

# Kure Beach Bicycle & Pedestrian Plan



Prepared for the Town of Kure Beach and the Wilmington Urban Area Metropolitan Planning Organization (WMPO)

Prepared by Alta Planning + Design | 2022

## ACKNOWLEDGMENTS

Thank you to the 400+ local residents of Kure Beach that participated in the development of this plan through public workshops, online maps, and comment forms. Special thanks to the community leaders, town staff, and committee members listed below.

### TOWN COUNCIL:

Craig Bloszinsky, Mayor, Town of Kure Beach  
Allen Oliver, Mayor Pro Tem, Commissioner & Recreation Liaison, Town of Kure Beach  
John Ellen, Commissioner, Town of Kure Beach  
David Heglar, Commissioner, Town of Kure Beach

### TOWN OF KURE BEACH STAFF:

John Batson, Building Inspector  
Mike Bowden, Police Chief  
Arlen Copenhaver, Finance & Budget Officer  
Sean Geer, Recreation Coordinator  
Nikki Keely, Director of Recreation  
Ed Kennedy, Fire Chief  
Jim Mesimer, Director of Public Works  
Mandy Sanders, Town Clerk

### TOWN OF KURE BEACH BIKE/PED COMMITTEE:

Mo Linquist, Chair  
Cindy Maier  
Candy Ashton-Forrester  
Steve Shumate  
Jerry Clark  
Garner Von Cannon  
Eileen Clute

### REGIONAL PLANNERS AND PROJECT CONSULTANTS:

Abby Lorenzo, Wilmington Urban Area MPO  
Jessi Leonard, NCDOT Division 3  
Malcolm Charles, Military Ocean Terminal, Sunny Point  
Jason Reyes, Alta Planning + Design  
Stephen Bzomowski, Alta Planning + Design  
Lucy Laird, Alta Planning + Design



Prepared for the Town of Kure Beach and the Wilmington Urban Area Metropolitan Planning Organization (WMPO)

Project Contact: Sean Geer, Recreation Department, Town of Kure Beach  
☎ 910.458.8216 | ✉ s.geer@townofkurebeach.org

This plan was made possible with funding from the WMPO  
Prepared by Alta Planning + Design | 2022

# TABLE OF CONTENTS

*Page*

4	Project Background & Planning Process
5	Existing Conditions
6	Project Recommendations & Cut Sheets
8	<i>K Avenue Crossing Improvements</i>
10	<i>Short Island Greenway Connection</i>
12	<i>Island Greenway Extension to Town Hall/K Avenue</i>
14	<i>Island Greenway Extension to Fort Fisher</i>
16	<i>Bicycle Lane Crossing Improvements</i>
18	<i>Westside Signed Bike Route</i>
20	<i>Fort Fisher Blvd Sidepath Feasibility Study</i>
22	<i>Fort Fisher Blvd Crossing Improvements</i>
24	<i>Fort Fisher Blvd Sidepath</i>
26	<i>Boardwalk Widening</i>
28	<i>North Carolina State Bike Route #3</i>
30	Program Recommendations
33	Implementation Action Steps
34	Design Guideline Resources
36	Project Benefit Resources
38	Project Funding Resources
48	Appendix: Public Outreach

## PROJECT BACKGROUND AND PLANNING PROCESS

### *PROJECT BACKGROUND*

The Town of Kure Beach has recognized residents' desire for improved and expanded facilities for walking and biking in town. The Wilmington Urban Area Metropolitan Planning Organization (WMPO) agreed to contribute funds towards the development of this Bicycle and Pedestrian Plan, in consideration of the planned future bicycle and pedestrian facilities that will connect Kure Beach residents and visitors to all that the town has to offer.

### *PLANNING PROCESS*

The planning process began with a field tour with Town staff, the WMPO, and the project consultants. The tour focused on key opportunities and constraints for walking and bicycling in town (see opposite page for detail on opportunities and constraints). The tour was followed by a meeting with Town staff and an initial public workshop, to gather further input on existing conditions and potential projects. Consultants then drafted recommendations based on that input, and presented them back to the public for further comment and feedback. Feedback received at the public workshop was extremely informative and largely supportive, particularly for projects that would improve the safety of pedestrians crossing Fort Fisher Boulevard, improve the sidewalk network, and expand separated facilities for walking and biking, such as the Island Greenway Extension.

The field tour, staff meetings, and public workshops were followed up by an implementation-focused meeting with the Town, the WMPO, and the subsequent development of this draft plan report. The Final Plan was presented to the Town in March 2022.



*From the top: Field tour of the Town, followed by stakeholder meetings and public workshops.*

## EXISTING CONDITIONS

### *KURE BEACH OVERVIEW*

The Town of Kure Beach, NC is located south of Wilmington on a barrier island between the Cape Fear River and the Atlantic Ocean. Residents and tourists alike have long been drawn to the Town's ocean views as well as its proximity to attractions such as the NC Aquarium and Fort Fisher State Historic Site and Museum. Kure Beach has a small commercial district with shops and restaurants, centered around Kure Beach Pier and Ocean Front Park. Fort Fisher Boulevard is the main thoroughfare through the Town, providing connectivity to Carolina Beach to the north and the state park to the south.

According to the U.S. Census Bureau, the population of Kure Beach is approximately 2124, consisting of about 950 households. The median household income in Kure Beach is \$71,319 (compared to \$54,602 in North Carolina) with a median age of 57.8 years (compared to 38.7 years statewide).

### *KEY OPPORTUNITIES AND CONSTRAINTS FOR WALKING AND BICYCLING*

According to the field tour, public input, and input from Town leadership, key factors include:

- » Between N Ave & E Ave, Kure Beach's street network is a grid pattern that is a little less than a mile long and five blocks wide at its widest. To the north and south of this area, the street network is less connected, pushing pedestrian and bicycle traffic onto Ft. Fisher Blvd/US 421. Ft. Fisher Blvd marks the eastern edge of the street network, though there is significant development between Ft. Fisher and the Atlantic Ocean. To the west, the Town is bordered by land owned by the U.S. Army's Military Ocean Terminal Sunny Point (MOTSU). This constrains potential infrastructure changes on Dow Rd and the existing Carolina Beach Island Greenway.
- » There are several key destinations within Town that can be reached by walking and bicycling, including the Kure Beach Pier and

Ocean Front Park and Pavilion, the Carolina Beach Island Greenway, and Joe Eakes Park.

- » There is a narrow, relatively uneven sidewalk on the east side of Ft. Fisher Blvd from N Ave to E Ave, with narrow bike lanes on both sides to the north of N Ave and to the south of E Ave. Other sidewalks are located along K Ave, heading west to Town Hall and Joe Eakes Park, as well as in some of the private developments.
- » Because of low traffic volumes and speeds, nearly every street in Town can already be used for walking and bicycling, but conditions could be improved further with wider sidewalks, more visible crosswalks, and pavement markings for bicycling.
- » Extending the Carolina Beach Island Greenway through Kure Beach would offer a unique opportunity to create a facility for walking and biking that is safe for all ages and abilities, completely separate from traffic. However, the greenway extension project would involve approval from & significant cooperation with MOTSU.
- » Much of Kure Beach's street network is owned by the town, with the major exceptions of Ft. Fisher Blvd and K Ave. This means that NCDOT funding sources can apply to improvements to these roadways, but not to the rest of the Town's street network.



*Photo: the Island Greenway in Carolina Beach. A potential project proposed in this Plan would extend the greenway on MOTSU land, offering greater connectivity for Kure Beach residents.*

# RECOMMENDATIONS SUMMARY (NORTH SIDE)



### SHORT ISLAND GREENWAY CONNECTION

Existing conditions looking north to Spot Ln.



Add kiosk with info on how to ride safely on town streets and rules of the road.

Carolina Beach Island Greenway connects here

The Town of Carolina Beach has recommendations in their local plans for a sidewalk on the north side of Alabama Ave.

Add sign about Kure Beach being a place where motorists respect people walking and bicycling, similar to Bicycle Friendly Community.

Consider townwide 25 MPH speed limit.

### ISLAND GREENWAY EXTENSION TO FORT FISHER

Project will not be possible without approval from the Department of Defense at Military Ocean Terminal Sunny Point (MOTSU). Alternate alignments west of here are highly unlikely to be approved by MOTSU. Town is seeking input from MOTSU.

Existing conditions along the fire break corridor on MOTSU property



If trail is to be built, it should:

- Aim to preserve the natural feel of the corridor (the existing Island Greenway north of Kure Beach feels over-engineered and cleared many trees in the construction process)
- Be designed to decrease rather than increase currently reported drainage issues
- Be designed to add enough native landscaping and trees between the trail and homes to provide privacy (some homes do not have privacy or landscape screening from the corridor).
- Be designed with mile-markers (for both safety and wayfinding)
- Have a well-defined (and funded) maintenance and management plan in place.
- Be designed with fencing per MOTSU requirements

### SIDEWALK CONNECTION TO TOWN HALL

Existing conditions from sidewalk at K Ave.



Conceptual image of recommended sidewalk to Town Hall.



### BOARDWALK WIDENING

(using durable surface to reduce maintenance costs)

Existing Kure Beach Boardwalk



Conceptual example of a wider walkway with a more durable composite material (lower maintenance)



### K AVE CROSSING IMPROVEMENTS

Existing conditions at Fort Fisher Blvd and K Ave



Conceptual image of recommended crossing improvements.



Trail should be aligned to have minimal impact on the disc golf course.

# RECOMMENDATIONS SUMMARY (SOUTH SIDE)



## PROJECT CUT SHEET: K AVENUE CROSSING IMPROVEMENTS

### FORT FISHER BLVD AND K AVENUE

In 2021, the Wilmington Urban Area Metropolitan Planning Organization (WMPO) secured funding from the Coronavirus Response and Recovery Supplemental Appropriations Act (CRRSAA) for four transportation projects in the region. The Town of Kure Beach is one of the recipients of the funds and will receive approximately \$360,000 for the cost to improve pedestrian access and safety at the intersection of Fort Fisher Blvd and K Avenue, including sidewalks. See opposite page for a conceptual rendering of the project; the actual intersection design is still to be determined through a design process independent of this plan.

Existing conditions at Fort Fisher Blvd and Avenue K



### ADDITIONAL K AVENUE CROSSING IMPROVEMENTS

In addition to the crossing at Fort Fisher Blvd, crossing improvements are also recommended at Third, Fourth, Fifth, Sixth, and Seventh Avenues. Recommendations include high visibility crosswalks along and across K Avenue, including median refuges and bulb outs where possible. This may require removal of a single parking space in the K Ave median at Third Ave, immediately north of the existing landscaped median.

### PUBLIC COMMENTS

- » Pros: Comments were supportive of improving the intersection at K Avenue and Fort Fisher Blvd in order to make it safer for pedestrians. Suggested improvements included pedestrian signals and crosswalks, and potentially signage reminding drivers to yield to pedestrians.
  - » The following comment on the online map received 15 likes:
 

*“Need crosswalks and pedestrian refuge islands at the light at Fort Fisher Blvd and K Ave. Consider “yield to pedestrians in crosswalk” signs.”*
- » Cons: Concerns for slowing down automobile traffic flow.

### HOW TO USE ESTIMATED COSTS RANGES IN THIS PLAN

When reviewing the estimated construction costs in this plan, please take into account the following important notes and caveats:

- » The cost estimates represent a planning-level of analysis and therefore are listed in ranges.
- » Costs will likely change as more information becomes available in the design phase.
- » Costs are listed in the base year of 2022, and should be escalated at a rate of 5% each year thereafter.
- » Cost estimates do not include land acquisition/ROW needs, utility relocations, alterations to drainage structures, engineering, or construction inspection.
- » Design costs are not listed per cut-sheet, but they can range between 10-20% of construction costs, depending on the size and complexity of the project. Higher ranges will be encountered on projects utilizing federal funds that require a high level of regulatory compliance and on projects that impact FEMA-regulated floodways that require detailed flood modeling and permitting. Small projects will also see higher percentages for design cost.



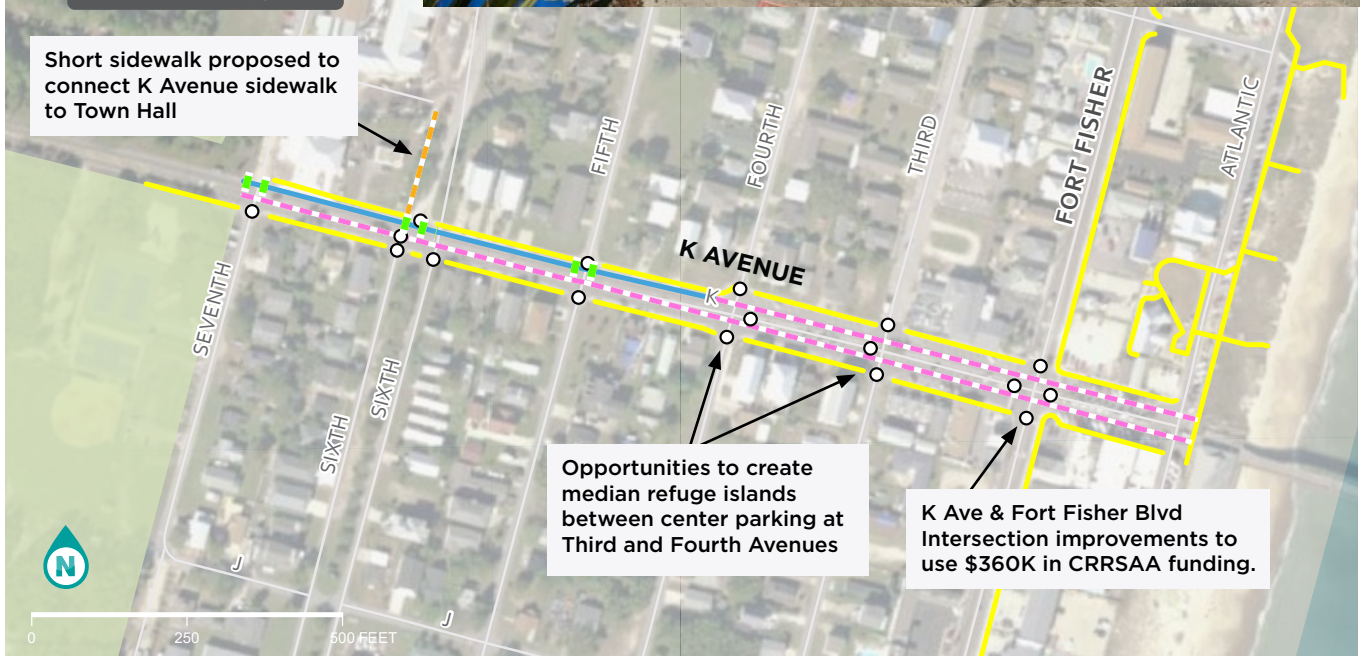
Conceptual image of recommended crossing improvements; the actual intersection design is still to be determined through a design process independent of this plan.



**K Avenue Crossing Improvements**

- Existing Bike Lane
- Existing Sidewalk
- Proposed Sidewalk
- Proposed Shared Lane Markings (Sharrows)
- Proposed High Visibility Crosswalk
- Proposed Crossbike (green bike intersection markings)

Short sidewalk proposed to connect K Avenue sidewalk to Town Hall



Opportunities to create median refuge islands between center parking at Third and Fourth Avenues

K Ave & Fort Fisher Blvd Intersection improvements to use \$360K in CRRSAA funding.

**PLANNING-LEVEL COST ESTIMATES**

Item Description	Quantity	Unit	Unit Price	Amount
Sidewalk (5 ft wide)	175	LF	\$35	\$6,125
Sharrows	27	EA	\$500	\$13,500
Crosswalk	17	EA	\$900	\$15,300
Flexible Delineator	40	EA	\$115	\$4,600
Painted Curb Extensions (8)	4400	SF	\$8	\$35,200
Crossbike Treatment	3	EA	\$1,152	\$3,456
			<i>Sub Total</i>	\$78,181
			<i>Total</i>	\$101,635
			<b>Estimated Range</b>	<b>\$100-120K* **</b>

\*See call out box on page 8: "How to Use Estimated Cost Ranges in this Plan"

\*\*Additional improvements to the Fort Fisher Blvd and K Avenue intersection are not included above, which are still to be determined and may include significant costs such as utility relocation (which is why the CRRSAA funds are higher than the range listed in the table).

## PROJECT CUT SHEET: SHORT ISLAND GREENWAY CONNECTION

This proposed greenway extension would run for approximately 1,200 feet from the terminus of the existing Island Greenway in Carolina Beach, connecting to Settlers Lane in Kure Beach. This will provide a direct walking and bicycling connection for Kure Beach residents to the Island Greenway and destinations north of Kure Beach, creating a safer alternative to walking and bicycling along the higher traffic volume and higher speed roadway conditions of Fort Fisher Blvd.

Note that the portion of this project west of Spot Lane is not on Town property and will not be possible without approval from the Department of Defense at Military Ocean Terminal Sunny Point (MOTSU). MOTSU would lease the property to the Town and require a fence along the trail if approved.

### PUBLIC COMMENTS

- » Pros: Comments in favor of the extension emphasize the need for a safe, paved connection for bicyclists and pedestrians between the greenway and Settlers Lane, provided that motorized vehicles, including golf carts, would not be allowed.

