SUATS
Sumter Area Transportation Study
Metropolitan Planning Organization

FINAL REPORT
October 2022

TURKEY CREEK GREENWAY
FEASIBILITY STUDY

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BACKGROUND

INTRODUCTION

The Turkey Creek Greenway Feasibility Study is an initiative of the Sumter Area Transportation Study Metropolitan Planning Organization (SUATS MPO), in partnership with Sumter County and the City of Sumter.

As the formal documentation of the Turkey Creek Greenway Feasibility Study, this Feasibility Report:

- Further defines the greenway's mission;
- Identifies potential environmental, cultural, and social resources;
- Determines natural features or social concerns that may be constraints to greenway construction;
- Informs, educates, and solicits input from the public about the greenway;
- Provides a detailed concept plan and recommended alignment for the greenway; and
- Provides cost estimates for implementing the project.

Greenway Corridor

As shown in **Figure 1-1**, the Turkey Creek Greenway is envisioned to be a 4.5-mile multi-use paved pathway beginning at Crosswell Drive Park and Elementary School, passing near the City of Sumter's Fire and Police Stations, traveling south along Turkey Creek, and culminating near the Battle of Dingle's Mill Historical Site. The study of this entire corridor is documented in this Feasibility Report, including how technical analyses, alignment evaluation, and public input helped to shape the final recommendations for phasing and additional coordination and study of the southern portion of the greenway.

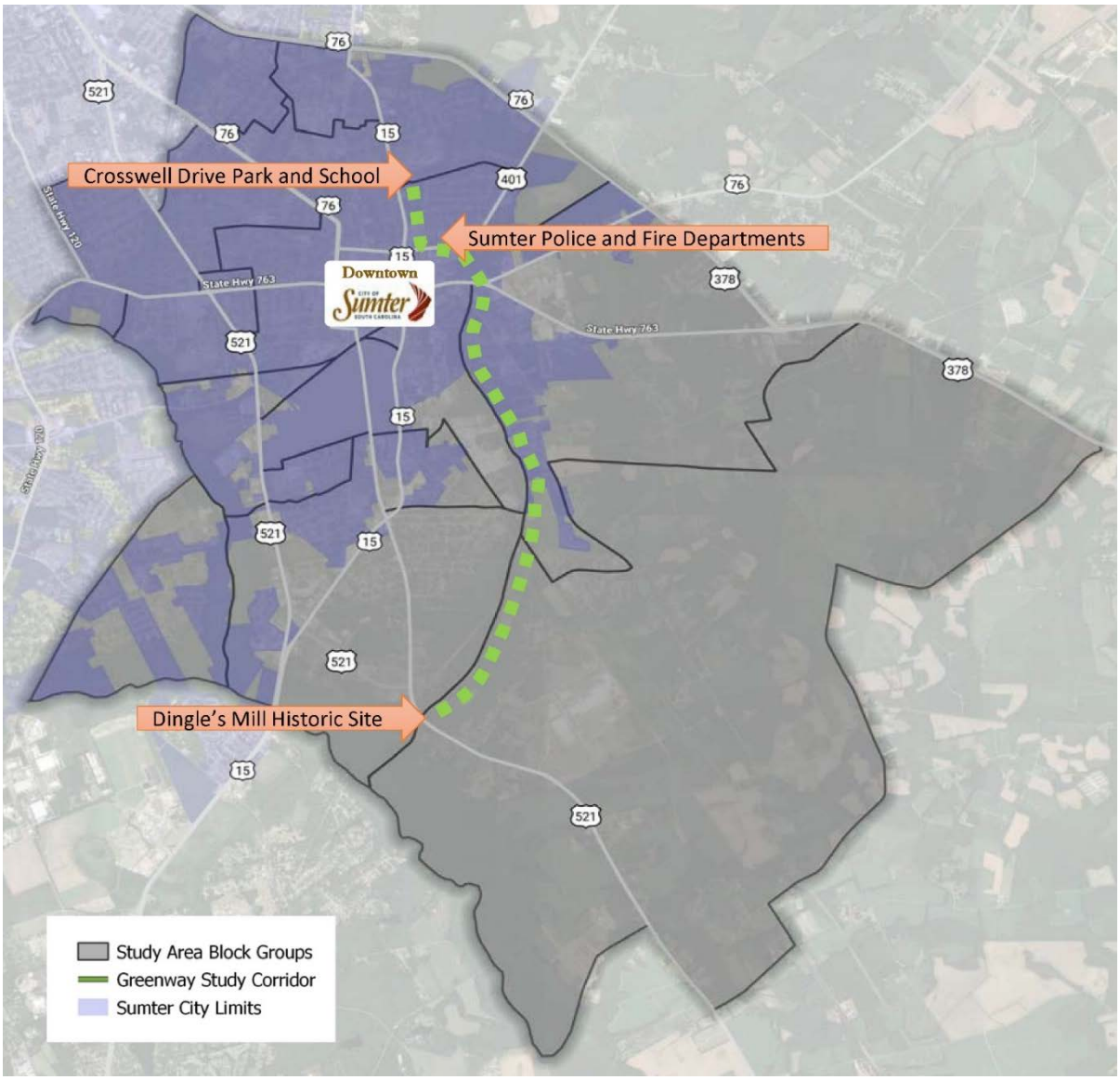

Figure 1-1 | Greenway Corridor

Feasibility Study Process

The feasibility study provides an evaluation of the proposed project based on a variety of technical analyses. Feasibility studies are typically conducted prior to a design process, to gain a better understanding of the opportunities and constraints presented by the project. The public was engaged throughout the development of the Turkey Creek Greenway Feasibility Study, and it is anticipated that will continue during the design and construction phases, should they occur.

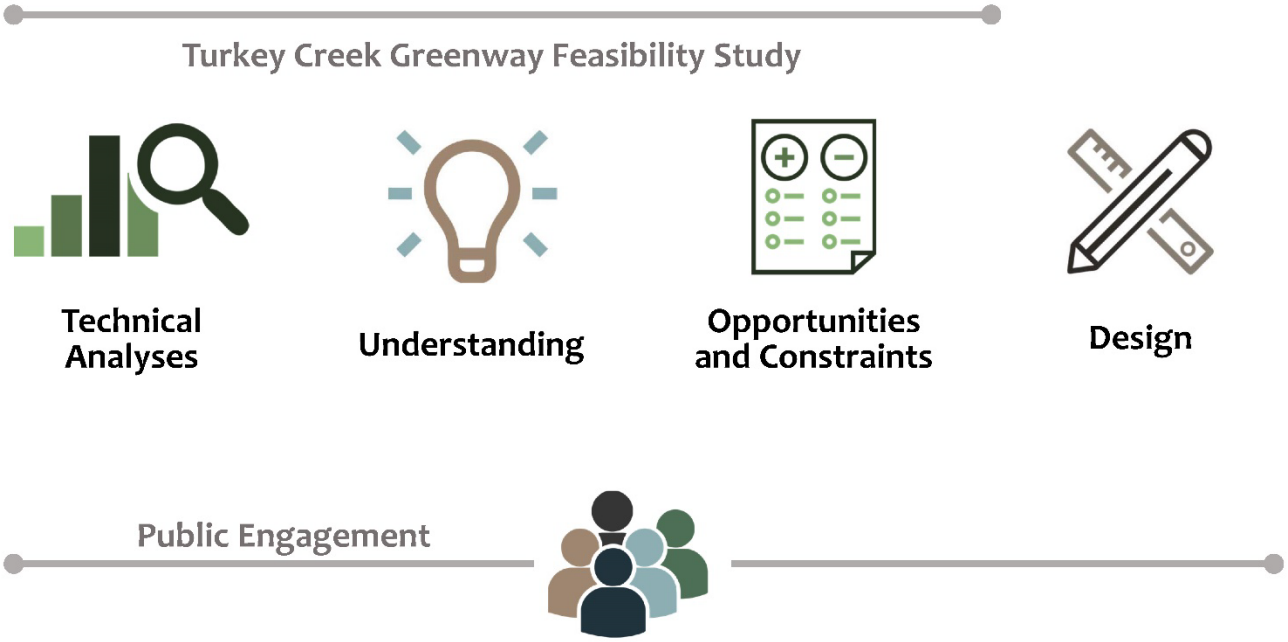

Figure 1-2 | Feasibility Study Process

PUBLIC ENGAGEMENT

The Turkey Creek Greenway Feasibility Study employed a multifaceted public engagement strategy, including a variety of outreach techniques. Public participation was an important element of the Turkey Creek Greenway Feasibility Study, helping to identify potential alignments for the greenway and recommendations.

A Public Participation Plan was prepared for the study early in the process to highlight the activities to be conducted, including a description of each activity along with how they would be administered. Having flexibility in what activities were conducted was very important to the process, particularly given the ongoing pandemic. Specific techniques are further described in the sections that follow.

Steering Committee

A steering committee was established to guide the overall feasibility study development. Members of the steering committee were determined in coordination with SUATS staff and included City of Sumter staff, City and County elected officials, State legislators, and neighborhood representatives. The committee was convened at key milestones during the process and tasked with providing input to the identification of needs and proposed solutions. All input was documented and used to support the study results.

Input Activities

A goal of the public participation process was to provide information and opportunities to ensure public awareness and encourage participation. Multiple tools were implemented that were both informational and interactive. Some were online and others provided media and hard copy opportunities to ensure maximum awareness.

- **Branding –** A project logo was created to provide an identity and recognition of the project and was used on all outreach materials. To maintain this identity, the logo is also available for future outreach as the project moves into design and construction.

- **Advertisement –** Signage was placed in public facilities and gathering spaces to inform the public of the study and provide links to online tools for more engagement and information. Additionally, flyers were prepared to advertise the public information meeting and updates were provided via social media.
- **Stakeholder Interviews –** Virtual interviews were conducted with key stakeholders and community/neighborhood group representatives. Nine interviews were conducted to include a total of 16 participants. Six common questions were asked with an opportunity for participants to add open-ended responses at the end of the interview. A summary of interview responses is available upon request. The following key themes were noted:
  - Opportunity to provide a facility for recreation for this part of the city.
  - Opportunity to provide an alternative mode of transportation for this community.
  - Opportunity to expand the quality of life for the community.
  - Concerns if residents will use the trail and how will the trail be promoted.
  - Concerns for who and how it will be maintained.
- **Informational Video -** An informative video was produced to inspire people to get involved with the feasibility process of the Turkey Creek Greenway. The video could be viewed on the City's website[1] as well as on YouTube. The video also contained QR codes and website links to direct visitors to the online survey and interactive WikiMap. To date, the site has received over 120 views.

