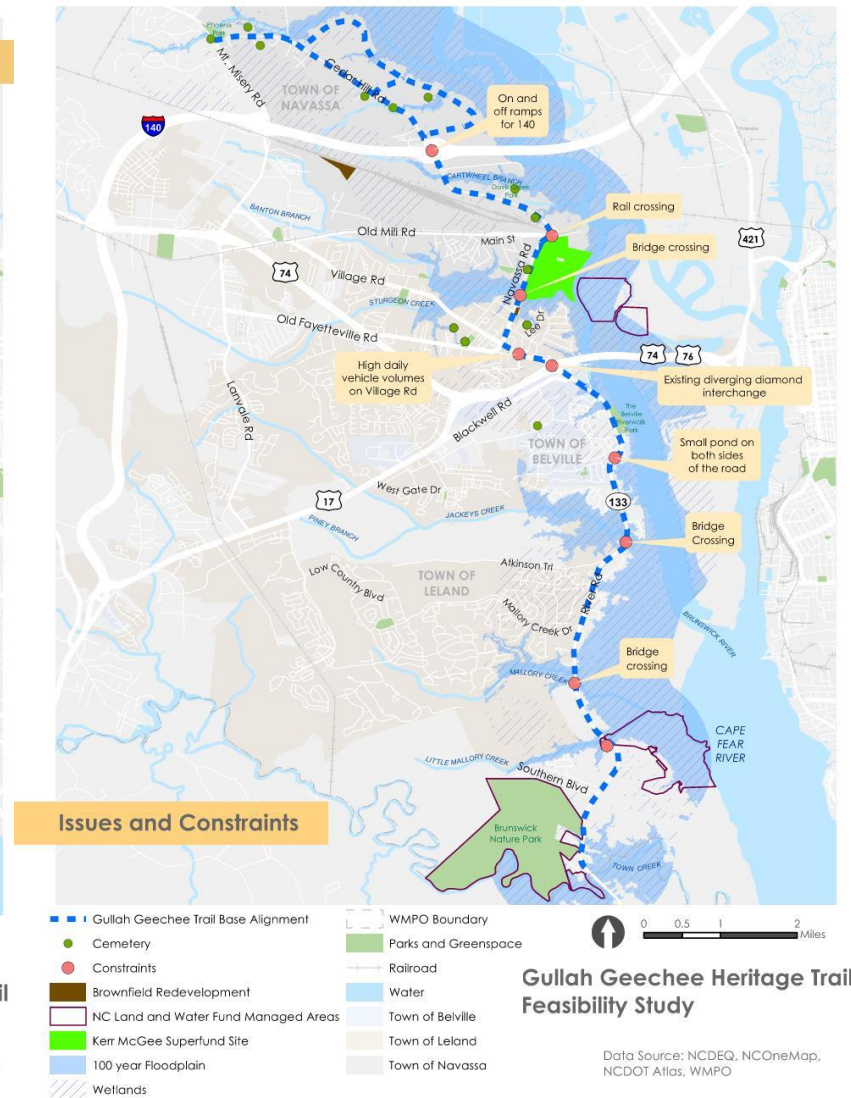
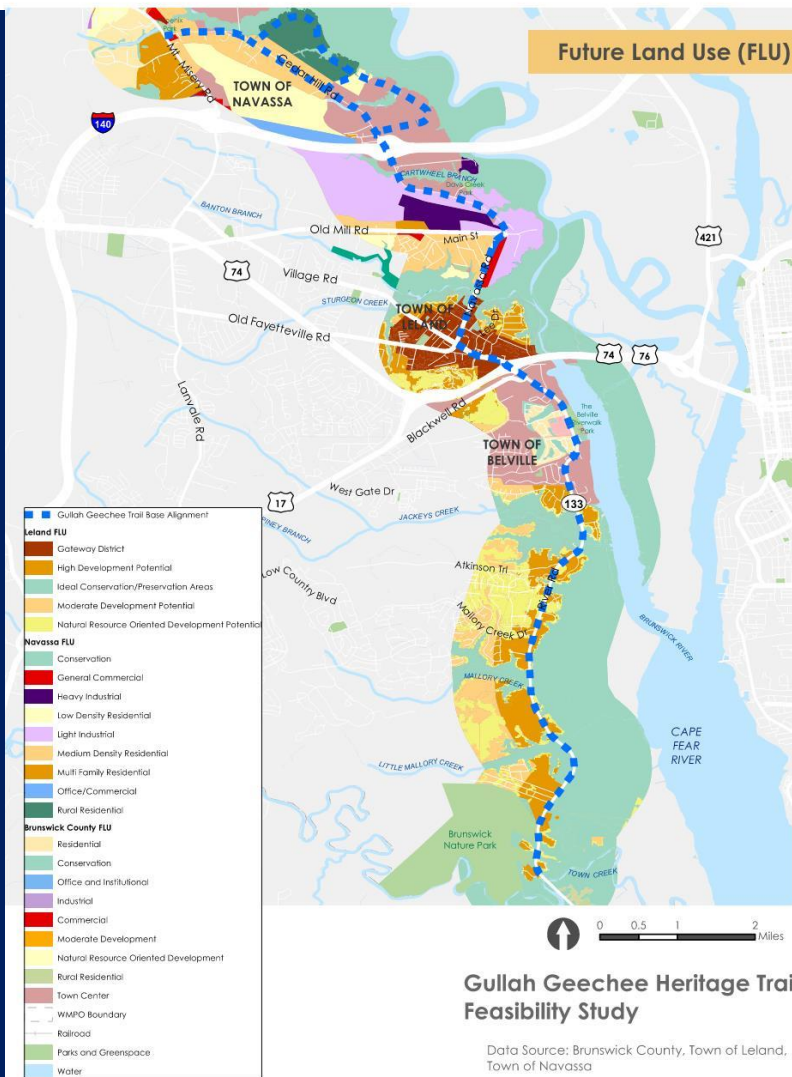


Figure 20. Future Land Use (left) and Issues and Constraints (right) Along the Trail Corridor

Field Review

The study team conducted a field review on July 21, 2023. The field visit was used to verify and fill in gaps for major opportunities and constraints within the study area, including observable utilities, new transportation projects, new areas of development, areas of cultural or historical significance, and areas with apparent environmental constraints such as wetlands, structures, and brownfields/known contamination sites. Specifically, the study area includes many potential stream or creek crossings and existing infrastructure (Table 1).

Table 1. Stream and Creek Crossings

Stream or Creek	Notes
Mill Branch	Culvert
Cartwheel Branch	Culvert
Mill Creek/Sturgeon Creek	Bridge
Jackeys Creek	Bridge
Mallory Creek	Bridge
Little Mallory Creek	Double culvert

Key notes on observations and takeaways from the day are summarized in Table 2. Pictures along the trail area also presented in Figure 21.

Table 2. Notable Features along the Trail

Area	Notes
Belville Oaks Lane/River Road	Bodies of water are present on both sides of the curve and may impact alignment
Baldwin Drive	This lower speed and lower volume road may be a feasible alternative
I-140 on and off ramps	Considerations for fast turning or entering cars along the base alignment
NC 133/US 74	Diverging diamond interchange High-speed channelized right turns with unsignalized crossings. Signage/pavement markings present at crosswalks.
Cedar Hill Road/I-140	Partial cloverleaf interchange High-speed turning movements at ramps with large curb radii No marked crosswalks at ramps

Environmental Feasibility

The natural environment features considered in this study included topography, ecological resources, wetlands and water resources, floodplains, and conservation and managed areas. The project team completed a high-level environmental screening to identify sensitive areas, identify areas under federal, state, or local regulatory compliance, and assess overall feasibility of a proposed alignment as a part of this study.

The project is located within the Coastal Plain Region, characterized by relatively level, low-lying terrain. Major rivers and streams within the Cape Fear River Basin include the Cape Fear River, Indian Creek, Mill Branch, Cartwheel Branch, Brunswick River, Sturgeon Creek, Jackeys Creek, Mallory Creek, and Little Mallory Creek (Beaverdam Branch).

Managed natural areas, including conservation areas, nature preserves, waterfowl impoundments, and wildlife habitats, are located within the study area and encompass parks, open lands, and parcels with NC Land and Water Fund Conservation agreements.

Historic properties within the study area include the Reaves Chapel Heritage Site and the Seaboard Air Line Railway/Atlantic Coast Railroad Beltline Historic District. Additionally, one brownfield site, the former Leland Auto Salvage, is located along Navassa Rd and is being redeveloped for recreational use. A contaminated site, the Kerr-McGee Chemical Corporation superfund site, is also located along Navassa Rd. The EPA and NCDEQ are currently working with the Multistate Environmental Response Trust to complete cleanup on portions of the site planned for redevelopment, which includes the proposed Moze Heritage Park and Heritage Center. Further investigations are proposed for the remainder of the site to determine potential remediation needs.

The project team highlighted several considerations that guided alignment development and assessment. Many related to regulatory requirements.

CONSIDERATIONS FOR ALIGNMENT DEVELOPMENT

- Coastal and jurisdictional wetlands, rivers, streams, creeks, and other surface waters are subject to local, state, and federal regulatory requirements, such as the Clean Water Act Section 401/Section 404 permitting for construction activities involving wetlands and waters of the U.S., and the NCDEQ Division of Coastal Management – Coastal Area Management Act (CAMA) permitting for construction in applicable coastal wetlands, waters, and areas of environmental concern.
- The Brunswick County Stormwater Quality Management and Discharge Control Ordinance requires a stormwater permit for land-disturbing activities, and NCDEQ North Carolina Coastal Stormwater regulations must also be adhered to.
- FEMA floodplain and floodway study modeling will be required during the trail design phase, involving a detailed hydraulic analysis of the effective FEMA flood study models to determine floodplain impacts and ensure the proposed trail improvements within the floodway result in a “no-rise” certification or require a Conditional Letter of Map Revision (CLOMR) to be permitted.
- Potential effects on historic resources listed on the National Register of Historic Places, or determined eligible for listing, may require coordination with Section 106 of the National Historic Preservation Act if federal funds or permits are involved.



Public Feedback on Existing Conditions (ROUND 1)

The project team collected feedback on the study area analysis, locations of key constraints and opportunities, and ideas for potential trail alignments. As described in the previous section, feedback was collected at in-person meetings as well as through an online survey. Key findings from the feedback are highlighted in this section. Appendix A includes the detailed comments and survey results.

TRAIL ALIGNMENT

Feedback on trial alignment preferences was collected to understand where the community would like to see the trail (Figure 22).

A trail parallel to existing roadways, separated from traffic



A trail on its own alignment away from existing roadways, homes, and businesses



Figure 22. A Trail Next to the Roadway (Left) and a Trail Farther Away from the Existing Road (Right)

The community generally expressed a preference for locating the trail farther away from the roadway and traversing more of a natural environment. This feedback helped inform the development of the draft trail alignments described in the following section.

Figure 21. Pictures from the Field Review (Left-Right, Top-Bottom): Baldwin Dr, I-140 On and Off Ramps, Reaves Chapel, Existing Bridge over Sturgeon Creek, US 74/76 Diverging Diamond Interchange, and NC 133/River Road

TRAIL PRIORITIES

The project team collected feedback on trail priorities to understand how the trail will benefit the community. Feedback from the community highlighted providing connections between trails and existing greenways, raising awareness of and celebrating the heritage and history of the Gullah Geechee people, and providing connections between communities along the corridor. This feedback helped inform the development of the trail alignments as well as trail amenities.

FUTURE TRAIL USAGE

Feedback on future usage was collected to understand how the community wanted to use the trail. Key uses include riding a bicycle or scooter for exercise/recreation, walking or jogging for exercise/recreation, or visiting the trail to learn more about the area's history and culture. This feedback helped inform the development of the trail alignments as well as trail amenities.

TRAIL ACCESS POINTS

Feedback on trail access points was collected to understand where the community wanted to access the trail and what would be convenient and effective. Responses varied for this question given feedback from several communities, but the top access points are provided:

- Near Brunswick Nature Park
- Village Dr in Leland
- River Rd in Belville

GULLAH GEECHEE EDUCATIONAL ELEMENTS

The project team collected feedback on what Gullah Geechee cultural educational elements people would like to see. There should be a mix of non-digital and digital components:

- Story boards at parks with historical and cultural information and pictures
- Maps of historical sites along the trail

- Direct access to Gullah Geechee food/recipes, music, crafts and artwork, and upcoming events and celebrations

Feedback was also collected during in-person engagement through conversations with Steering Committee members as well as the general public (see Figure 23).



Figure 23. Round 1 In-Person Engagement Takeaways

Section 5:
Alternatives Development and Assessment

Alternatives Development and Assessment

Following the existing conditions assessment, the project team partitioned the trail into nine segments for evaluation. The limits of each segment were based on changes from one roadway to another, key intersections or interchanges, and municipal boundaries. Splitting the trail into nine segments allows for easier development of nine distinct project recommendations to be included in the final report. Individual projects will help local agencies move sections of the trail forward toward design and implementation. The extents of each segment are as follows (Figure 24):

- Segment 1:** Cedar Hill Rd from Phoenix Park to I-140 Interchange
- Segment 2:** Cedar Hill Rd/I-140 Interchange
- Segment 3:** Cedar Hill Rd from I-140 Interchange to Old Mill Rd
- Segment 4:** Navassa Rd from Old Mill Rd to Baldwin Dr
- Segment 5:** Navassa Rd/Village Rd/Baldwin Dr (2 alternatives)
- Segment 6:** NC 133/River Rd Interchange with US 74
- Segment 7:** NC 133/River Rd from Blackwell Rd to Belville Town Limit
- Segment 8:** NC 133/River Rd from Belville Town Limit to Mallory Creek
- Segment 9:** NC 133/River Rd from Mallory Creek to Brunswick Nature Park

The project team held a work session on December 1, 2023 to present the nine segments and develop two potential alignments per segment. At the request of the Steering Committee, the term “alignment” was selected instead of “alternative” to indicate that more than one routing could be supported. In general, one alignment closely followed existing roadways as a shared-use path and was intended to minimize the end-to-end travel distance along the trail, as well as incorporate existing roadway right-of-way. The second alignment was generally routed away from major roadways on an independent trail right-of-way or some other routing based on ideas identified from public feedback during Round 1 of public engagement.

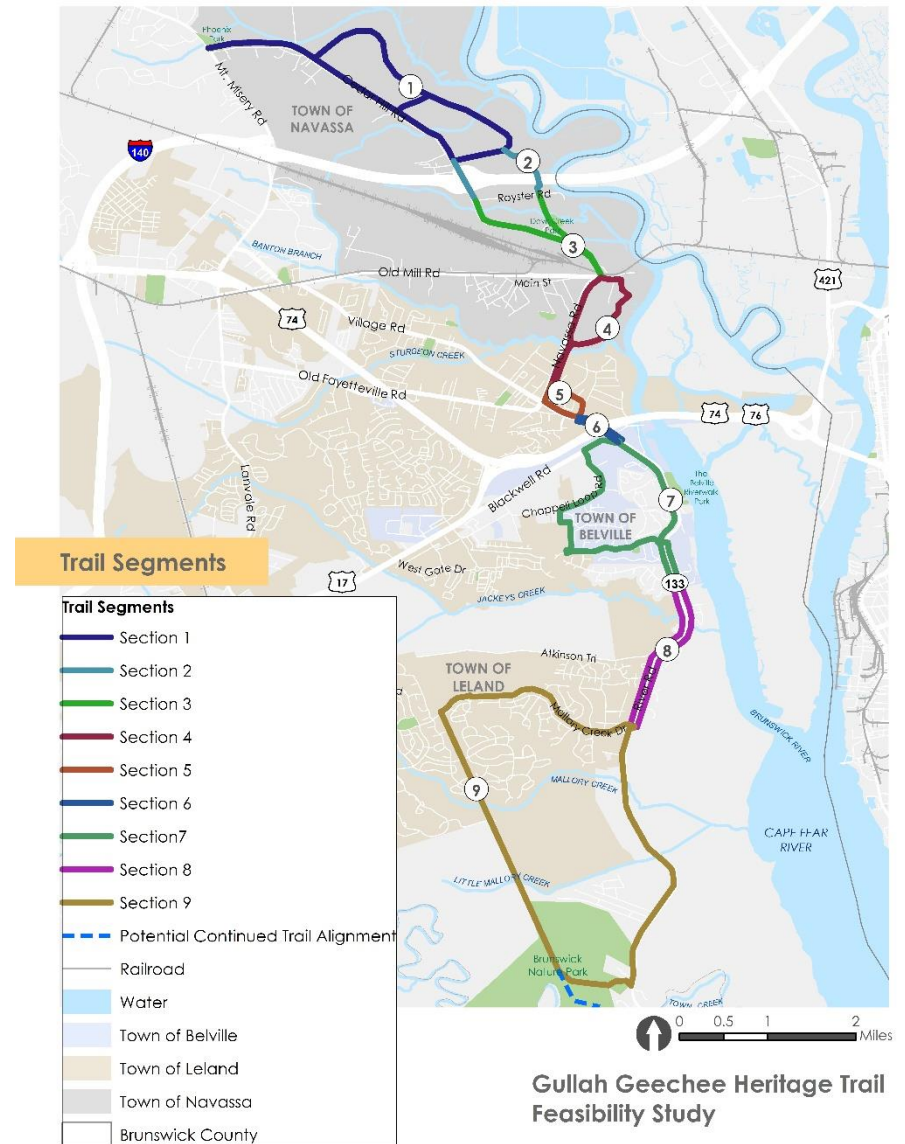


Figure 24. Trail Segments and Alignments

SEGMENT 1: CEDAR HILL RD FROM PHOENIX PARK TO I-140 INTERCHANGE

Segment 1 runs alongside Cedar Hill Rd from Phoenix Park in Navassa to the I-140 on and off ramps (Figure 25). Key community assets within Segment 1 include Phoenix Park and Reaves Chapel as well as historical Gullah Geechee areas closer to the Cape Fear River. Alignment 1A (purple line) is approximately 3.4 miles and would follow Cedar Hill Rd. Alignment 1B (red line) is approximately 5.5 miles and would traverse a more natural environment closer to the river.

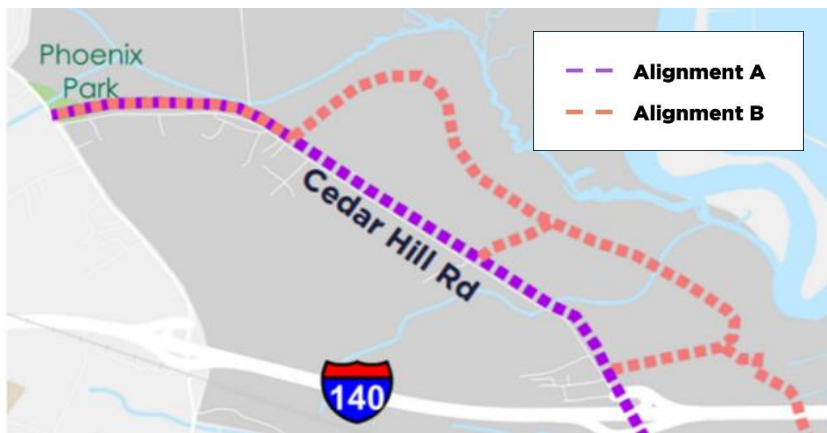


Figure 25. Segment 1 Potential Alignments

SEGMENT 2: CEDAR HILL RD/I-140 INTERCHANGE

Segment 2 runs alongside Cedar Hill Rd and focuses on the area passing under I-140 in Navassa (Figure 26). Key community assets include historical Gullah Geechee areas closer to the Cape Fear River. Alignment 2A (purple line) is approximately 0.6 miles and would follow Cedar Hill Rd. Alignment 2B (red line) is approximately 0.8 miles and would traverse a more natural environment closer to the river. Both alignments would go under I-140.

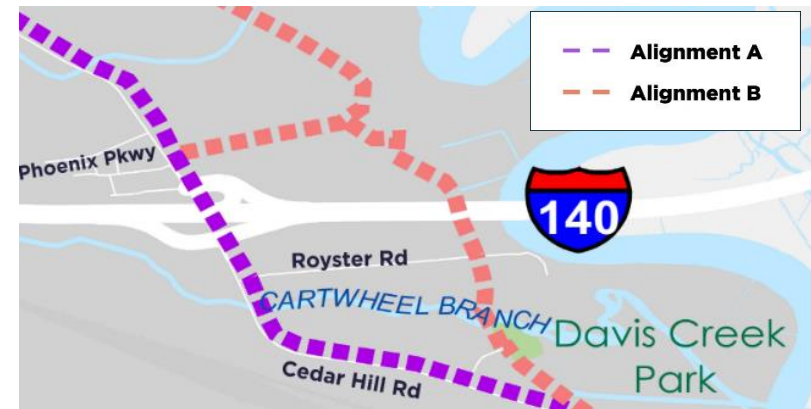


Figure 26. Segment 2 Potential Alignments

SEGMENT 3: CEDAR HILL RD FROM I-140 INTERCHANGE TO OLD MILL RD

Segment 3 runs alongside Cedar Hill Rd from I-140 on and off ramps to Old Mill Rd in Navassa (Figure 27). Key community assets within Segment 3 include Davis Creek Park as well as historical Gullah Geechee areas closer to the Cape Fear River. An abandoned rail trestle exists in the area and connects to the park. Alignment 3A (purple line) is approximately 1.9 miles and would follow Cedar Hill Rd. Alignment 3B (red line) is approximately 1.36 miles and would traverse a more natural environment closer to the river.

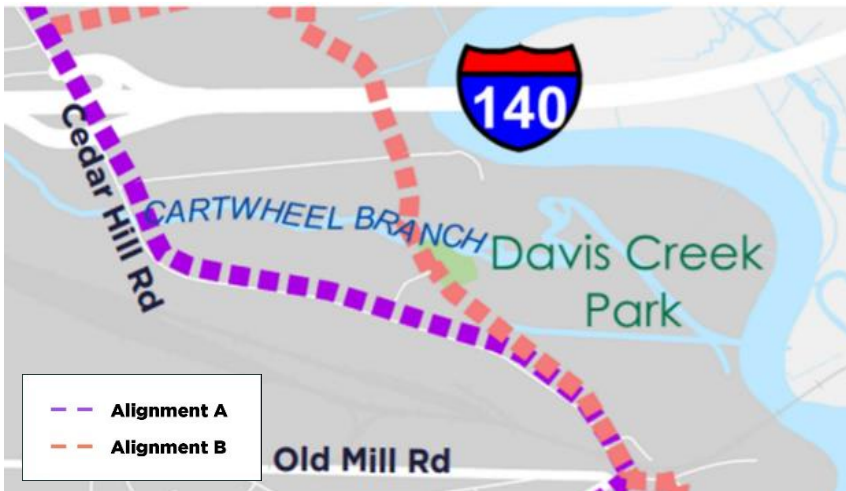


Figure 27. Segment 3 Potential Alignments

SEGMENT 4: NAVASSA RD FROM OLD MILL RD TO BALDWIN DR

Segment 4 runs alongside Navassa Rd from Old Mill Rd in Navassa to Baldwin Dr in Leland (Figure 28). Key community assets include cemeteries as well as historical Gullah Geechee areas closer to the Cape Fear River. An existing bridge crossing Sturgeon Creek is within this segment. Alignment 4A (purple line) is approximately 1.6 miles and would follow Navassa Rd. Alignment 4B (red line) is approximately 2.2 miles and would traverse a more natural environment closer to the river. Both alignments would cross Sturgeon Creek on a new multimodal bridge.



Figure 28. Segment 4 Potential Alignments

SEGMENT 5: NAVASSA RD/BALDWIN DR TO VILLAGE RD/BALDWIN DR

Segments 5 would either run alongside Village Rd or along Baldwin Dr in Leland (Figure 29). Key community assets include shopping centers, medical services, and restaurants. This area also has the highest job density compared to other segments along the trail. Alignment 5A (purple line) is approximately 0.7 miles and would follow Village Road toward US 74/76. Alignment 5B (red line) is approximately 0.7 miles and would follow Baldwin Drive through the Harrington Square Apartment Complex to Village Road. Alignment 5B would utilize existing sidewalk along Baldwin Dr, supplemented by new trail construction.



Figure 29. Segment 5 Potential Alignments

SEGMENT 6: NC 133/RIVER RD INTERCHANGE WITH US 74

Segments 6 transitions from Village Rd to NC 133/River Rd through the US 74/74 diverging diamond interchange (Figure 30). This segment is a key multimodal connection for the trail to connect the northern portion to the south. Alignment 6A (purple line) is approximately 0.6 miles and would follow Village Rd on the north side. Alignment 6B (red line) is approximately 0.4 miles and would follow Village Rd on the south side. Both alignments go under US 74/76.

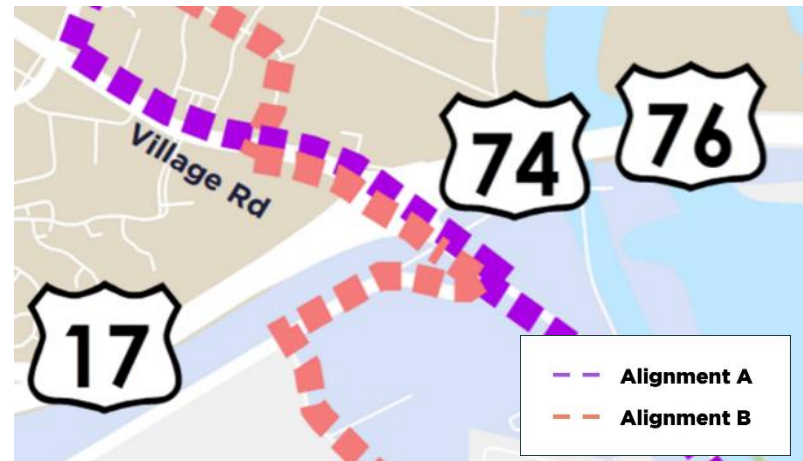


Figure 30. Segment 6 Potential Alignments

SEGMENT 7: NC 133/RIVER RD FROM BLACKWELL RD TO BELVILLE TOWN LIMIT

Segments 7 can either run alongside NC 133/River Rd or along Blackwell Rd in Belville (Figure 31). Extents are from Blackwell Rd to the Belville Town Limit. Key community assets include Belville Elementary School and the Belville Riverwalk Park. Alignment 7A (purple line) is approximately 2.2 miles and would follow NC 133/River Rd. Alignment 7B (red line) is approximately 3.5 miles and would follow Blackwell Road and Chappell Loop Road and traverse the neighborhoods behind the school.



Figure 31. Segment 7 Potential Alignments

SEGMENT 8: NC 133/RIVER RD FROM BELVILLE TOWN LIMIT TO MALLORY CREEK

Segment 8 runs alongside NC 133/River Road from Belville Town Limit to Mallory Creek Dr (Figure 32). This runs through both Leland and unincorporated Brunswick County. Key community assets include medical services, a nursing home, as well as historical Gullah Geechee areas closer to the Brunswick River. Alignment 8A (purple line) is approximately 2.2 miles and would follow NC 133/River Road on the west side. Alignment 8B (red line) is approximately 2.3 miles and would follow NC 133/River Rd on the east side.

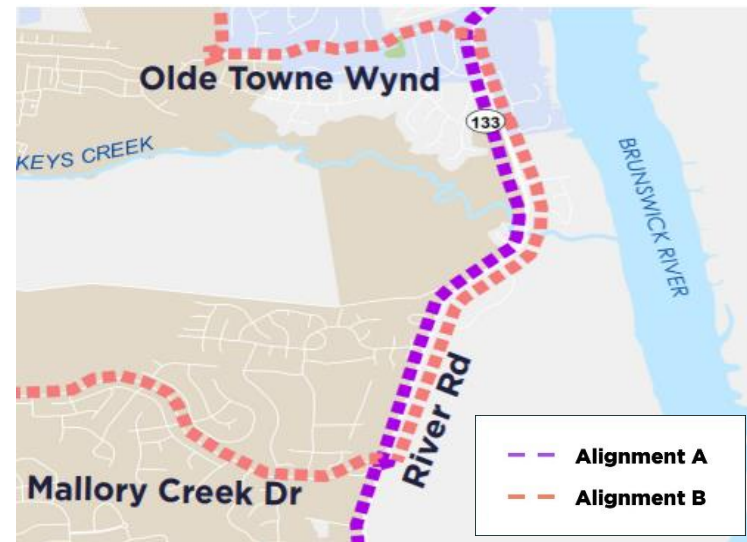


Figure 32. Segment 8 Potential Alignments

SEGMENT 9: NC 133/RIVER RD FROM MALLORY CREEK TO BRUNSWICK NATURE PARK

Segment 9 runs can either run alongside NC 133/River Road or take Mallory Creek Drive and a utility easement to the Brunswick Nature Park (Figure 33). Key community assets include historical Gullah Geechee areas closer to the Brunswick River. Alignment 9A (purple line) is approximately 4.8 miles and would follow the west side of NC 133/River Rd. Alignment 9B (red line) is approximately 6.2 miles and would follow Mallory Creek Drive and take the existing utility easement. Both options end at the Brunswick Nature Park.

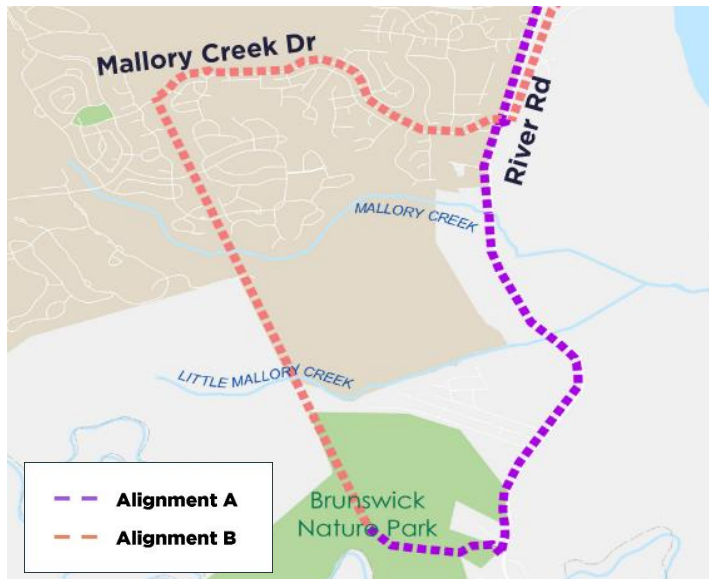


Figure 33. Segment 9 Potential Alignments

Alignment Assessment

Alignments were assessed through technical analysis that was supplemented by the project Steering Committee and community feedback in round 2 of engagement. The technical analysis focused on the feasibility of the trail as well as the effectiveness compared to community priorities identified in round 1 engagement. For the full Alignment Assessment and results from round 2 engagement please, see Appendix C and Appendix A, respectively.

The following criteria were used in the technical assessment:

RIGHT OF WAY IMPACTS

The project team measured impacts to both public and private property, such as impacts to existing curbs, medians, and utility easements as well as length through private property, driveway impacts, and railroad right of way. In general, less impact to private property resulted in a more positive score. Collaboration potential with developers through private property was also considered.

ENVIRONMENTAL CONSTRAINTS

The project team measured potential impacts given publicly available data on the area surrounding the trail such as creek crossings, wetlands, flood plains and floodways, EPA Superfund sites, managed lands, and historic resources. In general, less potential impacts to the environment and less required environmental studies in the future resulted in a more positive score.

SAFETY

The project team measured corridor speed and volume, minor and major street crossings, whether a segment traverses alongside the road or farther from the road in a more natural environment, and the density of historical pedestrian and bicyclist crashes. In general, alignments away from the road resulted in a more positive safety score. However, the ability to enhance the multimodal network and provide a safer alternative along roadways with higher crash densities was considered.

COMMUNITY RESOURCES

The project team measured connections to existing and proposed multimodal facilities, connections to existing and proposed parks, connections to schools, and whether the trail connections to areas of high population and job densities. In general, more connections to the existing and future multimodal network and the potential for more connections to community assets resulted in a positive score.

GULLAH GEECHEE HISTORIC SITE

The project team measured connections to Gullah Geechee historic sites and areas. In general, being closer to the river was favored by both the Steering Committee and the public as a way to connect closer to the history of Brunswick County. Alignments that traversed closer to the Cape Fear or Brunswick Rivers received a more positive score.

TRANSPORTATION EQUITY

The project team measured who would be likely served by the trail segment in order to understand equitable access of the trail. The project team considered whether the trail alignments go through areas with higher amounts of transportation disadvantaged communities. Consideration was given to whether the trail served areas with higher amounts of BIPOC communities, low-income communities, and zero-car households. In general, alignments going through higher amounts of these communities received a positive score.

RESULTS

Table 3 summarizes high-level findings for each segment. Evaluating all segments allowed the project team to understand how individual pairs of alignments (A to B) as well as how segments along the trail compared to each other.

Each performance measure was graded as one of five levels:

- **Greater Benefit:** A greater benefit that enhances the overall value or quality of the trail
- **Benefit:** A benefit that enhances the overall value or quality of the trail
- **Neutral:** An element that neither benefits nor impacts the trail
- **Possible Impact:** A potential effect that could negatively impact the community or environment
- **Greater Impact:** A greater effect that could negatively impact the community or environment

Table 3. Alignment Evaluation Matrix

Segment #	Right of Way Impacts	Environmental Constraints	Safety Benefits	Connections to Community Resources	Connections to Gullah Geechee Historic Sites	Transportation Equity
Segment 1A						
Segment 1B						
Segment 2A						
Segment 2B						
Segment 3A						
Segment 3B						
Segment 4A						
Segment 4B						
Segment 5A						
Segment 5B						
Segment 6A						
Segment 6B						
Segment 7A						
Segment 7B						
Segment 8A						
Segment 8B						
Segment 9A						
Segment 9B						

Legend

- Greater Benefit
- Benefit
- Neutral
- Possible Impact
- Greater Impact

The high-level results of the analysis were used in public engagement to communicate benefits and tradeoffs as the public identified their preferences.

Round 2 Engagement Results

Round 2 of engagement focused on collecting feedback on the draft trail alignment alternatives and community preferences for trail amenities. The project team utilized this feedback to select a preferred alignment for the trail. Highlights of community feedback alignments from engagement are documented in this section. Detailed comments and survey results from the second round of public engagement are provided in Appendix A.

SEGMENT 1: CEDAR HILL RD FROM PHOENIX PARK TO I-140 INTERCHANGE

Community feedback on this segment was overwhelmingly for alignment 1B that traverses through the natural environment and is closer to the Cape Fear River. This alignment offers more opportunities to connect to historical Gullah Geechee areas and the river. This alignment also offers a spur connection to Reaves Chapel, a historical asset important to both the Town of Navassa, community partners, as well as the community.

SEGMENT 2: CEDAR HILL RD/I-140 INTERCHANGE

Community feedback on this segment was overwhelmingly for alignment 2B that traverses through the natural environment and is closer to the Cape Fear River. This alignment was strongly supported by the Town of Navassa and community partners as a way to stay closer to natural areas and historical Gullah Geechee assets.

SEGMENT 3: CEDAR HILL RD FROM I-140 INTERCHANGE TO OLD MILL RD

Community feedback on this segment was overwhelmingly for alignment 3B that traverses through the natural environment and is closer to the Cape Fear River. This alignment offers an opportunity to utilize an abandoned rail trestle, connect to Davis Creek Park, and offer connections to waterways. This

was strongly supported by the Town of Navassa and community partners as a way to stay closer to natural areas and historical Gullah Geechee assets. The project team identified an alignment offers an opportunity to utilize an abandoned rail trestle, connect to Davis Creek Park, and offer connections to waterways.

SEGMENT 4: NAVASSA RD FROM OLD MILL RD TO BALDWIN DR

Community feedback on this segment was overwhelmingly for alignment 4B that traverses through the natural environment and is closer to the Brunswick River. This alignment navigates around the existing Kerr McGee Superfund site that is being mitigated. This segment also recommends a new pedestrian and bicyclist bridge across Sturgeon Creek. This was strongly supported by the Town of Navassa and community partners.

SEGMENT 5: NAVASSA RD/BALDWIN DR TO VILLAGE RD/BALDWIN DR

Community feedback on this segment leaned more toward alignment 5B that utilizes existing sidewalk and pavement on Baldwin Dr as a bypass of areas of Village Rd with high traffic volume and driveway density. In general, feedback around this segment reflected excitement to connect to commercial areas and services in this area. However, Baldwin Dr offers a lower driver volume, lower driver speed road that may enhance the user comfort of the trail.

SEGMENT 6: NC 133/RIVER RD INTERCHANGE WITH US 74

Community feedback on this segment was more split than other segments of the trail. Community feedback was more neutral on whether to run the trail on the northern or southern side of the interchange. Community feedback covered more of concerns of a safe and effective way to travel through the interchange as someone walking or biking.

SEGMENT 7: NC 133/RIVER RD FROM BLACKWELL RD TO BELVILLE TOWN LIMIT

Community feedback on this segment leaned toward alignment 7A that follows NC 133/River Road. People preferred the trail closer to the Belville Riverwalk Park, the proposed multimodal crossing enhancement to the park, and Belville Elementary School. This alignment also connects to a shared use path that is under construction as of June 2024. Town of Belville and community partners were supportive of this idea.

SEGMENT 8: NC 133/RIVER RD FROM BELVILLE TOWN LIMIT TO MALLORY CREEK

Community feedback on this segment leaned toward alignment 8B that follows NC 133/River Rd closer to the river. Conversations during engagement provided information that a trail running on east side would require an additional crossing of NC 133/River Rd to get back to the west side to follow the alignment down to Brunswick Nature Park. With this in mind, the project team selected Alignment 8A to reduce the number of crossing points of River Rd and to reduce environmental impacts.

SEGMENT 9: NC 133/RIVER RD FROM MALLORY CREEK TO BRUNSWICK NATURE PARK

Community feedback on this segment leaned toward alignment 9B that will utilize existing sidewalks and trails along Mallory Creek Dr and then connect into the existing utility easement that can be taken south to Brunswick Nature Park. This alignment utilizes existing right of way and offers a direct connection from neighborhoods to the park.

Trail Amenities Feedback

Feedback was also collected for trail amenities independent of the trail alignment. The following trail amenities were identified within both the survey and the in-person amenity exercise:

- Historical markers
- Trail access points
- Trail wayfinding
- Lighting
- Vehicle parking
- Benches
- Public art
- Exercise stations
- Trash cans and recycling cans

Section 6: Preferred Alignment documents trail amenity priorities as well as location considerations for specific amenities.

Other Features of the Trail

The trail will be a significant north/south multimodal connector for Brunswick County. The trail can be enhanced by trail spurs, a secondary or side path that branches off from the main trail. Trail spurs can provide additional opportunities for exploration and enhance the overall trail experience. The trail has potential for several spurs away from the main trail to reach community assets or Gullah Geechee historic areas on the east or west sides of the trail. Several spurs were identified throughout round 1 and round 2 of engagement:

- Reaves Chapel
- Eagles Island
- Founders Park
- Belville Riverwalk
- Rice fields near the south end of the study area

Section 6:
Preferred Alignment

Preferred Alignment

Following the evaluation of the alignments and the incorporation of Steering Committee and public feedback, the project team selected a preferred alignment for the trail. This section explores the chosen alignments and prioritization of the segments.

The following alignment from each of the nine segments were chosen as the Gullah Geechee Heritage Trail Feasibility Study Alignment (Figure 34):

- **Alignment 1B**
- **Alignment 2B**
- **Alignment 3B**
- **Alignment 4B**
- **Alignment 5B**
- **Alignment 6B**
- **Alignment 7A**
- **Alignment 8A**
- **Alignment 9B**

Further information on alignment cost, prioritization and implementation are explored in Section 7: Project Prioritization and Implementation. Appendix D provides detailed cut sheets and information on each of the 9 proposed trail segments with high-level cost estimates, constraints and considerations, and visuals.