- » The following comment on the online map received 27 likes and 4 dislikes: *"Pave a path to get me to the Island Greenway without popping a tire!"*
- » Cons: A concern was that the extension would put walkers and cyclists in conflict with traffic on Settlers Lane, especially during the summer.
  - » Despite these concerns, Settlers Lane is a public street, already open to walking and bicycling. The current routing for people on foot and on bike along Fort Fisher Blvd presents greater challenges than this lower-volume, lower-speed residential alternative. Such routing is a common best practice for facilitating safer alternatives for active transportation connectivity. See the Federal Highway Administration's report, *Achieving Multimodal Networks: Applying Design Flexibility & Reducing Conflicts*, page 57, for more on this topic:
  - » [https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/publications/multimodal\\_networks/fhwahep16055.pdf](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_networks/fhwahep16055.pdf)

Existing conditions looking north to Spot Lane



Existing conditions looking south to Settlers Lane





**PLANNING-LEVEL COST ESTIMATES**

Item Description	Quantity	Unit	Unit Price	Amount
Shared Use Path (10 ft wide)	1200	LF	\$150	\$180,000
			<i>Sub Total</i>	<i>\$180,000</i>
			<i>Total</i>	<i>\$234,000</i>
			<b>Estimated Range</b>	<b>\$230-\$250K*</b>

\*See call out box on page 8: "How to Use Estimated Cost Ranges in this Plan"

*PROJECT CUT SHEET:*  
**ISLAND GREENWAY  
 EXTENSION TO TOWN  
 HALL/K AVENUE**

This proposed greenway extension would run for approximately 5,250 feet from Spot Lane to Kure Beach Town Hall at K Avenue. This project is not on Town property and will not be possible without approval from the Department of Defense at Military Ocean Terminal Sunny Point (MOTSU). MOTSU would lease the property to the Town and require a fence along the trail if approved.

Alternate alignments west of this location were considered (closer to Dow Road), but are even less viable due to current MOTSU restrictions of use.

If this trail is to be built, it should:

- » Aim to preserve the natural feel of the corridor; construction of the existing Island Greenway north of Kure Beach had a wider footprint in the construction process than may be necessary;
- » Be designed to decrease rather than increase currently reported drainage issues;
- » Be designed to add enough native landscaping and trees between the trail and homes to provide adequate privacy (some homes do not currently have privacy or landscape screening in place from the corridor);
- » Be designed with mile-markers for both safety and wayfinding; and
- » Have a well-defined and adequately funded maintenance and management plan in place.

*Existing conditions along the fire break corridor on MOTSU property.*



**PLANNING-LEVEL COST ESTIMATES**

Item Description	Quantity	Unit	Unit Price	Amount
Shared Use Path (10 ft wide)	5250	LF	\$150	\$787,500
			<i>Sub Total</i>	<i>\$787,500</i>
			<i>Total</i>	<i>\$1,023,750</i>
			<b>Estimated Range</b>	<b>\$1-\$1.2M*</b>

*\*See call out box on page 8: "How to Use Estimated Cost Ranges in this Plan"*



## PUBLIC COMMENTS

- » Pros:
  - » This was the #1 project selected in the Town of Kure Beach public survey for this plan.
  - » Comments in support of the greenway extension highlight the need for a safe, designated route for walking and biking that builds from the existing Carolina Beach Island Greenway and connects pedestrians and bicyclists to destinations north and south along the island.
  - » The extension of the greenway would allow for substantially greater opportunities for recreation and exercise for Kure Beach residents.
  - » Many comments, such as this online map submission which received 54 likes (and 1 dislike), reflect the positive attitude of many Kure Beach residents to the possibility of extending the greenway: *“Would be amazing if we could extend the CB bike trail down to Ft Fisher. Would keep bikes and pedestrians off busy roads and provide access to Mike Chapell Park, KB Park and Ft Fisher all from one trail.”*
- » Cons:
  - » Many residents along Settlers Lane have passionately expressed concerns about safety and privacy issues if the greenway were to be extended.
  - » Another concern is about preserving the wetlands on the land behind Settlers Lane, and whether the wet areas would be suitable for a greenway.
  - » There is also recognition that implementation of the greenway is largely dependent on MOTSU.
  - » Additional concerns were expressed about the potential cost of the greenway extension.

*PROJECT CUT SHEET:*  
**ISLAND GREENWAY  
 EXTENSION TO FORT FISHER  
 BLVD**

This proposed greenway extension would run for approximately 5,900 feet from Town Hall to Fort Fisher Blvd at President Davis Ave, and would closely align with the western edge of the Town of Kure Beach. From President Davis Ave, it would connect to the proposed Fort Fisher Blvd sidepath, which connects south to town limits near Fort Fisher State Park (see separate cutsheet).

This project is not on Town property and will not be possible without approval from the Department of Defense at Military Ocean Terminal Sunny Point (MOTSU). MOTSU would lease the property to the Town and require a fence along the trail if approved.

If this trail is to be built, it should:

- » Aim to preserve the natural feel of the corridor; construction of the existing Island Greenway north of Kure Beach had a wider footprint in the construction process than may be necessary;
- » Be designed to decrease rather than increase any drainage issues;
- » Be designed to add enough native landscaping and trees between the trail and homes/buildings to provide adequate privacy;

- » Be designed with mile-markers for both safety and wayfinding;
- » Have a well-defined and adequately funded maintenance and management plan in place; and,
- » Be aligned to have minimal impact on the disc golf course, or routed on-street if necessary to avoid those impacts.

*Example of the existing Island Greenway in Carolina Beach.*



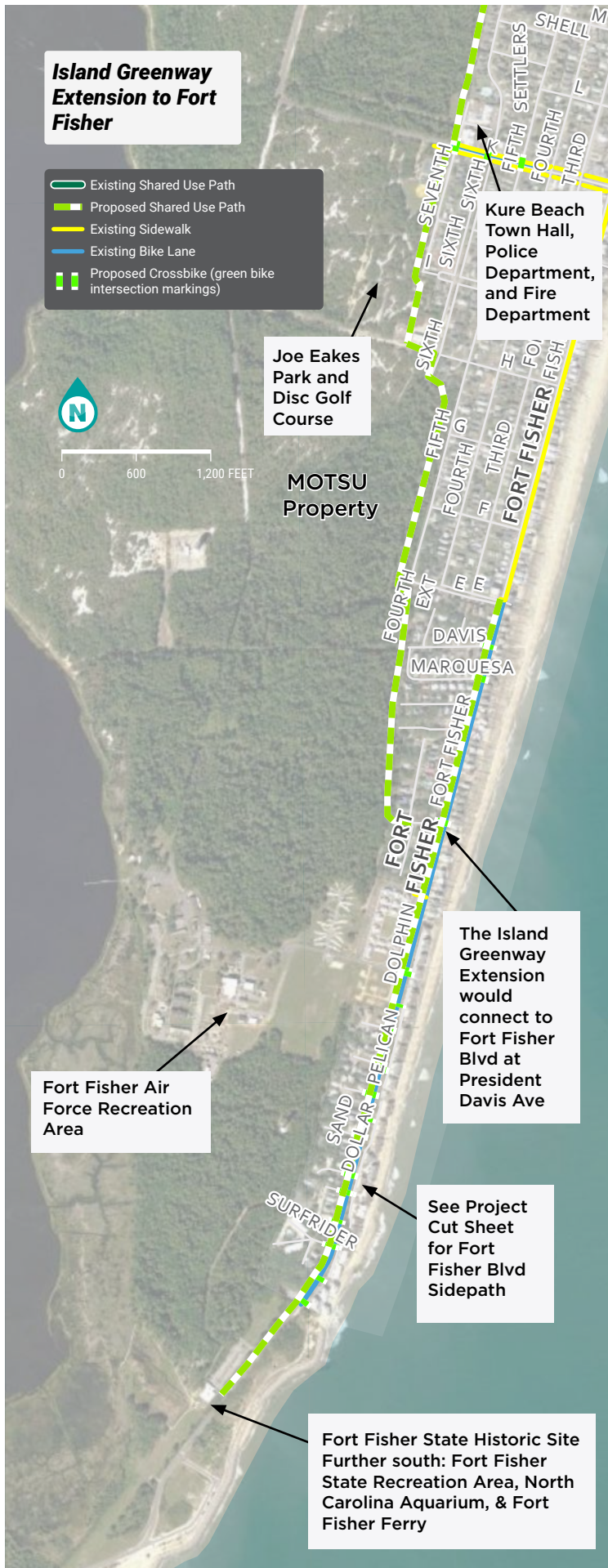
**PLANNING-LEVEL COST ESTIMATES**

Item Description	Quantity	Unit	Unit Price	Amount
Shared Use Path (10 ft wide)	5,914	LF	\$100-200	\$887,100
			<i>Sub Total</i>	<i>\$887,100</i>
			<i>Total</i>	<i>\$1,153,230</i>
			<b>Estimated Range</b>	<b>\$1.2-\$1.5M*</b>

*\*See call out box on page 8: "How to Use Estimated Cost Ranges in this Plan"*

**Island Greenway Extension to Fort Fisher**

- Existing Shared Use Path
- Proposed Shared Use Path
- Existing Sidewalk
- Existing Bike Lane
- Proposed Crossbike (green bike intersection markings)



**PUBLIC COMMENTS**

- » Pros:
  - » Many comments received were in favor of expanding on the original proposed greenway extension to K Ave/Joe Eakes Park and continuing the greenway south to Fort Fisher. A particular benefit would be for families with children to be able to ride their bicycles safely to the aquarium, the state historic site, and the ferry.
  - » Comments in support of the greenway extension highlight the need for a safe, designated route for walking and biking that builds from the existing Carolina Beach Island Greenway and connects pedestrians and bicyclists to amenities at the southern end of the island without having to travel on Fort Fisher Boulevard.
  - » The extension of the greenway would allow for substantially greater opportunities for recreation and exercise for Kure Beach residents.
- » Cons:
  - » Similarly to the extension to K Ave/Joe Eakes Park, main concerns include the cost of construction and ongoing maintenance, especially in a flood-prone area, as well as disruptions to wildlife in the area.

## PROJECT CUT SHEET: BICYCLE LANE CROSSING IMPROVEMENTS

Intersection crossing markings indicate the intended path of bicyclists. They guide bicyclists on a safe and direct path through intersections, including large driveways. They provide a clear boundary between the paths of through bicyclists and either through or crossing motor vehicles in the adjacent lane.

Bicycle lane crossing benefits:

- » Raises awareness for both bicyclists and motorists to potential conflict areas.
- » Reinforces that through bicyclists have priority over turning vehicles or vehicles entering the roadway (from driveways or cross streets).

Existing bicycle lanes on Fort Fisher Blvd with 4 inch white dash intersection markings.



- » Guides bicyclists through the intersection in a straight and direct path.
- » Makes bicycle movements more predictable.
- » Increases the visibility of bicyclists.
- » Reduces conflicts between bicyclists and turning motorists.

For more on this topic, see:

- » <https://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/intersection-crossing-markings/>

### PUBLIC COMMENTS

- » Pros: Comments received were in favor of marking bike lane crossings at intersections to improve safety in a cost-effective way.
- » Cons: None received specifically for this project.

Example of high visibility bicycle lane intersection markings.

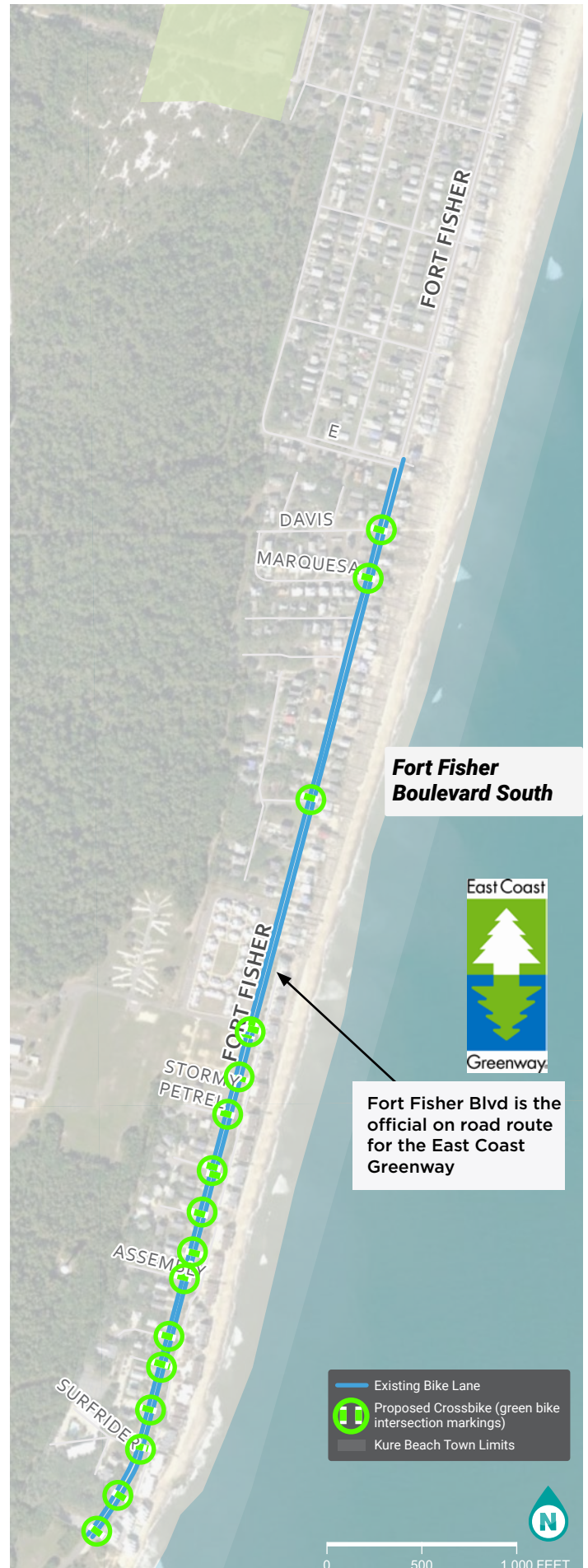
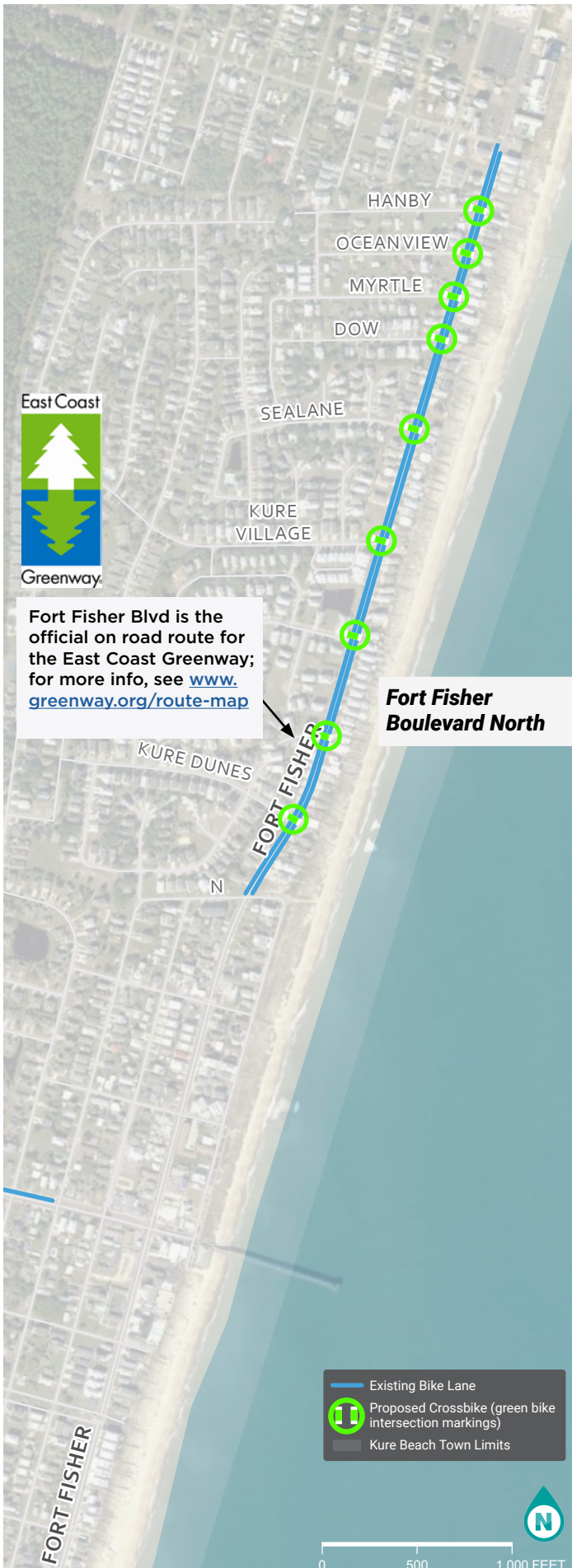


### PLANNING-LEVEL COST ESTIMATES

Item Description	Quantity	Unit	Unit Price	Amount
Crossbike Treatment	27	EA	\$1,152	\$31,104
			<i>Sub Total</i>	<i>\$31,104</i>
			<i>Total</i>	<i>\$40,435</i>
			<b>Estimated Range</b>	<b>\$40-50K*</b>

\*See call out box on page 8: "How to Use Estimated Cost Ranges in this Plan"





*PROJECT CUT SHEET:*  
**WESTSIDE SIGNED BIKE ROUTE**

A combination of wayfinding signage and shared lane markings or “sharrows,” are recommended on this route. Sharrows are road markings used to indicate a shared lane environment for bicycles and automobiles. Among other benefits, shared lane markings reinforce the legitimacy of bicycle traffic on the street, recommend proper bicyclist positioning, and may be configured to offer directional and wayfinding guidance. The Manual on Uniform Traffic Control Devices (MUTCD) outlines guidance for shared lane markings in section 9C.07.