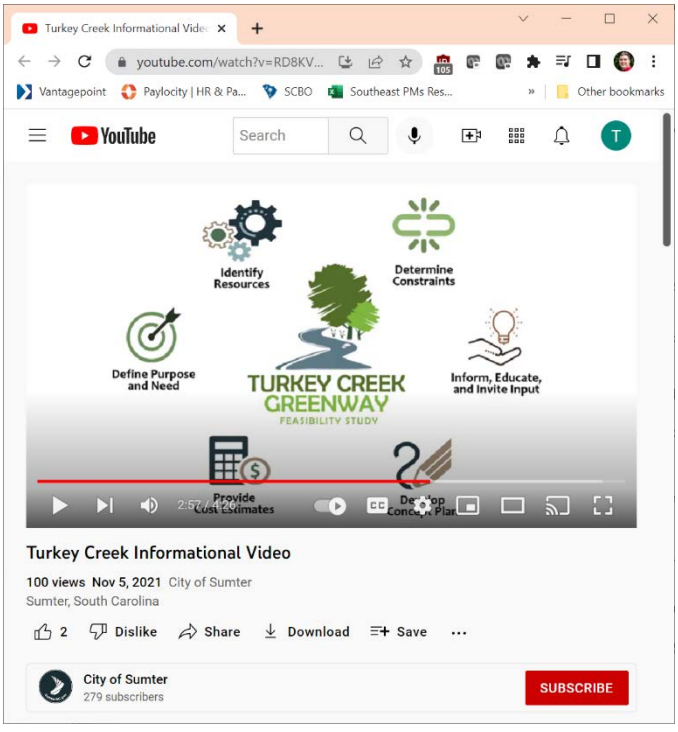

Figure 1-3 | Screenshot of Informational Video

[1] https://www.sumtersc.gov/TurkeyCreek

- **Online Survey –** An online survey was developed and made available to the public from November of 2021 through February 2022. A total of 30 people responded to the online survey. In addition to the online survey, a paper version of the survey was made available for those without internet access. A total of 20 people returned a completed paper survey. The paper survey responses were entered in the online platform to utilize the online platform survey summary tools.

  Figure 1-4 shows that over 86% of respondents would be comfortable walking or biking from their homes if the greenway was connected to their neighborhood. The top five priorities for trails and greenways in the Sumter area include natural shading (60.8%), lighting (54.9%), trash receptacles (54.9%), benches (49.0%), and good pavement condition (45.1%). **Figure 1-5** displays the top five priorities in green.

  A summary of all survey responses can be found in **Appendix A**.

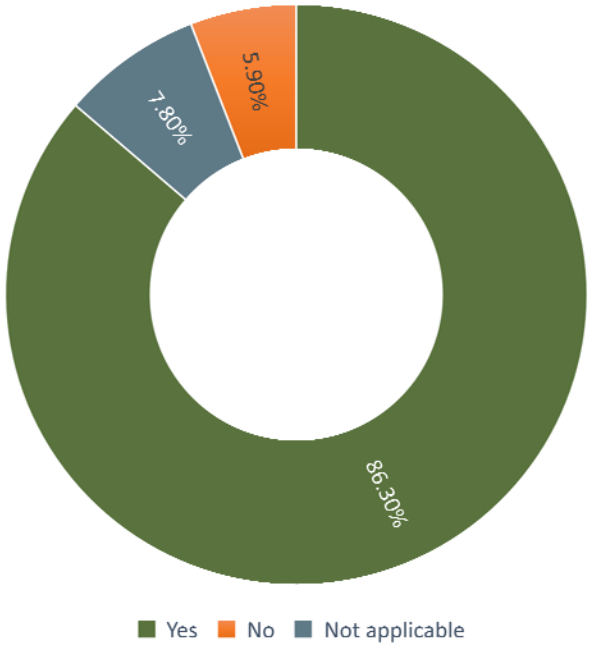

Figure 1-4 | Comfortable Walking or Biking if Greenway was Connected to my Neighborhood

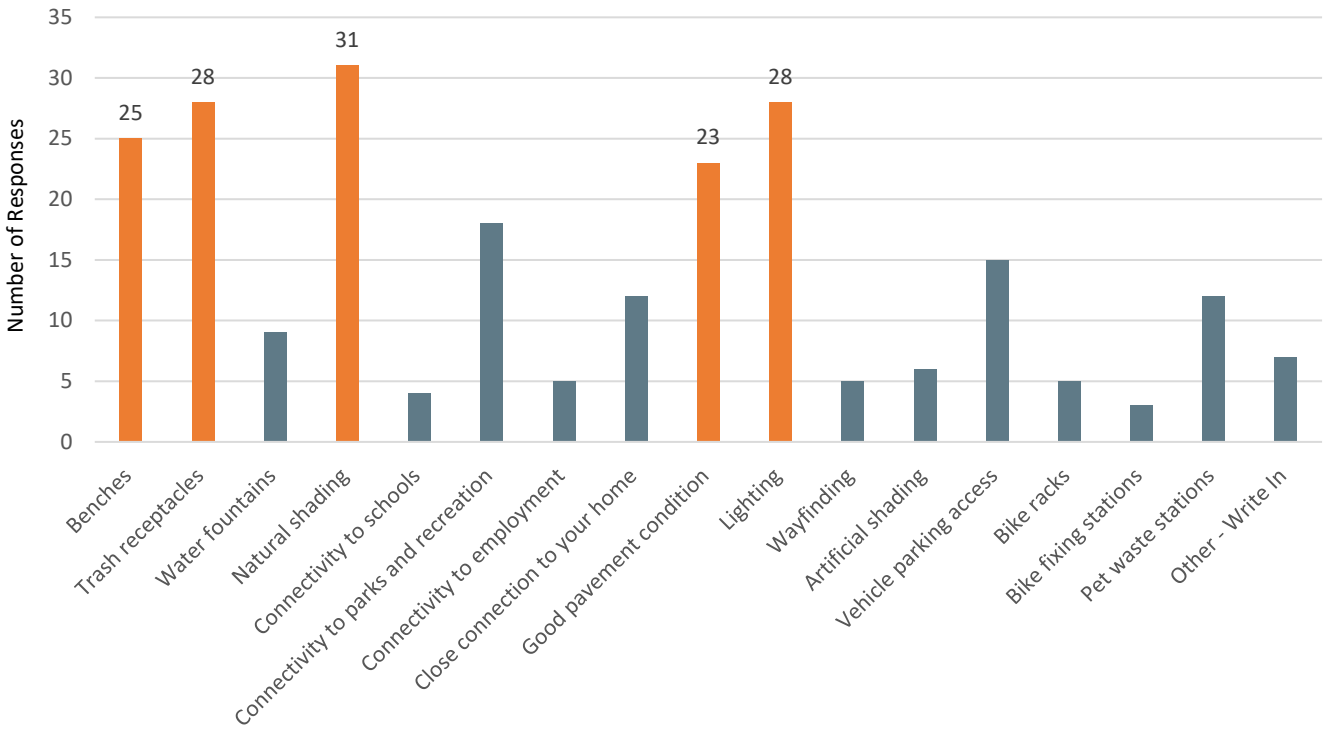

Figure 1-5 | Top Priorities for Sumter Area Greenways

- **Online Interactive Map –** An online interactive map was created to allow participants to click on a specific area and pinpoint issues, opportunities, and challenges, including desirable or undesirable routes, destinations of interest, hazardous crossings, maintenance issues, difficult intersections, ADA concerns, and other pertinent information. The map also allowed participants to view suggestions and comments posted by others.

  A total of 36 responses were received with 20 responses categorized as points that identify difficult crossings, safety/maintenance concerns, and places respondents would like to go. The remaining 16 responses are categorized as lines that identify desired greenway connections or a route that respondents currently walk or bike**. Figure 1-6** displays the location of the points and lines added to the online map by respondents.