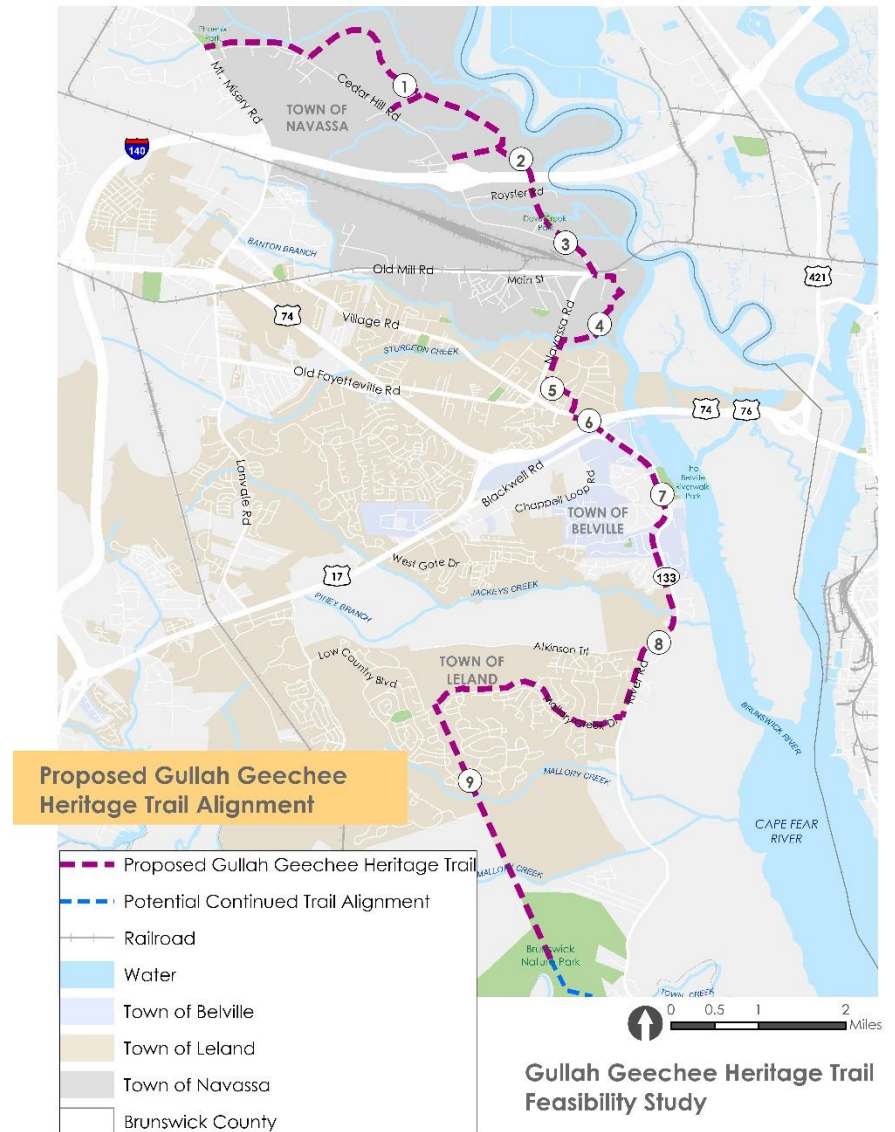


Figure 34. Proposed Gullah Geechee Heritage Trail Alignment

Typical Cross Sections

The project team developed simple visualizations for the trail to help support public engagement during Round 2. Generally, the typical section will consist of a 10-foot shared-use path, either built parallel to an existing roadway or on an independent alignment. For areas where a new trail is built parallel to an existing roadway, it is also preferred to keep a minimum 6-foot landscape buffer between the trail and the roadway where possible.

SEGMENTS 1, 2, 3, AND 4

Several segments, particularly in the northern section of the trail, traverse natural areas away from the road through a more natural environment. Many run closer to the Cape Fear and Brunswick Rivers. Some sections of the trail may be elevated on a boardwalk-style crossing. A new pedestrian and bicyclist bridge is also proposed over Sturgeon Creek (Figure 35).



Figure 35. Typical Cross Sections (Segments 1, 2, 3, and 4)

SEGMENTS 5 AND 6

The typical section for Segments 5 and 6 reflect a more suburban context. While a 10-foot shared-use path is preferred, some areas of these segments may make use of existing sidewalk which is currently 5 to 6 feet in width. Segment 5 will include a combination of both on-street sharrows for bicyclists and existing sidewalk through the Harrington Village Apartment Complex. Segment 6 will run alongside the southwest side of NC 133/River Rd through the US 74/76 diverging diamond interchange (Figure 36).



Figure 36. Typical Cross Sections (Segments 5 and 6)

SEGMENTS 7, 8, AND 9

Segments 7 and 8 will run along the west side of NC 133/River Rd and connect into an existing path on Mallory Creek Dr through residential areas. Segment 9 will include a new shared-use path along the existing utility easement to get to Brunswick Park (Figure 37).

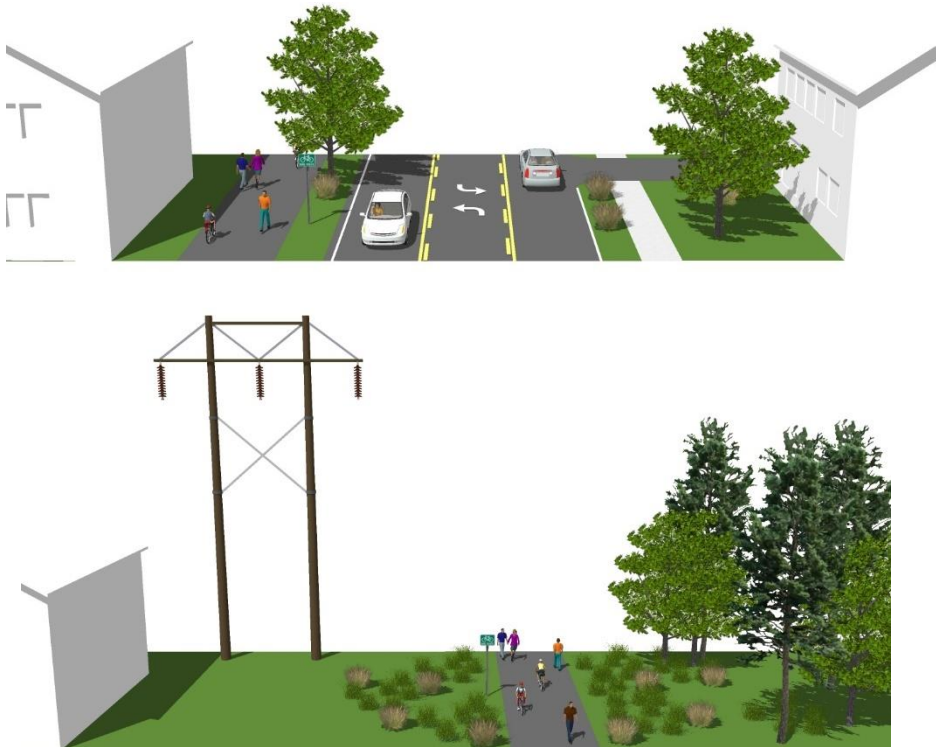


Figure 37. Typical Cross Sections (Segments 7, 8, and 9)

Recommended Trail Amenities

Trail amenities enhance trail experiences and offer social and comfort benefits outside of the paved trail itself. The following trail amenities are recommended along the trail:

- Historical markers
- Trail access points
- Trail wayfinding
- Vehicle parking

Figure 38 provides an example of what amenities could look like.



Figure 38. Example Trail Amenities

HISTORIAL MARKERS

Historical markers are signs or plaques installed at specific locations to commemorate significant historical events, people, places, or activities. They serve as educational tools, providing passersby with information about the historical significance of the site. They help preserve history and make it accessible to the public, fostering a deeper understanding and appreciation of the past. The project team recommends historical markers throughout the trail, particularly on Segments 1-4 to identify historical Gullah Geechee areas. For example, Reaves Chapel on Segment 1 could have its own historical marker.

TRAIL ACCESS POINTS

Trail access points are designated locations where users can enter or exit a trail. These points are typically equipped with amenities such as parking areas, signage, restrooms, water fountains, and sometimes maps or informational kiosks. Trail access points are essential for providing convenient and safe entry to the trail system, helping to distribute usage, reduce congestion, and improve overall accessibility for a diverse range of users. The project team recommends Segment 1, Segment 5, Segment 7, and Segment 9 to have trail access points. For example, Phoenix Park in Navassa on Segment 1 and Brunswick Nature Park on Segment 9 can serve as key access points.

TRAIL WAYFINDING

Trail wayfinding refers to the system of signs, markers, maps, and other visual cues designed to help trail users navigate the trail network. Effective wayfinding ensures that users can easily find their way to destinations, understand their location within the trail system, and access important information about the trail, such as distances, directions, points of interest, and safety guidelines. Key components of trail wayfinding include trail head signs and directional signs. The project team recommends Segment 1, Segment 4, and Segment 9 to have trail wayfinding. For example, trail wayfinding can be provided to the future Sturgeon Creek Park and Founders Park.

VEHICLE PARKING

Vehicle parking on trails typically refers to designated parking areas near trailheads or access points where users can park their cars before starting their trail activities. These parking facilities are essential for providing convenient and safe access to the trail. Key elements include signage, accessibility, and amenities. The project team recommends vehicle parking aligned with Segment 1, Segment 5, Segment 7, and Segment 9 trail access points.

Round 1 engagement also identified various Gullah Geechee educational components to incorporate into the trail recommendations such as the following:

- Story boards at parks with historical and cultural information and pictures
- Printable guidebooks and maps
- Maps of historical sites along the trail
- Direct access to Gullah Geechee food/recipes, music, crafts and artwork, and upcoming events and celebrations
- Interactive maps connected through smart phones

Section 7:
Project Prioritization and Implementation

Project Prioritization and Implementation

Cost Estimates

High-level cost estimates were completed as a part of this study to contextualize the estimated cost of each segment of trail. The following considerations were used in development of the cost estimates:

- Planning-level cost estimates were developed based on concept design/assumed 10' trail cross section (where applicable).
- Estimates considered construction, labor, utilities, design/engineering, and right-of-way costs.
- Right-of-way cost was taken at typical area market value.
- No cost of inflation was considered.
- A 30% contingency factor was applied to the estimate (i.e. the initial estimate was multiplied by a factor of 1.3) to account for unknown variables.
- The estimates did not include additional amenities such as parking lots.
- The estimates did not account for overlap with planned trails/development.

Table 4 displays a summary of cost estimates for the trail by segment.

Table 4. Cost Estimates by Segment

Segment #	Extents	Cost	Length
1	From Phoenix Park to I-140 Interchange*	\$ 21,945,900.00	5.5 miles
2	Cedar Hill Rd/I-140 Interchange	\$ 3,145,200.00	0.8 mile
3	From I-140 Interchange to Old Mill Rd	\$ 5,067,700.00	1.36 miles
4	From Old Mill Rd to Baldwin Dr	\$ 17,567,800.00	2.2 miles
5	Navassa Rd/Baldwin Dr to Village Rd/Baldwin Dr	\$ 2,000,300.00	0.7 mile
6	NC 133/River Rd Interchange with US 17/74/76	\$ 2,898,500.00	0.4 mile
7	From Blackwell Rd to South Belville Town Limit*	\$ 12,501,900.00	2.2 miles
8	From South Belville Town Limit to Mallory Creek*	\$ 11,518,400.00	2.2 miles
9	From Mallory Creek to Brunswick Nature Park*	\$ 29,829,000.00	6.2 miles

**Right-of-way costs exceeded \$4M per segment*

Project Prioritization

Project prioritization involves assessing and ranking potential trail projects based on various criteria to determine which projects should be pursued first or receive higher priority. This process helps allocate resources efficiently and effectively. The same technical performance measures and evaluation criteria from the initial scoring performed for the individual trail alignments were utilized to compare the individual segments for the preferred alignment, and these were supplemented by feedback from the public and steering committee:

- Safety/Comfort
- Access
- Equity
- Feasibility
- Public Support

Table 5 displays the resulting scores for each alignment, categorized as low, medium, or high, as well as the overall priority, which was calculated by weighting each individual score equally.

SAFETY AND COMFORT

While safety is a quantitative measure that accounts for conflicts between trail users and motor vehicles, the project team also considered the level of comfort and user experience. This was measured by whether the alignment runs parallel/close to a major roadway or on an independent alignment toward the natural environment, whether major road crossings are required, available shade, and connections to natural resources.

ACCESS

The project team assessed the ease with which people can reach the trail, considering factors like proximity to multimodal connections, parking availability, and connectivity to community assets. Ensuring appropriate access is essential for maximizing trail use and ensuring it benefits the largest possible number of people.

EQUITY

The project team measured geographic distribution of the trail segments across Navassa, Leland, Belville, and Brunswick County and how the trail project serves diverse populations, ensuring access for underrepresented and disadvantaged communities.

FEASIBILITY

The project team assessed the practicality of the trail, considering factors such as cost, technical challenges, land availability, and regulatory requirements. This includes evaluating environmental impacts, potential land acquisition issues, and the project's alignment with existing plans and policies.

PUBLIC SUPPORT

Public support measures the level of community backing for the trail project through surveys, public meetings, and stakeholder consultations. High public support can significantly influence funding opportunities and the likelihood of successful project implementation.

OVERALL PRIORITY

The overall priority reflects the aggregated performance of the project, weighing each of the five performance measures equally.

ALIGNMENTS OUTSIDE THE PREFERRED ALIGNMENT

The nine alignments that were not selected as the preferred alignment are all viable options for the trail and remain a key part of the ultimate trail network in Brunswick County. These alignments should continue to be considered for further development as parallel improvements to the preferred alignment as funding becomes available.

Table 5. Project Prioritization Matrix

Segment	Preferred Alignment	Safety/ Comfort	Access	Equity	Feasibility	Public Support	Overall Priority
1	From Phoenix Park to I-140 Interchange	●	●	●	●	●	●
2	Cedar Hill Rd/I-140 Interchange	●	○	●	◐	●	◐
3	From I-140 Interchange to Old Mill Rd	●	◐	●	◐	●	●
4	From Old Mill Rd to Baldwin Dr	●	◐	●	○	●	◐
5	Navassa Rd/Baldwin Dr to Village Rd/Baldwin Dr	○	●	◐	◐	◐	○
6	NC 133/River Rd Interchange with US 17/74/76	◐	●	◐	◐	●	◐
7	From Blackwell Rd to South Belville Town Limit	◐	●	◐	●	●	●
8	From South Belville Town Limit to Mallory Creek	◐	●	◐	◐	◐	○
9	From Mallory Creek to Brunswick Nature Park	●	◐	○	◐	○	○

Legend: ○ - Low ◐ - Moderate ● - High

Implementation Phasing

The project team used project prioritization as well as information provided from the high-level cost estimate to make recommendations for implementation phasing. Implementation phasing divides the design and construction of a trail project into distinct phases or stages. This approach allows for the sequential implementation of the project over time, often due to factors such as funding availability, future study needs, or environmental considerations.

Short-term (0-5 years): *Projects that have moderate cost but minimal property or environmental impacts and the opportunity to be constructed by private developers or as part of projects that are already programmed for funding*

- Segment 1: Phoenix Park to I-140 (to be mostly built by developers)
- Segment 5: Navassa Rd to Village Rd at Baldwin Dr
- Segment 7: West side of River Road from Blackwell Road to Belville South Limit (under construction)

Medium-term (6-14 years): *Projects with moderate to high cost and potential environmental impacts but low property impacts*

- Segment 2: I-140 Underpass
- Segment 3: I-140 to Old Mill Rd
- Segment 6: US 17 Interchange

Long-term (15+ years): *Projects with moderate to high cost and substantial property and/or environmental impacts*

- Segment 4: New Sturgeon Creek Bridge
- Segment 8: West side of River Road from Belville to Mallory Creek
- Segment 9: Mallory Creek to Brunswick Nature Park

Key Partners and Funding Sources

Following the completion of this study, project partners should establish public, private, and non-profit agency partnerships to assist with the implementation of the Gullah Geechee Heritage Trail in northern Brunswick County. These partnerships can be leveraged to secure project funding through grants, sponsorships, fundraising, and public-private partnerships. Table 6 as well as the following section describe specific examples of funding sources to consider for the future of the Gullah Geechee Heritage Trail.

GOVERNMENT AGENCIES

Local, regional, state, and federal government agencies play a significant role in funding and supporting trail projects. This may include departments of transportation, parks and recreation departments, environmental agencies, and economic development agencies. Continued involvement of agency leadership from Town of Navassa, Town of Belville, Town of Leland, Brunswick County, WMPO, and NCDOT will be crucial. Additional government agency partnerships include the National Park Service and the NC Department of Natural and Cultural Resources (DNCR).

GRANTS AND FUNDING PROGRAMS

There are a variety of local, state, and federal grant programs that specifically fund trail development, cultural and environmental preservation projects, and recreational opportunities, all of which apply to the Gullah Geechee Heritage Trail. While Table 6 provides a preliminary list of grant funding opportunities, additional grant opportunities may be available through foundations and nonprofit organizations.

NONPROFIT ORGANIZATIONS

Nonprofits and community organizations dedicated to outdoor recreation, conservation, or community development may provide funding or technical assistance for trail design studies. These organizations often have a vested interest in supporting trail projects that align with their missions. This study recommends continued partnership with organizations including the North Carolina Gullah Geechee Greenway Blueway Heritage Trail and Cedar Hill/West Bank Heritage Foundation. Additional partnerships include the Great Trails State Coalition, BikeWalk NC, Cape Fear River Watch, Eagles Island Task Force, Cape Fear Cyclists, the Terry Benjey Bicycling Foundation, and United Way.

PUBLIC-PRIVATE PARTNERSHIPS (PPP)

Collaborating with private sector entities through PPPs can provide additional funding and project support. These partnerships can reflect a variety of involvement, ranging from trail sponsorships, partnering with land developers, joint financing, resource sharing, and donations. Local businesses such as print companies, breweries, or bicycle repair shops can help raise awareness for the trail through branding, advertisements, and sponsorships. Agreements with land developers can result in the construction of the trail with the benefit of marketing the new trail to new residents in the area.

PRIVATE FOUNDATIONS

The Gullah Geechee Heritage Trail project blends the opportunity for historical, cultural, and environmental education and the creation of healthier and more active communities. Private foundations that focus on areas such as health and wellness, environmental conservation, cultural preservation, or community development may offer grants or funding opportunities for trail branding and design components. Examples could include kiosks and information panels about the Gullah Geechee history and heritage or outdoor exercise equipment along the trail.

CORPORATE SPONSORSHIP

Businesses and corporations with a presence in the community or with interests in outdoor recreation and tourism may be interested in sponsoring trail projects. This sponsorship can take the form of financial support, in-kind contributions, or volunteer engagement.

COMMUNITY FUNDRAISING

Engaging the local community through fundraising campaigns, events, and crowdfunding platforms can help raise funds for trail design studies. Community members, businesses, and organizations may be eager to contribute to a project that enhances quality of life and recreation opportunities in their area.

Table 6. Potential Funding Sources

FEDERAL FUNDING

Source	Eligible projects, purpose, timeline, and background information	Match	Award Amount	Eligible Applicants
<p>Surface Transportation Block Grant Program (STBGP) Direct Attributable (DA), Transportation Alternatives (TA), and Carbon Reduction Efforts (CR) funding sources</p>	<p>Funding source under the current transportation reauthorization bill (IIJA). WMPO is a direct recipient of these funds and typically does a call for projects each summer. In FY25, approximately \$4.08 million is available for DA funding; \$514,000 available for TA funding; and \$493,000 available for CR funding. DA funds may be used 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. TA funds may be used for pedestrian and bicycle facilities; construction of turnouts, overlooks and viewing areas; community improvements such as historic preservation and vegetation management; environmental mitigation related to storm water and habitat connectivity; recreational trails; safe routes to school projects; and vulnerable road user safety assessments. CR funds may be used to reduce transportation emissions through the development of State carbon reduction strategies and by funding projects designed to reduce transportation emissions. Applications are the same for each program. Local member jurisdictions can apply to the WMPO for funding, but projects are administered by the local government agency, including preliminary engineering/design, right-of-way, and construction phases</p>	<p>20% local match</p>	<p>None specified</p>	<p>WMPO local government, transit agencies, and NCDOT</p>
<p>Active Transportation Infrastructure Investment Program (ATTIP)</p>	<p>ATIIP is a new competitive grant program created by the Bipartisan Infrastructure Law to construct projects to provide safe and connected active transportation facilities in active transportation networks or active transportation spines. ATIIP funds projects to help communities plan, design, and construct safe and connected active transportation networks such as sidewalks, bikeways, and trails that connect destinations such as schools, workplaces, residences, businesses, recreation areas, and medical facilities within a community or metropolitan region. In FY24, \$44,550,000 is available nationwide; applications were due in June 2024 and will be available annually.</p>	<p>20% match unless poverty rate is over 40%</p>	<p>Awards between \$100,000 - \$2 million for planning; \$7.5 million- \$15 million for construction</p>	<p>State DOTs, local government, MPOs</p>
<p>Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Discretionary Grant Program</p>	<p>Eligible projects include all modes of transportation: highway/bridge, public transportation, passenger/freight rail, port, airport, bike/ped, and stormwater projects. Funding can be awarded to projects that connect communities and people to jobs, services, and education as well as to projects that anchor economic revitalization and job growth in communities. Previously known as BUILD and TIGER grants. FY25 AND FY26 applications will be due in January of that year. Capital projects and planning projects have slightly different applications. Capital projects require a Cost-Benefit Analysis using USDOT's template. This typically needs to be completed by an engineer.</p>	<p>20% local match if NOT a disadvantaged or rural community</p>	<p>Max. \$25 million.</p>	<p>State DOTs, MPOs, local government, transit agencies</p>
<p>National Park Service (NPS) Rivers, Trails, and Conservation Assistance Program (RTCA)</p>	<p>RTCA supports locally led conservation and outdoor recreation projects across the United States. NPS-RTCA assists communities and public land managers in developing or restoring parks, conservation areas, rivers, and wildlife habitats, as well as creating outdoor recreation opportunities and programs that engage future generations in the outdoors. NPS-RTCA does not provide financial assistance or monetary grants. As a collaborative partner, they provide professional services to help achieve conservation and outdoor recreation project vision. NPS has previously partnered with the NCAAP in Leland for the Gullah Geechee Greenway and Blueway Heritage Trail.</p>	<p>N/A</p>	<p>N/A (<i>Partnership Only</i>)</p>	<p>Local government, State DOTs, community groups, non-profits</p>

STATE FUNDING

Source	Eligible projects, purpose, timeline, and background information	Match	Award Amount	Eligible Applicants
NC Department of Natural and Cultural Resources (DNCR) Division of Parks and Recreation's Recreational Trails Program (RTP)	The Recreational Trails Program provides funding for construction of new trails, maintenance and repair of existing trails, land acquisition, purchase of trail tools and planning, legal, environmental and permitting costs. It is a federal grant reviewed by the NC Trails Committee and recommendations are made to the Secretary of the NC Department of Natural and Cultural Resources who makes the final determination. In 2024, applications were due early September.	25% local match	Min. award is \$10,000; Max. award is \$100,000	State, federal, or local government agency or qualified nonprofit organization
DNCR Division of Parks and Recreation's Parks and Recreation Trust Fund Grant (PARTF)	The North Carolina Parks and Recreation Trust Fund (PARTF) provides matching grants to local governments to assist with public park and recreation projects, including greenways. In 2024, applications were due in early May. The project must be on a single site.	50% local match	Max. award is \$500,000	NC counties and municipalities
Land and Water Conservation fund (LWCF)	The Land and Water Conservation Fund is split into the 'federal side' with money allocated to the National Parks Service and the 'state side' which allocates 40% of the funds as matching grants to states and local governments. In NC, LWCF can fund riparian greenway projects. These projects can include land and easements along streams, and often feature paved or natural surface trails for recreational, educational, and environmental uses. Greenway corridors funded by the NCLWF can connect schools, neighborhoods, and community parks in urban areas. The project must be on a single site.	50% local match	Max. award is \$500,000	NC counties and municipalities
Powell Bill Funds	The Powell Bill program, also known as the State Street Aid program, is administered by the North Carolina Department of Transportation (NCDOT) to provide state funding to eligible municipalities for street maintenance and improvements. The funds are derived from a percentage of the state's gasoline tax revenue. Municipalities can use the funds to maintain, repair, reconstruct, or improve streets, sidewalks, bikeways, greenways, and public thoroughfares; build or widen streets, bridges, and drainage areas; and plan, build, and maintain bicycle paths. Each municipality manages Powell Bill funds differently as they own/maintain different roads.	N/A	N/A	Local governments decide how to allocate Powell Bill funds
NCDOT's Complete Streets Policy	This policy requires incorporating multimodal facilities in NCDOT roadway projects. If the bicycle/pedestrian project is included in the adopted Metropolitan Transportation Plan (MTP) or Comprehensive Transportation Plan (CPT), it will be no cost to the jurisdiction.	N/A	N/A	N/A

STATE FUNDING

Source	Eligible projects, purpose, timeline, and background information	Match	Award Amount	Eligible Applicants
NCDOT Small Construction Funds	Established 1985 to fund small projects in and around cities and towns which could not be funded in the Statewide Transportation Improvement Program (STIP). Budget Bill provisions currently allow for use on variety of transportation projects for municipalities, counties, businesses, schools and industries throughout the State. An equal amount of funds is allocated to each NCDOT Division. Division engineer performs field inspection, forwards information to Chief Engineer, who sends along to the Project Review Committee that will approve or deny.	Unknown	Max. \$250,000 per project per year.	Municipalities, counties, businesses, schools and industrial entities, and NCDOT staff
NCDOT 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. Same review/approval process as above.	Unknown	Unknown; \$12 million made available for NC annually.	Municipalities, counties, businesses, schools, citizens, legislative members, and NCDOT staff

LOCAL FUNDING

Source	Details/Opportunities
Tax Incremental Financing (TIF)	TIF leverages future tax gains to finance current improvements that will create those gains. It dedicates increased tax revenues to finance the debt created by the project. TIFs are authorized by state law in nearly all 50 states and begin with the designation of a geographic area as a TIF district. Plans for specific improvements within the TIF district are developed. The TIF creates funding for public or private projects by borrowing against the future increase in these property-tax revenues. The intent is for the improvement to enhance the value of existing properties and encourage new development in the district.
Partnerships	Local communities in the region may be able to partner with the private sector to fund or sponsor some aspects of a project. For example, Blue Cross Blue Shield provided a \$500,000 donation and sponsored a portion of the Gary Shell Cross City Trail in Wilmington. The Greenville Health System sponsors a portion of the Swamp Rabbit Trail in Greenville. Banks, local businesses, law firms, healthcare companies, and breweries are all potential sponsorship opportunities.
Developer Contributions	Bicycle and pedestrian facilities can be funded through developer contributions when the local ordinance language requires developers to construct bicycle or pedestrian facilities that are included in locally adopted plans, such as this feasibility study.
Municipal Service District (MSD)	Designates a district with a property tax in addition to the town-wide property tax. Within the MSD, revitalization projects are one of the eligible uses and can include street, sidewalk, or bikeway improvements within the downtown taxing district.

PRIVATE/NON-PROFIT FUNDING

Source	Details/Opportunities
Robert Wood Johnson Foundation	Largest U.S. foundation devoted to improving the health and healthcare of all Americans. Grant making is concentrated in four areas: (1) To ensure that all Americans have access to basic health care at a reasonable cost, (2) To improve care and support for people with chronic health conditions, (3) To promote healthy communities and lifestyles, and (4) To reduce the personal, social, and economic harm caused by abuse of tobacco, alcohol, and illicit drugs.
Blue Cross Blue Shield Of North Carolina Foundation (BCBS)—Healthy Place Grant	Program focuses on outcome approach to improve the health and well-being of residents. Eligible projects for grants concentrate on increased physical activity and active play through support of built environment improvements like sidewalks and safe places to bicycle.

Note: USDOT’s MEGA Program (the National Infrastructure Project Assistance Program) supports large, complex projects that are difficult to fund by other means and likely to generate national economic, mobility or safety benefits. USDOT’s Infrastructure for Rebuilding America (INFRA) program funds multimodal freight and highway projects of national or regional significance to improve the safety, accessibility, efficiency, and reliability of the movement of freight and people in and across rural and urban areas. Eligible projects will improve safety, generate economic benefits, reduce congestion, enhance resiliency, and hold the greatest promise to eliminate supply chain bottlenecks and improve critical freight movements. These are not a likely funding source for the Gullah Geechee Heritage Trail itself, but if another project is submitted for funding in this area, it would be an addition that would help that project score better using USDOT’s scoring criteria.

FEDERAL FUNDING AND TARGETS FOR DISADVANTAGED COMMUNITIES

The Infrastructure Investment and Jobs Act (IIJA) was signed into law by President Biden on November 15, 2021. Commonly known as the Bipartisan Infrastructure Law (BIL), it provides funding to the Department of Transportation to improve roadways and bridges, freight projects, public transportation, safety, and it addresses climate change. Several of BIL's programs include multi-use path/trail projects as eligible projects. Additionally, President Biden's Executive Order 14008 created a government-wide Justice40 Initiative with the goal of delivering at least 40% of the overall benefits of federal investments in climate change and clean energy, including relevant investment in the BIL, to underserved and disadvantaged communities.

Figure 39 is a map of the Census tracts designated as disadvantaged (per Climate and Economic Justice Screening Tool, CEJST) and the proposed Gullah Geechee Heritage Trail alignment in northern Brunswick County. CEJST tool uses datasets as indicators of burdens, which are organized into the following categories: Climate Change, Energy, Health, Housing, Legacy Pollution, Transportation, Water and Wastewater, and Workforce Development. The northern portion of the trail, north of NC133, is designated as disadvantaged, meaning that federal grant funds are targeted for improvements in these areas. This information and data will be requested in federal grant applications.

USDOT also offers the Equitable Transportation Community Explorer (ETC). This is a further analysis of CJEST's Transportation category using 2020 Census Tract data to explore the cumulative burden communities experience, as a result of underinvestment in transportation, in the following five components: Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability. It is designed to complement the White House Council on Environmental Quality (CEQ) CEJST by providing users deeper insight into the Transportation disadvantage component of CEJST, and the ETC Explorer's Transportation Insecurity component, which will help ensure the benefits of DOT's

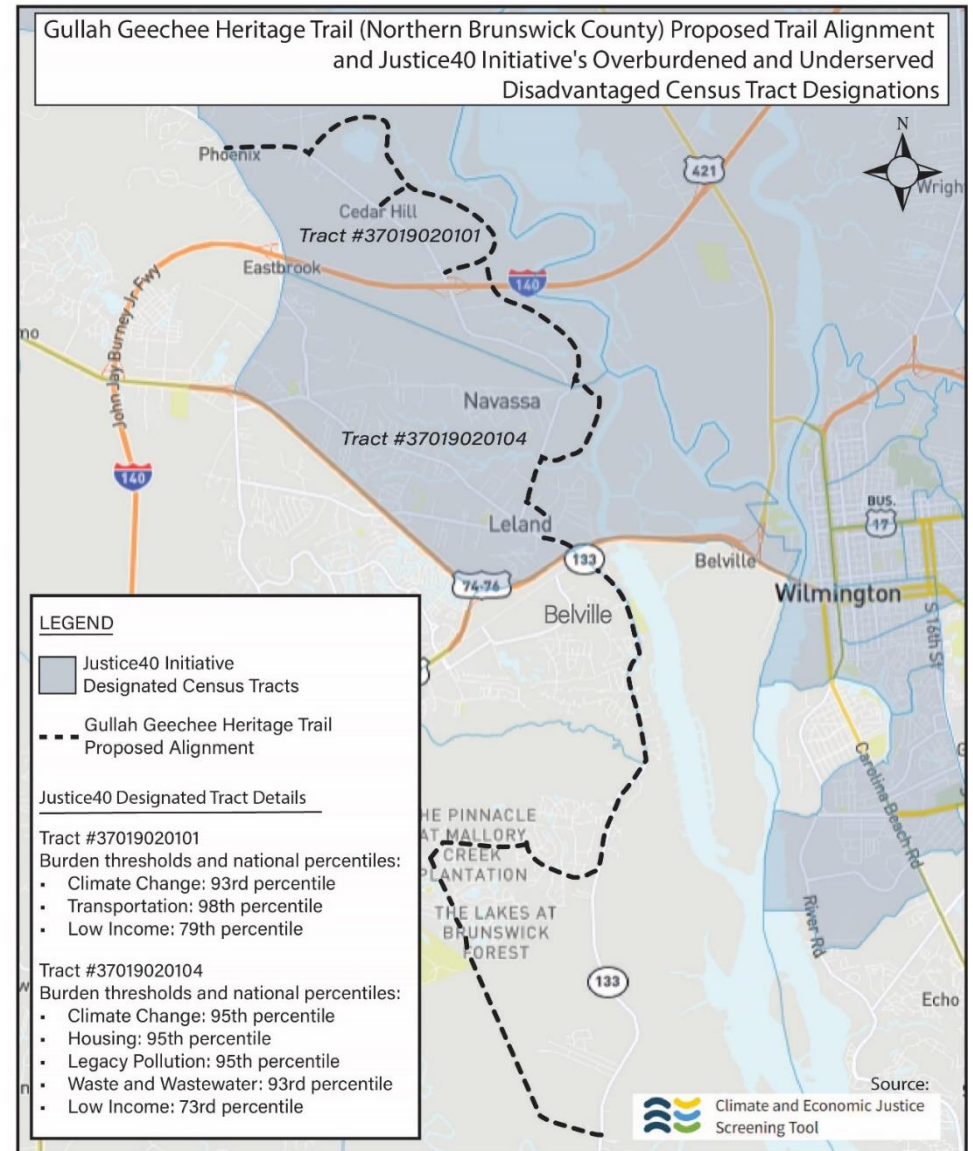


Figure 39. Justice40 Populations along Trail Study Area

investments are addressing the transportation related causes of disadvantage. Figure 40 is a map of the ETC disadvantaged Census tract along the Gullah Geechee Heritage Trail.

USDOT also asks about Areas of Persistent Poverty (APPs) and Historically Disadvantaged Community (HDC) designations. The INFRA program (part of the MPDG grant funding family) specifically targets funding for those designated areas.

The Justice40 Initiative’s disadvantaged community data, APP, and HDC designations should be leveraged to support grant applications. Several federal grant applications will specifically ask for this data, but it can also be utilized in other state/local/non-profit/foundation grant applications to justify the need for the trail. Both data platforms offer detailed information about national percentiles for all Census tracts. Even though the southern portion of the Gullah Geechee Heritage trail is not designated as disadvantaged, it does trigger disadvantaged status in some categories, just not enough for it to rank in the lowest percentage nationally. The ETC Explorer tool provides an analysis on a state level with state rankings and percentiles, in addition to the national rankings and percentiles.

STATE TRAIL DESIGNATIONS

In North Carolina, there are several levels and varieties of designating trails. The NC State Parks program (under NC DNCR) designates state trails once a segment of a trail is constructed. There are currently 14 designated state trails; the Gullah Geechee Heritage Trail is currently not one of them. Once a segment is complete, obtaining the trail designation will open grant funding opportunities (such as the Great Trails State Program and NC Complete the Trails Program grants) and elevate the significance of the trail. The Great Trails State Coalition is a broad group of organizations, including local governments, that support increased investment in all types of trails state-wide. They hosted the Year of the Trail in 2023 and support National Trail Day events. Their previous legislative achievements include tens of millions of dollars allocated to trails in NC. The NC Great Trails Plan specifically

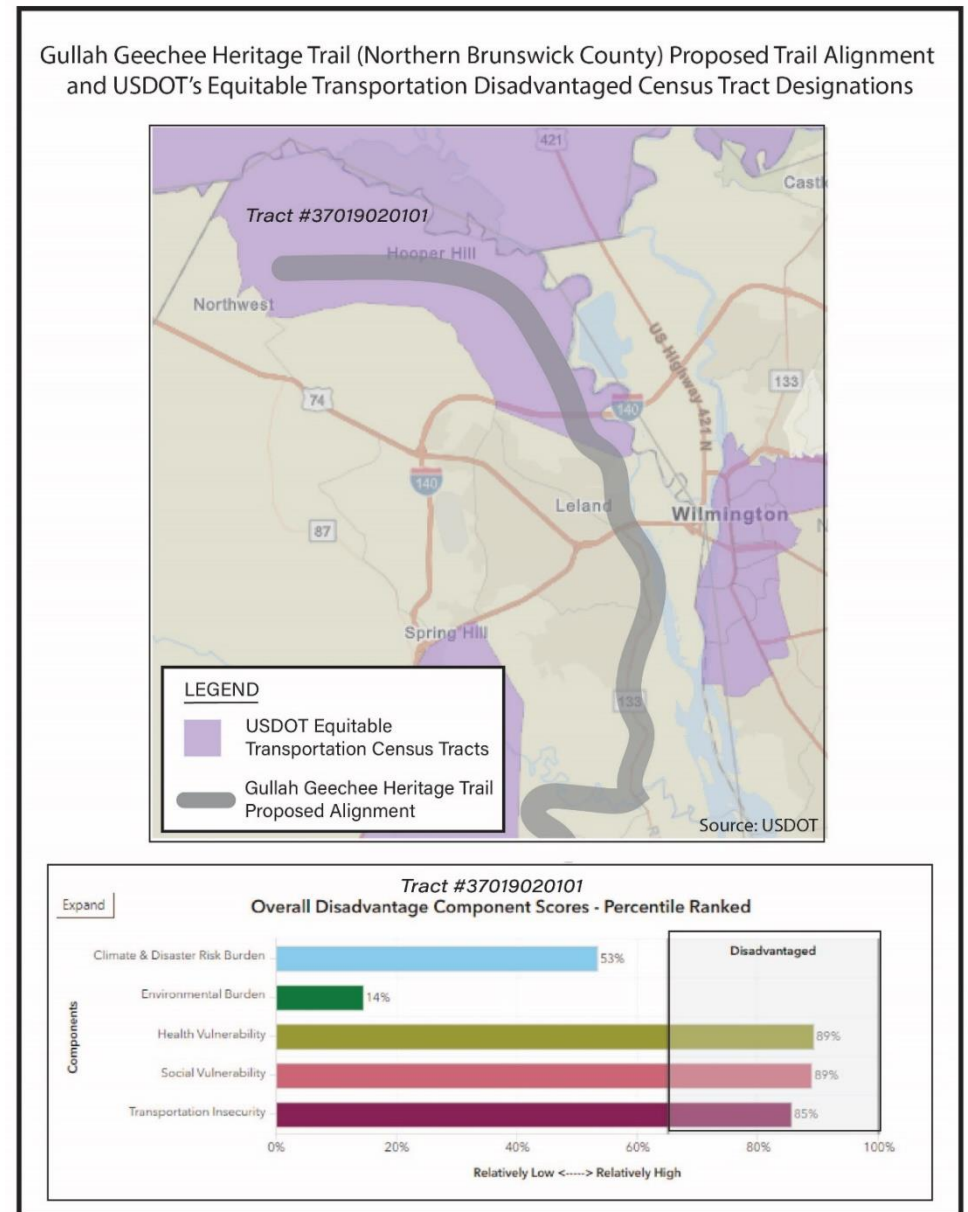


Figure 40. Equitable Transportation Communities along Trail Study Area

recommends the Gullah Geechee Heritage Trail. This recommendation should also be leveraged and utilized in grant applications.

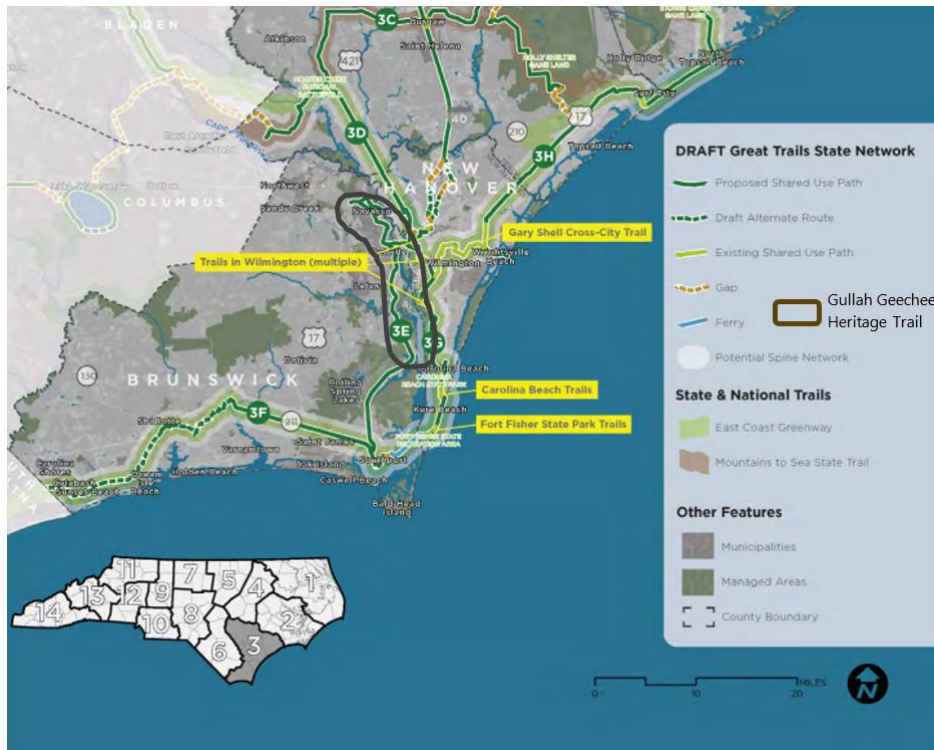


Figure 41. North Carolina Great Trails State Network

Design Guidelines and Resources

Creating a safe and comfortable trail facility for people walking and biking is a critical step for the Gullah Geechee Heritage Trail. The following sections provide best practices for walking and biking facility design.