The Town of Carolina Beach is already using a similar concept with wayfinding signage. The Town of Kure Beach could coordinate signage design for continuity.

Designating a residential street as a route for walking and bicycling using sharrows and signs has several key benefits:

- » Less costly to build than new, fully dedicated walking and bicycling facilities
- » Limits impermeable surface area and minimizes stormwater runoff.
- » Encourages slow travel speed when narrower than 20 ft.
- » Supports on-street or shoulder parking for property access.
- » Connects local residential areas to destinations without using busier streets.
- » Maintains aesthetic of narrow roads and uncurbed road edges.
- » Low maintenance needs over time.

*Example of a shared lane marking*



*Example wayfinding signage in Carolina Beach*



*Different examples of bicycle route wayfinding signs.*



**PLANNING-LEVEL COST ESTIMATES**

Item Description	Quantity	Unit	Unit Price	Amount
Sharrows	35	EA	\$500	\$17,500
Bike Route Signage	20	EA	\$350	\$7,000
			<i>Sub Total</i>	\$24,500
			<i>Total</i>	\$31,850
			<b>Estimated Range</b>	<b>\$30-40K*</b>

*\*See call out box on page 8: “How to Use Estimated Cost Ranges in this Plan”*

## PUBLIC COMMENTS

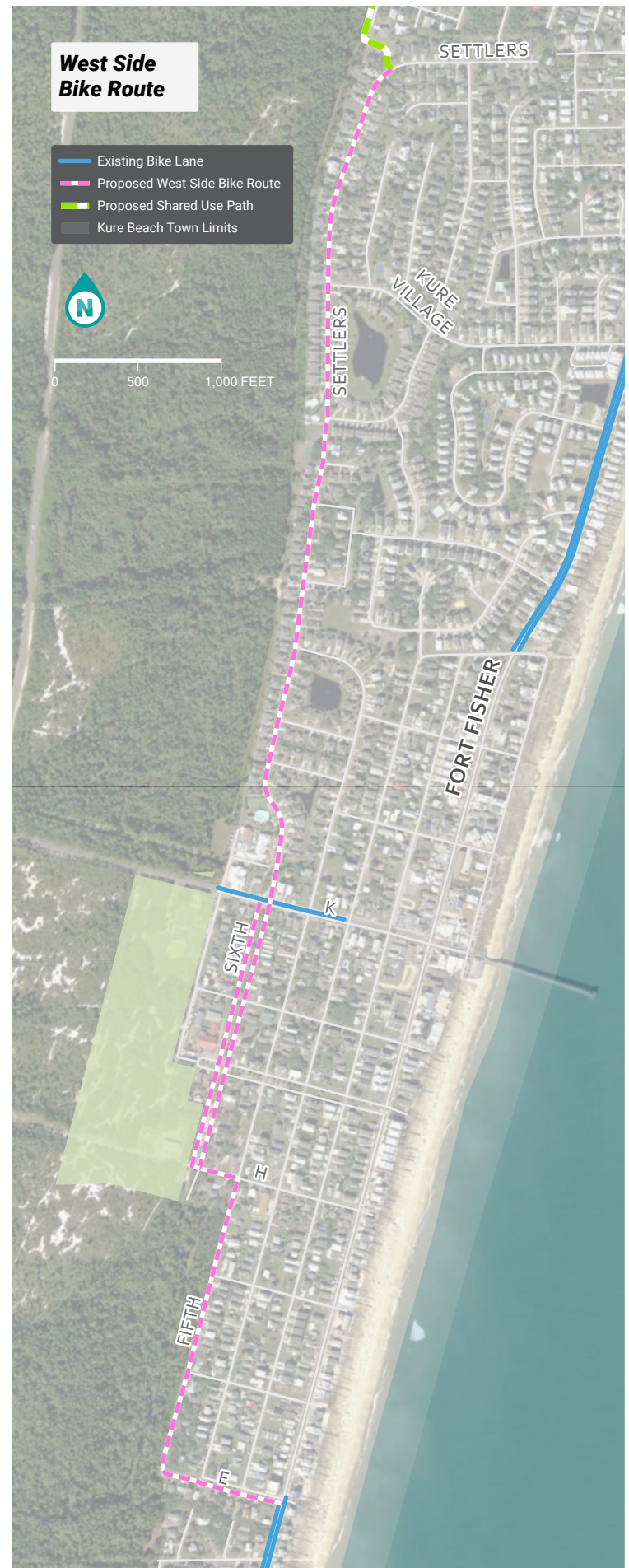
### Pros:

- » Comments in favor of the connector point to the need for a safe alternate bike route that allows cyclists to avoid biking on Fort Fisher Blvd.

» The following comment from the online map received 6 likes: *“Biking on Ft. Fisher Blvd/Lake Park is so dangerous. Widen bike lanes and make them more visible, or put a lane along the back of the island.”*

### Cons:

- » Residents opposed to the connector worry about the safety of drivers, particularly the elderly, if Settlers Lane were to be designated as a bike route. Other concerns include whether Settlers Lane is wide enough to accommodate bicycles along with existing traffic, and whether bicyclists would follow traffic laws.
- » See the related program recommendations in this plan for a townwide walking and bicycling map that could be paired with information about the rules of the road for both bicyclists and motorists. A bicycle education and safety initiative for both local residents and visitors alike will be important for addressing these concerns.
- » Also, as noted on another cut sheet in this plan, Settlers Lane is a public street, already open to walking and bicycling. The current routing for people on foot and on bike along Fort Fisher Blvd presents greater challenges than this lower-volume, lower-speed residential alternative.

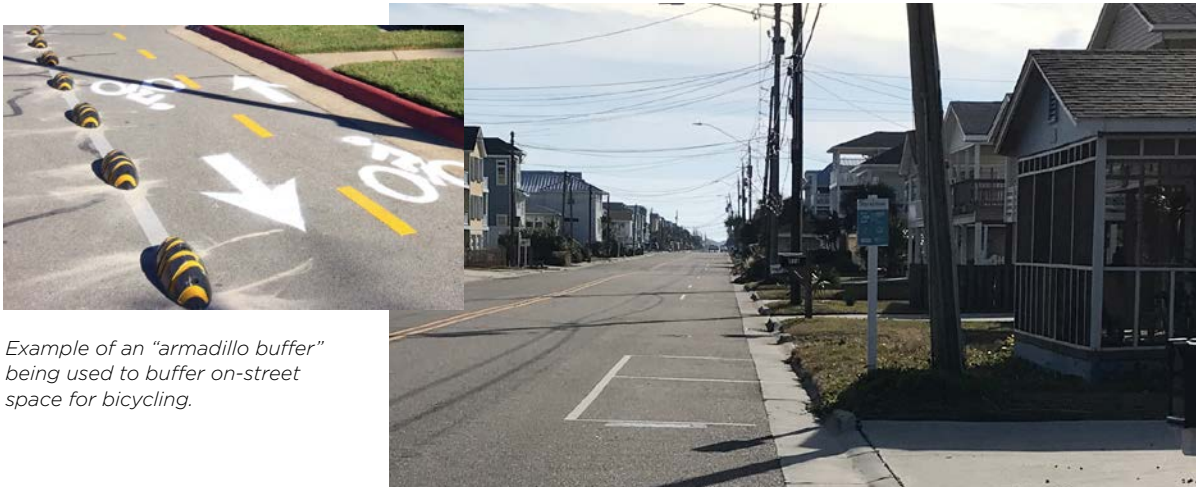


*PROJECT CUT SHEET:*  
**FORT FISHER BLVD SIDEPATH  
 FEASIBILITY STUDY**  
*(STUDY FEASIBILITY OF CREATING A  
 SIDEPATH WITH STRIPING AND CURB  
 STOPS, ON WEST SIDE FROM AVE K TO  
 AVE E)*

Existing conditions along Fort Fisher Blvd from Ave K to Ave E are poor for walking. The only existing sidewalk in this section is narrow, against the curb with no buffer, frequently blocked by parked cars, and it undulates with each driveway it passes, creating constantly changing grades. Several solutions should be studied in greater detail for feasibility:

1. Rebuild and expand the existing sidewalk on the east side (high cost);
2. Add new sidewalk and/or sidepath on the west side. The west side of the street (looking south) is shown below. The addition of sidewalk on this side would require either moving utilities (high cost) or moving the curb and removing up to 30 parking spaces in total (also high cost); or
3. Explore a potentially lower cost option (estimated below), that would use the existing on-street parking area on the west side by marking bicycle and pedestrian space with pavement markings, striping, and curb stops (or “armadillo buffers”). The study should outline cost-benefits of this option, particularly in terms of safety with frequent driveways.

*Existing conditions along Fort Fisher Blvd on the west side of the street (looking south).*



*Example of an “armadillo buffer” being used to buffer on-street space for bicycling.*

Item Description	Quantity	Unit	Unit Price	Amount
Striping	3400	LF	\$4	\$13,600
Curb Stops (assumes approx. 80% of the length would use curb stops)	2720	LF	\$30	\$81,600
Crosswalk	6	EA	\$900	\$5,400
			<i>Sub Total</i>	<i>\$100,600</i>
			<b>Total</b>	<b>\$130,780</b>
			<b>Estimated Range</b>	<b>\$130-160K*</b>

*\*See call out box on page 8: “How to Use Estimated Cost Ranges in this Plan”*

## PUBLIC COMMENTS

Pros:

- » Comments are in favor of improving walking conditions along Fort Fisher Blvd. The current sidewalk is too narrow, uneven, and frequently blocked by parking, especially during the summer months. Residents also favor increased enforcement of speed limits on Fort Fisher Blvd.

Cons:

- » General concerns about costs relative to benefits for residents.
- » Any discussion of removing parking in a future study should be expected to generate concerns.



Existing conditions along Fort Fisher Blvd on the east side of the street (looking north).



*PROJECT CUT SHEET:*  
**FORT FISHER BLVD  
 CROSSING IMPROVEMENTS**

Improving multiple crossings of Fort Fisher Blvd, especially at beach access points, is one of the most straightforward and effective ways to improve conditions for active transportation and recreation in Kure Beach. The recommended approach for this corridor is to pair high visibility crosswalks with pedestrian activated flashing beacons at key locations. The device includes two rectangular shaped yellow indications, each with an LED-array-based light source, that flash with high frequency when activated.

An example of this approach can be found just north of Kure Beach, on Fort Fisher Blvd at Alabama Ave in Carolina Beach, shown below.

There are many benefits to using flashing beacons (also called Rectangular Rapid Flashing Beacons, or RRFBs).

- » The installation of RRFBs can reduce pedestrian crashes by 47%, see National Cooperative Research Program (NCHRP) Research Report 841: Development of Crash Modification Factors for uncontrolled Pedestrian Crossing Treatments.
- » RRFBs make crosswalks and/or pedestrians more visible at marked crosswalks
- » RRFBs are particularly effective at multilane crossings with speed limits less than 40 mph.
- » Solar-power panels can be used to eliminate the need for a power source.

*Example of the recommended flashing beacons for beach access points (in Carolina Beach)*



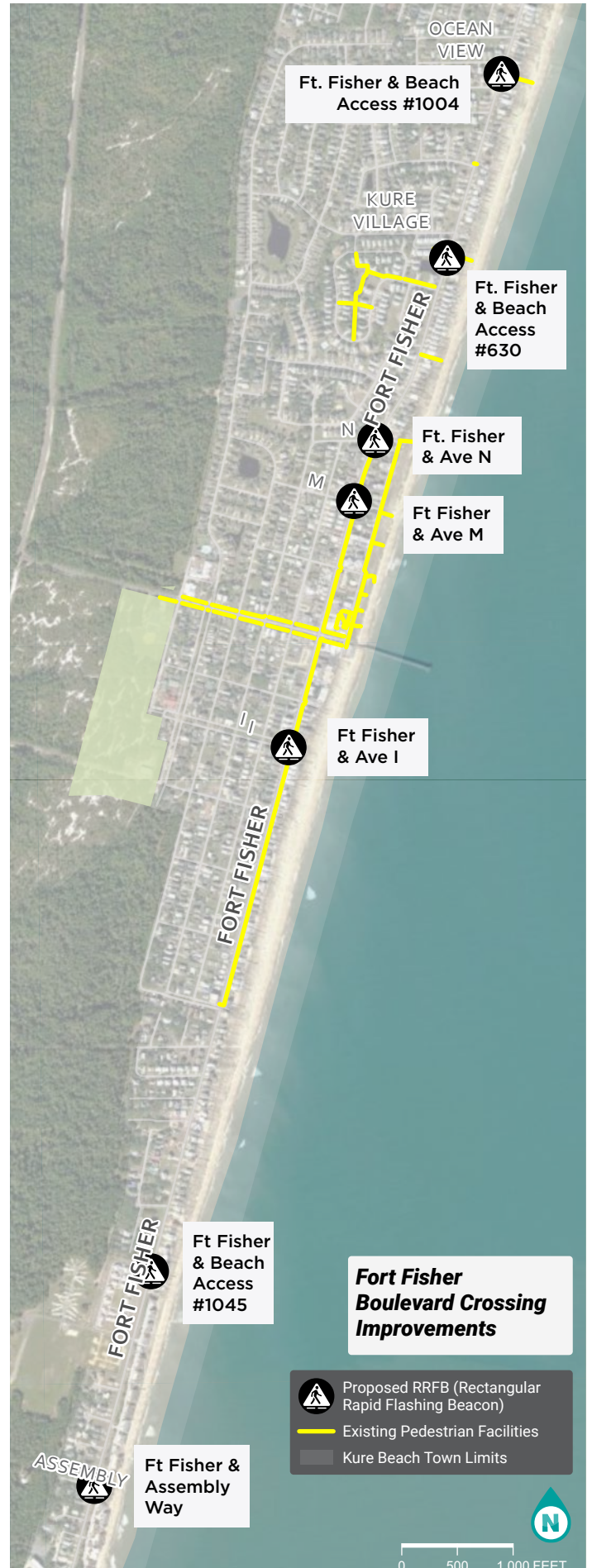
**PLANNING-LEVEL COST ESTIMATES**

Item Description	Quantity	Unit	Unit Price	Amount
RRFB (pair)	7	EA	\$24,000	\$168,000
			<i>Sub Total</i>	<i>\$168,000</i>
			<i>Total</i>	<i>\$218,400</i>
			<b>Estimated Range</b>	<b>\$215-230K*</b>

*\*See call out box on page 8: "How to Use Estimated Cost Ranges in this Plan"*

## PUBLIC COMMENTS

- » Pros: Residents are overwhelmingly in favor of increasing the amount of crosswalks at key locations along Fort Fisher Blvd, especially at public beach access points and in areas with lots of residential and commercial development. Proposed crosswalks will have flashing beacons to improve visibility.
  - » The following online comment received 14 likes: *“Needs a pedestrian crossing at this road because the boardwalk ends here,” referring to the intersection of N Avenue and Fort Fisher Blvd. Another commenter agreed that they frequently use this crossing to access the pier.*
- » Cons: Resident safety concerns include greater risk of collisions between vehicles and pedestrians if crosswalks were to be placed at non-controlled intersections.
  - » Research shows that the installation of RRFBs can reduce pedestrian crashes by 47% (see previous page)



*PROJECT CUT SHEET:*  
**FORT FISHER BLVD SIDEPATH**  
*(AVE E TO FORT FISHER STATE PARK)*

This sidepath connection would provide access for people walking and bicycling towards Fort Fisher State Historic Site, Fort Fisher State Recreation Area, the NC Aquarium, the Fort Fisher Ferry Terminal, as well as the Fort Fisher Air Force Recreation Area and all it offers. Even though there are currently standard bicycle lanes in place, bicycle lanes work best for more experienced bicyclists. In order to accommodate bicyclists of all ages and abilities, plus people who prefer to walk, a sidepath would be better suited.

Existing conditions along Fort Fisher Blvd.



Conceptual example of a sidepath along Fort Fisher Blvd.



**PLANNING-LEVEL COST ESTIMATES**

Item Description	Quantity	Unit	Unit Price	Amount
Shared Use Path	10050	LF	\$100	\$1,005,000
			<i>Sub Total</i>	<i>\$1,005,000</i>
			<i>Total</i>	<i>\$1,306,500</i>
			<b>Estimated Range</b>	<b>\$1.3-\$1.6M** **</b>

\*See call out box on page 8: "How to Use Estimated Cost Ranges in this Plan"

\*\* Does not include the potential future path connection south of town limits to Fort Fisher State Historic Site & Museum, NC Aquarium, and Ferry Terminal, which would be implemented separately by other project partners if pursued.