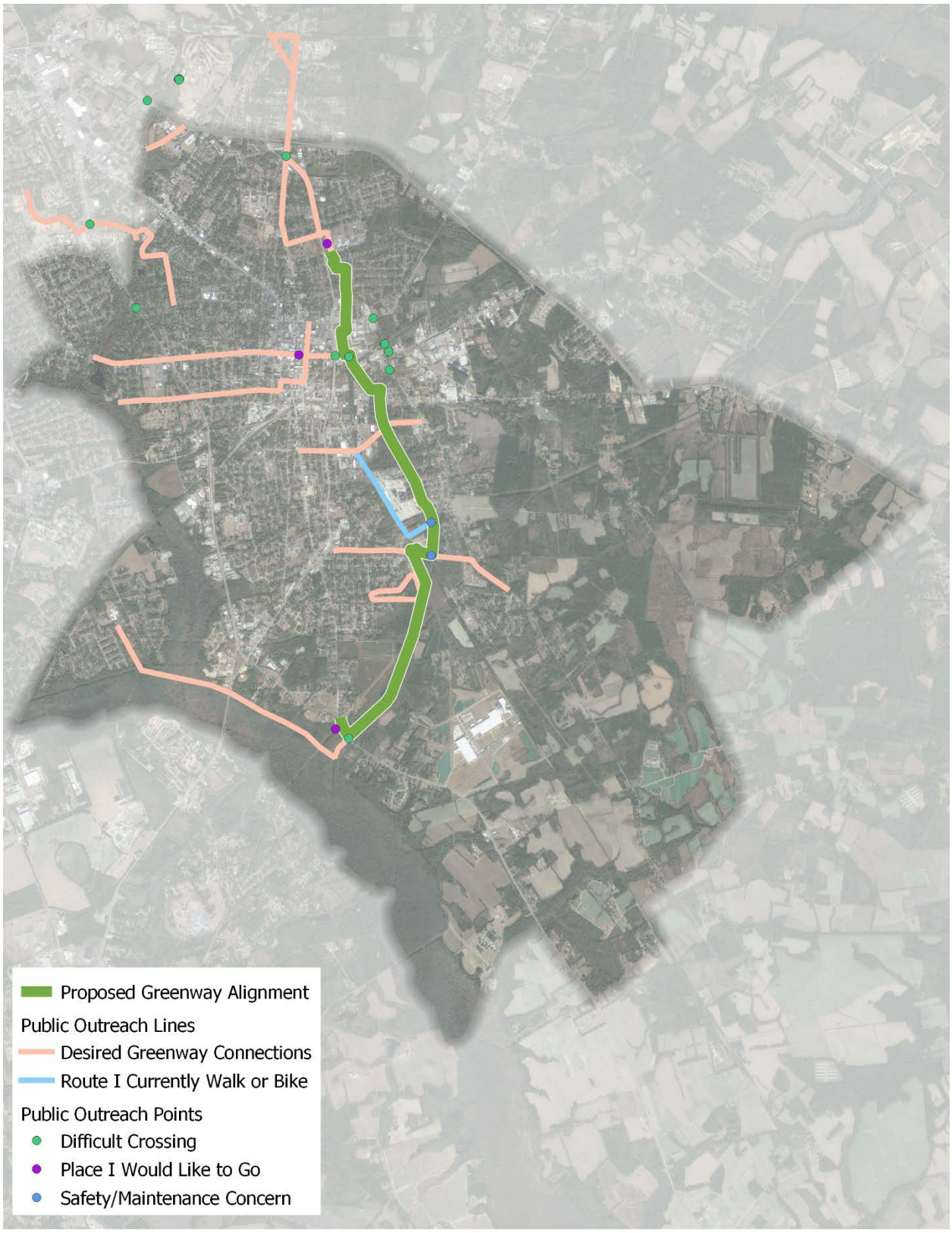

Figure 1-6 | Online Map of Respondents' Opportunities and Challenges

Public Information Meeting

Due to the pandemic, public, in-person events were limited to ensure the safety and welfare of the public and project team. Draft recommendations were presented at an in-person public information meeting on Thursday, June 16, 2022. The meeting was held at the South HOPE Center at 1125 S. Lafayette Drive from 5:00pm to 7:00pm. The meeting was held in an open house format with a presentation and question and answering period at the midpoint. Nearly 50 people attended the meeting, with 40 signing the sign-in sheet.

A variety of comments were received both verbally and through the use of sticky notes on an input board. Those who spoke in favor and in opposition of the greenway were decidedly from two distinct geographies, north of Vernon Drive and south of Vernon Drive respectively.

The majority (i.e., approximately 75%) of meeting participants indicated that they live or own property in proximity to the portion of the proposed greenway from Vernon Drive and northward. These participants largely spoke in support of the greenway, saying that it would have a positive impact on the community and residents' ability to access goods, services, jobs, and recreation. There was excitement about the prospect of East Sumter and South Sumter getting the same type of facilities that more affluent areas are already experiencing. Many spoke of how the greenway would bring the community together, increase neighborliness, provide activity for young people and seniors, and help alleviate health issues.

Approximately 25% of meeting participants indicated that they live, own property, or have hunting access to property in proximity to the portion of the proposed greenway south of Vernon Drive. These participants were strongly opposed to the project, citing concerns with property acquisition, property values, privacy/trespassing, noise, crime, litter/dumping, drug use, and impacts to and dangers from wildlife. They expressed that many of these issues already exist and that they believe they will only be exacerbated by the greenway. Several of these participants directly requested that the greenway's southern terminus be changed from US 521 to E. Red Bay Road.

One area where all meeting participants agreed was the topic of greenway user safety and security. There is a desire that crime prevention be a paramount goal in the planning and future design of the greenway.

PLANS AND POLICY REVIEW

Several plans have been developed that relate to the Turkey Creek Greenway Feasibility Study. To ensure that previous planning was considered and built upon throughout the feasibility study process, a review of prior work was conducted and is summarized in **Table 1-1.**

Table 1-1 | Previous Planning Summary

PLAN	YEAR COMPLETED	OWNER	SUMMARY
Sumter Connectivity & Greenways: Master Plan for Shot Pouch Creek	2014	Sumter City-County Planning Department	The Master Plan for the Shot Pouch Creek envisioned a natural greenway which serves as a viable community amenity, designed to connect neighborhoods, encourage recreational walking and biking, and as a catalyst for new neighborhood and commercial development. This plan viewed the Shot Pouch Creek Greenway as a linear park which serves as a "spine" for greater connectivity in Sumter. This lays the groundwork for the Turkey Creek Greenway to serve a similar role for South Sumter and downtown.
SUATS 2045 Long Range Transportation Plan	2018	Sumter Area Transportation Study (SUATS)	The 2045 SUATS Long Range Transportation Plan is the result of a multi-level partnership that brought local, state, and federal policymakers to the table with residents, business owners, and stakeholders. At its core, a long-range transportation plan (LRTP) identifies ways a region expects to invest resources to enhance its transportation system. The plan prioritizes its projects based on the impacts they will have on overall goals. The proposed Turkey Creek Greenway examined in this feasibility study was included in the LRTP's project list.

PLAN	YEAR COMPLETED	OWNER	SUMMARY
Sumter 2040 Comprehensive Plan	2019	City of Sumter and Sumter County	The Sumter 2040 Comprehensive Plan represents the community's collective land use vision for the future. It is the policy document that guides where the community will develop, how it will develop, and what the development may look like. The Comprehensive Plan delegates future transportation planning to the SUATS LRTP and does not discuss new specifics on active transportation planning. The Turkey Creek Greenway is shown on Map T-2 Pedestrian Infrastructure (pulled from the SUATS LRTP) as a planned facility but not discussed.
City and County of Sumter Code of Ordinances	2022	City and County of Sumter	Sidewalk Regulations (Last updated 1998) • Persons may ride bicycles, not motor-driven, on all the sidewalks of the city. • Pedestrians using the sidewalks of the city shall have the right-of-way over bicycles. • Anyone propelling a bicycle upon the sidewalks of the city shall propel the bicycle at a reasonable rate of speed under existing circumstances and conditions.
City and County of Sumter Zoning and Land Development Ordinances	2021	City and County of Sumter	• Must measure four and one-half (4 ½ ft.) feet in width; wider widths may be necessary near traffic generators. • All pedestrian areas must be compliant with Americans with Disabilities Act (ADA) standards in accordance with ANSI 117.1, the County of Sumter Design Standards for sidewalks, and SCDOT standards as applicable.
Santee-Lynches Region Transit Needs Assessment + Framework	2019	Santee-Wateree Regional Transportation Authority	• The document does not include pedestrian or bicycle connectivity as a recommendation, but it does use walking distance as a component in the Potential Ridership analysis.

PLAN	YEAR COMPLETED	OWNER	SUMMARY
TIGER Grant application for The Sumter Connectivity Initiative **Manning Avenue / North Main Street Corridor**	2014, 2015, 2016	City and County of Sumter	• The overall project was focused on Manning Avenue and North Main Street, but an alignment for the Turkey Creek Greenway was included to create a bicycle and pedestrian loop from Fulton Avenue to Crosswell Drive.

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RECOMMENDED GREENWAY

TECHNICAL ANALYSES

Through a series of technical and field analyses, opportunities and constraints for implementing the Turkey Creek Greenway were documented. Among these was the identification of several points where design decisions needed to be made. A detailed summary of the analyses is including in **Appendix B**. The analyses provide insight into areas where access barriers, property concerns, environmental features, and other obstacles exist. At each decision point, possible alternative alignments were evaluated.

EVALUATION CRITERIA

Evaluation criteria were developed, as shown below, with each alternative alignment being weighed against them. While decisions were needed at each of the decision points, some were very straightforward and did not require an evaluation of alternatives. **Appendix C** includes the evaluation of each alternative.

1. Ability to gain property owner permission, minimize property acquisition
2. Ability to avoid vehicular traffic conflicts/provide safe ADA compliant access
3. Ability to connect surrounding areas/residents to the greenway network
4. Ability to avoid/mitigate environmental and cultural impacts
5. Ability to simplify construction and maintenance access
6. Ability to reduce overall cost

GREENWAY ALIGNMENT

Based on the evaluation of alternatives, a planning-level greenway alignment emerged. It included paved greenway, boardwalks, trailheads, lighting, and other site-specific safety improvements to complete a nearly five-mile Turkey Creek Greenway.

An initial alignment was vetted with the public during an open house meeting in June 2022 (i.e., see the Background section of this document for more information on the public meeting). Based on comments received during the public meeting, it became apparent that the portion of the greenway south of Manhattan Avenue requires additional study and further coordination with property owners. This is the more rural portion of the greenway, and issues that need to be better understood and evaluated include concerns over right-of-way acquisition, privacy/trespassing, noise, and impacts to and dangers from wildlife.

The final greenway alignment is shown in **Figure 2-1**. The most-southern section of the greenway is not recommended for advancement at this time and is shown as "Further Coordination Required." While this section of the greenway is not "ripe" currently, it is an important segment of an overall greenway network, as it will be part of connecting the Shot Pouch Greenway and Turkey Creek Greenway to one another.