Key sources for detailed design guidance for bicycle and pedestrian facility selection and design include the following:

- NCDOT Complete Streets guidelines
- FHWA Small Town and Rural (STAR) Multimodal Networks Guide
- FHWA Bikeway Selection Guide

- AASHTO Guide for the Development of Bicycle Facilities
- NACTO Urban Bikeway Design Guide
- NCHRP Reports 562, 834, 948

Table 7 shows a full list of planning and design resources for a number of topics for trail and trail crossing design.

Table 7. Design Resources

Report Title	Type of Guidance Provided
NCDOT Complete Streets guidelines	Multimodal Design
FHWA Small Town and Rural (STAR) Multimodal Networks Guide	Multimodal Design
NCHRP Report 562: <i>Improving Pedestrian Safety at Unsignalized Crossings</i>	Crossing Selection
NCHRP Report 834: <i>Crossings Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians With Vision Disabilities: A Guidebook</i>	Crossing Design at Roundabouts and Channelized Turn Lanes
NCHRP Report 948: <i>Guide for Pedestrian and Bicyclist Safety at Alternative and Other Intersections and Interchanges</i>	Multimodal Design
FHWA Guide to Improving Pedestrian Safety of Uncontrolled Crossing Locations	Crossing Design
Americans with Disabilities Act Accessibility Guidelines (ADAAG)	ADA Design Requirements
Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)	ADA Design Guidelines
AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities	Pedestrian Planning and Design
USDOT and FHWA Small Town and Rural Multimodal Design Guide	Pedestrian and Bikeway Design
FHWA Bikeway Selection Guide	Bikeway Planning
AASHTO Guide for the Development of Bicycle Facilities	Bikeway Planning and Design
NACTO Urban Bikeway Design Guide, Urban Street Design Guide, Global Street Design Guide, and Bike Share Station Siting Guide	Multimodal Design

Appendix A:
Public Engagement Plan

Gullah Geechee Heritage Corridor Feasibility Study – Public Engagement Plan

August 2023

Overview

In Spring 2023, the Wilmington Metropolitan Planning Organization (WMPO) was awarded a grant to complete a trails feasibility study for the portion of the Gullah Geechee Cultural Heritage Trail located within the WMPO boundary. This project is funded by NC Department of Transportation (NCDOT) Integrated Mobility Division (IMD) Feasibility Studies Grant Program. Feasibility studies bridge the gap between conceptual planning and programming of projects. They build upon higher-level planning efforts and take a comprehensive approach to identify possible route alternatives of multimodal corridors. The purpose of this type of study is to evaluate technical feasibility of a project from a design, permitting, and constructability perspective. A critical component to identifying possible route alternatives is public input, comments, and suggestions. The purpose of this Public Engagement Plan (PEP) is to describe the strategy to connect with the public through in person events, online surveys, and both digital and hard copy content.

A virtual kickoff meeting for the Gullah Geechee Cultural Heritage Trail Feasibility Study took place on June 22, 2023. Meeting attendees included representatives from the WMPO, NCDOT, and three consulting firms (Kittelsohn & Associates, Smart Moves Consulting, and Whitman, Reardon & Associates). At this meeting, draft goals for the project were established. Draft goals include the following:

- Establish a vision for the trail alignment and identify barriers and opportunities.
- Provide guidance and requirements for safe and practical design of the trail.
- Connect the trail with existing and planned bicycle and pedestrian facilities and parks.
- Encourage economic development and investment in areas around the trail.
- Support public health by encouraging active transportation.
- Preserve the rich history and cultural context of the area by serving the local community needs.
- Coordinate and build on previous planning efforts.

Kick off meeting attendees identified several indicators of a successful project, including strong community support; high prioritization scoring; funding; outreach/inclusion; ownership opportunities; and implementable options with connectivity and environmental/cultural context sensitivity.

Outreach Strategy

To achieve the goals of the project and ensure the success of the Gullah Geechee Cultural Heritage Trail Feasibility Study, the following tasks and public outreach activities will take place, and are described further in this PEP:

- Establish a Steering Committee.
- Release a public input survey.
- Develop a basic project website and online comment map.
- Design printed and digital materials such as handouts and flyers.
- Schedule two rounds of public engagement touchpoints.

Project Development Team

The Project Development Team consists of the Project Partners, Steering Committee, and Project Support groups. For a list of members and their contact information, please visit the Google Sheet located here - <https://docs.google.com/spreadsheets/d/1XM3I-7LcmJXqD96zmUzebRDBga2VJyBfWbmi4IORMFE/edit?usp=sharing>

Project Partners

The Gullah Geechee Heritage Corridor Feasibility Study will be developed by the Project Partners, who are primarily responsible for creating the Feasibility Study. The Project Partners consist of representatives from NCDOT; Wilmington MPO; Kittelson & Associates; Whitman, Requardt & Associates; and Smart Moves Consulting. Smart Moves Consulting will take the lead on implementing this Public Engagement Plan. Specifically, Project Partners include the following:

Gullah Geechee Heritage Corridor Feasibility Study – Project Partners		
Name	Agency	Email
Andrew Ooms	Kittelson & Associates	aooms@kittelson.com
Nick Cannon	Kittelson & Associates	ncannon@kittelson.com
Sarah Brown	Kittelson & Associates	sbrown@kittelson.com
Zachary Bugg	Kittelson & Associates	zbugg@kittelson.com
Hart Evans	NCDOT Integrated Mobility Division	jhevans1@ncdot.gov
Kim Nguyen	NCDOT Integrated Mobility Division	kpnguyen1@ncdot.gov
Adrienne Harrington	Smart Moves Consulting	adrienne@smartmovesconsulting.net
Mark Reep	Whitman, Requardt & Associates	mreep@wrallp.com
Abby Lorenzo	Wilmington MPO	abigail.lorenzo@wilmingtonnc.gov
Emma Stogner	Wilmington MPO	emma.stogner@wilmingtonnc.gov
Vanessa Lacer	Wilmington MPO	vanessa.lacer@wilmingtonnc.gov

Steering Committee

The Project Partners will establish the Steering Committee, who will guide the development of the Feasibility Study, including a matrix for weighing trail alignment alternatives. There will be four Steering Committee meetings, all held virtually:

- Meeting #1: Project Kickoff Call with Steering Committee
- Meeting #2: Existing Conditions, Preliminary Alternatives, and Upcoming Public Meetings/Input (1/3 of the way through project)
- Meeting #3: Draft Recommendations and Upcoming Public Meetings/Input (2/3 way through project)
- Meeting #4: Draft Deliverables and Final Comments (end of project)

Potential Steering Committee members include representatives from the following:

- Town of Belville – Planning/Administration, Parks
- Town of Leland – Planning, Parks
- Town of Navassa – Planning/Administration, Parks
- Brunswick County – Planning, Parks
- Cape Fear Council of Governments
- Wilmington MPO Bicycle and Pedestrian Advisory Committee
- NCDOT Division 3
- Gullah Geechee Cultural Heritage Trail 501c3 – 3-5 community members
- Maybe: Advocacy – Cape Fear Cyclists/Terry Benjey Bicycling Foundation, Chamber of Commerce, schools, Reaves Chape Restoration, Leland Cultural Arts Center, Fort Anderson, US Army Corps of Engineers, NC Department of Environmental Quality

The Google Sheet will include specific names and contact information for the Steering Committee.

Project Support Group

The Project Partners and Steering Committee will work together to establish the Project Support group. The purpose of the Project Support group is to help promote the public events and survey. A list of potential Project Support members is in the Google Sheet. Members can include news outlets, the Chamber of Commerce, neighborhood homeowners associations, civic clubs, the police departments, and local businesses. The Project Support Group will work to identify ambassadors – community leaders with close ties to the residents and unique connections – to help promote public involvement with the plan. The Project Partners will work with the Project Support team to provide information to be shared with the public – pop up event dates/times, public survey information, and project information. They will be asked to post project information on social media, send emails to their contacts, and help notify the public about the project and how to get involved.

Public Input Survey

A survey will be developed to be strategically deployed among people who live and work in the project area. The survey will consist of questions that will determine the public's intended use and benefits of the Gullah Geechee Cultural Heritage Trail. An interactive map will also be available to gather feedback about difficult crossings, desired neighborhood connections, destinations, and proposed alternatives.

There will be both online and hard copies available. The Project Partners group will be instrumental in distributing the survey to the public. The Steering Committee and Project Support group will help distribute and collect paper copies of the survey. The survey will be open for comment until approximately two weeks after the last public meeting is held within each touchpoint.

Materials for Distribution

A variety of digital and hard copy materials will be available to help guide the public to information about the project, the public input survey, and the public engagement meetings.

Digital Materials

Digital materials include the following:

- Website with project mapping, project status, draft recommendations, final deliverables, and public engagement announcements
- Online comment map
- Public input survey
- Social media information
- Email blast templates
- Public engagement meeting information
- Press releases
- Rolling presentation for indoor events

Hard Copy Materials

Hard copy materials include the following:

- Quarter page fliers about upcoming public meetings
- One page fliers about the project with QR code to website and survey
- Handouts for public meetings (more handouts for outdoor meetings without the rolling presentation)

Public Engagement Touchpoints

There will be two rounds of public engagement touchpoint events. All public events will be in a pop-up format, with materials stationed for approximately two hours at each location. A minimum of two consultant staff will attend each public meeting.

Each round will consist of four pop-up events, with each event offering the same information but scheduled at different times and at different locations (each of the four jurisdictions). The Project Partners will be responsible for reserving the meeting space, purchasing supplies and materials, and setting up the meeting stations. The approximate layout of the pop-up events will be as follows:

1. Welcome table – sign in sheet and project information handouts.
2. Project Information – approximately four boards will be displayed that include the project study area with existing conditions and preliminary alternatives (touchpoint #1) or alternatives analysis and draft recommendations (touchpoint #2). A meeting packet containing maps, photos, and other project notes will also be provided.

3. Public Input Statements – the public will be asked to provide information about strengths/weaknesses/opportunities/threats of the trail alignments; how they anticipate using the trails; indicators of success; and other open-ended questions designed to gather statements from the public.
4. Mapping Activity – maps with trail alternatives will be displayed; the public will be invited to draw or leave sticky notes and add information in a geographical sense.
5. Thank you table – people will be thanked for dropping into the meeting; paper and digital surveys will be distributed; additional project information will be provided including a timeline of the next steps.

Potential Event Locations:

Below are options for public engagement locations. These include a mix of indoor and outdoor facilities. *Note that the number of boards and other meeting materials may be limited to available space, particularly if the meeting is held outdoors. Outdoor meetings may need to be weather-permitting depending upon available back-up space.*

- Belville:
 - Belville Town Hall - indoor
 - Belville Riverwalk Park- outdoor
 - Belville Elementary School – possibly indoor and outdoor
- Leland:
 - Leland Town Hall - indoor
 - The Brunswick Center at Leland - indoor
 - Leland Cultural Arts Center - indoor
- Navassa:
 - Navassa Community Senior Center – 338 Main Street - indoor
 - Navassa Town Hall – 334 Main Street - indoor
 - Navassa Township Park – outdoor under large shelter
- Brunswick County:
 - Brunswick Nature Park - outdoor
 - Westport HOA Clubhouse - indoor
 - Brunswick Forest Community Center - indoor
 - Westgate Nature Park - outdoor

Public Engagement Touchpoint #1 Dates

Four pop-up events will be scheduled for the first round of public engagement, preferably within one or two consecutive weeks. The Brunswick Heritage Ride has been scheduled for September 30th and is an opportunity to promote the public meetings. The first week of October is an ideal time to host a series of four pop-up events. Note that this is pending venue availability and scheduling of Steering Committee Meeting #1 at least two weeks in advance of the first pop-up event.

During the first round of public engagement touchpoints, the Project Partners will describe the planning process. The public will be asked to describe their vision for the Gullah Geechee Cultural Heritage Trail and will be presented with existing conditions and preliminary alternatives. They will be invited to

Gullah Geechee Heritage Corridor Feasibility Study

provide comments, suggestions, issues, and concerns via information gathering activities. The structure of the meeting will encourage the public to engage in conversations with the Project Partners, ask questions about the project, and meet other community members to collaborate on ideas. The public input survey and online comment map will also be promoted during the first round of meetings.

Public Engagement Touchpoint #2

The second round of public engagement touchpoint meetings will provide information about the results of the public survey and public comments, alternatives analysis, trail alignment recommendations, and proposed cross-sections.

It is anticipated that the second round of public engagement touchpoint meetings will take place during February/March 2024. Details for the second round will be solidified after the first round and closer to that date.

Responsibilities and Next Steps

The table on the following page identifies a series of tasks that will need to be completed prior to the first round of public engagement. The responsible party is identified for each task.

Task	Responsible Agency
Finalize list of Steering Committee members	Project Partners
Send email to potential Steering Committee members inviting them to join	WMPO
Coordinate schedules and send meeting invite for 1 st Steering Committee meeting	Smart Moves
Create agenda and presentation for the 1 st Steering Committee meeting (virtual); lead the meeting	Smart Moves, Kittelson
Finalize inventory of outreach opportunities from Steering Committee (town websites, automated call services, newsletters, etc.)	Project Partners, Steering Committee
Finalize questions for public survey	Project Partners
Create online and hard copy surveys	Smart Moves, Kittelson
Set up project website with online comment map	Kittelson
Schedule and reserve space for pop-up events; confirm availability of tables, chairs, and easels	WMPO
Finalize list of Project Support group members	Project Partners, Steering Committee
Develop social media content/images to share with Steering Committee and Project Support group about upcoming pop-up events	Smart Moves
Draft template emails for email blasts, newsletters, etc.; share with Steering Committee and Project Support groups for them to share	Smart Moves
Design ¼ page handouts, one-page fliers, rolling presentation and printed handouts of the presentation	Smart Moves
Design four boards and maps for mapping activity at pop-up events	Kittelson
Staff the pop-up events (minimum 2 consultant staff)	Smart Moves, Kittelson
Draft press release for events	Smart Moves
Distribute announcement materials	WMPO, Project Partners, Steering Committee

MEMORANDUM

November 20, 2023

Project #: 257710.013

To: Emma Stogner,
Wilmington Urban Area MPO

CC: Grady McCollum, Hart Evans, Kim Nguyen, Vanessa Lacer, and Abby Lorenzo

From: Sarah Brown; Zachary Bugg, PhD, PE; and Adrienne Harrington, MPA

RE: Gullah Geechee Heritage Trail Feasibility Study – Public Engagement Summary #1

EXECUTIVE SUMMARY

4

engagement
touchpoints

370

completed surveys

120+

in-person
conversations

333

map comments

This document describes the first round of public engagement for the Gullah-Geechee Heritage Trail Feasibility Study in Brunswick County, which was conducted in September/October 2023. The four touchpoints included a pop-up advertisement event at the Brunswick Heritage Riverside Ride, a pop-up event at the Belville Fall Festival, and open house events in Navassa and Leland. A total of over 120 people attended these events and engaged with the project team. Within online engagement, the team received 370 completed online surveys and 333 individual comments on the online interactive map. The following is a summary of the findings and themes from this touchpoint:

Survey

- Survey had the most responses from Leland
- In general, this survey had more responses from those who are white, are older adults, and have a higher income
- Educational components should be mindful of technology and digital divide. Make low tech options
- Preferences for farther from existing roadway, but many were neutral
- Priorities connections between existing greenways and trails, access to parks and recreation centers; and raise awareness of and celebrate the heritage and history of the Gullah Geechee people
 - Navassa valued education and awareness of Gullah Geechee people the most, and also valued economic development on the corridor more than other communities
 - Belville, Leland, and Brunswick County all had the highest preferences for connections between existing trails and greenways in comparison to other priorities.
- Navassa, a higher preference is seen for Navassa Road than Phoenix Park. Brunswick Nature Park is the preference for Brunswick County. Leland has a preference for Village Road as well as River Road near Mallory Creek Drive. Lastly, Belville has a preference for River Road in Belville.

Comment Map

- ADA accessibility
- Confusion about this being off-road, concerns about on road facilities
- Additional walking trails
- Connect to schools, parks, and neighborhoods
- Reduce conflict points and enhance safety of crossings
- Diverging diamond is a major concern
- High speed and volumes on NC 133

In-Person

- *Opportunities*
 - Much feedback about how including the historical and cultural component of the proposed trail is extremely important
 - Navassa is interested in ped/bike bridge or alternative path crossing Sturgeon Creek
 - Interest in elevating the use of nature for this trail
 - The developments along Cedar Hill Rd have secured easements and space for the trail to go through in those sections

- Provide exercise stations along the trail so people can get exercise
- Connections to existing and proposed multimodal facilities
- Prioritize a connection to the Belville Riverwalk
- **Concerns**
 - The trail should be a safe and comfortable distance from the road, especially in high-speed areas.
 - Cedar Hill Road has increasing development that will lead to more traffic and driveways
 - Multimodal usage of the 74/76 diverging diamond interchange
 - Parking availability at Phoenix Park and other trailheads
 - Comments about how the alignment on River Road south of Belville does not provide much access to businesses and other essential services.

DETAILED ENGAGEMENT NOTES

The Gullah Geechee Heritage Trail Feasibility Study held an initial round of public engagement in September-October 2023. Below is a summary of the public comments received.

OUTREACH EVENT – BRUNSWICK HERITAGE RIVERSIDE RIDE, 9/30/2023

The project team utilized the well-attended Third Annual Brunswick Heritage Riverside Ride as a pop-up for public engagement. Approximately 20 conversations were held with participants during the break at Brunswick Riverwalk. All feedback was positive. There were several references to the Cross City Trail in Wilmington and how a dedicated multiuse path is needed and desired by the communities in northeast Brunswick County.

- **Opportunities**
 - Much feedback about how including the historical and cultural component of the proposed trail is extremely important
 - A facility for community events such as the Brunswick Heritage Riverside Ride, running events/races, and more
- **Concerns**
 - MUP should be a safe and comfortable distance from the road where speeds reach 55mph on River Road

OPEN HOUSE – NAVASSA RECREATION CENTER, 10/5/2023

An open house was held in Navassa, and 30 members of the public attended. There was an overall excitement about the trail, as well as several questions about timeline for this project and construction of the trail. Many people commented on how they would like to see the trail staying closer to the historic sites along the river and closer to the old plantation area/water. The following are specific key takeaways and comments from the open house:

- *Opportunities*
 - Navassa has secured grant funding for the trail north of I-140
 - Navassa is interested in ped/bike bridge or alternative path crossing Sturgeon Creek
 - There is interest in assessing bringing the path closer to Royster Road and investigating the highest point of the bridge of I-140
 - It is important to connect to Reaves Chapel
 - Is there potential to use this railroad as a part of the trail?
 - Interest in elevating the use of nature for this trail
 - The developments along Cedar Hill Rd have secured easements and space for the trail to go through in those sections
 - Investigate trail going through the marsh side on Navassa Road
 - Provide exercise stations along the trail so people can get exercise
 - Provide on benches along the trail
 - Investigate pedestrian bridge across diverging diamond
- *Concerns*
 - Cedar Hill Road has increasing development that will lead to more traffic and driveways
 - Multimodal usage of the 74/76 diverging diamond interchange
 - Need for safe road crossings for trail use and connecting to existing development
 - Concerns about dirt bike usage near old railroad trails near Davis Creek Park and keeping modes separated
 - Concerns about impacts to parking at Phoenix Park due to access points and trail usage
- *Other*
 - Daniels Rd is currently under design

POP-UP EVENT – BELVILLE FALL FESTIVAL, 10/7/2023

A pop-up event was held at the Belville Fall Festival, and over 60 meaningful conversations were held with individual festival attendees at the project table. There was an overall excitement around the trail, as well as questions about timeline.

- *Opportunities*
 - Investigate yielding for bikes rather than full stops at crossings, especially in residential areas
 - Connections to existing and proposed multimodal facilities
 - Connections to the Belville Riverwalk
- *Concerns*
 - Concerns about bike tires being impacted by the chosen surface
- *Other*
 - A preference for asphalt or crushed lime for surface of the trail

OPEN HOUSE – LELAND TOWN HALL, 10/11/2023

A open house was held in Leland, and 12 members of the public attended.

- *Opportunities*
 - A comment on a preference for Alternative 1 as it would be more scenic, calm, and less intimidating for a wider audience
 - However, they mentioned a trail anywhere would be nice
 - Question about how the cultural and historical components will be included in the trail while it is being built and when it is being built
- *Concerns*
 - Comments about how the alignment on River Road does not provide much access to businesses and other essential services

SURVEY DATA SUMMARY

There were 370 surveys submitted and 611 visitors to the online public survey.

DEMOGRAPHICS

The following demographics of survey participants were evaluated:

- Residence
- Age
- Gender identify
- Race and ethnicity
- Household income

Figures 1- 5 show the results of all survey participants.

The Town of Leland had the highest amount of survey participants (46%), followed by Brunswick County (18%) and none of the above (10%). For age range 45% of participants were over 65, followed by 21% for 55-64 years old. Additionally, more women (56%) answered the survey than men (42%). More white people answered the survey (85%) than any other racial or ethnic identity. Black respondents made up 7% of the survey. For household income, 32% identified that they made between \$100,000 to \$199,999.

Analyzing demographics of a survey can provide insights into how identity is distributed across the sample, and how this sample compares to the rest of the study area and region. In general, this survey had more responses from those who are white, are older adults, and have a higher income. Further disaggregation of the data, specifically the preferences of residents from different towns or Brunswick County, is included throughout this memo to analyze trends across different portions of the Gullah Geechee Heritage Trail.

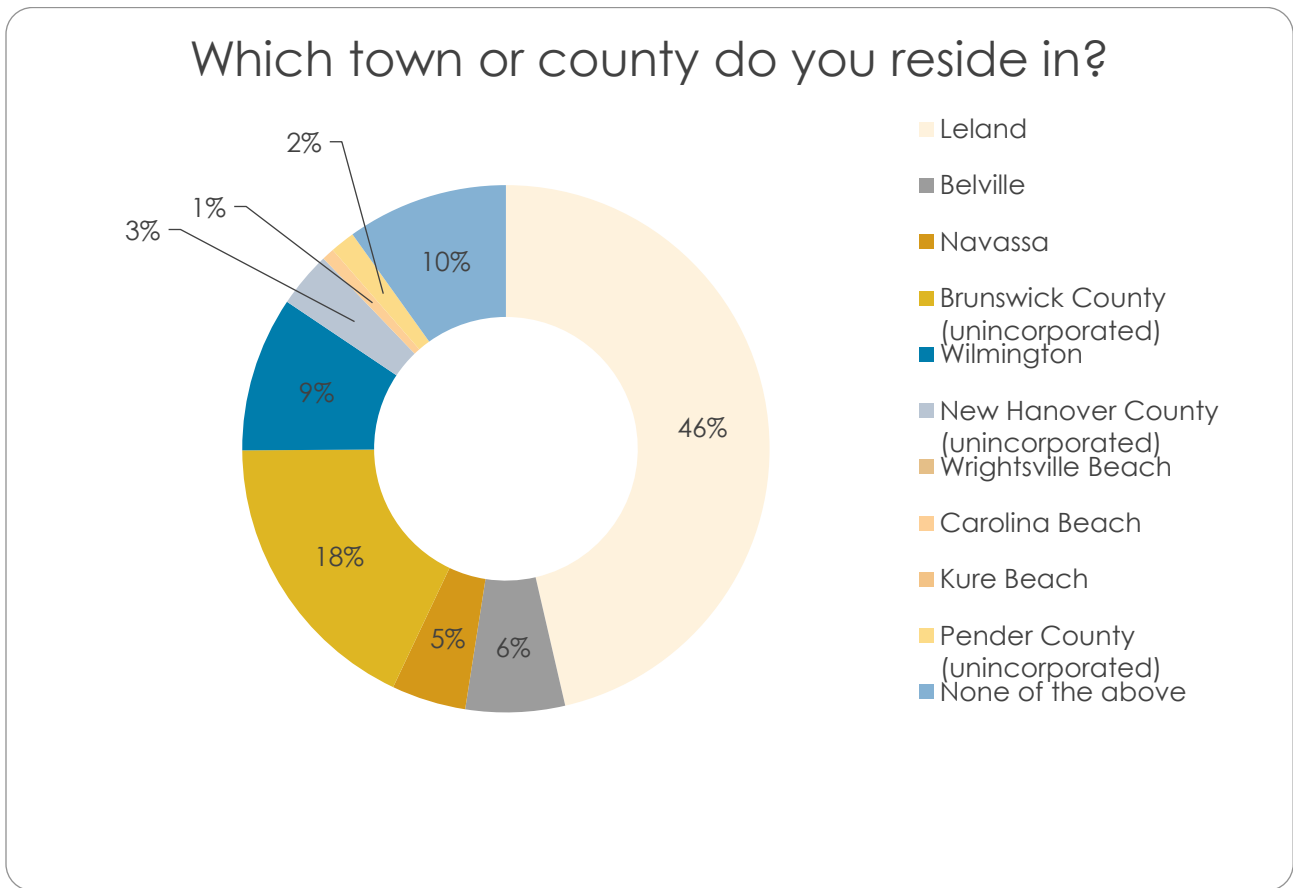


Figure 1. Responses for residence

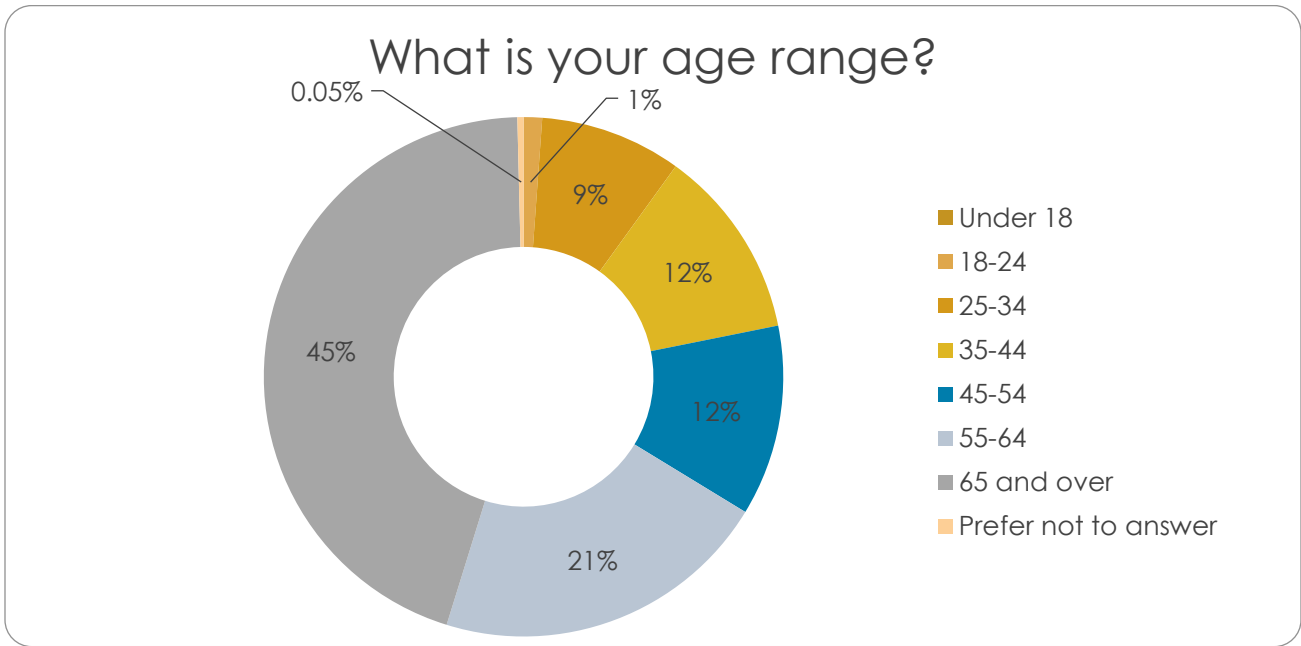


Figure 2. Responses for age range

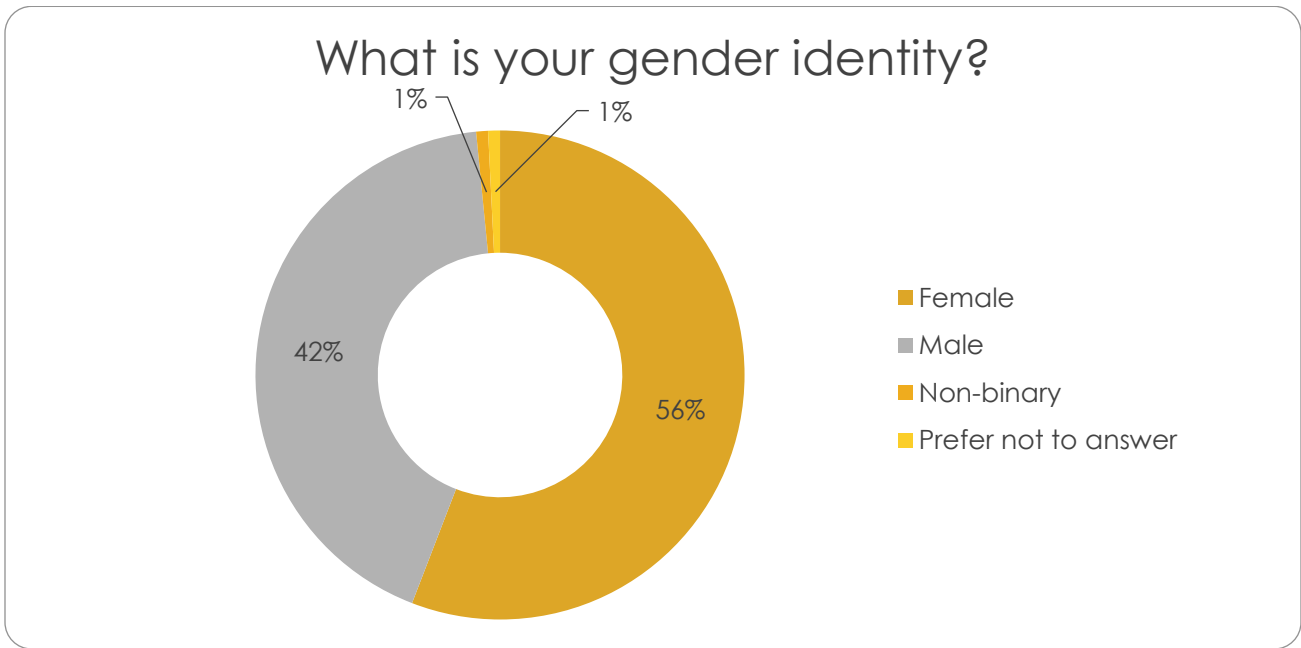


Figure 3. Responses for gender identity

What ethnicity do you most identify with?

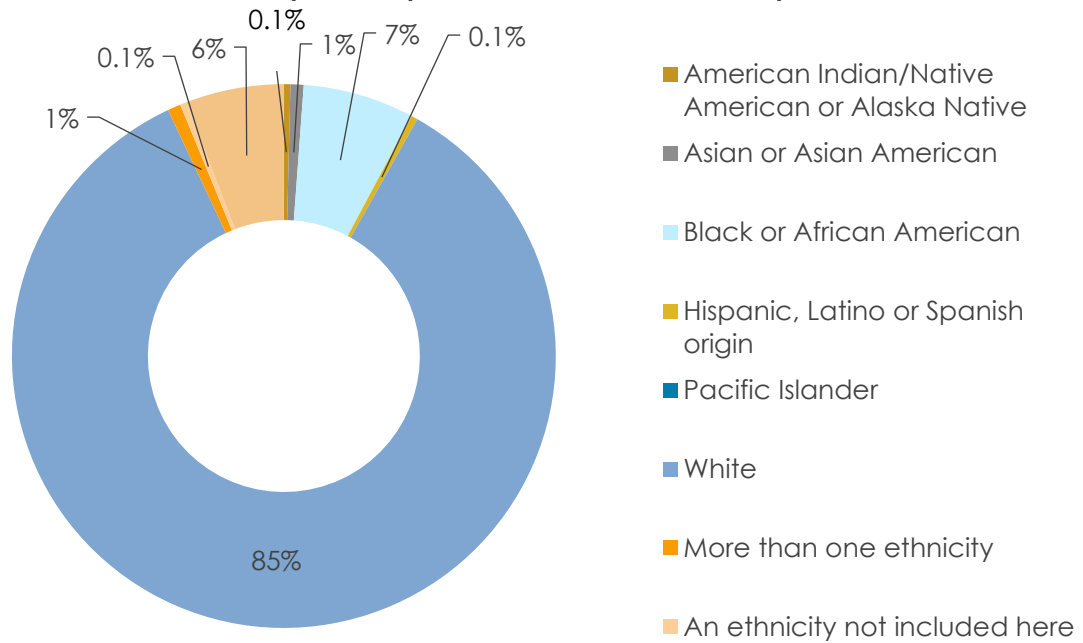


Figure 4. Responses for race and ethnicity

What is your annual household income (before tax)?

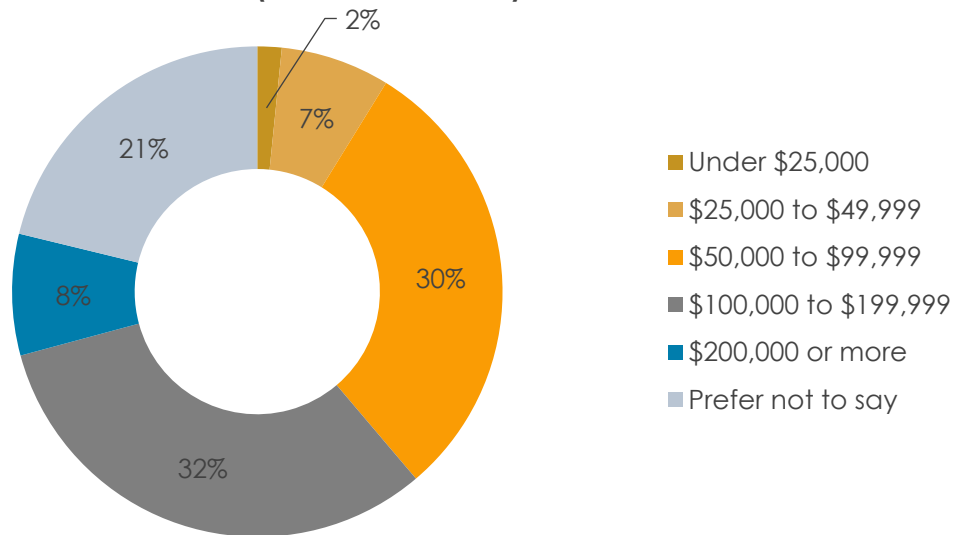


Figure 5. Responses for household income

GULLAH GEECHEE HERITAGE HISTORY

There were 339 responses to this question. Most respondents said they have heard about the Gullah Geechee people and/or heritage corridor (72%).

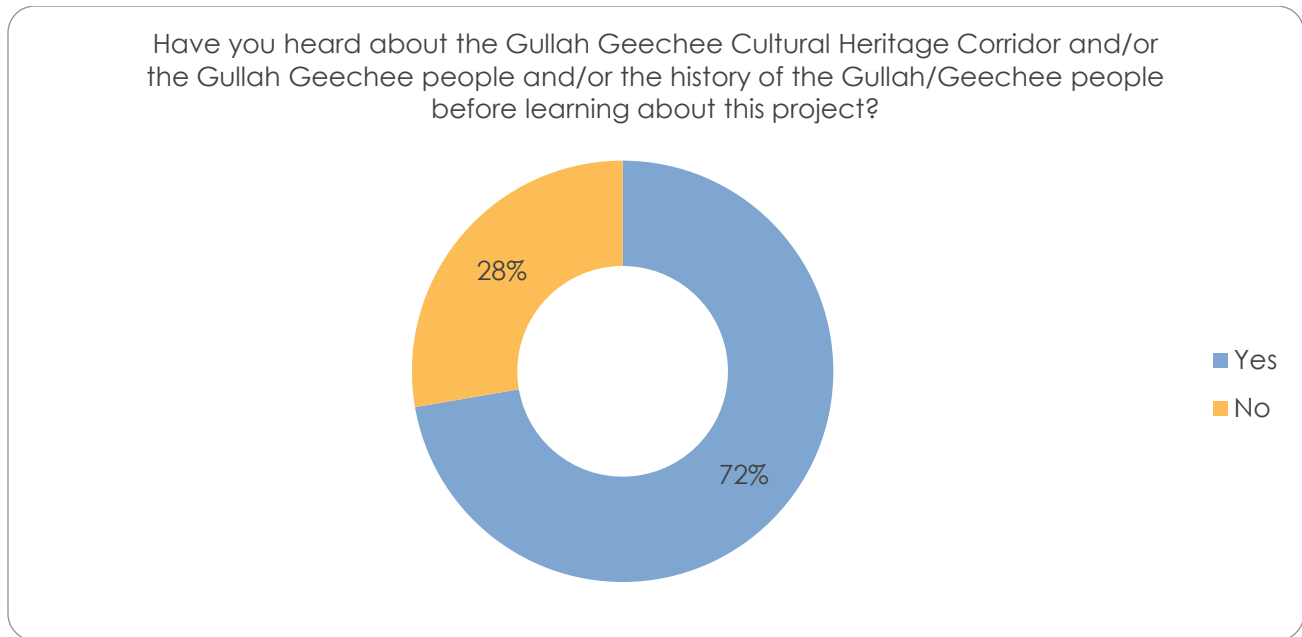


Figure 6. Responses for Gullah Geechee Heritage History

TRAIL PRIORITIES

Participants were asked about their priorities for the trail (Figure 7). This question allowed the respondent to select multiple responses. There were 1,130 responses to this question; 21.7% of responses were to provide connections between existing greenways and trails; 19.2% of responses were to provide access to parks and recreation centers; 18.3% of responses were to raise awareness of and celebrate the heritage and history of the Gullah Geechee people.

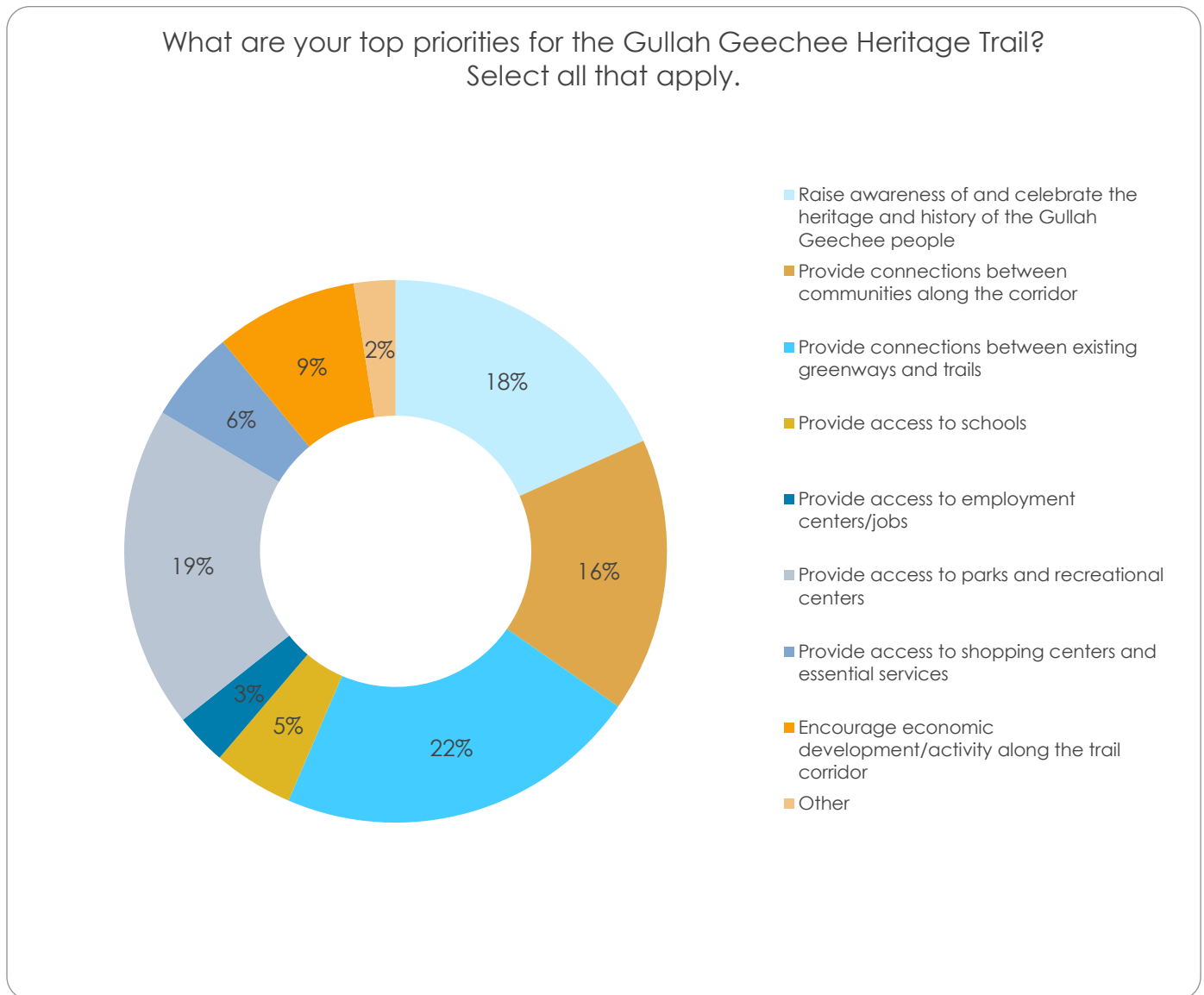


Figure 7. Responses for trail priorities

Navassa had the highest preference for economic development along the corridor in comparison to Belville, Brunswick County, and Leland. Navassa also had a higher preference for raising awareness and education of the Gullah Geechee people in comparison to other priorities. Leland had the least preference for connecting to employment and jobs in comparison to other priorities. Belville, Leland, and Brunswick County all had the highest preferences for connections between existing trails and greenways in comparison to other priorities (Figure 8).

