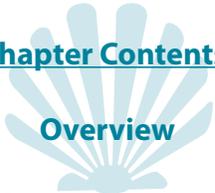




# 3 NETWORK RECOMMENDATIONS

**Chapter Contents:**



**Overview**

**Methodology for Network Design**

**Pedestrian Facility Types**

**Types of Cyclists**

**Bicycle Facility Types**

**Priority Project Cutsheets**

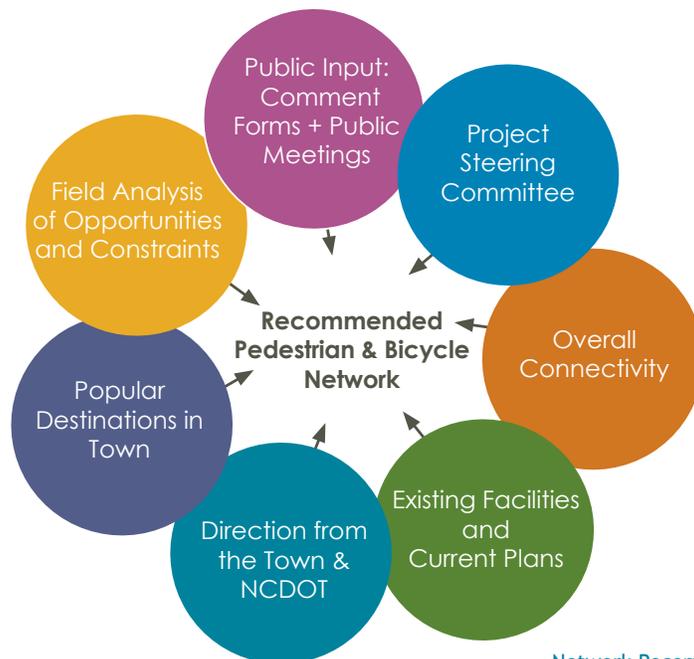
**Program Recommendations**

## PROJECT BACKGROUND

This chapter details the infrastructure improvements that are recommended to create a safe, accessible, and connected pedestrian and bicycle network in the Town of Ocean Isle Beach. A diverse mix of facilities are recommended to create this comprehensive network, including sidewalks, crossing improvements, on-road bicycle facilities, and multi-use paths. Conceptually, the network recommendations and the destinations they connect can be seen as a network of ‘hubs and spokes’. Restaurants, shops, beach access points, parks, neighborhoods, and other places people walk or bike to and from are the ‘hubs’, whereas the pedestrian and bicycle facilities are the ‘spokes’ that connect them.

## METHODOLOGY FOR NETWORK DESIGN

Recommendations were developed based on information from several sources: input from the town staff and Steering Committee, public input obtained through public comment forms and in-person workshops, previous plans and studies, review of existing bicycle and pedestrian facilities, noted bicycle and pedestrian destinations, and the consultant’s field analysis. Field work examined the potential and need for facilities along key roadway corridors and to make connections between popular destinations in Ocean Isle Beach. Input sources for the plan are summarized by the diagram below.





## PEDESTRIAN FACILITY TYPES

### Sidewalks

The sidewalks recommended for Ocean Isle Beach are shown by the dashed orange lines on Map 3.1 on page 3-9 (with existing sidewalk shown in solid orange lines). These recommendations were chosen to fill in gaps in the existing sidewalk network and to better connect pedestrians to destinations and into neighborhoods.

- » Sidewalks in Ocean Isle Beach should be at least 5' wide, and, where possible, should include a landscaped buffer between the sidewalk and roadway.
- » Areas of higher pedestrian volume may require 7' wide sidewalks, and sidewalks serving as part of the multi-use trail system should be at least 10' in width.



### Boardwalk

Boardwalks are typically required when crossing wetlands or other poorly drained areas. They are usually constructed of wooden planks or recycled material planks that form the top layer of the boardwalk.

- » Boardwalk width should be a minimum of 10 feet when no rail is used. A 12 foot width is preferred in areas with high anticipated use and whenever rails are used.
- » The Town should work with the Ocean Isle Property Owners Association to pursue the possibility of a maintenance agreement on private boardwalks to open them to public use.





### Pedestrian-Friendly Crossings High-Visibility Crosswalk Improvements

Consultant fieldwork, committee input, and previous planning efforts helped to identify important pedestrian crossing points that are in need of minor to significant improvements. High-visibility crosswalk recommendations are shown by the black markers on Map 3.1.

- » High-visibility crosswalks are recommended at both signalized intersections in town and at points along First and Second streets with a high volume of crossing pedestrian and bicycle traffic.
- » High-visibility signage is also recommended to alert approaching drivers.
- » Crossings that link to sidewalk on each side of the road should possess curb cuts with ramps (which helps to satisfy the standards set forth by the American Disability Act of 1991).

### Standard Crosswalk Improvements

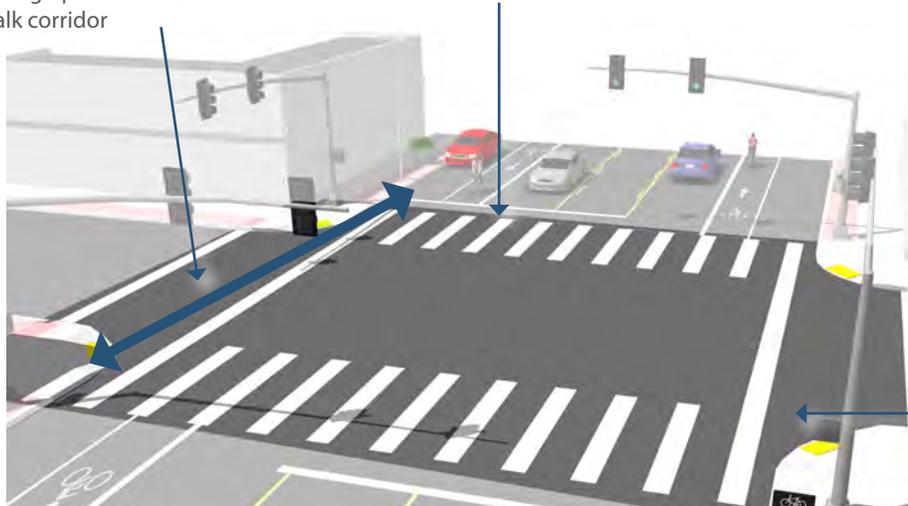
Standard crosswalk markings should be installed along First Street, Second Street, and Causeway Drive at all unsignalized intersections. These are not shown individually on the map due to the map scale and the frequency locations. These marked crosswalks will help to guide pedestrians and bicyclists on sidewalks and sidepaths across the many intersections with side streets.

- » Signage should be included on side streets to alert approaching drivers to look both ways for crossing pedestrian and bicycle traffic before turning (see page A-44 for guidance on this type of sign).
- » Crossings that link to sidewalk on each side of the road should possess curb cuts with ramps (which helps to satisfy the standards set forth by the American Disability Act of 1991).

Some of these treatments have been proven to reduce crashes, as shown in the 2007 FHWA Crash Reduction Factors Study (<http://safety.fhwa.dot.gov>).

The crosswalk should be located to align as closely as possible with the through pedestrian zone of the sidewalk corridor

Continental markings provide additional visibility



Parallel markings are the most basic crosswalk marking type

For more information on designing pedestrian-friendly crossings, see Appendix A: Design Guidelines

## TYPES OF CYCLISTS

Bicyclists can be categorized into four distinct groups based on comfort level and riding skills. Bicyclists' skill levels greatly influence expected speeds and behavior, both in separated bikeways and on shared roadways. Each of these groups has different bicycle facility needs, so it is important to consider how a bicycle network will accommodate each type of cyclist when creating a non-motorized plan or project. The bicycle infrastructure should accommodate as many user types as possible, with decisions for separate or parallel facilities based on providing a comfortable experience for the greatest number of people. In the US population, people are generally categorized into one of four cyclist types. The characteristics, attitudes, and infrastructure preferences of each type are described below.

### Fast and Experienced (Approximately 1% of population)

This cyclist type is characterized by the bicyclists that will typically ride anywhere regardless of roadway conditions or weather. These bicyclists can ride faster than other user types, prefer direct routes, and will typically choose roadway connections even if shared with vehicles over separate bicycle facilities such as multi-use paths.



### Enthusied and Confident (5-10% of population)

This user group includes bicyclists who are fairly comfortable riding on all types of bikeways but usually choose low traffic streets or multi-use paths when available. These bicyclists may deviate from a more direct route in favor of a preferred facility type. This group includes all kinds of bicyclists such as commuters, recreational riders, racers, and utilitarian bicyclists.



### Interested but Concerned (Approximately 60% of population)

This user type comprises the bulk of the cycling population and represents bicyclists who typically only ride a bicycle on low traffic streets or multi-use trails under favorable weather conditions. These bicyclists perceive significant barriers to their increased use of cycling, specifically traffic and other safety issues. These people may become "Enthusied & Confident" with encouragement, education, and experience.



### No Way, No How (Approximately 30% of population)

Persons in this category are not bicyclists and perceive severe safety issues with riding in traffic. Some people in this group may eventually become more regular cyclists with time and education. A significant portion of these people will never ride a bicycle other than on rare occasions or under special circumstances (e.g., in a park, with a child).





## BICYCLE FACILITY TYPES

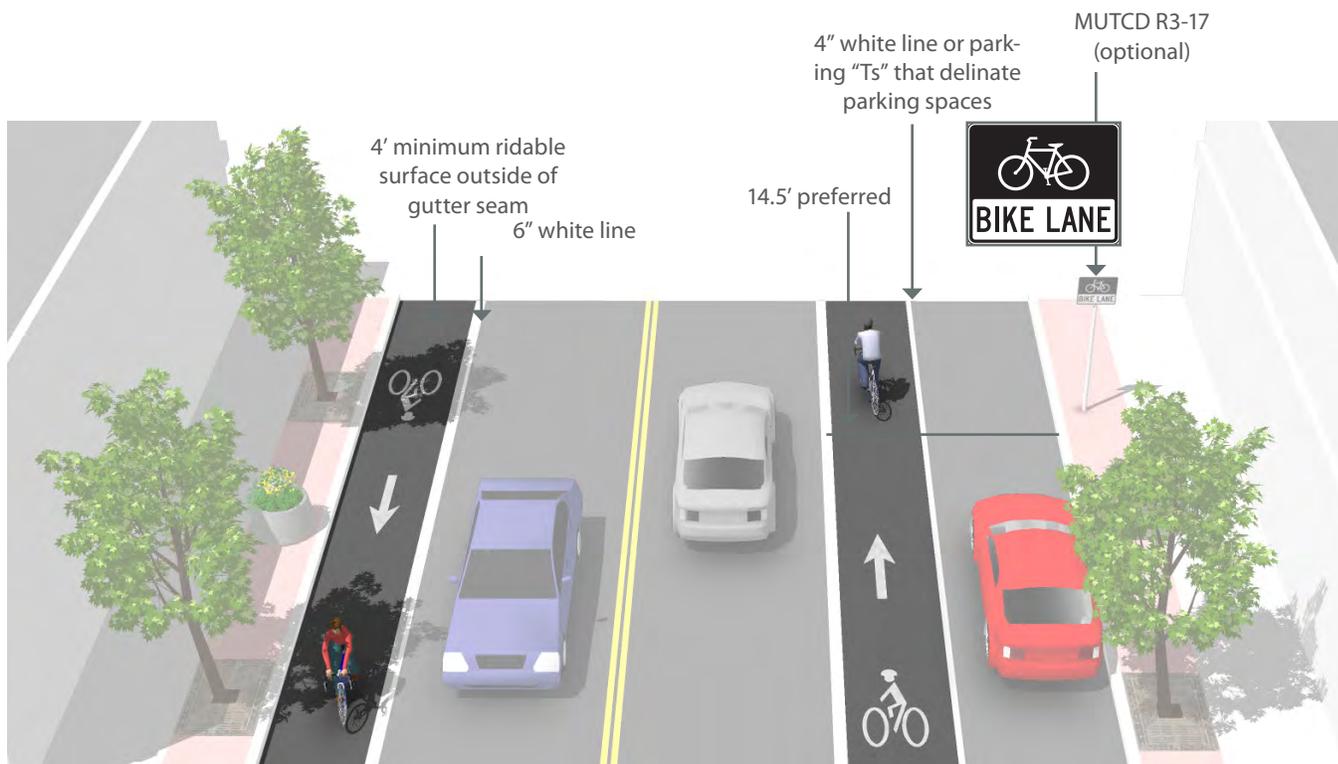
The descriptions on this page offer a brief overview of the primary facility types recommended in this plan. For more information on facility design, please see Appendix A: Design Guidelines.