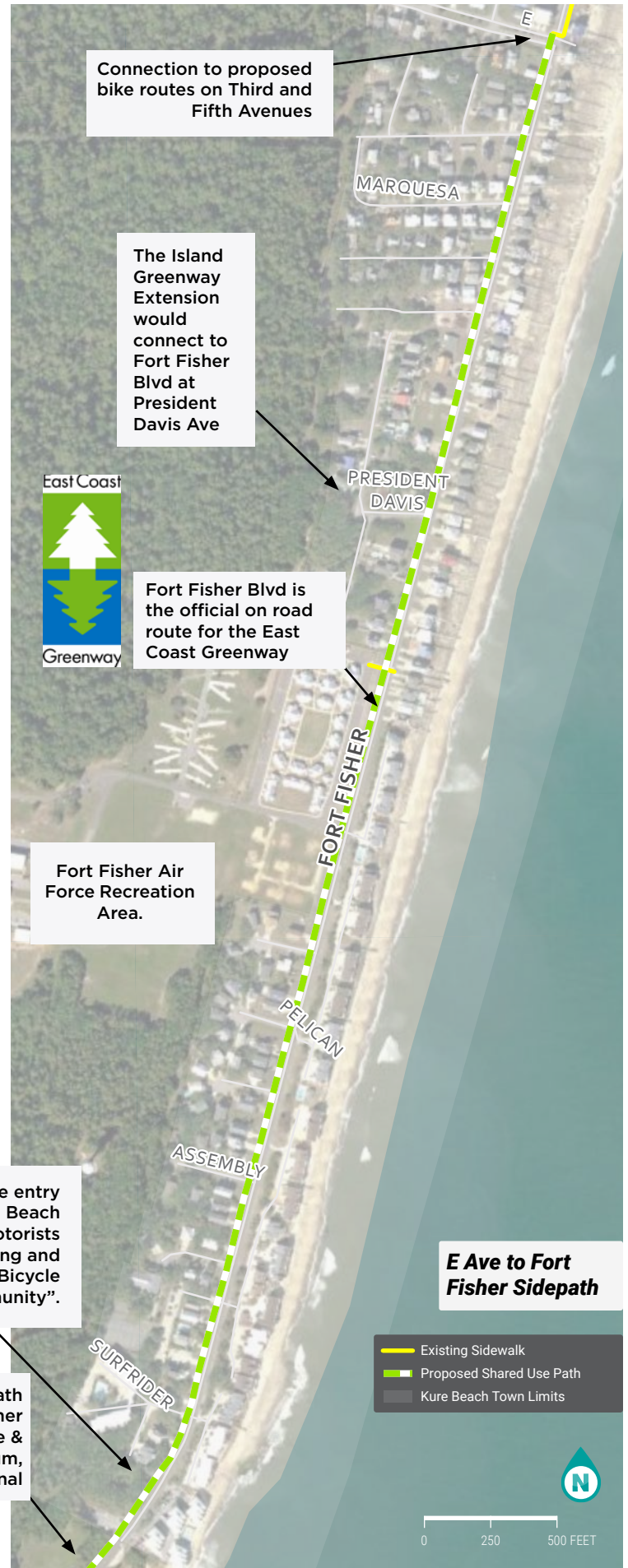
## PUBLIC COMMENTS

» Pros: Residents are largely in favor of improving walking and biking access to destinations in the southern part of the island. The proposed sidepath along the southern stretch of Fort Fisher will help to keep pedestrians and cyclists safe by providing greater separation from fast-moving traffic. The implementation of the sidepath project will improve connectivity to and from the aquarium, state park, and other amenities, as well as Brunswick County for those who wish to travel with their bicycles on the Southport Ferry.

» The following comment on the online map received 9 likes:  
*"Improving bike access to the ferry will open up visitors from Southport who come over on bikes. Likewise for Pleasure Island bicyclists wanting to visit Southport or Bald Head!"*

» Cons: Some residents question the necessity of suggested improvements given that the bicycle lane "run all the way to the ferry".

» Note that standard bicycle lanes work well for more experienced cyclists. In order to accommodate bicyclists of all ages and abilities, plus people who prefer to walk, a sidepath would be better suited.



**Consider adding a sign at the entry to town limits about Kure Beach being a place where motorists respect people walking and bicycling; similar to "Bicycle Friendly Community".**

**Potential future path connection to Fort Fisher State Historic Site & Museum, NC Aquarium, and Ferry Terminal**

*PROJECT CUT SHEET:*  
**BOARDWALK WIDENING**

The existing boardwalk is one of Kure Beach’s most recognizable and iconic features, aside from the pier to which it connects. However, the current width does not allow for people to comfortably pass in opposite directions as pairs, much less comfortably accommodate other modes, such as bicycling. The adjacent Atlantic Avenue is one-way and not wide enough to accommodate contraflow bicycling. The town could consider not allowing through traffic from L Ave to N Ave to reduce overall traffic.

Furthermore, the structure is made of wood, requiring constant care and repair from limited town maintenance staff and resources.

The upgrade should be a minimum of 10 feet wide to meet standards as a multi-use facility; 12 feet is recommended if the right-of-way allows. Consider a precast concrete boardwalk or a composite material to address the maintenance, safety and longevity issues presented by timber decking boardwalk structures. For more information on precast concrete systems, see <https://www.permatrak.com>



Existing Kure Beach Boardwalk.

Conceptual example of a wider walkway with a more durable material (lower maintenance)



**PLANNING-LEVEL COST ESTIMATES**

Item Description	Quantity	Unit	Unit Price	Amount
Boardwalk	1920	LF	\$900	\$1,728,000
Sidewalk (5 ft wide)	176	LF	\$35	\$6,160
			<i>Sub Total</i>	<i>\$1,734,160</i>
			<i>Total</i>	<i>\$2,254,408</i>
			<b>Estimated Range</b>	<b>\$2.2-\$2.4M* **</b>

\*See call out box on page 8: “How to Use Estimated Cost Ranges in this Plan”

\*\*Low end of the range is more applicable for a wood structure; high end is more applicable to PermaTrak or similar.

### PUBLIC COMMENTS

- » Pros: Comments highlight the issue with cyclists entering Atlantic Avenue (and having to cross Fort Fisher to access it) and traveling the opposite direction from vehicles. Comments also address frequent crowding which occurs on Atlantic Avenue during the summer between bicycles, pedestrians, and vehicles, sometimes pushing cyclists onto the boardwalk where there is little space for them currently.
- » Cons: Comments suggested that widening and upgrading the boardwalk should be less of a priority than getting bikes off of Fort Fisher Blvd.



*PROJECT CUT SHEET:*  
**NORTH CAROLINA  
 STATE BIKE ROUTE 3**

This project would sign and direct bicyclists away from the higher volume traffic and higher speeds of Fort Fisher Blvd to a parallel route on Third Avenue, per the Cape Fear Regional Bicycle Plan. In doing so, it would be recommended to also remove NC State Bike Route signs on Fort Fisher Blvd from N Avenue through E Avenue where bicycle lanes are missing. Another consideration could be to work with the East Coast Greenway Alliance to shift the East Coast Greenway designation to Third Ave as well.

The Town of Carolina Beach is already using a similar concept with wayfinding signage. The Town of Kure Beach could coordinate signage design for continuity.

*Existing conditions along 3rd Avenue*



*Conceptual image of recommended markings and signage. Note that stop signs and stop bars are flipped in direction to allow for better flow along the bicycle route.*



**PLANNING-LEVEL COST ESTIMATES**

Item Description	Quantity	Unit	Unit Price	Amount
Sharrows	22	EA	\$500	\$11,000
Bike Route Signage	23	EA	\$350	\$8,050
			<i>Sub Total</i>	<i>\$19,050</i>
			<i>Total</i>	<i>\$24,765</i>
			<b>Estimated Range</b>	<b>\$25-30K*</b>

*\*See call out box on page 8: "How to Use Estimated Cost Ranges in this Plan"*

## PUBLIC COMMENTS

### Pros:

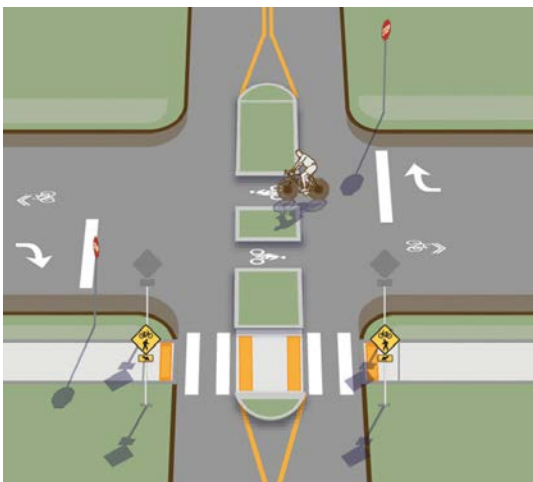
- » Comments highlight the need for a safe alternate bike route that allows cyclists to avoid biking on Fort Fisher Blvd.
- » There is a significant desire to improve bicycle access to key destinations and attractions across the island.
- » 3rd Avenue has lower speeds and lower traffic volumes.
- » Commenters were in favor of solutions such as this one that will keep costs low.

### Cons:

- » General concerns about cost.



Above: Existing conditions at the 3rd Avenue crossing of K Ave. The landscaped median could be modified to allow passage of bicyclists only, similar to the conceptual example shown below,



The improved crossing of K Ave at 3rd Ave should be designed to preserve most of the existing palm trees. Concept source: <https://ruraldesignguide.com/mixed-traffic/bicycle-boulevard>

## PROGRAM RECOMMENDATIONS

Education, encouragement, enforcement, and promotional programs will help improve safety and accessibility for residents, as they learn how to safely travel along sidewalks, trails, and bikeways.

### MEDIA CAMPAIGN

*Watch for Me NC* is an ongoing statewide grant program administered by the NCDOT, aimed at reducing the number of bicyclists and pedestrians hit and injured in crashes with vehicles. The Town may participate by downloading materials and information that may be used right away. The Town could also apply when the Call for Participants is issued,



typically in February of each year. See the website for contact information and notice of the annual program opening: <https://www.watchformenc.org/>

Kure Beach also has access to materials and outreach assistance through the WMPO for a regional program called *Be a Looker*. Materials may be requested through the Go Coast, which provides alternative and sustainable transportation options to those who live, work, and play in the Cape Fear Region:

<https://www.gocoastnc.org/bealooker/>



### SPEED LIMIT REDUCTION & TRAFFIC CALMING

Lowering speed limits has enormous safety benefits for all users, by lowering both the rate and severity of crashes, especially for pedestrians, as shown below. **Public feedback during this planning process showed support for reducing the posted speed limit on Ft. Fisher Blvd to 25 MPH, as it is in the rest of Town. Additionally, a significant portion of Kure Beach residents are elderly, with slower reaction times, putting them at greater risk.**

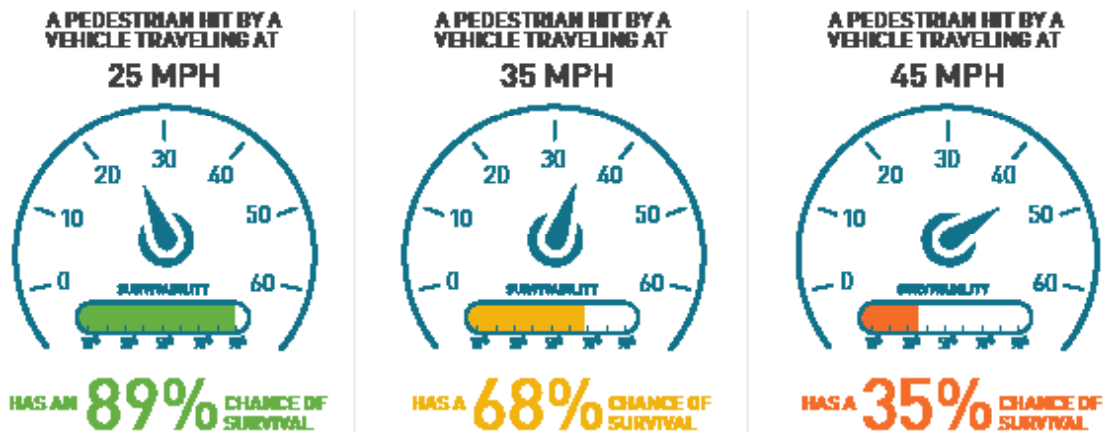


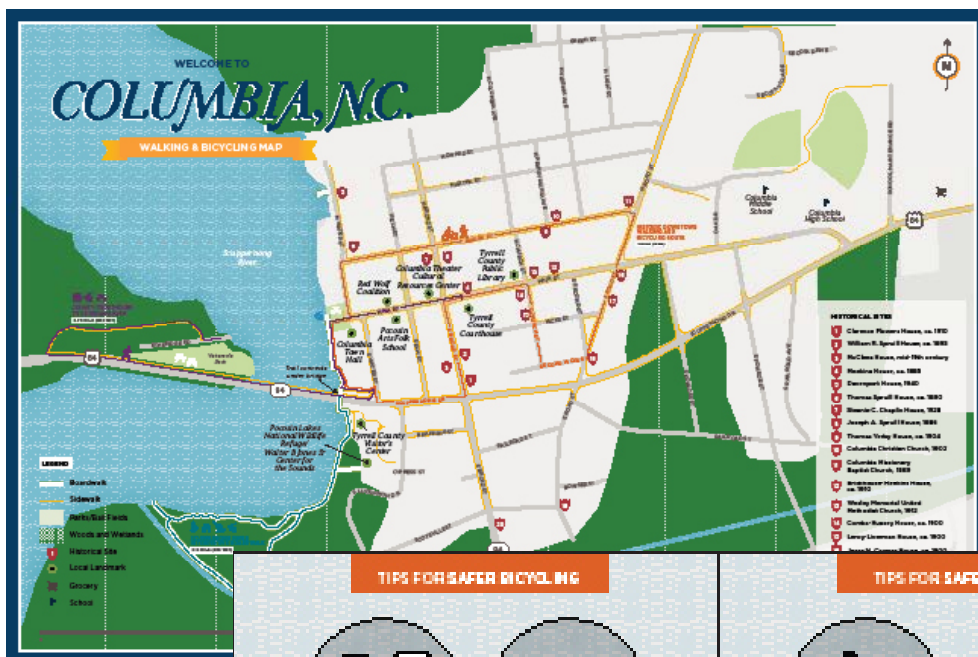
Table: E.L. D. Impact speed and pedestrian's risk of severe injury or death. Accident Analysis & Prevention 08 (2013) 571-576.

## HIKE & BIKE MAP

One of the most effective ways of encouraging people to walk more often or to ride a bicycle is through the use of maps and guides to show where you can walk and bike, and to guide people to enjoyable routes and destinations. The Town of Kure Beach currently has a beach access map posted on the Town website, but a complete map of recommended walking and biking routes would be an excellent resource for tourists and longtime residents alike.

These maps can be designed so that a portion of the map is devoted to bicycle and pedestrian safety education, such as informational graphics that demonstrate bicycle hand signals and how to share the road and the trail safely. The map should be made available online and printed as needed to be actively distributed to residents and visitors.

Kure Beach should consider working directly with Carolina Beach to create a whole island system map, especially since most people walking and biking in the area will not distinguish between the two towns.



Small towns in North Carolina are promoting walking and bicycling with maps that show bicycle and pedestrian facilities, highlighting destinations, and providing tips for safer walking and bicycling. Examples on this page from Columbia, NC.

### TIPS FOR SAFER BICYCLING

- CHECK TRAFFIC TO YOUR LEFT & RIGHT
- MOVE WITH TRAFFIC
- BE BRIGHT AT NIGHT
- LOOK BEFORE ENTERING TRAFFIC & C HANGING LANES
- USE RA NO SIGNALS
- WEAR A HELMET

### TIPS FOR SAFER WALKING

- BE BRIGHT AT NIGHT
- WALK WITH TRAFFIC
- WATCH FOR TURNING CARS
- BE CAREFUL IN PARKING LOTS
- BE CAREFUL AT DRIVEWAYS
- PULL THE PLUG AS A DAY AT THE PUMP

## *NORTH CAROLINA'S YEAR OF THE TRAIL: 2023*

On August 18, 2021 the NC Legislature declared 2023 North Carolina Year of the Trail, highlighting an opportunity to showcase, promote, and celebrate our state's extensive trail systems. The event organizer, the Great Trails State Coalition, envisions a future where each of NC's 100 counties enjoys the proven benefits of trails, including the health and safety of our citizens, tourism and economic development, transportation, and the environment.

This statewide campaign will reach all communities and potential visitors with the message of how and where to experience the trails across the state.

The Town of Kure Beach should seek out opportunities to be involved in the Year of the Trail in 2023. Planning efforts are already underway as of early 2022. Kure Beach could host an event to build support for trails proposed in this plan, with a focus on the East Coast Greenway.

Visit the Great Trails State Coalition website to learn more about key aspects of the Year of the Trail, such as:

- » Public Engagement
- » Media Attention
- » Educational Tracks
- » Legislative Connections

<https://greattrailsnc.org/year-of-the-trail/>





## IMPLEMENTATION ACTION STEPS

The action steps draw from the opportunities shown in this document. These should be guiding steps for the Town of Kure Beach to initiate plan implementation and to begin top projects.