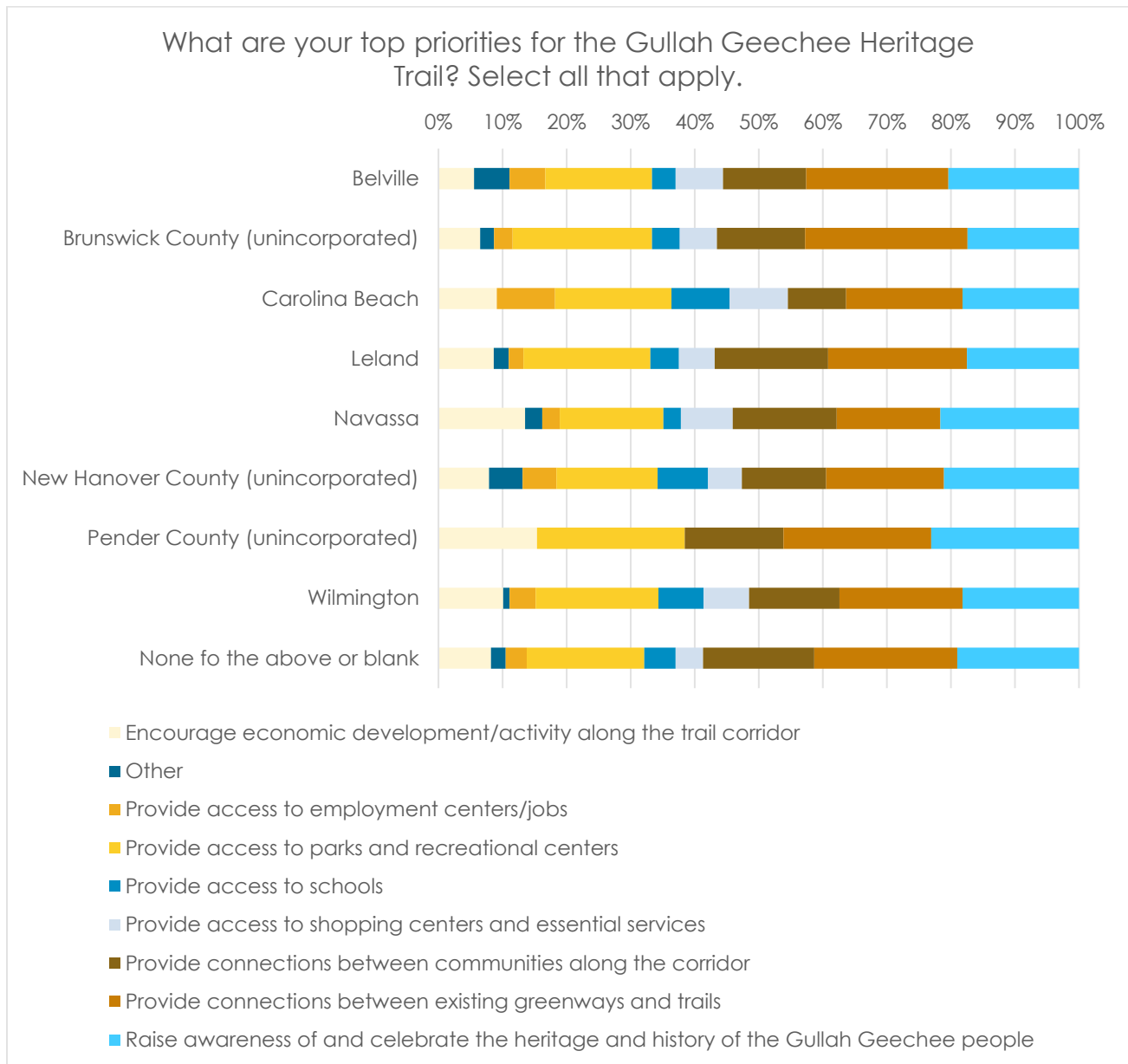


Figure 8. Responses for priorities by residence

CURRENT TRAVEL BEHAVIOR

There were 357 responses to current primary mode of transportation. Most participants (or 88.6%) said they drive alone in a car/truck/motorcycle, followed by 24 respondents (or 6.7%) said a passenger in a car/truck/motorcycle, and 10 respondents (or 2.8%) said a bicycle/e-bike/scooter (Figure 9).

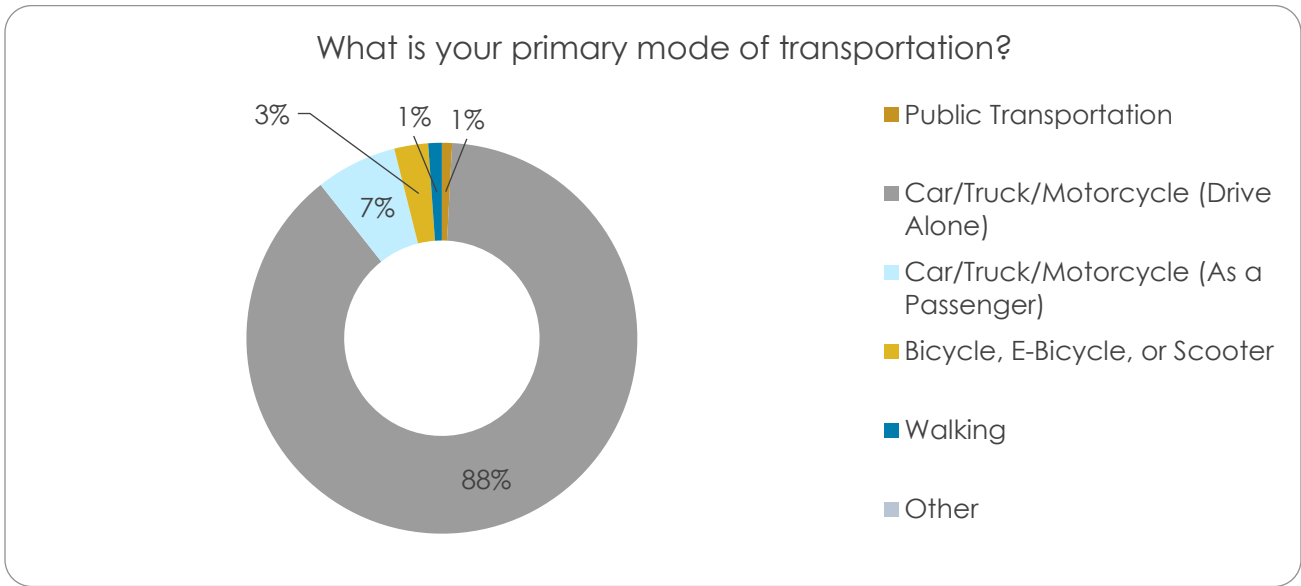


Figure 9. Responses for primary mode of transportation

There were 349 responses to how often one uses active transportation. A few times per week (28%) was answered the most, followed by never (27%) (Figure 10).

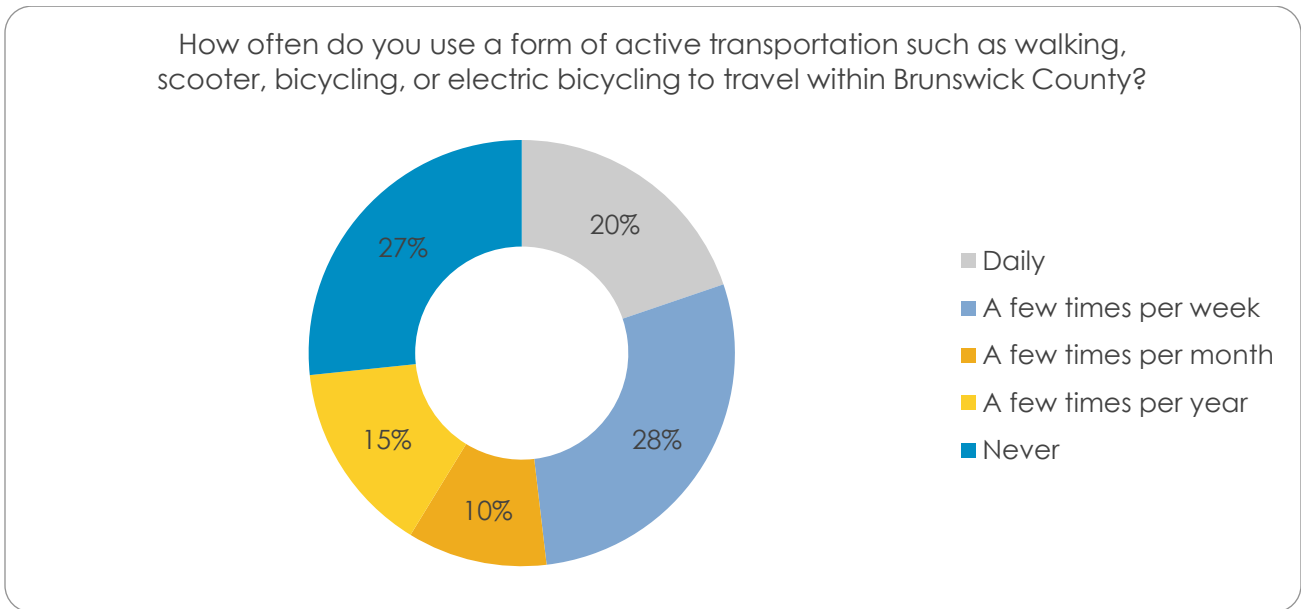


Figure 10. Responses for how often one uses active transportation

FUTURE TRAVEL BEHAVIOR

This question asked how one would anticipate using the trail and allowed the respondent to select multiple responses, for a total of 881 responses. When looking at all survey participants, 25.7% of responses were for riding a bicycle or scooter for exercise/recreation;

25.4% of responses were for walking or jogging for exercise/recreation; 25% were for visiting the trail to learn more about the area's history and culture (Figure 11).

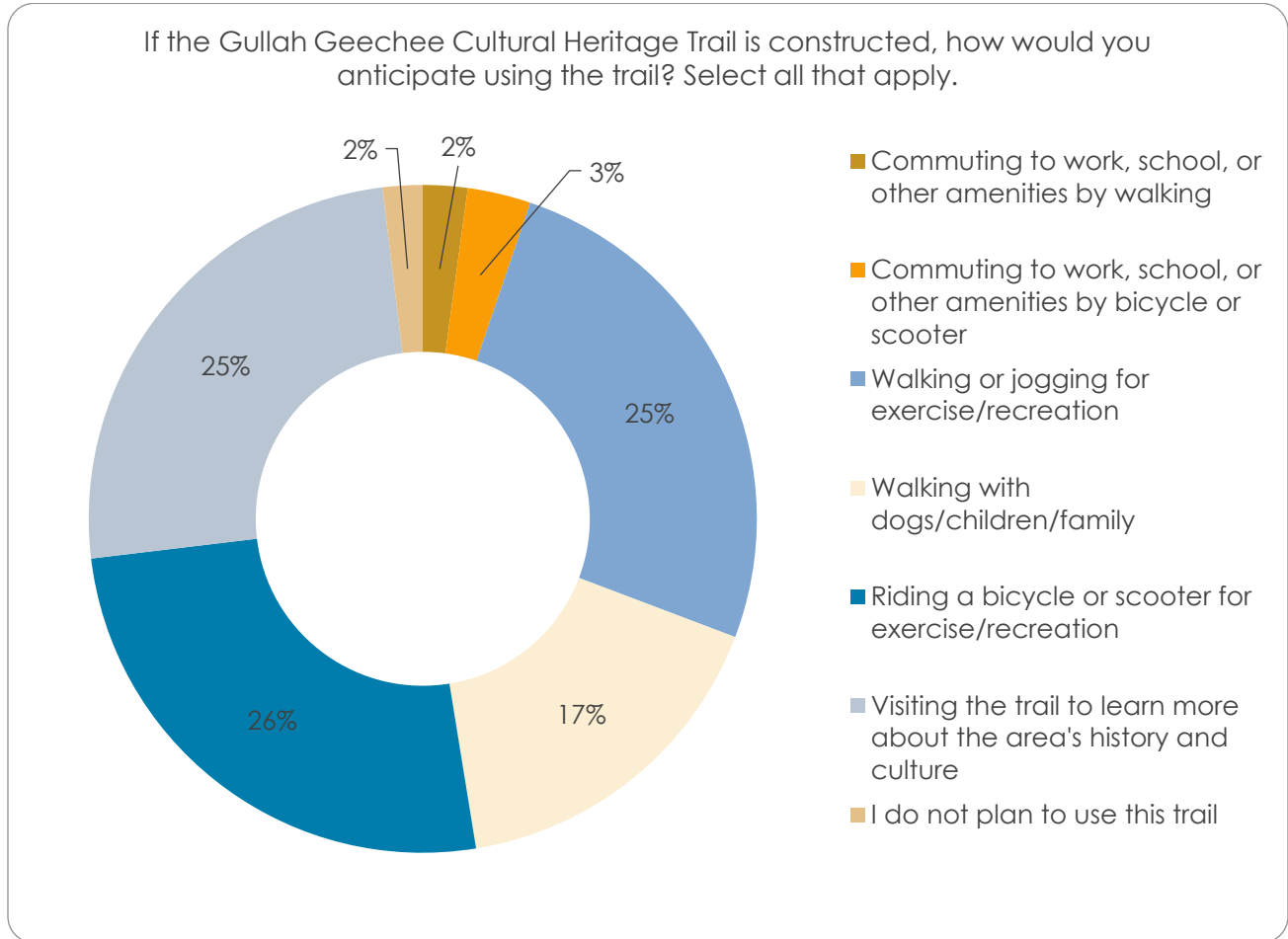


Figure 11. Responses for future use of trail

Filtering by specific town or county, the preference generally was still for recreation (both walking as well as bicycling/scooter) as well as visiting to learn more about the Gullah Geechee culture and history. Belville had a slightly higher preference for using the trail to commute to work, school, or other amenities by walking when compared to Leland, Navassa, and Brunswick County.

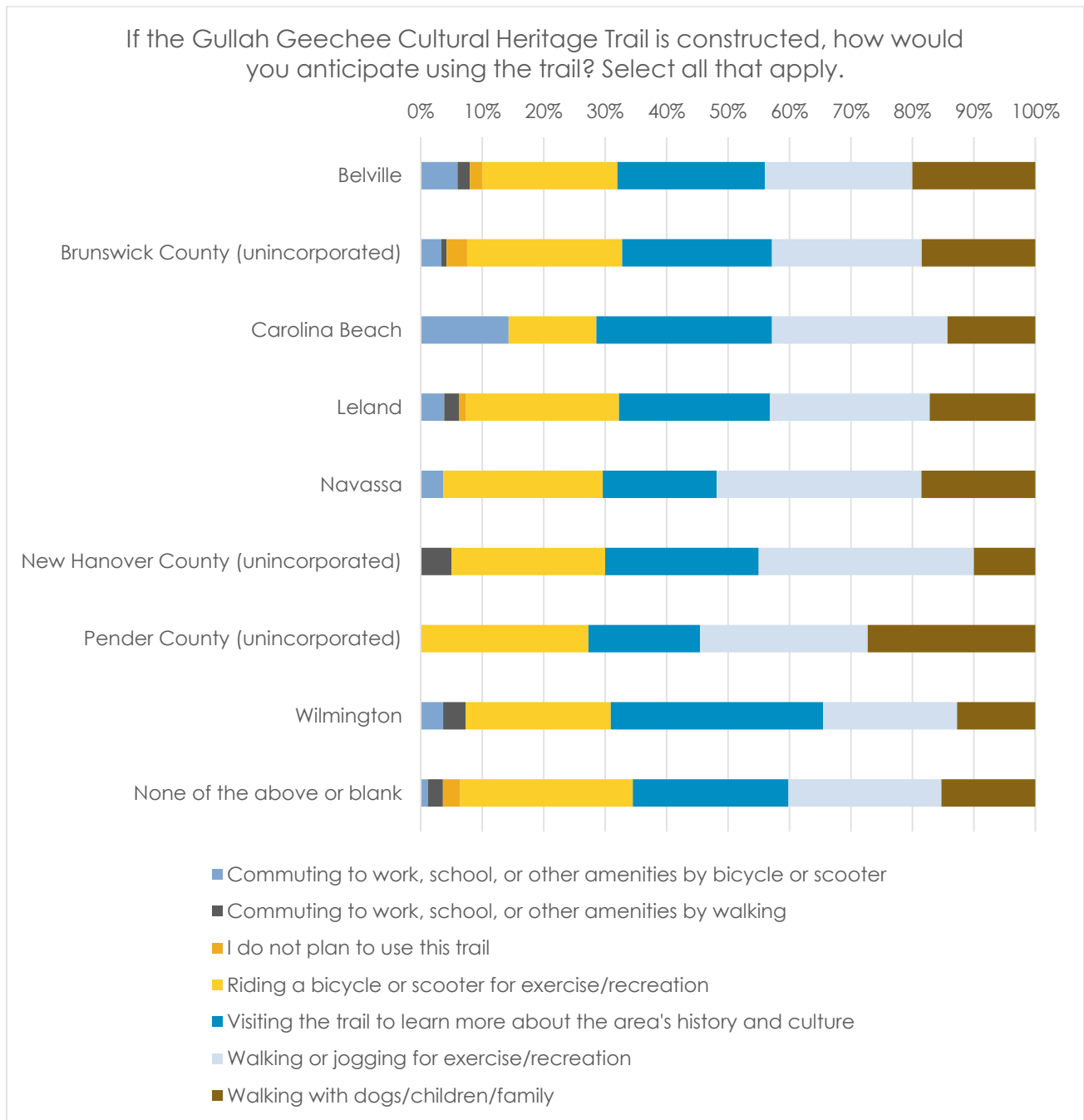


Figure 12. Responses for trail use by residence

When asked about how often they would anticipate using the trail, there were 313 responses to this question. 41% of respondents said they would use it a few times per month, and 28% said they would use it a few times a year. Only 4% said they would use it daily (Figure 13).

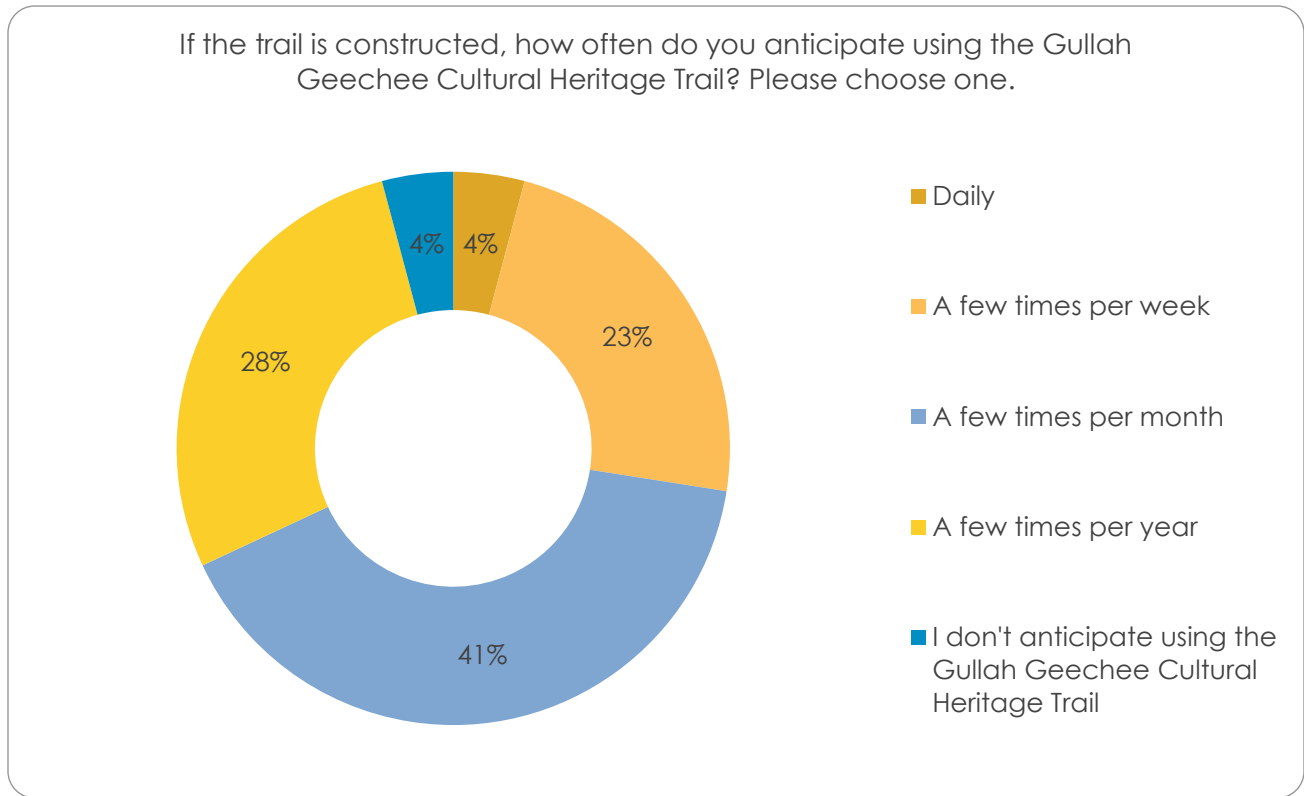


Figure 13. Responses for how often one would use the trail

Navassa had the highest percentage of “A few times per week” responses in comparison to Belville, Leland and Brunswick County. Belville had the highest percentage of responses for using the trail daily. The “A few times per month” responses were generally higher for residents from Leland or unincorporated Brunswick County.

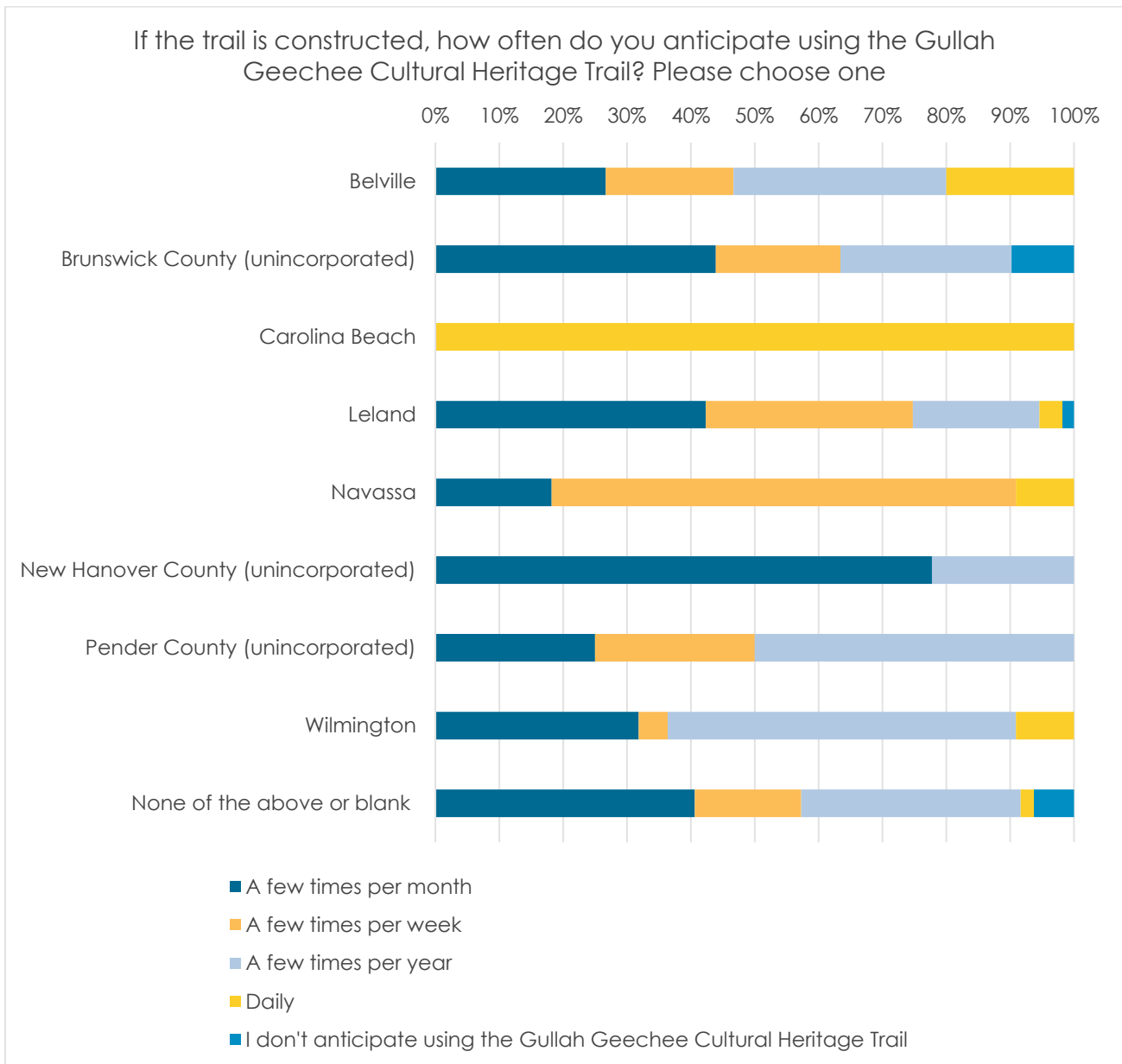


Figure 14. Responses for usage by residence

TRAIL ACCESS

Participants were asked where they would access the trail (Figure 15). This question allowed the respondent to select multiple responses, and there were 523 responses to this question. 22.6% of the responses were for near Brunswick Nature Park; 17.4% of responses were for Village Drive in Leland; 16.3% of responses were for River Road in Belville; 13.6% of responses were for River Road near Mallory Creek Drive.

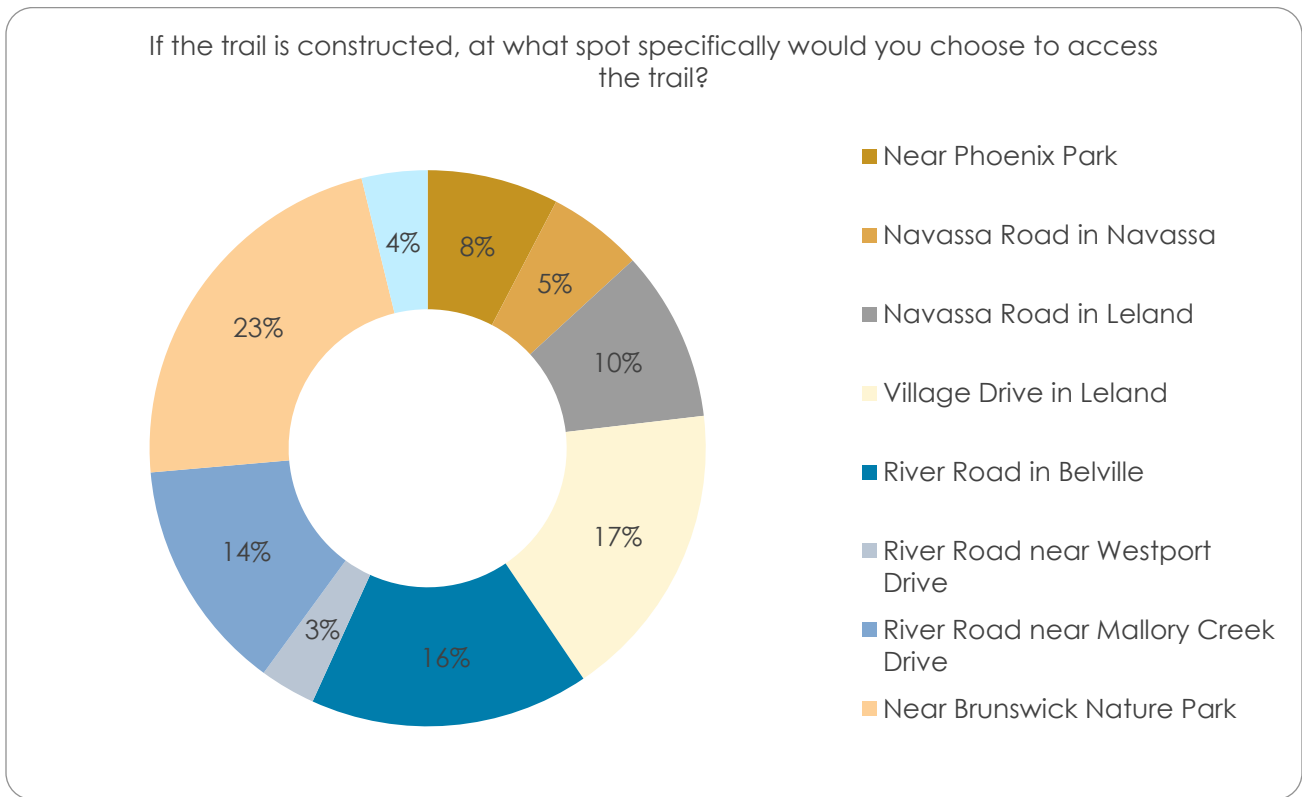


Figure 15. Responses for access to the trail

When looking at preferences by towns and Brunswick County, access points generally match with the community the participants reside in (Figure 16). For Navassa, a higher preference is seen for Navassa Road than Phoenix Park. Brunswick Nature Park is the preference for Brunswick County. Leland has a preference for Village Road as well as River Road near Mallory Creek Drive. Lastly, Belville has a preference for River Road in Belville.

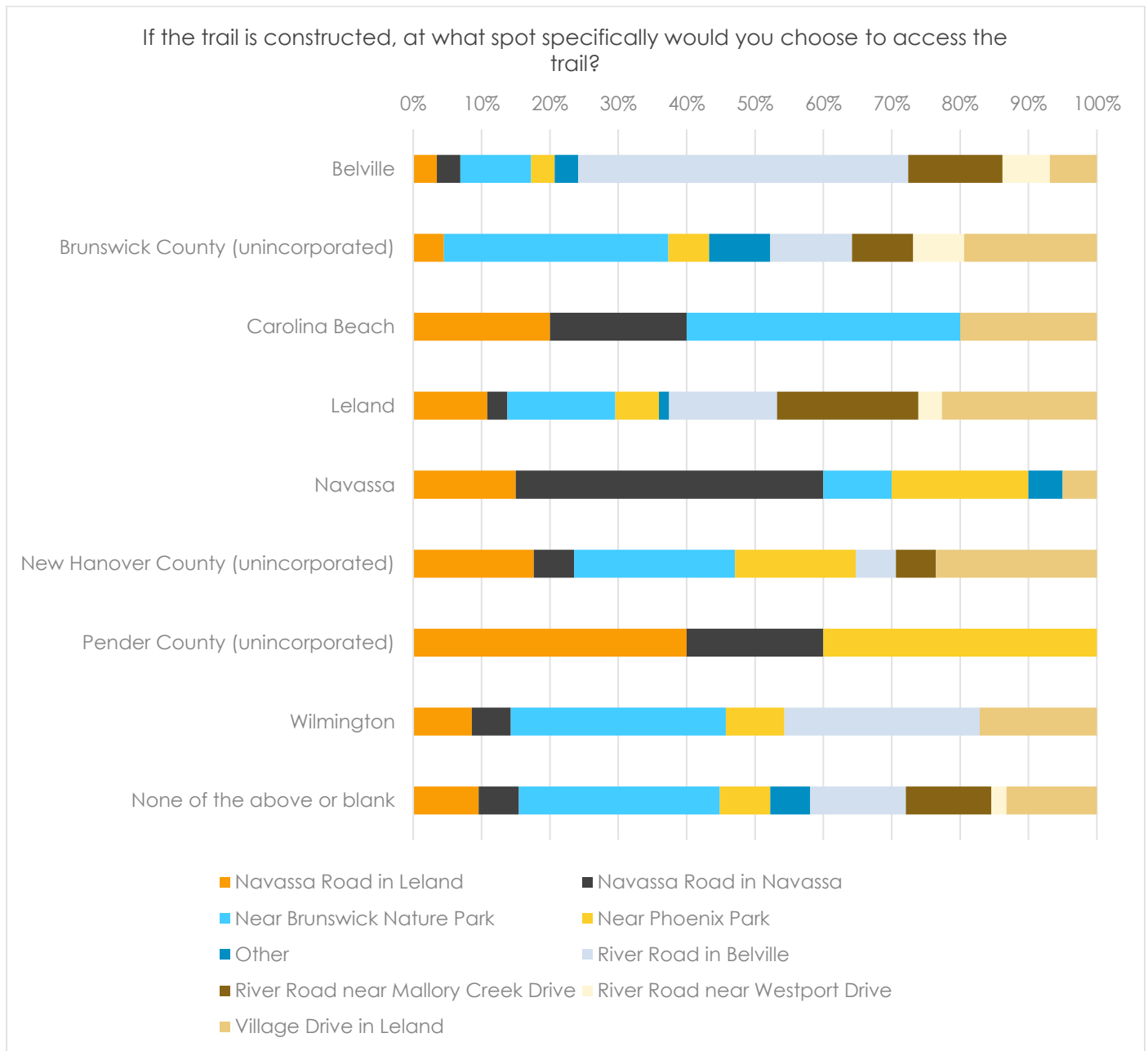


Figure 16. Responses for access points by residence

CULTURAL ELEMENTS

Participants were asked about historical and cultural education strategies for the Gullah Geechee Heritage Trail (Figure 17). This question allowed the respondent to select multiple responses. There were 1,509 responses to this question; 'storyboards at the park' received 17.1% of the responses; 'maps of historical sites' received 15.6% of the responses; 'interactive maps connected through smart phones' received 11.3% of the responses.

What are some history and cultural education strategies you would like to see along the Heritage Trail? Select all that apply.

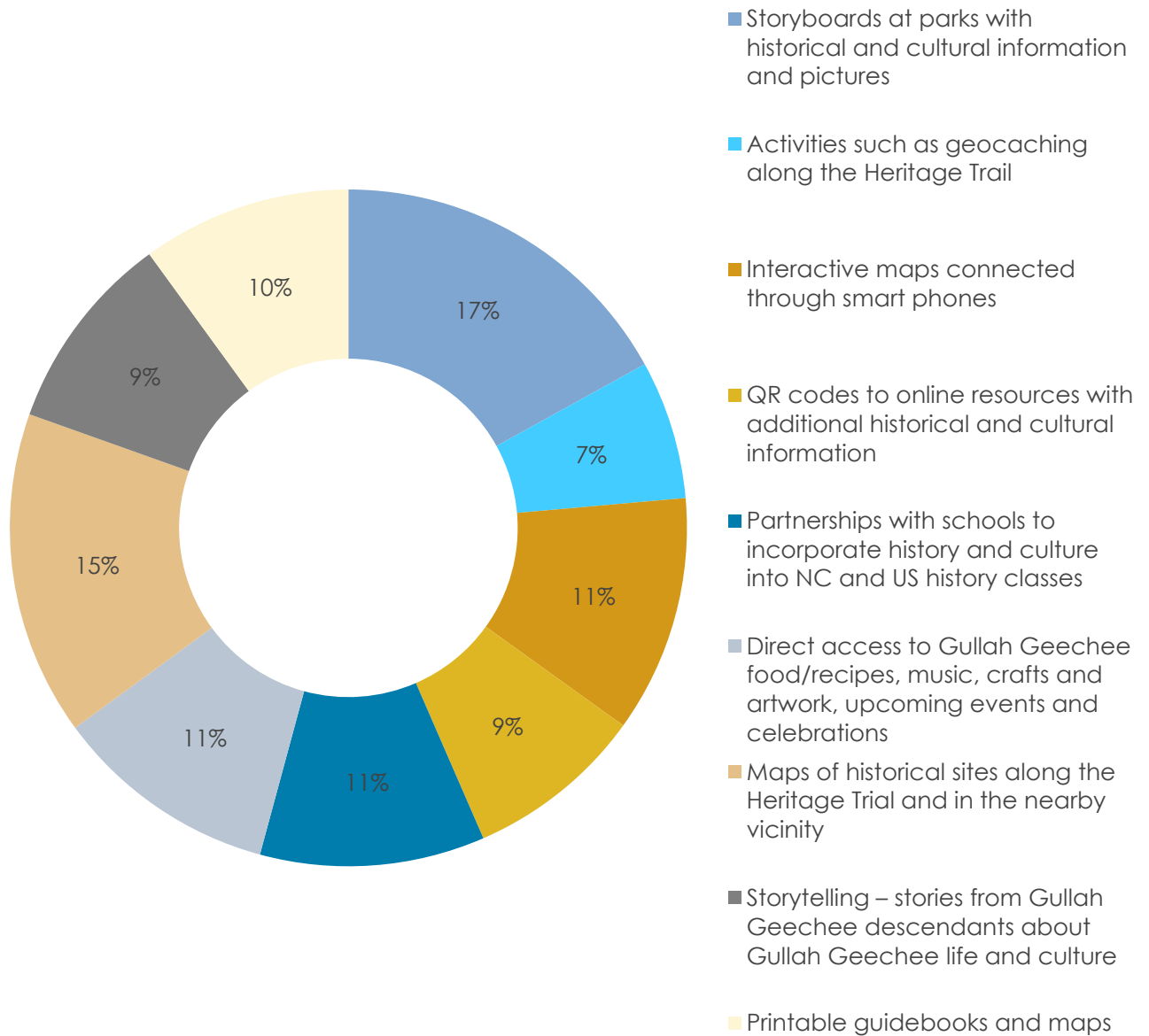


Figure 17. Responses for cultural and education strategies

Both Leland and Navassa had a slightly higher preference for storyboards at parks in comparison to other options (Figure 18). Navassa also had a higher preference for printable maps and maps of historical sites when compared to interactive maps connecting through smart phones and QR codes.