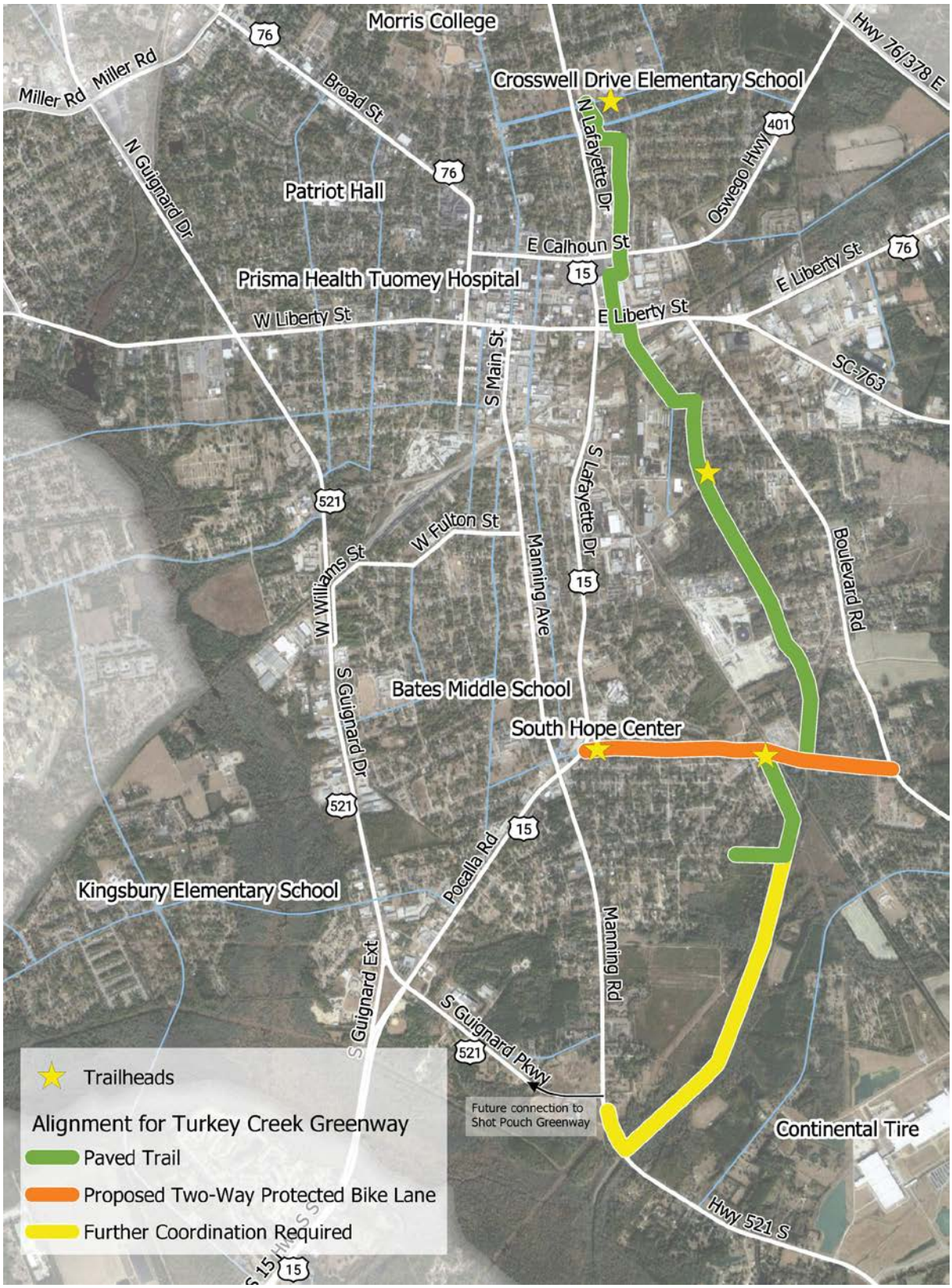


Figure 2-1 | Planning-Level Greenway Alignment

CONCEPTUAL DESIGN GUIDANCE

While the scope of the feasibility study did not include detailed design, this Feasibility Report does provide conceptual design guidance. When final design does commence, four key areas of design should be considered, as shown below.

CONTINUITY

There should be continuity between greenway sections, making them seamless with no perceived gaps. Users need to know and understand that they are on the greenway network no matter where along the greenway they are located.

COHERENT

The greenway must be visually coherent by allowing the user to know where they are supposed to go next, with no opportunity for getting lost or feeling confused.

PRIORITY

The greenway should be treated as a priority facility within the transportation system. Safety for greenway users should always be paramount.

SEPARATION

Physical separation between greenway users and adjacent roadways will provide safety and comfort. Anywhere separation cannot be provided, the speed of vehicles should be controlled.

To further illustrate the intended character of the Turkey Creek Greenway, photo renderings of proposed conditions are depicted in **Figure 2-2** and **Figure 2-3**.

Existing Conditions

Proposed Conditions

Figure 2-2 | Photo Rendering of the Turkey Creek Greenway Along Brooklyn Street

Existing Conditions

Proposed Conditions

Figure 2-3 | Photo Rendering of the Turkey Creek Greenway South of Hauser Street

GREENWAY CHARACTERISTICS

Greenway Safety/Security

While no environment is completely free of the possibility of crime, research has shown that greenways and trails do not have a higher likelihood of criminal behavior than other areas, and, in some instances, have lowered crime rates in the areas where they are implemented. Numerous studies have been conducted over the past 20 years that document this. A paper published in 2018 in support of the Regnart Creek Trail in Cupertino, California did an excellent job of compiling the results of many of these studies. The conclusion of that paper was:

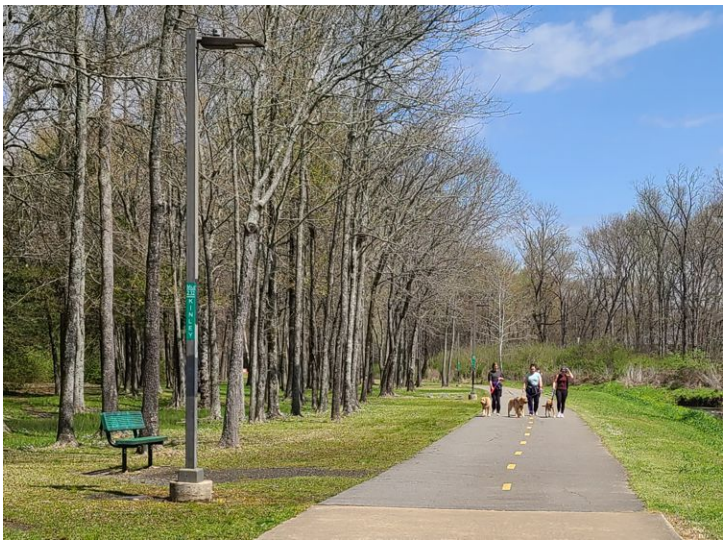
> Trails are not immune to crime. Incidents happen in almost every kind of environment, and bike and walking paths are no exception. Though very sad and unfortunate, crime incidents by themselves (whether to home or person) are not a reason to decide whether to build a trail. The important part is comparing whether crime will increase with a new trail, not whether it will occur at all.
>
> Will putting in a trail make crime more likely to occur than the currently empty water property? The overwhelming evidence from studies on hundreds of trails is no. In every study, the installation of trails has not increased crime and in some cases has decreased it. After the trails are built, adjacent residents of properties and police agree that new trails do not increase crime for them and become enjoyable amenities.[2]

Even with evidence that trails and greenways are safe, greenway user safety/security is a concern shared by all. Because of this, it is recommended that several safety and security features be considered in the design of the Turkey Creek Greenway. Each of these features does require additional budget for installation and varied degrees of ongoing monitoring and maintenance.

- **Lighting –** Many trails do not have lighting, as they are only officially open from dawn to dusk. However, the Turkey Creek Greenway is intended to be a means of transportation between residences, jobs, goods, and services.

[2] https://walkbikecupertino.org/wp-content/uploads/2019/05/Crime-Concerns-on-the-Regnart-Creek-Trail.pages.pdf

Therefore, it will be important to have lighting, as during the winter months the sun sets as early as 5:13 pm. Lighting placement and frequency should be studied during the design phase so that adequate and even illumination is provided without gaps. Fixtures can be leased through Duke Energy or both solar- and wind-powered options are available that require less infrastructure.



Solar lighting is used along the Tucker Creek Trail in Conway, Arkansas.

- **Call Boxes –** While most greenway users carry mobile phones with them, call boxes continue to be important security elements along trails and greenways. Call boxes provided an easily accessible means for communicating distress through the simple press of a button. Greenway users can be immediately connected to an operator who can assess the degree of danger or health emergency and continue to communicate with the greenway user until help can arrive. Call boxes also provide an instant and accurate location for where the greenway user is located.
- **Markers –** Markers placed at intervals along the greenway can provide valuable location information for emergency responders. Markers can indicate the mileage along the greenway. They also can simply have unique shapes or images on them; 911 operators are able to locate users by the shape or image that is communicated to them.
- **Cameras –** Cameras are an effective tool for monitoring greenways, deterring criminal behavior, and investigating vandalism and incidents if they do occur. Cameras can be placed at regular intervals along the greenway or targeted to areas that will experience less "eyes" on the greenway. In recent years, cameras have become more affordable and easier to utilized with solar power and internet connectivity.

Greenway Width

User comfort, necessary right-of-way, cost of construction, and ongoing maintenance will all be directly affected by the width of the greenway. Most existing greenways and trails in the Sumter area are eight to ten feet in width. However, should the Turkey Creek Greenway rely on federal transportation dollars as a funding source, it is likely that it will need to be built to federal and state standards, which are taken from the American Association of State Highway Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities.

The current 2012 edition of the AASHTO Guide for the Development of Bicycle Facilities requires that trails and greenways be 12 feet in width, allowing for 8 feet in constrained areas. The forthcoming new edition, which is expected to be published in 2023, will recommend wider greenways and trails to encourage safer passing and side-by-side "social" bicycling based upon anticipated user volumes. In expectation that the publication of the new standards will be published prior to the construction of this greenway, this Feasibility Report envisions the greenway to be 12 to 14 feet wide, as shown in **Figure 2-4**.

Figure 2-4 | Typical Greenway Conceptual Cross Section

Boardwalks

While there are very few areas that will require boardwalks, they will be necessary through wetlands and flood prone areas. Raised boardwalk will also be required where elevation changes are significant to achieve ADA accessibility (e.g., transitioning from the creek to the proposed trailhead along Hwy 521). It is anticipated that less than 1,000 total linear feet of boardwalk will be needed throughout the greenway corridor.

Boardwalks may be of wooden construction, as shown in **Figure 2-5**. Concrete construction is another option. Shot Pouch Greenway used PermaTrack, a little to no maintenance commercial concrete boardwalk system on helical piles, similar to what is depicted in **Figure 2-6**. To assist in determining the most appropriate construction, geotechnical exploration should be conducted early in the design process.