### Paved Shoulders

A paved shoulder is the part of a roadway that is contiguous to the travel lane, separated by a stripe. There is no minimum width for paved shoulders, although a width of at least four feet is preferred where possible. Paved shoulders are appropriate on rural roadways with low traffic volumes. Ideally, paved shoulders should be included in the construction of new roadways or the upgrade of existing roadways, especially where there is a need to safely accommodate bicycles.

### Bicycle Lanes

Bicycle lanes are described as a portion of the roadway that has been designated by striping, signing, and pavement markings for the preferential and exclusive use of bicyclists. Bicycle lanes are always located on both sides of the road (except on one way streets), and carry bicyclists in the same direction as adjacent motor vehicle traffic. The minimum width for a bicycle lane is four feet; five- and six-foot bicycle lanes are typical for collector and arterial roads. As a general practice in the future, any local roadway that is widened or reconstructed with curb and gutter should incorporate bicycle lanes, with consideration for speed limit reductions. For additional design guidance on these methods, see the Appendix A: Design Guidelines section titled 'Retrofitting Existing Streets to Add Bikeways.'



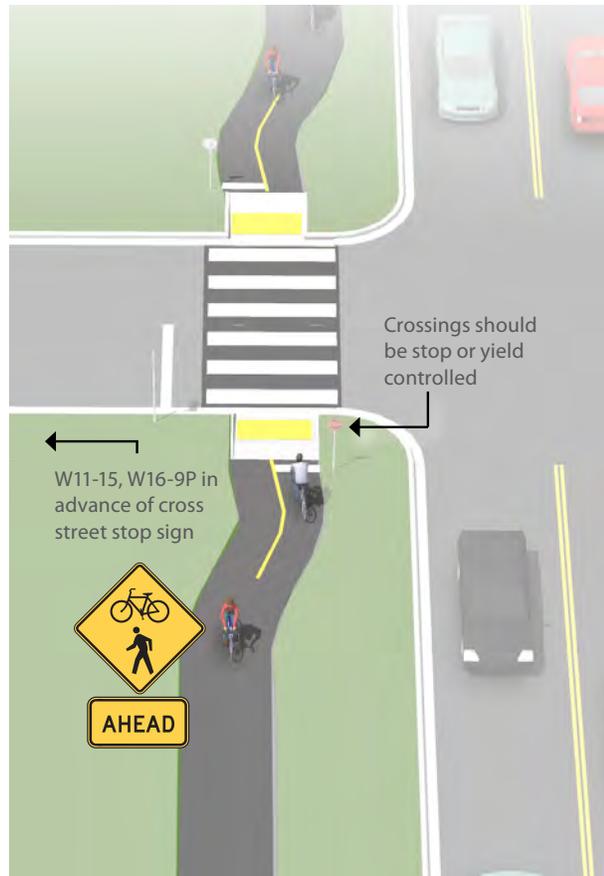
For more information on designing bicycle lanes, see Appendix A: Design Guidelines

### Multi-Use Paths

A multi-use path is a facility that is separated from the roadway and designed for a variety of users, including bicyclists, walkers, hikers, joggers, wheelchair users, and skaters. Multi-use paths may be paved or unpaved and are the preferred facility for novice and average bicyclists. Multi-use paths located within the roadway corridor right-of-way, or adjacent to roads, are called ‘side paths.’

Proposed multi-use paths for Ocean Isle Beach are shown as a dashed green line on Map 3.1 on page 3-9.

- » Multi-use paths in Ocean Isle Beach should be a minimum of 10’ in width.
- » The key difference between a multi-use side path shown and a typical sidewalk is the extra width. A 10’ wide path, for example, allows for safer shared use by bicyclists, pedestrians, and other users, whereas the typical 5’-wide sidewalk does not allow for safe passing.
- » In some areas of town, a multi-use path is recommended where there is existing sidewalk. To meet this recommendation, the town could expand the existing sidewalk to a 10-foot sidepath by adding an additional 5 feet of pavement. This recommendation is marked as “Sidewalk upgrade to sidepath” and is shown with dashed green and gray lines on Map 3.1.
- » To maximize path user safety and comfort, sidepaths should be signed as off-limits to motorized vehicles, including golf carts.
- » Signage should be included along sidepaths to direct users to beach access points with high-visibility crosswalks.



For more information on designing multi-use trails, see Appendix A: Design Guidelines



### Bicycle Bridge Crossing Signal

The Odell Williamson Bridge on Causeway Drive is a significant barrier to pedestrian and bicycle traffic between the island and the mainland. High automobile traffic volumes and speeds and narrow shoulders make the bridge inaccessible to pedestrians and most bicyclists. To improve the safety and comfort of those bicyclists who need or would like to use the bridge until a separate bridge can be built (see below), the town should work with NCDOT to install a bicyclist-activated flashing warning sign on each side of the bridge to alert motorists that bicyclists are crossing the bridge. The flashing signal could be activated using a push-button when the a bicyclist is ready to cross the bridge, would be timed to the average bicycling speed, and would alert motorists and encourage them to slow down. In conjunction with the signal, the town should work with NCDOT to reduce the bridge speed from 35 miles per hour to 25 miles per hour.

### Bicycle/Pedestrian Bridge

Bicycle/pedestrian bridges serve to link facilities across barriers, such as waterways and highways, in order to provide an uninterrupted crossing. These bridges are closed to motorized traffic and can be used to connect trails, on-road bicycle facilities, sidewalks, or some combination of these.

In order to provide a safe and comfortable bicycle and pedestrian connection between the island and mainland, this plan recommends that a bicycle/pedestrian bridge be constructed across the Intracoastal Waterway adjacent to the Odell Williamson Bridge (shown in dashed dark brown on Map 3.1).

- » Greenway trail bridges are most often used to provide user access over natural features such as streams and rivers, where a culvert is not an option or the span length exceeds 20 feet.
- » Bridge options include suspension bridges and prefabricated clear span bridges.
- » When determining a bridge design for greenway trails, it is important to consider emergency and maintenance vehicle access. A greenway trail bridge should support 10 tons for 10 foot wide greenway trails, and 20 tons for wider than 10 feet to accommodate the weight of emergency and maintenance vehicles.

*For more information on designing bicycle and pedestrian bridges, see Appendix A: Design Guidelines*





## PRIORITY PROJECT CUTSHEETS

The cut-sheets on the following pages illustrate and describe the priority pedestrian projects and bicycle projects recommended in this plan. These projects are featured in detail due to their high ranking when compared to other projects in this plan (see the overall project ranking in Table 3.1 on page 3-14).

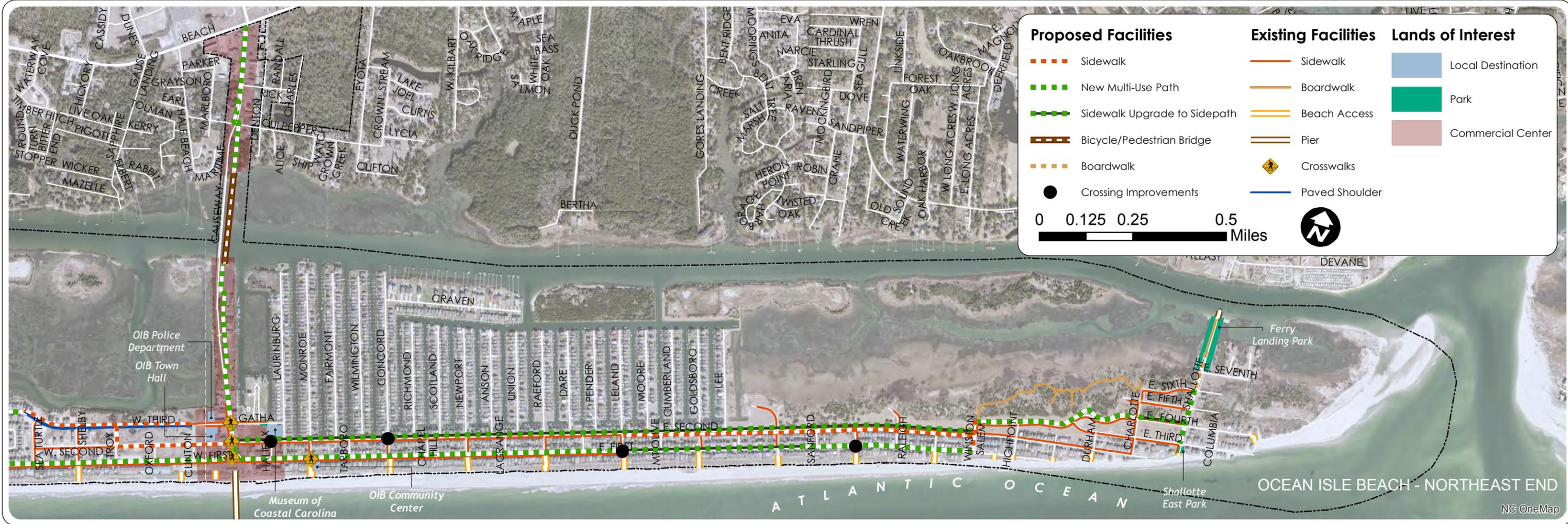
### Project Prioritization Process

Project ranking began with making a list of all of the network recommendations proposed in this plan. The segments were broken down at logical points, such as at major crossings and at connections to existing facilities. The criteria below were then used to rank each segment (see Table 3.1 on page 3-14):

- » Recommendations from the 2014 Pedestrian Plan Public Comment Form
- » Connects to a public building (post office/Town Hall)
- » Connects to a park or pier
- » Connects to a beach access point
- » Connects to a shopping area
- » Connects to existing sidewalk, on-road bicycle facility, or trail on both ends
- » Bicycle or pedestrian crash reported

*These criteria were selected for Ocean Isle Beach based on existing local and regional plans, public input, existing conditions, and available data. The ranking shown in Table 3.1 is for information purposes only and does not constrict the Town or its partners to implementing projects in a particular order.*

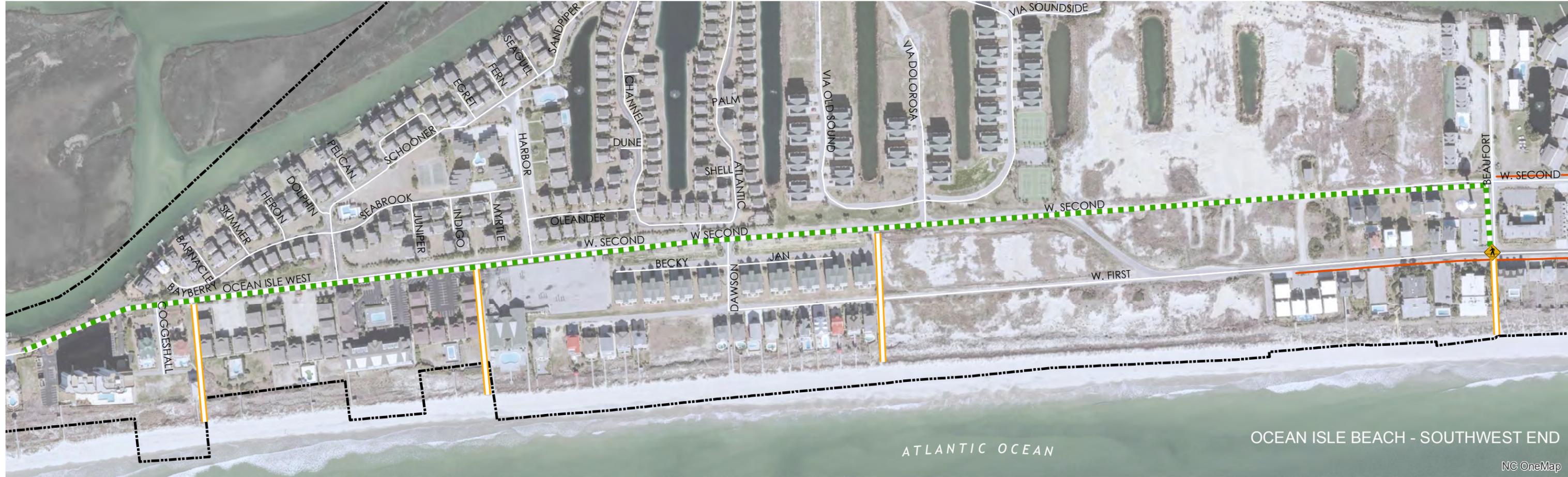
# MAP 3.1 BICYCLE AND PEDESTRIAN FACILITY RECOMMENDATIONS



Proposed Facilities	Existing Facilities	Lands of Interest
Sidewalk	Sidewalk	Local Destination
New Multi-Use Path	Boardwalk	Park
Sidewalk Upgrade to Sidepath	Beach Access	Commercial Center
Bicycle/Pedestrian Bridge	Pier	
Boardwalk	Crosswalks	
Crossing Improvements	Paved Shoulder	

0 0.125 0.25 0.5 Miles

# Trail Cutsheet A: Ocean Isle West/West 2nd Street Multi-Use Path (West End to Beaufort)



Distance: 5,608 ft / 1.06 mi

Right-of-Way: 60 ft

Planning-Level Cost Estimate: \$530,000\*

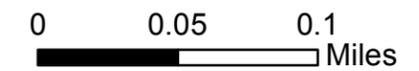
### Why It's Important:

- » 217 mentions in the 2014 Public Comment Form
- » Connects to beach access points



Ocean Isle West Boulevard lacks sidewalks and bicycle facilities and is constrained by bollards, making it difficult for people to walk and bike into town. The Town should work with property owners to have a multi-use path installed on the north side along Ocean Isle West Boulevard and Second Street to fill this gap in the network. This section was the most frequently mentioned location in need of walking and bicycling improvements in the 2014 Public Comment Form.