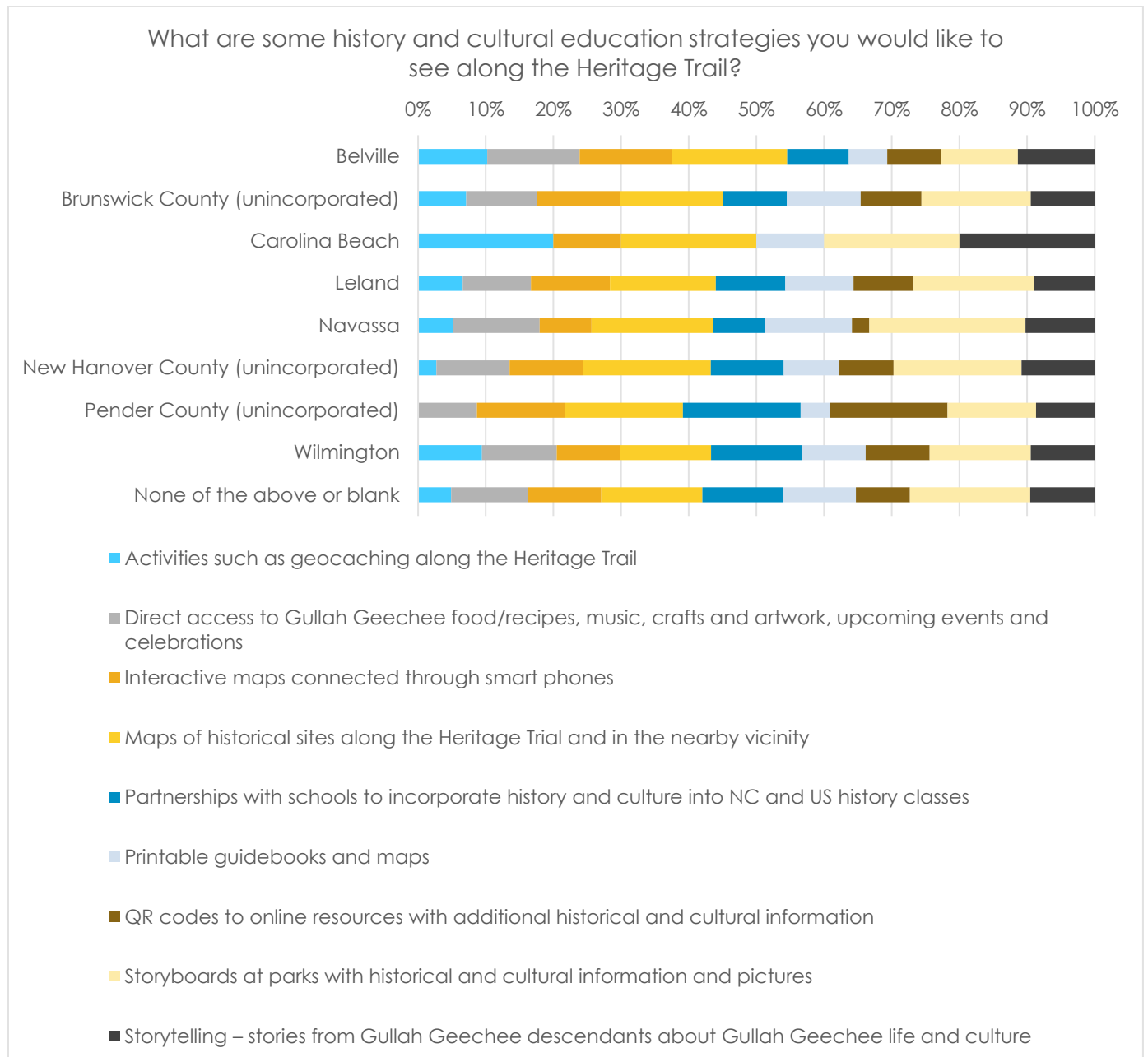


Figure 18. Responses for cultural and education strategies by residence

TRAIL TYPE

A question on preferences for a trail parallel to the existing roadway vs a trail farther away from existing roadways was asked. A trail parallel to existing roadway is marked as Far Left in the analysis, and the trail away from the existing roadway and development is marked as Far Right in analysis, with options to express a slight preference for one option or the other, or a neutral response.



Figure 19. Survey screenshot of trail type

There were 283 responses to this question; 127 respondents (or 44.9%) chose the 'Far right' option; 69 respondents (or 24.4%) chose the 'Right' option; 53 respondents (or 18.7%) chose the 'Neutral' option; When looking at all survey participants, a preference for a trail farther away from the existing roadway, businesses, and homes is seen (Figure 20). When analyzing by town or county, this preference was also seen. Belville and Navassa had the highest percentage of respondents that were neutral on this preference (Figure 21).

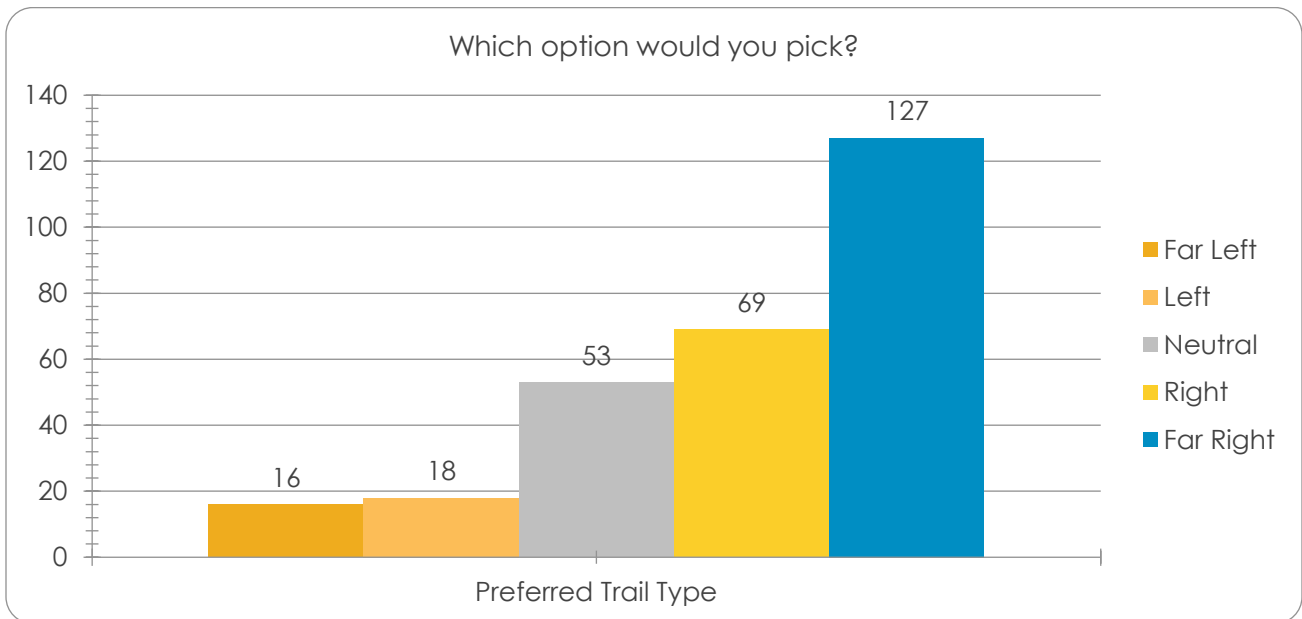


Figure 20. Responses for route preference

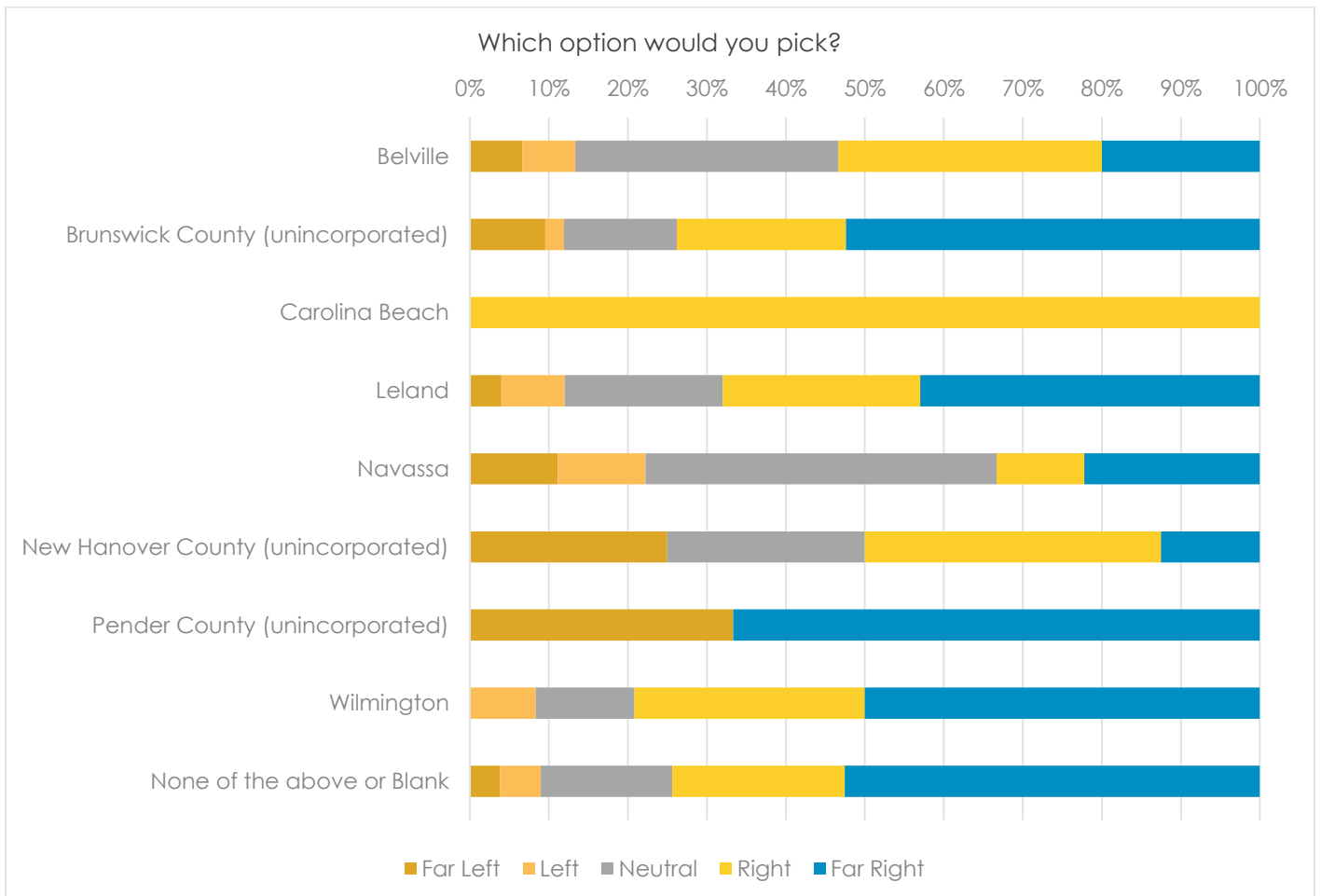


Figure 21. Responses for route preference by residence

ONLINE COMMENT MAP

Survey respondents were given an opportunity to drag icons for various modes of transportation onto a map and provide a comment related to that mode of transportation, specific to a location. There were 333 map comments.

- The walking icon was placed on the map 117 times, and 75 comments were provided.
- The cycling or rolling icon was placed on the map 116 times, and 75 comments were provided.
- The accessibility icon was placed on the map 27 times, and 17 comments were provided.
- The transit icon was placed on the map 22 times, and 8 comments were provided.
- The driving icon was placed on the map 20 times, and 17 comments were provided.
- The other icon was placed on the map 31 times, and 28 comments were provided.

Map comments were further analyzed to understand challenges and opportunities residents see for the Gullah Geechee Heritage Trail.

CHALLENGES

Participants left the following feedback on challenges for the corridor (see Figure 22):

- Highest concentration of concerns along Village Road and diverging diamond as well as River Road through Belville
- Multimodal safety concerns are seen throughout the corridor, especially related to intersections, midblock crossings, and speed and volume on NC 133

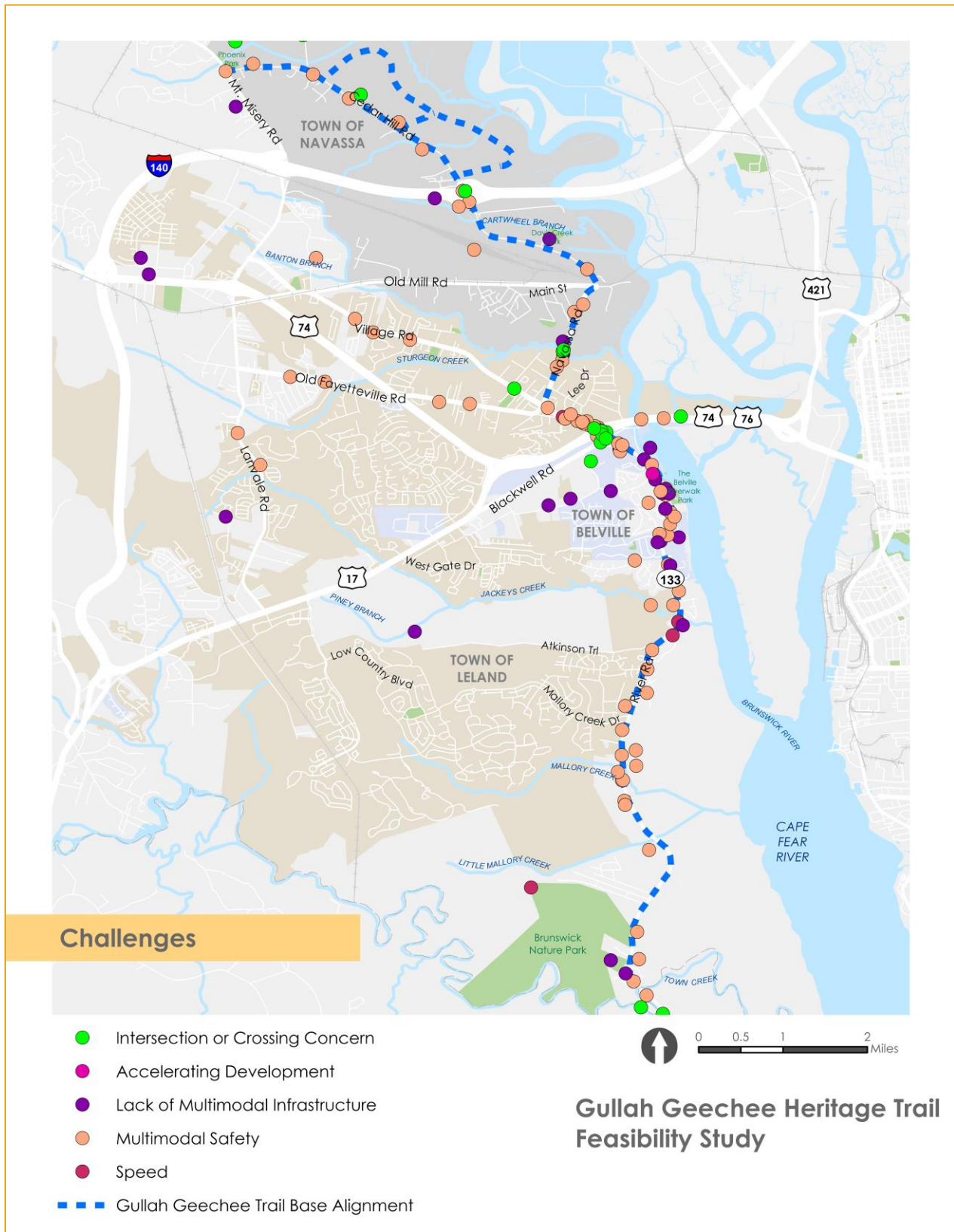


Figure 22. Challenge categories identified

OPPORTUNITIES

Participants left the following feedback on opportunities along the corridor (see Figure 23):

- Prioritize ADA accessibility in trail design and access
- A need for an alternative route that avoids Village Road
- Multimodal intersection improvements at the diverging diamond interchange
- Access points to the trail near shopping and amenities on Village Road as well as along River Road
- Provide parking at access points, such as at Brunswick Nature Park
- Consider multimodal bridges across creeks and marsh
- Provide cultural learning opportunities, such as along River Road and near Navassa Road
- Provide walking trails along the trail, with a potential to connect and enhance existing trails
- Connect to parks

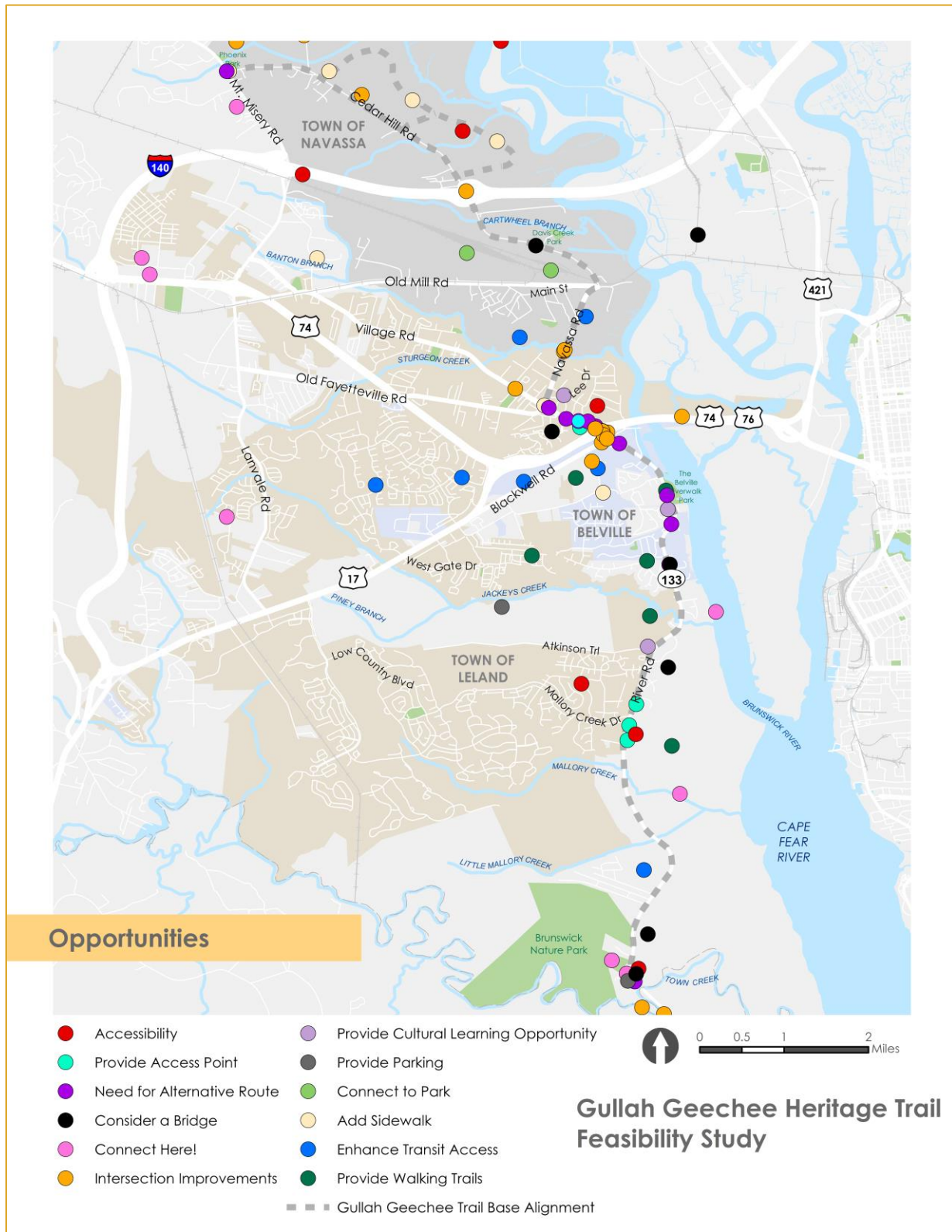


Figure 23. Opportunity categories identified

TECHNICAL MEMORANDUM

July 31, 2024

Project# 25771.013

To: Carolyn Caggia

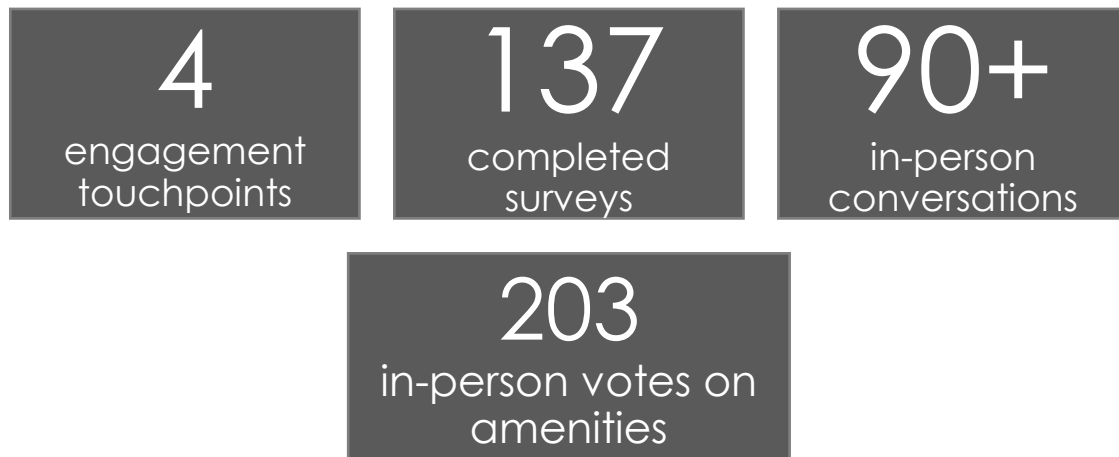
Wilmington Urban Area MPO

From: Sarah Brown; Zachary Bugg, PhD, PE; and Adrienne Harrington, MPA

CC: Grady McCollum, Hart Evans, Kim Nguyen, Vanessa Lacer, and Abby Lorenzo

RE: Gullah Geechee Heritage Trail Feasibility Study – Public Engagement Summary #2

Engagement Totals



Survey Results

The study team provided a survey to gather feedback on trail preferences and amenity preferences. Feedback collected is summarized in this section.

DEMOGRAPHICS

The demographics of survey participants were evaluated:

- Residence
- Age
- Gender identify
- Race and ethnicity

Figures 1- 5 show the results of all survey participants.

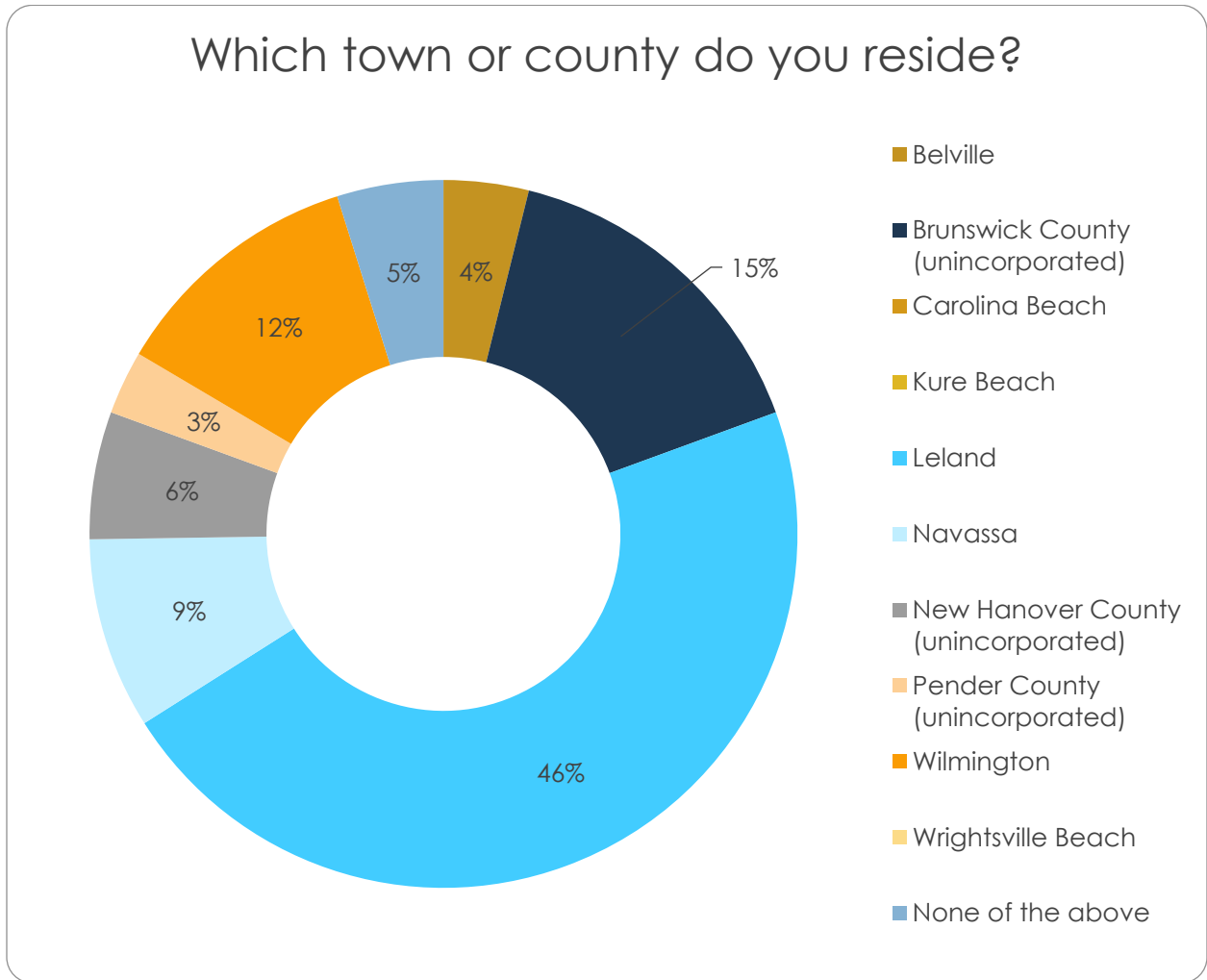


Figure 1. Participant residence

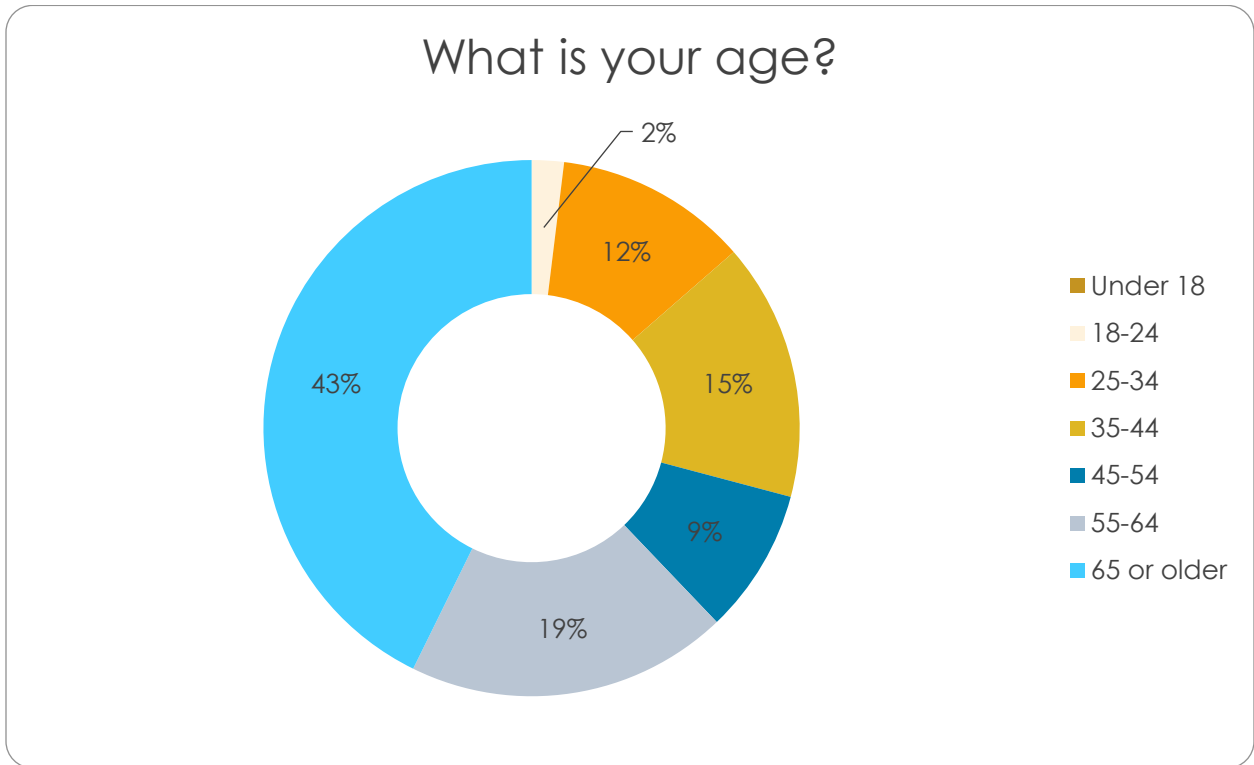


Figure 2. Participant age

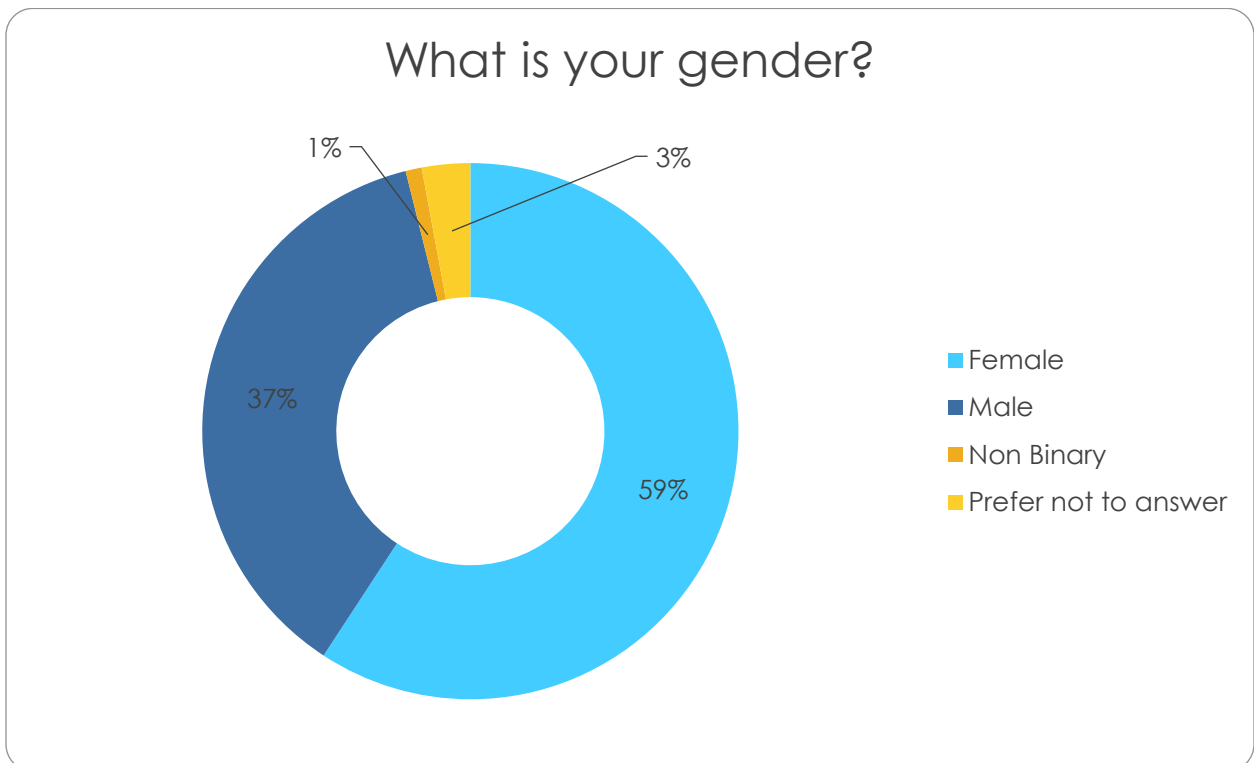


Figure 3. Participant gender identify

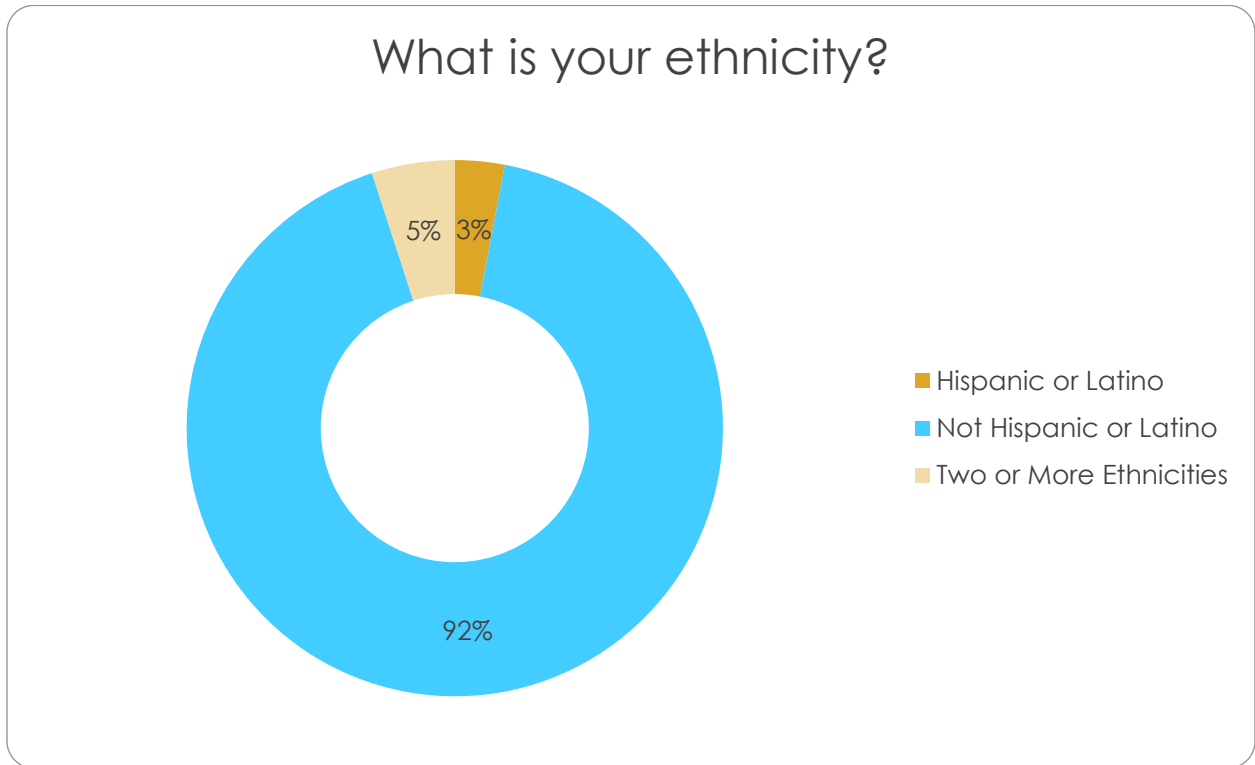


Figure 4. Participant ethnicity

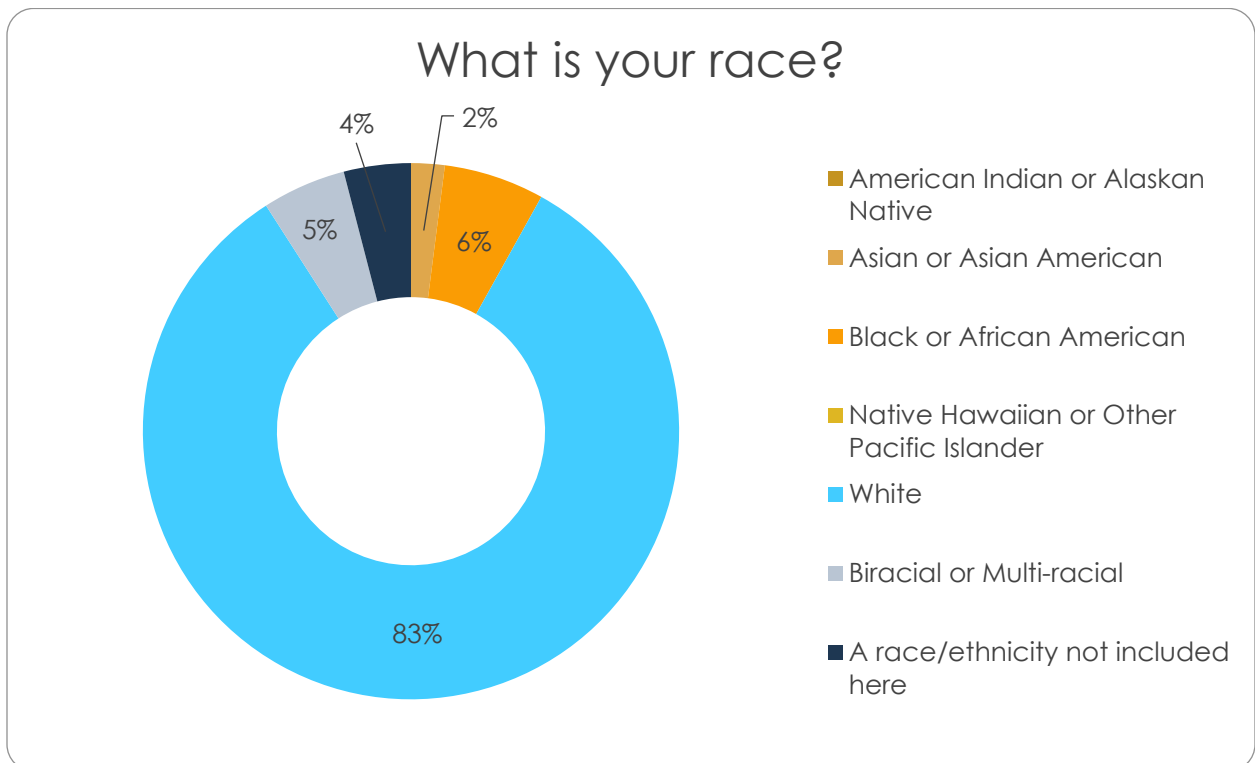


Figure 5. Participant race

TRAIL SEGMENT PREFERENCES

The following section explores how participants responded to trail segment preferences.

Segment 1

Figure 6 shows Segment 1 trail options (**Extents: Phoenix Park to I-140 Interchange**) and participant preferences. Alignment 1A (left image/purple line) would follow Cedar Hill Road. Alignment 1B (right image/red line) would traverse a more natural environment closer to the river.

There were 119 responses to this question; 58% (or 69 respondents) strongly prefer 2B, 26.9% (or 32 respondents) prefer 2B, 7.6% (or 9 respondents) are neutral; 5.9% (or 7 respondents) prefer 2A; and 1.7% (or 2 respondents) strongly prefer 2A.

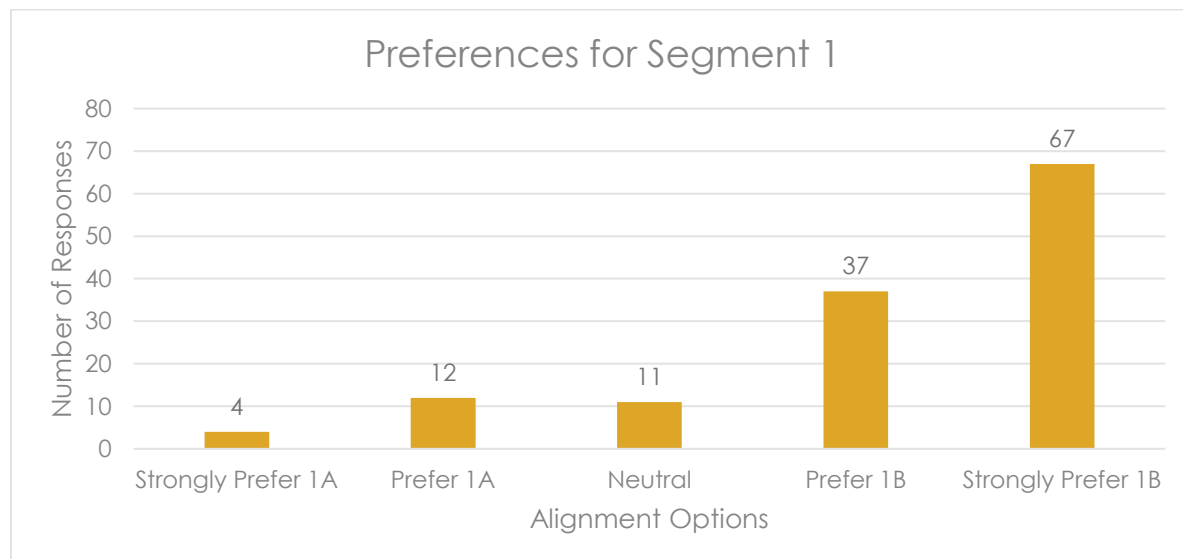


Figure 6. Segment 1 preferences

Segment 2

Figure 7 shows Segment 2 trail options (**Extents: Cedar Hill Rd/I-140 Interchange**) and participant preferences. Alignment 2A (left image/purple line) follows Cedar Hill Road. It will go under I-140 at Cedar Hill Road. Alignment 2B (right image/red line) would traverse a more natural environment closer to the river. It will also go under I-140.