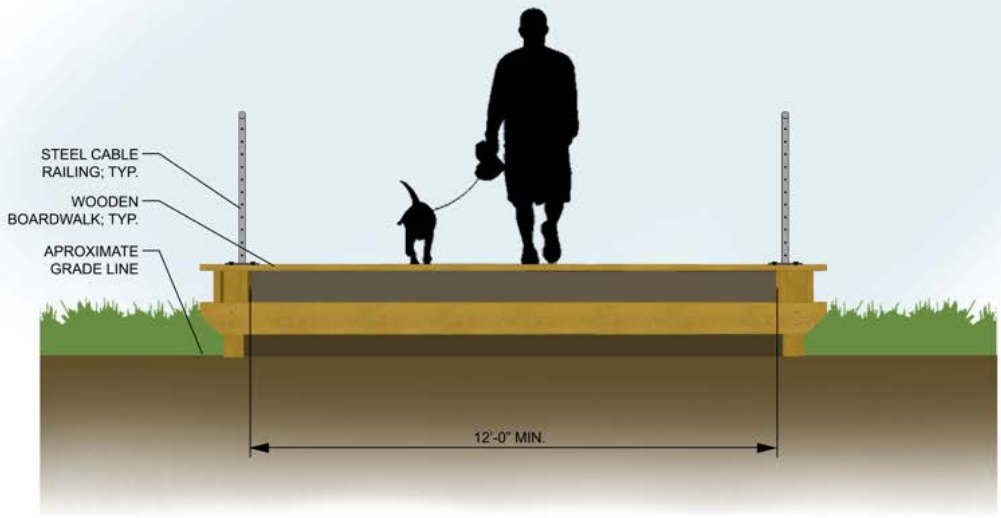


Figure 2-5 | Typical Wooden Boardwalk Conceptual Cross Section

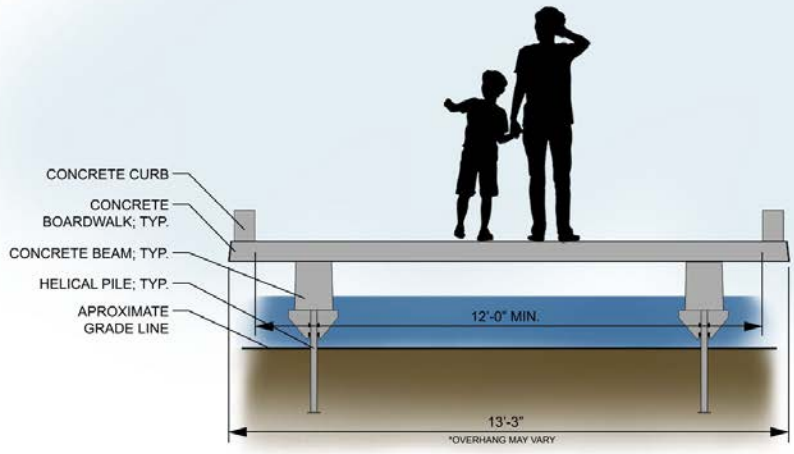


Figure 2-6 | Typical Concrete Boardwalk Conceptual Cross Section with Curbs

Greenway in Street Right-of-Way

While much of the Turkey Creek Greenway will be in open, natural areas along Turkey Creek, significant portions of the greenway will be constructed adjacent or within existing street rights-of-way. It is important to provide adequate buffers from motorized traffic to maintain a greenway-quality level of comfort for users in these settings. When the greenway is adjacent to a street, a preferred buffer width of six feet is recommended, as shown in **Figure 2-7**. In constrained areas, this buffer can be reduced to as narrow as three feet.

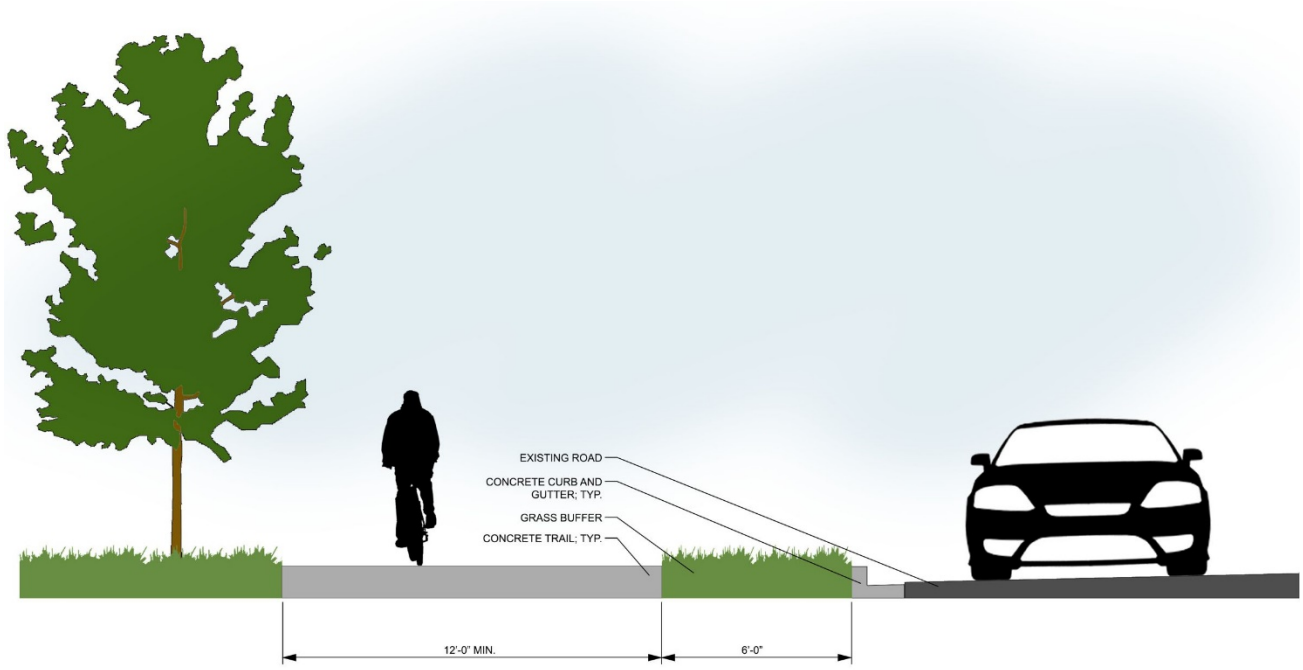


Figure 2-7 | Typical Greenway Conceptual Cross Section in Street Right-of-Way

Intersection Improvements

In addition to the greenway itself, there are several intersections where improvements will be necessary to increase the safety, comfort, and mobility of greenway users. The locations of these intersections are shown in **Figure 2-8**, and summaries of the recommended improvements follow.

Figure 2-8 | Intersection Improvement Locations

Loring Drive Mid-Block Crossing

Loring Drive, immediately east of N. Lafayette Drive, is a median-divided neighborhood street. The landscaped median ends approximately 80 feet from where the proposed greenway crossing will be located. Travel lanes are extra wide, close to 22 feet each. Although this is a neighborhood road with relatively low traffic volumes, wide travel lanes often induce speeding and create unsafe pedestrian and bicycle crossings.

Figure 2-9 depicts an extension of the landscaped median to create a refuge by paving a gore-striped median on the opposite side of a high visibility crosswalk. This will provide a safe greenway crossing and serve as a traffic calming countermeasure. This, along with additional pavement markings and signage, will create a safer pedestrian and bicycle environment.

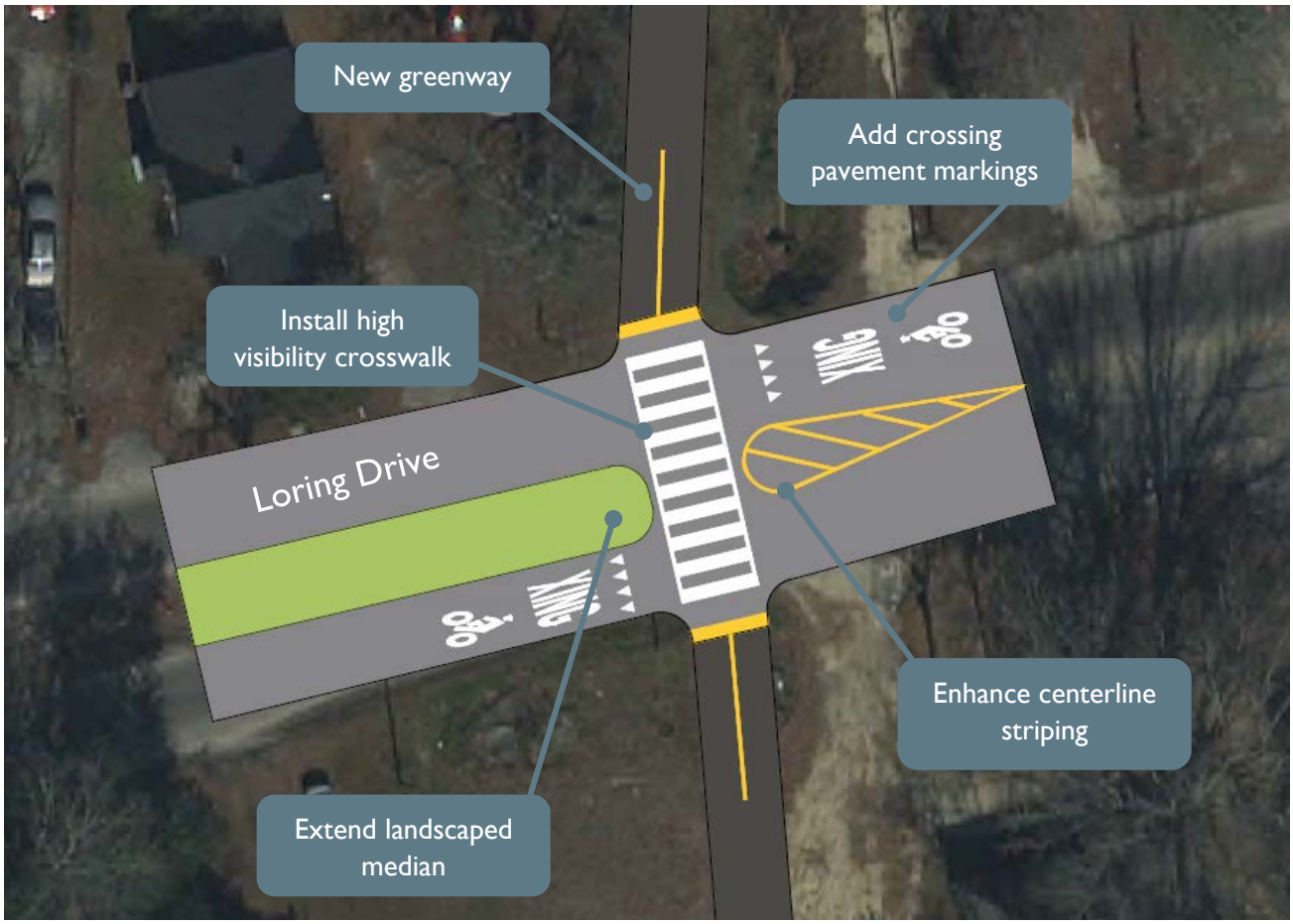


Figure 2-9 | Loring Drive Mid-Block Crossing Conceptual Improvement

E. Calhoun Street/Grier Street Intersection

E. Calhoun Street, between Green Street and Grier Street, is a location where the implementation of bike lanes will help to facilitate the installation of a safe crossing for the Turkey Creek Greenway.[3] Currently, E. Calhoun Street has a four-lane cross section that carries an average of 7,400 vehicles per day; a three-lane cross section can more than accommodate current and future volumes.