Recommended	Existing
 New Multi-Use Path	 Boardwalk
	 Beach Access
	 Pier
	 Sidewalk
	 Paved Shoulder
	 Crosswalks



\*Planning-level costs are based on \$500,000/mile for multi-use path construction only.

# Trail Cutsheet B: West 1st Street Multi-Use Path (Beaufort to Causeway)



Distance: 5,815 ft / 1.10 mi

Right-of-Way: 60 ft

Planning-Level Cost Estimate: \$550,000\*

### Why It's Important:

- » 191 mentions in the 2014 Public Comment Form
- » Connects to the Ocean Isle Beach Pier
- » Connects to beach access points
- » Connects to the Causeway commercial center
- » Bicycle or pedestrian crash reported



West 1st Street at Sea Turtle, looking west. A sidepath on the north side of the street would provide a walking and bicycling connection from the west end to the center of town. This section was the 2nd-most frequently mentioned location in need of walking and bicycling improvements in the 2014 Public Comment Form.



\*Planning-level costs are based on \$500,000/mile for multi-use path construction only.



# Trail Cutsheet C: East 1st Street Multi-Use Path (Causeway to Leland)



Distance: 5,531 ft / 1.05 mi

Right-of-Way: 60 ft

Planning-Level Cost Estimate: \$525,000\*

### Why It's Important:

- » 135 mentions in the 2014 Public Comment Form
- » Connects to the Ocean Isle Beach Community Center
- » Connects to the Ocean Isle Beach Pier
- » Connects to beach access points
- » Connects to the Causeway commercial center
- » Bicycle or pedestrian crash reported

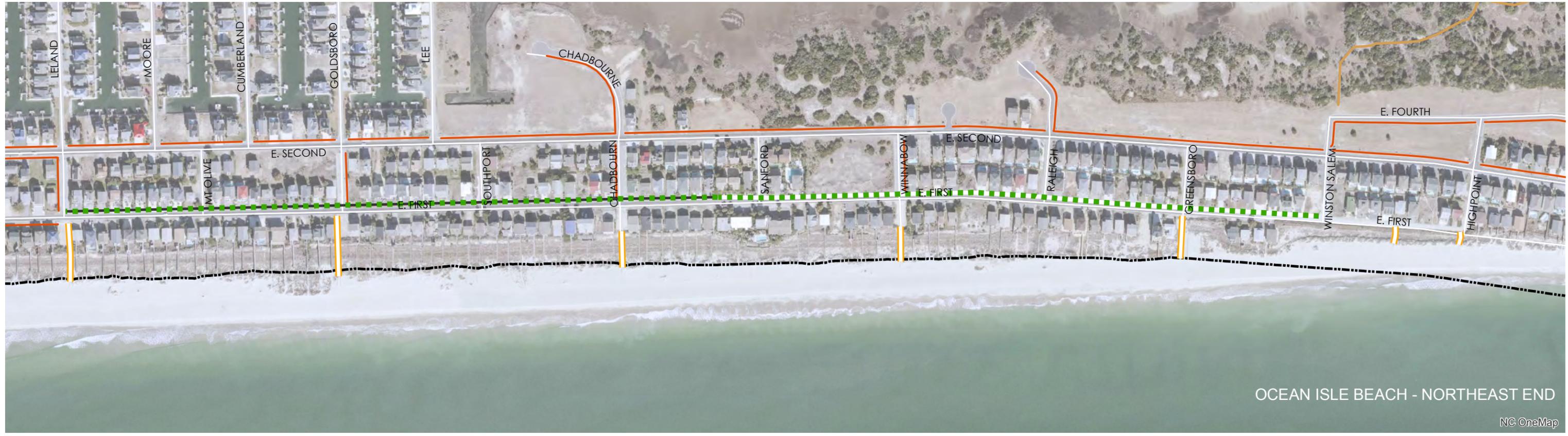


East 1st Street has ample width on the north side for a multi-use path, which would provide bicyclists and pedestrians with a connection from the east end of the island to the center of town.



\*Planning-level costs are based on \$500,000/mile for multi-use path construction only.

# Trail Cutsheet D: East 1st Street Multi-Use Path (Leland to Winston-Salem)



OCEAN ISLE BEACH - NORTHEAST END  
NC OneMap

Distance: 4,944 ft / 0.94 mi

Right-of-Way: 60 ft

Planning-Level Cost Estimate: \$470,000\*

**Why It's Important:**

- » 135 mentions in the 2014 Public Comment form
- » Connects to beach access points



The sidewalk on East 1st Street between Leland and Sanford could be widened to create a multi-use path. This would help to reduce space conflicts between pedestrians and bicyclists and also provide bicyclists with dedicated space to ride off of the roadway.

Recommended	Existing
 New Multi-Use Path	 Boardwalk
 Sidewalk Upgrade to Sidepath	 Beach Access
	 Pier
	 Sidewalk
	 Paved Shoulder
	 Crosswalks

0 0.05 0.1 Miles




\*Planning-level costs are based on \$500,000/mile for multi-use path construction only.



**TABLE 3.1 OVERALL PROJECT LIST** (Criteria and ranking for information purposes only)

General Priority Ranking	Street Name	Start/End Point	Facility Type	Crossing Improvements	Length (Feet)	Length (Miles)	Location (recommended)	Recommendations from the 2014 Public Comment Form	Connects to a public building (Town Hall/community center)	Connects to a park or pier	Connects to a beach access point	Connects to a commercial center	Connects to existing sidewalk, shoulder, or trail on both ends	Bike or Ped crash reported
1	West 1st Street	Beaufort to Causeway	Multi-Use Trail/Sidepath	Driftwood	5,816	1.10	North	217	-	✓	✓	✓	-	✓
2	West 2nd Street	West End to Beaufort	Multi-Use Trail/Sidepath	-	5,383	1.02	North	191	-	-	✓	-	-	-
3	East 1st Street	Causeway to Leland	Multi-Use Trail/Sidepath	Leland	5,531	1.05	North	135	✓	✓	✓	✓	-	✓
4	East 1st Street	Leland to Winston-Salem	Multi-Use Trail/Sidepath	Winnabow	4,944	0.94	North	135	-	-	✓	-	-	-
5	West 2nd Street	Beaufort to Driftwood	Multi-Use Trail/Sidepath	-	1,421	0.27	North	120	-	-	-	-	-	-
6	East 2nd Street	Causeway to Winston-Salem	Multi-Use Trail/Sidepath, Sidewalk	Museum of Coastal Carolina, Concord	10,437	1.98	North	117	-	✓	-	✓	✓	✓
7	Causeway Drive	1st Street to Old Causeway Commercial Area (Sharky's)	Multi-Use Trail/Sidepath	-	2,686	0.51	East	88	-	✓	✓	✓	-	✓
8	West 4th Street	Driftwood to West 3rd Street	Multi-Use Trail/Sidepath	-	1,479	0.28	North	84	-	-	-	-	-	-
9	Causeway Drive	Beach Dr to Culpepper	Multi-Use Trail/Sidepath	-	1,418	0.27	West	58	-	-	-	✓	-	-
10	Odell Williamson Bridge	Beach Drive to West 1st Street	Bridge Crossing Signal, Bike/Ped Bridge	-	1,284	0.24	Across Intracoastal Waterway	53	-	✓	-	✓	-	-
11	East 4th Street	Winston-Salem to Shallotte	Multi-Use Trail/Sidepath	-	3,040	0.58	North	25	-	-	-	-	-	-
12	Shallotte Blvd	Existing boardwalk to East 6th Street	Boardwalk	-	552	0.10	West	4	-	✓	-	-	✓	-
13	Shallotte Blvd	East 6th Street to East 3rd Street	Multi-Use Trail/Sidepath	-	787	0.15	West	4	-	-	-	-	✓	-
14	Driftwood	West 4th Street to West 2nd Street	Multi-Use Trail/Sidepath	-	516	0.10	West	3	-	-	-	-	✓	-
15	Beaufort	West 2nd Street to West 1st Street	Multi-Use Trail/Sidepath	-	224	0.04	West	2	-	-	✓	-	-	-
16	Old Causeway Drive	Culpepper to dead end (near Volunteer Fire Dept)	Multi-Use Trail/Sidepath	-	744	0.14	West	0	-	-	-	✓	-	-



## PROGRAM RECOMMENDATIONS

*Purpose: To educate all road users about their rights and responsibilities, to increase awareness and improve traffic safety*

*Partners: Town of Ocean Isle Beach Police Department, Bicycle and Pedestrian Advisory Committee, Town staff*

Below are some key program recommendations that came out of this planning process. See Chapter 4: Implementation for more information on other program ideas related to plan implementation.

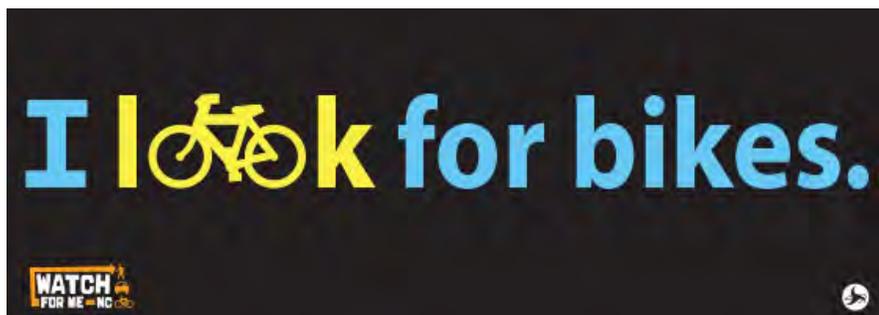
### Media Campaign to Educate Motorists, Bicyclists, and Pedestrians

Watch for Me NC is a comprehensive campaign aimed at reducing the number of pedestrians and bicyclists hit and injured in crashes with vehicles. The campaign consists of educational messages on traffic laws and safety, and an enforcement effort by area police in several Triangle communities. The pilot campaign is programmed to expand statewide; Ocean Isle Beach should contact the NCDOT Division of Bicycle and Pedestrian Transportation to request materials and guidance. **The Town could distribute the educational materials made available by NCDOT at local festivals and other events, at local bike shops and other businesses, and in renters' information packets and property owners' guest information books.** Police officers could hand out bicycle lights along with bicycle and pedestrian safety cards. Program promotions and educational videos could also be broadcast on the local government access channel.

Watch for Me NC website: <http://www.watchformenc.org/>



Images targeting motorists from the 'Watch for Me NC' campaign, including ad space on a bus, messaging at the pump, and bumper stickers.