There were 119 responses to this question, and 58% (or 69 respondents) strongly prefer 2B.



Figure 7. Segment 2 preferences

Segment 3

Figure 8 shows Segment 3 trail options (**Extents: I-140 Interchange to Old Mill Rd**) and participant preferences. Alignment 3A (left image/purple line) follows Cedar Hill Road. Alignment 3B (right image/red line) would traverse a more natural environment closer to the river.

There were 114 responses to this question; 58.8% (or 67 respondents) strongly prefer 3B, 25.4% (or 29 respondents) prefer 3B, 9.6% (or 11 respondents) prefer 3A; 5.3% (or 6 respondents) are neutral; and 0.9% (or 1 respondent) strongly prefer 3A.

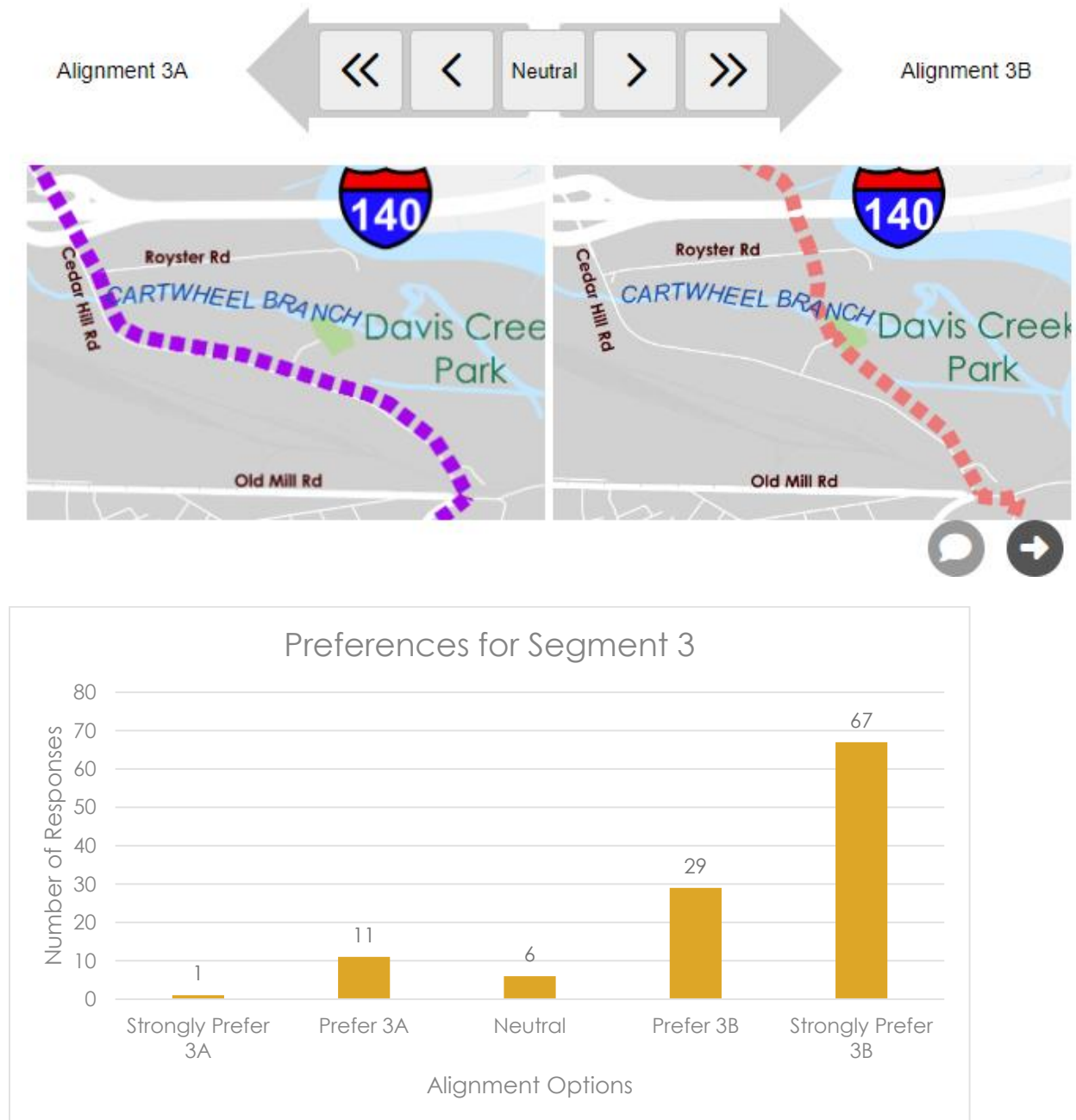


Figure 8. Segment 3 preferences

Segment 4

Figure 9 shows Segment 4 trail options (**Extents: Old Mill Rd to Baldwin Dr**) and participant preferences. Alignment 4A (left image/purple line) would follow Navassa Rd. Alignment 4B (right image/red line) would traverse a more natural environment closer to the river. Both alignments would cross Sturgeon Creek on a new multimodal bridge.

There were 119 responses to this question; 55.5% (or 66 respondents) strongly prefer 4B, 26.1% (or 31 respondents) prefer 4B, 7.6% (or 9 respondents) prefer 4A; 5.9% (or 7 respondents) are neutral; and 5.0% (or 6 respondent) strongly prefer 4A

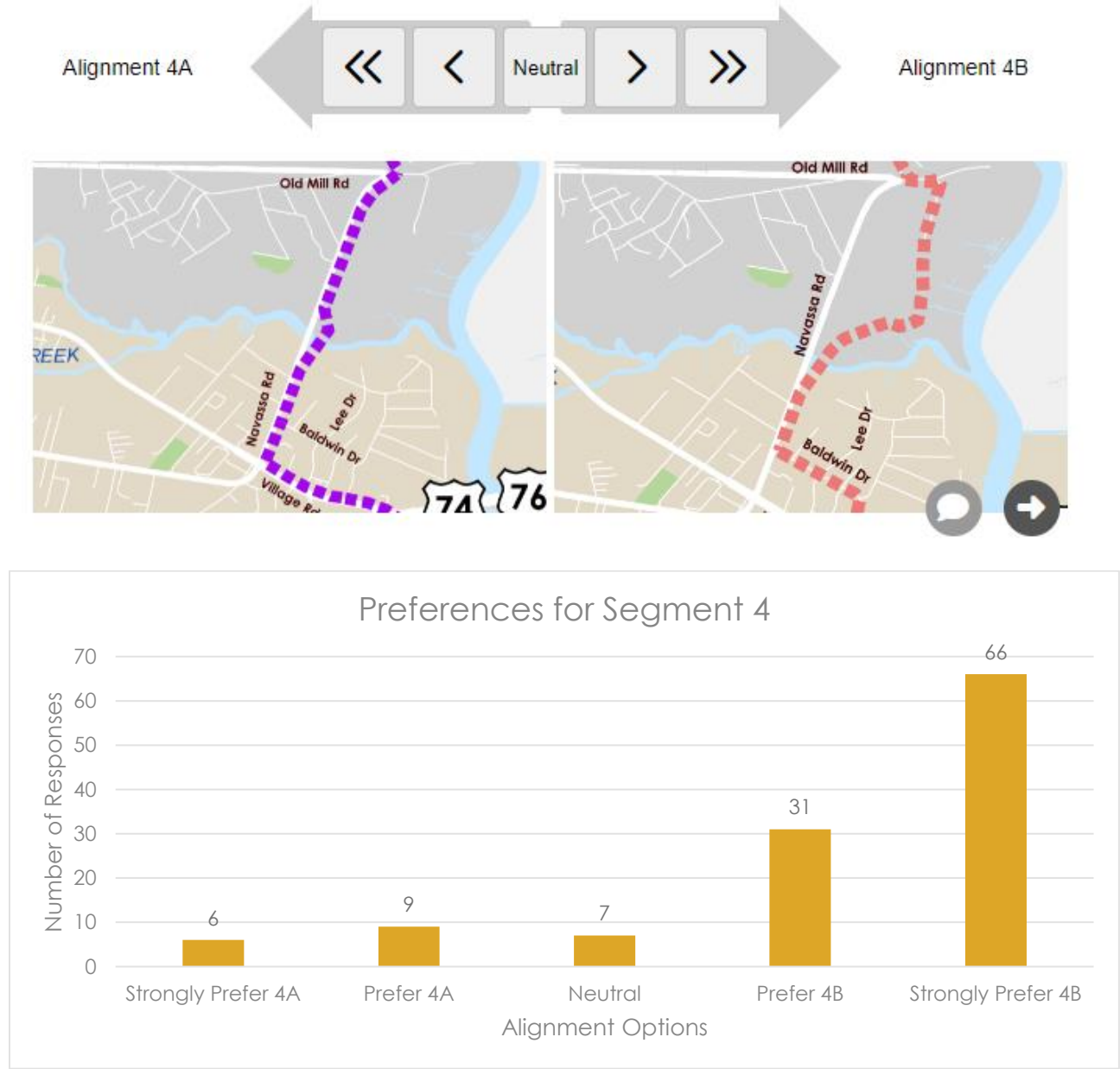


Figure 9. Segment 4 preferences

Segment 5

Figure 10 shows Segment 5 trail options (**Extents: Baldwin Dr to Village Rd**) and participant preferences. Alignment 5A (left image/purple line) would follow Village Road toward US74/76. Alignment 5B (right image/red line) would follow Baldwin Drive through the Harrington Square Apartment Complex to Village Road.

There were 117 responses to this question. 43.6% (or 51 respondents) strongly prefer 3B. 13.7% (or 16 respondents) strongly prefer 5A. 21.4% (or 25 respondents) prefer 3B, 13.7% (or 16 respondents) strongly prefer 5A; 12% (or 14 respondents) prefer 5A; and 9.4% (or 11 respondents) are neutral.

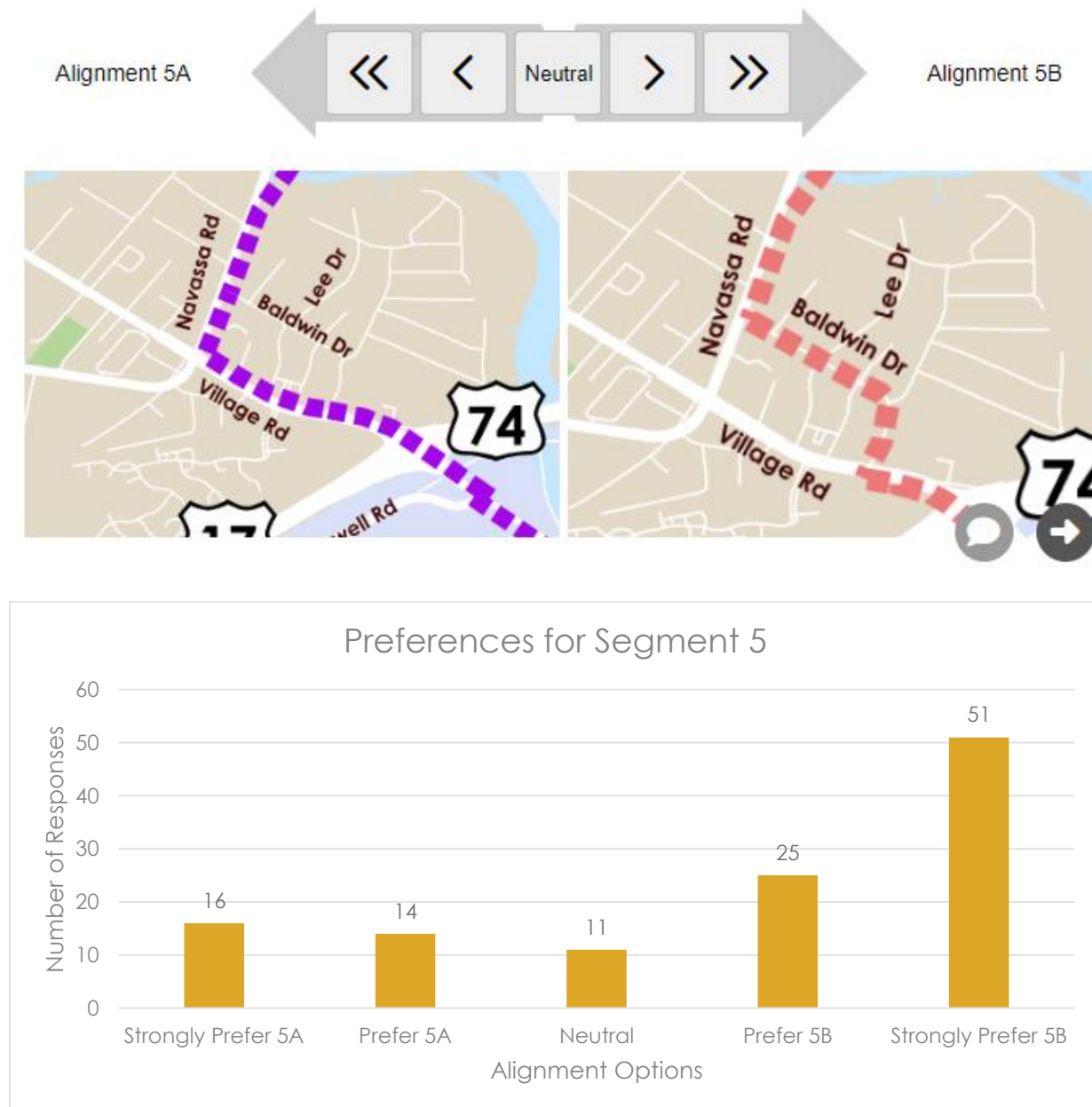


Figure 10. Segment 5 preferences

Segment 6

Figure 11 shows Segment 6 trail options (**Extents: NC 133/River Rd Interchange with US 74**) and participant preferences. Alignment 6A (left image/purple line) would follow Village Rd on the north side and goes under US 74/76. Alignment 6B (right image/red line) would follow Village Rd on the south side and goes under US 74/76.

There were 110 responses to this question; 34.5% (or 38 respondents) strongly prefer 6B; 21.8% (or 24 respondents) strongly prefer 6A; 16.4% (or 18 respondents) prefer 6B; 13.6% (or 15 respondents) prefer 6A; and 13.6% (or 13 respondents) are neutral.



Figure 11. Segment 6 preferences

Segment 7

Figure 12 shows segment 7 trail options (**Extents: Blackwell Rd to Belville Town Limit**) and participant preferences. Alignment 7A (left image/purple line) would follow River Road/NC 133. Alignment 7B (right image/red line) would follow Blackwell Road and Chappell Loop Road and traverse the neighborhoods behind the school.

There were 109 responses to this question; 44% (or 48 respondents) strongly prefer 7A; 22% (or 24 respondents) prefer 7A; 16.5% (or 18 respondents) strongly prefer 7B; 11.9% (or 13 respondents) prefer 7B; and 5.5% (or 6 respondents) are neutral.

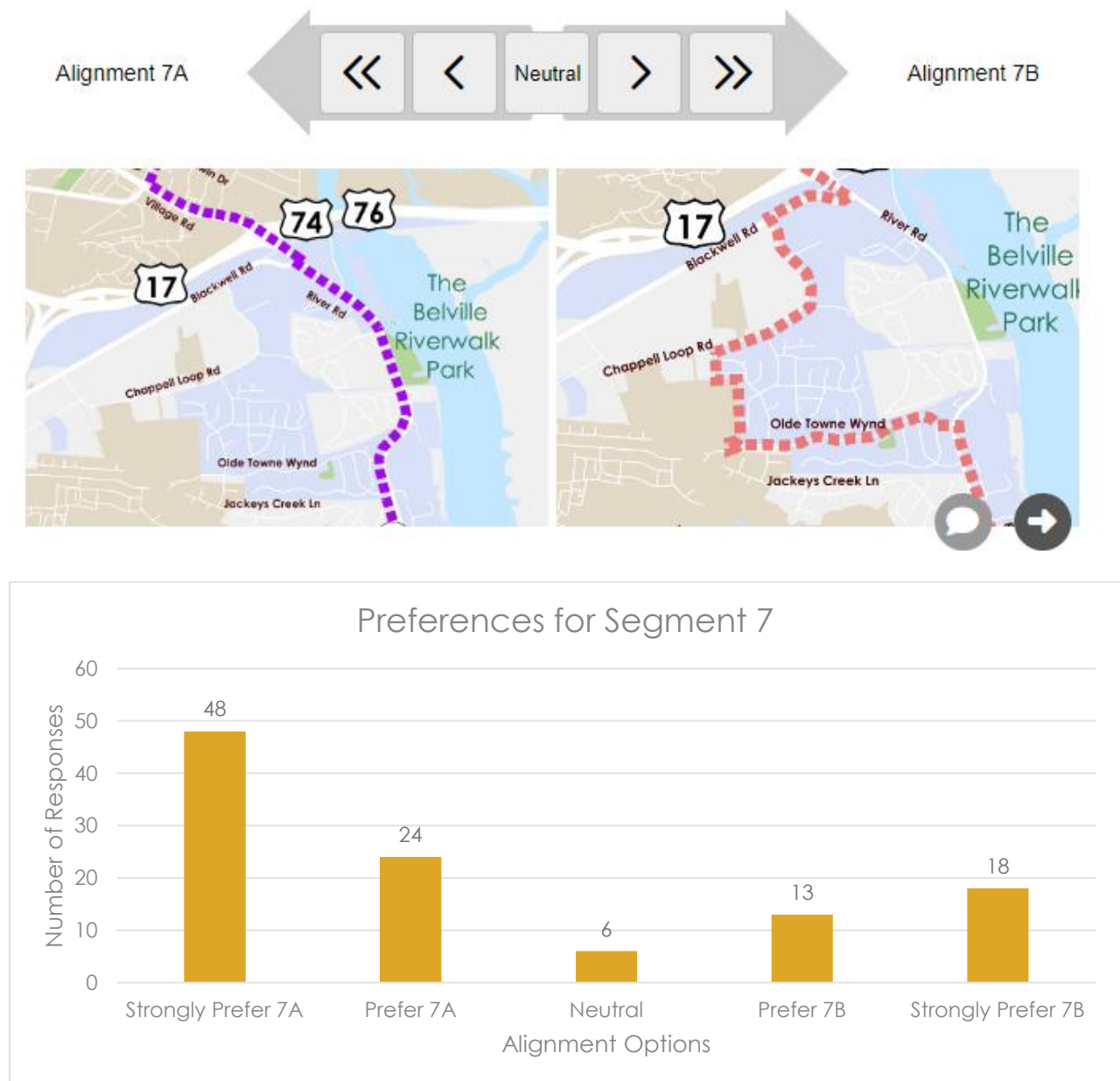


Figure 12. Segment 7 preferences

Segment 8

Figure 13 shows Segment 8 trail options (**Extents: Belville Town Limit to Mallory Creek Dr**) and participant preferences. Alignment 8A (left image/purple line) would follow NC 133/River Road on the west side. Alignment 8B (right image/red line) would follow NC 133/River Rd on the east side.

There were 107 responses to this question; 34.6% (or 37 respondents) strongly prefer 8B; 19.6% (or 21 respondents) strongly prefer 8A; 19.6% (or 21 respondents) are neutral; 14% (or 15 respondents) prefer 8B; and 21.1% (or 13 respondents) prefer 8A.

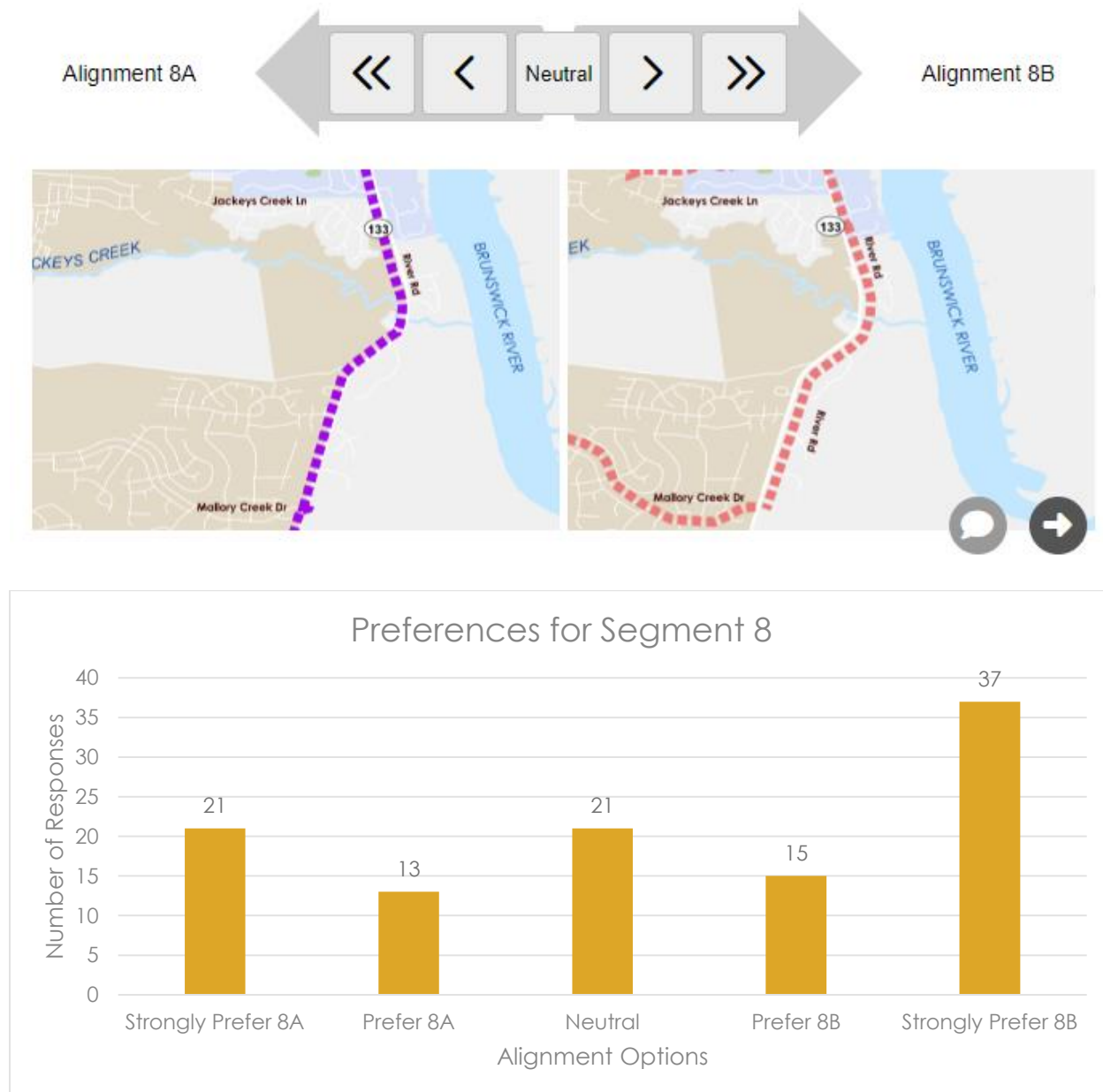


Figure 13. Segment 8 preferences

Segment 9

Figure 14 shows Segment 9 trail options (**Extents: Mallory Creek Dr to Brunswick Nature Park**) and participant preferences. Alignment 9A (left image/purple line) would follow the west side of NC133/River Rd. Alignment 9B (right image/red line) would follow Mallory Creek Drive and take the existing utility easement. Both options end at the Brunswick Nature Park.

There were 104 responses to this question; 32.7% (or 34 respondents) strongly prefer 9B; 26.9% (or 28 respondents) strongly prefer 9A; 18.3% (or 19 respondents) prefer 9B; 16.3% (or 17 respondents) prefer 9A; and 5.8% (or 6 respondents) are neutral.

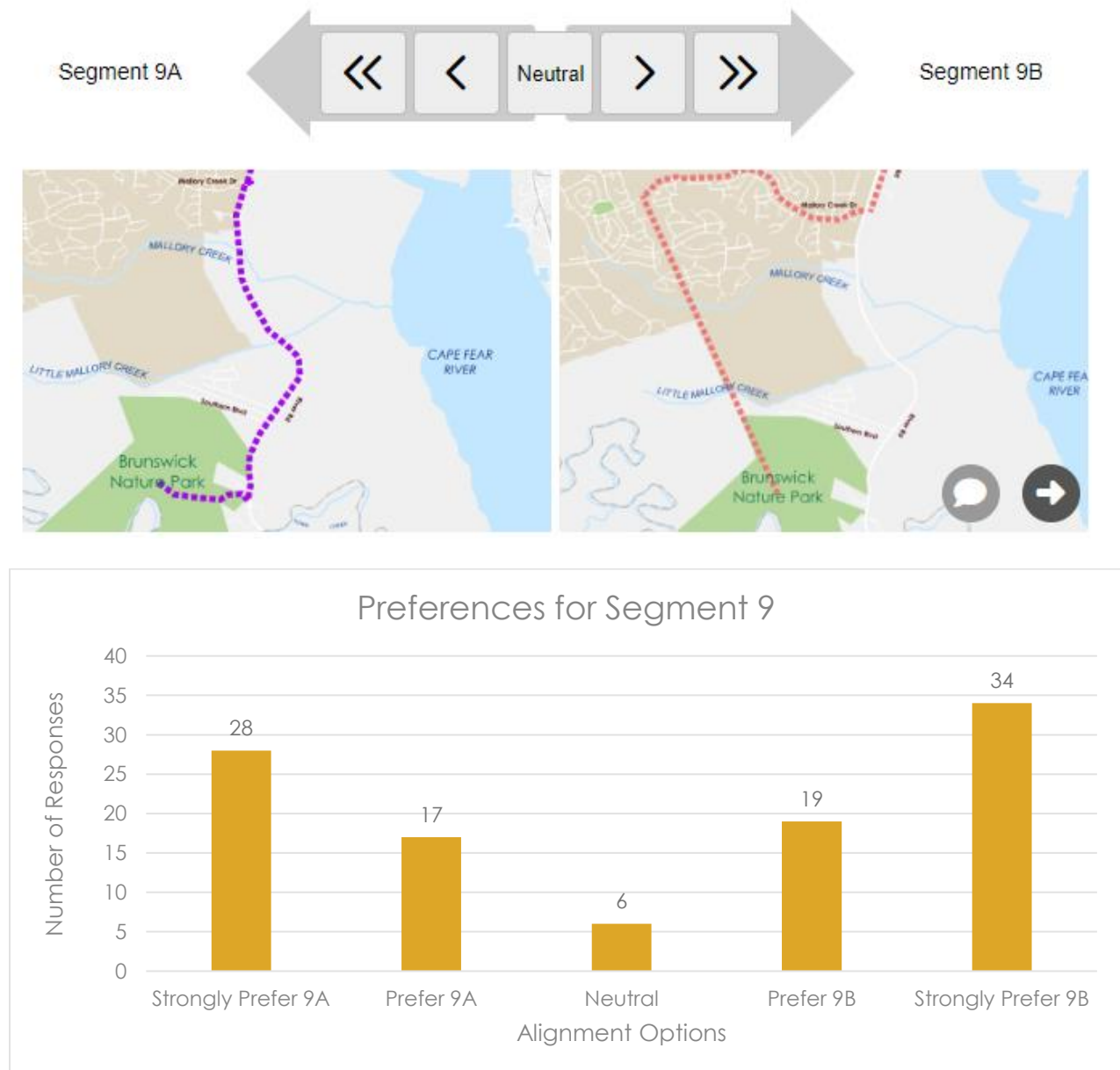


Figure 14. Segment 9 preferences

TRAIL AMENITY PREFERENCES

Respondents were asked to prioritize the trail amenities they would like to see along the Gullah Geechee Heritage Trail by selecting five of eight amenity options:

- Benches
- Vehicle parking
- Trail wayfinding
- Historical markers
- Bike parking
- Public art
- Exercise stations
- Lighting

Results are shown in Table 1.

Table 1. Trail Amenity Votes

Amenity	Total votes
Trail Wayfinding	18.1%
Lighting	16.5%
Vehicle Parking	15.8%
Benches	15.8%
Historical Markers	15.6%
Bike Parking	9.9%
Public Art	5.2%
Exercise Stations	3.2%

In-Person Engagement Events

Four in-person engagement events were held at the following locations:

- Brunswick Rice Festival, 3/2/2024 (providing public meeting announcements only)
- Navassa Community Center, 3/14/2024
- Belville Easter Egg Hunt at Belville Riverwalk Park 3/24/2024
- Leland Town Hall, 3/26/2024

TRAIL AMENITY EXERCISE

An exercise to collect feedback on trail amenities was provided at three in-person events (Belville, Leland, and Navassa). Belville was represented in blue stickers, Leland was represented in pink stickers, and Navassa was represented in red stickers. The top three amenities from each community are shown in Figure 15.

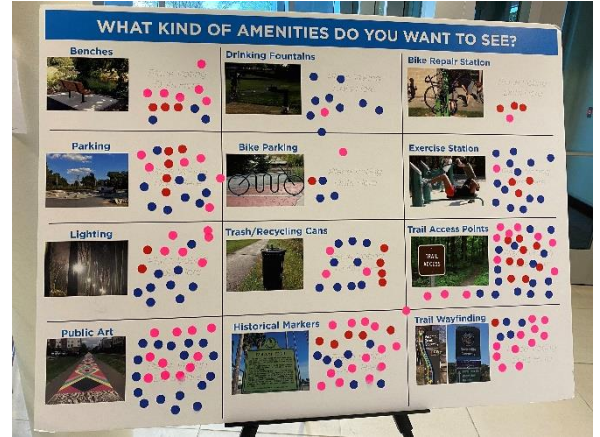


Figure 15. Top 3 Amenities for Belville, Leland, and Navassa

Table 2. Amenity In-Person Voting Exercise Results

Amenity	Belville (Blue)	Leland (Pink)	Navassa (Red)	Total
Benches	3	6	3	12
Drinking Fountains	9	1	0	10
Bike Repair Station	0	1	3	4
Parking	9	6	5	20
Bike Parking	3	1	1	5
Exercise Station	13	1	3	17
Lighting	9	6	2	17
Trash Can/Recycle	9	3	4	16
Trail Access Points	14	10	9	33
Public Art	17	11	0	28
Historical Markers	7	13	5	25
Trail Wayfinding	4	11	1	16

IN-PERSON FEEDBACK

The following feedback was collected at the events:

Navassa Community Center, 3/14/2024

- Preference for placing the trail away from the road (alignments 1B, 2B, 3B, and 4B)
- Support for connecting to Gullah Geechee historic sites

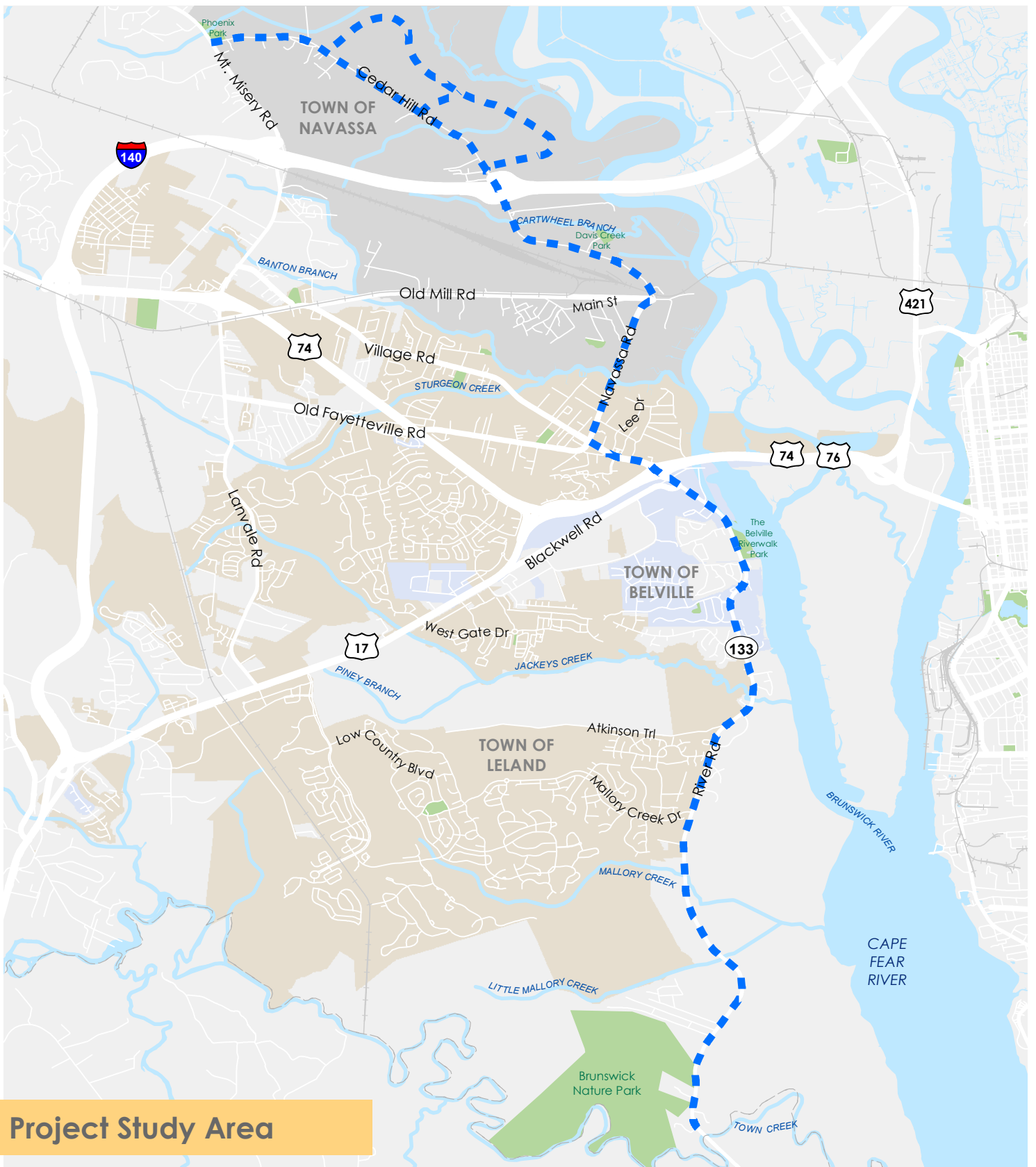
Belville Easter Egg Hunt at Belville Riverwalk Park 3/24/2024

- Overall excitement for the trail
- Questions about the impact to neighborhoods for alignment 7A
- Excitement over opportunities for public art in the park and along the trail
- Preference for a trail closer to the school/park along River Road was seen

Leland Town Hall, 3/26/2024

- Support for the trail
- Questions about the cross section of the trail for alignment 5B (Baldwin Dr)
- Desire to connect the trail to Founders Park and Old Fayetteville Road
- Support for utilizing the utility easement for alignment 9B

Appendix B:
Existing Conditions Maps

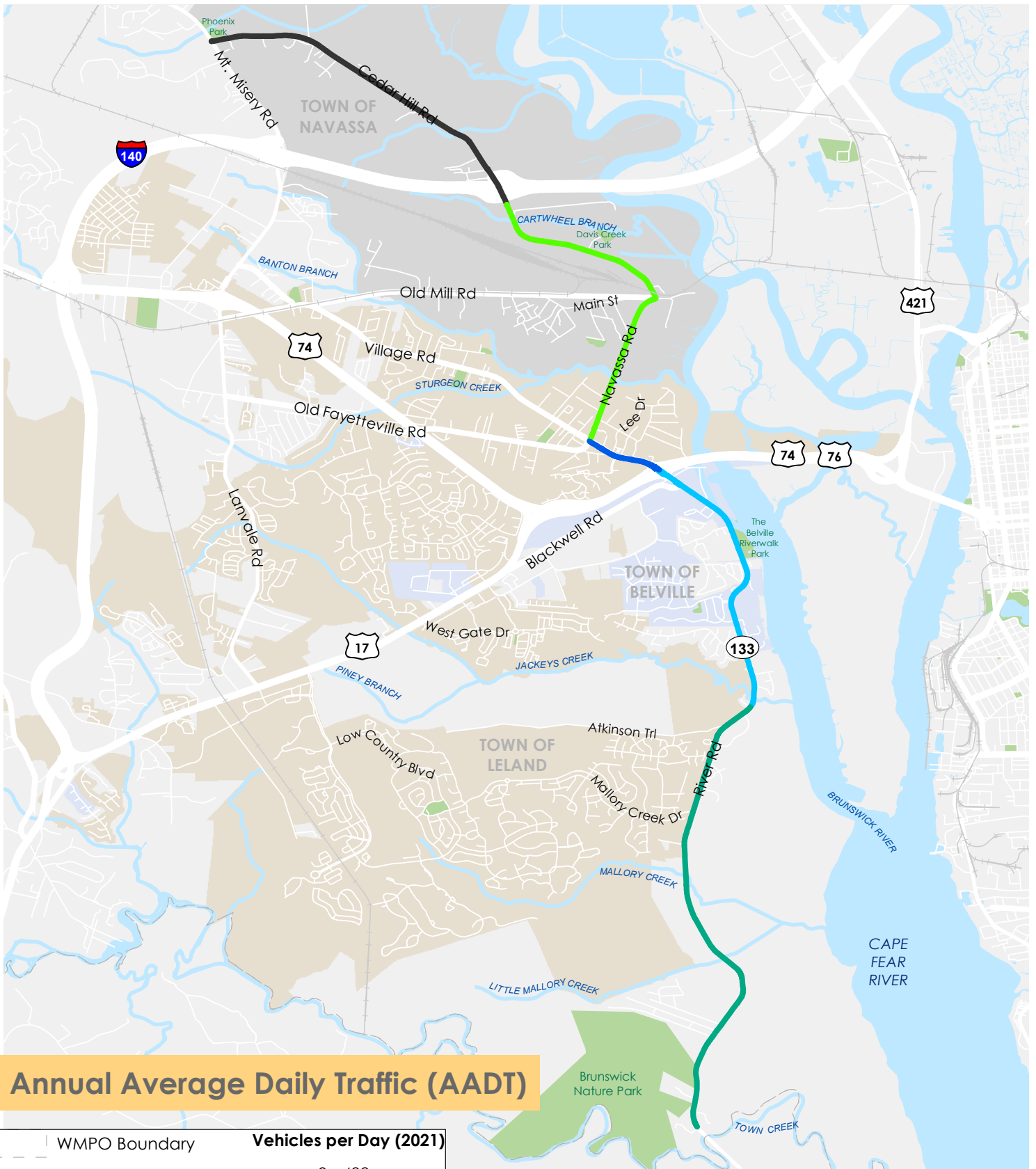


Project Study Area

- Gullah Geechee Trail Base Alignment
- WMPO Boundary
- Railroad
- Parks and Greenspace
- Water
- Town of Belville
- Town of Leland
- Town of Navassa