A crossing is recommended immediately west of Grier Street, complete with an enhanced crosswalk and refuge islands. Rectangular rapid flashing beacons (RRFBs) should also be considered. To realize the space required for the refuge islands, it is recommended to reduce the road to a three-lane cross section, one travel lane in each direction with a center turn lane. The additional space left from reducing from four lanes to three lanes could then be used for dedicated bike lanes along each side of E. Calhoun Street. As depicted in **Figure 2-10**, the proposed improvements will help to slow traffic speeds and increase pedestrian and bicyclist safety. A traffic analysis should be performed as part of the schematic design.

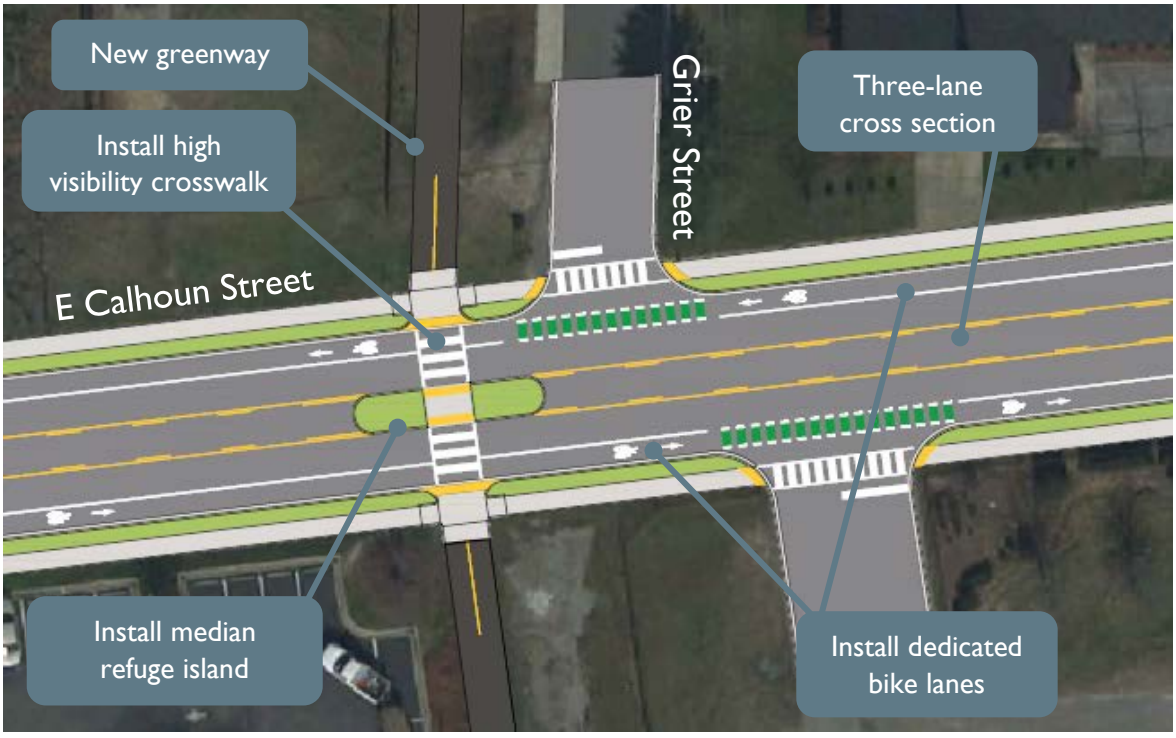


Figure 2-10 | E. Calhoun Street/Grier Street Intersection Conceptual Improvement

[3] While bike lanes in this location would benefit the Turkey Creek Greenway, the regional impact of such and their connectivity to the larger active transportation network should be further explored in the SUATS Walk + Bike Master Plan currently being developed.

Liberty Street/Brooklyn Street Intersection

Proposed improvements at the Liberty Street/Brooklyn Street intersection are designed to increase pedestrian and bicyclist safety and comfort through the slowing of traffic and introduction of refuge islands. To accomplish this, it is recommended that the two eastbound through lanes on Liberty Street be transitioned to a single through lane. As shown in **Figure 2-11**, this transition will occur at the intersection, with the appropriate taper length, and then open back up to two eastbound lanes east of the intersection. Currently, Liberty Street carries approximately 13,000 vehicles per day, which can be easily accommodated by a three-lane cross section. However, it is recommended that a traffic analysis be performed as part of schematic design.

It should be noted that the City of Sumter plans to build a new Public Services Department building on the corner of E. Liberty Street and Green Street. This would be an ideal opportunity to incorporate the construction of a portion of the greenway along the northern side of Liberty Street and eastern side of Green Street.

Figure 2-11 | Liberty Street/Brooklyn Street Intersection Conceptual Improvement

E. Red Bay Road/Brent Street Intersection

One location where access can be improved is at the intersection of E. Red Bay Road and Brent Street. At this location, the greenway will approach Brent Street from a utility easement to the south. Currently, Brent Street meets E. Red Bay Road on a skew and in proximity to the railroad crossing. It is recommended that Brent Street be relocated approximately 175 feet to the west of its existing location to form a 90-degree "T" intersection with E. Red Bay Road.

As shown in **Figure 2-12**, realigning Brent Street will provide a better location for the proposed mid-block greenway crossing of E. Red Bay Road. It will also improve sight distance for motorists as they approach the mid-block crossing by separating the crossing further away from the curve and providing additional separation from the at-grade railroad crossing E. Red Bay Road.

The right-of-way of E. Red Bay Road should be reallocated to provide one travel lane in each direction, a continuous center turn lane, and a two-way protected bike lane on the north side. Current volumes along this section of E. Red Bay Road are less than 3,000 vehicles per day, indicating that a reallocation would function well. A traffic analysis is recommended as part of schematic design.

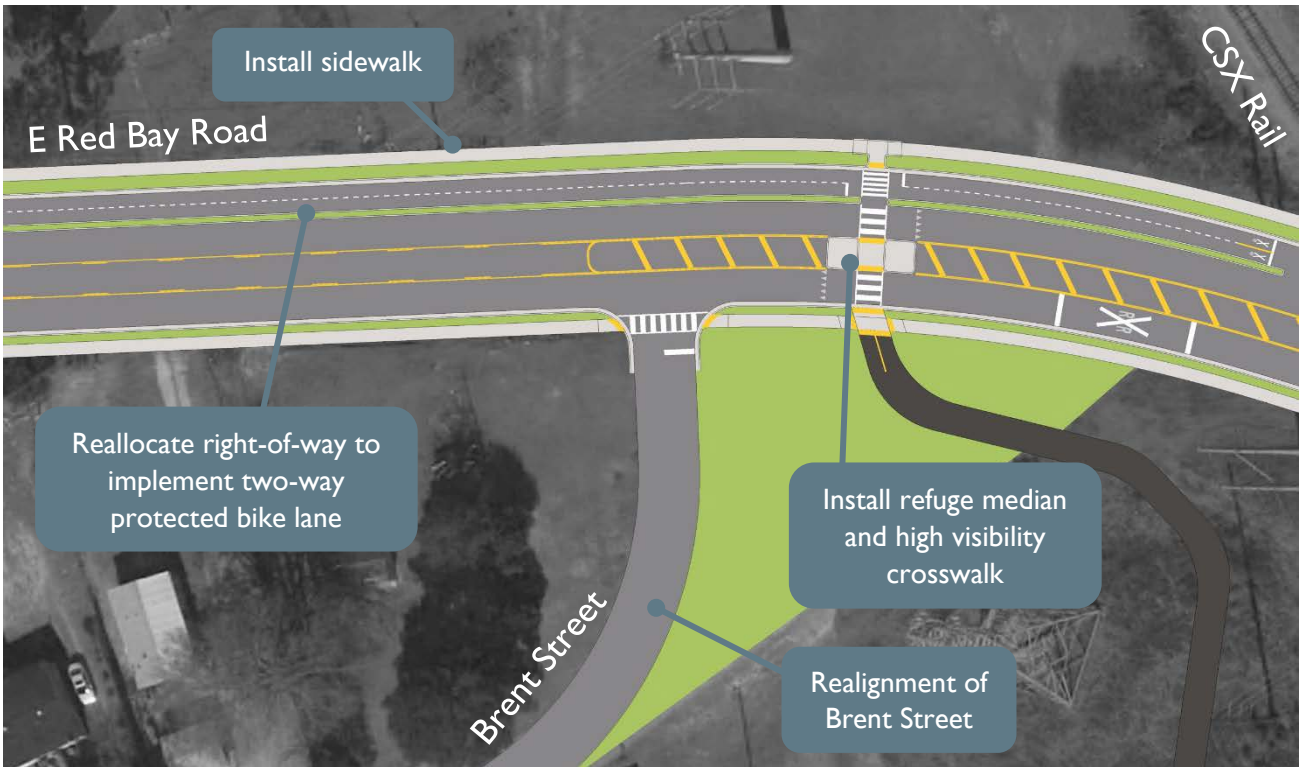


Figure 2-12 | E. Red Bay Road/Brent Street Intersection Conceptual Improvement

Trailheads and Parking

As discussed later in this section of the Feasibility Report, long-term connectivity to the surrounding area is an ultimate goal. In the short-term, prior to connectivity being achieved, trailheads will provide local users with essential access to the greenway. Additionally, trailheads will be important to regional users who identify the greenway as a destination. As part of the greenway alignment, this Feasibility Report identified four locations for trailheads (see **Figure 2-1**), all with parking and some with proposed bathrooms and maintenance facilities.

Proposed trailheads and their anticipated amenities are presented in **Table 2-1**. In each case, agreements may need to be negotiated with property owners.

Table 2-1 | Proposed Trailheads

TRAILHEAD NAME	LOCATION	AMENITIES	NOTES
Crosswell Drive	At Crosswell Drive in the vicinity of Yeadon Street	Parking, restrooms, splash pad, basketball courts	Crosswell Park is a public park with parking and restrooms.
Fulton Street	Near the intersection of Fulton Street and Missouri Street, on the north side	Parking, restrooms, maintenance building	Parcel north of Fulton Street and east of Turkey Creek is owned by the City of Sumter.
E. Red Bay Road	At the intersection of E. Red Bay Road and Brent Street, on the southeast side	Parking	The proposed realignment of Brent Street would provide for a small parking area where the existing Brent Street is vacated.
South HOPE Center	North side of E. Red Bay Road at S. Lafayette Street	Parking and restrooms	South HOPE Center is a public community and recreation center. The Sumter City Aquatics Center is also located at this site.

At-Grade Railroad Crossings

It is anticipated that the Turkey Creek Greenway will have two at-grade railroad crossings; one will be an on-street crossing, the other an off-street crossing. The proposed on-street protected two-way bike lane on E. Red Bay Road will cross the railroad just east of Brent Street. While the off-street greenway along Brooklyn Street will cross the railroad south of E. Liberty Street. All crossings would be of CSX Transportation (CSXT) rail and are listed in **Table 2-2**. For better sight distance and safety, the off-street crossing should be perpendicular to the railroad; the on-street crossing will need to cross at the same angle as E. Red Bay Road.

Table 2-2 | Anticipated At-Grade Railroad Crossings

LOCATION	OWNER	DIVISION	SUBDIVISION
Along Brooklyn Street south of E. Liberty Street	CSXT	Carolinas	Orangeburg
E. Red Bay Road near Brent Street	CSXT	Carolinas	Lane

Long-Term Connectivity

The Turkey Creek Greenway will be a destination for people from throughout the region, but those who live closest to it will receive the greatest transportation, recreation, health, and quality of life benefits. To leverage these benefits to their fullest, connectivity to surrounding neighborhoods and destinations is paramount.

Figure 2-13 presents a long-term connectivity plan for the Turkey Creek Greenway. In addition to sidewalk connectivity along neighborhood roads with low traffic volumes and low posted speed limits, two types of facilities are recommended:

- **Neighborhood Bikeway**
  Neighborhood bikeways are established on quiet streets, often through residential neighborhoods.
  They are designed to prioritize bicycle through-travel, while maintaining relatively low motor vehicle speeds. Treatments vary depending on context, but often include elements of traffic calming. Neighborhood bikeways are also known as neighborhood greenways and bicycle boulevards.

- **Shared Use Path**
  Shared use paths are two-way facilities physically separated from motor vehicle traffic, used by bicyclists, pedestrians, and other non-motorized users. Shared use paths, referred to as trails or greenways, are often located in an independent alignment, such as a greenbelt, utility easement, or abandoned railroad. However, they are also regularly constructed adjacent to roadways where users will have increased interactions with motor vehicles at driveways and intersections on these "sidepaths."

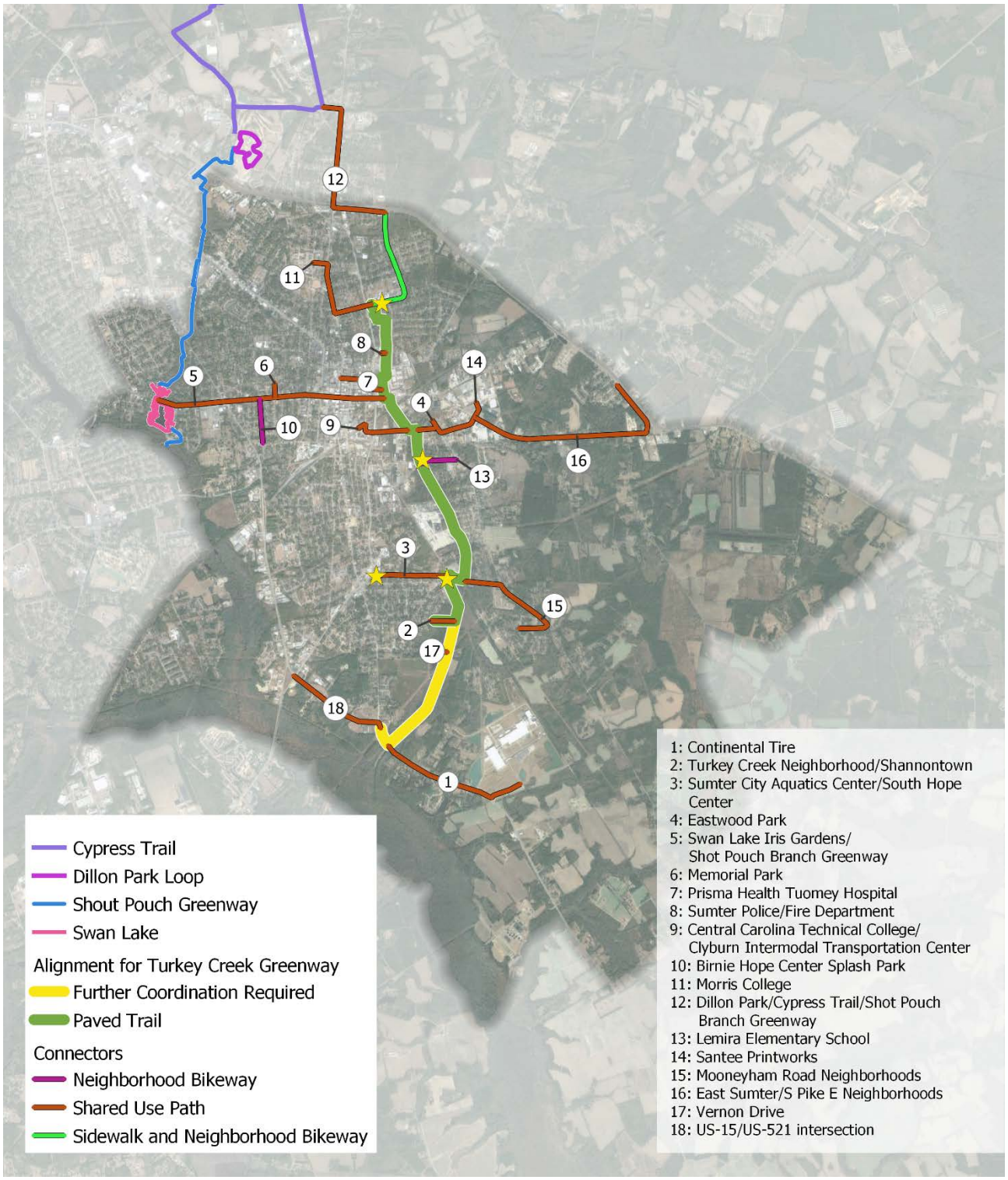


Figure 2-13 | Long-Term Connectivity

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IMPLEMENTATION

This Feasibility Report is a critical step in advancing the Turkey Creek Greenway. The process which crafted this document has set the foundation for implementation. To assist in moving recommendations to reality, an Implementation Matrix has been created and is presented as **Table 3-3**. The Implementation Matrix summarizes recommendations, anticipated phasing, and order-of-magnitude opinions of probable cost.

OPINIONS OF PROBABLE COST

An estimated order-of-magnitude opinion of probable cost is presented for each recommendation in the Implementation Matrix. As the Turkey Creek Greenway Feasibility Study is a planning study, costs have been developed based on current understanding of each recommendation and should provide a good baseline for planning-level, capital improvement decision-making. Costs were estimated based on professional judgment and experience with similar projects.

Cost Considerations

When reviewing and utilizing the opinions of probable cost presented in this Feasibility Report, several areas should be considered.

Greenway Width

The costs presented assume a 12-foot wide greenway, as it is anticipated that federal funds that flow through SCDOT will be used to construct the greenway (i.e., AASHTO design standards, which SCDOT utilizes, currently require a 12-foot width). Previous greenways constructed in the Sumter region have been eight to 10 feet in width; therefore, they may have been constructed for less dollars per linear foot of greenway length. Should a funding plan be realized that does not require federal funding, it could then be assumed that the greenway might be constructed at a narrower width, realizing cost savings.

While it is beyond the scope of this feasibility study to estimate the cost of narrower widths, it is reasonable to assume that for every two feet of width the greenway is narrowed approximately 6-8% in cost savings might be realized. However, it should be cautioned that funding source and cost should not be the deciding factors in determining greenway width; rather, expected volumes, types and mix of users, and

ability to accommodate "social cycling" (i.e., side-by-side bicycling) should determine the appropriate width of the facility.

Efficiencies

With most construction projects, certain efficiencies can be achieved by increasing the size of the project. Therefore, it is reasonable to assume that, if the entire Turkey Creek Greenway were constructed at one time, the total cost would be lower than if it is constructed in separate phases. A single construction project would most likely realize savings in survey, permitting and design fees, contractor mobilization, larger quantity materials discounts, and other areas.

Cyclical Cost Changes

Construction costs are greatly affected by economic conditions (i.e., past, current, projected, and future conditions). Therefore, particular project types can be more or less expensive at certain times. At the writing of this Feasibility Report, construction costs are elevated. Should economic conditions, contractor demand, and/or materials' availability change (i.e., for better or worse), it is possible that associated cost effects could change as well.

POTENTIAL PROJECT PHASING

If the entire project cannot be reasonably accomplished at one time, four potential phases have been identified as described below and presented in **Figure 3-1**.

- **PHASE 1 –** The Turkey Creek Greenway between Crosswell Drive Park and Hauser Street should be implemented first. Based on public input and connectivity to existing facilities, it is anticipated that this portion of the greenway would establish early momentum, be well-received by the public and users, and set the foundation for future phases.
- **PHASE 2 –** While the portion of the greenway between Hauser Street and E. Red Bay Road is important, it builds on Phase 1 recommendations. To ensure that this phase is on track for implementation when opportunity presents itself, establishment of support and identification of funding sources should begin now for this portion of the greenway.
- **PHASE 3 –** This on-street two-way protected bike lane along E. Red Bay Road between S. Lafayette Drive and Boulevard Road will provide connectivity for surrounding neighborhoods. While this phase is programmed as Phase 3, it has independent utility from the greenway proper and could be implemented immediately upon funding and support being ready.
- **PHASE 4 –** This short section of greenway from E. Red Bay Road to Manhattan Avenue will provide a direct connection to residential areas to the south. Similar to Phase 2 and Phase 3 recommendations, building of support and funding identification should begin as soon as possible.

Although phases have been established, these designations are for planning purposes only; greenway phases should be implemented as soon as opportunities arise. If circumstances provide an opportunity to complete a Phase 2 recommendation three years after the Turkey Creek Greenway Feasibility Study is adopted, the improvement should be made, regardless of its designation as "Phase 2."

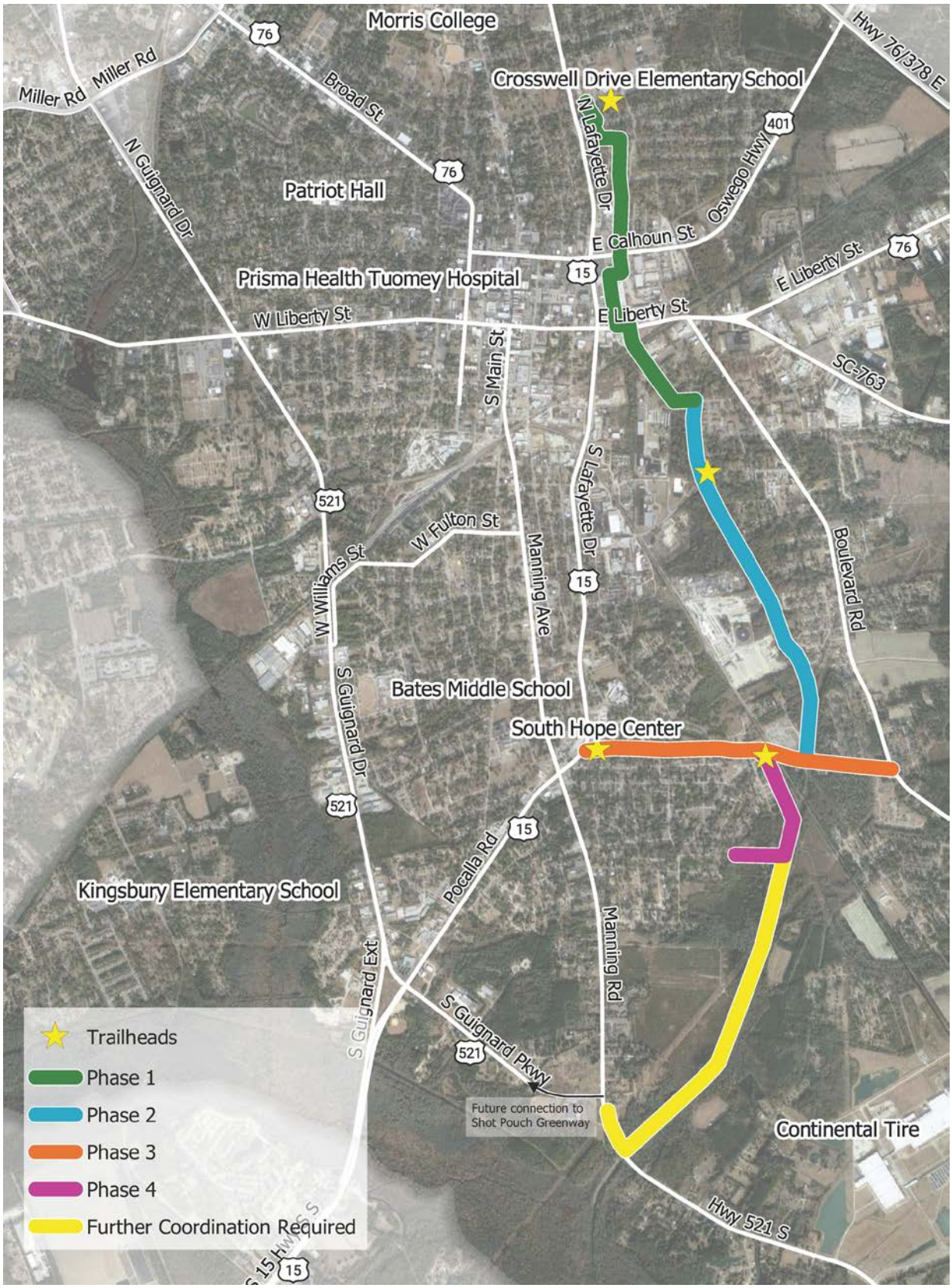

Figure 3-1 | Potential Project Phasing

Table 3-1 provides a summary of baseline construction costs by phase; a 30% contingency is also shown to account for unknowns that exist at the current level of study. **Table 3-2** takes the contingency-burdened construction costs and associates them with costs for engineering (PE) and right-of-way acquisition (ROW), resulting in total costs by phase and for the entire project (i.e., efficiencies may be realized to lower total costs if multiple phases are implemented as a single project).

Table 3-1 | Construction Cost by Phase

PHASE	ESTIMATED CONSTR COST	WITH 30% CONTINGENCY
PHASE 1 ***Crosswell Drive Park to Hauser Street***	$4,925,000	$6,403,000
PHASE 2 ***Hauser Street to E. Red Bay Road***	$3,001,000	$3,901,000
PHASE 3 ***S. Lafayette Drive to Boulevard Road***	$2,706,000	$3,518,000
PHASE 4 ***E. Red Bay Road to Manhattan Avenue***	$1,899,000	$2,469,000
TOTAL^	**$12,531,000**	**$16,291,000**

^ Efficiencies may be realized to lower total costs if multiple phases are implemented as a single project.

Table 3-2 | Cost by Category and Phase for Total Project

PHASE	PE @ 20%	ROW @ 10%	CONSTR	TOTAL
PHASE 1	$1,281,000	$640,000	$6,403,000	$8,324,000
PHASE 2	$780,000	$390,000	$3,901,000	$5,071,000
PHASE 3	$704,000	$352,000	$3,518,000	$4,574,000
PHASE 4	$494,000	$247,000	$2,469,000	$3,210,000
TOTAL^	**$3,259,000**	**$1,629,000**	**$16,291,000**	**$21,179,000**

^ Efficiencies may be realized to lower total costs if multiple phases are implemented as a single project.

Table 3-3 | Implementation Matrix

RECOMMENDATION	NOTES	ESTIMATED CONSTRUCTION COST
PHASE 1		**$4,925,000**
Greenway Phase 1 (Crosswell Drive Park to Hauser Street)	• Construct greenway from Crosswell Drive Park to Hauser Street. • Crosswell Drive Park's walking path is already well-utilized. • Existing parking and restrooms at Crosswell Drive Park and parking along Yeadon Street will help to reduce the need for additional trailheads immediately. • Provide signage, wayfinding, trash receptacles, call boxes, security cameras, and lighting.	$2,319,000
Loring Drive Mid-Block Crossing	• Install high visibility crosswalk on Loring Drive mid-block crossing. • Extend landscaped median. • Add crossing pavement markings. • Enhance centerline striping.	$120,000
E. Calhoun Street/ Grier Street Intersection	• Reallocate existing right-of-way on E. Calhoun Street to provide one travel lane in each direction, continuous center turn lane, and directional bike lanes. • Install median refuge islands. • Implement high visibility crosswalk on Calhoun Street crossing.	$1,294,000
Liberty Street/Brooklyn Street Intersection	• Implement high visibility crosswalks on Liberty Street and Brooklyn Street crossings. • Install refuge islands. • Consider greenway as part of future Public Works building site plan.	$1,192,000

RECOMMENDATION	NOTES	ESTIMATED CONSTRUCTION COST
PHASE 2		**$3,001,000**
Greenway Phase 2 (Hauser Street to E. Red Bay Road)	• Construct greenway from Hauser Street to E. Red Bay Road. • Public meeting attendees were very supportive of this segment of the greenway. • This segment of the greenway will provide important connectivity to basic goods and services. • Provide signage, wayfinding, trash receptacles, call boxes, security cameras, and lighting.	$2,501,000
Fulton Street Trailhead	• Construct trailhead on parcel north of Fulton Street and east of Turkey Creek that is owned by the City of Sumter. • Include parking, bathrooms, and maintenance building; provide signage, wayfinding, trash receptacle, call box, security cameras, and lighting.	$500,000
PHASE 3		**$2,706,000**
Greenway Phase 3 (Two-way protected bike lane and sidewalk between S. Lafayette Drive and Boulevard Road)	• Reallocate existing right-of-way on E. Red Bay Road to provide one travel lane in each direction, continuous center turn lane, and a two-way protected bike lane and sidewalk on the north side of the street. • This will be a critical connection between the greenway proper, surrounding residential neighborhoods, and the South HOPE Center and Sumter City Aquatics Center. • The South HOPE Center and Sumter City Aquatics Center are already well-utilized. • Existing parking and restrooms at the South HOPE Center can be utilized as a trailhead. • Provide signage and wayfinding; as this section is within street right-of-way with high visibility, call boxes, security cameras, and lighting may not be necessary.	$2,706,000

RECOMMENDATION	NOTES	ESTIMATED CONSTRUCTION COST
PHASE 4		**$1,899,000**
Greenway Phase 4 (E. Red Bay Road to Manhattan Avenue)	• Construct greenway from E. Red Bay Road to Manhattan Avenue. • Public meeting attendees were very supportive of this segment of the greenway. • This segment of the greenway will provide important connectivity to basic goods and services. • Provide signage, wayfinding, trash receptacles, call boxes, security cameras, and lighting.	$902,000
E. Red Bay Road/ Brent Street Intersection	• Realign Brent Street to provide a 90-degree "T" intersection with E. Red Bay Road. • Install median refuge islands and a high visibility crosswalk at mid-block crossing of E. Red Bay Road.	$497,000
E. Red Bay Road Trailhead	• Construct trailhead on former Brent Street right-of-way once Brent Street is realigned. • Include parking, bathrooms, and maintenance building; provide signage, wayfinding, trash receptacle, call box, security cameras, and lighting.	$500,000