## Hike & Bike Map

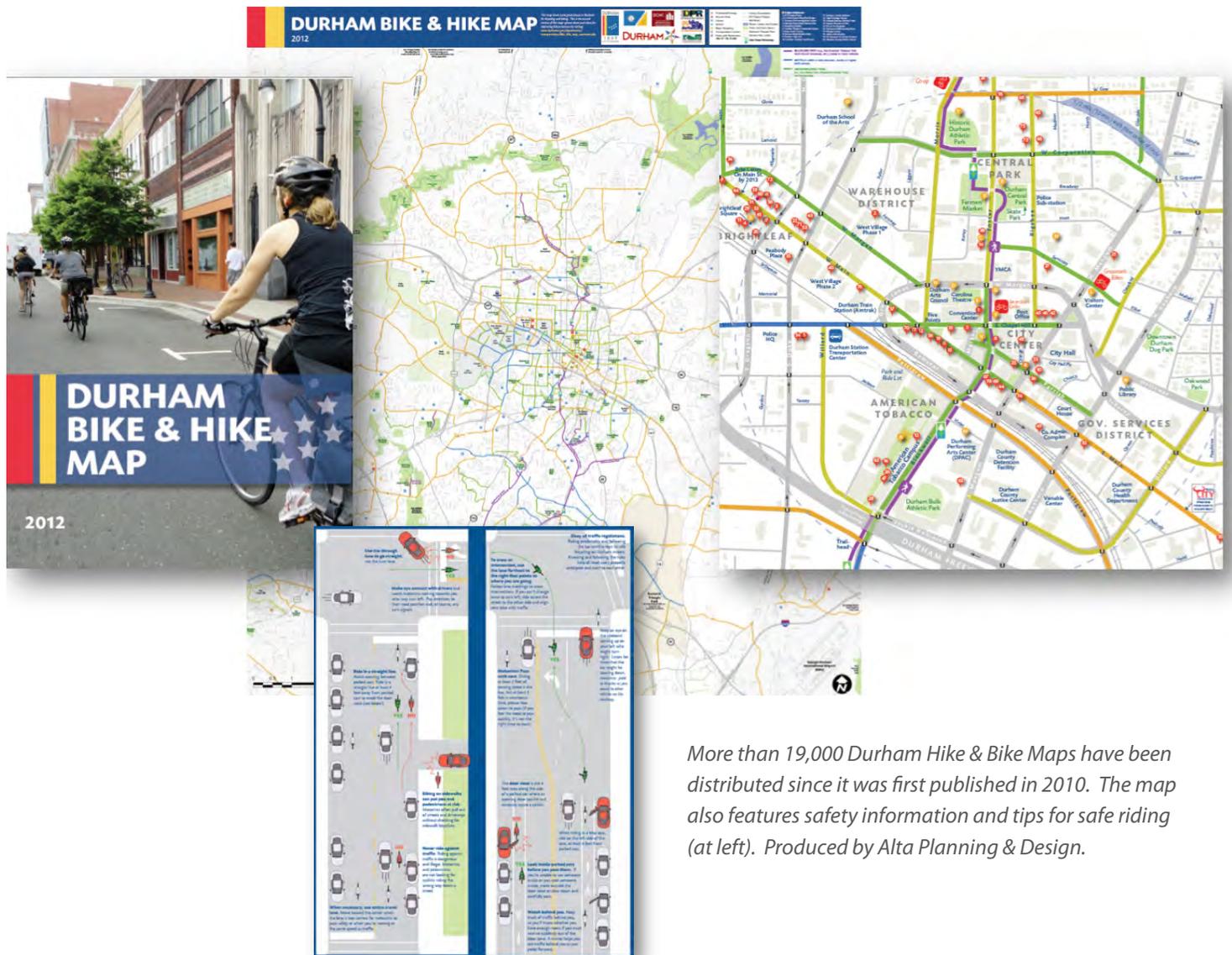
One of the most effective ways of encouraging people to walk and bicycle is through the use of maps and guides to show where you can walk and bike, and to guide people to enjoyable routes and destinations for walking and biking. The Town should create an Ocean Isle Beach Hike and Bike Map to reflect the most current public bicycle and pedestrian infrastructure in town, with a list of bicycle rental locations, suggestions for self-guided bike rides and walks around town, and recommended routes. A portion of the map could be 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. It should also be updated on a regular basis as new facilities are implemented.

*Purpose: To encourage walking and bicycling by providing route and facility information and highlighting walking and bicycling destinations.*

*Partners: Town of Ocean Isle Beach, Brunswick County Chamber of Commerce, Ocean Isle Beach GIS staff*

### Sample Maps and Self-Guided Walks:

- » [http://www.durham-nc.com/resources/pdf/dtwt2012\\_printer-friendly.pdf](http://www.durham-nc.com/resources/pdf/dtwt2012_printer-friendly.pdf)
- » <http://www.bikewalktwincities.org/maps-routes/walking-maps>



*More than 19,000 Durham Hike & Bike Maps have been distributed since it was first published in 2010. The map also features safety information and tips for safe riding (at left). Produced by Alta Planning & Design.*



## One-Stop Website

*Purpose: To provide a single, accessible source of all bicycle- and pedestrian-relevant information for Ocean Isle Beach residents and visitors.*

*Partners: Bicycle and Pedestrian Advisory Committee, Ocean Isle Beach Public Utilities Department, Ocean Isle Beach Planning & Inspections Department*

Many current and potential pedestrians and bicyclists do not know where to find information on traffic laws, events, maps, tips, and recreation groups. The Town of Ocean Isle Beach could develop a “one-stop” website that houses all pedestrian- and bicycle-related information and promotions. A website is not difficult to set up, but it will only be successful if the site is easy to use, easy to find, and updated frequently. The site should be reviewed and updated regularly with the most current information. The Bicycle and Pedestrian Advisory Committee can assist in keeping the site up to date. Other recommended programs in this chapter could be housed on the website, such as a hike and bike map, Watch for Me NC materials and links, and a calendar of upcoming events.

Sample pedestrian and bicycle information websites:

- » Portland, OR: <http://www.portlandoregon.gov/transportation/60164>
- » Austin, TX: <http://austintexas.gov/bicycle>
- » Duck, NC: <http://www.townofduck.com/ducktrail/>

*The Town of Duck has a great example website for town trail information. The Duck Trail page presents safety information, route information, and other tips for residents and tourists to enjoy walking and bicycling on the trails in Duck. [www.townofduck.com/ducktrail/](http://www.townofduck.com/ducktrail/)*

**TOWN of DUCK**  
NORTH CAROLINA

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### Duck Trail

Like 16 | Tweet 1 | +1 0 | Share 1 | Email | Share

#### Duck Trail Usage and Safety

The Duck Trail is a seven-mile long, multi-use path that traverses the entire length of the Town. The trail is primarily located on the east side of Duck Road (ocean side), except for the portion that is within the Town's Village Commercial area. It provides a scenic and safe recreational venue for residents and visitors to enjoy. It also offers access points to the [Town Boardwalk](#).

Pedestrians, bicyclists, and in-line skaters share the Duck Trail. Motorized vehicles, mopeds, Segways, and the like are prohibited on the trail.

#### Please Observe The Following Safety Guidelines:

##### While Using The Trail:

- Use marked crosswalks.
- Pedestrians always have the right-of-way.
- Watch for cars entering and exiting from Duck Road (NC 12), side streets, and parking areas.
- Markers for each half mile are located on the trail.
- Pedestrians should slow down when being passed.
- Cyclists should always pass on the left and kindly alert those who are being passed.
- Clean up after your pet as a courtesy to trail users. Dogs must be on a leash.
- Follow all posted rules.

##### While Using The Trail In The Village:

The Village Commercial area is located between Four Seasons Lane and the Duck Post Office. In this area, the Duck Trail is located on both sides of the road and is not separated from traffic. For your safety:

- Pedestrians should walk against the direction of traffic.
- Bicyclists should ride with traffic.
- Be extra careful in this area when walking or bicycling with small children.

**CONTACT US**

**TOWN OF DUCK**  
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Mailing Address: PO Box 8369, Duck, NC 27949  
Phone: (252) 255-1234  
Events & Meeting Hotline: (252) 255-1286  
Fax: (252) 255-1236  
Email: [info@townofduck.com](mailto:info@townofduck.com)

**NEWS CATEGORIES**

Select Category

**EVENT NEWS**

- 07/13/2014 [Events This Week in Duck, July 13 to July 19, 2014](#)
- 07/07/2014 [Events This Week in Duck, July 6 to July 12, 2014](#)
- 07/04/2014 [Damage Assessment Teams Survey the Effects of Hurricane Arthur](#)
- 03/24/2014 [Duck Fire Invites You to "Wet Down" Ceremony March 31, 5:30 p.m.](#)
- 01/31/2014

[Dare County Student Art on Exhibit at Duck Town Hall](#)

**UPCOMING EVENTS**

**Yoga on the Green**  
Tue, Jul 15, 2014 from 7:30am - 8:15am @ Duck Town Green

**Children's Theater - The Mystery of The Lost Colony**  
Tue, Jul 15, 2014 at 10:00am @ Duck

## Bike Rodeo

A Bike Rodeo is an event where children can learn and practice bicycling skills in a controlled, supervised environment. Depending on the age of the children involved, a bike rodeo event can include educational components, such as teaching hand signals, proper helmet fitting, and even basic maintenance skills such as changing and inflating a tire. The highlight of any bike rodeo event is a skills course, where children ride through a designed obstacle course to practice turns, braking, and coasting. Some bike rodeo leaders hand out awards to positively reinforce good bicycling habits.

Bike Rodeo resources:

- National Center for Safe Routes to School: <http://www.saferoutesinfo.org/program-tools/organizers-guide-bicycle-rodeos>
- Safe Kids Worldwide: <http://www.safekids.org/sites/default/files/documents/Bike-Rodeo-Station-Guide.pdf>

***Purpose:** To celebrate bicycling, teach children and their parents traffic laws and safe riding skills, and improve bicycling confidence and awareness*

***Partners:** Town of Ocean Isle Beach Police Department, local bike shops, Bicycle and Pedestrian Advisory Committee, Brunswick County Health Department*



*Photos from the Holly Springs Bike Rodeo, Holly Springs, NC. Volunteers conducted helmet fittings, bicycle education, and a parking lot obstacle course to provide a safe place for children to practice safe riding skills.*





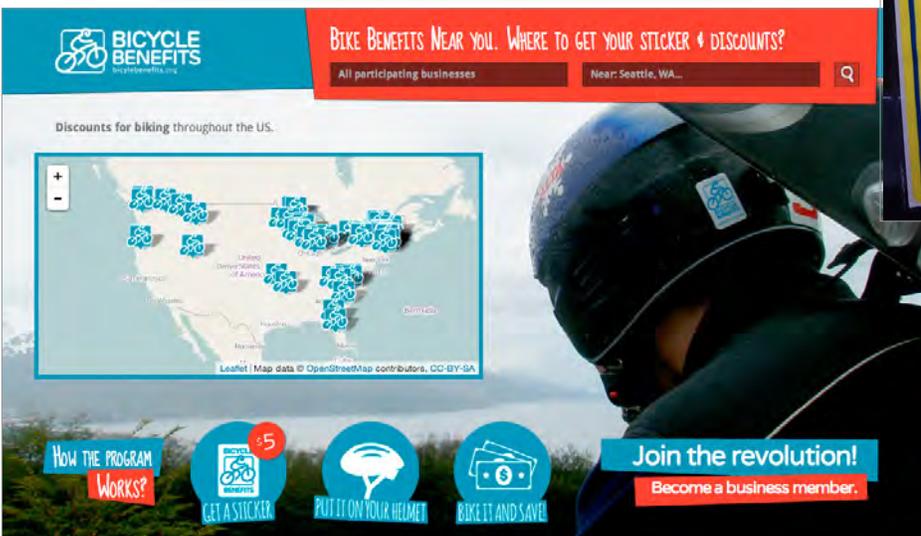
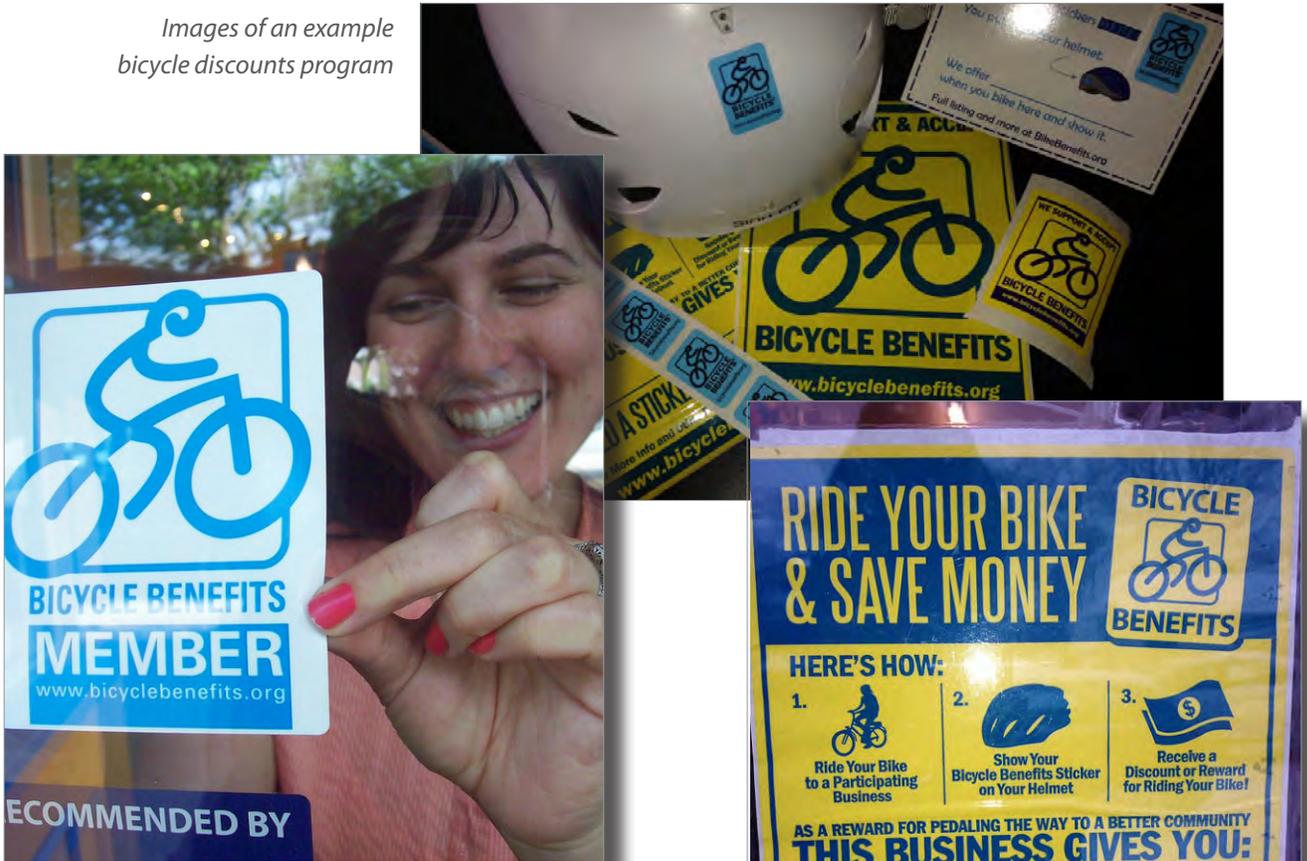
### Local Business Discounts for Bicyclists

*Purpose: To encourage and reward residents and visitors for making short local trips by bike and to promote a bicycle-friendly culture among businesses in Ocean Isle Beach.*

The Bicycle and Pedestrian Advisory Committee and the Town should encourage local businesses to offer discounts to patrons who bicycle to their business. The discount could be a daily or once-weekly promotion that encourages residents and visitors to visit local businesses by bike. This could be especially popular with businesses in areas that have limited motor vehicle parking and overly congested lots. In return for businesses' participation, the Town could develop a list of "Bicycle-Friendly Local Businesses" to feature, along with discount information, on its one-stop website for bicycle and pedestrian information.

*Partners: Local restaurants, shops, and other businesses; Town of Ocean Isle Beach staff; Bicycle and Pedestrian Advisory Committee*

Images of an example bicycle discounts program



Visit this website for details on how to start this program: <http://bb2.bicyclebenefits.org/>

### Public Bicycle Maintenance Stand

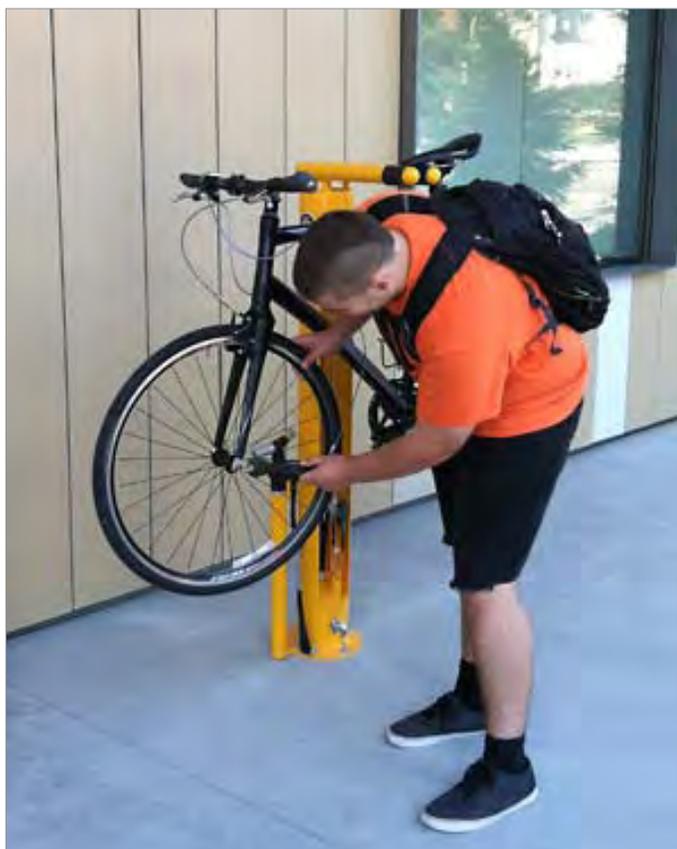
Public maintenance stands have become a popular amenity in bicycle friendly communities because they provide bicyclists with access to tools on-the-go and encourage people to teach and learn bicycle maintenance in an informal setting. They can also help to reduce the number of abandoned or trashed bikes in a community; bikes are often abandoned by their owners when they have a minor mechanical issue that they do not have the tools or knowledge to fix. Public maintenance stands encourage people to learn bicycling skills from one another and send a message to residents and visitors that bicycling is supported in the community. These fixtures can be placed in a park or in another public place and require little upkeep or oversight, since the tools and stand are designed to be self-contained and theft-resistant.

***Purpose:** To provide an easy to use bicycle stand and tool kit that encourages people, particularly youth, to learn bicycle maintenance and fix minor bicycle issues on-the-go, and to make bicycling a visible part of the community*

***Partners:** Local businesses, Town of Ocean Isle Beach*



*Public bicycle maintenance and tool stand examples.*





### Wayfinding Signage Program

*Purpose: To enhance resident and visitor orientation by directing pedestrians, bicyclists, and motorists to popular destinations around town.*

*Partners: Town of Ocean Isle Beach Public Utilities Department, Brunswick County Chamber of Commerce, Town of Ocean Isle Beach Visitor's Center*

Wayfinding signage, as part of a signage program that also includes warning and regulatory signage, enhances resident and visitor orientation. A clear wayfinding system should contribute to economic development by pointing visitors to key destinations around town. The Town of Ocean Isle Beach should develop a customized wayfinding program that includes directional signage to local destinations. Bicycle and pedestrian travel times to popular destinations could also be included on directional signage.

Materials for signage should reflect the character of Ocean Isle Beach and be selected for longevity and ease of maintenance. A wayfinding program could include directional signage, on-road markings, and kiosks with town maps. If funding is not immediately available to develop a complete wayfinding program, a good first step is temporary wayfinding signage that is colorful and informative. The Brunswick County Chamber of Commerce and the Ocean Isle Property Owners Association may be ideal partners based on the nexus with tourism and economic development.

Sample wayfinding signage programs:

- Oakland, CA: <http://www2.oaklandnet.com/oakca/groups/pwa/documents/report/oak025118.pdf>
- 2014 Croatan Regional Bicycle + Trails Plan; Signage Appendix (NCDOT)

*NCDOT and the Eastern Carolina Council recently completed the 2014 Croatan Regional Bicycle + Trails Plan. This plan included guidance for bicycle route and trail signage. Ocean Isle Beach could take a similar approach, using a local logo or symbol in conjunction with the required standards for signage on NCDOT roadways like Causeway Drive, 1st Street, and 2nd Street.*



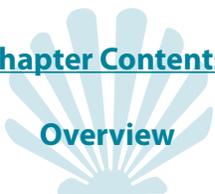




# 4 IMPLEMENTATION



## Chapter Contents:



**Overview**

**Organizational Framework for Implementation**

**Implementation Action Steps Table**

**Key Action Step Descriptions**

**Key Partners in Implementation**

**Performance Measures (Evaluation and Monitoring)**

**Facility Development Methods**

## OVERVIEW

This chapter defines a structure for managing the implementation of the Town of Ocean Isle Beach Bicycle and Pedestrian Plan. Implementing the recommendations within this plan will require leadership and dedication to bicycle and pedestrian facility development on the part of a variety of agencies. Equally critical, and perhaps more challenging, will be meeting the need for a recurring source of revenue. Even small amounts of local funding could be very useful and beneficial when matched with outside sources. Most importantly, the Town need not accomplish the recommendations of this plan by acting alone; success will be realized through collaboration with regional and state agencies, the private sector, and non-profit organizations. Funding resources that may be available to Ocean Isle Beach are presented in Appendix B of this plan.

Given the present day economic challenges faced by local governments (as well as their state, federal, and private sector partners), it is difficult to know what financial resources will be available at different time frames during the implementation of this plan. However, there are still important actions to take in advance of major investments, including key organizational steps, the initiation of education and safety programs, and the development of strategic, lower-cost sidewalks, on-road bicycle facilities, trails, and crossing facilities. Following through on these priorities will allow the key stakeholders to prepare for the development of larger bicycle and pedestrian projects over time, while taking advantage of strategic opportunities as they arise.



### ORGANIZATIONAL FRAMEWORK FOR IMPLEMENTATION

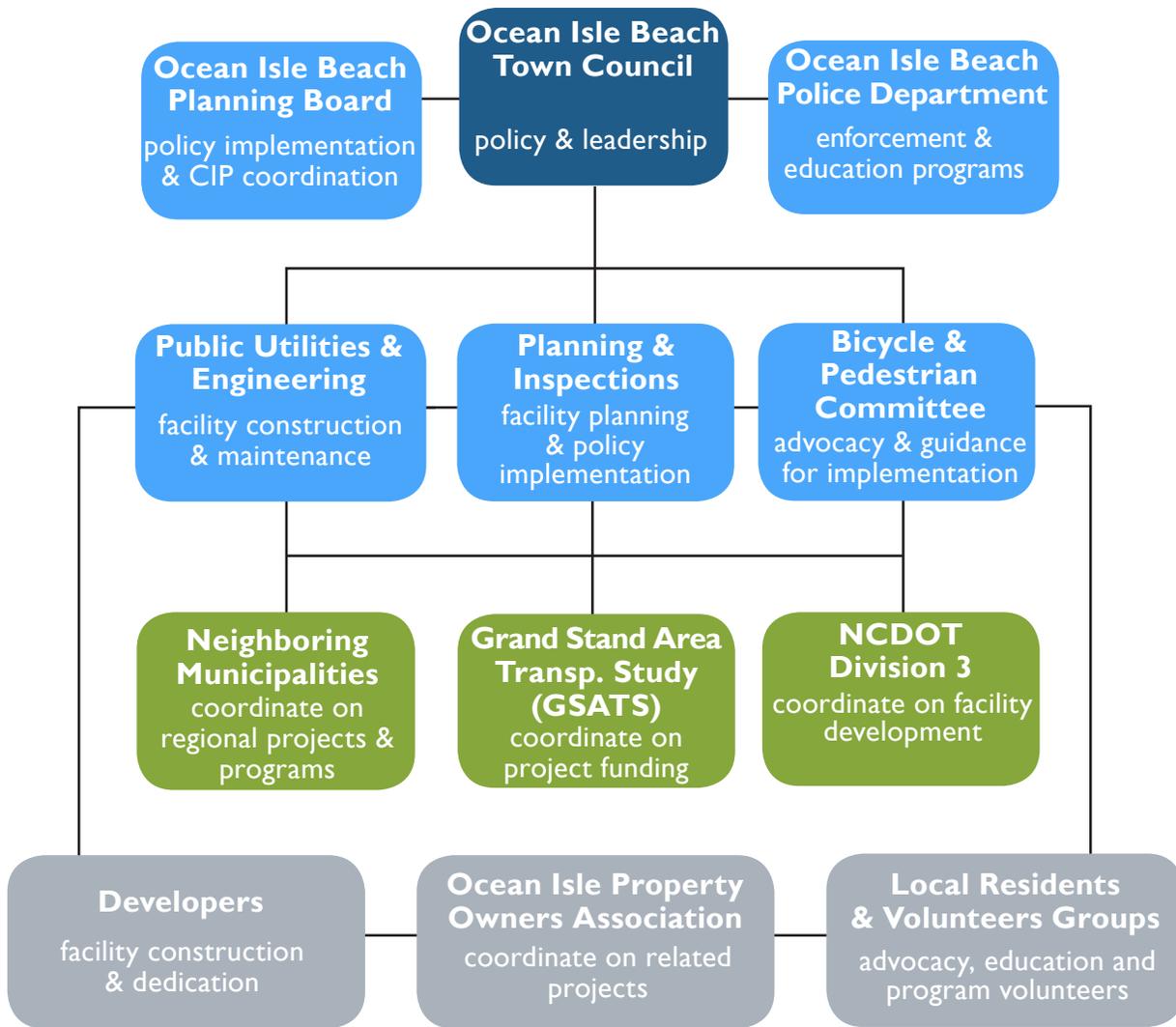




Table 4-1. Implementation Action Steps

TASK	LEAD AGENCY	SUPPORT	DETAILS	PHASE
Present Plan to Town Council	Project Consultants	Planning & Inspections	Presentation to Town Council in Fall 2014.	Short-term (2014)
Approve this plan	NCDOT Bike/Ped Division	Project Consultants	Official letter of approval in Fall 2014.	Short-term (2014)
Adopt this plan	Town Council	Planning & Inspections, Project Consultants	Through adoption, the Plan becomes an official planning document of the Town. Adoption shows that the Town of Ocean Isle Beach has undergone a successful, supported planning process.	Short-term (2014)
Designate Staff	Town Council	Planning & Inspections	Designate staff to oversee the implementation of this plan and the proper maintenance of the facilities that are developed.	Short-term (2014)
Form and confirm the goals of the Bicycle and Pedestrian Advisory Committee	Town Council	Bicycle and Pedestrian Advisory Committee, Planning & Inspections	Form the Bicycle and Pedestrian Advisory Committee and confirm the goals of the BPAC to include the implementation of this plan.	Short-term (2014)
Present this plan to other local and regional bodies and agencies.	Planning & Inspections	Bicycle and Pedestrian Advisory Committee, Public Utilities	This Plan should be presented to other local and regional bodies and agencies. Possible groups to receive a presentation might include: GSATS, regional transportation planners, Brunswick County planners, Brunswick County Health Department, local cycling/walking/running clubs and advocacy groups .	Short-term/Ongoing (Beginning 2015)
Begin Annual Meeting With Key Project Partners	Planning & Inspections	Public Utilities, NCDOT, BPAC, and local & regional stakeholders	Key project partners (see org. chart on page 4-2) should meet on an annual basis to evaluate the implementation of this Plan. Meetings could also occasionally include on-site tours of priority project corridors.	Short-term/Ongoing (Beginning 2015)
Ensure planning efforts are integrated regionally	Bicycle and Pedestrian Advisory Committee, Planning & Inspections	GSATS, Brunswick County, neighboring municipalities, NCDOT	Combining efforts with surrounding municipalities, regional entities, and stakeholders is mutually beneficial, especially with trail development. After adoption by the Town, this document should also be recognized in regional transportation plans, including future updates to the Brunswick County CTP.	Short-term/Ongoing (Beginning 2015)
Policy & Law Orientation	All Stakeholders	NCDOT Bike/Ped Division	Become familiar with State and Federal bicycle and pedestrian policies and laws: <a href="http://www.ncdot.gov/bikeped/lawspolicies/policies/">http://www.ncdot.gov/bikeped/lawspolicies/policies/</a>	Short-term (2015)
Consider reducing speed limits in some areas from 35 MPH to 25 or 30 MPH	Town Council	NCDOT, BPAC	Consider lowering the speed limit on First and Second streets and/or increasing enforcement and awareness. One strategy could be to use temporary signage that displays motorists' speeds as they pass.	Short-term/Ongoing (2015 onward)



TASK	LEAD AGENCY	SUPPORT	DETAILS	PHASE
Develop new policies & approaches for implementation	Planning & Inspections	Town Council	Establish land right-of-way acquisition mechanisms, coordinate development plans, & implement driveway access management. See pages 4-7 and 4-8 for details.	Short-term/Ongoing (2015 onward)
Design Orientation	Public Utilities and NCDOT Division 3	NCDOT Bike/Ped Division	Become familiar with the standards set forth in Appendix A of this Plan, as well as state and national standards for bicycle and pedestrian facility design.	Short-term/Ongoing (2015 onward)
Seek Multiple Funding Sources and Facility Development Options	Planning & Inspections	Town Council, BPAC, Public Utilities, GSATS	Chapter 3 contains project cost estimates and Appendix B contains potential funding opportunities.	Short-term/Ongoing (2015 onward)
Launch New Programs	Bicycle and Pedestrian Advisory Committee	Planning & Inspections, Public Utilities, Ocean Isle Beach Police Department, Brunswick County Health Department	These groups should coordinate to launch new bicycle and pedestrian programs, such as those described in Chapter 3, including a media campaign, hike & bike map, one-stop website, bike rodeo, local business discounts for bicyclists, wayfinding program, and a bicycle maintenance stand.	Short-term/Ongoing (2015 onward)
Maintain Bicycle and Pedestrian Facilities	Public Utilities, NCDOT Division 3	BPAC, General Public (for reporting maintenance needs), Planning & Inspections	Public Utilities and NCDOT should maintain existing sidewalks, crosswalks, and shoulders and address crosswalks that are missing	Short-term/Ongoing (2015 onward)
Notify Planning & Inspections of all upcoming roadway reconstruction or resurfacing/ restriping projects, no later than the design phase.	Public Utilities Director, NCDOT Division 3, GSATS	NCDOT Bike/Ped Division	Provide sufficient time for comments; Incorporate bicycle pedestrian recommendations from this Plan into future updates to the CTP and into future project design plans. If a compromise to the original recommendation is needed, then contact NCDOT Division of Pedestrian and Pedestrian Transportation for guidance on appropriate alternatives.	Short-term/Ongoing (2015 onward)
Design, develop and distribute bicycle and pedestrian safety information in rental check-in packages.	Planning & Inspections	Police Department, BPAC	Info should include safety tips for motorists, bicyclists and pedestrians, with a focus on trail use etiquette and caution at driveway crossings. Other methods of distribution could include web sites, social media, and 'on-the-ground' in trail kiosks.	Short-term/Ongoing (2015 onward)
Establish maintenance program for existing crosswalks	Public Utilities + NCDOT Division 3	Planning & Inspections, BPAC	Establish a program for the regular review and maintenance of existing crosswalks.	Short-term/Ongoing (2015 onward)



TASK	LEAD AGENCY	SUPPORT	DETAILS	PHASE
Install new crosswalks as recommended in Chapter 3	Public Utilities + NCDOT Division 3	Planning & Inspections, BPAC	Standard crosswalk markings should be installed along First Street, Second Street, and Causeway Drive at all unsignalized intersections (see page 3-3). High-Visibility crosswalks and crossing signage should also be added as indicated on Map 3.1 on page 3-9. Consider additional crossings improvements as-needed and coordinate with NCDOT Division 3.	Mid-term (2015-2017)
Install bike racks at destinations throughout town	Public Utilities, BPAC	Planning & Inspections, local businesses	Install bike racks at all beach accesses, parks, public buildings, businesses, and other important destinations in town. Track existing bike racks and include on the Town Hike and Bike Map when it is developed.	Mid-term (2015-2017)
Provide Enforcement and Education Training for Police Officers	Police Department	NCDOT Bike/Ped Division	Provide police officers with training through free online resources available from the National Highway Traffic Safety Administration, and through webinars available through the Association of Pedestrian and Bicycle Professionals. Provide police officers with an informational handout to be used during bicycle and pedestrian-related citations and warnings. Utilize available WatchForMeNC materials, and request that Ocean Isle Beach is included when WatchForMeNC is integrated statewide.	Mid-term (2015-2017)
Complete one of four sections of the First St trail project	Public Utilities + NCDOT Division 3	Planning & Inspections, GSATS, NCDOT Bike/Ped Division	Chapter 3 provides info on the First St trail project segments. Immediate attention to this project will have a large impact on the bicycle and pedestrian environment in Ocean Isle Beach. Aim to complete at least one segment by the end of 2017.	Mid-term (2015-2017)
Develop a long term funding strategy	Planning & Inspections	Town Council, BPAC, Public Utilities, GSATS	To allow continued development of the overall system, capital funds for bicycle and pedestrian facility construction should be set aside every year. Powell Bill funds should be programmed for facility construction. Funding for an ongoing maintenance program should also be included in the Town's operating budget.	Mid-term (2015-2017)



TASK	LEAD AGENCY	SUPPORT	DETAILS	PHASE
Communication & Outreach	BPAC, local bike shops, local advocacy groups	Planning & Inspections, GSATS	The BPAC should establish a communication campaign to celebrate successes as facilities are developed and otherwise raise awareness of the overall bicycle network and its benefits. A key first task of this group is to design and launch a one-stop website. Set up the one-stop website providing information to residents and tourists on bicycling in the region. To begin, the website can include the maps included in this plan.	Mid-term (2015-2017)
Explore options for public maintenance and use of boardwalks	Planning & Inspections	Town Council, Public Utilities	The Town should consider working with the Ocean Isle Property Owners Association to pursue a maintenance agreement on private boardwalks to open them to public use.	Mid-term (2015-2017)
Seek designation as a Walk-Friendly and Bicycle-Friendly Community	Planning & Inspections	Town Council, Public Utilities, BPAC, Recreation Advisory Board	The development and implementation of this plan is an essential first step toward becoming a designated Walk-Friendly or Bicycle-Friendly Community. With ongoing efforts and the short-term work program recommended here, the Town should be in a position to apply for and receive recognition within a few years.	Short- to Mid-term (2015-2020)
Develop Bicycle and Pedestrian Facility Specifications	Public Utilities	Planning & Inspections, NCDOT	Town staff could prepare these in-house to save resources using the design guidelines of this plan and the project cut-sheets as starting points. Specifically, the resources listed in Appendix A will be very useful in drafting such documents.	Mid-term (2017-2020)
Establish a Monitoring Program	Planning & Inspections, BPAC	Public Utilities, local advocates, general public	Planning & Inspections and the BPAC should brainstorm specific benchmarks to track through a monitoring program and honor the completion of projects with public events and media coverage.	Mid-term/Ongoing (2017-2020 onward)
Complete more sections of the First St trail project	Public Utilities + NCDOT Division 3	GSATS, NCDOT Bike/Ped Division	Chapter 3 provides info on the First St trail project segments. Continued attention to this project will have a large impact on the bicycle and pedestrian environment in Ocean Isle Beach. Town should coordinate with GSATS as projects are submitted for statewide prioritization. Aim to complete all four segments by the end of 2022.	Mid- to Long-term (2018-2022)
Identify next set of infrastructure priorities	Town Council & BPAC	Planning & Inspections, Public Utilities	Upon completion of the First St trail project, select the next set of priority improvements for walking and bicycling based on the overall network of recommendations presented in Chapter 3.	Mid- to Long-term (2018-2022)



## KEY ACTION STEP DESCRIPTIONS

### Policy Action Steps

Several policy steps are crucial to the success of future facility development. These steps will legitimize the recommendations found in this plan and enable the right-of-way acquisition necessary to carry out those recommendations.

### Adopt This Plan

Before any other action takes place, the Town of Ocean Isle Beach should adopt this plan. This should be considered the first step in implementation. Through adoption of this plan and its accompanying maps as the Town's official pedestrian and bicycle plan, Ocean Isle Beach will be better able to shape transportation and development decisions so that they fit with the goals of this plan. Most importantly, having an adopted plan is extremely helpful in securing funding from state, federal, and private agencies. Adopting this plan does not commit the Town of Ocean Isle Beach to dedicate or allocate funds, but rather indicates intent to implement this plan over time, starting with these action steps.

The Planning Board should review and recommend the plan to the Town Council, which in turn must consider and officially incorporate the recommended infrastructure improvements of this plan into its land-use plans. The following entities should adopt this plan:

- The Town of Ocean Isle Beach
- Grand Stand Area Transportation Study (GSATS)

Adoption of this plan also signifies that the design guidelines provided in Appendix A are established as pedestrian and bicycle facility standards for each of the adopting agencies. This will establish consistency in design across jurisdictional boundaries, ensuring that future facilities will be developed with consistency and will accommodate a variety of user types.

This plan and its recommended on- and off-road facilities should be approved by the NCDOT and NCDENR, and they should be included in the future planning of each agency. This plan's recommendations should be integrated into an update to the Comprehensive Transportation Plan for Brunswick County. NCDOT should refer to this document when assessing the impact for future projects and plans. Likewise, NCDENR's Division of Parks and Recreation should refer to this plan in any projects for future state parks near Ocean Isle Beach.

### Establish Land Right-of-Way Acquisition Mechanisms

It is recommended that each local zoning and subdivision ordinance be amended to ensure that, as developments are planned and reviewed, the pedestrian and bicycle facilities and greenway corridors identified in this plan are protected. This would entail amending development regulations to have developers set aside land for trails whenever a development proposal overlaps with the proposed routes, as adopted. Town of Ocean Isle Beach staff should ensure that an effective review of all bicycle and pedestrian elements of proposed developments takes place.



In addition, local policies should be revised to appropriately address the needs of bicyclists and pedestrians as outlined in this plan. For example, revising policy language to allow for public access for trail users, as a matter of right, on all new sewer and utility easements, or to mandate the installation of “bicycle-friendly” drainage grates on all roadways during future roadway projects would have a significant impact on the walking and bicycling environment in Ocean Isle Beach.

### Coordinate Development Plans

The Town of Ocean Isle Beach should ensure that adopted bicycle, pedestrian, and multi-use path recommendations from this plan are included in future residential and commercial developments that connect with such proposed facilities.

### Implement Driveway Access Management

The Town of Ocean Isle Beach should consider adding access management language to the town ordinances for both future development and retrofits to existing development, especially along commercial areas on Causeway Drive, 1st Street, and 2nd Street. The NCDOT’s policy on ‘Street and Driveway Access to North Carolina Highways’ provides examples on how to reduce conflict points between motor vehicles and pedestrians and bicyclists. For more information: [www.ncdot.org/doh/preconstruct/altern/value/manuals/pos.pdf](http://www.ncdot.org/doh/preconstruct/altern/value/manuals/pos.pdf)

### Program Action Steps

While policies provide a legal basis for on- and off-road facility development, the program recommendations included in Chapter 3 of this plan will build community support for the creation of new facilities and establish a strong bicycling and walking culture.

### Designate Staff

Designate staff to oversee the implementation of this plan and the proper maintenance of the facilities that are developed. It is recommended that a combination of existing planning staff and public works staff oversee the day-to-day implementation of this plan. In many municipalities, a full-time bicycle and pedestrian coordinator covers this task, but in smaller towns, such as Ocean Isle Beach, it makes more sense to fold these responsibilities into current staff responsibilities.

### Form a Bicycle and Pedestrian Advisory Committee

The Town of Ocean Isle Beach should form a bicycle and pedestrian advisory committee (BPAC) out of the plan’s steering committee to assist in the implementation of this plan. The BPAC should have representation from active pedestrians and commuting and recreational cyclists and should champion the recommendations of this plan. The formation of this group would be a significant step in becoming designated as a Walk- and Bicycle Friendly Community (see information on next page). The committee would provide a communications link between the citizens of the community and local government. They should also continue to meet periodically, and be tasked with assisting the Town of Ocean Isle Beach staff in community outreach, marketing, and educational activities recommended by this plan.



### Become Designated as a Walk-Friendly and Bicycle Friendly Community

A goal for Ocean Isle Beach should be to seek a “Bicycle Friendly Community” (BFC) designation from the League of American Bicyclists. The BFC campaign is an award program that recognizes municipalities that actively support bicycling activities and safety. A Bicycle Friendly Community provides safe accommodation for bicycling and encourages its residents to bicycle for transportation and recreation. Carrboro, Wilmington, and Davidson are examples of North Carolina communities that have become designated as Bicycle Friendly Communities.

Similarly, the Walk Friendly Community (WFC) Campaign is an awards program that recognizes municipalities that actively support pedestrian activity and safety. A Walk Friendly Community provides safe accommodation for walking and encourages its residents to walk for transportation and recreation. The program is maintained by the UNC Highway Safety Research Center’s Pedestrian and Bicycle Information Center, with support from a variety of national partners.

Becoming designated as a Bicycle- and Walk-Friendly Community signals to current residents, potential residents, and visitors that the town is a safe and welcoming place for individuals and families to live and recreate. The development and implementation of this plan is an essential first step toward becoming a Walk- and Bicycle Friendly Community. With ongoing efforts and the short-term work program recommended here, the Town should be in a position to apply for and receive BFC and WFC status within a few years.

### Communication and Outreach

The BPAC should lead the effort to establish a communication campaign to celebrate successes as facilities are developed and otherwise raise awareness of the overall pedestrian and bicycle network and its benefits. A key first task of this group is to design and launch a one-stop website.

Many current and potential pedestrians and bicyclists do not know where to turn to find out about traffic laws, events, maps, tips, and groups. Developing a “Walk and Bike Central” website provides information to a wide audience and encourages people to walk and bicycle. This would be especially useful in attracting visitors who are seeking out a vacation destination where walking and bicycling are safe and enjoyable. A one-stop website is not usually difficult to set up, but it will only be successful if the site is both easy to use and updated frequently. All website content should be reviewed regularly for accuracy. Walking groups, the bicycling community, and volunteer organizations interested in safety and health can assist in keeping the site up to date.

### Establish a Monitoring Program

From the beginning, and continuously through the life of a pedestrian or bicycle facility project, the BPAC should brainstorm specific benchmarks to track through a monitoring program and honor the completion of projects with public events and media coverage. Benchmarks should be revisited and revised periodically as the pedestrian and bicycle facility network evolves.



### **Begin Annual Meeting With Key Project Partners**

Coordination between key project partners will establish a system of checks and balances, provide a level of accountability, and ensure that recommendations are implemented. This meeting should be organized by the designated Town staff, and should include representatives from the Organizational Chart shown on page 4-2. The purpose of the meeting should be to ensure that this plan's recommendations are integrated with other transportation planning efforts in the region, as well as long-range and current land use planning, economic development planning, and environmental planning. Attendees should work together to identify and secure funding necessary to immediately begin the first year's work, and start working on a funding strategy that will allow the Town to incrementally complete each of the suggested physical improvements, policy changes and programs over a 5-10 year period. A brief progress benchmark report should be a product of these meetings, and participants should reconfirm the plan's goals each year. The meetings could also occasionally feature special training sessions on pedestrian, on-road bicycle, and trail issues.

### **Seek Multiple Funding Sources and Facility Development Options**

Multiple approaches should be taken to support bicycle and pedestrian facility development and programming. It is important to secure the funding necessary to undertake priority projects but also to develop a long-term funding strategy to allow continued development of the overall system. Dedicated local funding sources will be important for the implementation of this plan. Capital and local funds for pedestrian facilities and trail construction should be set aside every year, even if only for a small amount. Small amounts of local funding can be matched to outside funding sources or could be used to enhance NCDOT projects with pedestrian features that may otherwise not be budgeted for by the state. A variety of local, state, and federal options and sources exist and should be pursued. These funding options are described in Appendix B.

A priority action is to immediately evaluate the recommendations against transportation projects that are currently programmed in the Transportation Improvement Program (TIP) to see where projects overlap, compliment, or conflict with each other. The Town should also evaluate which of the proposed projects could be added to future TIP updates.

### **Develop Bicycle and Pedestrian Facility Designs and Specifications for Proposed Projects**

Town of Ocean Isle Beach staff could prepare these in-house to save resources, using the design guidelines of this plan and the project cut-sheets as starting points. The public should have an opportunity to comment on the design of new facilities.

### **Launch New Programs**

The program recommendations found in Chapter 3 provide a set of programmatic resources that will support the goals of the Town of Ocean Isle Beach Pedestrian and Bicycle Plan. The Town should reference the recommendations to develop new programs that promote walking and bicycling.



Through cooperation between the Town, the BPAC, and groups such as walking and bicycling clubs, strong education, encouragement, and enforcement campaigns could also occur as new facilities are built. When an improvement has been made, the roadway environment has changed and proper interaction between motorists, bicyclists, and pedestrians is critical for the safety of all users. A campaign through local television, on-site enforcement, education events, and other methods will bring attention to the new facility, and educate, encourage, and enforce proper use and behavior. Chapter 3 provides program ideas to choose from, some of which are included in the action steps table starting on page 4-3.

### **Provide Enforcement and Education Training for Police Officers**

Law enforcement officers have many important responsibilities, yet pedestrians and bicyclists remain the most vulnerable forms of traffic. The Ocean Isle Beach Police Department has been aware of this planning process, and should be involved in implementation. In many cases, citizens (and even sometimes officers) are not fully aware of state and local laws related to bicyclists and pedestrians. Training on this topic can lead to additional education and enforcement programs that promote safety. Training for Ocean Isle Beach's officers could be done through free online resources available from the National Highway Traffic Safety Administration (NHTSA) (see links at [www.bicyclinginfo.org/enforcement/training.cfm](http://www.bicyclinginfo.org/enforcement/training.cfm)), or through fee-based webinars available through the Association of Pedestrian and Bicycle Professionals (APBP).

### **Infrastructure Action Steps**

While establishing the policies and programs described, Ocean Isle Beach should move forward with the design and construction of priority projects. They should also work to identify funding for long-term, higher-cost projects.

### **Identify Funding**

Achieving the vision defined within this plan will require, among other things, a stable and recurring source of funding. Communities across the country that have successfully engaged in pedestrian and bicycle programs have relied on multiple funding sources to achieve their goals. No single source of funding will meet the recommendations identified in this Plan. Instead, stakeholders will need to work cooperatively with municipality, state, and federal partners to generate funds sufficient to implement the program.

A stable and recurring source of revenue is needed that can then be used to leverage grant dollars from state, federal, and private sources. The ability of local agencies to generate a source of funding for pedestrian and bicycle facilities depends on a variety of factors, such as taxing capacity, budgetary resources, voter preferences, and political will. It is very important that these local agencies explore the ability to establish a stable and recurring source of revenue for facilities.

Donations from individuals or companies are another potential source of funding. The BPAC should establish an "Adopt a Trail" program as a mechanism to collect these donations for the development of the trail and sidepath



recommendations discussed in Chapter 3. In addition to a formalized program, a website should be set up as an easy way for individuals to donate smaller amounts.

Federal and state grants should be pursued along with local funds to pay for necessary right-of-way acquisition and project design, construction, and maintenance expenses. “Shovel-ready” designed projects should be prepared in the event that future federal stimulus funds become available. Additional recommended funding sources may be found in Appendix B.

### Complete Short-Term Priority Projects

By quickly moving forward on priority projects, Ocean Isle Beach will demonstrate its commitment to carrying out this plan and will better sustain the enthusiasm generated during the public outreach stages of the planning process. Refer to Chapter 3: Network Recommendations for priority project ranking and the prioritization methodology.

## KEY PARTNERS IN IMPLEMENTATION

### Role of the Ocean Isle Beach Town Council

The Town Council will be responsible for adopting this plan. Through adoption, the Town’s leadership is further recognizing the value of bicycle and pedestrian transportation and is putting forth a well-thought out set of recommendations for improving public safety and overall quality of life (see the ‘Why This Plan is Important’ section in Chapter 1). By adopting this plan, the Town Council is also signifying that they are prepared to support the efforts of other key partners in the plan’s implementation, including the work of Town departments and NCDOT.

Adoption of this plan is in line with public support. Ocean Isle Beach’s online comment form for the planning process yielded over 450 responses and showed strong support for improving walking and bicycling conditions.

### Role of the Ocean Isle Beach Planning Board

The Town of Ocean Isle Beach Planning Board serves as an advisory board to the Town Council on matters of planning and zoning. The Planning Board should be prepared to:

- Become familiar with the recommendations of this plan, and support its implementation.
- Learn about pedestrian- and bicycle-related policies in North Carolina. (see: [www.ncdot.gov/bikeped/lawspolicies/policies/](http://www.ncdot.gov/bikeped/lawspolicies/policies/))

### Role of the Town of Ocean Isle Beach Public Utilities Department

The Public Utilities Department is responsible for the construction and maintenance of pedestrian and bicycle facilities on locally owned and maintained roadways, as well as on NCDOT roadways, where encroachment agreements are secured. Public Works staff of the Public Utilities Department should be prepared to:



- Communicate and coordinate with other town departments and the BPAC on priority bicycle and pedestrian projects.
- Become familiar with the standards set forth in Appendix A of this plan, as well as state and national standards for bicycle and pedestrian facility design.
- Secure encroachment agreements for work on NCDOT-owned and maintained roadways.
- Design, construct, and maintain pedestrian and bicycle facilities.
- Communicate and coordinate with Brunswick County, GSATS, and neighboring municipalities on regional facilities; partner for joint-funding opportunities.
- Communicate and coordinate with NCDOT Division 3 on this plan's recommendations for NCDOT-owned and maintained roadways. Provide comment and reminders about this plan's recommendations no later than the design phase.
- Work with NCDOT Division 3 to ensure that when NCDOT-owned and maintained roadways in Ocean Isle Beach are resurfaced or reconstructed, this plan's adopted recommendations for bicycle and pedestrian facilities are included on those streets. If a compromise to the original recommendation is needed, then contact NCDOT Division of Bicycle and Pedestrian Transportation for guidance on appropriate alternatives.

### Role of the Town of Ocean Isle Beach Planning & Inspections

Planning & Inspections' planning staff will take primary responsibility for the contact with new development to implement the plan (with support from the Public Utilities Department). The staff should be prepared to:

- Communicate and coordinate with local developers on adopted recommendations for bicycle and pedestrian facilities, including paved multi-use trails.
- Assist the Public Utilities Department in communicating with NCDOT and regional partners.
- Become experts on pedestrian-related policies in North Carolina. (see: [www.ncdot.gov/bikeped/lawspolicies/policies/](http://www.ncdot.gov/bikeped/lawspolicies/policies/))

### Role of the Bicycle and Pedestrian Advisory Committee

The Committee should be prepared to:

- Meet with staff from Planning & Inspections and the Public Utilities Department; evaluate progress of the plan's implementation and offer input regarding pedestrian, bicycle, and trail-related issues; assist Town of Ocean Isle Beach staff in applying for grants and organizing bicycle- and pedestrian-related events and educational activities.
- Build upon current levels of local support for pedestrian and bicycle issues and advocate for local project funding.



### Role of the Local NCDOT Division 3

Division 3 of the NCDOT is responsible for the construction and maintenance of pedestrian and bicycle facilities on NCDOT-owned and maintained roadways in the Town of Ocean Isle Beach, OR is expected to allow for the Town to do so with encroachment agreements. Division 3 should be prepared to:

- Recognize this plan as not only as an adopted plan of the Town of Ocean Isle Beach, but also as an approved plan of the NCDOT.
- Become familiar with the bicycle and pedestrian facility recommendations for NCDOT roadways in this plan (Chapter 3); take initiative in incorporating this plan's recommendations into the Division's schedule of improvements whenever possible.
- Become familiar with the standards set forth in Appendix A of this plan, as well as state and national standards for facility design; construct and maintain recommended facilities using the highest standards allowed by the State (including the use of innovative treatments on a trial basis).
- Notify the Town of Ocean Isle Beach Public Utilities Department of all upcoming roadway reconstruction or resurfacing/restriping projects in town, no later than the design phase. Provide sufficient time for comments from the planning staff.
- If needed, seek guidance and direction from the NCDOT Division of Bicycle and Pedestrian Transportation on issues related to this plan and its implementation.

### Role of the Town of Ocean Isle Beach Police Department

The Town of Ocean Isle Beach Police Department is responsible for providing the community the highest quality law enforcement service and protection to ensure the safety of the citizens and visitors. The Police Department should be prepared to:

- Become experts on pedestrian-related laws in North Carolina. (see: [www.ncdot.gov/bikeped/lawspolicies/laws/](http://www.ncdot.gov/bikeped/lawspolicies/laws/))
- Continue to enforce not only bicycle- and pedestrian-related laws, but also motorist laws that affect walking and bicycling, such as speeding, running red lights, aggressive driving, etc.
- Participate in bicycle- and pedestrian-related education programs.
- Review safety considerations with the Public Utilities Department as projects are implemented.

### Role of Developers

Developers in Ocean Isle Beach can play an important role in facility development whenever a project requires the enhancement of transportation facilities or the dedication and development of on-road bicycle facilities, sidewalks, trails or crossing facilities. Developers should be prepared to:

- Become familiar with the benefits, both financial and otherwise, of providing amenities for walking and biking (including trails) in residential and commercial developments.



- Become familiar with the standards set forth in Appendix A of this plan, as well as state and national standards for facility design.
- Be prepared to account for bicycle and pedestrian circulation and connectivity in future developments.

### Role of Local & Regional Stakeholders

Stakeholders for bicycle and pedestrian facility development and related programs, such as Brunswick County, GSATS, and local organizations play important roles in the implementation of this plan. Local and regional stakeholders should be prepared to:

- Become familiar with the recommendations of this plan, and communicate & coordinate with the Town for implementation, specifically in relation to funding opportunities, such as grant writing and developing local matches for facility construction.
- The MPO should work with the Town of Ocean Isle Beach on populating the Strategic Transportation Improvement (STI) list with pedestrian and bicycle infrastructure projects.
- Brunswick County should coordinate with the Town on trail development.
- Business owners and organizations should look for opportunities to partner on specific projects, such as streetscape improvements, or comprehensive signage and wayfinding projects.

### Role of Local Residents, Clubs and Advocacy Groups

Local residents, clubs, and advocacy groups play a critical role in the success of this plan. They should be prepared to:

- Continue offering input regarding pedestrian and bicycling issues in Ocean Isle Beach.
- Assist Town staff and the BPAC by volunteering for bicycle- and pedestrian-related events and educational activities and/or participate in such activities.
- Assist Town of Ocean Isle Beach staff and the BPAC by speaking at Town Council meetings and advocating for local pedestrian and bicycle project and program funding.

### Role of Volunteers

Services from volunteers, student labor, and seniors, or donations of material and equipment may be provided in-kind, to offset construction and maintenance costs. Formalized maintenance agreements, such as adopt-a-trail/greenway or adopt-a-highway can be used to provide a regulated service agreement with volunteers. Other efforts and projects can be coordinated as needed with senior class projects, scout projects, interested organizations, clubs or a neighborhood's community service to provide for many of the program ideas outlined in Chapter 3 of this plan. Advantages of utilizing volunteers include reduced or donated planning and construction costs, community pride and personal connections to the town's greenway, bicycle, and pedestrian networks.



## PERFORMANCE MEASURES (EVALUATION AND MONITORING)

The Town of Ocean Isle Beach should establish performance measures to benchmark progress towards fulfilling the recommendations of this plan. These performance measures should be stated in an official report within two years after the plan is adopted. Performance measures could address the following aspects of pedestrian and bicycle transportation and recreation in Ocean Isle Beach:

- *Safety.* Measures of pedestrian- and bicycle-related crashes and injuries.
- *Facilities.* Measures of how many pedestrian and bicycle facilities have been funded and constructed since the plan's adoption.
- *Maintenance.* Measures of existing sidewalk/crosswalk or bicycle facility deficiency or maintenance needs.
- *Counts.* Measures of pedestrian and/or bicycle traffic at specific locations.
- *Education, Encouragement and Enforcement.* Measures of the number of people who have participated in part of a pedestrian- or bicycle-related program since the plan's adoption.

## FACILITY DEVELOPMENT METHODS

This section describes different construction methods for the proposed pedestrian and bicycle facilities outlined in Chapter 3. Note that many types of transportation facility construction and maintenance projects can be used to create new bicycle and pedestrian facilities. It is much more cost-effective to provide bicycle and pedestrian facilities during roadway construction and re-construction projects than to initiate the improvements later as "retrofit" projects.

To take advantage of upcoming opportunities and to incorporate bicycle and pedestrian facilities into routine transportation and utility projects, the Town of Ocean Isle Beach should keep track of NCDOT's projects and any other local transportation improvements. While doing this, town staff should be aware of the different procedures for state and local roads and interstates.

### NCDOT State Transportation Improvement Program

The NCDOT's State Transportation Improvement Program is based on the Strategic Transportation Investments Bill, signed into law in 2013. The Strategic Transportation Investments (STI) Initiative introduces the Strategic Mobility Formula, a new way to fund and prioritize transportation projects.

The new Strategic Transportation Investments Initiative is scheduled to be fully implemented by July 1, 2015. Projects scheduled for construction before then will proceed as scheduled under the current Equity Formula. Projects slated for construction after that time will be ranked and programmed according to the new formula. The new Strategic mobility formula assigns projects for all modes into one of three categories: 1) Statewide Mobility, 2) Regional Impact, and 3) Division Needs. All independent bicycle and pedestrian projects are placed in the "Division Needs" category, and are ranked using the following criteria:

- Safety
- Access



- Demand or density
- Constructability
- Benefit/cost ratio

These rankings largely determine which projects will be included in NCDOT's State Transportation Improvement Program (STIP). The STIP is a federally mandated transportation planning document that details transportation planning improvements prioritized by the stakeholders for inclusion in NCDOT's Work Program over the next 10 years. The STIP is updated every 2 years. The STIP contains funding information for various transportation divisions of NCDOT, including, highways, rail, bicycle and pedestrian, public transportation and aviation.

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For more information on STIP:

[www.ncdot.gov/strategictransportationinvestments/](http://www.ncdot.gov/strategictransportationinvestments/)

To access the STIP: <https://connect.ncdot.gov/projects/planning/Pages/ResourcesMPO-RPO.aspx>

For more about the STIP process: <http://www.ncdot.org/performance/reform/>

### Local Roadway Construction or Reconstruction

Pedestrians and bicyclists should be accommodated any time a new road is constructed or an existing road is reconstructed. In the longer-term, all new roads with moderate to heavy motor vehicle traffic should have sidewalks, bicycle facilities, and safe intersections. However, side paths can be an acceptable solution when a road has few driveways and high-speed, high-volume traffic.

Also, case law surrounding the ADA has found that roadway resurfacing constitutes an alteration, which requires the addition of curb ramps at intersections where they do not yet exist. The Department of Justice and the Federal Highway Administration recently released guidance on the Title II of the Americans with Disabilities Act requirement to provide curb ramps when streets, roads, or highways are altered through resurfacing. More information is available on the following website:

<http://www.ada.gov/doj-fhwa-ta.htm>.

### Residential and Commercial Development

The construction of sidewalks, bicycle facilities, trails, and safe crosswalks should be required during development. Construction of facilities that corresponds with site construction is more cost-effective than retrofitting. In commercial development, emphasis should also be focused on safe pedestrian and bicyclist



access into, within, and through large parking lots. This ensures the future growth of the pedestrian and bicycle networks and the development of safe communities.

### Removing Parking

Some neighborhood collector roadways are wide enough to add pedestrian and bicycle facilities, but they are used by residents for on-street parking, especially in the evening. In locations like this, removing parking is likely to create considerable controversy and is not recommended unless there is no other solution or the parking is rarely used. In the rare case that removing parking is being considered, the parking should not be removed unless there is a great deal of public support for the facilities on that particular roadway and a full public involvement process with adjacent residents and businesses is undertaken prior to removing parking.

If it is not practical to add a bike lane, edgelines and shared lane markings may be considered. On roads where the outside lane and parking area combined are more than 17 feet wide, 10 foot wide travel lanes can be striped with an edgeline, leaving the rest of the space on either side for parking. The stripe would help slow motor vehicles and provide extra comfort for bicyclists, especially during the daytime when fewer cars would be parked along the curb. On roads with outside lane and parking areas that are narrower than 17 feet wide, shared lane markings can be provided every 250 feet on the right side of the motor vehicle travel lane to increase the visibility of the bike route.

### Repaving

Repaving projects provide a clean slate for revising pavement markings. When a road is repaved, the roadway should be restriped to create narrower lanes and provide space for bike lanes and shoulders, where feasible.

In addition, if the spaces on the sides of non-curb and gutter streets have relatively level grades and few obstructions, the total pavement width can be widened to include paved shoulders.

### Installing Shared Lane Markings

The Town of Ocean Isle Beach should adopt the use of shared lane markings, or “sharrows,” as one of its bicycle facility types. Shared lane markings have been newly incorporated into the Manual on Uniform Traffic Control Devices (MUTCD). They take the place of traditional bicycle lanes where travel lanes cannot be narrowed, where speeds do not exceed 35 mph, and/or where there is on-street parking. The intent of the shared lane marking is threefold:

- They draw attention to the fact that the roadway is accommodating bicycle use and traffic;
- They clearly define the direction of travel for both bicyclists and motorists; and
- With proper placement, they remind bicyclists to bike further from parked cars to prevent “dooring” collisions.

While shared-lane markings are not typically recommended or needed on local, residential streets, they are sometimes used along such streets when part of a signed route or bicycle boulevard. It should be noted that sharrows are not a replacement for bicycle lanes in their effectiveness or use.



## Retrofit Roadways with New Bicycle and Pedestrian Facilities

There may be critical locations in the pedestrian and bicycle network that have safety issues or are essential links to destinations. In these locations, it may be justifiable to add new pedestrian and bicycle facilities before scheduling a roadway to be repaved or reconstructed. In some other locations, it may be relatively easy to add sidewalk or to add extra pavement for shoulders, but other segments may require removing trees, relocating landscaping or fences, or re-grading ditches. Retrofitting roadways with side paths creates similar challenges.

## Bridge Construction or Replacement

Provisions should always be made to include a walking and bicycling facility as a part of vehicular bridges. All new or replacement bridges should accommodate two-way travel for all users. Even though bridge construction and replacement does not occur regularly, it is important to consider these policies for long-term bicycle and pedestrian planning. NCDOT bridge policy states that sidewalks shall be included on new NCDOT road bridges with curb and gutter approach roadways. A determination of providing sidewalks on one or both sides is made during the planning process. Facility design standards such as widths of facilities and heights of handrails are presented in Appendix A: Design Guidelines.

## Signage and Wayfinding Projects

A relatively low-cost, short-term action that the Town of Ocean Isle Beach can pursue immediately is to develop and adopt a wayfinding signage style policy and procedure, to be applied throughout the entire community, to make it easier for people to find destinations. Bicycle route signs are one example of these wayfinding signs, and should be installed along routes independently of other signage projects or as a part of a more comprehensive wayfinding improvement project. Posting signage that includes bicycle and walk travel times to major destinations can help to increase awareness of the ease and efficiency of bicycle and pedestrian travel. See Appendix A: Design Guidelines for more detailed guidance on signage and wayfinding improvements.

For a step-by-step guide to help non-professionals participate in the process of developing and designing a signage system, as well as information on the range of signage types, visit the Project for Public Places website: [www.pps.org/reference/signage\\_guide](http://www.pps.org/reference/signage_guide)

## Town Easements

The Town of Ocean Isle Beach should explore opportunities to revise existing easements to accommodate public access greenway trail facilities. Similarly, as new easements are acquired in the future, the possibility of public access should be considered. Sewer easements are very commonly used for this purpose, offering cleared and graded corridors that easily accommodate trails. This approach avoids the difficulties associated with acquiring land, and it better utilizes the Town's resources.