Gullah Geechee Heritage Trail Feasibility Study



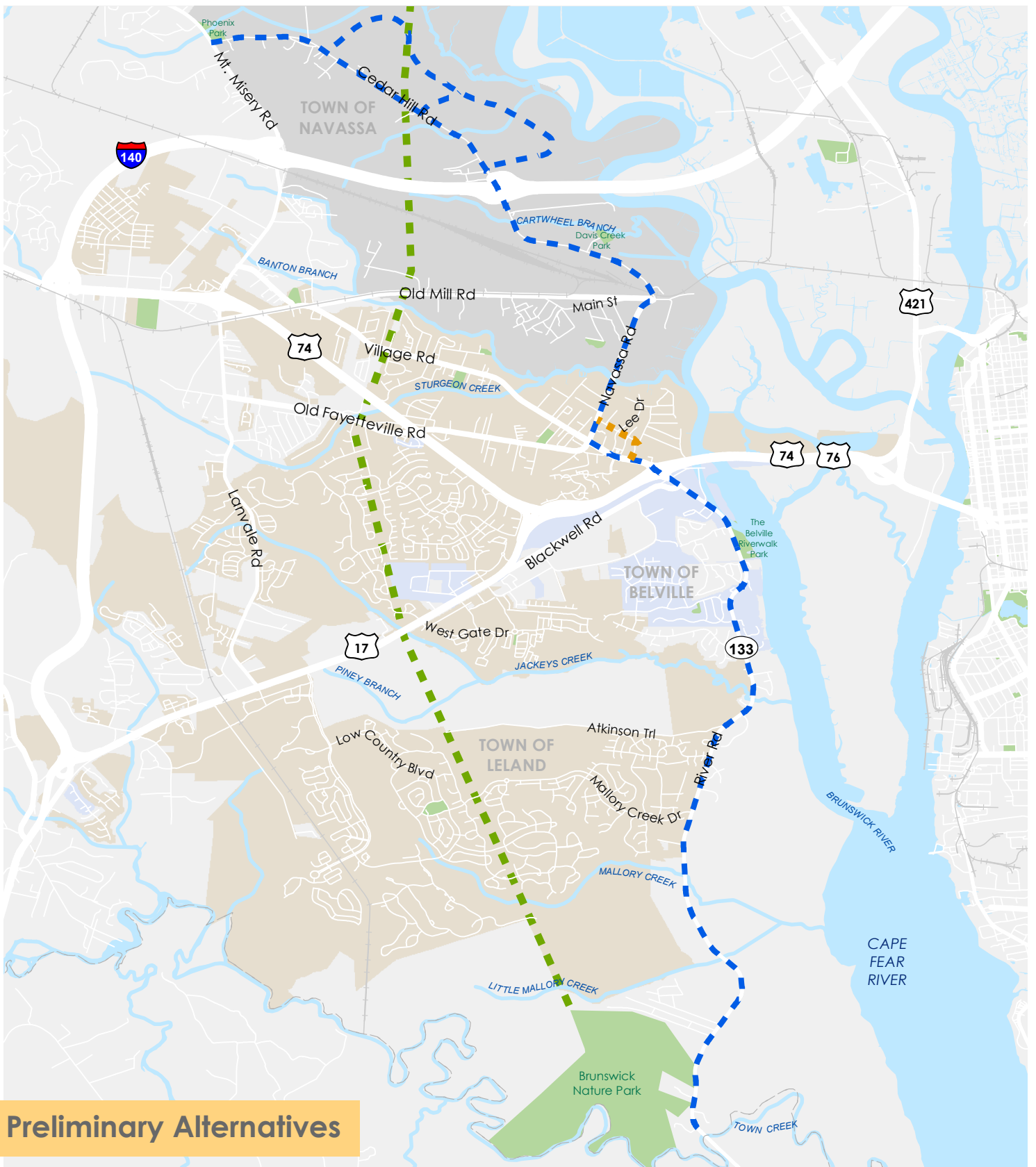
Annual Average Daily Traffic (AADT)

Vehicles per Day (2021)	
	WMPO Boundary
	Railroad
	Parks and Greenspace
	Water
	Town of Belville
	Town of Leland
	Town of Navassa
	0 - 499
	500 - 1,999
	2,000 - 4,999
	5,000 - 9,999
	10,000 - 19,999
	20,000 or more



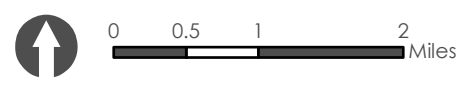
Gullah Geechee Heritage Trail Feasibility Study

Data Source: NCDOT Road Characteristics

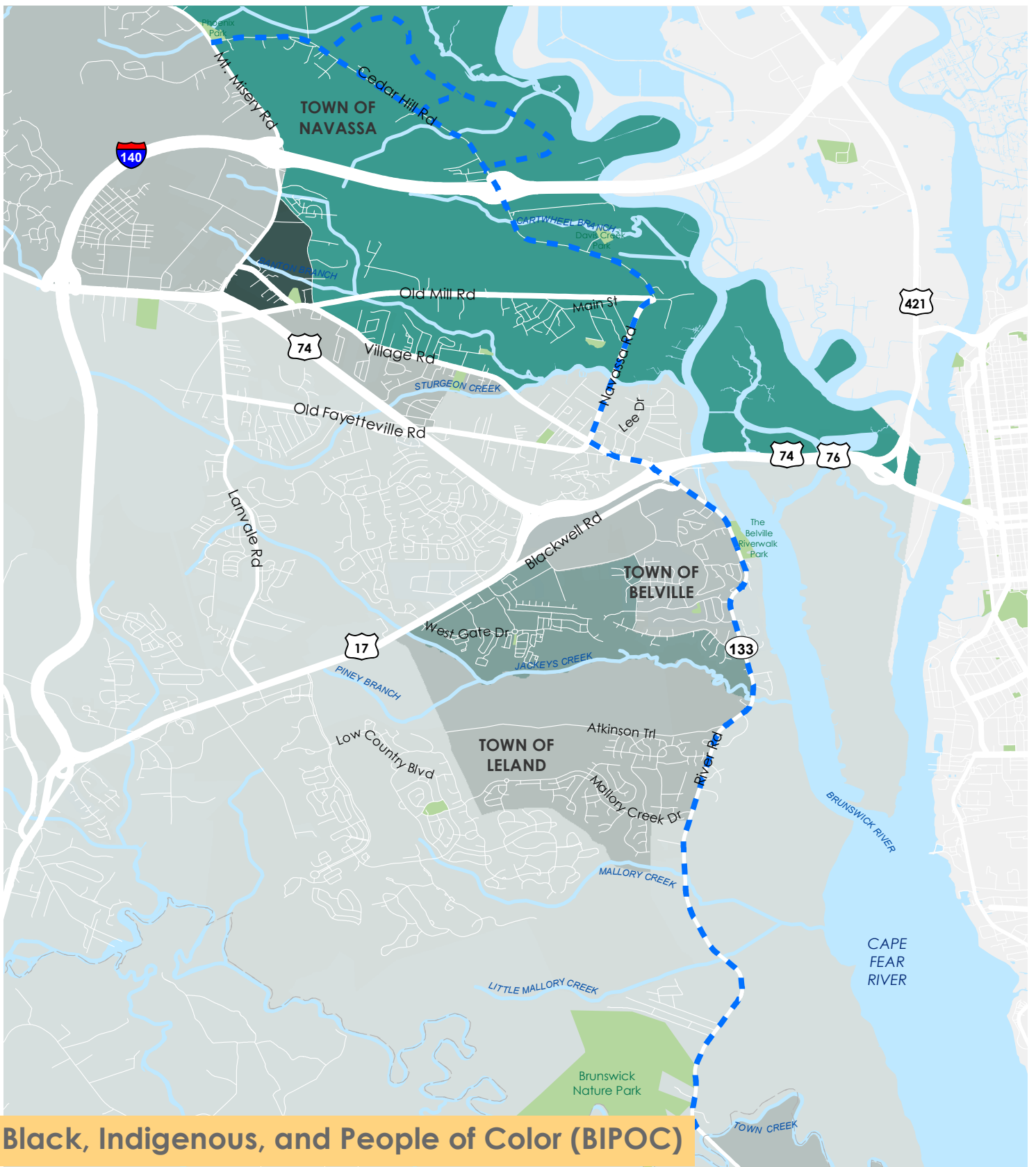


Preliminary Alternatives

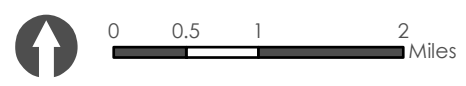
- - - Gullah Geechee Trail Base Alignment
- - - Alternative 1
- - - Alternative 2
- WMPO Boundary
- Railroad
- Parks and Greenspace
- Water
- Town of Belville
- Town of Leland
- Town of Navassa



Gullah Geechee Heritage Trail Feasibility Study

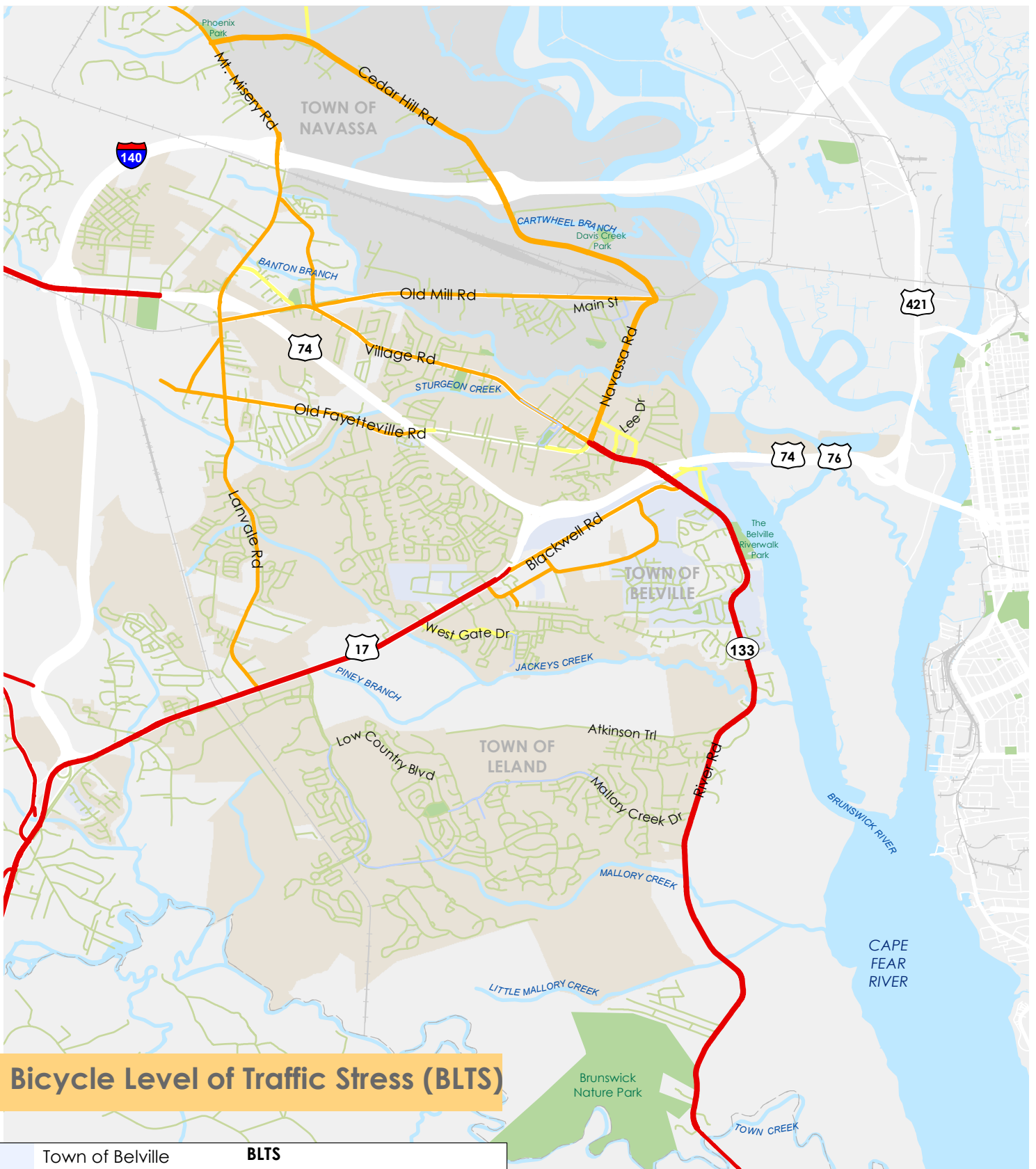


- - - Gullah Geechee Trail Base Alignment
 - WMPO Boundary
 - Parks and Greenspace
 - Water
- Percent of BIPOC Population**
- 0% - 20%
 - 21% - 40%
 - 41% - 60%
 - 61% - 80%
 - 81% - 100%














Gullah Geechee Heritage Trail Feasibility Study

Data Source: NCDOT
Transportation Disadvantaged Index



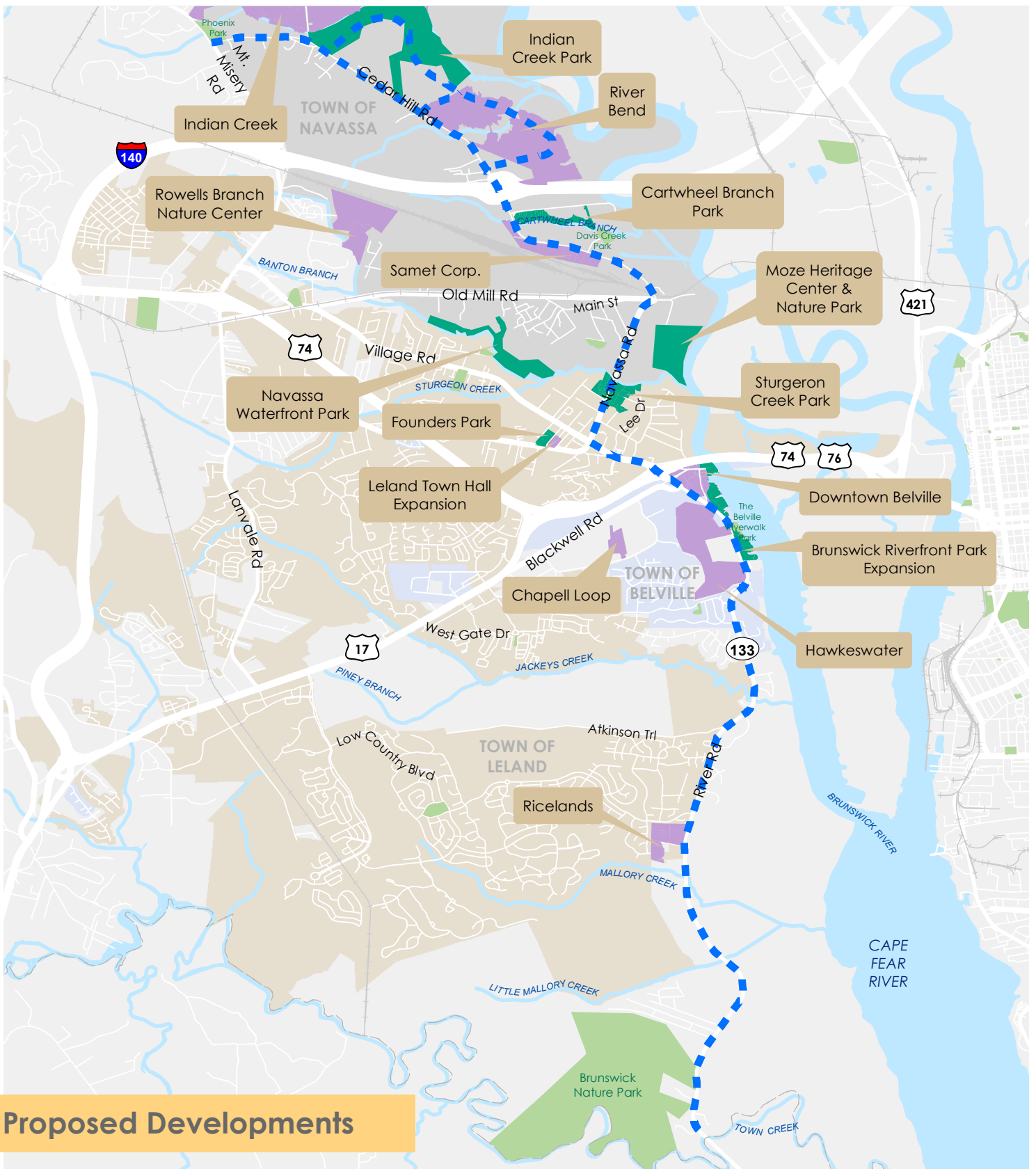
Bicycle Level of Traffic Stress (BLTS)

	Town of Belville	BLTS
	Town of Leland	 1. Very Low Stress
	Town of Navassa	 2. Somewhat Low Stress
	Water	 3. Stressful
	WMPO Boundary	 4. Highly Stressful
	Railroad	
	Parks and Greenspace	



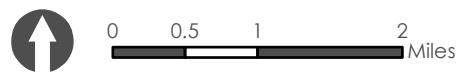
0 0.5 1 2 Miles

Gullah Geechee Heritage Trail Feasibility Study



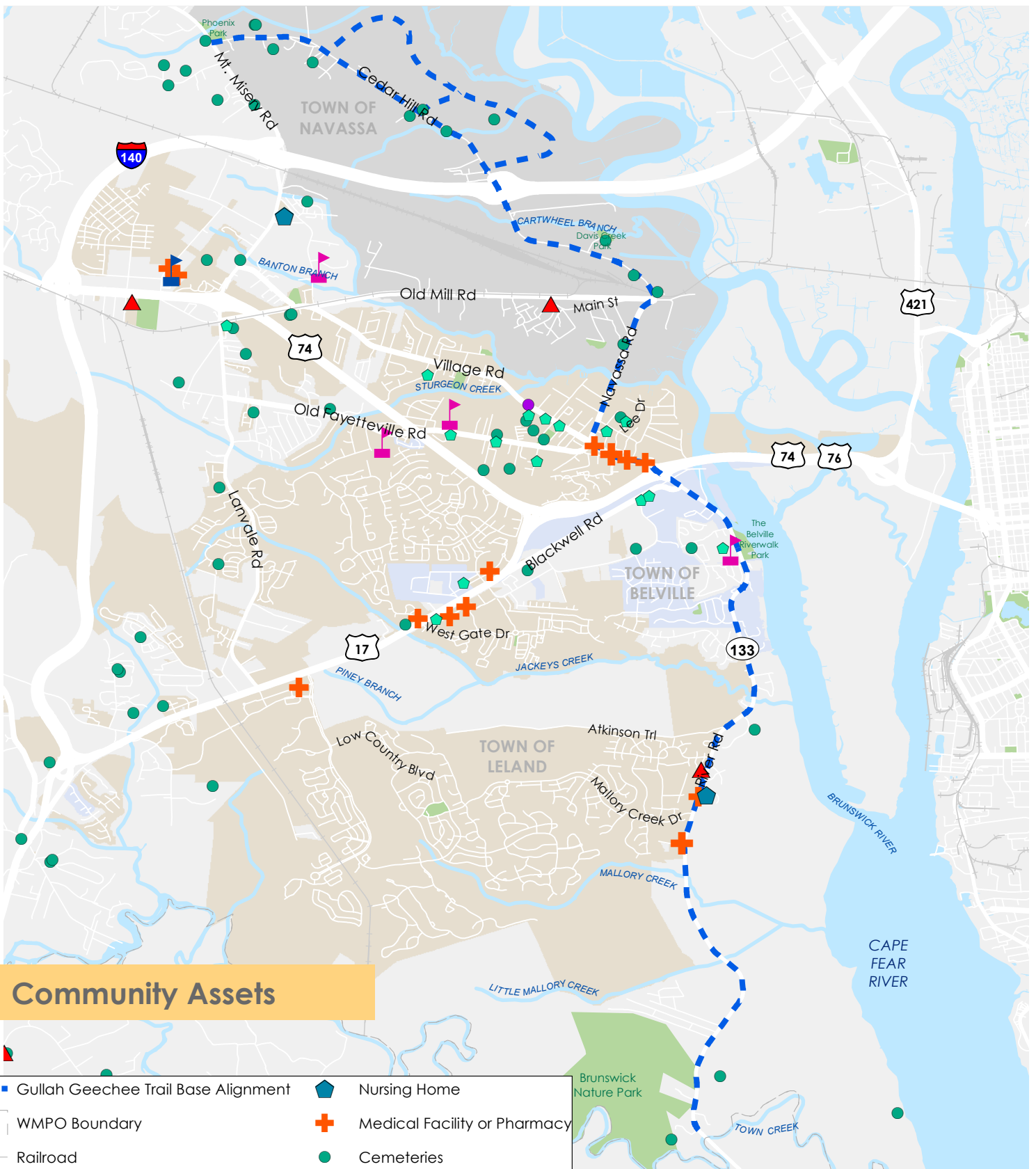
Proposed Developments

- - - Gullah Geechee Trail Base Alignment
- Town of Belville
- Town of Leland
- Town of Navassa
- Water
- WMPO Boundary
- +— Railroad
- Parks and Greenspace
- Proposed Park
- Proposed Development



















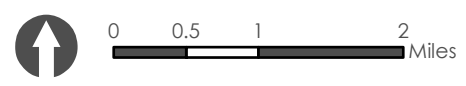
Gullah Geechee Heritage Trail Feasibility Study

Data Source: Town of Leland, Town of Belville, Town of Navassa, Brunswick County, WMPO



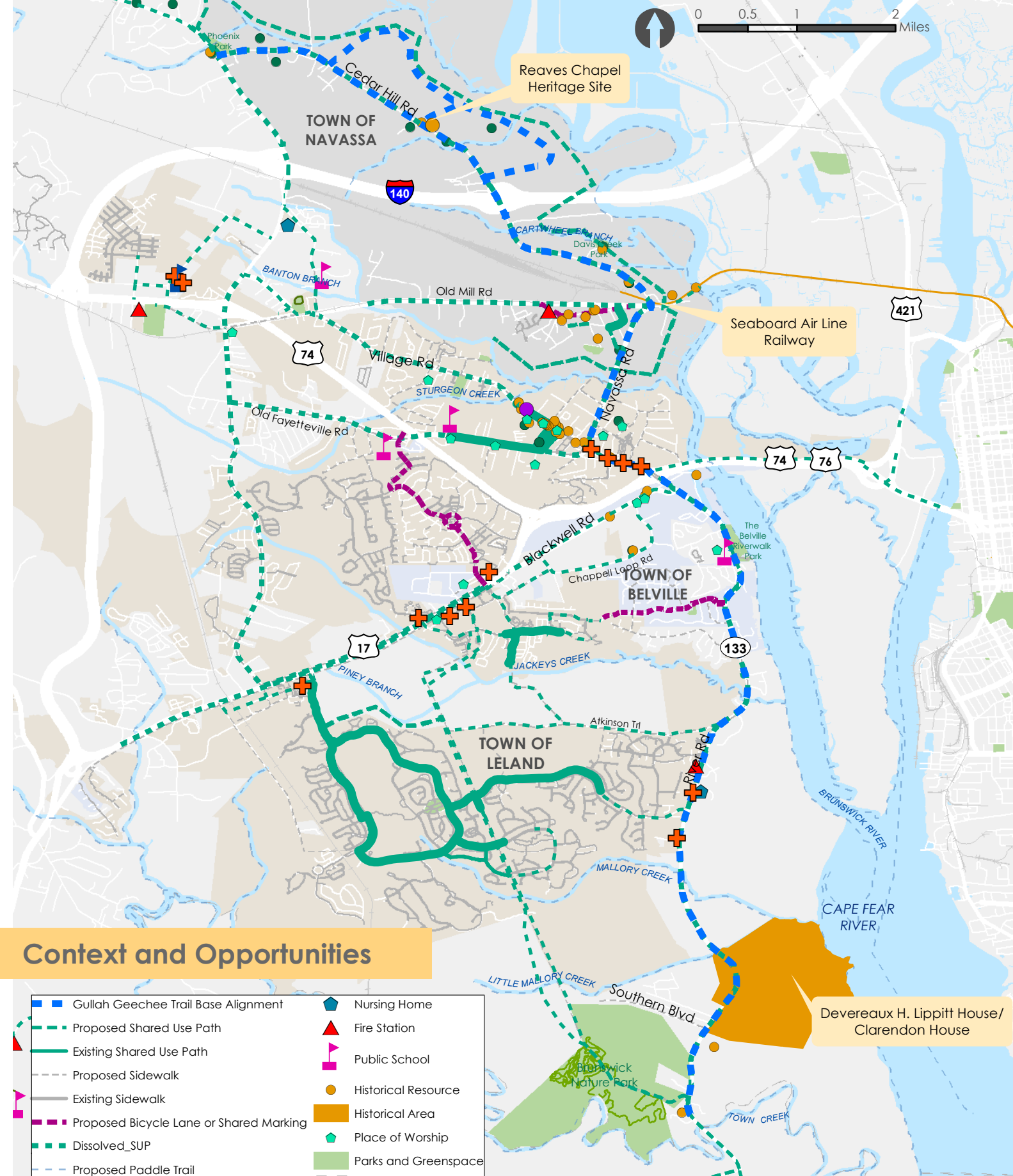
Community Assets

-  Gullah Geechee Trail Base Alignment
-  WMPO Boundary
-  Railroad
-  Parks and Greenspace
-  Water
-  Town of Belville
-  Town of Leland
-  Town of Navassa
-  Public School
-  Nursing Home
-  Medical Facility or Pharmacy
-  Cemeteries
-  Private School
-  Library
-  Place of Worship
-  Fire Station



Gullah Geechee Heritage Trail Feasibility Study

Data Source: NC OneMap, WMPO, Brunswick County

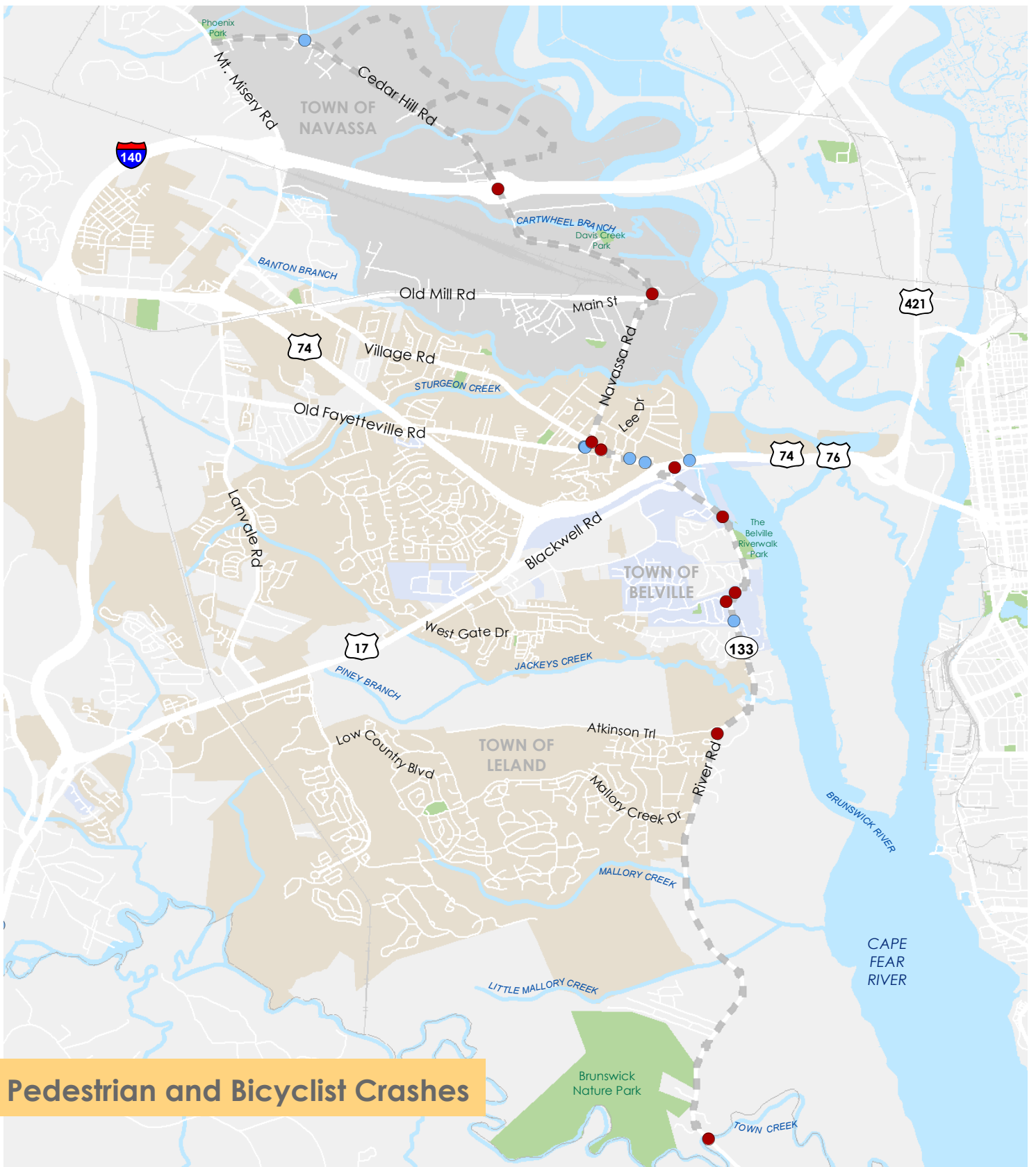


Context and Opportunities

- | | |
|---|----------------------|
| Gullah Geechee Trail Base Alignment | Nursing Home |
| Proposed Shared Use Path | Fire Station |
| Existing Shared Use Path | Public School |
| Proposed Sidewalk | Historical Resource |
| Existing Sidewalk | Historical Area |
| Proposed Bicycle Lane or Shared Marking | Place of Worship |
| Dissolved_SUP | Parks and Greenspace |
| Proposed Paddle Trail | WMPO Boundary |
| Cemetery | Railroad |
| Library | Water |
| Medical Facility or Pharmacy | Town of Belville |
| Private School | Town of Leland |
| | Town of Navassa |

Gullah Geechee Heritage Trail Feasibility Study

Data Source: WMPO, Town of Navassa, Town of Leland, Town of Belville, Brunswick County



Pedestrian and Bicyclist Crashes

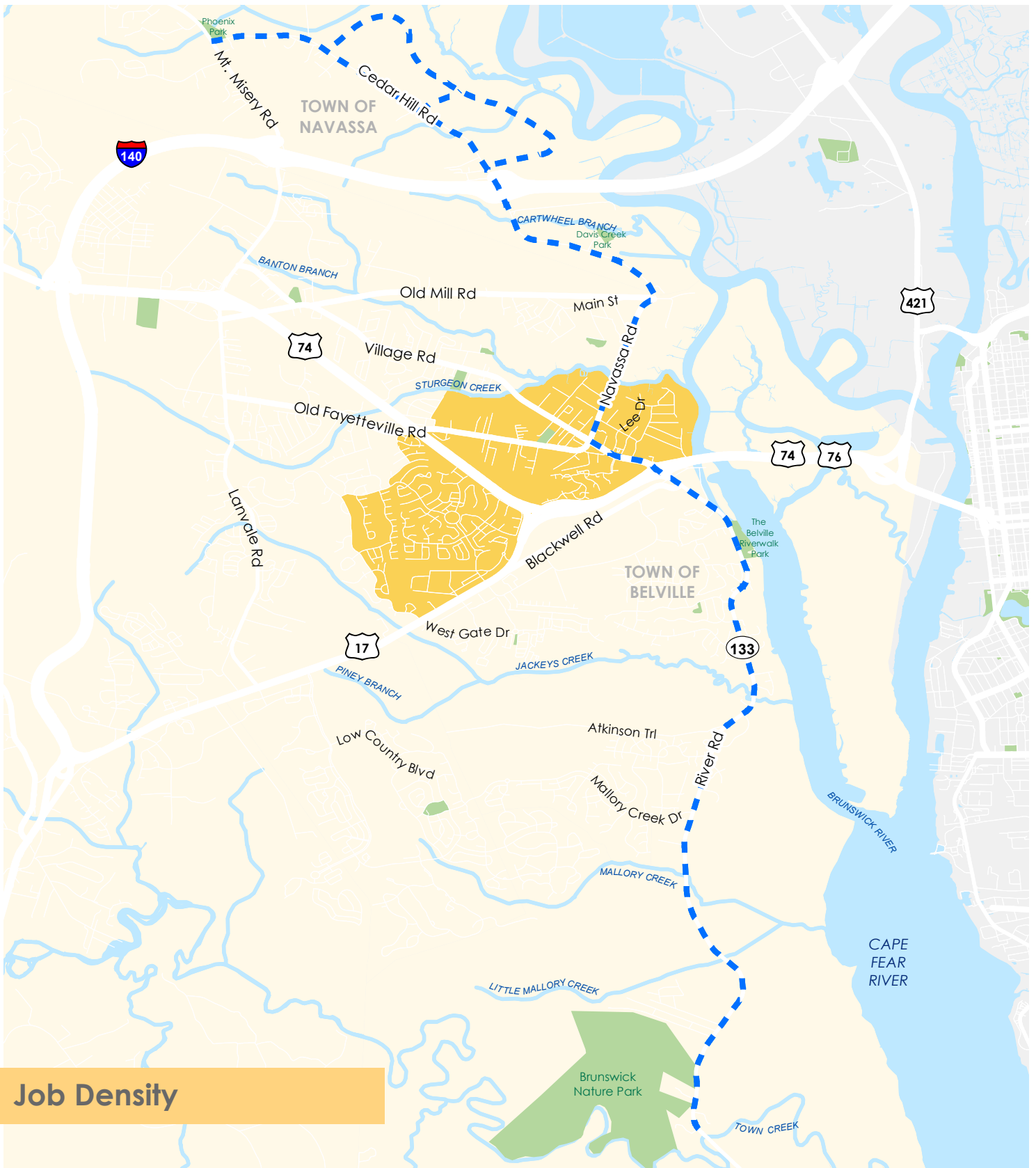
- Gullah Geechee Trail Base Alignment
- Railroad
- Town of Belville
- Town of Leland
- Town of Navassa
- Water
- WMPO Boundary
- Parks and Greenspace
- Pedestrian Crash
- Bicyclist Crash



0 0.5 1 2 Miles

Gullah Geechee Heritage Trail Feasibility Study

Data Source: NCDOT Bicyclist and Pedestrian Crashes (2007-2021)



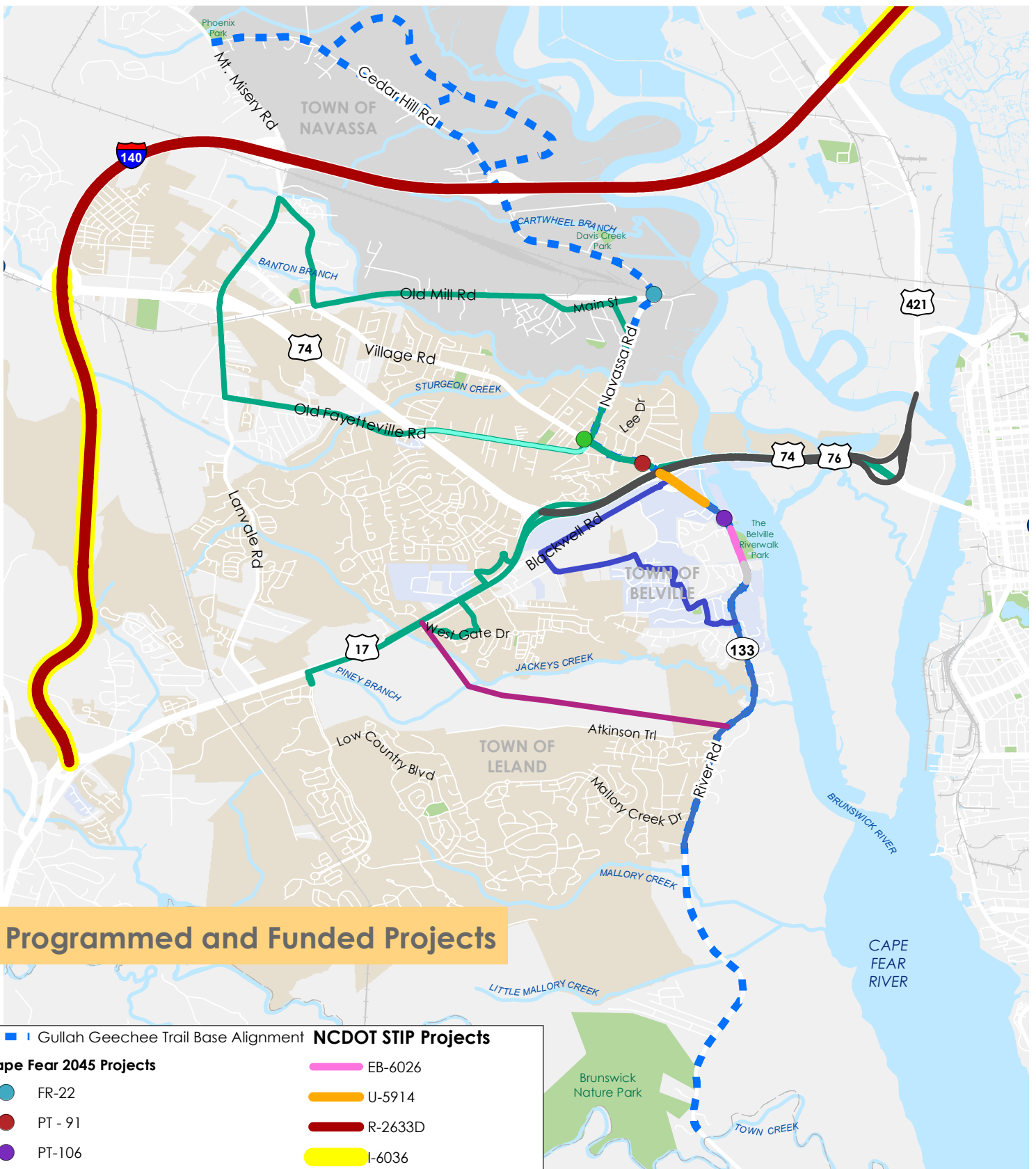
Job Density

- - - Proposed Gullah Geechee Corridor
- WMPO Boundary
- Parks and Greenspace
- Water
- Jobs per Square Mile**
- 1 - 500
- 501 or more



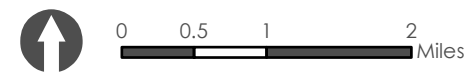
Gullah Geechee Heritage Trail Feasibility Study

Data Source: US Census Longitudinal Employer-Household Dynamics



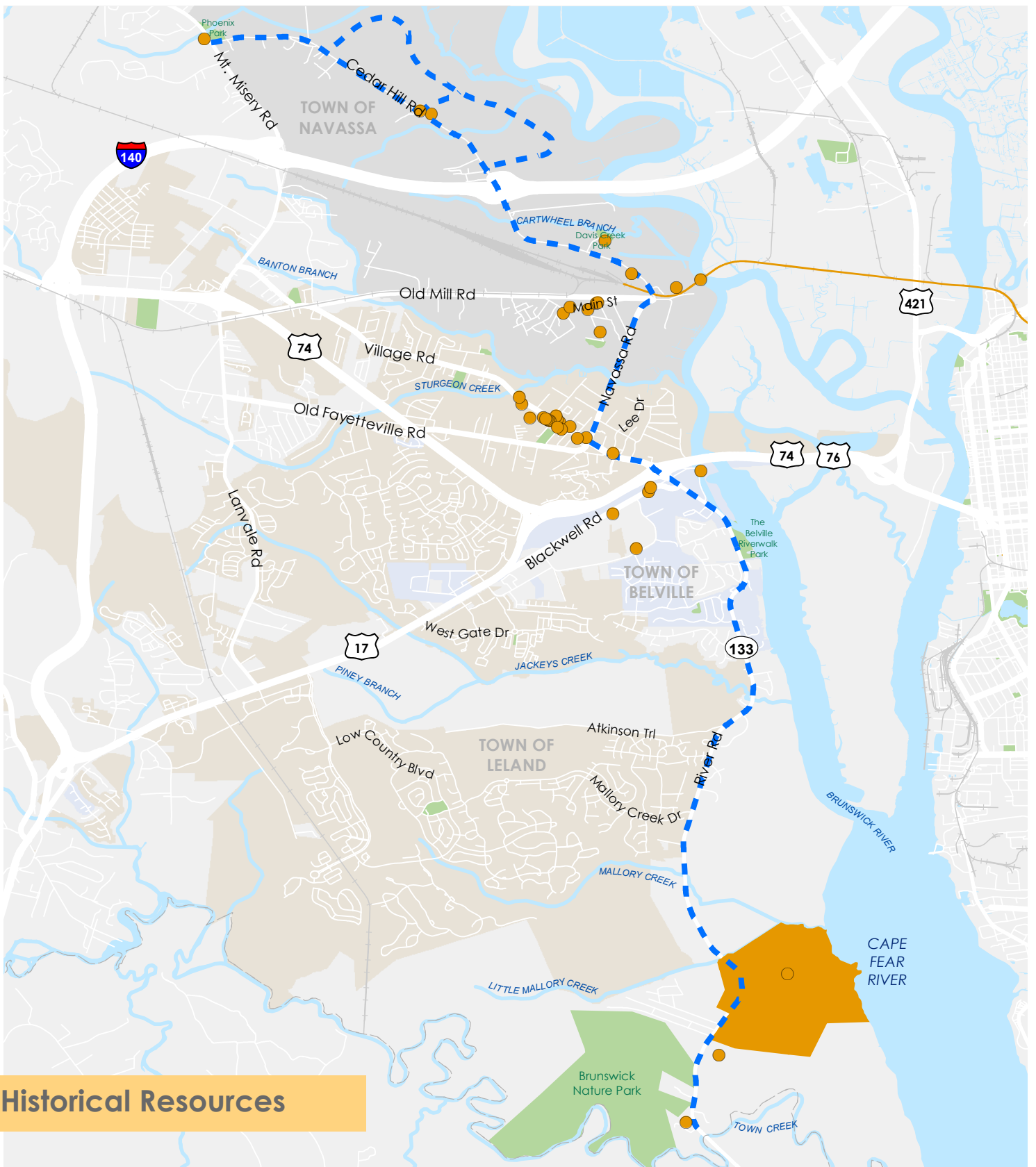
Programmed and Funded Projects

Cape Fear 2045 Projects		NCDOT STIP Projects	
	FR-22		EB-6026
	PT - 91		U-5914
	PT-106		R-2633D
	PT-57		I-6036
	BP-298		EB-6025
	RW-78		Town of Belville
	TD-5291		Town of Leland
	RW-206		Town of Navassa
	RW-20		Water
	RW-51		WMPO Boundary
			Railroad
			Parks and Greenspace