TASK	DETAILS	PHASE
Adopt this plan.	Through adoption, the Plan becomes an official planning document of the Town of Kure Beach. Adoption does not commit Kure Beach to dedication of funding, but rather shows intention to support plan implementation over time. It also signals to outside funding groups that Kure Beach has undergone a successful, supported planning process, which is key to securing outside funding.	Short-term (2022)
Seek multiple funding sources and facility development options.	Project recommendations contain cost estimates and potential funding opportunities are listed at the end of this report. Key funding partners could include NCDOT, WMPO, and NC State Parks' NC Trails program (the East Coast Greenway is an official state trail that is designated in Kure Beach). Non-profit partnership should also be established with the East Coast Greenway Alliance, as a resource for potential trail funding partnerships and grant opportunities. Coordination and approval for lease and use of property from the Department of Defense at Military Ocean Terminal Sunny Point (MOTSU) is required for several trail recommendations in this plan, as outlined in project cut sheets.	Short-term/ Ongoing (2022)
Complete top priority projects.	10 key projects are recommended in this plan. Aim to complete 2-3 top projects in the next 2-5 years.	Ongoing (2022-2027)
Develop a long-term funding strategy	To allow continued development of the project recommendations, capital funds for bicycle and pedestrian facility construction should be set aside every year. Aim for a minimum of 20% of the base costs for the priority project(s) in order to at least have a match for outside resources. Funding for an ongoing maintenance program should also be included in operating budgets.	Short-term/ Ongoing (2022-)
Coordinate road resurfacing schedule with projects that could be furthered with resurfacing projects.	Resurfacing is a very important part of implementing bike facilities and comes at very little cost. If possible, coordinate installation of new pavement markings with the resurfacing schedule to save on costs (such as crosswalk and crossbike recommendations).	Short-term/ Ongoing (2022-)
Launch new programs.	New programs should be launched to complement infrastructure improvements, as described in this document.	Ongoing (2023-)
Seek designation as a Bicycle-Friendly Community & Walk-Friendly Community.	The development and implementation of this plan is an essential first step toward becoming a designated Bicycle-Friendly and Walk-Friendly Community. With progress on these recommendations, Kure Beach should be in a position to apply for and receive recognition by 2026. See the League of American Bicyclists website - <a href="https://www.bikeleague.org/community">https://www.bikeleague.org/community</a> and the Walk Friendly Community program website - <a href="http://walkfriendly.org/">http://walkfriendly.org/</a> for further information.	Mid- to Long-term (2026-)
Plan Update	This plan should be updated by 2030 (about eight years from adoption). If many of the recommendations have been completed by then, a new set of priorities should be established. If not, a new implementation strategy should be established.	Long-Term (2030)

## DESIGN GUIDELINE RESOURCES

### OVERVIEW

This toolbox presents guidance for local agency staff, elected officials and community advocates to create a more walkable and bicycle-friendly community for people of all ages and abilities. Planners and project designers should refer to these guidelines in developing the infrastructure projects recommended by this plan, but they should not be used as the sole reference for any detailed engineering design.

As a starting point, the following list of resources are from the NCDOT website for “Bicycle & Pedestrian Project Development & Design Guidance”, located here (resources listed are linked through this page; Last retrieved in December 2021): <https://connect.ncdot.gov/projects/BikePed/Pages/Guidance.aspx>

### NORTH CAROLINA GUIDELINES

#### NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT):

- » WalkBikeNC: Statewide Pedestrian & Bicycle Plan
- » Glossary of North Carolina Terminology for Active Transportation
- » NCDOT Complete Streets: This policy directs the department to consider and incorporate several modes of transportation when building new projects or making improvements to existing infrastructure. The link below is a landing page with resources such as the Complete Streets policy, the Implementation Guide, Evaluation Methodology, Flowchart, FAQs, and more. <https://connect.ncdot.gov/projects/BikePed/Pages/CompleteStreets.aspx>
- » Evaluating Temporary Accommodations for Pedestrians
- » NC Local Programs Handbook
- » Traditional Neighborhood Development Guidelines

#### GREENWAY CONSTRUCTION STANDARDS:

- » Greenway Standards Summary Memo
- » Design Issues Summary
- » Greenway Design Guidelines Value Engineering Report
- » Summary of Recommendations
- » Minimum Pavement Design Recommendations for Greenways
- » Steps to Construct a Greenway or Shared-Use Trail

## NATIONAL GUIDELINES

### RAILS-TO-TRAILS CONSERVANCY:

- » General Design Guidance: <https://www.railstotrails.org/build-trails/trail-building-toolbox/>
- » Rails-with-Trails: <https://www.railstotrails.org/resource-library/resources/americas-rails-with-trails/>
- » American Association of State Highway and Transportation Officials (AASHTO):
- » Guide for the Development of Bicycle Facilities
- » Guide for the Planning, Design, and Operation of Pedestrian Facilities

### The Federal Highway Administration (FHWA):

- » Accessibility Guidance
- » Design Guidance
- » Facility Design
- » Facility Operations

### MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD):

- » Part 4E: Pedestrian Control Features
- » Part 7: Traffic Controls for School Areas
- » Part 9: Traffic Controls for Bicycle Facilities

### NATIONAL ASSOCIATION OF CITY TRANSPORTATION OFFICIALS (NACTO):

- » Urban Bikeway Design Guide
- » Urban Street Design Guide

### SAFE ROUTES TO SCHOOL (SRTS) NON-INFRASTRUCTURE:

- » National Center for Safe Routes to School
- » National Partnership for Safe Routes to School

### US ACCESS BOARD:

- » ABA Accessibility Standards
- » ADA Accessibility Guidelines
- » ADA Accessibility Standards
- » Public Rights-of-Way, Streets & Sidewalks, and Shared Use Paths

### ADDITIONAL FHWA RESOURCES NOT CURRENTLY LINKED THROUGH THE MAIN NCDOT LINK ABOVE:

- » Achieving Multimodal Networks (2016): [https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/publications/multimodal\\_networks/](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_networks/)
- » Small Town and Rural Multimodal Networks Design Guide (2017)
- » Main Guide: <https://ruraldesign-guide.com/>
- » Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (2018): [https://safety.fhwa.dot.gov/ped\\_bike/step/docs/STEP\\_Guide\\_for\\_Improving\\_Ped\\_Safety\\_at\\_Unsig\\_Loc\\_3-2018\\_07\\_17-508compliant.pdf](https://safety.fhwa.dot.gov/ped_bike/step/docs/STEP_Guide_for_Improving_Ped_Safety_at_Unsig_Loc_3-2018_07_17-508compliant.pdf)

## PROJECT BENEFIT RESOURCES

### *THE VALUE OF WALKABLE AND BICYCLE-FRIENDLY COMMUNITIES*

Increased rates of bicycling and walking will help to improve people's health and fitness, improve livability of our communities, enhance environmental conditions, decrease traffic congestion, and contribute to a greater sense of community.

Scores of studies from the fields of public health, urban planning, urban ecology, real estate, tourism, and transportation have demonstrated the value of supporting bicycling and walking. Communities across the United States and throughout the world are investing in improvements for bicycling, walking, and trails. They do this because of their obligations to promote health, safety and welfare, and also because of the growing awareness of the many benefits outlined in the studies listed below.

### *TRAILS RESEARCH SEARCHABLE BENEFITS LIBRARY*

Headwaters Economics compiled 120 studies on the impacts of trails in a single library, searchable by type of benefit, use, year, and region. Findings include:

- » Trails can generate business impacts and create new jobs by attracting visitors, especially overnight visitors.
- » Local trail users often use community trails multiple times per week, and trails are a valuable part of residents' quality of life.
- » Trails are often associated with higher property value, especially when a trail is designed to provide neighborhood access and maintain residents' privacy.
- » Trails are associated with increased physical activity and improved public health, especially in rural places without other safe places to exercise.

<https://headwaterseconomics.org/economic-development/trails-pathways/trails-research/>

### *BIKES IN BEDS: HOW TO MAXIMIZE BICYCLE TOURISM*

A 2015 report in Haywood County, NC that details economic impact of bicycle tourists. While focusing on Haywood County, this study provides an overview of bicycle tourism opportunities for other NC communities as well.

[https://www.adventurecycling.org/sites/default/assets/File/Travel\\_Initiatives/Bicycle%20Tourism%20Webpages/2015\\_Bikes-in-Beds\\_WNCBikeTourism-FINAL-LowResolution.pdf](https://www.adventurecycling.org/sites/default/assets/File/Travel_Initiatives/Bicycle%20Tourism%20Webpages/2015_Bikes-in-Beds_WNCBikeTourism-FINAL-LowResolution.pdf)

### *WALKBIKENC*

WalkBikeNC (North Carolina's Statewide Bicycle and Pedestrian Plan) is a blueprint for improving walking and bicycling for North Carolina communities. Here you will find further information on the benefits of walking and bicycling and the five 'pillars' - health, safety, economy, mobility, and the environment.

<https://www.ncdot.gov/bikeped/walkbikenc>

### *PATHWAYS TO PROSPERITY*

A older, but relevant report on the economic impacts of investments in bicycle facilities by the Institute for Transportation Research & Education (focused on NC's coastal region).

[http://headwaterseconomics.org/wp-content/uploads/Trail\\_Study\\_7-pathways-to-prosperity-bicycle-facilities.pdf](http://headwaterseconomics.org/wp-content/uploads/Trail_Study_7-pathways-to-prosperity-bicycle-facilities.pdf)

### *WALKING THE WALK: HOW WALKABILITY RAISES HOME VALUES IN U.S. CITIES*

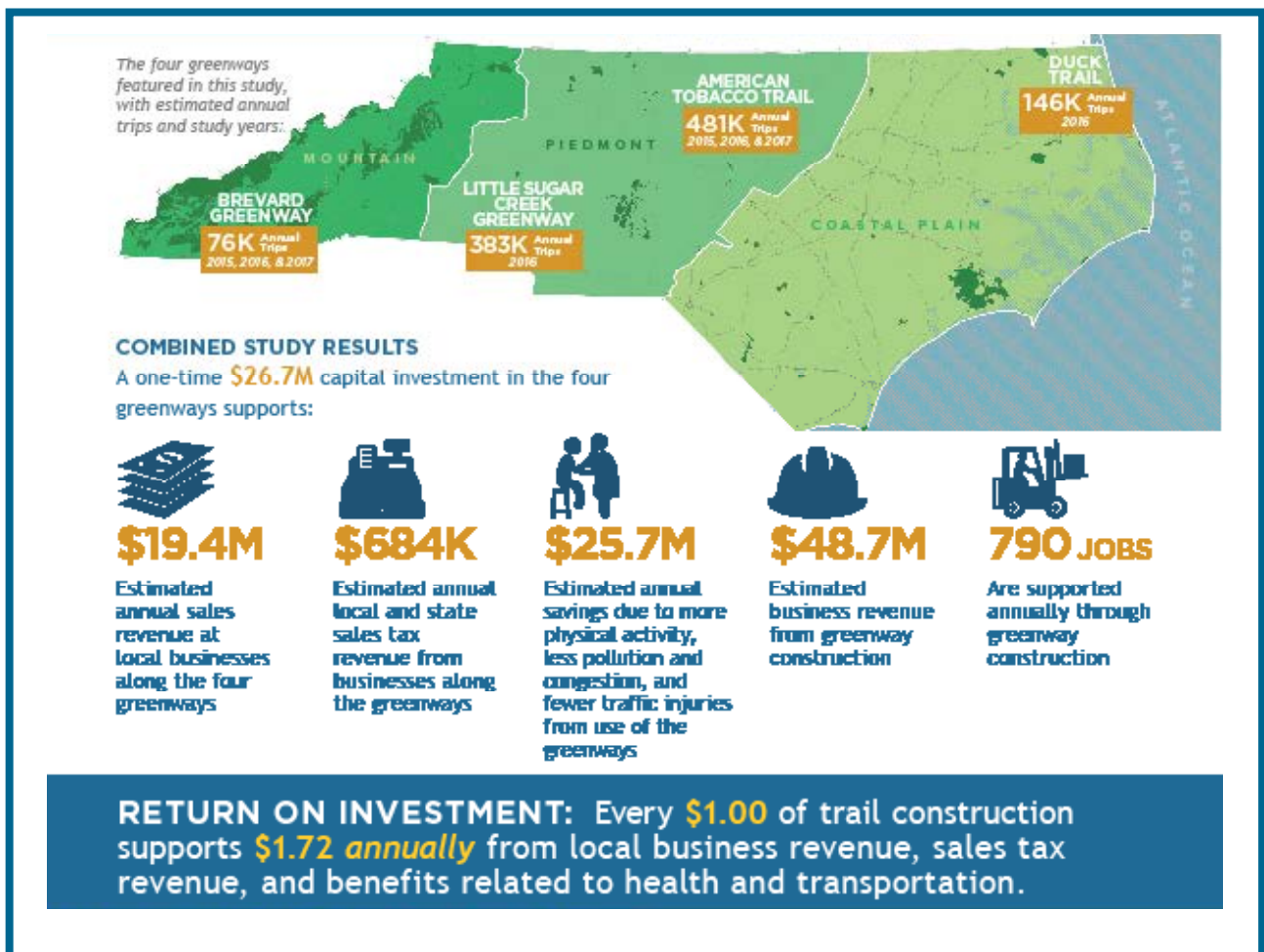
This report, by CEO's for Cities, which looked at 94,000 real estate transactions in 15 markets, found that in 13 of those markets, higher levels of "walkability" were directly linked to higher home values.

[https://nacto.org/docs/usdg/walking\\_the\\_walk\\_cortright.pdf](https://nacto.org/docs/usdg/walking_the_walk_cortright.pdf)

*EVALUATING THE ECONOMIC CONTRIBUTION OF SHARED USE PATHS IN NC*

Shared use paths, also known as greenways, provide a shared space for bicycle and pedestrian travel outside of the roadway. This project's objective was to design and test an approach for measuring the economic contributions of greenways in North Carolina. The study found that, on average, every \$1.00 of trail construction in North Carolina supports \$1.72 annually from local business revenue, sales tax revenue, and benefits related to health and transportation.

For more information: <https://itre.ncsu.edu/focus/bike-ped/sup-economic-impacts/>



Excerpt from the Executive Summary for "Evaluating the Economic Contribution of Shared Use Paths in NC".

## FUNDING RESOURCES

### OVERVIEW

When considering possible funding sources for bicycle, pedestrian, and trail projects, it is important to remember that not all construction activities or programs will be accomplished with a single funding source. It will be necessary to use several sources of funding that together will support full project completion. Funding sources can be used for a variety of activities, including: programs, planning, design, implementation, and maintenance. This appendix outlines the most likely sources of funding from the federal, state, and local government levels as well as from the private and nonprofit sectors. Note that this reflects the funding available at the time of writing. Funding amounts, cycles, and the programs themselves may change over time.

### FEDERAL FUNDING SOURCES

Federal funding is typically directed through state agencies to local governments either in the form of formula funds or discretionary grants. Federal funding typically requires a local match of five percent to 50 percent, but there are sometimes exceptions. The following is a list of possible Federal funding sources that could be used to support the construction of trail facilities.

#### THE INFRASTRUCTURE INVESTMENT AND JOBS ACT (IIJA)

The following is a preliminary summary of how IIJA may affect funding sources related to bicycle, pedestrian, and trail infrastructure based on what is known at the time this plan was written (early 2022).

#### FORMULA FUNDS (STATE DOTs ADMINISTER TO LOCALS):

**TRANSPORTATION ALTERNATIVES PROGRAM (TAP)** will increase from \$850 million to \$1.44 billion per year. This is the largest dedicated source of funds for walking and biking projects in the US and it just got 70% bigger. The North Carolina Department of Transportation (NCDOT) administers this funding for rural areas of the state that do not have a metropolitan planning organization. The Wilmington Urban Area Metropolitan Planning Organization (WMPO) administers Transportation Alternatives Program funding on a competitive basis to local jurisdictions in its region.

#### CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM (CMAQ)

Will increase by 10% to \$13.2B. This program funds interchange improvements, local transit operations, and bike and pedestrian infrastructure to help meet the National Ambient Air Quality Standard in non-attainment areas; the WMPO, however, is *not* eligible for CMAQ funds.

States where more than 15% of all fatalities involve cyclists or pedestrians (Vulnerable Road Users or VRU), will be required to spend 15% of their **HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)** funding on bicycle/pedestrian projects. This includes North Carolina, where about 15% of all fatalities involve VRUs. Projects are evaluated, prioritized, and selected at the NCDOT district level based on three years of crash data (targeted funds) or systemic approved projects as outlined in the HSIP guidance.

Every state and MPO will be required to use at least 2.5% of its apportioned funding to develop planning documents that can include but are not limited to, Complete Streets standards, a Complete Streets prioritization plan, multimodal corridor studies, or active transportation plans (among other uses).

***DISCRETIONARY GRANTS (US DOT ADMINISTERS TO LOCALS):***

***REBUILDING AMERICAN INFRASTRUCTURE WITH SUSTAINABILITY AND EQUITY (RAISE).***

In the first RAISE grant cycle, nearly one in five funded grant applications involved trail development. In addition, the selection committee awarded another 21% of funding to projects focused on making roads safer for vulnerable road users like cyclists and pedestrians. Projects such as the Carolina Beach Greenway extension will compete well for the RAISE program with its focus on connecting people to local and regional destinations.

Under the Infrastructure Investment and Jobs Act (IIJA), the RAISE grant program will have \$7.5 billion available over the next five years. Competitive applications to this program have the following in common:

1. The project can demonstrate broad community support and is a recognized local or regional priority.
2. The project explicitly considers how it will address climate change and racial equity.
3. The project documents direct and significantly favorable local or regional impact relative to the scoring criteria:
  - Safety
  - Environmental Sustainability
  - Quality of Life
  - Economic Competitiveness
  - State of Good Repair
  - Innovation
  - Partnership
4. The project has a high benefit to cost ratio.
5. The project demonstrates readiness by providing a detailed scope of work and budget, a realistic project delivery schedule, an understanding of the environmental risks, permit requirements, and mitigation measures, and is within the public right-of-way.
6. A United States Senator or Congress member actively champions the project.

For more information on RAISE program guidelines and upcoming Notice of Funding Opportunities, see:

[www.transportation.gov/RAISEgrants](http://www.transportation.gov/RAISEgrants)

***HEALTHY STREETS PROGRAM*** (new): \$500 million federal grant program to fund projects that address urban heat island effect, to include porous pavement changes and improvements to the tree canopy, especially along pedestrian walkways and public transit stops.

***ACTIVE TRANSPORTATION INFRASTRUCTURE INVESTMENT PROGRAM*** (new): Local, regional, state, and tribal governments can apply to the program to receive funding for active transportation projects and planning grants that build upon a local/regional/state network or network spine. The projects and planning efforts have to account for safety and facilitate more people walking and biking.

***SAFE STREETS AND ROADS FOR ALL*** (new): \$6 billion federal grant program to fund Vision Zero plans, infrastructure, and programs. US DOT is developing grant program guidelines and will publish Notices of Funding Opportunities (NOFO) as they become available for each of the programs above.

### *TRANSPORTATION ALTERNATIVES PROGRAM (TAP) BIKE/PED SCOPING GUIDE*

In January 2020, NCDOT released the Transportation Alternatives Program (TAP) Bike/Ped Scoping Guide. This document provides detail and guidance on the Project Delivery Process and important elements to consider in bike/ped project development.

**For more information:** <https://connect.ncdot.gov/projects/BikePed/Documents/BikePed%20Project%20Scoping%20Guidance%20for%20Local%20Governments.pdf>

### *STBGP-DA & TASA-DA FUNDS*

The Surface Transportation Block Grant Program Direct Attributable (STBGP-DA) and Transportation Alternative Set Aside Direct Attributable (TASA-DA) are federal funding sources distributed by the WMPO. Member jurisdictions of the WMPO are eligible to apply for these funds through a competitive funding process that prioritizes locally administered projects in the Region. These projects are funded using the federal funding sources directly attributed to the region with a minimum 20% local match.

**For more information:** <https://www.wmpo.org/stp-datap-da/>

## OTHER FEDERAL FUNDING SOURCES

### *SAFE ROUTES TO SCHOOL (SRTS) PROGRAM*

SRTS enables and encourages children to walk and bike to school. The program helps make walking and bicycling to school a safe and more appealing method of transportation for children. SRTS facilitates the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. Most of the types of eligible SRTS projects include sidewalks or shared use paths. However, intersection improvements (i.e. signalization, marking/upgrading crosswalks, etc.), on-street bicycle facilities (bike lanes, wide paved shoulders, etc.) or off-street shared use paths are also eligible for SRTS funds.

The North Carolina Department of Transportation's Safe Routes to School (SRTS) Program was established in 2005 through SAFETEA-LU as a federally funded program to provide an opportunity for communities to improve conditions for bicycling and walking to school. It is currently supported with Transportation Alternatives federal funding through the Surface Transportation Block Grant program established under the FAST Act. The SRTS Program has set aside \$1,500,000 per year of Transportation Alternative Program (TAP) funds for non-infrastructure programs and activities over a three-year period. Funding requests may range from a yearly amount of \$50,000 to \$100,000 per project. Projects can be one to three years in length. Funding may be requested to support activities for community-wide, regional or statewide programs. Check the link below for information on the current funding cycle.

**For more information:** <https://connect.ncdot.gov/projects/BikePed/Pages/Non-Infrastructure-Alternatives-Program.aspx>

### *FEDERAL TRANSIT ADMINISTRATION ENHANCED MOBILITY OF SENIORS AND INDIVIDUALS WITH DISABILITIES*

This program can be used for capital expenses that support transportation to meet the special needs of older adults and persons with disabilities, including providing access to an eligible public transportation facility when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs.

**For more information:** <https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310>

### *FEDERAL LANDS TRANSPORTATION PROGRAM (FLTP)*

The FLTP funds projects that improve transportation infrastructure owned and maintained by the following Federal Lands Management Agencies: National Park Service (NPS), U.S. Fish and Wildlife Service (FWS), USDA Forest Service, Bureau of Land Management (BLM), U.S. Army Corps of Engineers, Bureau of Reclamation, and independent Federal agencies with land and natural resource management responsibilities. FLTP funds are available for program administration, transportation planning, research, engineering, rehabilitation, construction, and restoration of Federal Lands



Transportation Facilities. Transportation projects that are on the public network that provide access to, adjacent to, or through Federal lands are also eligible for funding. Under the IIJA, \$2.2 billion has been allocated to the program for FY 2022-2026.

**For more information:** <https://flh.fhwa.dot.gov/programs/fltp/documents/FAST%20FLTP%20fact%20sheet.pdf>

### *FEDERAL LAND AND WATER CONSERVATION FUND*

The Land and Water Conservation Fund (LWCF) has historically been a primary funding source of the U.S. Department of the Interior for outdoor recreation development and land acquisition by local governments and state agencies. In North Carolina, the program is administered by the Department of Environment and Natural Resources.

Since 1965, the LWCF program has built a park legacy for present and future generations. In North Carolina alone, the LWCF program has provided more than \$75 million in matching grants to protect land and support more than 875 state and local park projects. More than 38,500 acres have been acquired with LWCF assistance to establish a park legacy in our state. As of August 2020, the LWCF is now permanently funded by the federal government for \$900 million every year. This is hundreds of millions more per year than the fund typically receives.

**For more information:** <https://www.ncparks.gov/more-about-us/grants/lwcf-grants>

### *RIVERS, TRAILS, AND CONSERVATION ASSISTANCE PROGRAM*

The Rivers, Trails, and Conservation Assistance Program (RTCA) is a National Parks Service (NPS) program that provides technical assistance via direct NPS staff involvement to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program only provides planning assistance; there are no implementation funds available. Projects are prioritized for assistance based on criteria, including conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and

implementation, and focusing on lasting accomplishments. Project applicants may be state and local agencies, tribes, nonprofit organizations, or citizen groups. National parks and other federal agencies may apply in partnership with other local organizations. This program may benefit trail development in North Carolina indirectly through technical assistance, particularly for community organizations, but is not a capital funding source.

**For more information:** <https://www.nps.gov/orgs/rtca/index.htm>

### *ENVIRONMENTAL CONTAMINATION CLEANUP FUNDING SOURCES*

EPA's Brownfields Program provides direct funding for brownfields assessment, cleanup, revolving loans, and environmental job training. EPA's Brownfields Program collaborates with other EPA programs, other federal partners, and state agencies to identify and leverage more resources for brownfields activities. The EPA provides assessment grants to recipients to characterize, assess, and conduct community involvement related to brownfields sites. They also provide area-wide planning grants (AWP) which provides communities with funds to research, plan, and develop implementation strategies for areas affected by one or more brownfields.

**For more information:** <https://www.epa.gov/brownfields/types-brownfields-grant-funding>

### *NATIONAL FISH AND WILDLIFE FOUNDATION: FIVE STAR & URBAN WATERS RESTORATION GRANT PROGRAM*

The Five Star & Urban Waters Restoration Grant Program seeks to develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships for wetland, riparian, forest and coastal habitat restoration, urban wildlife conservation, storm-water management as well as outreach, education and stewardship. Projects should focus on water quality, watersheds and the habitats they support. The program focuses on five priorities: on-the-ground restoration, community partnerships, environmental outreach, education and training, measurable results, and sustainability. Eligible applicants include nonprofit organizations, state government agencies, local governments,

municipal governments, tribes, and educational institutions. Projects are required to meet or exceed a 1:1 match to be competitive.

**For more information:** <http://www.nfwf.org/fivestar/Pages/home.aspx>

## STATE AND STATE-ADMINISTERED FUNDING SOURCES

There are multiple sources for state funding of bicycle and pedestrian transportation projects. However, state transportation funds cannot be used to match federally funded transportation projects, according to a law passed by the North Carolina Legislature.

### *NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) STRATEGIC TRANSPORTATION INVESTMENTS (STI)*

Passed in 2013, the Strategic Transportation Investments law (STI) allows NCDOT to use its funding more efficiently and effectively to enhance the state's infrastructure, while supporting economic growth, job creation and a higher quality of life. This process encourages thinking from a statewide and regional perspective while also providing flexibility to address local needs. STI also establishes a way of allocating available revenues based on data-driven scoring and local input. It is used for the State Transportation Improvement Program (STIP), which identifies the transportation projects that will receive funding during a 10-year period. STIP is a state and federal requirement, which NCDOT updates it every two years.

### STI's QUANTITATIVE SCORING PROCESS

All independent bicycle and pedestrian projects are ranked based on a quantitative scoring process, with the following main steps:

- » Initial Project Review (NCDOT Strategic Prioritization Office (SPOT))
- » Review Projects and Data (NCDOT Integrated Mobility Division (IMD))
- » Review Data (MPOs, RPOs, Divisions)
- » Review Updates and Calculate Measures (NCDOT IMD)
- » Score Projects (NCDOT SPOT)

## BICYCLE AND PEDESTRIAN PROJECT ELIGIBILITY REQUIREMENTS

- » Minimum total project cost = \$100,000
- » Eligible costs include right-of-way, preliminary engineering, and construction
- » Bicycle and pedestrian and public transportation facilities that appear in a state, regional or locally adopted transportation plan will be included as part of the proposed roadway project. NCDOT will fully fund the cost of designing, acquiring right of way, and constructing the identified facilities.

## SPECIFIC IMPROVEMENT TYPES

- » Grade-Separated Bicycle Facility (Bicycle)
- » Off-Road/Separated Linear Bicycle Facility (Bicycle)
- » On-Road; Designated Bicycle Facility (Bicycle)
- » On-Road Bicycle Facility (Bicycle)
- » Multi-Site Bicycle Facility (Bicycle)
- » Grade-Separated Pedestrian Facility (Pedestrian)
- » Protected Linear Pedestrian Facility (Pedestrian)
- » Multi-Site Pedestrian Facility (Pedestrian)
- » Improved Pedestrian Facility (Pedestrian)

## BUNDLING PROJECTS

- » Allowed across geographies and across varying project types
- » Bundling will be limited by project management requirements rather than geographic limitations
- » Any bundled project must be expected to be under one project manager/administrative unit (must be a TAP-eligible entity)
- » Makes projects more attractive for LIPs and easier to manage/let

### MORE INFO ON PRIORITIZATION 6.0:

NCDOT's Prioritization Data page has training slides that explain the prioritization process:

<https://connect.ncdot.gov/projects/planning/Prioritization%20Data/Forms/AllItems.aspx>

See the “Prioritization Training” folder and the following session information within:

- » Session 3: Detailed information on overall scoring components, including local input points.
- » Session 4: Features relevant project funding information, and
- » Session 7: Detailed slides explaining the bicycle and pedestrian project scoring

### HIGH IMPACT/LOW COST FUNDS

Established by NCDOT in 2017 to provide funds to complete low-cost projects with high impacts to the transportation system including intersection improvement projects, minor widening projects, and operational improvement projects. Funds are allocated equally to each Division.

### PROJECT SELECTION CRITERIA

Each Division is responsible for selecting their own scoring criteria for determining projects funded in this program. At a minimum, Divisions must consider all of the following in developing scoring formulas:

- » The average daily traffic volume of a roadway and whether the proposed project will generate additional traffic.
- » Any restrictions on a roadway.
- » Any safety issues with a roadway.
- » The condition of the lanes, shoulders, and pavement on a roadway.
- » The site distance and radius of any intersection on a roadway.
- » \$1.5M max per project unless otherwise approved by the Secretary of Transportation
- » Projects are expected to be under contract within 12 months of funding approval by BOT

### NCDOT TECHNICAL REVIEW & APPROVAL

- » Division Engineer completes project scoring and determines eligibility.
- » Division Engineer determines projects to be funded and requests approval of funding from the Chief Engineer. Division Engineer shall supply all necessary project information including funding request forms, project designs and cost estimates.

- » The Project Review Committee will make a recommendation for further investigation or to include on the Board Agenda for action by the Secretary, NCDOT.

### INCIDENTAL PROJECTS

Bicycle and Pedestrian accommodations such as; bike lanes, wide paved shoulders, sidewalks, intersection improvements, bicycle and pedestrian safe bridge design, etc. are frequently included as “incidental” features of larger highway/roadway projects.

In addition, bicycle safe drainage grates and hand-capped accessible sidewalk ramps are now a standard feature of all NCDOT highway construction. Most pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of federal and state roadway construction funds.

“Incidental Projects” are often constructed as part of a larger transportation project, when they are justified by local plans that show these improvements as part of a larger, multi-modal transportation system. Having a local bicycle or pedestrian plan is important, because it allows NCDOT to identify where bike and pedestrian improvements are needed, and can be included as part of highway or street improvement projects. It also helps local government identify what their priorities are and how they might be able to pay for these projects. Under the updated NCDOT Complete Streets Policy, NCDOT pays the full cost for incidental projects if the project is proposed in a locally adopted plan (see link to updated NCDOT Complete Streets Policy below).

**For more information:** <https://connect.ncdot.gov/projects/BikePed/Documents/Complete%20Streets%20Implementation%20Guide.pdf>

### NC HIGHWAY SAFETY IMPROVEMENT PROGRAM

The purpose of the North Carolina Highway Safety Improvement Program (HSIP) is to provide a continuous and systematic process that identifies reviews and addresses specific traffic safety concerns throughout the state. The program is structured in several distinct phases:

- » A system of safety warrants is developed to identify locations that are possibly deficient.
- » Locations that meet warrant criteria are categorized as potentially hazardous (PH) locations.
- » Detailed crash analyses are performed on the PH locations with the more severe and correctable crash patterns.
- » The Regional Traffic Engineering staff performs engineering field investigations.
- » The Regional Traffic Engineering staff utilizes Benefit: Cost studies and other tools to develop safety recommendations.
- » Depending on the cost and nature of the countermeasures, the investigations may result in requesting Division maintenance forces to make adjustments or repairs, developing Spot Safety projects, developing Hazard Elimination projects, making adjustments to current TIP project plans or utilizing other funding sources to initiate countermeasures.
- » Selected projects are evaluated to determine the effectiveness of countermeasures.

The ultimate goal of the HSIP is to reduce the number of traffic crashes, injuries and fatalities by reducing the potential for and the severity of these incidents on public roadways.

**For more information:** <https://connect.ncdot.gov/resources/safety/Pages/NC-Highway-Safety-program-and-Projects.aspx>

### *HIGHWAY HAZARD ELIMINATION PROGRAM*

The Hazard Elimination Program is used to develop larger improvement projects to address safety and potential safety issues. The program is funded with 90 percent federal funds and 10 percent state funds. The cost of Hazard Elimination Program projects typically ranges between \$400,000 and \$1 million. A Safety Oversight Committee (SOC) reviews and recommends Hazard Elimination projects to the Board of Transportation (BOT) for approval and funding. These projects are prioritized for funding according to a safety benefit to cost (B/C) ratio, with the safety benefit being based on crash reduction. Once approved and funded by the BOT, these projects become part of the department's State Transportation Improvement Program (STIP).

### *GOVERNOR'S HIGHWAY SAFETY PROGRAM*

The Governor's Highway Safety Program (GHSP) funds safety improvement projects on state highways throughout North Carolina. All funding is performance-based. Substantial progress in reducing crashes, injuries, and fatalities is required as a condition of continued funding. Permitted safety projects include checking station equipment, traffic safety equipment, and BikeSafe NC equipment. However, funding is not allowed for speed display signs. This funding source is considered to be "seed money" to get programs started. The grantee is expected to provide a portion of the project costs and is expected to continue the program after GHSP funding ends. Applications must include county level crash data. Local governments, including county governments and municipal governments, are eligible to apply.

**For more information:** <https://www.ncdot.gov/initiatives-policies/safety/ghsp/Pages/default.aspx>

### *THE NORTH CAROLINA DIVISION OF PARKS AND RECREATION - RECREATIONAL TRAILS PROGRAM GRANT*

Funding from the federal Recreational Trails Program (RTP), which is used for renovating or constructing trails and greenways, is allocated to states. The North Carolina Division of Parks and Recreation and the State Trails Program manages these funds with a goal of helping citizens, organizations and agencies plan, develop and manage all types of trails ranging from greenways and trails for hiking, biking, and horseback riding to river trails and off-highway vehicle trails. Grants are available to governmental agencies and nonprofit organizations. The maximum grant amount is \$250,000 and requires a 25% match of RTP funds received. Permissible uses include:

- » New trail or greenway construction
- » Trail or greenway renovation
- » Approved trail or greenway facilities
- » Trail head/ trail markers
- » Purchase of tools to construct and/or renovate trails/greenways
- » Land acquisition for trail purposes
- » Planning, legal, environmental, and permitting costs - up to 10% of grant amount
- » Combination of the above

**For more information:** <http://www.ncparks.gov/more-about-us/grants/trail-grants/recreational-trails-program>

### *NC PARKS AND RECREATION TRUST FUND (PARTF)*

The Parks and Recreation Trust Fund (PARTF) provides dollar-for-dollar matching grants to local governments for parks and recreational projects to serve the general public. Counties, incorporated municipalities, and public authorities, as defined by G.S. 159-7, are eligible applicants. A local government can request a maximum of \$500,000 with each application. An applicant must match the grant dollar-for-dollar, 50 percent of the total cost of the project, and may contribute more than 50 percent. The appraised value of land to be donated to the applicant can be used as part of the match. The value of in-kind services, such as volunteer work, cannot be used as part of the match. Property acquired with PARTF funds must be dedicated for public recreational use.

**For more information:** <https://www.ncparks.gov/more-about-us/parks-recreation-trust-fund/parks-and-recreation-trust-fund>

### *CLEAN WATER MANAGEMENT TRUST FUND*

The Clean Water Management Trust Fund (CWMTF) is available to any state agency, local government, or non-profit organization whose primary purpose is the conservation, preservation, and restoration of North Carolina's environmental and natural resources. Grant assistance is provided to conservation projects that:

- » enhance or restore degraded waters;
- » protect unpolluted waters, and/or
- » contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits;
- » provide buffers around military bases to protect the military mission;
- » acquire land that represents the ecological diversity of North Carolina; and
- » acquire land that contributes to the development of a balanced State program of historic properties.

**For more information:** <http://www.cwmtf.net/#appmain.htm>

### *URBAN AND COMMUNITY FORESTRY GRANT*

The North Carolina Division of Forest Resources Urban and Community Forestry grant can provide funding for a variety of projects that will help plan and establish street trees as well as trees for urban open space. The goal is to improve public understanding of the benefits of preserving existing tree cover in communities and assist local governments with projects which will lead to more effective and efficient management of urban and community forests.

**For more information:** [https://www.ncforestservice.gov/Urban/urban\\_grant\\_program.htm](https://www.ncforestservice.gov/Urban/urban_grant_program.htm)

### **LOCAL FUNDING SOURCES**

Local governments often plan for the funding of bicycle and pedestrian infrastructure or improvements through development of Capital Improvement Projects (CIP) or occasionally, through their annual Operating Budgets. CIPs should include all types of capital improvements (water, sewer, buildings, streets, etc.) versus programs for single purposes. This allows decision-makers to balance all capital needs. Typical capital funding mechanisms include the capital reserve fund, taxes, fees, and bonds. However, many will require specific local action as a means of establishing a program if it is not already in place.

### **PRIVATE AND NONPROFIT FUNDING SOURCES**

Many communities have solicited funding assistance from private foundations and other conservation-minded benefactors. Below are examples of private funding opportunities.

### *RAILS-TO-TRAILS CONSERVANCY*

Under the Doppelt Family Trail Development Fund, RTC will award approximately \$85,000 per year, distributed among several qualifying projects, through a competitive process. Eligible applicants include nonprofit organizations and state, regional, and local government agencies. Two types of grants are available - community support grants and project transformation grants. Around three to four community support grants are awarded each year, ranging from \$5,000-\$10,000 each. Community Support Grants support nonprofit organizations or "Friends of the Trail" groups that need funding to get trail development or trail improvement efforts

off the ground. Each year, 1-2 Project Transformation Grants area awarded that range from \$15,000-\$50,000. The intention of these grants is to enable an organization to complete a significant trail development or improvement project. For both types of grants, applications for projects on rail-trails and rails-with-trails are given preference, but rail-trail designation is not a requirement. The trail must serve multiple user types, such as bicycling, walking, and hiking, and must be considered a trail, greenway, or shared use path.

**For more information:** <http://www.railstotrails.org/our-work/doppelt-family-trail-development-fund/>

### *NATIONAL FISH AND WILDLIFE FOUNDATION (NFWF)*

The National Fish and Wildlife Foundation (NFWF) is a private, nonprofit, tax-exempt organization chartered by Congress in 1984. The National Fish and Wildlife Foundation sustains, restores, and enhances the Nation's fish, wildlife, plants, and habitats. Through leadership conservation investments with public and private partners, the Foundation is dedicated to achieving maximum conservation impact by developing and applying best practices and innovative methods for measurable outcomes.

The Foundation provides grants through more than 70 diverse conservation grant programs. One of the most relevant programs for bicycle and pedestrian projects is Acres for America. Funding priorities include conservation of bird, fish, plants and wildlife habitats, providing access for people to enjoy outdoors, and connecting existing protected lands. Federal, state, and local government agencies, educational institutions, Native American tribes, and non-profit organizations may apply twice annually for matching grants. Due to the competitive nature of grant funding for Acres for America, all awarded grants require a minimum 1:1 match.

**For more information:** <http://www.nfwf.org/what-wedo/grants/Pages/home.aspx>

### *THE TRUST FOR PUBLIC LAND*

Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the TPL is the only national non-profit working exclusively to protect land for human enjoyment and well-being. TPL helps

acquire land and transfer it to public agencies, land trusts, or other groups that intend to conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities.

**For more information:** <http://www.tpl.org>

### *LAND FOR TOMORROW CAMPAIGN*

Land for Tomorrow is a diverse partnership of businesses, conservationists, farmers, environmental groups, health professionals, and community groups committed to securing support from the public and General Assembly for protecting land, water, and historic places. Land for Tomorrow works to enable North Carolina to reach a goal of ensuring that working farms and forests, sanctuaries for wildlife, land bordering streams, parks, and greenways, land that helps strengthen communities and promotes job growth, and historic downtowns and neighborhoods will be there to enhance the quality of life for generations to come.

**For more information:** <http://www.land4tomorrow.org/>

### *THE CONSERVATION ALLIANCE*

The Conservation Alliance is a nonprofit organization of outdoor businesses whose collective annual membership dues support grassroots citizen-action groups and their efforts to protect wild and natural areas. Grants are typically about \$35,000 each. Funding criteria states that:

- » The project should seek to secure lasting and quantifiable protection of a specific wild land or waterway. We prioritize landscape-scale projects that have a clear benefit for habitat.
- » The campaign should engage grassroots citizen action in support of the conservation effort. We do not fund general education, restoration, stewardship, or scientific research projects.
- » All projects must have a clear recreational benefit.

**For more information:** <http://www.conservation-alliance.com/grants//?yearly=2020>

### *BLUE CROSS BLUE SHIELD (BCBS) OF NORTH CAROLINA FOUNDATION*

BCBS does not have a traditional grant cycle and announces grant opportunities on a periodic basis. Grants can range from small-dollar equipment grants to large, multi-year partnerships.

**For more information:** <http://www.bcbsncfoundation.org/grants-programs/grantmaking-overview/>

### *DUKE ENERGY FOUNDATION*

Funded by Duke Energy shareholders, this foundation makes charitable grants to nonprofit organizations and government agencies. Grant applicants must serve communities that are also served by Duke Energy. The grant program has several investment priorities that could potentially fund bicycle and pedestrian projects. The Duke Energy Foundation is committed to making strategic investments to build powerful communities where nature and wildlife thrive, students can excel and a talented workforce drives economic prosperity for all.

**For more information:** <https://www.duke-energy.com/community/duke-energy-foundation>

### *Z. SMITH REYNOLDS FOUNDATION*

This Winston-Salem-based Foundation is committed to improving the quality of life for all North Carolinians. The Z. Smith Reynolds Foundation is a statewide, private, family foundation that has been a catalyst for positive change in North Carolina for more than 80 years. A variety of grant programs are available.

**For more information:** <http://www.zsr.org/grants-programs>

### *BANK OF AMERICA CHARITABLE FOUNDATION*

The Bank of America Charitable Foundation supports a wide range of activities, including a focus on community greening efforts that create healthy neighborhoods and environmental sustainability through the preservation, creation or restoration of open space, parks and community gardens.

**For more information:** <https://about.bankofamerica.com/en-us/global-impact/charitable-foundation-funding.html>

### *LOCAL TRAIL SPONSORS*

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open

space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

### *CORPORATE DONATIONS*

Corporate donations are often received in the form of liquid investments (i.e. cash, stock, bonds) and in the form of land. Local governments typically create funds to facilitate and simplify a transaction from a corporation's donation to the given locality. Donations are mainly received when a widely supported capital improvement program is implemented.

### *PRIVATE INDIVIDUAL DONATIONS*

Private individual donations can come in the form of liquid investments (i.e. cash, stock, bonds) or land. Local governments typically create funds to facilitate and simplify a transaction from an individual's donation to the given locality. Donations are mainly received when a widely supported capital improvement program is implemented.

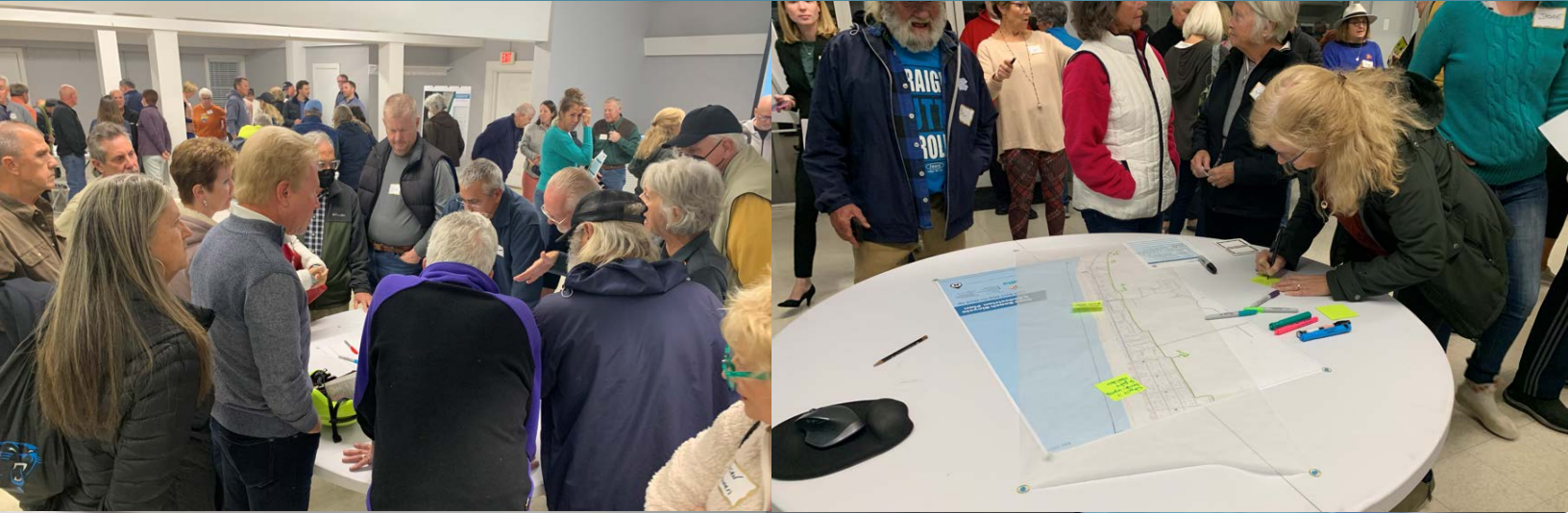
### *FUNDRAISING/CAMPAIGN DRIVES*

Organizations and individuals can participate in a fundraiser or a campaign drive. It is essential to market the purpose of a fundraiser to rally support and financial backing. Often times fundraising satisfies the need for public awareness, public education, and financial support.

### *VOLUNTEER WORK*

It is expected that many citizens will be excited about the development of a greenway corridor. Individual volunteers from the community can be brought together with groups of volunteers from church groups, civic groups, scout troops and environmental groups to work on greenway development on special community workdays. Volunteers can also be used for fundraising, maintenance, and programming needs.

# Appendix: Public Engagement Overview





## PUBLIC ENGAGEMENT OVERVIEW

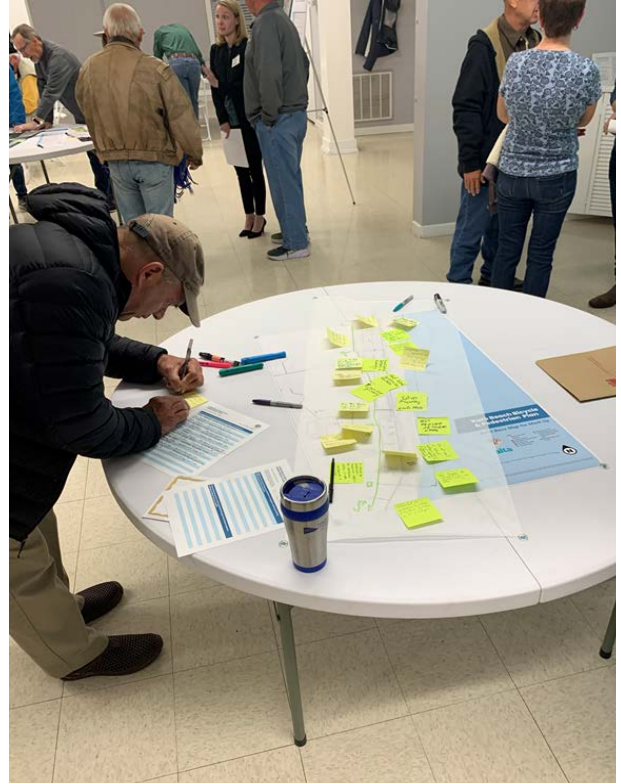
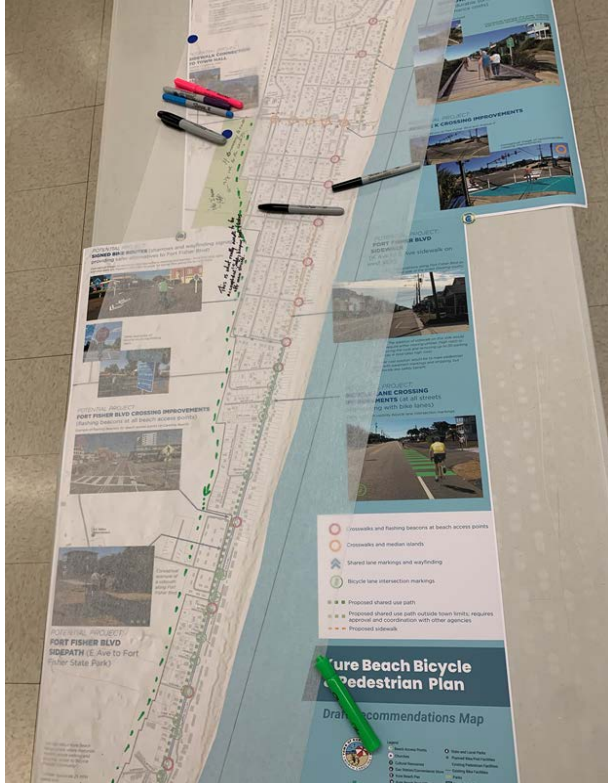
### CHARRETTE

Two public open houses were held at the Kure Beach Community Center in late autumn 2021. The first open house on the evening of November 30 was attended by over 70 community members, who were invited to give feedback on existing conditions for walking and biking in Kure Beach. Large-format maps were set up on tables, and attendees were encouraged to use markers and post-its to mark up the maps. There was no formal presentation, but town staff and Alta team members were available to answer questions and clarify the comment process.

The comments received at the first open house event informed the next day's work for the Alta team, who prepared a set of ten proposed projects designed to improve walking and biking in Kure Beach. Posters of each of these potential projects were presented for public feedback at the second public open house on the evening of December 2. This second event had a similar structure to the first, with no formal presentation but with ample opportunity for attendees to write, draw, and otherwise communicate their feedback on the potential projects to Town staff and to Alta. This second event was attended by over 50 people. The valuable feedback received at these events is summarized on pages 55-57.



**Photos pg. 48-50:** Public workshop attendees talk to each other about existing conditions in Kure Beach and about proposed improvements. Also shown are marked-up maps used for feedback.



### KURE BEACH BICYCLE AND PEDESTRIAN PLAN SURVEY

The 9-question survey was posted on the Kure Beach Town website and received 444 total responses between January 7 and January 25, 2022. The survey included a link to the initial recommendations maps (included in this plan on pages 6-7) for reference purposes.

The survey solicited opinions on general walking and biking conditions in Kure Beach, and also asked respondents to rank the ten potential projects in order of preference.

The survey also asked for some general demographic information in questions 7-9: 66% of respondents were between the ages of 51-70; 51% of respondents were female and 43% were male (about 6% preferred not to answer); and a little over 85% of respondents were white. This information is shown in the charts to the right. The rest of the results are explored in the following pages.

ANSWER CHOICES	RESPONSES	
▼ 17 or younger	0.00%	0
▼ 18-30	1.67%	7
▼ 31-50	12.86%	54
▼ 51-70	66.19%	278
▼ 71 or older	12.80%	54
▼ Prefer not to answer	6.43%	27
<b>TOTAL</b>		<b>420</b>

Q7: What is your age?

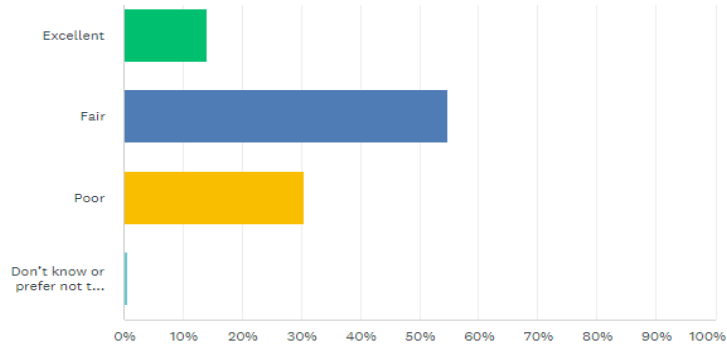
ANSWER CHOICES	RESPONSES	
▼ Female	50.59%	214
▼ Male	43.28%	183
▼ Other/Prefer not to answer	6.18%	26
<b>TOTAL</b>		<b>423</b>

Q8: What is your gender?

ANSWER CHOICES	RESPONSES	
▼ Hispanic or Latino	0.00%	0
▼ White (Not Hispanic or Latino)	88.31%	360
▼ Black or African American (Not Hispanic or Latino)	0.47%	2
▼ Native Hawaiian or Pacific Islander (Not Hispanic or Latino)	0.00%	0
▼ Asian (Not Hispanic or Latino)	0.47%	2
▼ Native American or Alaska Native (Not Hispanic or Latino)	0.24%	1
▼ Two or More Races (Not Hispanic or Latino)	0.47%	2
▼ Other/Prefer not to answer	14.22%	60
<b>Total Respondents: 422</b>		

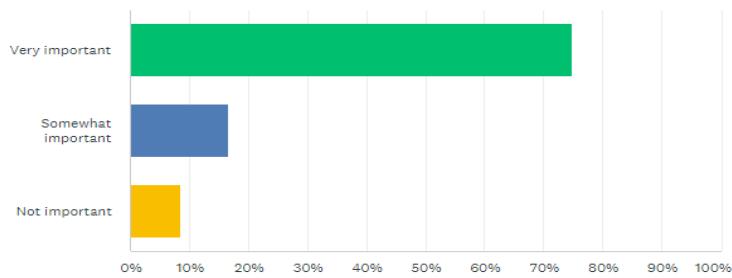
Q9: What is your race/ethnicity? (Check all that apply).

Question 1: How would you rate overall walking and biking conditions in Kure Beach? (8 respondents skipped)



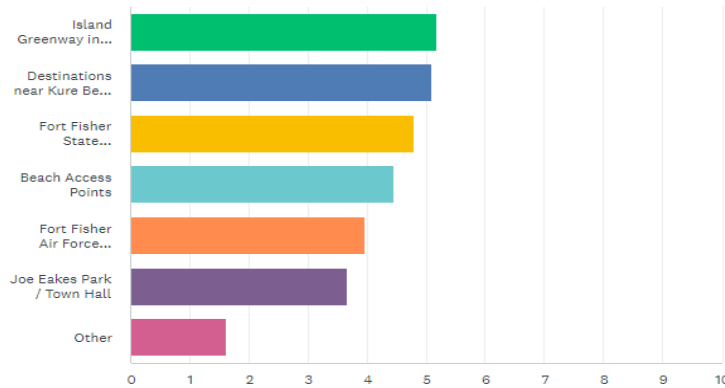
ANSWER CHOICES	RESPONSES
▼ Excellent	13.99% 61
▼ Fair	54.82% 239
▼ Poor	30.50% 133
▼ Don't know or prefer not to answer	0.69% 3
<b>TOTAL</b>	<b>436</b>

Question 2: How important to you is the goal of improving overall walking and biking conditions in Kure Beach? (Choose one) (5 respondents skipped)



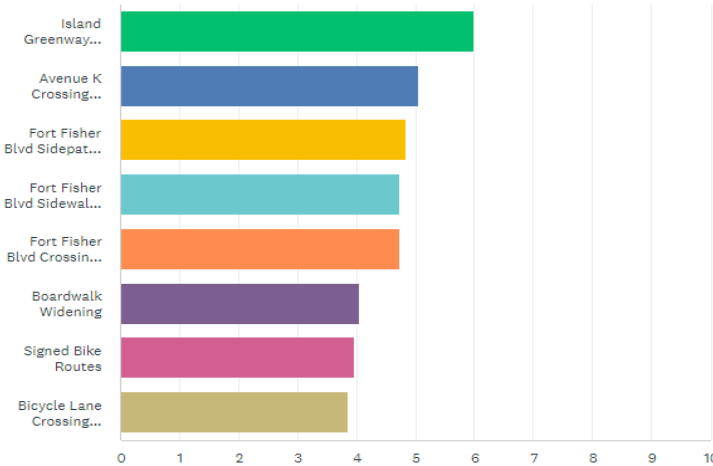
ANSWER CHOICES	RESPONSES
▼ Very important	74.94% 329
▼ Somewhat important	16.63% 73
▼ Not important	8.43% 37
<b>TOTAL</b>	<b>439</b>

Question 3: Please rank the following destinations that you would like to be able to reach safely by walking and biking (1=most important). (13 respondents skipped)



	1	2	3	4	5	6	7	TOTAL	SCORE
Island Greenway In Carolina Beach / Carolina Beach	36.73% 137	13.40% 50	18.77% 70	10.46% 39	9.38% 35	6.70% 25	4.56% 17	373	5.19
Destinations near Kure Beach Pier / Ocean Front Park	18.86% 73	27.13% 105	20.93% 81	16.80% 65	11.37% 44	4.13% 16	0.78% 3	387	5.10
Fort Fisher State Recreation Area, NC Aquarium, and Fort Fisher Ferry	24.75% 99	18.75% 75	15.25% 61	11.25% 45	15.00% 60	12.50% 50	2.50% 10	400	4.79

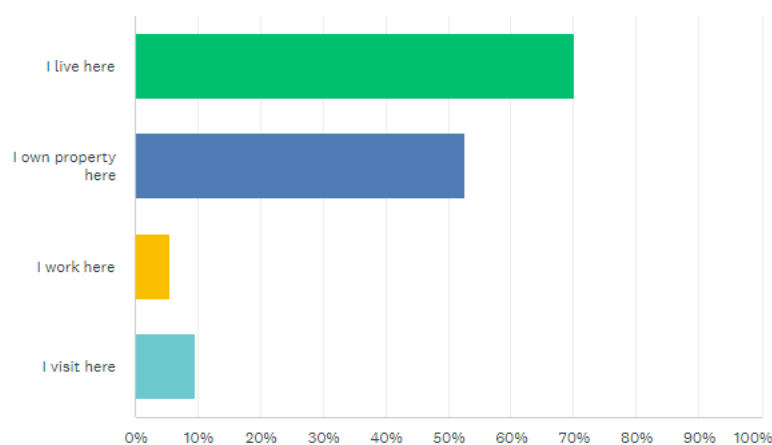
Question 4: Please rank the following proposed projects (1=most important). See these two posters for more information on potential projects. (13 respondents skipped)



	1	2	3	4	5	6	7	8	TOTAL	SCORE
Island Greenway Extension to Town Hall at K Avenue	44.36% 169	14.96% 57	8.40% 32	7.09% 27	4.99% 19	3.41% 13	6.82% 26	9.97% 38	381	5.99
Avenue K Crossing Improvements	12.43% 46	19.19% 71	17.84% 66	9.73% 36	12.97% 48	13.51% 50	8.65% 32	5.68% 21	370	5.05
Fort Fisher Blvd Sidepath (E Ave to Fort Fisher)	16.75% 66	16.75% 66	11.68% 46	10.66% 42	12.94% 51	8.38% 33	9.14% 36	13.71% 54	394	4.84

Question 5 asked respondents to “please use this space to provide general comments about any of the proposed projects,” and received 260 responses. There are some key themes among responses, such as a general desire for improved safety for those who choose to bike or walk around town. Specific comments address the need for improved crosswalks along Ft. Fisher, more dedicated bike lanes, intersection improvements (especially at Avenue K and Ft. Fisher Blvd). The possibility of the Carolina Beach Greenway extension remained slightly contentious, with Settlers Lane homeowners expressing privacy concerns, and many other residents expressing their desire for a continuation of the safe and separate facility for walking and biking that exists in Carolina Beach.

Question 6: What is your relationship to Kure Beach? (Check all that apply) (4 respondents skipped)



ANSWER CHOICES	RESPONSES
▼ I live here	70.23% 309
▼ I own property here	52.73% 232
▼ I work here	5.45% 24
▼ I visit here	9.55% 42
<b>Total Respondents: 440</b>	

Overall, responses to the survey were fairly consistent with the views expressed at the public workshops. Kure Beach residents (& property owners) as a whole are supportive of ensuring that their town is a safe and family-friendly place to explore on foot or on bicycles, for residents and tourists alike. There is also a general recognition of the safety issues that arise when pedestrian and bike traffic is mixed with car traffic, as it currently often is on Ft. Fisher Blvd. People are also enthusiastic about the possibility of being able to reach more key destinations, such as the Pier, Fort Fisher, and the existing Island Greenway on foot or via bicycle.

### ONLINE INPUT MAP

Kure Beach residents were able to access an online input map (interface shown below) to give their input on existing conditions for walking and biking in Kure Beach. Participants could place green markers indicating key destinations, red markers indicating barriers to walking and biking, or could use either color to make general notes. They could also comment on markers placed by other participants, and were able to “like” & “dislike” other people’s contributions.

The input from the online map was incorporated into the initial project recommendations formulated by Alta and presented for public comment at the second public open house.

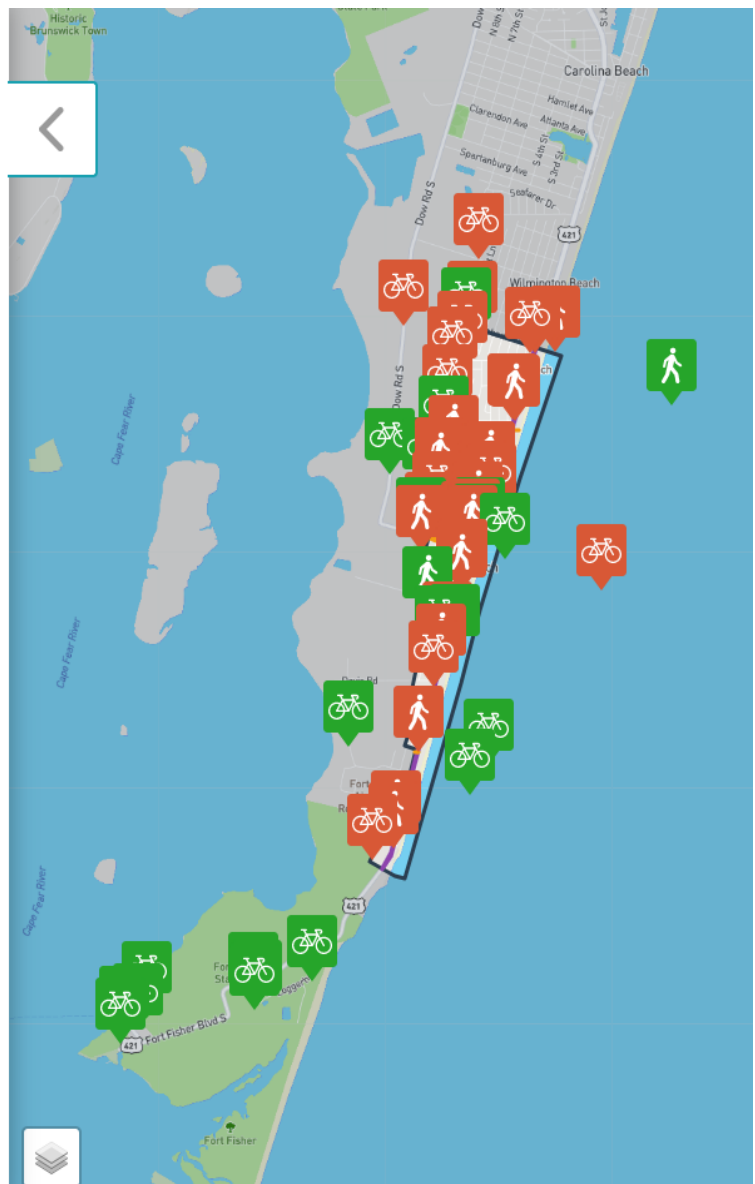
Many comments touched on the state of the sidewalk along Ft. Fisher Blvd, as well as the lack of crosswalks at many public beach access points. Another common theme was a desire to access points of interest such as Joe Eakes Park, the Pier, and Fort Fisher State Park in a safe, family-friendly way via walking and biking.

## Tell us about walking and biking in the Town of Kure Beach

Use the buttons below to provide feedback on destinations you'd like to walk or bike to, routes that function well or need improvement, and barriers to walking or biking.

- Key destinations for walking and bicycling
- Barriers to walking or biking
- Notes on existing bicycle and pedestrian infrastructure

Check out the map to see what other visitors have already suggested, and click or tap any point or route to see more details. If someone has placed a point or route that you agree with, click its "Like" button to add your support.



## PUBLIC OPEN HOUSE COMMENTS SUMMARIZED

Project	Summary of Public Feedback To Date	
<b><i>Bike Lane Intersection Crossing Markers</i></b>	<b><i>Pros</i></b>	Comments received were in favor of marking bike lane crossings at intersections to improve safety in a cost-effective way.
	<b><i>Cons</i></b>	None received.
<b><i>Greenway Extension to Settlers Lane</i></b>	<b><i>Pros</i></b>	Comments in favor of the extension emphasize the need for a safe, paved connection for bicyclists and pedestrians between the greenway and Settlers Lane, provided that motorized vehicles, including golf carts, would not be allowed.
	<b><i>Cons</i></b>	A major concern was that the extension would put walkers and cyclists in conflict with traffic on Settlers Lane, especially during the summer.
<b><i>Greenway Extension to K Avenue</i></b>	<b><i>Pros</i></b>	Comments in support of the greenway extension highlight the need for a safe, designated route for walking and biking that builds from the existing Carolina Beach Island Greenway and connects pedestrians and cyclists to destinations up and down the island. The extension of the greenway would allow for greater opportunities for recreation and exercise for Kure Beach residents. Many commenters are in favor of extending the greenway even further as a connection to Fort Fisher.
	<b><i>Cons</i></b>	Residents have expressed concerns about safety and privacy issues if the greenway were to be extended, as well as concerns about preserving the wetlands on the land behind Settlers Lane, and whether the swampy land would even be suitable for a greenway. There is also recognition that implementation of the greenway is largely dependent on MOTSU. Additional concerns were expressed about the potential cost of the greenway extension.

Continued on next page.

<b>Avenue K Crossing Improvements</b>	<b>Pros</b>	Comments were supportive of improving the intersection at K Avenue and Fort Fisher Blvd in order to make it safer for pedestrians. Suggested improvements include pedestrian signals, crosswalks, and signage reminding drivers to yield to pedestrians.
	<b>Cons</b>	None received.
<b>Westside Bike Connector</b>	<b>Pros</b>	Comments in favor of the connector point to the need for a safe alternate bike route that allows cyclists to avoid biking on Fort Fisher Blvd.
	<b>Cons</b>	Residents opposed to the connector worry about the safety of drivers, particularly the elderly, if Settlers Lane were to be designated as a bike route. Other concerns include whether Settlers Lane is wide enough to accommodate bicycles along with existing traffic, and whether cyclists would follow traffic laws.
<b>Fort Fisher Blvd Crossing Improvements</b>	<b>Pros</b>	Residents are overwhelmingly in favor of increasing the amount of crosswalks at key locations along Fort Fisher Blvd, especially at public beach access points and in areas with lots of residential and commercial development. Proposed crosswalks will have flashing beacons to improve visibility.
	<b>Cons</b>	Safety concerns include greater risk of collisions between vehicles and pedestrians if crosswalks were to be placed at non-controlled intersections.
<b>Fort Fisher Blvd Sidepath (E Ave to Fort Fisher)</b>	<b>Pros</b>	Residents are largely in favor of improving walking and biking access to destinations in the southern part of the island. The proposed sidepath along the southern stretch of Fort Fisher will help to keep pedestrians and cyclists safe by providing greater separation from fast-moving traffic. The implementation of the sidepath project will improve connectivity to and from the aquarium, state park, and other amenities, as well as Brunswick County for those who wish to travel with their bicycles on the Southport Ferry.
	<b>Cons</b>	Some residents question the necessity of suggested improvements given that the bicycle lane currently does run all the way to the ferry.



<b>Fort Fisher Blvd Sidepath (K to E Ave Retrofit)</b>	<b>Pros</b>	Comments are in favor of improving the sidewalk along Fort Fisher Blvd, which is currently too narrow, uneven, and frequently blocked by parking, especially during the summer months. This project would involve retrofitting the current sidewalk into a much wider sidepath, allowing for greater separation from traffic for pedestrians and cyclists. Residents also favor increased enforcement of speed limits on Fort Fisher Blvd.
	<b>Cons</b>	General concerns about costs relative to benefits for residents.
<b>Boardwalk Upgrade &amp; Widening</b>	<b>Pros</b>	Residents reacted positively to proposals to upgrade and widen the existing boardwalk parallel to Atlantic Ave. Comments highlight the issue with cyclists entering Atlantic Avenue (and having to cross Fort Fisher to access it) and traveling the opposite direction from vehicles. Comments also address frequent crowding which occurs on Atlantic Avenue during the summer between bicycles, pedestrians, and vehicles, sometimes pushing cyclists onto the boardwalk where there is little space for them currently.
	<b>Cons</b>	Comments suggested that widening and upgrading the boardwalk should be less of a priority than getting bikes off of Fort Fisher Blvd.
<b>NC State Bike Route 3 on 3rd Avenue</b>	<b>Pros</b>	Comments highlight the need for a safe alternate bike route that allows cyclists to avoid biking on Fort Fisher Blvd. There is a significant desire to improve bicycle access to key destinations and attractions across the island. Commenters are in favor of solutions such as this one that will keep costs low.
	<b>Cons</b>	General concerns about cost.



**WMPO** **alta**

Kure Beach Bicycle & Pedestrian Plan | 2022

Prepared for the Town of Kure Beach and the Wilmington Urban Area Metropolitan Planning Organization (WMPO)

Prepared by Alta Planning + Design