Gullah Geechee Heritage Trail Feasibility Study

Data Source: NCDOT 2024-2033 STIP Map, Cape Fear Moving Forward 2045



Historical Resources

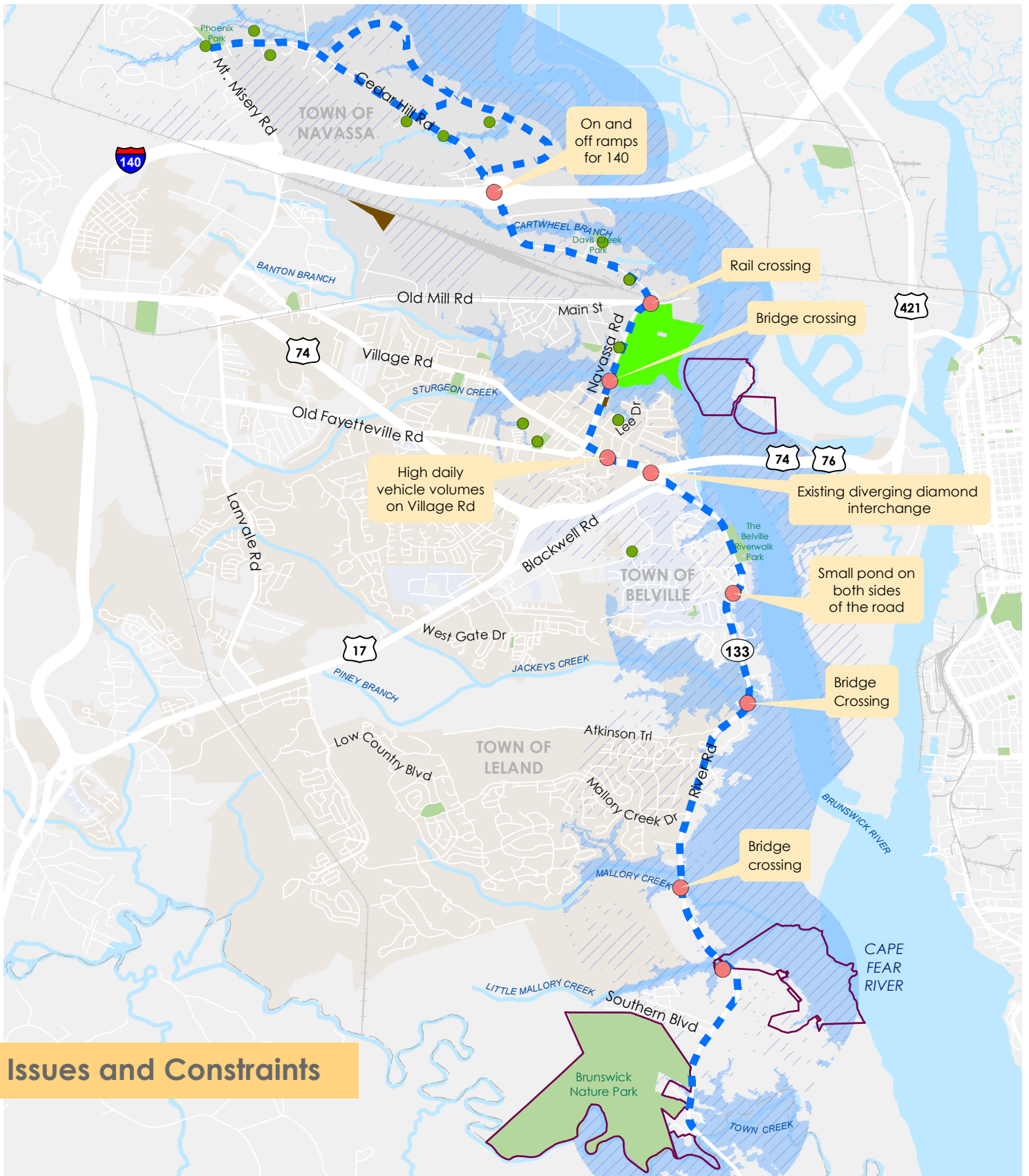
- - - Gullah Geechee Trail Base Alignment
- WMPO Boundary
- Railroad
- Parks and Greenspace
- Water
- Town of Belville
- Town of Leland
- Town of Navassa
- Historical Resource
- Historical Area



0 0.5 1 2 Miles

Gullah Geechee Heritage Trail Feasibility Study

Data Source: National Register of Historic Places



Issues and Constraints

- Gullah Geechee Trail Base Alignment
- Cemetery
- Constraints
- Brownfield Redevelopment
- NC Land and Water Fund Managed Areas
- Kerr McGee Superfund Site
- 100 year Floodplain
- Wetlands
- WMPO Boundary
- Parks and Greenspace
- Railroad
- Water
- Town of Belville
- Town of Leland
- Town of Navassa

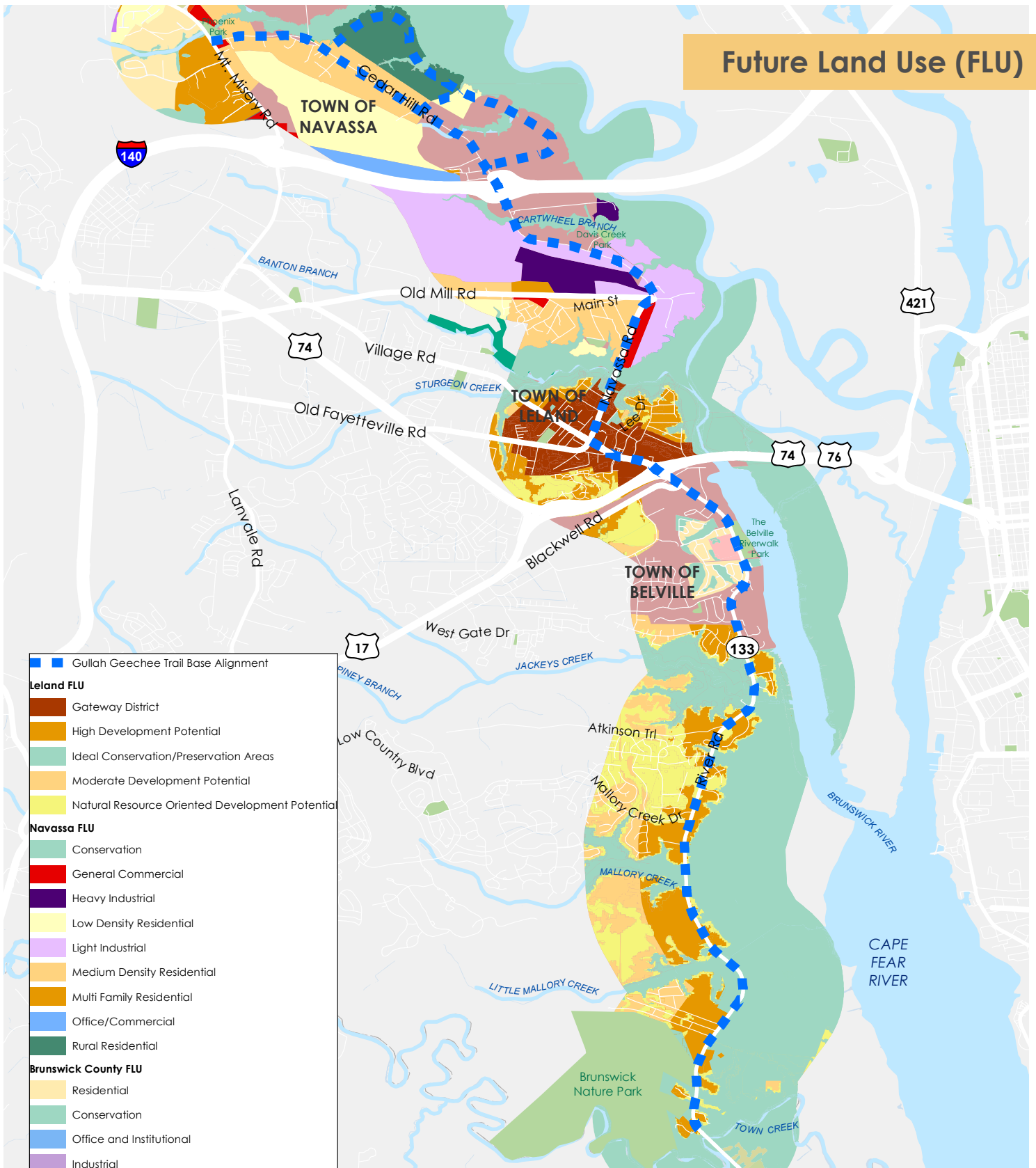


0 0.5 1 2 Miles

Gullah Geechee Heritage Trail Feasibility Study

Data Source: NCDEQ, NCOneMap, NCDOT Atlas, WMPO

Future Land Use (FLU)

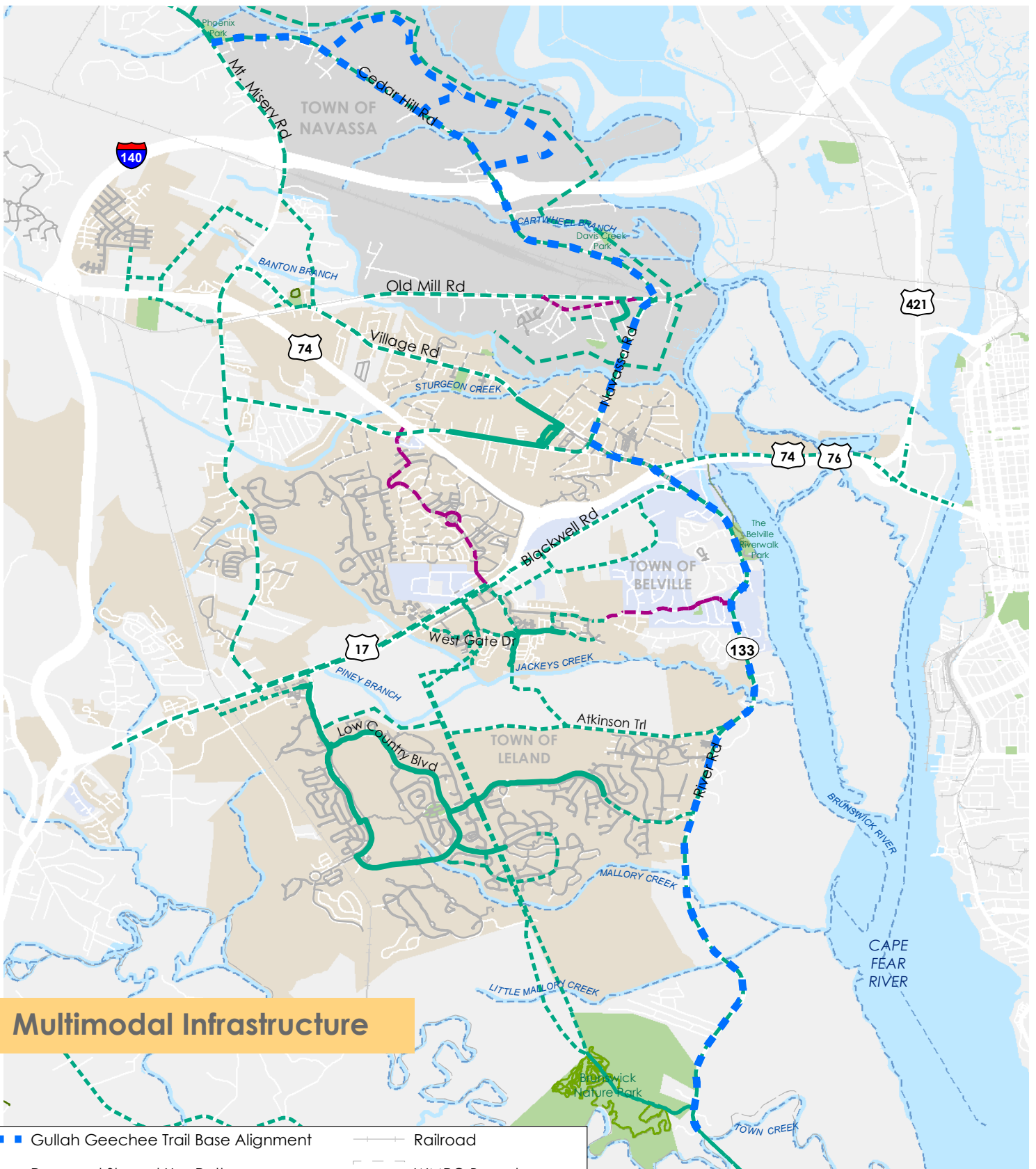


- Gullah Geechee Trail Base Alignment
- Leland FLU**
- Gateway District
- High Development Potential
- Ideal Conservation/Preservation Areas
- Moderate Development Potential
- Natural Resource Oriented Development Potential
- Navassa FLU**
- Conservation
- General Commercial
- Heavy Industrial
- Low Density Residential
- Light Industrial
- Medium Density Residential
- Multi Family Residential
- Office/Commercial
- Rural Residential
- Brunswick County FLU**
- Residential
- Conservation
- Office and Institutional
- Industrial
- Commercial
- Moderate Development
- Natural Resource Oriented Development
- Rural Residential
- Town Center
- WMPO Boundary
- Railroad
- Parks and Greenspace
- Water



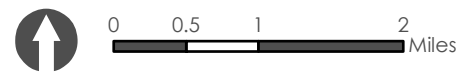
Gullah Geechee Heritage Trail Feasibility Study

Data Source: Brunswick County, Town of Leland, Town of Navassa



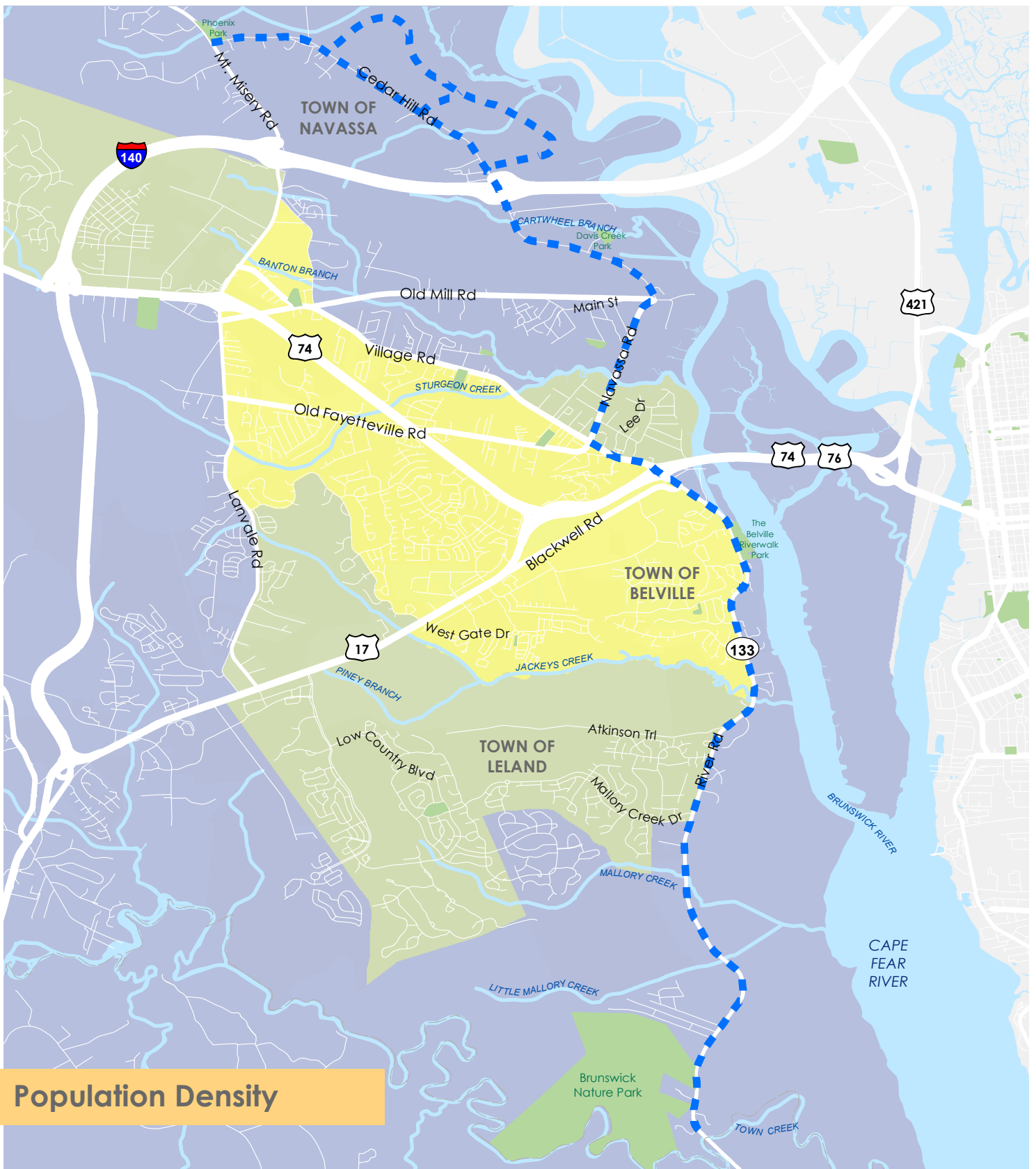
Multimodal Infrastructure

- | | |
|---|----------------------|
| Gullah Geechee Trail Base Alignment | Railroad |
| Proposed Shared Use Path | WMPO Boundary |
| Existing Shared Use Path | Parks and Greenspace |
| Proposed Bicycle Lane or Shared Marking | Water |
| Proposed Sidewalk | Town of Belville |
| Existing Sidewalk | Town of Leland |
| Proposed Paddle Trail | Town of Navassa |
| Existing Park Trails | |










Gullah Geechee Heritage Trail Feasibility Study

Data Source: WMPO, Brunswick County, Town of Navassa, Town of Leland, Town of Belville, NCDOT PBIN



Population Density

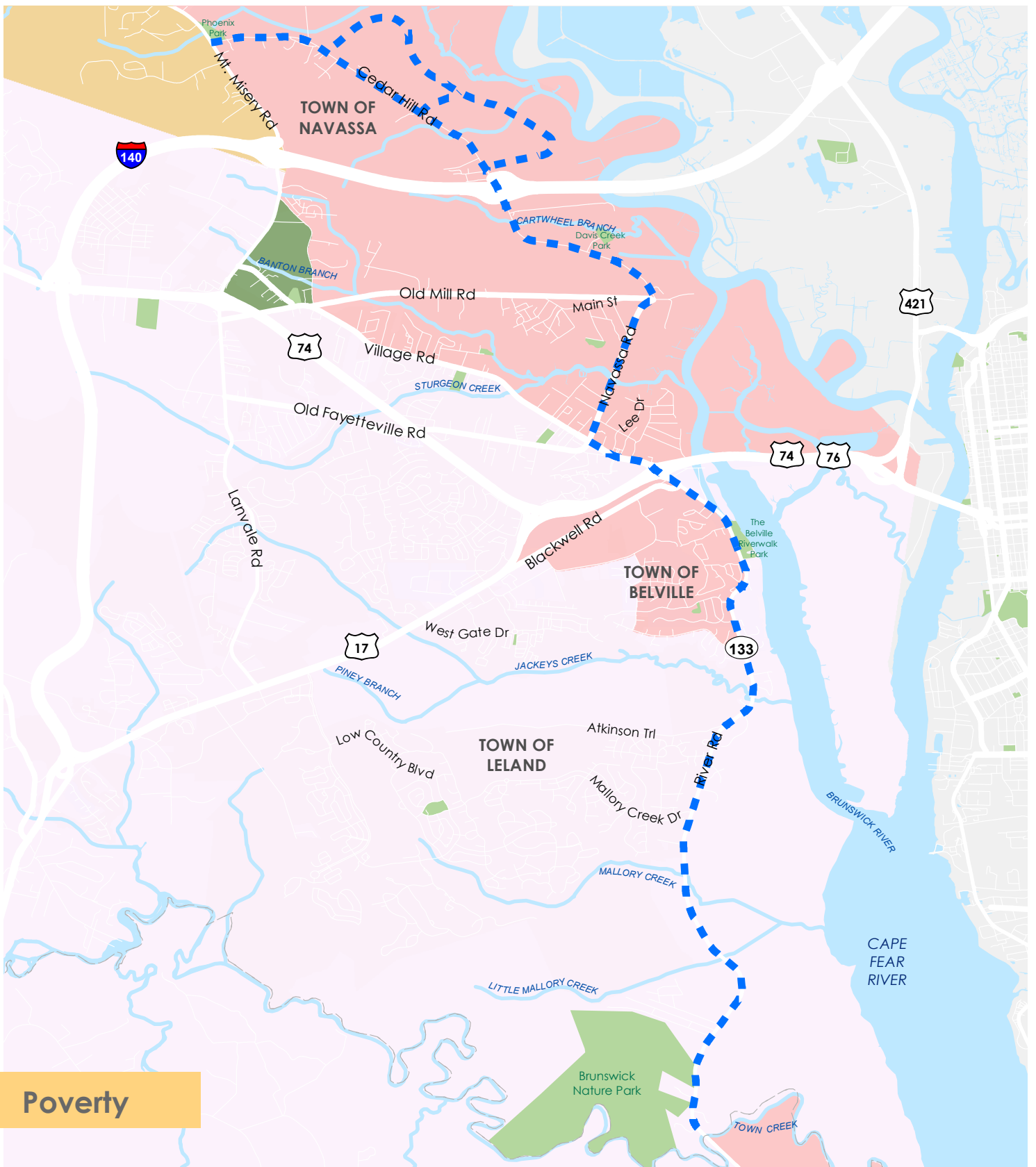
-  Gullah Geechee Trail Base Alignment
 -  WMPO Boundary
 -  Parks and Greenspace
 -  Water
- | People per Square Mile | |
|---|---------------|
|  | Less than 500 |
|  | 501 - 1,000 |
|  | 1,001 or more |












0 0.5 1 2 Miles

Gullah Geechee Heritage Trail Feasibility Study

Data Source: American Community Survey 5 Year Survey (2017-2021)



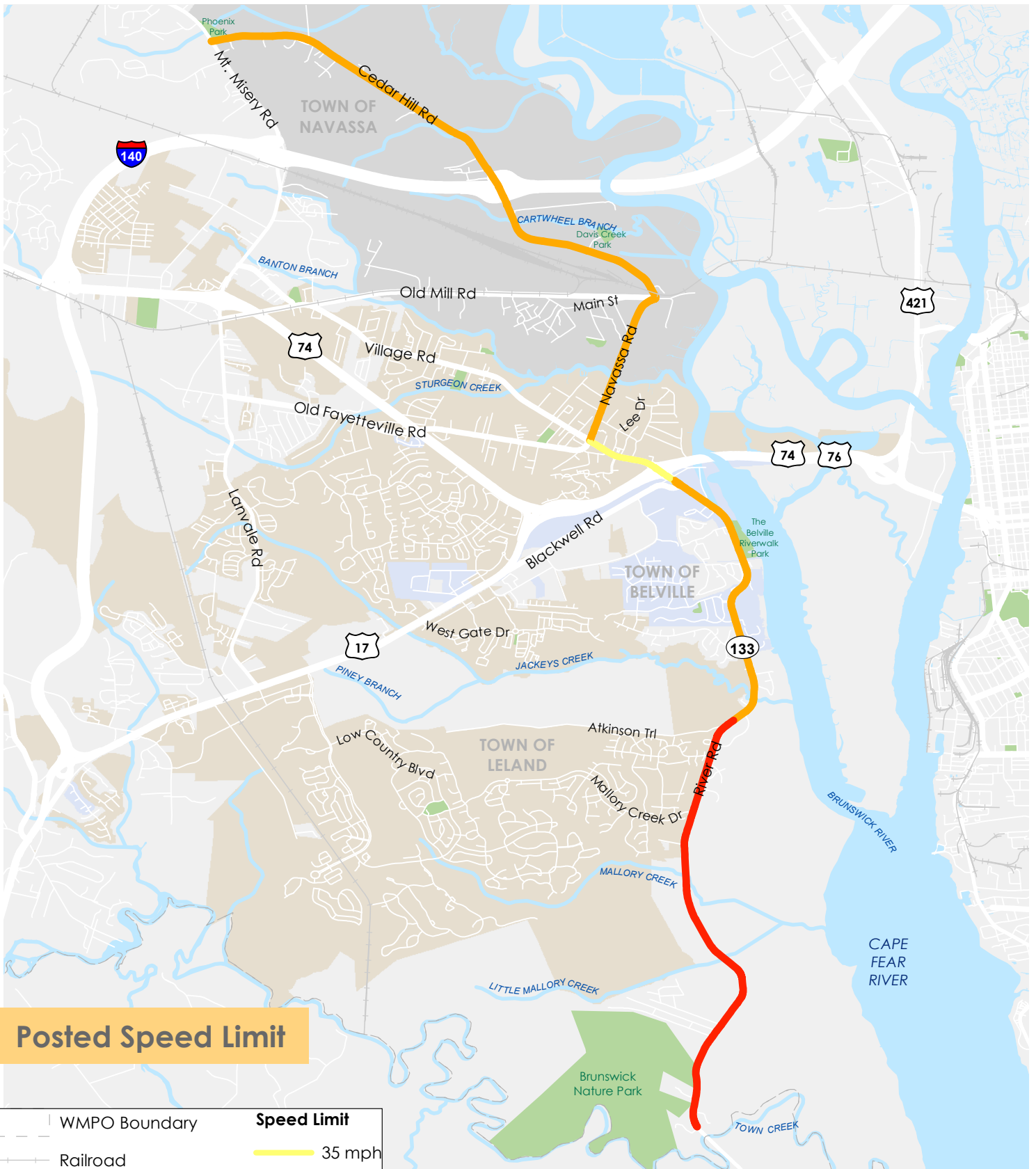
Poverty

-  Gullah Geechee Trail Base Alignment
 -  WMPO Boundary
 -  Parks and Greenspace
 -  Water
- | Percent Below the Poverty Line | |
|---|------------|
|  | 0% - 20% |
|  | 21% - 40% |
|  | 41% - 60% |
|  | 61% - 80% |
|  | 81% - 100% |



Gullah Geechee Heritage Trail Feasibility Study

Data Source: NCDOT
Transportation Disadvantaged Index



Posted Speed Limit

Speed Limit	
	35 mph
	45 mph
	55 mph

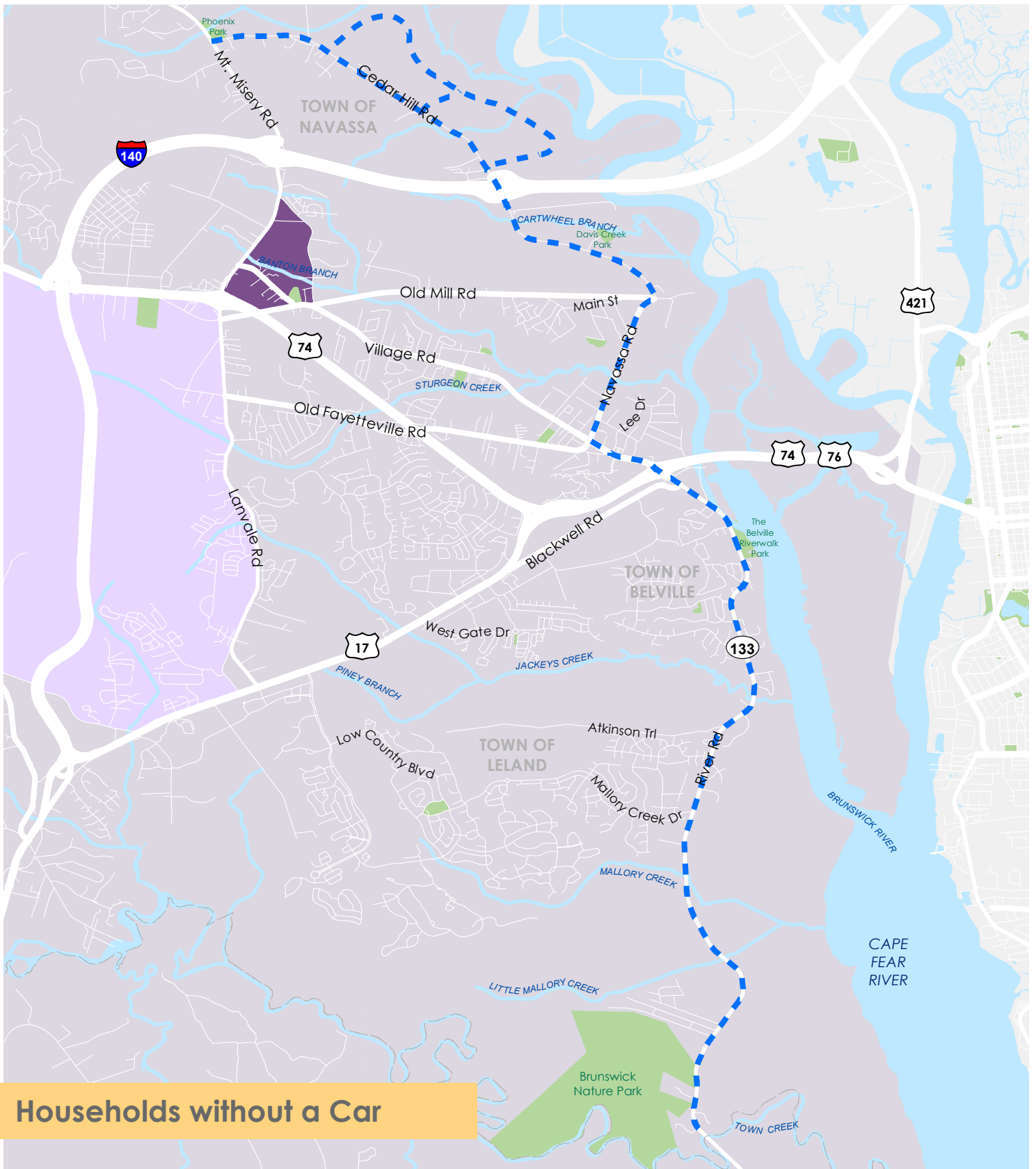
	WMPO Boundary
	Railroad
	Parks and Greenspace
	Water
	Town of Belville
	Town of Leland
	Town of Navassa











0 0.5 1 2 Miles

Gullah Geechee Heritage Trail Feasibility Study

Data Source: NCDOT Road Characteristics



Households without a Car

-  Gullah Geechee Trail Base Alignment
 -  WMPO Boundary
 -  Parks and Greenspace
 -  Water
- | Percent of Households without a Car | |
|---|-----------|
|  | 0% - 10% |
|  | 11% - 20% |
|  | 21% - 30% |
|  | 31% - 40% |



Gullah Geechee Heritage Trail Feasibility Study

Data Source: NCDOT
Transportation Disadvantaged Index

Appendix C:
Trail Alignment Evaluation Matrix

Appendix D:
Project Cut Sheets

Project #1: Cedar Hill Rd (Phoenix Park to I-140 Interchange)

Description:

- The project would add a 10-foot shared use path along Cedar Hill Road as well as a multi-use path traversing closer to the Brunswick River
- A spur extension of the trail would connect to Reaves Chapel
- The project length is approximately 5.5 miles

Considerations:

- Structures: 1 bridge
- Potential Permitting/ Regulatory Needs:
 - Section 401/ Section 404 Permit
 - NCDEQ CAMA Permit
 - Brunswick County Stormwater permit
 - NCDEQ Coastal Stormwater permit
 - Floodplain development permit
 - Historic Resource Coordination for proximity to Reaves Chapel

Estimated Cost:

- \$ 21,945,900.00

Conceptual Rendering:



Project #2: Cedar Hill Rd/I-140 Interchange

Description:

- The project would add a 10-foot shared use path traversing closer to the Brunswick River
- The path would go under I-140
- The project length is approximately 0.8 mile

Considerations:

- Potential Permitting/ Regulatory Needs:
 - Section 401/ Section 404 Permit
 - NCDEQ CAMA Permit
 - Brunswick County Stormwater permit
 - NCDEQ Coastal Stormwater permit
 - Floodplain development permit

Estimated Cost:

- \$ 3,145,200.00

Conceptual Rendering:



Project #3: Cedar Hill Rd (I-140 Interchange to Old Mill Rd)

Description:

- The project would add a 10-foot shared use path traversing closer to the Brunswick River
- The path would connect to the abandoned railroad trellis
- The path would connect into Davis Creek Park
- The project length is approximately 1.36 miles

Considerations:

- Structures: 1 bridge incorporating railroad trellis
- Coordination with CSX Railroad for at-grade crossing along with crossing recommendations
- Potential Permitting/ Regulatory Needs:
 - Section 401/ Section 404 Permit
 - NCDEQ CAMA Permit
 - Brunswick County Stormwater permit
 - NCDEQ Coastal Stormwater permit
 - Floodplain development permit
 - Historic Resource Coordination for crossing Seaboard Air Line Railway/Atlantic Coast Railroad District

Estimated Cost:

- \$ 5,067,700.00

Conceptual Rendering:



Project #4: Navassa Rd (Old Mill Rd to Baldwin Dr)

Description:

- The project would add a 10-foot shared use path traversing closer to the Brunswick River
- As a part of the project, a new pedestrian and bicyclist bridge would be built to cross Sturgeon Creek
- The project length is approximately 2.2 miles

Considerations:

- Structures: 1 signature bridge over Sturgeon Creek
- Coordination with EPA, NCDEQ, and Multistate Environmental Response Trust at Kerr-McGee Chemical Corporation superfund site
- Constructability challenges for Sturgeon Creek bridge over marsh wetlands adjacent to River Road.
- Potential Permitting/ Regulatory Needs:
 - Section 401/ Section 404 Permit
 - NCDEQ CAMA Permit
 - Brunswick County Stormwater permit
 - NCDEQ Coastal Stormwater permit
 - Floodplain development permit

Estimated Cost:

- \$ 17,567,800.00

Conceptual Rendering:



Project #5: Navassa Rd/Village Rd/Baldwin Dr

Description:

- The project would add a bicycle boulevard sharrows to Baldwin Dr and connect to Village Dr
- Existing sidewalks are present on both sides that may be utilized
- There is potential for additional traffic calming to enhance safety
- The project length is approximately 0.7 mile

Considerations:

- Potential Permitting/ Regulatory Needs:
 - Section 401/ Section 404 Permit
 - Brunswick County Stormwater permit
 - NCDEQ Coastal Stormwater permit

Estimated Cost:

- \$ 2,000,300.00

Conceptual Rendering:



Project #6: NC 133/River Rd Interchange with US 74

Description:

- The project would add a 10-foot shared use path on the south side of NC 133/River through the Us 74/76 diverging diamond interchange
- The project length is approximately 0.4 miles

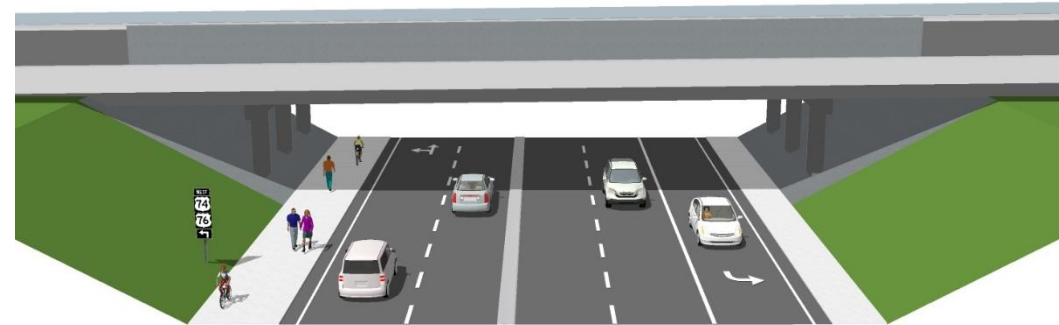
Considerations:

- Potential Permitting/ Regulatory Needs:
 - Brunswick County Stormwater permit
 - NCDEQ Coastal Stormwater permit

Estimated Cost:

- \$ 2,898,500.00

Conceptual Rendering:



Project #7: NC 133/River Rd (Blackwell Rd to Belville Town Limit)

Description:

- The project would add a 10-foot shared use path along NC 133/River Rd
- The project will pass Belville Elementary School as well as the new signalized crossing across NC 133/River Rd to Belville Riverwalk Park
- The project length is approximately 2.2 miles

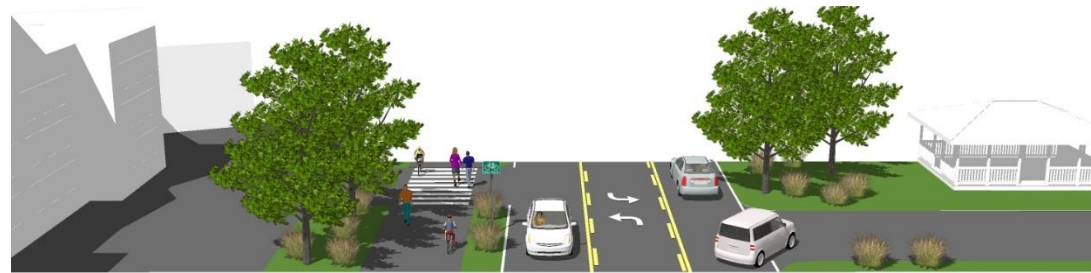
Considerations:

- Structures: Culvert Crossing
- Potential Permitting/ Regulatory Needs:
 - Section 401/ Section 404 Permit
 - NCDEQ CAMA Permit
 - Brunswick County Stormwater permit
 - NCDEQ Coastal Stormwater permit
 - Floodplain development permit

Estimated Cost:

- \$ 12,501,900.00

Conceptual Rendering:



Project #8: NC 133/River Rd (Belville Town Limit to Mallory Creek)

Description:

- The project would add a 10-foot shared use path traversing closer to the Brunswick River
- The project length is approximately 2.2 miles

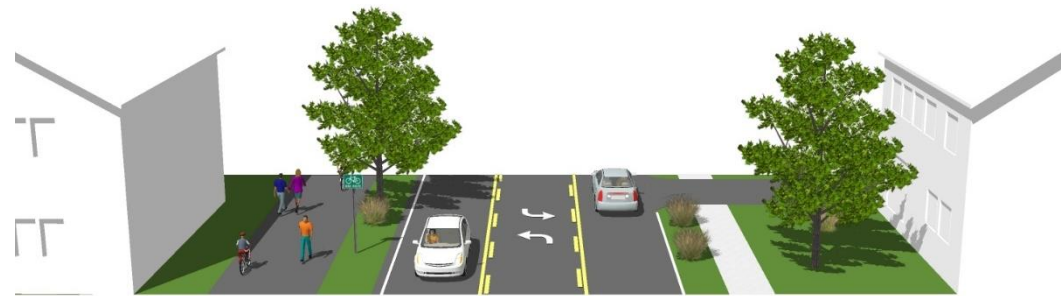
Considerations:

- Structures: 1 bridge over Jackeys Creek
- Easement Agreement along Non-State Maintained Right of way for Mallory Creek Road
- Potential Permitting/ Regulatory Needs:
 - Section 401/ Section 404 Permit
 - NCDEQ CAMA Permit
 - Brunswick County Stormwater permit
 - NCDEQ Coastal Stormwater permit
 - Floodplain development permit

Estimated Cost:

- \$ 11,518,400.00

Conceptual Rendering:



Project #9: NC 133/River Rd from Mallory Creek to Brunswick Nature Park)

Description:

- The project would add a 10-foot shared use path along Mallory Creek Dr
- The project will connect from Mallory Dr and add a 10-foot shared use path within the existing utility easement
- The project will connect into Brunswick Nature Park and connect to existing trails
- The project length is approximately 6.2 miles

Considerations:

- Structures: 2 bridges over Mallory Creek and Little Mallory Creek
- Coordination for use of Utility Easement from Mallory Creek Drive to Brunswick Nature Park
- Potential Permitting/ Regulatory Needs:
 - Section 401/ Section 404 Permit
 - NCDEQ CAMA Permit
 - Brunswick County Stormwater permit
 - NCDEQ Coastal Stormwater permit
 - Floodplain development permit

Estimated Cost:

- \$ 29,829,000.00

Conceptual Rendering:

